

# Bullock Creek School District

## PROJECT MANUAL

Bullock Creek School District



2024 Bond Series 1  
2025 Improvements

November 5, 2024

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**ARCHITECTS/ENGINEERS**

THA Architects/Engineers  
817 Kearsley  
Flint, MI 48503  
Telephone: 810-767-5600  
Fax: 810-767-1650



817 E. Kearsley St. | Flint, MI 48503  
Ph: 810-767-5600 | THA-Flint.com

**CONSTRUCTION MANAGER**

Wolgast Corporation  
4835 Towne Centre Road, Suite 203  
Saginaw, Michigan 48604  
Telephone: (989) 790-9120  
Fax: (989) 790-9063



**Bidding Requirements, Contract Forms, and Conditions of the Contract**

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**END OF SECTION 00005**

**Bullock Creek School District** will receive sealed bid proposals for construction trade work from qualified contractors for the **Bullock Creek School District, 2024 Bond Series 1 - 2025 Improvements**. A pre-bid meeting and project walk-through will be conducted by the Construction Manager, Wolgast Corporation, and the Architect, **THA Architects/Engineers**, on **Tuesday, November 12, 2024**, at **3:00 PM** (local time) at **HS Cafeteria**.

Proposals may be mailed or delivered in person to **Shawn Hale, Superintendent**, c/o **Bullock Creek School District 1420 S Badour Road, Midland, MI 48640**. Proposals must be received prior to **3:00 PM** (local time) on **Tuesday, December 3, 2024**, at the **Bullock Creek School District Administration Building**. Proposals will be publicly/Virtually opened and read aloud at **3:01 PM** in the **High School Cafeteria**. **Electronic Sealed bids must be submitted using Building Connected see below link.** <https://app.buildingconnected.com/login?retUrl=%2F> All bids will be evaluated after the bid opening. All bids received after **3:00 PM** of the bid date will be returned to the Bidder unopened. If you would like to listen in while the bids are being opened, please use this link <https://8x8.vc/wolgast/lisa.donahue>

The Project will utilize separate prime contractors. All contracts for construction will be direct contracts with the Owner. Overall administration of the Project will be the responsibility of the Construction Management Firm, Wolgast Corporation, 4835 Towne Centre, Suite 203, Saginaw, Michigan 48604, Phone: (989) 790-9120, Fax: (989) 790-9063. The Owner will award contracts on or about **Monday, December 16, 2024**, to separate prime contractors for separate bid divisions or combinations of bid divisions. A Bidder may submit a proposal on more than one Bid Division; however, a separate bid must be submitted for each Bid Division of a combined bid. All bids shall be submitted on the bid forms provided in the project specifications, completely filled in, and executed (copies of the bid forms are acceptable). Facsimile bids will not be accepted.

The Bidders shall read and review the Bidding Documents carefully and familiarize themselves thoroughly with all requirements.

Requests by Contractors for inclusion, as Bidders shall be addressed to Wolgast Corporation. One (1) set of Bidding Documents will be provided to each contractor, No Cost for electronic documents through Wolgast Corporation. Plans may be obtained from Wolgast Corporation, attention **Lisa Donahue** [ldonahue@wolgast.com](mailto:ldonahue@wolgast.com) . All questions regarding the bidding procedures, design, and drawing/specification intent are to be directed to the Construction Manager on a Clarification Request Form (Section 00310), attention **Dale Schwerin** [dschwerin@wolgast.com](mailto:dschwerin@wolgast.com) .

A Bid Security by a qualified surety authorized to do business in the state where the Project is located, in the amount of five percent (5%) of Base Bids shall accompany each proposal or proposal combination. The Bid Security may be in the form of a Bid Bond, Cashier's Check, or Money Order. Personal checks are NOT acceptable. Bids may not be withdrawn for a period of sixty (60) days after the bid date. Successful Bidders may be required to furnish Surety Bonds as stated in the Project Specifications (Section 00600).

The Owner reserves the right to reject any or all proposals, accept a bid other than the low bid, and to waive informalities, irregularities, and/or errors in the bid proposals, which they feel to be in their own best interest.

All bidders must provide familial disclosure in compliance with MCL 380.1267 and attach this information to the bid. The bid shall be accompanied by a sworn and notarized statement disclosing any familial relationship that exists between the Owner or the employee of the bidder and any member of the board, intermediate school board, or board of directors or the superintendent of the school district, intermediate superintendent of the intermediate school district, or chief executive officer of the public-school academy. The district shall not accept a bid that does not include this sworn and notarized disclosure statement.

**END OF SECTION 00010**

**PART 1 – GENERAL**

**1.01 DEFINITIONS**

- A. The Owner is: **Bullock Creek School District.**
- B. The Architect is: **THA Architects/Engineers.**
- C. The Construction Manager is: **Wolgast Corporation.**
- D. The Project Team consists of the Construction Manager, the Architect, and other design professionals providing services in connection with the project.
- E. The Project is: **Bullock Creek School District, 2024 Bond Series 1 - 2025 Improvements**
- F. Work is any portion of the Project.
- G. The Bidding Documents include (as applicable to the Project):
  - 1. The Notice to Bidders.
  - 2. The Instructions to Bidders.
  - 3. Bid Division Descriptions.
  - 4. Proposal Forms.
  - 5. Sample Contract Forms.
  - 6. The Specifications for the Project.
  - 7. The Drawings for the Project.
  - 8. All Addenda issued for the Project.
  - 9. The Preliminary Milestone Schedule.
- H. Addenda are written and/or graphic instruments issued by the Architect, which add to, delete from, clarify, or correct the Bidding Documents.
- I. Bids are sums stipulated in Proposals for which Bidders propose to perform the Work of Bid Divisions.
- J. Base Bids are sums stipulated in Proposals for which Bidders offer to perform the Work of Bid Divisions, and which Alternate Bids may be added to or deleted from.
- K. Alternate Bids are sums that may be added to or deleted from Base Bids for the performance of Alternate Work, as delineated in the Bidding Documents.
- L. Unit Prices are sums included in the Proposals as Bids per unit measure of materials and/or services, as required by the Bidding Documents.
- M. Proposals are complete, properly executed forms including Base Bids, Alternate Bids, Unit Prices, and other information requested by the Owner.
- N. Bidders are pre-qualified contractors who submit proposals to the Owner for Work as Prime Contractors on the Project.
- O. Bid Divisions are the divisions of Work into which the Project is divided for bidding. Bid Divisions shall not be confused with Technical Specification Divisions.
- P. Bid Division Descriptions (Section 00309) are written descriptions of the Work included in the Bid Divisions.

**1.02 MULTIPLE PRIME CONTRACTS/BID DIVISIONS**

- A. This is an Owner Represented Project. There is no General Contractor. All contracts awarded on the Project shall be prime contracts. The Owner will award contracts for each Bid Division and/or for groups of Bid Divisions. The Construction Manager will administrate the Project.
- B. Although each Bid Division involves an obvious and recognizable segment of “conventional” trade contracting, multiple contract project delivery requires that adjustments be made to permit the completion of each Bid Division as a separate segment of construction. Each bidder shall carefully review the total scope of their responsibilities with respect to the Work of their Bid Division(s) and shall provide for the total scope in their Proposal.
- C. Bid Division Descriptions (Section 00309) have been written to clearly delineate each Bid Division. The Owner is not responsible for a Bidder’s interpretation of the Bid Division Descriptions. Bidders are encouraged to request information by calling or emailing the Project Manager:

**Dale Schwerin**, Project Manager, Wolgast Corporation, (989) 790-9120, extension **704** or [dschwerin@wolgast.com](mailto:dschwerin@wolgast.com) .

- D. For the purpose of clarity, the scope of work for each Bid Division may be divided into four categories: “GENERAL INCLUSIONS,” “DIVISION INCLUSIONS,” “PROJECT INCLUSIONS,” AND “EXCLUDED.”
1. Information provided under the heading “GENERAL INCLUSIONS” is the obvious and/or “conventional” work scope of each Bid Division.
  2. Information provided under “DIVISION INCLUSIONS” or “PROJECT INCLUSIONS” points out items which may be considered less obvious or “unconventional,” but which are included in the work scope of a particular Bid Division. (Information under these headings is not always necessary to delineate a Bid Division.)
  3. Information provided under “EXCLUDED” is for the purpose of indicating beginning and termination points, and/or to provide an understanding of fringe involvement included in Bid Divisions. (Information under this heading is not always necessary to delineate a Bid Division.)
- E. **Bidders shall construe nothing contained in the Bidding Documents, including the Bid Division Descriptions, as an assignment of work to any construction industry trade. Each Bidder is responsible for their own work assignments when making their proposal.**

**1.03 INTERFACING BID DIVISIONS**

- A. Each Bidder shall familiarize themselves with the work scope of all Bid Divisions that interface with their own. Each Bidder shall consider that the work of their Bid Division(s) may follow the work of another Division or other Divisions, and that other Contractors may perform work after the work of their Bid Division(s), and that other Contractors may work simultaneously with the work of their own Bid Division(s). Each Bidder shall include provisions for such interfaces and for cooperation with interfacing Contractors in their Proposal.

**1.04 PRE-BID CONFERENCE**

- A. **Bullock Creek High School Cafeteria**  
**1420 S Badour Road**  
**Midland, MI 48640**  
**Tuesday, November 12, 2024 at 3:00 PM**

**1.05 BIDDING DOCUMENTS**

- A. Qualified Bidders have received sets of Bidding Documents. Requests from Bidders for additional sets of Bidding Documents will be honored under the conditions set forth in the Notice to Bidders (Section 00010).
- B. Following the award of construction contracts for the Project, all sets of Bidding Documents, plans, and specifications, except sets in possession of Contractors who have been awarded contracts, shall be returned to the Project Team.
- C. Bidders who return sets of Bidding Documents, plans, and specifications, in reasonably good condition shall have their plan deposit returned within ten (10) days of the Project Team's receipt of the documents.
- D. Bidders shall use complete sets of Bidding Documents in preparing Proposals. Bidders are responsible for ascertaining that the Bidding Documents upon which their Proposals are based are complete.
- E. Bidding Documents are provided to Bidders for uses pertaining to bidding only. No other use is permitted.
- F. Bidders shall promptly notify the Project Team of any ambiguities, inconsistencies, errors, and/or omissions they may discover in the Bidding Documents.
- G. Requests from Bidders for clarification or interpretation of the Bidding Documents must reach the Project Team five days before the bid date or by the date addressed in the pre-bid agenda. Any bidder clarifications which reach the Project Team after such dates have passed will not be considered.
- H. Changes and corrections to the Bidding Documents will be made by Addendum and distributed to Bidders.
- I. Each Bidder shall ascertain prior to submitting their Proposal that they have considered every Addendum issued prior to the Bid Date and shall acknowledge receipt of each Addendum in writing in their Proposal.

**1.06 PRELIMINARY MILESTONE SCHEDULE**

- A. The Preliminary Milestone Schedule is Section 00999 of this Project Manual.
- B. A Preliminary Milestone Schedule has been developed by the Construction Manager and supplied to the Bidders. Each Bidder is required to review the dates indicated in that Schedule, and either endorse or amend them within the context of the Bid Division(s) they are bidding. Space is provided on the Proposal Form for endorsement or amendment. The Milestone Schedule and the information it provides are not part of the Contract Documents.
- C. The milestone dates as endorsed and/or amended by successful bidders and accepted by the Owner will be used in the development of a Master Schedule to be used as a guide during the construction of the Project.
- D. Each Bidder is obligated to comment, in writing, on the Milestone Schedule if, in their opinion, the dates do not depict realistic time interval(s) for performance of the Work of their Bid Division(s)
- E. The effect of endorsements of and amendments to the Milestone Schedule will be considered when selecting Bidders for contract awards.

**1.07 BID SECURITY**

- A. Bid Security is required for this Project in the amount of five percent (5%). A surety company licensed, as such, to do business in the State of Michigan, must issue a Bid Bond, and all other Bonds. For additional information and instructions regarding Bid Security, refer to Section 00410.

**1.07.1 AFFIDAVITS ACCOMPANYING BID PROPOSALS**

- A. All Bid Proposals shall include the Familial Affidavit form (see Section 00306 – Familial Affidavit) to be included as part of the Bid Proposal.
- B. All Bid Proposals shall include the State of Michigan required Iran Economic Sanctions Affidavit form (see Section – 00307 – Iran Economic Sanctions) to be included as part of the Bid Proposal.

**1.08 SUBSTITUTIONS**

- A. The materials, products, and equipment described in the Bidding Documents establish the quality standard, required function, dimensions, and appearance, which shall be met by all substitutions.
- B. Contractors may request items not included in the construction bid documents be considered for inclusion as acceptably specified items by submitting a written request to the Project Team addressed to the Construction Manager not later than ten (10) days prior to the bid date. The Construction Manager will forward these written requests to the Architect who will make the determination whether the requested item is an acceptable “equal”. These acceptable “equal” items will be identified as acceptable by their inclusion in a written Addendum.
- C. Each substitution request will include a complete description of the proposed substitute, drawings, cuts, performance and test data, the name of the material or equipment for which it is to be substituted, and any other information necessary for evaluation. A statement setting forth any changes in other materials, equipment, or work that incorporation of the substitute would require should also be included. The burden of proof of the merit of the proposed substitute is upon the Bidder. The Architect’s approval or disapproval of a proposed substitution shall be final.
- D. The bidder’s Base Bid contained in the Bid Proposal Form shall be the exact items contained in the construction bid documents (plans, specifications, or addenda). The Base Bid contained in the Bid Proposal Form shall not include any substitute items not allowed in the construction bid documents.
- E. Bidders that have other substitutions to be considered for inclusion in the Project must identify them as Voluntary Alternates in the portion of the Bid Proposal Form so designated. The identity of these items must include the all-product information and the dollar amount of increase or decrease associated with each individual substitute item.
- F. By making requests for any substitution, the Contractor represents:
  - 1. The Contractor has personally investigated the proposed substitution product and determined that it is equal to or superior to the product specified.
  - 2. The Contractor will provide the warranty for the substitution as the product specified.
  - 3. The cost data presented is complete and includes all related costs required for it to be incorporated into the Project including costs for additional Architectural and/or Construction Management services.
- G. The Architect will reply in writing to the Contractor, through the Construction Manager, stating whether the Owner or Architect, after due investigation, has reasonable objection to any substitution request. The decision of the Architect shall be final.

**1.09 VOLUNTARY ALTERNATES/VALUE ENGINEERING SUGGESTIONS**

- A. Base Bids and Alternate Bids shall be based upon the Bidding Documents, including approved substitutions, and on the Bidders’ evaluation of the Project Site. However, the Owner invites Voluntary Alternates or Value Engineering suggestions consistent with the intent of the Bidding Documents. Such Alternates and suggestions, if submitted, shall be incorporated into Proposals by describing Voluntary Alternate(s) on company letterhead and attached to the Bid Proposal Form.

**1.10 BID OPENING AND CONTRACT AWARDS**

- A. Bids will be opened publicly after the time and date established for receipt of Proposals. Bid Summaries will be made available to Bidders by request after the Bid Date, but not before Post Bid Interviews have been conducted.
- B. Contract awards will be based on Bidders' Proposals and ability to perform. The Owner intends to award contracts to Bidders who submit proper Proposals in accordance with the requirements of the Bidding Documents.
- C. Decisions regarding Bidders abilities affecting contract awards will be made by the Owner.
- D. The Owner reserves the right to waive any informality or irregularity in any Proposal.
- E. The Owner reserves the right to reject any Proposal.
- F. All awards will be made in the Owner's best interest.

**1.11 POST-BID INTERVIEWS**

- A. Bidders in contention for contract awards will be required to attend Post-Bid Interviews and submit post-bid submittals in rough draft for review.

**1.12 POST-BID SUBMITTALS**

- A. Bidders who have been notified of the Owner's intent to award a contract shall submit the following items to the Construction Manager:
  - 1. A Schedule of Values utilizing the level of detail requested by the Owner (reference Section 00670).
  - 2. A list of all subcontractors and suppliers to be used, and all items of material and equipment to be incorporated into the Project (reference Section 00680).
  - 3. The name(s) of the on-site supervisor(s) whom the Bidder proposes to employ to accomplish the Work (reference Section 00690).
  - 4. Sample copies of the construction contracts are included in Sections 00510.

**1.13 OWNER'S RIGHT TO APPROVE SUPPLIERS, SUBCONTRACTORS, MATERIALS, EQUIPMENT, AND EMPLOYEES**

- A. Bidders will be required to establish, to the satisfaction of the Owner, the reliability and responsibility of proposed employees, suppliers and subcontractors, and the suitability of proposed materials and equipment.
- B. Prior to the award of a contract, the Construction Manager will notify the Bidder if the Owner has reasonable and substantial objection to any person, organization, material, or equipment listed by the Bidder. If the Owner has a reasonable and substantial objection, the Bidder shall amend their Proposal by providing an acceptable substitute. The Owner may, at their discretion, accept such a substitute, or they may disqualify the Proposal.
- C. Suppliers, subcontractors, employees, materials, and equipment proposed by the Bidder and accepted by the Owner shall be used on the Work for which they are proposed and accepted and shall not be changed except with the written approval of the Owner.

**1.14 BONDS**

- A. Refer to Section 00600 for information and instructions regarding the bond requirements of this Project.



**1.15 INSURANCE**

**1.16**

- A. Refer to Sections 00650, and 00700 for information and instructions regarding insurance requirements for this Project.

**PART 2 – FORMS FOR BIDDING**

**2.0 PROPOSAL FORMS**

- A. Bidders are required to use the forms provided by the Owner for bidding purposes.
- B. Sample form(s) and instructions are in Section 00305 of this project manual.

**PART 3 – PROCEDURES AND CONDITIONS FOR BIDDING**

**3.01 COMPLETION OF PROPOSAL FORMS**

- A. Refer to Section 00300 for detailed information and instructions regarding completion of Proposal Forms.

**3.02 SUBMISSION OF PROPOSALS**

- A. Proposals shall be submitted to:

**Bullock Creek School District  
Shawn Hale, Superintendent  
1420 S Badour Road  
Midland, MI 48640**

**Electronic Sealed bids must be submitted using Building Connected see below link.**

<https://app.buildingconnected.com/login?retUrl=%2F>

(Refer to Section 00010 – Notice to Bidders for additional information and instructions regarding the location for submittal of Proposals.)

If you want to listen in while the bids are being opened, please use this link <https://8x8.vc/wolgast/lisa.donahue>

- B. Proposals shall be submitted by **3:00 PM on Tuesday, December 3, 2024**.  
(Refer to Section 00010 – Notice to Bidders for additional information and instructions regarding the date and time of submittal of Proposals.)
- C. **Bidders shall bear full responsibility for delivering Proposals to the required location by the time and date established.**

**3.03 MODIFICATION OR WITHDRAWAL OF PROPOSALS**

- A. A Proposal may not be modified, withdrawn, or cancelled by the Bidder within sixty (60) days following the time and date designated for the receipt of Proposals and the Bidder so agrees in submitting their Proposals.
- B. Prior to the time and date designated for receipt of Proposals, Proposals may be modified or withdrawn. Modifications and withdrawals shall be in writing or by telegram. If by telegram, written confirmation shall have been mailed and postmarked before the date and time set for receipt of Proposals. Telegraphic communications shall be worded so that the amounts of the original Proposals are not revealed.
- C. Withdrawn Proposals may be resubmitted up to the time and date designated for receipt of Proposals.

**3.04 BIDDERS' REPRESENTATION AND ACKNOWLEDGEMENTS**

A. In submitting their Proposal, each Bidder represents that:

1. They have read and understand the Bidding Documents.
2. Their Proposal is made in accordance with the Bidding Documents.
3. They have visited the Project Site and have familiarized themselves with the local conditions under which the Work they are bidding will be performed.
4. **They will accept the contract award, regardless of the identity of other Contractors on the Project.**
5. **During contract performance, they will not interrupt their Work nor impede the progress of other Contractors as a result of prejudice based on sex, race, color, creed, labor affiliation, or lack of labor affiliation of Contractors or employees of Contractors engaged on this Project.**

B. In submitting their Proposal each bidder acknowledges:

1. The right of the Owner to accept or reject any Proposal, to waive any informality or irregularity in any Proposal received, and to accept other than the low Bid.
2. The right of the Owner to accept any combination of Bid Divisions they desire.
3. The right of the Owner to award contracts in their own best interest.

**3.05 OTHER INFORMATION**

A. All Bidders shall comply with the requirements of the Bidding Documents, Addenda, and all applicable codes, laws, and regulations in preparing and submitting their Proposals.

B. Refer to Section 00300 – Instructions for Proposals and Bid Division Descriptions for additional information and instructions regarding Proposals.

**END OF SECTION 00100**

**PART 1 – GENERAL**

**1.01 PROPOSAL FORMS**

- A. A separate set of Proposal Forms, Bid Division Descriptions, Drawings, Contract Conditions, Specifications, and Preliminary Milestone Schedule(s).
- B. Bidders shall use the copies of Proposal Forms included in the separate sets of Bidding Documents. Copies of the Proposal Forms are acceptable.

**1.02 BID DIVISION DESCRIPTIONS**

- A. Section 00309 contains the Bid Division Descriptions. Each Bid Division Description represents a separate, self-contained Scope of Work. Bid Divisions are the basic divisions of Work into which the Project has been divided for bidding and construction.

**PART 2 – PROPOSAL FORMAT**

**2.01 BID PROPOSALS**

- A. Bidders are required to use the Proposal Forms provided by the Owner.
- B. A complete Proposal consists of:
  - 1. **Submit 1 complete copy of your proposal, on the Proposal Form – Section 00305.**
  - 2. Alternate Pricing forms (if applicable to this Project).
- C. Each Proposal shall have a Bid Security in the amount of five percent (5%) attached to the proposal.
- D. All spaces provided on the Proposal Form(s) shall be filled in. If any space provided is not utilized by the Bidder, that space shall be filled in with the notation “N/A” (Not Applicable).
- E. The Proposal Form(s) shall be filled in by typewriter or printed manually in ink.
- F. Where indicated, all sums shall be expressed in words and figures.  
**In case of discrepancy, the words shall govern.**
- G. **Bidders shall not make unsolicited notations or statements on the Proposal Form(s). Alteration of the Proposal Form(s) is not permitted.**
- H. All changes to and erasures of the Bidder’s entries shall be initialed by the signer of the Proposal.
- I. Each Proposal shall include the legal name of the Bidder and a statement regarding whether the Bidder is a sole proprietor, a partnership, a corporation, or other type of legal entity. Proposals submitted by corporations shall have the state of incorporation noted and shall have corporate seals affixed. Any Bid submitted by an agent shall have a current Power of Attorney attached, certifying the agent’s power to bind the Bidder.

**2.02 ALTERNATES**

- A. **All requested Alternates shall be bid with all lines completed or the Proposal will be considered incomplete.**

**PROPOSAL FOR MULTIPLE BID DIVISIONS**

- A. Each Bidder shall submit only one (1) Proposal for each Bid Division the Contractor is bidding. There is no limit to the number of Bid Divisions a Bidder may bid on.
- B. Each Bidder is required to include a separate Bid for each Bid Division in order to be considered for a contract award. Spaces are provided in the Proposal Form(s) to reference multiple Proposals.
- C. Multiple Bid Proposals shall contain separate Proposal Forms for each Bid Division being bid.
  - 1. Each Proposal Form shall be fully completed.
  - 2. The Bid for each Bid Division shall be independent of Bids for other Bid Divisions.
  - 3. Bidders shall use the "Combined Bid Deduct" section of the Proposal Form (Section 00305) to finalize multiple Bid Proposals.

**PART 3 – COMPLETION OF PROPOSAL FORMS AND SEALED BID ENVELOPE**

**3.01 PROPOSAL FOR (SECTION 00305)**

- A. Each Bid Division shall be submitted in a separate envelope, with a separate Bid Bond.
- B. Fill in the legal name of the Bidder, the address, the telephone number, fax number, contact name and contact email.
- C. Fill in the name and number of the Bid Division covered by the Proposal.
- D. Fill in the numbers and dates of all Addenda issued, received, and considered a part of the Proposal. Proposals must include acknowledgement of all Addenda issued up to the Bid Date.
- E. On the Proposal Form(s), fill in the Lump Sum Base Bid for the Bid Division. Fill in the amount in both words and figures. DO NOT include costs for Performance Bonds or Labor/Materials Payment Bond in the Base Bid amount.
- F. Fill in the cost(s) for Performance Bond(s) and Labor and Material Payment Bond(s) in the amount(s) requested (reference Section 00600), in the space(s) provided. Fill in the amount(s) in both words and figures.
- G. In the "Combined Bid Deduct" portion of the Proposal Form(s), state the amount(s) to be deducted from the total of your Base Bid should you be awarded contracts for multiple Bid Divisions. State the numbers of the Bid Divisions included in each combination, and the amount to be deducted from the total of all Base Bids in each combination.
- H. If Alternate Bid(s) have been requested, fill in the Lump Sum Bid for each Alternate Bid in the space provided. DO NOT include costs for Performance Bonds or Labor and Material Payment Bonds.
- I. Fill in the anticipated date(s) of indicated Shop Drawings and/or Sample Submittal(s) in the space(s) provided.
- J. Fill in the anticipated number of weeks needed for fabrication of indicated items, beginning on the Bid Date.
- K. Fill in the anticipated number of on-site staff.
- L. Fill in the anticipated number of days to complete the Work.
- M. Fill in the anticipated number of weeks needed for delivery of indicated items, beginning on the Bid Date.
- N. Fill in the names of the manufacturers, suppliers, and/or subcontractors of indicated items.

- O. If you choose to submit Voluntary Alternates or Value Engineering Suggestions, please summarize your suggestions and state the amount to be deducted from the Base Bid.
- P. Review the "Bid Division Responsibilities" portion of the Proposal Form.
- Q. Review the "Schedule" portion of the Proposal Form.
- R. If the Proposal includes exceptions or substitutions to any part of the Bidding Documents or the Contract Documents, state the exceptions or substitutions in writing on the Proposal Form.
- S. Fill in the Bidder's legal name.
- T. Indicate the Bidder's status as a sole proprietor, partnership, corporation, or other type of entity.
- U. Sign the Proposal Form in the space provided.
- V. Type or print the signer's name and title in the spaces provided below the signature line.
- W. Date the Proposal Form in the space provided.
- X. Provide a phone number, fax number and email address on the space provided.

**3.02 SEALED BID ENVELOPE**

- A. Bids submitted must be sealed, preferably in a 9" x 12" manila envelope.
- B. Each Bid Division is to be submitted in a separate envelope.
- C. **Label the sealed bid as follows:**

<b>TO:</b>	<b>Bullock Creek School District</b> <b>Attn: Shawn Hale</b> <b>1420 S Badour Road</b> <b>Midland, MI 48640</b>
	<b><u>SEALED BID FOR:</u></b>
	<b>Bullock Creek School District</b> <b>2024 Bond Series 1 - 2025 Improvements</b>
	<b>Bid Division No:</b> _____

**END OF SECTION 00300**

**Project:** **Bullock Creek School District  
2024 Bond Series 1 - 2025 Improvements**

Submitted By: \_\_\_\_\_  
(Bidder's Company Name)

Address: \_\_\_\_\_

City / State / Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Email: \_\_\_\_\_

**Bid Proposal Deadline: Prior to Tuesday, December 3, 2024 at 3:00 PM (local time) to:**

**Bullock Creek School District  
Shawn Hale, Superintendent,  
1420 S Badour Road  
Midland, MI 48640.**

**Electronic Sealed bids must be submitted using Building Connected see below link.**  
<https://app.buildingconnected.com/login?retUrl=%2F>

**Bid Division Name:** \_\_\_\_\_

**Bid Division Number:** \_\_\_\_\_

**ADDENDA**

We (the Bidder) acknowledge receipt of the following Addenda:

- Addendum #\_\_ Dated \_\_\_\_\_
- Addendum #\_\_ Dated \_\_\_\_\_
- Addendum #\_\_ Dated \_\_\_\_\_

**BID BOND ATTACHED?**

- Yes, 5% Bid Bond is Attached**
- Certified Check/Money Order for 5% of Base Bid is Attached**

**BASE BID for Bullock Creek School District 2024 Bond Series 1 (not including Labor Bond, Material Bond, and/or Performance Bond Costs):**

\_\_\_\_\_ Dollars and 00/100ths

\$ \_\_\_\_\_

**BOND COST for Bullock Creek School District 2024 Bond Series 1 (Cost to provide Labor Bond, Material Bond, and/or Performance Bonds on Base Bid):**

\_\_\_\_\_ Dollars and 00/100ths

\$ \_\_\_\_\_

**COMBINED BID DEDUCT**

If awarded a contract for the Work, combining the following Bid Division(s), the corresponding amount(s) may be deducted from the Base Bid(s) of each of the involved Bid Divisions.

Bid Divisions Combined

Deduct from each Bid Division:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Building Breakdown**

Building	Base Bid	Bond	Alternate	Total
High School				
Middle School				
BC Elementary				
Pine River Elem.				
Floyd Elem.				
Maintenance Bldg.				
Total				

**ALTERNATES**

**Add Alternate #1** – All work associated with the High School 'F' Wing Toilet Rooms.

Alt 1 – ADD \_\_\_\_\_

Alt 1 – BOND \_\_\_\_\_

**Add Alternate #2** – All work associated with revising Bullock Creek Elementary Art Room Door #134A, including door hardware.

Alt 2 – ADD \_\_\_\_\_

Alt 2 – BOND \_\_\_\_\_

**Add Alternate #3** – All work associated with replacing an additional 22'-0" wide area of paving at the bus parking spaces.

Alt 3 – ADD \_\_\_\_\_

Alt 3 – BOND \_\_\_\_\_

**Add Alternate #4** – All work associated with the trench Drain at the existing Maintenance Building.

Alt 4 – ADD \_\_\_\_\_

Alt 4 – BOND \_\_\_\_\_

**Add Alternate #5** – All work associated with providing the "closed" lean-to and the "open lean-to on the west side of the new pole barn.

Alt 5 – ADD \_\_\_\_\_

Alt 5 – BOND \_\_\_\_\_

**SUBMITTALS**

Anticipated Date of Shop Drawing Submittal at Post Bid Interview: \_\_\_\_\_

Anticipated Number of Days to Begin: \_\_\_\_\_

Anticipated Number of On-site Staff: \_\_\_\_\_

Anticipated Number of Days to Complete: \_\_\_\_\_

Anticipated Number of Days for Delivery of Needed Items: \_\_\_\_\_

Proposed Manufacturers, Suppliers, and/or Subcontractors:

<u>Item(s)</u>	<u>Manufacturer/Subcontractor/Supplier</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____



**VOLUNTARY ALTERNATES / VALUE ENGINEERING SUGGESTIONS**

We suggest the following alternate procedure(s) and/or material(s):

Summary of Suggestions

Deduct from Base Bid

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**BID DIVISION RESPONSIBILITY**

We recognize that the Scope of Work within a Bid Division represents a construction segment that is not necessarily restricted to a single construction trade, and our Proposal includes work of all trades required to fully and successfully complete all of the Work required in the Bid Division(s) we have submitted Proposals for:

**SCHEDULE**

We have reviewed the Preliminary Milestone Schedule and hereby endorse it with regard to the Work of Bid Division(s) we have bid. ALL WORK MUST BE COMPLETED BY **Refer to Milestone Schedule.**

**EXCEPTIONS AND/OR SUBSTITUTIONS**

We have submitted our Proposal, as specified, complete and in accordance with the Bidding Documents, including Addenda and the Contract Documents, without exceptions or substitutions, unless otherwise noted in the "Voluntary Alternate / Value Engineering Suggestions" portion of this Proposal Form.

**EXECUTION**

Name of Bidder: \_\_\_\_\_

Bidder's Status:  
\_\_Corporation; \_\_Partnership; \_\_Sole Proprietor; \_\_Other: (Please Specify: \_\_\_\_\_)

By/Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

**END OF SECTION 00305**

**Familial Relationship Sworn Statement**

\_\_\_\_\_ does hereby disclose that per MCL 380.1267:  
Company Name

**YES**, there exists a familial relationship between the Owner of the project or any member of their Board, or Board of Directors, or the Superintendent of the School district, intermediate superintendent of the intermediate school district, or chief executive officer of the public-school academy and the Owner or an employee(s) of \_\_\_\_\_.  
Company Name

Disclosure Between:

Name \_\_\_\_\_ AND Name \_\_\_\_\_

Title: \_\_\_\_\_ Title: \_\_\_\_\_

Relationship: \_\_\_\_\_ Relationship: \_\_\_\_\_

**NO**, there does not exist a familial relationship between the Owner of the project or any member of their Board, or Board of Directors, or the Superintendent of the School district, intermediate superintendent of the intermediate school district, or chief executive officer of the public school academy and the Owner or an employee(s) of \_\_\_\_\_.  
Company Name

Name (printed): \_\_\_\_\_

Position: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Notary Public(printed): \_\_\_\_\_

Signature: \_\_\_\_\_

County: \_\_\_\_\_

Date: \_\_\_\_\_ My Commission Expires: \_\_\_\_\_

Affix Notary Seal Here:



**END OF SECTION 00306**

## Iran Business Relationship Affidavit

Effective April 1, 2013, all bids, proposals, and/or qualification statements received in the State of Michigan must comply with the "Iran Economic Sanctions Act". The following certification is to be signed and included at time of submittal.

### CERTIFICATION

Pursuant to the Michigan Iran Economic Sanctions Act, 2012 P.A. 517, by submitting a bid, proposal or response, Respondent certifies, under civil penalty for false certification, that it is fully eligible to do so under law and that it is not an "Iran linked business," as that term is defined in the Act.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Company

\_\_\_\_\_  
Date

**END OF SECTION 00307**

**IRAN ECONOMIC SANCTIONS ACT**  
**Act 517 of 2012**

AN ACT to prohibit persons who have certain economic relationships with Iran from submitting bids on requests for proposals with this state, political subdivisions of this state, and other public entities; to require bidders for certain public contracts to submit certification of eligibility with the bid; to require reports; and to provide for sanctions for false certification.

*History:* 2012, Act 517, Eff. Apr. 1, 2013.

*The People of the State of Michigan enact:*

**129.311 Short title.**

Sec. 1. This act shall be known and may be cited as the "Iran economic sanctions act".

*History:* 2012, Act 517, Eff. Apr. 1, 2013.

**129.312 Definitions.**

Sec. 2. As used in this act:

(a) "Energy sector of Iran" means activities to develop petroleum or natural gas resources or nuclear power in Iran.

(b) "Investment" means 1 or more of the following:

(i) A commitment or contribution of funds or property.

(ii) A loan or other extension of credit.

(iii) The entry into or renewal of a contract for goods or services.

(c) "Investment activity" means 1 or more of the following:

(i) A person who has an investment of \$20,000,000.00 or more in the energy sector of Iran.

(ii) A financial institution that extends \$20,000,000.00 or more in credit to another person, for 45 days or more, if that person will use the credit for investment in the energy sector of Iran.

(d) "Iran" means any agency or instrumentality of Iran.

(e) "Iran linked business" means either of the following:

(i) A person engaging in investment activities in the energy sector of Iran, including a person that provides oil or liquefied natural gas tankers or products used to construct or maintain pipelines used to transport oil or liquefied natural gas for the energy sector of Iran.

(ii) A financial institution that extends credit to another person, if that person will use the credit to engage in investment activities in the energy sector of Iran.

(f) "Person" means any of the following:

(i) An individual, corporation, company, limited liability company, business association, partnership, society, trust, or any other nongovernmental entity, organization, or group.

(ii) Any governmental entity or instrumentality of a government, including a multilateral development institution, as defined in section 1701(c)(3) of the international financial institutional act, 22 USC 262r(c)(3).

(iii) Any successor, subunit, parent company, or subsidiary of, or company under common ownership or control with, any entity described in subparagraph (i) or (ii).

(g) "Public entity" means this state or an agency or authority of this state, school district, community college district, intermediate school district, city, village, township, county, public authority, or public airport authority.

*History:* 2012, Act 517, Eff. Apr. 1, 2013.

**129.313 Ineligibility of Iran linked business to submit request for proposal bid; certification.**

Sec. 3. (1) Beginning April 1, 2013, an Iran linked business is not eligible to submit a bid on a request for proposal with a public entity.

(2) Beginning April 1, 2013, a public entity shall require a person that submits a bid on a request for proposal with the public entity to certify that it is not an Iran linked business.

*History:* 2012, Act 517, Eff. Apr. 1, 2013.

**129.314 Effect of false certification.**

Sec. 4. If a public entity determines, using credible information available to the public, that a person has submitted a false certification under section 3(2), the public entity shall provide the person with written notice of its determination and of the intent not to enter into or renew a contract with the person. The notice shall include information on how to contest the determination and specify that the person may become eligible for a

**Bid Division: 060000 – General Trades**

**Bid to Include:**

**Total Responsibility for Specification Sections:**

Section 033000 – Cast in Place Concrete  
Section 040101 – Masonry Tuckpointing  
Section 042000 – Unit Masonry  
Section 051200 – Structural Steel Framing  
Section 055000 – Metal Fabrications  
Section 055213 – Pipe and Tube Railings  
Section 061000 – Rough Carpentry  
Section 061753 – Shop-Fabricated Wood Trusses  
Section 062000 – Finish Carpentry  
Section 074213 – Metal Wall and Roof Panels  
Section 081113 – Hollow Metal Frames  
Section 081416 – Flush Wood Doors  
Section 081601 – Insulated Composite Doors  
Section 083613 – Sectional Doors  
Section 087100 – Door Hardware  
Section 087101 – Door Hardware Schedule  
Section 088000 – Glazing  
Section 092116 – Gypsum Board Assemblies  
Section 095100 – Acoustical Ceilings  
Section 102113.19 – Plastic Toilet Compartments  
Section 102800 – Toilet, Bath, and Laundry Accessories  
Section 111313 – Loading Dock Bumpers  
Section 321313 – Concrete Paving

**Limited Responsibility for Specification Sections (as it relates to work in this Bid Division):**

Section 024100 – Demolition  
Section 078400 – Firestopping (As it relates to work in this Bid Division)  
Section 079205 – Joint Sealants (As it relates to work in this Bid Division)

**Provide all labor, materials, tools, and equipment necessary to perform the work of the specified bid sections. The contractor must also furnish, deliver, unload, store, protect, erect and install all items required for the completion of the work of this bid division in compliance with all drawings and specifications for a complete operational system including but not limited to:**

**General Inclusions:**

1. There is no general contractor associated with this project; any and all reference to a “general contractor” related to the work of this bid division shall be understood to mean the contractor of this bid division.
2. The contractor for this bid division work is required to include but is not limited to all items, services, tasks, materials, personnel, equipment, etc. identified in this bid division description regardless of the presence of language in other bid division descriptions that is the same or is similar to that found in this contractor’s bid division description.
3. Coordination of the work of this bid division with any and all work of other bid division contractors for the scheduling and integration of the work of this contractor.
4. All contractors are responsible for the entire set of plans and specifications, including tables, schedules, and notes.
5. Provide continuous housekeeping and clean-up, and proper legal off-site disposal of any debris generated by this Bid Division’s work.

**Bid Division: 060000 – General Trades**

6. The contractor is responsible for their own dumpster(s) and all removal and disposal charges thereof. (Use of the Owner's dumpsters is strictly prohibited.)
7. All Contractors are required to inspect the existing project components and are to include all work necessary to complete the work to deliver a fully operational system in compliance with all governing codes.
8. This Contractor shall be responsible for performing all work in full compliance with all health and safety standards including Asbestos Awareness and Notification, Lead Paint Abatement, and all MIOSHA Standards. This Contractor shall also be responsible for satisfying all safety violations and/or fines resulting from the actions or lack of action by this Contractor at the sole expense of this Contractor.
9. Any contractor who makes a mistake by installing their product on another Contractor's obvious faulty work will assume responsibility for repair of said work.
10. This contractor shall repair and restore any damaged area to an original or better condition with no detectable evidence that the area has been repaired. Repairs must be done by personnel qualified in the execution of the work skilled and licensed in that trade. Whenever possible, repairs to the work shall be done by the original installer of the work.
11. Submittal of all insurance, unit pricing, schedule of values, required product data and shop drawings within (2) two weeks of Owner's Notice to commence work.
12. Must provide all submittals within 20 working days of contract award or sooner, unless specifically clarified with the construction manager prior to contract award.
13. Provide all layout and measurements required to perform the work of this Bid Division.
14. The Owner reserves the right to salvage any materials removed from the site during the duration of the project.
15. Coordinate delivery of materials with Construction Manager (48 hours) in advance of the delivery and provide proper personnel and equipment to perform the unloading.
16. Contractor shall submit to the field construction manager a complete written daily field report stating the work being done on site and the number of employees performing the work for each day the Contractor has representatives on site.
17. Contractor shall have a supervisor on site at all times when a crew is present on the job.
18. On Friday, or the last workday of each week, the Contractor must update the Master Copy of As-Builts, as it applies to the work of their Bid Division.
19. **Wolgast uses Software for their CM Software. Please note: We will upload all drawings, and drawing revisions as they are approved, to the Drawings tool. However, it is each contractor's responsibility to verify that they are working from the most up to date, approved, drawings.**

**Division Inclusions:**

1. Unloading, protection and record of all doors and frames.
2. All wood nailers for roof blocking, fascia, masonry, etc.
3. Wood blocking around windows and doors.
4. All temporary shoring as required for work in this Bid Division.
5. Provide, receive, store, protect, inventory, and install all described bid items.
6. Remove items indicated: clean, service and otherwise prepare them for reuse; store and protect against damage. Reinstall items in the same locations or in locations indicated.
7. Remove and legally dispose of items not indicated to be reinstalled, salvaged or to remain the Owner's property.
8. Cover all countertops with double layered corrugated cardboard.
9. Clean and dust all casework upon completion.
10. Clean, prep and adjust all equipment immediately prior to Owner occupancy.
11. Patch all demolished areas and items affected by demolition to a condition ready to receive finishes and finish materials.
12. Furnish and install all joint sealants and fire stopping as indicated in specifications and drawings including but not limited to perimeter joints of doors and louvers at interior and exterior, perimeter joints between interior wall surfaces and frames of interior doors and all other joints indicated.
13. Contractor shall furnish and install temporary insulated weather-tight closures of openings created as a result of the work in this scope in exterior surfaces to provide acceptable working conditions and protection for materials, to allow for temporary heating, and for building security. Provide doors with self-closing hardware and locks.

**Bid Division: 060000 – General Trades**

**Project Inclusions:**

1. Price all alternates
2. Include a \$10,000 Allowance to be used at the direct of the Construction Manager.
3. The School District will move contents out way for construction.
4. Provide and install concrete sign foundations with required reinforcement, and sign anchors.
5. Remove existing exterior Middle School building sign per drawing B-A101.
6. Fill in any holes left in masonry from sign or conduit per drawing B-A101.
7. Rework existing Middle School Gymnasium wall mats for electrical conduit per drawing B-A101.
8. Remove existing Floyd Elementary sign noted on drawing D-C101.
9. Include masonry removal, saw cutting and tothing in for new door opening at the Middle School per drawing B-A102, Floor Plan.
10. Provide and install all new foundation, walks, ramps, stairs, loading dock, cooler pad work at Bullock Creek Middle School. Include all reinforcement, control, and expansion joints.
11. Include equipment concrete pad for compressors shown on B-FS1.
12. Provide and install pipe bollards completely. Include steel bollards and pipe covers.
13. Provide and install new loading dock bumpers.
14. Provide and install all noted handrails.
15. Provide and install masonry / glazed tile, masonry lintel, and plywood at Middle School Cooler connection and main building. See drawing B-A103, Detail 7.
16. Provide and install wood nail and break metal per Drawing B-A103, Detail 9.
17. Include interior removals as noted on the drawings such as masonry, partitions, restroom accessories, doors and frames, flooring, and ceiling framing covering existing skylights.
18. Include all saw cutting to complete your work.
19. Turn-over items to be salvaged to the owner.
20. Include all concrete floor patches with reinforcement.
21. Include all new masonry walls and infills as noted. Include all required reinforcement. Fire rate as noted.
22. Include all metal stud framing with insulation and board.
23. Supply and install Restroom partitions.
24. Supply and install all Restroom accessories which include shelving complete.
25. Reinstall salvaged Restroom accessories.
26. Supply and install wood trim in areas called out on drawing A-A103.
27. Firestop existing top of walls noted on drawings such as A-A103.
28. Provide and install ceiling grid and tile. Include hold down clips where noted.
29. Include any detaching and reinstallation of ceilings grid and tile.
30. Provide and install all doors, frames, windows, and hardware complete.
31. All doors are to be ordered before construction begins. Field measure before demolition and provide any additional trims to complete the install.
32. Include removing and replacing concrete slab needed for plumbing replacement. Review High School plumbing drawings.
33. Include masonry demolition, temporary shoring, structural steel lintels, bearing plates, reinforcement, hangers and brick replacement.
34. Bullock Creek Elementary School temporary shoring drawings are included.
35. Provide and install parapet cap framing and metal. Reference detail 9 on C-A301.
36. Include masonry tuckpointing as noted.
37. Include any window removal and re-installation required to replace lintels and brick.
38. Include interior removals such as flooring and base. Grind any remaining flooring substrate for the surface to clean concrete. You will be responsible for any damage caused to the security boot system.
39. Provide and install wood shoe base as noted.
40. Remove existing Bullock Creek Elementary sign noted on drawing C-A101.
41. Include framing and roof decking at roof opening shown in detail 10 Drawing C-A107.

**Bid Division: 060000 – General Trades**

42. Include masonry opening work on drawing C-A105 details 1 and 2.
43. Include removal of masonry chimney shown on drawing C-A102
44. Provide and install noted Bullock Creek Elementary shoe molding. Finished by painter.
45. Provide site concrete as noted on New Pole Barn Drawings.
46. Provide concrete at bus parking.
47. Include removal and installation of concrete and reinforcement for new trench drain in existing maintenance building. Trench drain by Plumber.
48. Supply and install New Pole Barn concrete slab. Include all reinforcement.
49. Provide and install a complete Pole Barn to include but not limited to; excavation and setting of poles, metal roofing and siding, gutters and downspouts, office framing and drywall, and all doors. Not included would be the building slab, electrical, plumbing, and sitework.

**Project Exclusions:**

1. All demolition of conduits, ducts, pipes, fixtures, etc. (demolition required for all mechanical, plumbing, and electrical work) is to be performed by the specific mechanical, plumbing and electrical contractors.
2. Hand dryers
3. Supply and installation of trench drains.
4. Pole barn metal, concrete building slab, electrical, plumbing, and sitework.
5. Finishing of new shoe base.
6. Soil Density testing
7. Concrete testing.

**Consideration for award:**

The ability to begin as soon as areas of work become available. To have proper equipment and responsible personnel to complete the above list of work. To repair any adjacent materials damaged in the execution of the above-listed work. Close cooperation with the Construction Manager and other bid divisions to provide input to develop a working schedule. An approved schedule of values will be required before approval is granted for the first payment request. Expediting communication and follow-up as required.

**END OF BID DIVISION 060000**

**Wolgast Corporation – Construction Management**





Wolgast Corporation

**Submittal Packages**

Spec Section	#	Rev.	Title	Type	Status	Responsible Contractor	Submit By	Received From	Received Date	Ball In Court	Approvers	Response	Sent Date	Returned Date	Final Due Date	Distributed Date
<b>#1 06 00 00 - General Trades</b>																
32 13 13 - Concrete Paving	32 13 13-2	0	Concrete Paving - mix design	Other	Draft											
32 13 13 - Concrete Paving	32 13 13-1	0	Concrete Paving - product data	Product Information	Draft											
11 13 13 - Loading Dock Bumpers	11 13 13-1	0	Loading Dock Bumpers - Product Data	Product Information	Draft											
10 28 00 - Toilet, Bath, and Laundry Accessories	10 28 00-1	0	Toilet Bath Laundry Accessories - product data	Product Information	Draft											
10 21 13 - Toilet Compartments	10 21 13-3	0	Toilet Compartments - Samples of colors	Sample	Draft											
10 21 13 - Toilet Compartments	10 21 13-2	0	Toilet Compartments - Product Data	Product Information	Draft											
10 21 13 - Toilet Compartments	10 21 13-1	0	Toilet Compartments - Shop Drawings	Shop Drawing	Draft											
09 51 00 - Acoustical Ceilings	09 51 00-1	0	Acoustical Ceiling - product data	Product Information	Draft											
09 21 16 - Gypsum Board Assemblies	09 21 16-1	0	Gypsum Board - product data	Product Information	Draft											
08 80 00 - Glazing	08 80 00-1	0	Glazing - product data	Product Information	Draft											
08 71 00 - Door Hardware	08 71 00-2	0	Door Hardware - schedule	Other	Draft											
08 71 00 - Door Hardware	08 71 00-1	0	Door Hardware - Product Data	Product Information	Draft											
08 36 13 - Sectional Doors	08 36 13-3	0	Sectional Doors - finish samples	Sample	Draft											
08 36 13 - Sectional Doors	08 36 13-2	0	Sectional Doors - product data	Product Information	Draft											
08 36 13 - Sectional Doors	08 36 13-1	0	Sectional Doors - shop drawings	Shop Drawing	Draft											
08 16 01 - Insulated Composite Doors	08 16 01-3	0	Insulated Comp Doors - finish samples	Sample	Draft											
08 16 01 - Insulated Composite Doors	08 16 01-2	0	Insulated Comp Doors - product data	Product Information	Draft											
08 16 01 - Insulated Composite Doors	08 16 01-1	0	Insulated Comp Doors - shop drawings	Shop Drawing	Draft											
08 14 16 - Flush Wood Doors	08 14 16-3	0	Flush Wood Doors - Door Veneer samples	Sample	Draft											
08 14 16 - Flush Wood Doors	08 14 16-2	0	Flush Wood Doors - shop Drawings	Shop Drawing	Draft											
08 14 16 - Flush Wood Doors	08 14 16-1	0	Flush Wood Doors - product data	Product Information	Draft											
08 11 13 - Hollow Metal Doors and Frames	08 11 13-2	0	Hollow Metal Doors and Frames - Shop Drawings	Shop Drawing	Draft											
08 11 13 - Hollow Metal Doors and Frames	08 11 13-1	0	Hollow Metal Doors and Frames - product data	Product Information	Draft											
07 90 05 - Joint Sealers	07 90 05-2	0	Joint Sealers - Samples - see spec	Sample	Draft											
07 90 05 - Joint Sealers	07 90 05-1	0	Joint Sealers - Product Data	Product Information	Draft											
07 84 00 - Firestopping	07 84 00-2	0	Firestopping - Product data	Product Information	Draft											



Wolgast Corporation

Spec Section	#	Rev.	Title	Type	Status	Responsible Contractor	Submit By	Received From	Received Date	Ball In Court	Approvers	Response	Sent Date	Returned Date	Final Due Date	Distributed Date	
07 84 00 - Firestopping	07 84 00-1	0	Firestopping - schedule	Other	Draft												
07 42 13 - Metal Wall and Roof Panels	07 42 13-2	0	Metal Wall and Roof Panels - Samples	Sample	Draft												
07 42 13 - Metal Wall and Roof Panels	07 42 13-1	0	Metal Wall and Roof Panels - Shop Drawings	Shop Drawing	Draft												
06 20 00 - Finish Carpentry	06 20 00-3	0	Finish Carpentry - color samples	Sample	Draft												
06 20 00 - Finish Carpentry	06 20 00-2	0	Finish Carpentry - shop drawings	Shop Drawing	Draft												
06 20 00 - Finish Carpentry	06 20 00-1	0	Finish Carpentry - product data for items listed	Product Information	Draft												
06 17 53 - Shop-Fabricated Wood Trusses	06 17 53-2	0	Wood Trusses - shop drawings	Shop Drawing	Draft												
06 17 53 - Shop-Fabricated Wood Trusses	06 17 53-1	0	Wood Trusses - product data	Product Information	Draft												
06 10 00 - Rough Carpentry	06 10 00-1	0	Rough Carpentry - product data for items listed	Product Information	Draft												
05 52 13 - Pipe and Tube Railings	05 52 13-1	0	Pipe and Tube Railings - shop drawings	Shop Drawing	Draft												
05 50 00 - Metal Fabrications	05 50 00-2	0	Metal Fab - product data for bollard sleeves	Other	Draft												
05 50 00 - Metal Fabrications	05 50 00-1	0	Metal Fab - shop drawings	Shop Drawing	Draft												
05 12 00 - Structural Steel Framing	05 12 00-3	0	Steel Framing - certs	Product Information	Draft												
05 12 00 - Structural Steel Framing	05 12 00-2	0	Steel Framing - shop drawings	Shop Drawing	Draft												
05 12 00 - Structural Steel Framing	05 12 00-1	0	Steel Framing - product data	Document	Draft												
04 20 00 - Unit Masonry	04 20 00-2	0	Unit Masonry - Mix design	Product Information	Draft												
04 20 00 - Unit Masonry	04 20 00-1	0	Unit Masonry - product data	Product Information	Draft												
04 01 01 - Masonry Tuck Pointing	04 01 01-2	0	Masonry Tuck Pointing - samples	Sample	Draft												
04 01 01 - Masonry Tuck Pointing	04 01 01-1	0	Masonry Tuck Pointing - product data	Product Information	Draft												
03 30 00 - Cast-in-Place Concrete	03 30 00-3	0	Cast In Place - Shop Drawings	Shop Drawing	Draft												
03 30 00 - Cast-in-Place Concrete	03 30 00-2	0	Cast In Place - mix design	Other	Draft												
03 30 00 - Cast-in-Place Concrete	03 30 00-1	0	Cast In Place - product data	Other	Draft												
<b>#2 06 00 00 - General Trades - Start Up</b>																	
	10	0	Hazardous/AHERA Notifications		Draft												
	9	0	Sub/Supplier Form		Draft												
	8	0	Safety Data Sheets (SDS)		Draft												
	7	0	Safety Policy		Draft												
	6	0	On Site Employee List		Draft												
	5	0	Insurance/Letter of Compl		Draft												
	4	0	Payment/Performance Bonds		Draft												
	3	0	Contracts Signed/Returned		Draft												



Wolgast Corporation

Spec Section	#	Rev.	Title	Type	Status	Responsible Contractor	Submit By	Received From	Received Date	Ball In Court	Approvers	Response	Sent Date	Returned Date	Final Due Date	Distributed Date
	2	0	Schedule of Values		Draft											
	1	0	Post Bid Interview/Proposal Forms		Draft											
<b>#3 06 00 00 - General Trades - Close Out</b>																
10 21 13 - Toilet Compartments	10 21 13-4	0	Toilet Compartments - Warranty	Closeouts	Draft											
09 51 00 - Acoustical Ceilings	09 51 00-2	0	Acoustical Ceiling - extra material	Closeouts	Draft											
08 80 00 - Glazing	08 80 00-2	0	Glazing - Warranty	Closeouts	Draft											
08 71 00 - Door Hardware	08 71 00-4	0	Door Hardware - warranty	Closeouts	Draft											
08 71 00 - Door Hardware	08 71 00-3	0	Door Hardware - manuals	Closeouts	Draft											
08 36 13 - Sectional Doors	08 36 13-4	0	Sectional Doors - Warranty	Closeouts	Draft											
08 16 01 - Insulated Composite Doors	08 16 01-4	0	Insulated Comp Doors - Warranty	Closeouts	Draft											
08 14 16 - Flush Wood Doors	08 14 16-4	0	Flush Wood Doors - Warranty	Closeouts	Draft											
07 42 13 - Metal Wall and Roof Panels	07 42 13-3	0	Metal Wall and Roof Panels - Warranty	Closeouts	Draft											
	19	0	Asbestos Materials Affidavits		Draft											
	18	0	Signed Hazardous Materials		Draft											
	17	0	Insurance Up-To-Date		Draft											
	16	0	All CO Signed/Returned		Draft											
	15	0	As Built Drawings		Draft											
	14	0	Completed Punch List		Draft											
	13	0	Substantial Completion		Draft											
	12	0	Consent of Surety		Draft											
	11	0	Contractor (2) Yr Guarantee		Draft											

**Bid Division: 075000 – Roofing**

**Bid to Include:**

**Total Responsibility for Specification Sections:**

Section 070150.19 – Preparation for Re-Roofing  
Section 075400 – Thermoplastic Membrane Roofing  
Section 076200 – Sheet Metal Flashing and Trim

**Limited Responsibility for Specification Sections (as it relates to work in this Bid Division):**

Section 024119 – Selective Demolition (as it relates to tying into the existing building)  
Section 079200 – Joint Sealants (As it pertains to roofing)

**Provide all labor, materials, tools, and equipment necessary to perform the work of the specified bid sections. The contractor must also furnish, deliver, unload, store, protect, erect and install all items required for the completion of the work of this bid division in compliance with all drawings and specifications for a complete operational system including but not limited to:**

**General Inclusions:**

1. There is no general contractor associated with this project; any and all reference to a “general contractor” related to the work of this bid division shall be understood to mean the contractor of this bid division.
2. The contractor for this bid division work is required to include but is not limited to all items, services, tasks, materials, personnel, equipment, etc. identified in this bid division description regardless of the presence of language in other bid division descriptions that is the same or is similar to that found in this contractor’s bid division description.
3. Coordination of the work of this bid division with any and all work of other bid division contractors for the scheduling and integration of the work of this contractor.
4. All contractors are responsible for the entire set of plans and specifications, including tables, schedules, and notes.
5. Provide continuous housekeeping and clean-up, and proper legal off-site disposal of any debris generated by this Bid Division’s work.
6. The contractor is responsible for own dumpster(s) and all removal and disposal charges thereof. (Use of the Owner’s dumpsters is strictly prohibited.)
7. All Contractors are required to inspect the existing project components and are to include all work necessary to complete the work to deliver a fully operational system in compliance with all governing codes.
8. This Contractor shall be responsible for performing all work in full compliance with all health and safety standards including Asbestos Awareness and Notification, Lead Paint Abatement, and all MIOSHA Standards. This Contractor shall also be responsible for satisfying all safety violations and/or fines resulting from the actions or lack of action by this Contractor at the sole expense of this Contractor.
9. Any contractor who compounds a mistake by installing their product on another Contractor’s obvious faulty work will assume responsibility for repair of said work.
10. This contractor shall repair and restore any damaged area to an original or better condition with no detectable evidence that the area has been repaired. Repairs must be done by personnel qualified in the execution of the work skilled and licensed in that trade. Whenever possible, repairs to the work shall be done by the original installer of the work.
11. Submittal of all insurance, unit pricing, schedule of values, required product data and shop drawings within (2) two weeks of Owner’s Notice to commence work.
12. Must provide all submittals within 20 working days of contract award or sooner, unless specifically clarified with the construction manager prior to contract award.
13. Provide all layout and measurements required to perform the work of this Bid Division.
14. The Owner reserves the right to salvage any materials removed from the site during the duration of the project.

**Bid Division: 075000 – Roofing**

15. Coordinate delivery of materials with Construction Manager (48 hours) in advance of the delivery and provide proper personnel and equipment to perform the unloading.
16. Contractor shall submit to the field construction manager a complete written daily field report stating the work being done on site and the number of employees performing the work for each day the Contractor has representatives on site.
17. Contractor shall have a supervisor on site at all times when a crew is present on the job.
18. On Friday, or last workday of each week, the Contractor must update the Master Copy of As-Builts, as it applies to the work of their Bid Division.
19. **Wolgast uses Software for their CM Software. Please note: We will upload all drawings, and drawing revisions as they are approved, to the Drawings tool. However, it is each contractor's responsibility to verify that they are working from the most up-to-date, approved, drawings.**

**Division Inclusions:**

1. Demolition, removal and proper legal off-site disposal of existing roofing and sub roofing where new additions tie-in.
2. Installation of roof edging.
3. Maintain weather protection during tie-in.
4. Furnish and install pipe stands as required by mechanical and electrical trades.
5. Furnish and install all joint sealants and fire stopping as indicated in specifications and drawings.
6. Responsible for all roof trim.
7. Supply and install all required fasteners.
8. Coordinate all finishing connections with appropriate contractors.
9. Coordinate all roof penetrations with appropriate contractors, flash and seal. (Please review roof plans, mechanical plans, and electrical plans.)

**Project Inclusions:**

1. Price all alternates.
2. Include a \$10,000 Allowance to be used at the direct of the Construction Manager.
3. Include all roofing removals which are to include fascia metals and gutters / downspouts.
4. Score roofing membrane as noted per the drawings.
5. Supply and install new tapered insulation and membrane as noted in the drawings.
6. Supply and install all new flashing and termination bar noted in the drawings.
7. Supply and install all new gutters and downspouts noted in the drawings.
8. Supply and install roof nailer and plywood spacer shown on the drawings.
9. Roof sump grates are to be cleaned and rod sump lines.
10. Any wood pipe supports, or wood equipment rails found and not called out to be replaced will be replaced as an extra.
11. Any roof top equipment not noted that needs to be adjusted to maintain 8" of flashing height will be done as an extra.
12. Provide and install walkway pads.

**Project Exclusions:**

1. Parapet cap framing and metal. Reference detail 9 on C-A301.

**Consideration for award:**

The ability to begin as soon as areas of work become available. To have proper equipment and responsible personnel to complete the above list of work. To repair any adjacent materials damaged in the execution of the above-listed work. Close cooperation with the Construction Manager and other bid divisions to provide input to develop a working schedule. An approved schedule of values will be required before approval is granted for the first payment request. Expediting communication and follow-up as required.

**END OF BID DIVISION 075000**

**Wolgast Corporation – Construction Management**



Wolgast Corporation

**Submittal Packages**

Spec Section	#	Rev.	Title	Type	Status	Responsible Contractor	Submit By	Received From	Received Date	Ball In Court	Approvers	Response	Sent Date	Returned Date	Final Due Date	Distributed Date
<b>#4 07 50 00 - Roofing</b>																
07 62 00 - Sheet Metal Flashing and Trim	07 62 00-3	0	Sheet Metal Flashing and Trim - Samples	Sample	Draft											
07 62 00 - Sheet Metal Flashing and Trim	07 62 00-2	0	Sheet Metal Flashing and Trim - Product Data	Product Information	Draft											
07 62 00 - Sheet Metal Flashing and Trim	07 62 00-1	0	Sheet Metal Flashing and Trim - shop drawings	Shop Drawing	Draft											
07 54 00 - Thermoplastic Membrane Roofing	07 54 00-2	0	Therm Membrane Roofing - Shop Drawings	Shop Drawing	Draft											
07 54 00 - Thermoplastic Membrane Roofing	07 54 00-1	0	Therm Membrane Roofing - Product Data	Product Information	Draft											
<b>#5 07 50 00 - Roofing - Start Up</b>																
	10	0	Hazardous/AHERA Notifications		Draft											
	9	0	Sub/Supplier Form		Draft											
	8	0	Safety Data Sheets (SDS)		Draft											
	7	0	Safety Policy		Draft											
	6	0	On Site Employee List		Draft											
	5	0	Insurance/Letter of Compl		Draft											
	4	0	Payment/Performance Bonds		Draft											
	3	0	Contracts Signed/Returned		Draft											
	2	0	Schedule of Values		Draft											
	1	0	Post Bid Interview/Proposal Forms		Draft											
<b>#6 07 50 00 - Roofing - Close Out</b>																
07 54 00 - Thermoplastic Membrane Roofing	07 54 00-3	0	Therm Membrane Roofing - Warranty	Closeouts	Draft											
	21	0	O&M Manuals		Draft											
	20	0	Warranties for Equipment Installed		Draft											
	19	0	Asbestos Materials Affidavits		Draft											
	18	0	Signed Hazardous Materials		Draft											
	17	0	Insurance Up-To-Date		Draft											
	16	0	All CO Signed/Returned		Draft											
	15	0	As Built Drawings		Draft											
	14	0	Completed Punch List		Draft											
	13	0	Substantial Completion		Draft											
	12	0	Consent of Surety		Draft											
	11	0	Contractor (2) Yr Guarantee		Draft											

**Bid Division: 090000 – Flooring and Tiling**

**Bid to Include:**

**Total Responsibility for Specification Sections:**

Section 090561 – Common Work Results for Flooring Preparation  
Section 093000 – Tiling  
Section 096500 – Resilient Flooring  
Section 096813 – Tile Carpeting

**Limited Responsibility for Specification Sections (as it relates to work in this Bid Division):**

Section 079200 – Joint Sealants (As it relates to work in this Bid Division)

**Provide all labor, materials, tools, and equipment necessary to perform the work of the specified bid sections. The contractor must also furnish, deliver, unload, store, protect, erect and install all items required for the completion of the work of this bid division in compliance with all drawings and specifications for a complete operational system including but not limited to:**

**General Inclusions:**

1. There is no general contractor associated with this project; any and all reference to a “general contractor” related to the work of this bid division shall be understood to mean the contractor of this bid division.
2. The contractor for this bid division work is required to include but is not limited to all items, services, tasks, materials, personnel, equipment, etc. identified in this bid division description regardless of the presence of language in other bid division descriptions that is the same or is similar to that found in this contractor’s bid division description.
3. Coordination of the work of this bid division with any and all work of other bid division contractors for the scheduling and integration of the work of this contractor.
4. All contractors are responsible for the entire set of plans and specifications, including tables, schedules, and notes.
5. Provide continuous housekeeping and clean-up, and proper legal off-site disposal of any debris generated by this Bid Division’s work.
6. The contractor is responsible for their own dumpster(s) and all removal and disposal charges thereof. (Use of the Owner’s dumpsters is strictly prohibited.)
7. All Contractors are required to inspect the existing project components and are to include all work necessary to complete the work to deliver a fully operational system in compliance with all governing codes.
8. This Contractor shall be responsible for performing all work in full compliance with all health and safety standards including Asbestos Awareness and Notification, Lead Paint Abatement, and all MIOSHA Standards. This Contractor shall also be responsible for satisfying all safety violations and/or fines resulting from the actions or lack of action by this Contractor at the sole expense of this Contractor.
9. Any contractor who makes a mistake by installing their product on another Contractor’s obvious faulty work will assume responsibility for repair of said work.
10. This contractor shall repair and restore any damaged area to an original or better condition with no detectable evidence that the area has been repaired. Repairs must be done by personnel qualified in the execution of the work skilled and licensed in that trade. Whenever possible, repairs to the work shall be done by the original installer of the work.
11. Submittal of all insurance, unit pricing, schedule of values, required product data and shop drawings within (2) two weeks of Owner’s Notice to commence work.
12. Must provide all submittals within 20 working days of contract award or sooner, unless specifically clarified with the construction manager prior to contract award.
13. Provide all layout and measurements required to perform the work of this Bid Division.
14. The Owner reserves the right to salvage any materials removed from the site during the duration of the project.

**Wolgast Corporation – Construction Management**

**Bid Division: 090000 – Flooring and Tiling**

15. Coordinate delivery of materials with Construction Manager (48 hours) in advance of the delivery and provide proper personnel and equipment to perform the unloading.
16. Contractor shall submit to the field construction manager a complete written daily field report stating the work being done on site and the number of employees performing the work for each day the Contractor has representatives on site.
17. Contractors shall have a supervisor on site at all times when a crew is present on the job.
18. On Friday, or the last workday of each week, the Contractor must update the Master Copy of As-Builts, as it applies to the work of their Bid Division.
19. **Wolgast uses Software for their CM Software. Please note: We will upload all drawings, and drawing revisions as they are approved, to the Drawings tool. However, it is each contractor's responsibility to verify that they are working from the most up to date, approved, drawings.**

**Division Inclusions:**

1. Preparation of existing areas to receive new flooring, installation as shown and specified. (Prep is this Bid Division's responsibility.)
2. Transition strips from new VCT to existing or new ceramic and/or carpet, and/or terrazzo.
3. Expansion and control joints as required by design and/or product manufacturer.
4. Clean and prepare floor including leveling and filling of voids prior to starting work.
5. Provide and install all required base.
6. Furnish and install all caulking required for the work of this Bid Division.
7. Replacement and/or repair of defective and/or misaligned material installed by this contractor.
8. To repair any adjacent material damaged in the execution of the above-listed work.
9. Provide and install thresholds as required.

**Project Inclusions:**

1. Price all alternates
2. Include a \$5,000 Allowance to be used at the direct of the Construction Manager.
3. Provide and install all floor and wall tile with required setting materials and trim
4. Provide and install all flooring and wall base noted per the drawings.

**Excludes:**

1. Providing and installing new wood shoe molding.

**Consideration for award:**

The ability to begin as soon as areas of work become available. To have proper equipment and responsible personnel to complete the above list of work. To repair any adjacent materials damaged in the execution of the above-listed work. Close cooperation with the Construction Manager and other bid divisions to provide input to develop a working schedule. An approved schedule of values will be required before approval is granted for the first payment request. Expediting communication and follow-up as required.

**END OF BID DIVISION 090000**

**Wolgast Corporation – Construction Management**





Wolgast Corporation

**Submittal Packages**

Spec Section	#	Rev.	Title	Type	Status	Responsible Contractor	Submit By	Received From	Received Date	Ball In Court	Approvers	Response	Sent Date	Returned Date	Final Due Date	Distributed Date
<b>#7 09 65 00 - Flooring</b>																
09 68 13 - Tile Carpeting	09 68 13-2	0	Tile Carpet - Samples	Sample	Draft											
09 68 13 - Tile Carpeting	09 68 13-1	0	Tile Carpet - product data	Product Information	Draft											
09 65 00 - Resilient Flooring	09 65 00-2	0	Resilient Flooring - samples	Sample	Draft											
09 65 00 - Resilient Flooring	09 65 00-1	0	Resilient Flooring - product data	Product Information	Draft											
09 30 00 - Tiling	09 30 00-2	0	Tile - samples	Sample	Draft											
09 30 00 - Tiling	09 30 00-1	0	Tile - product data	Product Information	Draft											
09 05 61 - Common Work Results for Flooring Preparation	09 05 61-1	0	Floor Prep - product data	Product Information	Draft											
<b>#8 09 65 00 - Flooring - Start Up</b>																
	10	0	Hazardous/AHERA Notifications		Draft											
	9	0	Sub/Supplier Form		Draft											
	8	0	Safety Data Sheets (SDS)		Draft											
	7	0	Safety Policy		Draft											
	6	0	On Site Employee List		Draft											
	5	0	Insurance/Letter of Compl		Draft											
	4	0	Payment/Performance Bonds		Draft											
	3	0	Contracts Signed/Returned		Draft											
	2	0	Schedule of Values		Draft											
	1	0	Post Bid Interview/Proposal Forms		Draft											
<b>#9 09 65 00 - Flooring - Close Out</b>																
09 65 00 - Resilient Flooring	09 65 00-3	0	Resilient Flooring - extra material	Closeouts	Draft											
	19	0	Asbestos Materials Affidavits		Draft											
	18	0	Signed Hazardous Materials		Draft											
	17	0	Insurance Up-To-Date		Draft											
	16	0	All CO Signed/Returned		Draft											
	15	0	As Built Drawings		Draft											
	14	0	Completed Punch List		Draft											
	13	0	Substantial Completion		Draft											
	12	0	Consent of Surety		Draft											
	11	0	Contractor (2) Yr Guarantee		Draft											

**Bid Division: 099000 – Painting**

**Bid to Include:**

**Total Responsibility for Specification Sections:**

Section 099000 – Painting and Coating

**Limited Responsibility for Specification Sections (as it relates to work in this Bid Division):**

Section 079200 – Joint Sealants (Interior Control Joints and all dissimilar products)

**Provide all labor, materials, tools, and equipment necessary to perform the work of the specified bid sections. The contractor must also furnish, deliver, unload, store, protect, erect and install all items required for the completion of the work of this bid division in compliance with all drawings and specifications for a complete operational system including but not limited to:**

**General Inclusions:**

1. There is no general contractor associated with this project; any and all reference to a “general contractor” related to the work of this bid division shall be understood to mean the contractor of this bid division.
2. The contractor for this bid division work is required to include but is not limited to all items, services, tasks, materials, personnel, equipment, etc. identified in this bid division description regardless of the presence of language in other bid division descriptions that is the same or is similar to that found in this contractor’s bid division description.
3. Coordination of the work of this bid division with any and all work of other bid division contractors for the scheduling and integration of the work of this contractor.
4. All contractors are responsible for the entire set of plans and specifications, including tables, schedules, and notes.
5. Provide continuous housekeeping and clean-up, and proper legal off-site disposal of any debris generated by this Bid Division’s work.
6. The contractor is responsible for their own dumpster(s) and all removal and disposal charges thereof. (Use of the Owner’s dumpsters is strictly prohibited.)
7. All Contractors are required to inspect the existing project components and are to include all work necessary to complete the work to deliver a fully operational system in compliance with all governing codes.
8. This Contractor shall be responsible for performing all work in full compliance with all health and safety standards including Asbestos Awareness and Notification, Lead Paint Abatement, and all MIOSHA Standards. This Contractor shall also be responsible for satisfying all safety violations and/or fines resulting from the actions or lack of action by this Contractor at the sole expense of this Contractor.
9. Any contractor who makes a mistake by installing their product on another Contractor’s obvious faulty work will assume responsibility for repair of said work.
10. This contractor shall repair and restore any damaged area to an original or better condition with no detectable evidence that the area has been repaired. Repairs must be done by personnel qualified in the execution of the work skilled and licensed in that trade. Whenever possible, repairs to the work shall be done by the original installer of the work.
11. Submittal of all insurance, unit pricing, schedule of values, required product data and shop drawings within (2) two weeks of Owner’s Notice to commence work.
12. Must provide all submittals within 20 working days of contract award or sooner, unless specifically clarified with the construction manager prior to contract award.
13. Provide all layout and measurements required to perform the work of this Bid Division.
14. The Owner reserves the right to salvage any materials removed from the site during the duration of the project.
15. Coordinate delivery of materials with Construction Manager (48 hours) in advance of the delivery and provide proper personnel and equipment to perform the unloading.

**Bid Division: 099000 – Painting**

16. Contractor shall submit to the field construction manager a complete written daily field report stating the work being done on site and the number of employees performing the work for each day the Contractor has representatives on site.
17. Contractor shall have a supervisor on site at all times when a crew is present on the job.
18. On Friday, or the last workday of each week, the Contractor must update the Master Copy of As-Builts, as it applies to the work of their Bid Division.
19. **Wolgast uses Software for their CM Software. Please note: We will upload all drawings, and drawing revisions as they are approved, to the Drawings tool. However, it is each contractor's responsibility to verify that they are working from the most up to date, approved, drawings.**

**Division Inclusions:**

1. Follow room finish and door schedules.
2. Painting of all electrical and mechanical lines and equipment (as specified).
3. Paint all bulkheads.
4. All surfaces to be painted, including but not limited to drywall and masonry, are to be inspected and accepted by this contractor prior to application of paint. Surface imperfections not repaired prior to painting or submitted to the construction manager in writing as existing defects prior to painting will be repaired by the painting contractor at no additional cost.
5. The Painting Contractor is responsible for removing or protecting all cover plates, trim and other pre-finished surfaces necessary for the completion of this work scope. This Contractor is responsible for replacing anything removed upon completion of work.
6. Provide final cleaning of work prior to Owner occupancy.
7. Furnish and install all caulking required for the work of this Bid Division.
8. To repair any adjacent material damaged in the execution of the above-listed work.
9. All caulking of interior control joints
10. All caulking of interior joints between all dissimilar surfaces including door and window frames, CMU & Drywall.
11. Clean, dust and dirt off bar joist, deck and ductwork prior to painting.

**Project Inclusions:**

1. Price all alternates
2. Include a \$5,000 Allowance to be used at the direct of the Construction Manager.
3. Paint all walls, ceilings, doors, and frames as noted in the drawings.
4. Finish new shoe molding noted at Bullock Creek Elementary.
5. Painting the new exterior hand and guard rails at Middle School Loading Dock Area.
6. Paint new exterior gas piping as note.

**Consideration for award:**

The ability to begin as soon as areas of work become available. To have proper equipment and responsible personnel to complete the above list of work. To repair any adjacent materials damaged in the execution of the above-listed work. Close cooperation with the Construction Manager and other bid divisions to provide input to develop a working schedule. An approved schedule of values will be required before approval is granted for the first payment request. Expediting communication and follow-up as required.

**END OF BID DIVISION 099000**

**Wolgast Corporation – Construction Management**



Wolgast Corporation

**Submittal Packages**

Spec Section	#	Rev.	Title	Type	Status	Responsible Contractor	Submit By	Received From	Received Date	Ball in Court	Approvers	Response	Sent Date	Returned Date	Final Due Date	Distributed Date
<b>#10 09 90 00 - Painting</b>																
09 90 00 - Painting and Coating	09 90 00-2	0	Paint and Coatings - samples	Sample	Draft											
09 90 00 - Painting and Coating	09 90 00-1	0	Paint and Coatings - product data	Product Information	Draft											
<b>#11 09 90 00 - Painting - Start Up</b>																
	14	0	Copy of Permits		Draft											
	13	0	Hazardous/AHERA Notifications		Draft											
	12	0	Sub/Supplier Form		Draft											
	11	0	Safety Data Sheets (SDS)		Draft											
	10	0	Safety Policy		Draft											
	9	0	On Site Employee List		Draft											
	8	0	Insurance/Letter of Compl		Draft											
	7	0	Payment/Performance Bonds		Draft											
	6	0	Contracts Signed/Returned		Draft											
	5	0	Schedule of Values		Draft											
	4	0	Post Bid Interview/Proposal Forms		Draft											
<b>#12 09 90 00 - Painting - Close Out</b>																
09 90 00 - Painting and Coating	09 90 00-3	0	Paint and Coatings - extra material	Closeouts	Draft											
	23	0	Asbestos Materials Affidavits		Draft											
	22	0	Signed Hazardous Materials		Draft											
	21	0	Insurance Up-To-Date		Draft											
	20	0	All CO Signed/Returned		Draft											
	19	0	As Built Drawings		Draft											
	18	0	Completed Punch List		Draft											
	17	0	Substantial Completion		Draft											
	16	0	Consent of Surety		Draft											
	15	0	Contractor (2) Yr Guarantee		Draft											

**Bid Division: 101400 – Electronic Message Signage**

**Bid to Include:**

**Total Responsibility for Specification Sections:**

Section 101463 – Digital Exterior Marquee Sign

**Provide all labor, materials, tools, and equipment necessary to perform the work of the specified bid sections. The contractor must also furnish, deliver, unload, store, protect, erect and install all items required for the satisfactory completion of the work of this bid division (as indicated on drawings and associated specifications.) For a complete operational system. Including but not limited to:**

Install electronic message signs and components for a complete operational system.

**General Inclusions:**

1. There is no general contractor associated with this project; any and all reference to a “general contractor” related to the work of this bid division shall be understood to mean the contractor of this bid division.
2. The contractor for this bid division work is required to include but is not limited to all items, services, tasks, materials, personnel, equipment, etc. identified in this bid division description regardless of the presence of language in other bid division descriptions that is the same or is similar to that found in this contractor’s bid division description.
3. Coordination of the work of this bid division with any and all work of other bid division contractors for the scheduling and integration of the work of this contractor.
4. All contractors are responsible for the entire set of plans and specifications, including tables, schedules, and notes.
5. Provide continuous housekeeping and clean-up, and proper legal off-site disposal of any debris generated by this Bid Division’s work.
6. The contractor is responsible for own dumpster(s) and all removal and disposal charges thereof. (Use of the Owner’s dumpsters is strictly prohibited.)
7. All Contractors are required to inspect the existing project components and are to include all work necessary to complete the work to deliver a fully operational system in compliance with all governing codes.
8. This Contractor shall be responsible for performing all work in full compliance with all health and safety standards including Asbestos Awareness and Notification, Lead Paint Abatement, and all MIOSHA Standards. This Contractor shall also be responsible for satisfying all safety violations and/or fines resulting from the actions or lack of action by this Contractor at the sole expense of this Contractor.
9. Any contractor who compounds a mistake by installing their product on another Contractor’s obvious faulty work will assume responsibility for repair of said work.
10. This contractor shall repair and restore any damaged area to an original or better condition with no detectable evidence that the area has been repaired. Repairs must be done by personnel qualified in the execution of the work skilled and licensed in that trade. Whenever possible, repairs to the work shall be done by the original installer of the work.
11. Submittal of all insurance, unit pricing, schedule of values, required product data and shop drawings within (2) two weeks of Owner’s Notice to commence work.
12. Must provide all submittals within 20 working days of contract award or sooner, unless specifically clarified with the construction manager prior to contract award.
13. Provide all layout and measurements required to perform the work of this Bid Division.
14. The Owner reserves the right to salvage any materials removed from the site during the duration of the project.
15. Coordinate delivery of materials with Construction Manager (48 hours) in advance of the delivery, and provide proper personnel and equipment to perform the unloading.
16. Contractor shall submit to the field construction manager a complete written daily field report stating the work being done on site and the number of employees performing the work for each day the Contractor has representatives on site.
17. Contractor shall have a supervisor on site at all times when a crew is present on the job.

**Wolgast Corporation – Construction Management**

**Bid Division: 101400 – Electronic Message Signage**

18. On Friday, or the last workday of each week, the Contractor must update the Master Copy of As-Builts, as it applies to the work of their Bid Division.
19. **Wolcast uses Software for their CM Software. Please note: We will upload all drawings, and drawing revisions as they are approved, to the Drawings tool. However, it is each contractor's responsibility to verify that they are working from the most up to date, approved, drawings.**

**Division Inclusions:**

1. Field Verify power requirements for new signage.
2. Provide programming / controls to a dedicated computer within district and provide all adequate training.
3. Furnish and install electronic sign and anchors
4. Provide all required programming and training.
5. Furnish and install sign accessories, cabinet, and trim required.

**Project Inclusions:**

1. Submit for sign permits and pay for associated fees.
2. Provide and install Middle School Electronic Building Sign per Drawing B-A101.
3. Provide and install Electronic Message Signages at Pine River per Drawing E-C101. Include steel frame or supports to foundation, base or leveling plates and include painting of any exposed steel.
4. Provide and install Floyd Electronic sign per drawing D-C101
5. Include final electrical connection
6. Provide and install Bullock Creek Elementary School Sign.

**Project Exclusions:**

1. Removal of existing signs.
2. Concrete foundations for signage
3. Electrical to new sign.

**Consideration for award:**

The ability to begin as soon as areas of work become available. To have proper equipment and responsible personnel to complete the above list of work. To repair any adjacent materials damaged in the execution of the above listed work. Close cooperation with the Construction Manager and other bid divisions to provide input to develop a working schedule. An approved schedule of values will be required before approval is granted for the first payment request. Expediting communication and follow-up as required.

END OF BID DIVISION 101400

**Wolcast Corporation – Construction Management**



Wolgast Corporation

**Submittal Packages**

Spec Section	#	Rev.	Title	Type	Status	Responsible Contractor	Submit By	Received From	Received Date	Ball In Court	Approvers	Response	Sent Date	Returned Date	Final Due Date	Distributed Date
<b>#13 10 14 00 - Elec Message Signage</b>																
10 14 63 - Digital Exterior Marquee Sign	10 14 63-3	0	Digital Exterior Sign - color samples	Sample	Draft											
10 14 63 - Digital Exterior Marquee Sign	10 14 63-2	0	Digital Exterior Sign - shop drawings	Shop Drawing	Draft											
10 14 63 - Digital Exterior Marquee Sign	10 14 63-1	0	Digital Exterior Sign - Product Data	Product Information	Draft											
<b>#14 10 14 00 - Elec Message Signage - Start Up</b>																
	14	0	Copy of Permits		Draft											
	13	0	Hazardous/AHERA Notifications		Draft											
	12	0	Sub/Supplier Form		Draft											
	11	0	Safety Data Sheets (SDS)		Draft											
	10	0	Safety Policy		Draft											
	9	0	On Site Employee List		Draft											
	8	0	Insurance/Letter of Compl		Draft											
	7	0	Payment/Performance Bonds		Draft											
	6	0	Contracts Signed/Returned		Draft											
	5	0	Schedule of Values		Draft											
	4	0	Post Bid Interview/Proposal Forms		Draft											
<b>#15 10 14 00 - Elec Message Signage - Close Out</b>																
10 14 63 - Digital Exterior Marquee Sign	10 14 63-4	0	Digital Exterior Sign - Warranty	Closeouts	Draft											
	25	0	O&M Manuals		Draft											
	23	0	Asbestos Materials Affidavits		Draft											
	22	0	Signed Hazardous Materials		Draft											
	21	0	Insurance Up-To-Date		Draft											
	20	0	All CO Signed/Returned		Draft											
	19	0	As Built Drawings		Draft											
	18	0	Completed Punch List		Draft											
	17	0	Substantial Completion		Draft											
	16	0	Consent of Surety		Draft											
	15	0	Contractor (2) Yr Guarantee		Draft											

**Bid Division: 222300 – Plumbing & HVAC Systems**

**Bid to Include:**

**Total Responsibility for Specification Sections:**

Section 114000 – Food Service Equipment  
Section 200000 – Basic Mechanical Requirements  
Section 220553 – Identification for Plumbing Piping and Equipment  
Section 220719 – Plumbing Pipe Insulation  
Section 221005 – Plumbing Piping  
Section 221006 – Plumbing Piping Specialties  
Section 224000 – Plumbing Fixtures  
Section 230593 – Testing, Adjusting and Balancing for HVAC  
Section 230713 – Duct Insulation  
Section 230719 – HVAC Piping Insulation  
Section 230901 – Building Management and Control System  
Section 233100 – HVAC Ducts and Castings  
Section 233300 – Air Duct Accessories  
Section 233700 – Air Outlets and Inlets  
Section 237413 – Packaged Outdoor Central Station Air Handling Units  
Section 238101 – Terminal Heat Transfer Units

**Provide all labor, materials, tools, and equipment necessary to perform the work of the specified bid sections. The contractor must also furnish, deliver, unload, store, protect, erect and install all items required for the completion of the work of this bid division in compliance with all drawings and specifications for a complete operational system including but not limited to:**

**General Inclusions:**

1. There is no general contractor associated with this project; any and all reference to a “general contractor” related to the work of this bid division shall be understood to mean the contractor of this bid division.
2. The contractor for this bid division work is required to include but is not limited to all items, services, tasks, materials, personnel, equipment, etc. identified in this bid division description regardless of the presence of language in other bid division descriptions that is the same or is similar to that found in this contractor’s bid division description.
3. Coordination of the work of this bid division with all work of other bid division contractors for the scheduling and integration of the work of this contractor.
4. All contractors are responsible for the entire set of plans and specifications, including tables, schedules, and notes.
5. Provide continuous housekeeping and clean-up, and proper legal off-site disposal of any debris generated by this Bid Division’s work.
6. The contractor is responsible for their own dumpster(s) and all removal and disposal charges thereof. (Use of the Owner’s dumpsters is strictly prohibited.)
7. All Contractors are required to inspect the existing project components and are to include all work necessary to complete the work to deliver a fully operational system in compliance with all governing codes.
8. This Contractor shall be responsible for performing all work in full compliance with all health and safety standards including Asbestos Awareness and Notification, Lead Paint Abatement, and all MIOSHA Standards. This Contractor shall also be responsible for satisfying all safety violations and/or fines resulting from the actions or lack of action by this Contractor at the sole expense of this Contractor.
9. Any contractor who makes a mistake by installing their product on another Contractor’s obvious faulty work will assume responsibility for repair of said work.



**Bid Division: 222300 – Plumbing & HVAC Systems**

10. This contractor shall repair and restore any damaged area to an original or better condition with no detectable evidence that the area has been repaired. Repairs must be done by personnel qualified in the execution of the work skilled and licensed in that trade. Whenever possible, repairs to the work shall be done by the original installer of the work.
11. Submittal of all insurance, unit pricing, schedule of values, required product data and shop drawings within (2) two weeks of Owner's Notice to commence work.
12. Must provide all submittals within 20 working days of contract award or sooner, unless specifically clarified with the construction manager prior to contract award.
13. Provide all layout and measurements required to perform the work of this Bid Division.
14. The Owner reserves the right to salvage any materials removed from the site during the duration of the project.
15. Coordinate delivery of materials with Construction Manager (48 hours) in advance of the delivery and provide proper personnel and equipment to perform the unloading.
16. Contractor shall submit to the field construction manager a complete written daily field report stating the work being done on site and the number of employees performing the work for each day the Contractor has representatives on site.
17. Contractors shall have a supervisor on site at all times when a crew is present on the job.
18. On Friday, or the last workday of each week, the Contractor must update the Master Copy of As-Built, as it applies to the work of their Bid Division.
19. **Wolgast uses Software for their CM Software. Please note: We will upload all drawings, and drawing revisions as they are approved, to the Drawings tool. However, it is each contractor's responsibility to verify that they are working from the most up to date, approved, drawings.**

**Division Inclusions:**

1. Provide all blocking required for plumbing fixture mounting.
2. Perform all connections between site utilities and building, coordinate with site contractor on utilities.
3. Removal of all plumbing and heating fixtures.
4. Furnish all louvers and access panels to masonry and drywall contractors for installation.
5. Perform all excavating, backfill, compaction, and remove spoils required for the work of this bid division.
6. Furnish and install duct detectors, back draft dampers, etc. as shown and specified, and/or required by Code.
7. Provide all final plumbing hook-ups to all plumbing related fixtures and equipment.
8. Maintain fire rating in all walls penetrated.
9. Provide all required layouts and verify that no conflict occurs with other trades.
10. Provide all necessary connections between temperature control and instrumentation devices and equipment to be controlled.
11. Provide roof curbs for rooftop equipment.
12. Provide all permits required.
13. Provide all required work to prepare each piece of equipment to receive and allow for proper installation and operation of the temperature control modules and related automatic temperature control devices.
14. Provide temporary water distribution as required.
15. Furnish test and balance reports.
16. The contractor shall coordinate phased delivery of all pre-purchased equipment with the supplier.
17. Contractor shall maintain existing HVAC systems in fully functional order in occupied areas of the building throughout the duration of the project.
18. Remove, clean and reinstall all existing grids, vents, registers and diffusers including those mounted in metal ceiling grid systems.

**Bid Division: 222300 – Plumbing & HVAC Systems**

**Project Inclusions:**

1. Price all alternates
2. Include a \$15,000 Allowance to be used at the direct of the Construction Manager.
3. Provide and install a fully working controls system.
4. Include all plumbing and mechanical removals noted per the drawings.
5. Include the removal of existing walk-in cooler at Bullock Creek Middle School shown on drawing B-A102. Include disconnecting mechanical and plumbing lines.
6. Provide and install new walk-in cooler / freezer at Bullock Creek Middle School shown on drawing B-A102. Include a fully functional system.
7. Include cooler to wall flashing shown on drawing B-A103, Detail 7. Include blocking and termination bar for complete watertight installation.
8. Provide and install cooler shelving.
9. Supply and install new plumbing fixtures as noted.
10. Include gas piping removal noted on Floyd drawing D-A101, Roof Demolition Plan.
11. Include removing and salvaging louver on Floyd drawing D-A101, Detail 3
12. Include new gas piping and supports shown on Floyd drawing D-A102, Roof Plan.
13. Re-Install louver noted on Floyd drawing D-A102, Detail 5.
14. Any roof top equipment not noted and needs to be adjusted to maintain 8” of flashing height will be done as an extra.
15. Supply and install new HVAC equipment and ductwork as noted.
16. Insulate and support ductwork as noted.
17. Supply and install required roof top curbs and required roof flashing with curb adapters as noted to complete your work
18. Include supply and installation of new exhaust grills shown on A-A103.
19. Please note that in some areas new or existing plumbing fixtures will be installed back in previous locations and plumbing adjustments and or carriers will need to be made for the added tile thickness
20. Replace existing convector unit covers at High School and add sheet metal were noted.
21. Include replacing existing grilles as noted at the High School. Extend ductwork as needed.
22. Provide and install New Pole Barn soil separator, sanitary line to trench drain, new trench drains with catch basin, and water supply lines with hose bib.
23. Supply and install new trench drain for existing maintenance building.

**Project Exclusions:**

1. Painting of new gas pipe.

**Consideration for award:**

The ability to begin as soon as areas of work become available. To have proper equipment and responsible personnel to complete the above list of work. To repair any adjacent materials damaged in the execution of the above-listed work. Close cooperation with the Construction Manager and other bid divisions to provide input to develop a working schedule. An approved schedule of values will be required before approval is granted for the first payment request. Expediting communication and follow-up as required.



Wolgast Corporation

**Submittal Packages**

Spec Section	#	Rev.	Title	Type	Status	Responsible Contractor	Submit By	Received From	Received Date	Bail In Court	Approvers	Response	Sent Date	Returned Date	Final Due Date	Distributed Date
<b>#19 22 23 00 - Plumbing &amp; HVAC Systems</b>																
23 81 01 - Terminal Heat Transfer Units	23 81 01-2	0	Heat Transfer Units - shop drawings	Shop Drawing	Draft											
23 81 01 - Terminal Heat Transfer Units	23 81 01-1	0	Heat Transfer Units - product data	Product Information	Draft											
23 74 13 - Packaged Outdoor Central Station Air Handling Units	23 74 13-2	0	Outdoor Air Units - Shop Drawings	Shop Drawing	Draft											
23 74 13 - Packaged Outdoor Central Station Air Handling Units	23 74 13-1	0	Outdoor Air Units - Product Data	Product Information	Draft											
23 37 00 - Air Outlets and Inlets	23 37 00-1	0	Air Outlets/Inlets - product data	Product Information	Draft											
23 33 00 - Air Duct Accessories	23 33 00-2	0	Air Duct Accessories - shop drawings	Shop Drawing	Draft											
23 33 00 - Air Duct Accessories	23 33 00-1	0	Air Duct Accessories - product data	Product Information	Draft											
23 31 00 - HVAC Ducts and Casings	23 31 00-2	0	HVAC Ducts and Casings - shop drawings	Shop Drawing	Draft											
23 31 00 - HVAC Ducts and Casings	23 31 00-1	0	HVAC Ducts and Casings - product data	Product Information	Draft											
23 09 01 - Building Management and Control System	23 09 01-3	0	Controls - Shop Drawings - see spec	Shop Drawing	Draft											
23 09 01 - Building Management and Control System	23 09 01-1	0	Controls - product data	Product Information	Draft											
23 07 19 - HVAC Piping Insulation	23 07 19-1	0	HVAC Piping Insulation - product data	Product Information	Draft											
23 07 13 - Duct Insulation	23 07 13-2	0	Duct Insulation - Samples	Sample	Draft											
23 07 13 - Duct Insulation	23 07 13-1	0	Duct Insulation - product data	Product Information	Draft											
22 40 00 - Plumbing Fixtures	22 40 00-2	0	Plumbing Fixtures - color samples	Sample	Draft											
22 40 00 - Plumbing Fixtures	22 40 00-1	0	Plumbing Fixtures - Product Data	Product Information	Draft											
22 10 06 - Plumbing Piping Specialties	22 10 06-2	0	Plumbing Pipe Specialties - Shop Drawings	Shop Drawing	Draft											
22 10 06 - Plumbing Piping Specialties	22 10 06-1	0	Plumbing Pipe Specialties - product data	Product Information	Draft											
22 10 05 - Plumbing Piping	22 10 05-2	0	Plumbing Piping - shop drawings	Shop Drawing	Draft											
22 10 05 - Plumbing Piping	22 10 05-1	0	Plumbing Piping - product data	Product Information	Draft											
22 07 19 - Plumbing Piping Insulation	22 07 19-1	0	Plumbing Pipe Insuation	Product Information	Draft											
22 05 53 - Identification for Plumbing Piping and Equipment	22 05 53-3	0	Plumbing ID - product data	Product Information	Draft											
22 05 53 - Identification for Plumbing Piping and Equipment	22 05 53-2	0	Plumbing ID - chart and schedules	Product Information	Draft											
22 05 53 - Identification for Plumbing Piping and Equipment	22 05 53-1	0	Plumbing ID - list of words	Product Information	Draft											
20 00 00 - Basic Mechanical Requirements	20 00 00-1	0	Plumbing - permits	Other	Draft											
11 40 00 - Food Service Equipment	11 40 00-2	0	Food Service Equip - product data	Product Information	Draft											



Wolgast Corporation

Spec Section	#	Rev.	Title	Type	Status	Responsible Contractor	Submit By	Received From	Received Date	Ball In Court	Approvers	Response	Sent Date	Returned Date	Final Due Date	Distributed Date	
11 40 00 - Food Service Equipment	11 40 00-1	0	Food Service Equip - Shop Drawings - See spec	Shop Drawing	Draft												
<b>#20 22 23 00 - Plumbing &amp; HVAC Systems - Start Up</b>																	
	14	0	Copy of Permits		Draft												
	13	0	Hazardous/AHERA Notifications		Draft												
	12	0	Sub/Supplier Form		Draft												
	11	0	Safety Data Sheets (SDS)		Draft												
	10	0	Safety Policy		Draft												
	9	0	On Site Employee List		Draft												
	8	0	Insurance/Letter of Compl		Draft												
	7	0	Payment/Performance Bonds		Draft												
	6	0	Contracts Signed/Returned		Draft												
	5	0	Schedule of Values		Draft												
	4	0	Post Bid Interview/Proposal Forms		Draft												
<b>#21 22 23 00 - Plumbing &amp; HVAC Systems - Close Out</b>																	
23 74 13 - Packaged Outdoor Central Station Air Handling Units	23 74 13-3	0	Outdoor Air Units - Warranty	Closeouts	Draft												
23 09 01 - Building Management and Control System	23 09 01-2	0	Controls - manuals	Closeouts	Draft												
23 07 13 - Duct Insulation	23 07 13-3	0	Duct Insulation - install instructions	Closeouts	Draft												
23 05 93 - Testing, Adjusting, and Balancing For HVAC	23 05 93-1	0	Test and Balance Reports	Closeouts	Draft												
22 40 00 - Plumbing Fixtures	22 40 00-3	0	Plumbing Fixtures - warranty - water cooler	Closeouts	Draft												
22 10 06 - Plumbing Piping Specialties	22 10 06-3	0	Plumbing Pipe Specialties - extra material	Closeouts	Draft												
	26	0	Copy of Final Inspections for Permits		Draft												
	23	0	Asbestos Materials Affidavits		Draft												
	22	0	Signed Hazardous Materials		Draft												
	21	0	Insurance Up-To-Date		Draft												
	20	0	All CO Signed/Returned		Draft												
	19	0	As Built Drawings		Draft												
	18	0	Completed Punch List		Draft												
	17	0	Substantial Completion		Draft												
	16	0	Consent of Surety		Draft												
	15	0	Contractor (2) Yr Guarantee		Draft												

**Bid Division: 260000 – Electrical**

**Bid to Include:**

**Total Responsibility for Specification Sections:**

Section 260505 – Selective Demolition for Electrical  
Section 260519 – Low-Voltage Electrical Power Conductors and Cables  
Section 260526 – Grounding and Bonding for Electrical Systems  
Section 260529 – Hangers and Supports for Electrical Systems  
Section 260533.13 – Conduit for Electrical Systems  
Section 260533.16 – Boxes for Electrical Systems  
Section 260553 – Identification for Electrical Systems  
Section 262726 – Wiring Devices  
Section 262813 – Fuses  
Section 262816.16 – Enclosed Switches  
Section 265100 – Interior Lighting

**Provide all labor, materials, tools, and equipment necessary to perform the work of the specified bid sections. The contractor must also furnish, deliver, unload, store, protect, erect and install all items required for the completion of the work of this bid division in compliance with all drawings and specifications for a complete operational system including but not limited to:**

**General Inclusions:**

1. There is no general contractor associated with this project; any and all reference to a “general contractor” related to the work of this bid division shall be understood to mean the contractor of this bid division.
2. The contractor for this bid division work is required to include but is not limited to all items, services, tasks, materials, personnel, equipment, etc. identified in this bid division description regardless of the presence of language in other bid division descriptions that is the same or is similar to that found in this contractor’s bid division description.
3. Coordination of the work of this bid division with any and all work of other bid division contractors for the scheduling and integration of the work of this contractor.
4. All contractors are responsible for the entire set of plans and specifications, including tables, schedules, and notes.
5. Provide continuous housekeeping and clean-up, and proper legal off-site disposal of any debris generated by this Bid Division’s work.
6. The contractor is responsible for their own dumpster(s) and all removal and disposal charges thereof. (Use of the Owner’s dumpsters is strictly prohibited.)
7. All Contractors are required to inspect the existing project components and are to include all work necessary to complete the work to deliver a fully operational system in compliance with all governing codes.
8. This Contractor shall be responsible for performing all work in full compliance with all health and safety standards including Asbestos Awareness and Notification, Lead Paint Abatement, and all MIOSHA Standards. This Contractor shall also be responsible for satisfying all safety violations and/or fines resulting from the actions or lack of action by this Contractor at the sole expense of this Contractor.
9. Any contractor who makes a mistake by installing their product on another Contractor’s obvious faulty work will assume responsibility for repair of said work.
10. This contractor shall repair and restore any damaged area to an original or better condition with no detectable evidence that the area has been repaired. Repairs must be done by personnel qualified in the execution of the work skilled and licensed in that trade. Whenever possible, repairs to the work shall be done by the original installer of the work.
11. Submittal of all insurance, unit pricing, schedule of values, required product data and shop drawings within (2) two weeks of Owner’s Notice to commence work.

**Bid Division: 260000 – Electrical**

12. Must provide all submittals within 20 working days of contract award or sooner, unless specifically clarified with the construction manager prior to contract award.
13. Provide all layout and measurements required to perform the work of this Bid Division.
14. The Owner reserves the right to salvage any materials removed from the site during the duration of the project.
15. Coordinate delivery of materials with Construction Manager (48 hours) in advance of the delivery and provide proper personnel and equipment to perform the unloading.
16. Contractor shall submit to the field construction manager a complete written daily field report stating the work being done on site and the number of employees performing the work for each day the Contractor has representatives on site.
17. Contractor shall have a supervisor on site at all times when a crew is present on the job.
18. On Friday, or the last workday of each week, the Contractor must update the Master Copy of As-Built, as it applies to the work of their Bid Division.
19. **Wolgast uses Software for their CM Software. Please note: We will upload all drawings, and drawing revisions as they are approved, to the Drawings tool. However, it is each contractor's responsibility to verify that they are working from the most up to date, approved, drawings.**

**Division Inclusions:**

1. Contractor shall maintain existing electrical systems in fully functional order in all areas of the building during the duration of the project.
2. Contractor shall furnish and install temporary insulated weather-tight closures of openings created as a result of the work in this scope in exterior surfaces to provide acceptable working conditions and protection for materials, to allow temporary heating, and building security.
3. The contractor is responsible for disconnecting, removing and legal and proper off-site disposal of all indicated existing light fixtures including ballasts and bulbs. Ballasts shall be assumed to contain PCB's. Provide Owner with appropriate documentation of disposal.
4. Remove, clean and reinstall light fixtures where indicated.
5. Provide all permits required.
6. Maintain fire rating at all walls penetrated.
7. All excavation, backfill, compaction, and disposal of spoil for any electrical work placed below finish grade.
8. Coordinate with other trades for rough-in locations.
9. Provide temporary lighting and power distribution. A minimum of 100 watts of temporary lighting per 250 SF of floor area.
10. Provide all plywood or nailers required for mounting of electrical, audio, fire alarm or phone equipment.
11. Furnish any access hatches to mason and drywall contractors for installation required for electrical work.
12. Final hook-up of all equipment for other disciplines of work.
13. Furnish and install all light and power fixtures in cabinetry.

**Bid Division: 260000 – Electrical**

**Project Inclusions:**

1. Price all alternates
2. Include a \$5,000 Allowance to be used at the direct of the Construction Manager.
3. Provide any noted power and conduit to electronic signs
4. Include all electrical removals called out on the drawings which includes speakers.
5. Include electrical disconnection and conduit detachment of exterior signs before removal.
6. Include trenching for any underground electrical.
7. Include all electrical, electrical fixtures, and electrical connections to equipment.
8. Include removal of electrical hand dryers
9. Provide and install electrical hand dryers.
10. Review Drawing B-FS1 Food Service Equipment notes that require electrical work. Notes 1 – 10.
11. Detach and reinstall fire alarm devices as noted.
12. Remove speakers as noted and return to the district.
13. Provide and install new speakers.
14. Include electrical demolition per drawing F-E101.
15. Include all electrical for new Pole Barn.

**Consideration for award:**

The ability to begin as soon as areas of work become available. To have proper equipment and responsible personnel to complete the above list of work. To repair any adjacent materials damaged in the execution of the above-listed work. Close cooperation with the Construction Manager and other bid divisions to provide input to develop a working schedule. An approved schedule of values will be required before approval is granted for the first payment request. Expediting communication and follow-up as required.

**END OF BID DIVISION 260000**



Wolgast Corporation

**Submittal Packages**

Spec Section	#	Rev.	Title	Type	Status	Responsible Contractor	Submit By	Received From	Received Date	Ball In Court	Approvers	Response	Sent Date	Returned Date	Final Due Date	Distributed Date
<b>#22 26 00 00 - Electrical</b>																
26 51 00 - Interior Lighting	26 51 00-1	0	Interior Lighting - Product data	Product Information	Draft											
26 28 16 - Enclosed Switches	26 28 16-1	0	Enclosed Switches - product data	Product Information	Draft											
26 28 13 - Fuses	26 28 13-1	0	Fuses - product data	Product Information	Draft											
26 27 26 - Wiring Devices	26 27 26-1	0	Wiring Devices - product data	Product Information	Draft											
26 05 53 - Identification for Electrical Systems	26 05 53-1	0	ID for Electrical - product data	Product Information	Draft											
26 05 33 - Boxes for Electrical Systems	26 05 33-2	0	Electrical Boxes - samples	Sample	Draft											
26 05 33 - Boxes for Electrical Systems	26 05 33-1	0	Electrical Boxes - product data	Product Information	Draft											
26 05 29 - Hangers and Supports for Electrical Systems	26 05 29-1	0	Hangers/Supports - product data	Product Information	Draft											
26 05 26 - Grounding and Bonding for Electrical Systems	26 05 26-1	0	Grounding/Bonding - product data	Product Information	Draft											
26 05 19 - Low-Voltage Electrical Power Conductors and Cables	26 05 19-1	0	Low Voltage Elec - product data	Product Information	Draft											
<b>#23 26 00 00 - Electrical - Start Up</b>																
	14	0	Copy of Permits		Draft											
	13	0	Hazardous/AHERA Notifications		Draft											
	12	0	Sub/Supplier Form		Draft											
	11	0	Safety Data Sheets (SDS)		Draft											
	10	0	Safety Policy		Draft											
	9	0	On Site Employee List		Draft											
	8	0	Insurance/Letter of Compl		Draft											
	7	0	Payment/Performance Bonds		Draft											
	6	0	Contracts Signed/Returned		Draft											
	5	0	Schedule of Values		Draft											
	4	0	Post Bid Interview/Proposal Forms		Draft											
<b>#24 26 00 00 - Electrical - Close Out</b>																
26 51 00 - Interior Lighting	26 51 00-3	0	Interior Lighting - warranty	Closeouts	Draft											
26 51 00 - Interior Lighting	26 51 00-2	0	Interior Lighting - Extra materials	Closeouts	Draft											
26 05 33 - Boxes for Electrical Systems	26 05 33-3	0	Electrical Boxes - extra material	Closeouts	Draft											
	26	0	Final Inspections for Permits		Draft											
	25	0	O&M Manuals		Draft											
	23	0	Asbestos Materials Affidavits		Draft											





Wolgast Corporation

Spec Section	#	Rev.	Title	Type	Status	Responsible Contractor	Submit By	Received From	Received Date	Ball In Court	Approvers	Response	Sent Date	Returned Date	Final Due Date	Distributed Date	
	22	0	Signed Hazardous Materials		Draft												
	21	0	Insurance Up-To-Date		Draft												
	20	0	All CO Signed/Returned		Draft												
	19	0	As Built Drawings		Draft												
	18	0	Completed Punch List		Draft												
	17	0	Substantial Completion		Draft												
	16	0	Consent of Surety		Draft												
	15	0	Contractor (2) Yr Guarantee		Draft												

**Bid Division: 310000 – Site Work**

**Bid to Include:**

**Total Responsibility for Specification Sections:**

**Total Responsibility for Specification Sections:**

Section 024113.13 – Pavement Removal  
Section 311000 – Site Clearing  
Section 312301 – Excavation, Filling, and Grading  
Section 312500 – Soil Erosion and Sedimentation Control  
Section 321500 – Aggregate Surface  
Section 323113 – Chain Link Fences and Gates  
Section 329218 – Lawn Restoration

**Limited Responsibility for Specification Sections (as it relates to work in this Bid Division):**

Section 024100 – Demolition

**Provide all labor, materials, tools, and equipment necessary to perform the work of the specified bid sections. The contractor must also furnish, deliver, unload, store, protect, erect and install all items required for the completion of the work of this bid division in compliance with all drawings and specifications for a complete operational system including but not limited to:**

Clearing and stump removal of site and building areas, rough and fine grading, mass and building excavation, backfill, import and export of soils/fill, topsoil replacement and seeding. Provide all sand base course material for concrete sidewalks, exterior slabs, pads, etc. including placement, grading and compaction.

**General Inclusions:**

1. There is no general contractor associated with this project; any and all reference to a “general contractor” related to the work of this bid division shall be understood to mean the contractor of this bid division.
2. The contractor for this bid division work is required to include but is not limited to all items, services, tasks, materials, personnel, equipment, etc. identified in this bid division description regardless of the presence of language in other bid division descriptions that is the same or is similar to that found in this contractor’s bid division description.
3. Coordination of the work of this bid division with any and all work of other bid division contractors for the scheduling and integration of the work of this contractor.
4. All contractors are responsible for the entire set of plans and specifications, including tables, schedules, and notes.
5. Provide continuous housekeeping and clean-up, and proper legal off-site disposal of any debris generated by this Bid Division’s work.
6. The contractor is responsible for their own dumpster(s) and all removal and disposal charges thereof. (Use of the Owner’s dumpsters is strictly prohibited.)
7. All Contractors are required to inspect the existing project components and are to include all work necessary to complete the work to deliver a fully operational system in compliance with all governing codes.
8. This Contractor shall be responsible for performing all work in full compliance with all health and safety standards including Asbestos Awareness and Notification, Lead Paint Abatement, and all MIOSHA Standards. This Contractor shall also be responsible for satisfying all safety violations and/or fines resulting from the actions or lack of action by this Contractor at the sole expense of this Contractor.
9. Any contractor who makes a mistake by installing their product on another Contractor’s obvious faulty work will assume responsibility for repair of said work.

**Bid Division: 310000 – Site Work**

10. This contractor shall repair and restore any damaged area to an original or better condition with no detectable evidence that the area has been repaired. Repairs must be done by personnel qualified in the execution of the work skilled and licensed in that trade. Whenever possible, repairs to work shall be done by the original installer of the work.
11. Submittal of all insurance, unit pricing, schedule of values, required product data and shop drawings within (2) two weeks of Owner's Notice to commence work.
12. Must provide all submittals within 20 working days of contract award or sooner, unless specifically clarified with the construction manager prior to contract award.
13. Provide all layout and measurements required to perform the work of this Bid Division.
14. The Owner reserves the right to salvage any materials removed from the site during the duration of the project.
15. Coordinate delivery of materials with Construction Manager (48 hours) in advance of the delivery and provide proper personnel and equipment to perform the unloading.
16. Contractor shall submit to the field construction manager a complete written daily field report stating the work being done on site and the number of employees performing the work for each day the Contractor has representatives on site.
17. Contractor shall have a supervisor on site at all times when a crew is present on the job.
18. On Friday, or the last workday of each week, the Contractor must update the Master Copy of As-Built, as it applies to the work of their Bid Division.
19. **Wolgast uses Software for their CM Software. Please note: We will upload all drawings, and drawing revisions as they are approved, to the Drawings tool. However, it is each contractor's responsibility to verify that they are working from the most up to date, approved, drawings.**

**Division Inclusions:**

1. Removal of excess spoils generated by this bid division from site.
2. Barricade trees to protect from construction.
3. Selective Demolition of site to within 5 feet of building, including but not limited to fencing, asphalt removal, curb, sidewalk, landscaping, concrete stoops, pipe railings, playground equipment, flagpole, etc.
4. Provide de-watering for work in your Bid Division.
5. Furnish and install all gravel base material, finish grading of gravel, compaction and preparation for all placement of asphalt paving.
6. Finish grading all topsoil, plant beds and seed. Excavation, backfill, removal and disposal of spoil for all planting and landscape items. Repair all areas of construction to their original state or improving upon by seeding.
7. Review the complete geotechnical report, particularly the soil borings. This Bid Division contractor is responsible to provide all designated fill for this project. Any assumed fill to be used from the project site is at the risk of the Contractor.
8. Provide all aggregate base course and sand cushions directly below concrete slabs on grade for buildings and sidewalks and all other exterior concrete +/- 0.1. Cushions to be depth as indicated in contract documents and specifications.
9. All site demolition required for installation of asphalt work and final site work.
10. Engineering layout and grade certifications. All associated excavation, backfill, compaction, and clean up. Connection charges. Street, concrete and pavement cutting, removal, and patching. Barricades and traffic control.
11. Responsible for all required permits for erosion and sedimentation control.
12. Must provide all submittals within 20 working days of contract award or sooner, unless specifically clarified with the construction manager prior to contract award.
13. All seeding is required for all areas affected by construction.
14. Aggregate base course to be finished graded after placement and also immediately prior to lay down of asphaltic concrete paving.
15. All required topsoil. Topsoil to be graded to + .1 feet of designed finish grade after placement and also immediately prior to landscaping activities.
16. All site utilities as it relates to water, storm, sanitary, and gas to within 5 feet of building.

**Bid Division: 310000 – Site Work**

17. Provide all required permits.
18. Patching of asphalt on parking lot disturbed during construction if caused by this Bid Division.
19. Provide all import fill soils and export of all spoil or unusable soils necessary to complete all work or required by the construction documents.
20. Temporary care & maintenance of all plants and lawns until final completion of all work and acceptance by Owner.
21. Notify and correspond with Miss Dig before work commences and throughout the project.
22. All saw cutting of asphalt and concrete as required on site.
23. Tie into all downspouts within 5 feet of the buildings. (Coordinate with Bid Division 222300 – Mechanical)
24. Furnish and install irrigation sleeves as required.
25. Site work Contractor is responsible to provide, install and maintain all erosion control requirements.

**Project Inclusions:**

1. Price all Alternates
2. Include a \$10,000 Allowance to be used at the direct of the Construction Manager.
3. Remove Pine River exterior signage and foundations. Include excavation for new foundation noted on drawing E-C101
4. Include restoration for any underground electrical shown on the drawings.
5. Include site removals noted at Bullock Creek Middle School shown on the drawing B-A102. Include subgrade removal.
6. Include saw cutting to complete your work.
7. Provide and install subgrade excavation, new subgrade, backfill, asphalt, and restoration at the Middle School.
8. Include all soil erosion control, permits, maintenance, and fees to complete your work.
9. Include equipment pad excavation, subbase, and backfill for compressors shown on B-FS1
10. Include all site removals shown on the New Pole Barn Drawings which include but are not limited to: trees, stumps, debris, existing buildings with foundations, concrete and paving with subgrade, fences and gates, and sanitary lines.
11. For the New Pole Building provide and install underground water and sanitary lines to new oil separator, fencing, subgrade for building foundation, site concrete and paving. Provide and install underground future sleeves. Provide and install gravel parking area. Include topsoil and seeding for disturbed areas.
12. At bus parking saw cut and remove asphalt with base. Install new base as noted.

**Excludes:**

1. Soil Density Testing
2. Oil separator

**Consideration for award:**

The ability to begin as soon as areas of work become available. To have proper equipment and responsible personnel to complete the above list of work. To repair any adjacent materials damaged in the execution of the above-listed work. Close cooperation with the Construction Manager and other bid divisions to provide input to develop a working schedule. An approved schedule of values will be required before approval is granted for the first payment request. Expediting communication and follow-up as required.

**END OF BID DIVISION 310000**

**Wolgast Corporation – Construction Management**



Wolgast Corporation

**Submittal Packages**

Spec Section	#	Rev.	Title	Type	Status	Responsible Contractor	Submit By	Received From	Received Date	Ball in Court	Approvers	Response	Sent Date	Returned Date	Final Due Date	Distributed Date
<b>#25 31 00 00 - Site Work</b>																
32 31 13 - Chain Link Fences and Gates	32 31 13-2	0	Chain Link Fences and Gate - Shop Drawings	Shop Drawing	Draft											
32 31 13 - Chain Link Fences and Gates	32 31 13-1	0	Chain Link Fences and Gate - Product Data	Product Information	Draft											
<b>#26 31 00 00 - Site Work - Start Up</b>																
	10	0	Hazardous/AHERA Notifications		Draft											
	9	0	Sub/Supplier Form		Draft											
	8	0	Safety Data Sheets (SDS)		Draft											
	7	0	Safety Policy		Draft											
	6	0	On Site Employee List		Draft											
	5	0	Insurance/Letter of Compl		Draft											
	4	0	Payment/Performance Bonds		Draft											
	3	0	Contracts Signed/Returned		Draft											
	2	0	Schedule of Values		Draft											
	1	0	Post Bid Interview/Proposal Forms		Draft											
<b>#27 31 00 00 - Site Work - Close Out</b>																
32 31 13 - Chain Link Fences and Gates	32 31 13-3	0	Chain Link Fences and Gate - Warranty	Closeouts	Draft											
	19	0	Asbestos Materials Affidavits		Draft											
	18	0	Signed Hazardous Materials		Draft											
	17	0	Insurance Up-To-Date		Draft											
	16	0	All CO Signed/Returned		Draft											
	15	0	As Built Drawings		Draft											
	14	0	Completed Punch List		Draft											
	13	0	Substantial Completion		Draft											
	12	0	Consent of Surety		Draft											
	11	0	Contractor (2) Yr Guarantee		Draft											

**PART 1 – GENERAL**

**1.01 DEFINITION**

- A. Clarification Request forms shall be used to document all questions regarding bidding documents and technical specifications. Please use **ONE** Clarification Form for each item, be sure to put what building you are referring to on the form.
- B. The Clarification Request form follows as page 2 of this Section.

**1.02 PREPARATION OF CLARIFICATION REQUEST FORM**

- A. The Contractor shall complete the following items on the Clarification Request form:
  - 1. Date
  - 2. Contractor Name
  - 3. Contractor contact person
  - 4. Contractor email, phone, and fax number
  - 5. Item(s) for clarification
- B. The Contractor shall forward the Clarification Request form, via fax or email, to the Construction Manager **no later than 5 days prior to bid due date**. Requests from bidders for clarification, or interpretation of the bidding documents must reach the Project Team five days before the bid date, or by the date addressed in the pre-bid agenda. Any bidder clarifications which reach the project team after such dates have passed will not be considered.

**1.03 RESPONSIBILITIES FOR COMPLETION OF CLARIFICATION REQUEST FORMS**

- A. The Construction Manager shall review and number Clarification Request forms as they are received.
- B. Clarification Requests regarding BIDDING INSTRUCTIONS OR PROCEDURES shall be answered by the Construction Manager.
- C. Clarification Requests regarding the DESIGN and/or TECHNICAL SPECIFICATIONS shall be answered by the Architect. The Construction Manager shall forward technical specification clarifications to the Architect, via fax or mail, as they are received.

**1.04 RESPONSE TO CLARIFICATION REQUEST FORMS**

- A. The Architect shall review each Clarification Request form received and return responses to the Construction Manager.
- B. As noted in Items 1.03.B and 1.03.C above, it is the responsibility of both the Construction Manager and the Architect to respond to Clarification Request forms.
- C. Responses shall be issued via the “Response” section of the Clarification Request form or Addenda.

**CLARIFICATION REQUEST FORM**

Date: \_\_\_\_\_

Wolgast Clarification Request  
#: \_\_\_\_\_

To: Wolgast Corporation  
[Dale Schwerin dschwerin@wolgast.com](mailto:dschwerin@wolgast.com) or [Lisa Donahue ldonahue@wolgast.com](mailto:ldonahue@wolgast.com)  
4835 Towne Centre Road, Suite 203  
Saginaw, MI 48604  
Phone (989) 790-9120, Fax (989) 790-9063

From: \_\_\_\_\_  
Contractor Name  
\_\_\_\_\_  
Contact Name  
\_\_\_\_\_  
Email Address  
\_\_\_\_\_  
Phone # \_\_\_\_\_ Fax # \_\_\_\_\_

Bid Division # and Name: \_\_\_\_\_

CSI Code (If Applicable): \_\_\_\_\_

Drawing #: \_\_\_\_\_ Detail or Item #: \_\_\_\_\_

Reason for Request:  More Detail Needed  Engineering Clarification  Alternate Proposal  Other

Project: [Bullock Creek School District](#)

Site Location: [HS, MS, Elem., Pine River, Floyd and Mtnce Bldg.](#)

**ITEM(S) FOR CLARIFICATION OF BID: (Please use one form for each item)**

Please review and respond to the following item(s) for clarification:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**RESPONSE:**  ITEM TO BE INCLUDED IN ADDENDUM

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Construction Manager: \_\_\_\_\_  
Signature Date

Architect: \_\_\_\_\_  
Signature Date

**END OF SECTION 00310**

**PART 1 – GENERAL**

**1.01 BID SECURITY**

- A. Each Proposal shall be accompanied by Bid Security pledging that the Bidder will enter into a contract with the Owner on the terms stated in the Proposal, and will, if required, furnish bonds as described in Section 00600. Should the Bidder refuse to enter into such contract or fail to furnish such Bonds, the amount of the Bid Security shall be forfeited to the Owner as liquidated damages, not as a penalty.
- B. Bid Security shall be in the amount of five percent (5%) of the Base Bid(s).
- C. Bid Security for each Proposal containing Bids for multiple Bid Divisions shall be in the amount of five percent (5%) of the total Base Bids for the highest-priced combination of Bid Divisions included in the Proposal.
- D. Bid Security may take the form of a **Bid Bond, a Cashier's Check, or a Money Order made payable to the Owner.** When submitting a Cashier's Check or Money Order a separate check or money order must accompany each Bid Division.
- E. Bid Security that is in the form of a Cashier's Check or Money Order will be returned to Bidders within a reasonable period after construction contracts have been executed, returned, and approved by the Owner.

**END OF SECTION 00410**



**PART 1 – GENERAL**

**1.01 OWNER/CONTRACTOR AGREEMENT**

- A. The Agreement between the Owner and the Contractor will be written on the Owner’s standard Owner/Contractor Agreement Form. A sample of this Form appears as Section 00510.
- B. The Owner/Contractor Agreement Form will be filled in by the Owner, as appropriate for each Contractor and will be sent to each Contractor.
- C. The executed Owner/Contractor Agreement, the General Conditions and the other Contract Documents will be the entire, integrated Contract between the Owner and each Contractor.
- D. Upon receipt of an Owner/Contractor Agreement, each successful Bidder shall review it for completeness and accuracy, execute it and return it to the Owner’s Representative for delivery to the Owner.
- E. Each successful Bidder shall submit all required post-bid documents, including Labor and Material Payment Bond and Performance Bond (Section 00600) unless waived by the Owner, Certificates of Insurance (Section 00650), Schedule of Values (Section 00670), Subcontractor and Supplier Listing (Section 00680), and Employee Listing (Section 00690) as a prerequisite to execution of the Owner/Contractor Agreement
- F. The Owner will execute each Owner/Contractor Agreement after it has been properly executed by the Bidder and after all required post-bid documents have been submitted.

**1.02 NOTICE TO PROCEED**

- A. The Owner may elect to issue Notices to Proceed prior to the execution of Owner/Contractor Agreements.
- B. Upon receipt of Notice to Proceed, each Contractor shall commence work in accord with the conditions contained in the Notice to Proceed
- C. Regardless of the provisions of any Notice to Proceed or of this Section, no Contractor shall commence work until all required insurance is in force and Certificates of Insurance (Section 00650) have been submitted to the Owner’s Representative for delivery to the Owner.
- D. Prior to commencement of work, Contractors shall submit evidence satisfactory to the Owner that required bonds will be furnished and shall deliver the Bonds by the date the Contractor executes the Owner/Contractor Agreement.
- E. The Owner may include Notice to Proceed in Purchase Orders.

**1.03 COMMENCEMENT OF WORK**

- A. Each Contractor shall commence work immediately upon receipt of Notice to Proceed under the conditions contained in the Notice to Proceed or upon execution of an Owner/Contractor Agreement, whichever is earlier.

**END OF SECTION 00500**

**SAMPLE  
OWNER-CONTRACTOR  
CONTRACT ON  
FOLLOWING PAGE**

END OF SECTION 00510



# Document A132™ - 2019

## **Standard Form of Agreement between Owner and Contractor, Construction Manager as Adviser Edition**

**AGREEMENT** made as of the «Day» of «Month» in the year «Year»  
(in words, indicate day, month and year)

**BETWEEN** the Owner:  
(Name, legal status, address and other information)

«Owner Name»  
«Owner Address»  
«Owner CSZ»

Telephone:  
Facsimile:

and the Contractor:  
(Name, legal status, address and other information)

«Contractor»  
«Address»  
«CSZ»

Telephone:  
Facsimile:

for the following Project:  
(Name, legal status, address and other information)

«Project Description»  
«Project Name»  
«Project Address»  
«Project CSZ»

«Bid Division» - «Description»

The Construction Manager is:  
(Name, legal status, address and other information)

Wolgast Corporation  
4835 Towne Centre Road, Suite 203  
Saginaw, MI 48604  
Telephone: (989) 790-9120  
Facsimile: (989) 790-9120

The Architect is:  
(Name, legal status, address and other information)

«Architect Name»  
«Architect Address»  
«Architect CSZ»

Telephone:  
Facsimile:

The Owner and Contractor agree as set forth below.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A232™-2019, General Conditions of the Contract for Construction. Construction Manager as Adviser Edition: B132™-2019, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™-2019, Standard Form of Agreement Between Owner and Construction Manager as Adviser.

AIA Document A232™-2019 is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

## TABLE OF ARTICLES

1	THE CONTRACT DOCUMENTS
2	THE WORK OF THIS CONTRACT
3	DATE OF COMMENCEMENT AND DATES OF SUBSTANTIAL COMPLETION
4	CONTRACT SUM
5	PAYMENTS
6	DISPUTE RESOLUTION
7	TERMINATION OR SUSPENSION
8	MISCELLANEOUS PROVISIONS
9	ENUMERATION OF CONTRACT DOCUMENTS

### ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to the execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than Modifications, appears in Article 9.

### ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others, or as follows:

**§ 2.1** Provide all work described by but not limited to Bidding Requirements, Contract Forms and Conditions of the Contract, Additional Conditions of the Contract, General Conditions of the Contract for Construction, Division 1 General Requirements and:

**BID DIVISION:** \_\_\_\_\_ «Bid Division» - «Description»

Provide all labor, materials, tools and equipment necessary to perform the work of the specified bid sections. The Contractor must also furnish, deliver, unload, store, protect erect and install all items required for the satisfactory completion of the work of this bid division (as indicated on drawings and associated specifications.) Including but not limited to:

«Written Description»  
\_\_\_\_\_

**INCLUDING SECTIONS:** «Including Sections1»  
\_\_\_\_\_

**Limited Responsibility:** «Limited Responsibility»  
\_\_\_\_\_

**§ 2.2** Pre-Bid Meeting Agenda and Meeting Minutes dated: \_\_\_\_\_ «Pre Bid Date»

**§ 2.3** Post-Bid Interview dated: \_\_\_\_\_ «Post Bid Interview Date»

**§ 2.4** Pre-Construction Meeting Agenda and Meeting Minutes dated: \_\_\_\_\_ «Pre Con Date»

**§ 2.5** Performance Bond and Labor and Material Payment Bond required: \_\_\_\_\_ «Bond Required»

**§ 2.6** Project Start Date: \_\_\_\_\_ «Project Start Date»

**§ 2.7** Completion Date: \_\_\_\_\_ «Completion Date»

- § 2.8 All submittals and shop drawings required by the specifications must be submitted by: «Submittals Due By»
- § 2.9 Provide all clean-up and legal off-site disposal of all debris generated by any work performed by this Contract including general housekeeping of employee generated trash and garbage (i.e. drink cups, food wrappers, bag, etc.).
- § 2.10 The Bid Division Description(s) identify the scope of work, areas of responsibility and specific work to be included in the Contract Amount. If any conflict is found between the architect/engineer specifications and the Bid Division Descriptions regarding the scope of work to be performed, the Bid Division Description(s) shall govern. Further, if a conflict occurs between the Bidding Requirements, the General Requirements, the Specifications, the Bid Division Description(s), the Drawings, or the Addenda(s), the most stringent requirement shall apply.
- § 2.11 Other Special provisions: Article 8.6
- § 2.12 Compliance with EPA AHERA for Asbestos: The Contractor must adhere to all EPA AHERA and Michigan State Asbestos Regulations for Asbestos and other hazardous materials.
- § 2.13 Compliance with Lead-Containing Materials: ALL Contractors, Subcontractors and Sub-Subcontractors shall adhere to the Environmental Protection Agency (EPA) lead-based paint regulation titled the “Renovation, Repair and Paint (RRP) Rule”. Included under this law are “Child Occupied Facilities” (COFs). COFs encompass locations of pre-1978 constructed buildings where children under age six (6) regularly visit, such as kindergarten rooms, 1<sup>st</sup> grade classrooms, applicable restrooms, pre-school and day care centers. Therefore portions of each pre-1978 constructed school building falls under the RRP Rule. Any contractor working on this project who disturbs painted surfaces in COF spaces shall ensure that they adhere to all aspects of the RRP Rule. This included but is not limited to meeting the requirements for being a Certified Firm, having a Certified Lead Renovator involved and following applicable lead safe work practices. Furthermore, all Contractors shall be responsible to comply with all applicable Federal and Michigan State lead regulations including, but not limited to, 29CFR Part 1926.62 of the OSHA Lead Construction Standards, (Part 603 of the Michigan State Standards). All costs associated with regulatory compliance shall be borne by the Contractor.
- § 2.14 This Contractor is responsible for all safety issues for all work that he has effected until his project is complete.

### ARTICLE 3 DATE OF COMMENCEMENT AND DATES OF SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:

- The date of this Agreement.
- A date set forth in a notice to proceed issued by the Owner.
- Established as follows:  
(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

#### § 3.3 Substantial Completion of the Project or Portions Thereof

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the date of Substantial Completion of the Work of all of the Contractors for the Project will be : See Milestone Schedule for details  
(Insert the date of Substantial Completion of the Work of all Contractors for the Project.)

«Substantial Completion Date»

§ 3.3.2 The Contractor agrees that time is of the essence and to start work when directed by the Construction Manager and to furnish sufficient materials and a sufficient number of properly skilled works, so as not to delay the work of any other Contractor or completion of the project.

### ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor’s performance of the Contract. The Contract Sum shall be one of the following:  
*(Check the appropriate box.)*

- Stipulated Sum, in accordance with Section 4.2 below:
- Cost of the work plus the Contractor’s Fee without a Guaranteed Maximum Price, in accordance with Section 4.3 below:
- Cost of the Work plus the Contractor’s Fee with a Guaranteed Maximum Price, in accordance with Section 4.4 below

*(Based on the selection above, complete Section 4.2, 4.3 or 4.4 below.)*

**§ 4.2 Stipulated Sum**

§ 4.2.1 The Stipulated Sum shall be «Contract Amount» Dollars (\$«Contract Amount »), subject to additions and deductions as provided in the Contract Documents.

Contract amount includes: Base Bid \$«Base Bid», PLM Bond Amount \$«Bond Amount», Alternates \$«Alternate» totaling \$«Contract Amount ».

**§ 4.2.2 Alternates**

§ 4.2.2.1 Alternates, if any, included the Contract Sum:

Item	Price
<u>«Alternate Description»</u>	

§ 4.2.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.  
*(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)*

Item	Price	Conditions for Acceptance
------	-------	---------------------------

§ 4.2.3 Allowances, if any, included in the Contract Sum:  
*(Identify each allowance.)*

Item	Price
------	-------

§ 4.2.4 Unit Prices, if any:

*(Identify the item and state the unit price, and quantity limitations, if any, to which the unit price will be applicable.)*

Item	Units and Limitations	Price per Unit (\$0.00)
------	-----------------------	-------------------------

**ARTICLE 5 PAYMENTS**

**§ 5.1 Progress Payments**

§ 5.1.1 The Construction Manager will provide a Contractor Invoice Form to the Contractor for submitting the Contractor’s request for payment each month. All reference to “Application for Payment” or “Progress Payment Request” shall mean “Contractor Invoice Form”. Based upon Applications for Payment submitted to the Construction Manager by the Contractor and upon certification of the Application for Payment by the Construction Manager and Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor, as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

See Contractor Invoice Form Due Date on Attachment “A”

**§ 5.1.3** Provided an Application for Payment is received by the Construction Manager not later than the “Contractor Invoice Form Due Date” found on Attachment “A”, the Owner shall make payment of the amount certified in the Application for Payment to the Contractor for all undisputed amounts not later than forty-five (45) days after the “Owner Approves Invoice” date found on Attachment “A”. If an Application for Payment is received by the Construction Manager after the application date fixed above, payment for all undisputed amounts shall be made by the Owner after the Construction Manager receives the Application for Payment and at the payment date for the Applications for Payment of the following month.

*(Federal, state or local laws may require payment within a certain period of time.)*

**§ 5.1.4 Progress Payments Where the Contract Sum is Based on a Stipulated Sum**

**§ 5.1.4.1** Each Contractor Invoicing Form and CM prepared Progress Payment Request Form shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Construction Manager and Architect may require. This approved schedule of values, unless objected to by the Construction Manager, shall be used as a basis for reviewing the Contractor’s Invoicing Form and CM prepared Progress Payment Form.

**§ 5.1.4.2** The Contractor Invoicing Form shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

**§ 5.1.4.3** In accordance with AIA Document A232™-2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

**§ 5.1.4.3.1** The amount of each progress payment shall first include:

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the total Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of ten percent (10%). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute may be included as provided in Section 7.3.9 of the General Conditions; and
- .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing, less retainage of ten percent (10%); and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect’s professional judgment, to be reasonably justified; and
- .4 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to ninety percent (90%) of the Contract Sum, less such amounts as the Construction Manager and Owner recommends and the Architect determines for incomplete Work and unsettled claims; and
- .5 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of the General Conditions.

**§ 5.1.4.3.2** The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner.
- .2 The amount, if any, for Work that remains uncorrected and for which the Construction Manager or Architect has previously withheld or nullified a Certificate for Payment as provided in Article 9 of AIA Document A232-2019.
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay.
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A232-2019; and

**.5 Retainage withheld pursuant to Section 5.1.7.**

**§ 5.1.4.4** The Contractor shall submit to the Construction Manager an itemized progress payment request by the date required in Section 01045 of the Project Manual. The progress payment request is referred to as the Contractor Invoice Form. After the schedule of values is submitted to and approved by the Construction Manager, the Construction Manager will prepare a Contractor Invoice Form master template in accordance with the approved schedule of values and provide it to the Contractor for use to prepare all progress payment requests. The Contractor shall submit a signed and notarized original Contractor Invoice Form for each monthly progress payment request. It shall be accompanied by such supporting data and documents the Owner, Construction Manager and Architect may require substantiating the Contractor's right to payment.

1. Contractor Invoice Form as defined as: See Section 1045 (Contractors Application for Payment)
2. Cost Control Manual as defined as: See Section 1045 (Contractors Application for Payment)
3. Progress Payment Request as defined as: See Section 1045 (Contractors Application for Payment)

**§ 5.1.7 Retainage**

**§ 5.1.7.1** For each progress payment made prior to when the Work of this Contract is substantially complete, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

*(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)*

Ten percent (10%) retainage

**§ 5.1.7.2** Reduction or limitation of retainage, if any, shall be as follows:

*(If the retainage established in Section 5.1.7.1 is to be modified prior to when the entire Work of this Contract is substantially complete, including modifications for completion of portions of the Work as provided in Section 3.4.2, insert provisions for such modifications.)*

Ten percent (10%) retainage shall be held back until the project is complete.

**§ 5.2 Final Payment**

**§ 5.2.1 Final Payment Where the Contract Sum is Based on a Stipulated Sum**

**§ 5.2.1.1** Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A232-2019, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment or Project Certificate for Payment has been issued by the Architect.

**§ 5.2.1.2** The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the final Certificate for Payment or Project Certificate for Payment, or as follows:

**§ 5.2.2** The following must be submitted to the Construction Manager before the acceptance and submission of final payment in addition to requirements of other sections:

- .1 All required closeout documents including warranties, guarantees, operation and maintenance documents, and training;
- .2 As-Builts Drawings;
- .3 Itemized lists of all surplus and extra materials required per specifications at which time the Construction Manager will schedule the delivery of such materials to the owner by the Contractor;
- .4 Consent of Surety for Final Payment;
- .5 Submit Releases and Final Unconditional Waivers of Lien from all suppliers and subcontractors;
- .6 Submit certification stating that no materials containing asbestos were incorporated into the Work;
- .7 Submit certification that all punch list items have been completed.



§ 5.3 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

*(Insert rate of interest agreed upon, if any.)*

Five Percent (5%) per annum % See MCL 438.31

## ARTICLE 6 DISPUTE RESOLUTION

### § 6.1 Initial Decision Maker

The Architect will serve as Initial Decision Maker pursuant to Section 15 of AIA Document A232-2019, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.

*(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)*

N/A

### § 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Section 15 of AIA Document A232-2019, the method of binding dispute resolution shall be as follows:

*(Check the appropriate box.)*

- Arbitration pursuant to Section 15 of AIA Document A232-2019
- Litigation in a court of competent jurisdiction
- Other: *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

§ 6.2.1 In an effort to resolve any conflicts that arise during the construction of the Project or following the completion of the project, the Owner and the Contractor agree that all disputes between them arising out of or relating to this Agreement shall be submitted to non-binding mediation, unless the parties mutually agree otherwise. All parties shall endeavor to settle disputes by mediation in accordance with the Construction Industry Mediation Rules of the American Arbitration Association currently in effect. Demand for mediation shall be filed in writing with the other party of this Agreement and with the American Arbitration Association. A demand for mediation shall be made within a reasonable time after the claim, dispute, or other matter in writing to the other party. In the event non-binding mediation fails to resolve any or all of the disputes or claims, the parties may pursue relief through any other legal and/or equitable means.

§ 6.2.2 The Owner reserves the right in its discretion to require consolidation or joinder of any mediation relating to this Agreement with another mediation involving an independent contractor or consultant engaged by the Owner in connection with the Project. Agreement in the event the Owner believes such consolidation or joinder is necessary in order to resolve a dispute or avoid duplication of time, expense, or effort.

§ 6.2.3 In the event the Owner is involved in a dispute which is not subject to mediation involving a person or entity not a party to this Agreement, the mediation provision of this Article shall be deemed to be void and nonexistent in the event the Owner, in its discretion, determines the Contractor should become a part to that dispute by joinder or otherwise.

§ 6.2.4 The Owner reserves the right to require any mediation to be held near the Owner's principal place of business.

## ARTICLE 7 TERMINATION OR SUSPENSION

### § 7.1 Where the Contract Sum is a Stipulated Sum

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§ 7.1.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232-2019.

§ 7.1.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232-2019.

## ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A232-2019 or another Contract Document, the reference refers to that provision as amended or supplemented therein, or as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:  
(Name, address, email address, and other information)

«Owner Name»  
«Owner Address»  
«Owner CSZ»

§ 8.3 The Contractor's representative:  
(Name, address, email address, and other information)

«Contractor»  
«Address»  
«CSZ»

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days written notice to the other party.

### § 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A132™-2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition, and elsewhere in the Contract Documents.

Type of Insurance	Limit of Liability (\$0.00) Per Specifications
-------------------	---

§ 8.5.2 The Contractor shall provide bonds as set forth in Article 11 of AIA Document A132™-2019, and elsewhere in the Contract.

§ 8.6 Other provisions:

§ 8.6.1 Project Team is comprised of the Owner, Construction Manager, Owner's Representative and Architect.

§ 8.6.2 The Bid Division Description(s) outline the work items that the Contractor is responsible to provide for the Project regardless of any customary practices or agreements of that trade.

§ 8.6.3 If a Project Team member has reasonable objection to the actions of or the manner by which work is performed by a person directly employed by the Contractor or by any subcontractor of the Contractor, the Contractor shall propose another to whom the Project Team has no reasonable objection. Any cost associated with the removal and replacement of such a person shall be at the expense of the Contractor.

§ 8.6.4 All Change Orders and Change Directives will be initiated by a Change Event. (Reference Sections 01051, and 01053 of the Project Manual). The Change Event will be the instrument by which the Contractor will submit a detailed and itemized cost proposal for a proposed change for review by the Construction Manager, Owner's Representative and Architect, and the approval by the Owner, before the contract change is issued.

§ 8.6.5 A Change Event shall not alter the Contractor's obligation to comply with the process of filing claims in accordance with other provisions of this agreement.

§ 8.6.6 All Contractors must conform to the provisions of the Michigan Right-To-Know Law, 1986 PA 80.

§ 8.6.7 All Contractors must have available on site a copy of all Safety Data Sheets and in addition provide a copy to the Construction Manager. The Construction Manager will return the copy of the Contractor's Safety Data Sheets at the completion of the project.

§ 8.6.8 The Contractor shall include similar dispute resolution provisions in all agreements with subcontractors, sub-consultants, suppliers, or fabricators so retained, thereby providing for a consistent method of dispute resolution among the parties to those agreements.

§ 8.6.9 In the event of any inconsistency between this agreement and the General Conditions of the Contract for Construction (the "General Conditions"), the terms of this agreement shall govern.

§ 8.6.10 Claims by the Owner arising under this Agreement shall be subject to the limitations provisions defined in Michigan law, except that in no event shall a claim by the Owner be deemed untimely if filed within six (6) years of the final project completion. This provision is acknowledged to apply notwithstanding any other and shorter time frames contractually applicable to claims of the Contractor.

§ 8.6.11 The provisions of the General Conditions related to any waiver of subrogation are hereby deleted from the document and shall be deemed to have no effect. Further, any provision interpreted as the Owner waiving consequential or other indirect damages shall be ineffective and void.

§ 8.6.12 The modifications made to AIA Document A232-2019 Edition by the Owner are hereby incorporated into this Agreement.

§ 8.6.13 All specified insurance certificates and/or insurance policies must be received by the Construction Manager prior to the Contractor commencing work. The Contractor agrees to furnish a performance bond, and labor and materials payment bond for the full amount of this contract, including change orders.

## ARTICLE 9 ENUMERATIONS OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A132™-2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition
- .2
- .3 AIA Document A232™-2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition
- .4
- .5 The Drawings are as follows, and are dated «Drawings Dates» unless a different date is show below: See Attachment "C"

Number	Title	Date
--------	-------	------

- .6 The Specifications are those contained in the Project Manual dated «Manual Dated» unless a different date is shown below: See Attachment "B"

Section	Title	Date	Pages
---------	-------	------	-------

- .7 The Addenda, if any:

Number	Date	Pages
<u>«Addendum 1»</u>	<u>«Adm Date»</u>	

«Addendum 2» «Adm 2 Date»  
«Addendum 3» «Adm 3 Date»

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

**.8 Other Exhibits:**

Supplementary and other Conditions of the Contract: Those contained in the Project Manual dated «Manual Dated» unless a different date is shown below: See Attachment “B”

Document	Title	Date	Pages
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**.9 Other documents, if any listed below:**

*(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A232-2019 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor’s bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)*

Pre Bid Meeting and Agenda, Post Bid Interview Form, and Pre Construction Meeting and Agenda

This Agreement is entered into the day and year first written above.

OWNER  
«Owner Name»

CONTRACTOR  
«Contractor»

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Signature)

«Owner and Title»  
(Printed name and title)

\_\_\_\_\_  
(Printed name and title)

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Date)

**PART 1 – GENERAL**

**1.01 BID BONDS**

- A. Bid Security must be in the form of a Bid Bond, or a certified check made payable to the Owner.
- B. When a Bid Bond is submitted, the Owner shall be listed as obligee.
- C. When a Bid Bond is submitted, the attorney-in-fact that executes the bond on behalf of the Surety shall attach to the Bond a certified, current copy of their Power of Attorney.
- D. **THE BID BOND AND ALL OTHER BONDS MUST BE ISSUED BY A SURETY COMPANY LICENSED AS SUCH TO DO BUSINESS IN THE STATE OF MICHIGAN.**

**1.02 LABOR & MATERIAL PAYMENT BONDS AND PERFORMANCE BONDS**

- A. The Owner reserves the right to require any successful Bidder to furnish both a Labor and Material Payment Bond, and a Performance Bond, each in the amount of one hundred percent (100%) of their contract amount.
- B. **THE LABOR & MATERIAL PAYMENT BOND AND THE PERFORMANCE BOND MUST BE ISSUED BY A SURETY COMPANY LICENSED AS SUCH TO DO BUSINESS IN THE STATE OF MICHIGAN.**
- C. When required, Labor and Material Payment Bonds and Performance Bonds must be separate. The combined form will not be accepted. Labor & Material Payment Bonds and Performance Bonds must be submitted on AIA Document A312, 2010 edition, without modifications.
- D. When submitted, Labor and Material Payment Bonds and Performance Bonds shall include:
  - 1. Full name and address of Contractor Surety and Owner.
  - 2. The proper Contract Date.
  - 3. The exact amount of the Contract.
  - 4. A description of the contract work / project.
  - 5. The Owner's name and address.
  - 6. An incorporation by reference of the contract terms.
  - 7. Language obligating the Surety, jointly and severally, with the Contract to the Owner
  - 8. The condition for discharge to the Surety.
  - 9. Signature.
  - 10. Corporate Seal, if applicable.
  - 11. Notarization.
  - 12. Power of Attorney.

**1.03 SUPPLY BONDS**

- A. The Owner reserves the right to require any direct supplier to furnish a Supply Bond in the amount of one hundred percent (100%) of their contract amount.
- B. Supply Bonds shall include all information required above (reference 1.02C above) for Labor and Material Payment Bonds and Performance Bonds.
- C. **ALL SUPPLY BONDS SHALL BE LEGAL AND ENFORCEABLE IN THE STATE OF MICHIGAN.**

**1.04 BOND COSTS IN BIDS**

- A. Do not include costs for Labor and Material Payment Bond(s), Performance Bond(s), or Supply Bond(s) in Base bid. State the cost of such Bond(s) separately, in the space(s) provided on the Proposal Form (Section 00300).

**1.05 SUBMISSION OF BONDS**

- A. Bonds shall be submitted to the Construction Manager for delivery to the Owner within fifteen (15) days following the date of issue of the Contract.
- B. Bonds must be submitted prior to contract execution and accepted by the Owner before work may begin on-site.
- C. If the work is commenced prior to contract execution in response to a Notice to Proceed (reference Section 00500), the Contractor shall, prior to commencement of the work, submit evidence satisfactory to the Owner that required bonds will be furnished, and shall deliver the Bonds by the date the Bidder executes the Owner/Contractor Agreement (reference Section 00510).

**END OF SECTION 00600**

**PART 1 – GENERAL**

**1.01 INSURANCE CERTIFICATES**

- A. Each Contractor shall provide, prior to the beginning of Work, a certificate of insurance for delivery to the Owner indicating that all required insurance coverage is in force.
- B. Use standard Insurance Certificate Form. The Accord Form 25 (2016/03) are preferable forms. These forms should be obtained from your insurance agent.
- C. Issue all certificates to: **Bullock Creek School District**  
**1420 S Badour Road**  
**Midland, MI 48640**
- D. Certificates must show as ‘additional insured’ the Owner, **Bullock Creek School District**, the Architect, **THA Architects/Engineers**, and the Construction Manager, **WOLGAST CORPORATION**.
- E. **Insurance certificates must be completed as follows: (please refer to corresponding numerals on the sample certificate (following instructions) and also reference the “Section 00700 - General Conditions of the Contract for Construction.”**
1. This blank is to be dated the date the certificate of insurance is issued.
  2. This blank is to provide the complete name and address of the insurance agency issuing the certificate.
  3. This blank is to provide the full name and address of the “prime contractor.”
  4. These blanks are to provide the name (or names) of the insurance company (ies) providing coverage for the specific coverage issued on the certificate.
  5. General Liability
    - a. General Liability – All blanks must be checked in this section and policies must be on an “occurrence” basis.
    - b. Policy Number – A policy number must be listed here.
    - c. Policy “effective” and “expiration” dates must be listed in these two blanks.
    - d. This section must be filled in with dollar amounts (listed in thousands). Please refer to the example on the following page.
  6. Automobile liability
    - a. These blanks must be filled in with either:  
Option 1: Any Auto, Hired, and Non-Owned automobiles OR  
Option 2: All Owned Autos (Priv. Pass.), All Owned Autos (Other than Priv. Pass.), Hired Autos, and Non-Owned Autos.
    - b. Policy Number – A policy number must be listed here.
    - c. Policy Effective and Expiration dates must be listed in these two blanks.
    - d. This Section must be filled in with dollar amounts (in thousands).
  7. Excess Liability (Provide \$2 million Excess Liability Umbrella policy):
    - a. This blank must be checked with the “Umbrella Form.”
    - b. Policy Number – A policy number must be listed here.
    - c. Policy Effective and Expiration dates must be listed in these blanks.
    - d. If this section is required (see Item 7 above), both of these blanks must be filled in with a minimum of \$2,000,000 and \$2,000,000.

8. Worker's Compensation
  - a. Nothing needs to be checked here.
  - b. Policy Number – A policy number must be listed here.
  - c. Policy Effective and Expiration dates must be listed in these blanks.
  - d. These blanks must be filled in with minimum limits as follows:
    - \$500,000 (each accident)
    - \$500,000 (disease policy limits)
    - \$500,000 (disease each employee)
9. This section need not be completed unless some unique coverage is required for a certain type of job.
10. This section should contain the listing of the additional insured as in 1.01D. The names of the Owner, Architect, and Construction Manager must be listed here.
11. The Owner should be listed here, as this is the actual Certificate Holder. List the Owner as follows:

**Bullock Creek School District**

12. This blank must show the number thirty (30), indicating that the Owner and all additional insured parties will receive at least thirty (30) days' notice of cancellation of any of the policies listed on the certificate.
13. The certificate must be signed by a licensed insurance agent or representative of the insurance company in order to be valid.

***NOTE: Sample Certificate of Liability follows.***





# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
(1)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER  (2)	CONTACT NAME:	
	PHONE (A/C, No, Ext):	FAX (A/C, No):
E-MAIL ADDRESS:		
INSURER(S) AFFORDING COVERAGE		NAIC #
INSURED  (3)	INSURER A: (4)	
	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	
INSURER F:		

COVERAGES                      CERTIFICATE NUMBER:                      REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL(SUBR) INSD / WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY (5A) <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC. OTHER:		(5B)		(5C)	EACH OCCURRENCE (5D) \$ 1,000,000.00 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000.00 MED EXP (Any one person) \$ 5,000.00 PERSONAL & ADV INJURY \$ 1,000,000.00 GENERAL AGGREGATE \$ 1,000,000.00 PRODUCTS - COMP/OP AGG \$ 1,000,000.00
	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY (6A) <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY		(6B)		(6C)	COMBINED SINGLE LIM (6D) \$ 1,000,000.00 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	<input checked="" type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> OCCUR (7A) <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED    RETENTION'S		(7B)		(7C)	EACH OCCURRENCE (7D) \$ 2,000,000.00 AGGREGATE \$ 2,000,000.00
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY (8A) ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N <input type="checkbox"/> N/A	(8B)		(8C)	PER STATUTE    OTH-ER (8D) E.L. EACH ACCIDENT \$ 500,000.00 E.L. DISEASE - EA EMPLOYEE \$ 500,000.00 E.L. DISEASE - POLICY LIMIT \$ 500,000.00
(9)						

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

(10) LIST THE OWNER, ARCHITECT AND CONSTRUCTION MANAGER AS ADDITIONAL INSURED

CERTIFICATE HOLDER  (11) INSERT THE OWNER'S NAME HERE  NOTE: PLEASE HAVE YOUR INSURANCE COMPANY MAIL THIS DOCUMENT TO THE CONTRUCTION MANAGER	CANCELLATION  (12) SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE  (13)

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ACORD 25 (2016/03)

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**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

**ADDITIONAL INSURED - OWNERS, LESSEES OR CONTRACTORS - SCHEDULED PERSON OR ORGANIZATION**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

**SCHEDULE**

Name Of Additional Insured Person(s) Or Organization(s)	Location(s) Of Covered Operations
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

**A. Section II - Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:

1. Your acts or omissions; or
2. The acts or omissions of those acting on your behalf;

in the performance of your ongoing operations for the additional insured(s) at the location(s) designated above.

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

**B.** With respect to the insurance afforded to these additional insureds, the following additional exclusions apply:

This insurance does not apply to "bodily injury" or "property damage" occurring after:

1. All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or

2. That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.

**C.** With respect to the insurance afforded to these additional insureds, the following is added to **Section III - Limits Of Insurance**:

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or
2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

**ADDITIONAL INSURED - OWNERS, LESSEES OR  
CONTRACTORS - AUTOMATIC STATUS WHEN  
REQUIRED IN CONSTRUCTION AGREEMENT WITH YOU**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

**A. Section II - Who Is An Insured** is amended to include as an additional insured any person or organization for whom you are performing operations when you and such person or organization have agreed in writing in a contract or agreement that such person or organization be added as an additional insured on your policy. Such person or organization is an additional insured only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:

1. Your acts or omissions; or
2. The acts or omissions of those acting on your behalf;

in the performance of your ongoing operations for the additional insured.

However, the insurance afforded to such additional insured:

1. Only applies to the extent permitted by law; and
2. Will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

A person's or organization's status as an additional insured under this endorsement ends when your operations for that additional insured are completed.

**B.** With respect to the insurance afforded to these additional insureds, the following additional exclusions apply:

This insurance does not apply to:

1. "Bodily injury", "property damage" or "personal and advertising injury" arising out of the rendering of, or the failure to render, any professional architectural, engineering or surveying services, including:

- a. The preparing, approving, or failing to prepare or approve, maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; or
- b. Supervisory, inspection, architectural or engineering activities.

This exclusion applies even if the claims against any insured allege negligence or other wrongdoing in the supervision, hiring, employment, training or monitoring of others by that insured, if the "occurrence" which caused the "bodily injury" or "property damage", or the offense which caused the "personal and advertising injury", involved the rendering of or the failure to render any professional architectural, engineering or surveying services.

2. "Bodily injury" or "property damage" occurring after:

- a. All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or
- b. That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as part of the same project.

**C.** With respect to the insurance afforded to these additional insureds, the following is added to **Section III - Limits Of Insurance**:

The most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement you have entered into with the additional insured; or
2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

**ADDITIONAL INSURED - OWNERS, LESSEES OR  
CONTRACTORS - COMPLETED OPERATIONS**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART  
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

**SCHEDULE**

Name Of Additional Insured Person(s) Or Organization(s)	Location(s) And Description Of Covered Operations
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

**A. Section II - Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury" or "property damage" caused, in whole or in part, by "your work" at the location designated and described in the schedule of this endorsement performed for that additional insured and included in the "products-completed operations hazard".

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the

contract or agreement to provide for such additional insured.

**B. With respect to the insurance** afforded to these additional insureds, the following is added to **Section III - Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or
2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. Within fifteen (15) days following the date of the issue of the Notice to Proceed (Section 00500), each Contractor shall submit to the Construction Manager for delivery to the Owner, a Schedule of Values showing accurate costs for the elements of their Work.
- B. The Schedule of Values shall be typed or printed on the Contractor's letterhead, identify the project and work division, and must be dated and signed.
- C. The Schedule of Values shall divide the Work into a sufficient number of individual cost elements to serve as an accurate basis for Contractor's Application for Payment.
- D. Each work element shall be listed identifying labor and material as separate line items. Each work element shall include its prorated share of profit, overhead, and retainage.

**1.02 SPECIAL ITEMS**

- A. As a part of the schedule of values the Contractor shall designate specific line items and associated values identified as:
  - 1. Performance Bond and Labor & Material Payment Bond (when required by Owner).  
Value: Actual Cost of Bonds
  - 2. Daily housekeeping and clean-up inclusive of any special cleaning and preparation required by the specification for delivering the building for the Owners occupancy.  
Value: Two percent (2%) of the total Contract Amount
  - 3. Retainage / Punch List  
Value: Ten percent (10%) of the total Contract Amount
- B. A request for payment of any special item amount contained in the Contractor's approved Schedule of Values or a portion thereof may be submitted for payment once the work for that item has been completed to the satisfaction of the Owner, Architect and Construction Manager
- C. Upon the completion of the Contractor's work exclusive of any punch list work, a Contractor may submit a separate Application for Payment requesting the Retention / Punch List line item be reduced to (5%). **This** request must be submitted to the Construction Manager along with a Partial Consent of Surety. Once received, the Construction Manager will forward it to the Owner for approval and notify the contractor when fully executed. The Owner shall reserve the right to accept or reject all requests for Retention / Punch List reduction.
- D. The Schedule of Values shall be submitted and approved prior to Contract execution and receipt of any payment.
- E. **Absolutely NO CHANGES may be made to an approved Schedule of Values.**
- F. Increases or decreases in the Contract Amount shall be through change orders.
- G. Each Change Order shall be listed as a new line item on the Contractor Invoicing Form.

**END OF SECTION 00670**

**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. Within fifteen (15) days following the date of the issue of the Contract, each Contractor shall submit to the Construction Manager for delivery to the Owner, a list of all subcontractors that they intend to utilize in their performance of the Work, and all suppliers who will be providing materials and/or equipment to be incorporated into the Work.
- B. All SUBCONTRACTORS' names, addresses, telephone numbers, and types of Work shall be included on the list.
- C. All SUPPLIERS' names, addresses, telephone number, and items provided shall be included on the list.
- D. All items of material and equipment included in the Work shall be listed. Each item shall be listed with its manufacturer, supplier, and installing subcontractor, if applicable.
- E. Subcontractor / Supplier / Material / Equipment listings shall be submitted prior to contract execution.
- F. Prior to awarding a contract, the Construction Manager will notify the contractor if the Owner has a reasonable and substantial objection to any person, organization, material and/or equipment listed by the Contractor. If the Owner has a reasonable and substantial objection, the Contractor shall amend their Proposal by providing an acceptable substitute. The Owner may, at their discretion, accept such a substitute or they may disqualify the Proposal.
- G. **Suppliers, Subcontractors, Material, and Equipment proposed by the Contractor and accepted by the Owner shall be used in the Work for which they are proposed and accepted and shall not be changed except with prior written approval by the Construction Manager and Owner.**

**END OF SECTION 00680**

**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. Within fifteen (15) days following the date of issue of a Contract, each Contractor shall submit to the Construction Manager, for delivery to the Owner, a list of all supervisory employees whom the Contractor proposes to employ to accomplish the Work.
- B. This list shall include supervisory employees' names, titles, and duties.
- C. Employee listings shall be submitted prior to contract execution.

**1.02 OWNER'S APPROVAL**

- A. Contractors are required to establish, to the satisfaction of the Owner, the reliability and responsibility of proposed employees.
- B. Prior to the award of a contract, the Construction Manager will notify the Contractor if the Owner has a reasonable and substantial objection to any person listed by the Contractor. If the Owner has reasonable and substantial objection, the Contractor may amend their Proposal by providing an acceptable substitute. The Owner may, at their discretion, accept such a substitute or they may disqualify the Proposal.
- C. Employees proposed by the Contractor and accepted by the Owner shall be employed on the Work for which they are proposed and accepted and shall not be changed except with written approval of the Owner.

**END OF SECTION 00690**



**PROJECT  
GENERAL CONDITIONS  
OF THE CONTRACT FOR  
CONSTRUCTION ON  
FOLLOWING PAGE(S)**

END OF SECTION 00700

# AIA<sup>®</sup> Document A232<sup>®</sup> – 2019

## **General Conditions of the Contract for Construction, Construction Manager as Adviser Edition**

### **for the following PROJECT:**

*(Name, and location or address)*

Bullock Creek School District, 2024 School Bond Construction Program – including erecting, furnishing and equipping additions to school buildings; remodeling, furnishing and refurbishing and equipping and reequipping school buildings; acquiring, installing, equipping and reequipping school buildings for instructional technology; purchasing school buses; erecting and equipping structures; and acquiring, preparing, developing, improving and equipping playgrounds, athletic fields and sites; all in accordance with the relevant application for preliminary qualification of bonds, the approved project scopes, applicable laws, the applicable plans and specifications, the Owner’s fixed budget, and as otherwise approved by the Owner.

### **THE CONSTRUCTION MANAGER:**

*(Name, legal status, and address)*

Wolgast Corporation  
4835 Towne Centre Road, Suite 203  
Saginaw, Michigan 48604  
Telephone: (989) 790-9120  
Facsimile: (989) 790-9063

### **THE OWNER:**

*(Name, legal status, and address)*

Bullock Creek School District  
1420 Badour Road  
Midland, Michigan 48640  
Telephone: (989) 631-9022  
Facsimile: (989) 631-2882

### **THE ARCHITECT:**

*(Name, legal status, and address)*

THA Architects Engineers  
817 East Kearsley Street  
Flint, Michigan 48503  
Telephone: (810) 767-5600  
Facsimile: (810) 767-1650

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition; B132™–2019, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™–2019, Standard Form of Agreement Between Owner and Construction Manager as Adviser.

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## ARTICLE 1 GENERAL PROVISIONS

### § 1.1 Basic Definitions

§ 1.1.1 **The Contract Documents.** The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the ~~Agreement, Agreement as to contractors,~~ the Contract Documents ~~do not also~~ include the advertisement or invitation to bid, Instructions to Bidders, ~~sample forms,~~ other information furnished by the Owner in anticipation of receiving bids or proposals, Owner-accepted portions of the Contractor's bid or proposal, or and portions of addenda relating to bidding or proposal requirements but do not include sample forms. The Architect's execution of the Owner/Architect Agreement and the Construction Manager's execution of the Owner/Construction Manager Agreement shall constitute their acceptance of all terms herein related to the respective parties.

§ 1.1.2 **The Contract.** The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and the Construction Manager or the Construction Manager's consultants, (3) between the Owner and the Architect or the Architect's consultants, (4) between the Contractor and the Construction Manager or the Construction Manager's consultants, (5) between the Owner and a Subcontractor or Sub-subcontractor (6) between the Construction Manager and the Architect, or (7) between any persons or entities other than the Owner and Contractor. The Construction Manager and Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of their duties.

§ 1.1.3 **The Work.** The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project. The Contractor acknowledges and agrees that the Contract Documents are sufficient to provide for the completion of the Work and that the Contract Documents include work (whether or not shown or described) which reasonably may be inferred to be required or useful for the completion of the Work in accordance with applicable laws, codes, and customary standards of the construction industry.

§ 1.1.4 **The Project.** The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by other Contractors, and by the Owner's own forces and Separate Contractors.

§ 1.1.5 **Contractors.** Contractors are persons or entities, other than the Contractor or Separate Contractors, who perform Work under contracts with the Owner that are administered by the Architect and Construction Manager.

§ 1.1.6 **Separate Contractors.** Separate Contractors are persons or entities who perform construction under separate contracts with the Owner not administered by the Architect and Construction Manager.

§ 1.1.7 **The Drawings.** The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.8 **The Specifications.** The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.9 **Instruments of Service.** Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's

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consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

**§ 1.1.10 Initial Decision Maker.** The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith and without negligence.

**§ 1.1.11 Products.** The term "Product(s)" as used in the Contract Documents refers to the materials, systems, and equipment provided by the Contractor for use in the Work of the Project.

**§ 1.1.12 Warranty.** The terms "Warranty" and "Guarantee" as used in the Contract Documents shall have the same meaning and shall be defined as "legally enforceable assurance of satisfactory performance or quality of a product or Work".

**§ 1.1.13 Materials.** Where materials, systems, and equipment items are referred to in the singular, such reference shall not serve to limit the quantity required. The Contractor shall furnish quantities as required by the Contract Documents to complete the Work. Unless specifically limited in the Contract Documents, the words "furnish", "install", and "provide", or any combination thereof mean to furnish and incorporate into the Work, including all necessary labor, materials, and equipment and other items required to perform the Work indicated.

**§ 1.1.14 Project Manual.** The Project Manual is a volume assembled for the Work which may include the bidding requirements, sample forms, Conditions of the Contract, and Specifications.

## **§ 1.2 Correlation and Intent of the Contract Documents**

**§ 1.2.1** The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

**§ 1.2.1.1** The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

**§ 1.2.2** Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade. Where responsibility for particular Work is required of the Contractor, the Contractor shall not be released from that responsibility by reason of the specification or drawing which establishes the responsibility. Thus, the Contractor shall be responsible for all Work required of it, even though that responsibility may be shown only in that portion of the documents typically pertaining to another contractor or trade.

**§ 1.2.3** Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

**§ 1.2.4** If there should be a conflict between two or more of the Contract Documents then the following order of interpretation shall apply:

- .1 Where requirements specifically set forth in the applicable Agreement are in conflict with other Contract Documents, including but not limited to these General Conditions, the Agreement shall govern.
- .2 In all other instances, the conflict shall be resolved by complying with the provision that is most favorable to the Owner (as determined by the Owner in the Owner's sole discretion).
- .3 When a duplicate of material or equipment occurs in the Drawings, the Specifications or other Contract Documents, each Contractor shall be deemed to have bid on the basis of each furnishing such material or equipment. The Owner, with the assistance of the Architect and Construction Manager, will decide which Subcontractor(s) shall furnish the same.

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User Notes:

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### § 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

### § 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

### § 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

~~§ 1.5.1 The~~ Unless otherwise indicated in the Contract Documents or the Owner/Architect Agreement, the Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and unless otherwise indicated in the Contract Documents or the Owner/Architect Agreement, the Architect and respective consultants will retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

### § 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by national overnight courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement. Further, any other written notice delivered with a written acknowledgement or receipt shall be deemed duly served, regardless of method.

Wherever the Contract Documents require the Contractor to give "Notice" or "Timely Notice" to the Architect, Public Authority, and/or others, it shall be the Contractor's responsibility to furnish all such notices sufficiently in advance to allow the party receiving the notice reasonable time to react to such notice, including travel time on the job site as necessary, when such notices require the on-site presence of the Architect, Public Authority, their authorized representatives, or others for field observation of inspections, testing or approvals. Reasonable time shall be defined as no less than 24 hours plus normal travel time from the home office of the party being notified to the job site and must also accommodate known, standard, or reasonable processing periods.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

### § 1.7 Digital Data Use and Transmission

The parties ~~shall may~~ agree upon ~~written~~ protocols governing the transmission and use of, ~~and reliance on,~~ of Instruments of Service or any other information or documentation in digital form. The parties may use AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

### ~~§ 1.8 Building Information Models Use and Reliance~~

~~Any use of, or reliance on, all or a portion of a building information model without agreement to written protocols governing the use of, and reliance on, the information contained in the model shall be at the using or relying party's~~

sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

## ARTICLE 2 OWNER

### § 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or ~~authorization~~, authorization subject to parameters of authority established by Owner's board of education. Except as otherwise provided in Section 4.2.1, the Construction Manager and the Architect do not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

~~§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.~~

### § 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work, and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

~~§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as Owner's information is "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.~~

### § 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, ~~including including, but not limited to,~~ those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities. Unless otherwise provided under the Contract Documents, the Owner, assisted by the Construction Manager, shall secure and pay for the building permit.

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~~§ 2.3.2 The Owner shall retain an architect~~ Architect is the person lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. ~~is located, if licensed architecture is required by law for the Project.~~ That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Architect," "Architect/Engineer," "Engineer," or "Design Professional" as used herein means the Architect or the Architect's authorized representative.

~~§ 2.3.3 The Owner shall retain a construction manager adviser~~ is lawfully practicing construction management in the jurisdiction where the Project is located. That person or entity is identified as the Construction Manager in the Agreement and is referred to throughout the Contract Documents as if singular in number.

~~§ 2.3.4 If the employment of the Construction Manager or Architect terminates, the Owner shall employ a successor construction manager or architect to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Construction Manager or Architect, respectively.~~

~~§ 2.3.5 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Taking into account the Contractor's experience and expertise, and exercise of professional caution, the Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work. The Contractor shall not be entitled to additional compensation resulting from its failure to confirm the location of the site utilities or existing structures prior to bid opening.~~

~~§ 2.3.6 The Upon specific written request of the Contractor, the Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services. Contracts with other Contractors alone shall not constitute sufficient Owner control for purposes of this section.~~

~~§ 2.3.7 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor Contractor will receive at least one copy of the Contract Documents in pdf format (or another format reasonably approved by the Owner) for purposes of making reproductions pursuant to Section 1.5.2.~~

~~§ 2.3.8 The Owner shall endeavor to forward all communications to the Contractor through the Construction Manager. Other communication shall be made as set forth in Section 4.2.6.~~

#### **§ 2.4 Owner's Right to Stop the Work**

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or ~~repeatedly~~ fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3. This right shall be in addition to and not in limitation of the Owner's rights under any provision of the Contract Documents.

#### **§ 2.5 Owner's Right to Carry Out the Work**

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ~~ten-day~~ three-day period after receipt of notice from the Owner or the Owner's designee (or immediately in the case of a threat to the safety of persons or property) to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, ~~correct such default or neglect.~~ Such action by the Owner and amounts charged to the Contractor are both subject to review by the Construction Manager and prior approval of the Architect, and the Construction Manager or Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the ~~including any claim against the Contractor's Performance Bond, correct such default or neglect. In such case, the Owner may deduct from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses, including any and all legal expenses incurred to effectuate and enforce this provision and compensation for the Construction Manager's and Architect's and their respective consultants' additional services made necessary by such default, neglect, or failure. If current and future~~



payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

If the Architect, Construction Manager, Owner, or other contractors or consultants are required to provide additional services due to defects or deficiencies in the Contractor's work or by failure of the Contractor to perform under its agreement, the Contractor shall be responsible for all such costs and fees (including attorney fees), which shall promptly be paid to the Owner. The Owner, Contractor, Architect, and Construction Manager acknowledge that the Owner's receipt of such payment from the Contractor is a condition precedent to the Owner's obligation to make payment to those adversely affected.

This Section 2.5 allows the Owner to withhold payments from a non-performing Contractor irrespective of the termination procedure identified in Section 14.2, and the Owner may pursue either remedy, or both.

## **ARTICLE 3 CONTRACTOR**

### **§ 3.1 General**

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.1.1 Possession, sale, or consumption of alcoholic beverages on the construction site is strictly prohibited. The unlawful manufacture, distribution, dispensation, possession or use of drugs is prohibited on the construction site.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Construction Manager or Architect in their administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

### **§ 3.2 Review of Contract Documents and Field Conditions by Contractor**

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.5, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Construction Manager and Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information submitted to the Construction Manager in such form as the Construction Manager and Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Construction Manager and Architect any nonconformity discovered by or made known to the Contractor as a request for information submitted to Construction Manager in such form as the Construction Manager and Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of

Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.2.5 Prior to submitting its bid, the Contractor shall have studied and compared the Contract Documents and shall have reported to the Architect any error, inconsistency, or omission in the Contract Documents related to its work. It will be presumed that the Contractor's bid and the Contract Sum include the cost of correcting any error, inconsistency, or omission, which could have been discovered by the exercise of reasonable diligence. Unless the Contractor establishes that such error, inconsistency, or omission could not have been discovered by the exercise of reasonable diligence, the Contractor will make such corrections without additional compensation so that the Work is fully functional.

### § 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner, the Construction Manager, and the Architect, and shall propose alternative means, methods, techniques, sequences, or ~~procedures~~ procedures, specifically including any delays that could impact timely coordination and completion of the Work. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. The Construction Manager shall review the proposed alternative for sequencing, constructability, and coordination impacts on the other Contractors. Unless the Architect or the Construction Manager objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures. The Contractor shall immediately notify the Construction Manager of delays of other contractors that could impact timely coordination and completion of the Work.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of the Project already performed to determine that such portions are in proper condition to receive subsequent Work.

### § 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work. Such provision of labor and materials shall occur in sufficient time to satisfy the existing Project schedule. The Contractor bears the risk of any failure to timely provide such labor and materials for any reason. The Contractor agrees to execute the appropriate UCC forms to effectuate the Owner's ownership of the material and equipment furnished pursuant to this Agreement.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect, in consultation with the Construction Manager, and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

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§ 3.4.4 The Contractor, Construction Manager, and Architect each respectively agree that neither they nor their subcontractors will discriminate against any employee or applicant for employment, to be employed in the performance of this contract, with respect to hire, tenure, conditions or privilege of employment, or any matter directly or indirectly related to employment, because of race, age, sex, color, religion, national origin, ancestry or physical disability. Breach of this covenant may be regarded as a material breach of this contract.

**§ 3.4.5 Asbestos-Free Product Installation**

§ 3.4.5.1 It is hereby understood and agreed that no product and/or material containing asbestos including chrysolite, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos and any combination of these materials that have been chemically treated and/or altered shall be installed or introduced into the Work by the contractor or his employees, agents, subcontractors, or other individuals or entities over whom the Contractor has control. If applicable, the Contractor shall be required to provide a signed certification statement ensuring that all products or materials installed or introduced into the work all be asbestos-free.

§ 3.4.5.2 The Contractor shall also be required to furnish certified statements from the manufacturers of supplied materials used during construction verifying their products to be asbestos-free in accordance with the requirements of Section 3.4.5.1.

§ 3.4.5.3 The Contractor shall complete and submit to the Owner a certification evidencing asbestos-free product installation prior to issuance of the final Certificate for Payment, in a form acceptable to the Owner.

**§ 3.5 Warranty**

§ 3.5.1 The Contractor warrants to the Owner, Construction Manager, and Architect that materials and equipment furnished under the Contract. In addition to any other warranties, guarantees or obligations set forth in the Contract Documents or applicable as a matter of a law and not in limitation of the terms of the Contract Documents, the Contractor warrants and guarantees that:

- .1 The Owner will have good title to the Work and all materials and equipment incorporated into the Work and, unless otherwise expressly provided in the Contract Documents, will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. new;
2. The Work and all materials and equipment incorporated into the Work will be free from all defects, including any defects in workmanship or materials;
3. The Work and all equipment incorporated into the Work will be fit for the purpose for which they are intended;
4. The Work and all materials and equipment incorporated into the Work will be merchantable; and
5. The Work and all materials and equipment incorporated into the Work will conform in all respects to the Contract Documents.

If required by the Construction Manager or Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Construction Manager or Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

Upon notice of the breach of any of the foregoing warranties or guarantees or any other warranties or guarantees under the Contract Documents, the Contractor, in addition to any other requirements in the Contract Documents, will commence to correct such breach within seventy-two (72) hours after written notice thereof and thereafter will use its best efforts to correct such breach to the satisfaction of the Owner; provided that if such notice is given after final payment hereunder, such seventy-two (72) hour period shall be extended to seven (7) days. The foregoing warranties and obligations of the Contractor shall survive the final payment and/or termination of the Contract.

The Contractor shall, at the time of final completion of the Work and as a condition precedent to final payment to the Contractor, assign to the Owner all manufacturers' warranties related to the materials and labor used in the Work. The Contractor further agrees to perform the Work in such manner as to preserve any and all such manufacturers'

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warranties and deliver to the Owner the warranties, project manuals, operating procedures, and other materials related to each of the building systems and materials included in the Contractor's Work and as required by the Specifications.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

### § 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect. The Contractor shall also pay all state and federal taxes levied on its business, income or property and shall make all contributions for social security and other wage or payroll taxes. The Contractor shall be solely responsible for such payments and shall hold the Owner harmless from same.

### § 3.7 Permits, Fees, Notices, and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Owner, assisted by the Construction Manager, shall secure and pay for the building permit. The Contractor shall secure and pay for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work ~~knowing it to be~~ contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 **Concealed or Unknown Conditions.** If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide written and dated notice to the Owner, Construction Manager, and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect and Construction Manager will promptly investigate such conditions and, if the Owner and the Architect, in consultation with the Construction Manager, determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, they will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Owner and the Architect, in consultation with the Construction Manager, determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner, Construction Manager, and Contractor, stating the reasons. If the ~~Owner or~~ Contractor disputes the Architect's determination or recommendation, ~~either party may~~ the Contractor shall submit a Claim as provided in Article 15. The requirements of Section 2 of 1998 PA 57 (MCL 125.1592), as amended, are hereby incorporated into this document. The Contractor shall be alert to any indication or evidence of existing underground or concealed utilities or structures not shown on the Contract Documents and shall immediately notify the Owner of discovery of such evidence. If the Contractor encounters such utilities or structures, it shall cease operations immediately to minimize damage and shall notify the Owner and Architect. The Contractor shall bear the cost of damage resulting from its failure to exercise reasonable care in its construction activity or from continuing operations without notifying the Owner.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall ~~notify~~ provide written and dated notification to the Owner, Construction Manager, and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features ~~may be made~~ shall be made, as needed as provided in Article 15.

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### § 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents:

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are ~~more than or~~ less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

### § 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. The superintendent and any other personnel shall be satisfactory to the Owner in all respects, and the Owner shall have the right to require the Contractor to remove any superintendent or any other personnel from the Project whose performance is not satisfactory to the Owner and to replace such superintendent or other personnel with another who is satisfactory to the Owner.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect, through the Construction Manager, of the name and qualifications of a proposed superintendent. ~~Within The Owner and/or the Construction Manager may reply within 14 days of receipt of the information, the Construction Manager may notify the Contractor, stating whether the Owner, the Construction Manager, or the Architect (1) has reasonable objection to the proposed superintendent or (2) require additional time for review. Failure of the Construction Manager to provide notice within the 14 day period shall constitute notice of no reasonable objection.~~

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner, Construction Manager, or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's ~~consent, which shall not unreasonably be withheld or delayed.~~ consent.

### § 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information, and the Construction Manager's use in developing the Project schedule, a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. In no event shall the Contractor's Construction Schedule be extended due to action or inaction of the Contractor, except with prior written approval of the Owner within the Owner's sole discretion. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project. The Contractor shall cooperate with the Construction Manager in scheduling and performing the Contractor's Work to avoid conflict with, and as to cause no delay in, the work or activities of other Contractors, or the construction or operations of the Owner's own forces or Separate Contractors.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Owner's, Construction Manager's and Architect's approval. ~~The Architect and Construction Manager's approval which~~ approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, ~~and~~ (2) allow the Construction Manager and Architect reasonable time to review ~~submittals-submittals,~~ and (3) provide for expeditious and practical execution of the Work. If the Contractor fails to submit a submittal schedule, or fails to

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provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall participate with other Contractors, the Construction Manager, and the Owner in reviewing and coordinating all schedules for incorporation into the Project schedule that is prepared by the Construction Manager. The Contractor shall make revisions to the construction schedule and submittal schedule as deemed necessary by the Construction Manager to conform to the Project schedule.

§ 3.10.4 The Contractor shall perform the Work in ~~general accordance with the most recent schedules submitted to the Owner, Construction Manager, and Architect, and incorporated into the approved Project schedule.~~accordance with the most recent approved project schedule and the most recent work schedule.

§ 3.10.5 The Contractor shall cooperate with the Construction Manager in scheduling and performing its Work to avoid conflict or interference with the Work of others, and the Contractor shall be responsible for any conflict or interferences that it causes. The Construction Manager and the Contractor acknowledge and understand that the work schedule will be modified from time-to-time with the Owner's approval to coordinate with the work of others and that such schedule changes do not give rise to a claim for damages or additional compensation by the Contractor for delay or otherwise. The Contractor shall be required to conform to the most recent Owner-approved schedule and acknowledges that fact was taken into account when it agreed to the Contract Sum and entered into this Contract.

§ 3.10.6 The Contractor shall cooperate with the Construction Manager in working out and following the proper sequence of operations between the Work of the Contractor and that of other trades on the site.

§ 3.10.7 The Contractor shall prosecute the Work undertaken in a prompt and diligent manner whenever the Work (or a part thereof) becomes available, or at such other time as the Owner and/or Construction Manager may direct so as to promote the general progress of the entire construction. The Contractor shall not, by delay or otherwise, interfere with or hinder the Work of the Construction Manager or any other Contractor. Any materials that are to be furnished by the Contractor shall be furnished in sufficient time to enable the Contractor to perform and complete its Work within the time or times provided in the schedule. If the Contractor shall, through its action or inactions, including the actions or inactions of its' subcontractors or suppliers, fall behind in furnishing necessary labor and/or materials to meet the construction needs in accordance with the established schedule, then it shall increase its forces or work such overtime as may be required, at its own expense, to bring its part of the work up to the proper schedule. In the event that the Contractor does not take such action necessary to bring its part of the work up to schedule, as determined by the Construction Manager, then the Owner may supplement the Contractor's forces or take other action permitted under Section 2.4 or Section 2.5. The Contractor shall be responsible for any and all costs of performing or completing the Work and shall pay any such sums within ten (10) days of an invoice. If not paid within ten (10) days, the amount will be withheld from the Contractor's next payment and paid to the relevant parties. If the amounts withheld from payments then or thereafter due Contractor are insufficient to cover such costs, the Owner may bill these costs to the Contractor, and the Contractor shall pay any such sums within ten (10) days of an invoice. Exercise of such rights shall in no way limit or jeopardize the Owner's right to any other remedy, including but not limited to a claim against the Performance Bond of the Contractor.

### § 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Construction Manager, Architect, and Owner, and delivered to the Construction Manager for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

### § 3.12 Shop Drawings, Product Data, and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor for submittal to and review by the Architect to illustrate materials or

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equipment for some portion of the Work. All Work shall be furnished and installed in accordance with the Drawings, Specifications and as additionally required by the manufacturer's printed instructions. The Contractor shall review the manufacturer's instructions, and where conflict occurs between the Drawings or Specifications and the manufacturer's instructions, the Contractor shall request clarification from the Architect prior to commencing the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect and Construction Manager is subject to the limitations of Sections 4.2.10 through 4.2.12. Informational submittals upon which the Construction Manager and Architect are not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Construction Manager or Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Construction Manager, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the Project submittal schedule approved by the Construction Manager and Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of other Contractors, Separate Contractors, or the Owner's own forces. The Contractor shall cooperate with the Construction Manager in the coordination of the Contractor's Shop Drawings, Product Data, Samples, and similar submittals with related documents submitted by other Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner, Construction Manager, and Architect, that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been reviewed and approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's review and approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Construction Manager and Architect in a detailed writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Construction Manager and Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to reasonably rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract

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~~Documents.~~ Documents subject to its experience and expertise. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. ~~The Owner, the Architect, and the Owner shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals. The Architect and Construction Manager shall be entitled to reasonably rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy, subject to their professional judgment, experience, and expertise.~~ Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Construction Manager shall review submittals for sequencing, constructability, and coordination impacts on other Contractors.

**§ 3.12.10.2** If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Construction Manager and Architect at the time and in the form specified by the Architect. Only materials and equipment which are to be used for the Project or to carry out the Work shall be stored at the Project site(s). Protection of such materials and equipment shall be the sole responsibility of the Contractor.

### **§ 3.13 Use of Site**

**§ 3.13.1** The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, permits, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment. Only materials and equipment which are to be used for the Project or to carry out the Work shall be stored at the Project site(s). Protection of such materials and equipment shall be the sole responsibility of the Contractor.

**§ 3.13.2** The Contractor shall coordinate the Contractor's operations with, and secure the approval of, the Construction Manager before using any portion of the site.

### **§ 3.14 Cutting and Patching**

**§ 3.14.1** The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

**§ 3.14.2** The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner, Separate Contractors, or of other Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner, Separate Contractors, or by other Contractors except with written consent of the Construction Manager, Owner, and such other Contractors or Separate Contractors. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Separate Contractors, other Contractors, or the Owner, its consent to cutting or otherwise altering the Work.

### **§ 3.15 Cleaning Up**

**§ 3.15.1** The Contractor and its Subcontractors shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

**§ 3.15.2** If the Contractor fails to clean up as provided in the Contract Documents, the Owner, or Construction Manager with the Owner's approval, may do so and the Owner shall be entitled to reimbursement from the Contractor.

**§ 3.15.3** Any areas and/or concurrently occupied space both occupied by the Owner and used in the progress of the Work, whether within the limits of the construction site or the adjacent areas leading to it, shall be maintained in a clean and safe condition and open to travel. Failure by the Contractor to maintain said areas will result in the Owner's cleaning of same, at the expense of the Contractor.

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### § 3.16 Access to Work

The Contractor shall provide the Owner, Construction Manager, and Architect with access to the Work in preparation and progress wherever located.

### § 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall indemnify and hold harmless the Owner, Construction Manager, and Architect ~~harmless from~~ from any and all cost, damage, and loss on account thereof, including, but not limited to actual attorneys' fees, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner, Architect, or Construction Manager. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect through the Construction Manager. The review by the Owner of any method of construction, invention, appliance, process, article, device or materials of any kind shall be for its adequacy as integrated into the Work and shall not be an approval for the use thereof by the Contractor in violation of any patent or other rights of any third person.

### § 3.18 Indemnification

**§ 3.18.1** To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Construction Manager, Architect, Construction Manager's and Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or ~~resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent in any way related to performance of the Work, or the duties or obligations of this Agreement or the failure of the Contractor or the Work to conform with the Contract Documents, caused in whole or in part by any acts or omissions of the Contractor, a Subcontractor, or anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder, them or anyone for whose acts of any of them may be liable. The Contractor shall not be obligated to indemnify a party for that party's sole negligence but shall remain liable to the fullest extent of its fault or the fault of a person for whom the Contractor is responsible (e.g., a Subcontractor). The Contractor shall be responsible to the Owner, Construction Manager, Architect, Architect's consultants and agents and employees of any of them from and against all amounts such parties may be required to pay in attorney fees in order to pursue enforcement of this provision against the Contractor or otherwise obtain indemnification from the Contractor provided under the terms of this Section 3.18 or any other applicable Contract Document. Such obligation shall not be construed to negate, abridge, abridge or reduce any other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18 which would otherwise exist as to any party or person set forth in this section. To the fullest extent permitted by law, the Contractor shall indemnify the Owner and save the Owner harmless against all loss by fines, penalties or corrective measures resulting from negligent or wrongful acts or omissions by the Contractor, its Subcontractors, agents, employees or assigns, with respect to the violation of safety requirements of this Contract, including reasonable attorney fees.~~

**§ 3.18.2** ~~In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts. addition to and not in limitation of the Contractor's other indemnity obligations, the Contractor hereby accepts and assumes exclusive liability for and shall indemnify and save harmless the Owner, Construction Manager and Architect from and against the payment of the following:~~

All contributions, taxes, or premiums (including interest and penalties thereon) which may be payable under the unemployment insurance law of any state, the federal Social Security Act, federal, state, county and/or municipal tax withholding laws, or any other law, measured upon the payroll of or required to be withheld from employees by whomsoever employed, engaged in the Work to be performed and furnished under the Contract Documents.

All sales, use, personal property and other taxes (including interest and penalties thereon) required by any federal, state, county, municipal or other law to be paid or collected by the Contractor or any of its Subcontractors or vendors

or any other person or persons acting for, through or under it or any of them, by reason of the performance of the Work or the acquisition, ownership, furnishing, or use of any materials, equipment, supplies, labor, services or other items for or in connection with the Work;

All pension, welfare, vacation, annuity and other benefit contributions payable under or in connection with respect to all persons by whomsoever employed, engaged in the Work to be performed and furnished under the Contract Documents.

The Contractor shall indemnify and hold the Owner harmless from any claim, damage, loss or expense, including but not limited to actual attorney fees, incurred by the Owner related to any hazardous material or waste, toxic substance, pollution or contamination brought into the Project site or caused by the Contractor or used, handles, transported, stored, removed, remediated, disturbed or dispersed of by Contractor.

§ 3.18.3 In the event that any claim is made or asserted, or lawsuit filed for damages or injury arising out of or resulting from the performance of the Work, whether or not the Owner is named as a party, the Contractor shall immediately advise the Owner, in writing, of such claim or lawsuit and shall provide a full and complete copy of any documents or pleadings thereto, as well as a full and accurate report of the facts involved.

## **ARTICLE 4 ARCHITECT AND CONSTRUCTION MANAGER**

### **§ 4.1 General**

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement. The term "Architect," "Architect/Engineer," "Engineer," or "Design Professional" as used herein means the Architect or the Architect's authorized representative.

§ 4.1.2 The Construction Manager is the person or entity retained by the Owner pursuant to Section 2.3.3 and identified as such in the Agreement.

§ 4.1.3 Duties, responsibilities, and limitations of authority of the Construction Manager and Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the ~~Owner, Construction Manager, Architect, and Contractor.~~ Owner and the Construction Manager or Architect, respectively. Consent shall not be unreasonably withheld.

### **§ 4.2 Administration of the Contract**

§ 4.2.1 The Construction Manager and Architect will provide administration of the Contract as described in the Contract Documents and will be the Owner's representatives during construction until the date the Architect issues the final Certificate for ~~Payment.~~ Payment and with the Owner's written concurrence during the correction period. The Construction Manager and Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or more frequently, as otherwise agreed with the Owner. ~~Owner or as required by law,~~ to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract ~~Documents.~~ Documents. ~~However, Documents.~~ Subject to the Owner/Architect Agreement, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of the site visits, the Architect will keep the Owner and the Construction Manager reasonably informed about the progress and quality of the portion of the Work completed, will guard the owner against defects and deficiencies in the work, and promptly report to the Owner and Construction Manager known deviations from the Contract ~~Documents.~~ Documents, the Project schedule and defects and deficiencies observed in the Work.

§ 4.2.3 The Construction Manager shall provide one or more representatives who shall be in attendance at the Project site whenever the Work is being performed. The Construction Manager will determine in general if the Work observed is being performed in accordance with the Contract Documents, will keep the Owner and Architect reasonably informed of the progress of the Work, and will promptly report to the Owner and Architect known deviations from the Contract Documents and the most recent Project schedule, and defects and deficiencies observed in the Work.

§ 4.2.4 The Construction Manager will schedule and coordinate the activities of the Contractor and other Contractors in accordance with the latest approved Project ~~schedule~~-schedule and shall supervise construction as required by 1937 PA 306 (MCL 388.851 et seq.).

§ 4.2.5 The Construction ~~Manager, Manager and Architect~~, except to the extent required by Section 4.2.4, and Architect 4.2.4 or by 1937 PA 306 and/or 1980 PA 299, as applicable, will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the Contractor's safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, ~~and Documents~~. Except as required by their respective agreements with the Owner, neither will be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. ~~Neither the Construction Manager nor the Architect Documents and neither~~ will have control over or charge of, or be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or of any other persons or entities performing portions of the Work. The Construction Manager will schedule and coordinate the work of all Contractors on the Project, including the Contractors' use of the site. The Construction Manager will keep the Contractors informed of the Project Construction Schedule to enable the Contractors to plan and perform the Work in a timely manner.

§ 4.2.6 **Communications.** The Owner shall endeavor to communicate with the Contractor and the Construction Manager's consultants through the Construction Manager about matters arising out of or relating to the Contract Documents. The Owner and Construction Manager shall endeavor to include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall endeavor to promptly notify the Architect of the substance of any direct communications between the Owner and the Construction Manager otherwise relating to the Project. Communications by and with the Architect's consultants ~~shall may~~ be through the Architect. Communications by and with Subcontractors and suppliers ~~shall may~~ be through the Contractor. Communications by and with other Contractors shall be through the Construction Manager. Communications by and with the Owner's own forces and Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.7 The Construction Manager and Architect will review and certify all Applications for Payment by the Contractor, in accordance with the provisions of Article 9.

§ 4.2.8 The Architect and Construction Manager have authority to reject Work that does not conform to the Contract Documents, and will notify each other about the rejection. Whenever the Construction Manager considers it necessary or advisable, the Construction Manager will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, upon written authorization of the Owner, whether or not the Work is fabricated, installed or completed. The foregoing authority of the Construction Manager will be subject to the provisions of Sections 4.2.18 through 4.2.20 inclusive, with respect to interpretations and decisions of the Architect. However, neither the Architect's nor the Construction Manager's authority to act under this Section 4.2.8 nor a decision made by either of them in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or the Construction Manager to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons performing any of the Work.

§ 4.2.9 Utilizing the submittal schedule provided by the Contractor, the Construction Manager shall prepare, and revise as necessary, a Project submittal schedule incorporating information from other Contractors, the Owner, Owner's consultants, Owner's Separate Contractors and vendors, governmental agencies, and participants in the Project under the management of the Construction Manager. The Project submittal schedule and any revisions shall be submitted to the Architect for approval.

§ 4.2.10 The Construction Manager will receive and promptly review for conformance with the submittal requirements of the Contract Documents, all submittals from the Contractor such as Shop Drawings, Product Data, and Samples. Where there are other Contractors, the Construction Manager will also check and coordinate the information contained within each submittal received from the Contractor and other Contractors, and transmit to the Architect those recommended for approval. By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Construction Manager represents to the Owner and Architect that the Construction Manager has reviewed and recommended them for approval. The Construction Manager's actions will be taken in accordance with the Project submittal schedule approved by the Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness while allowing sufficient time to permit adequate review by the Architect.

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§ 4.2.11 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Upon the Architect's completed review, the Architect shall transmit its submittal review to the Construction Manager.

§ 4.2.12 Review of the Contractor's submittals by the Construction Manager and Architect is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Construction Manager and Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Construction Manager and Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component. However, should the Construction Manager or Architect discover during the course of such review any inaccuracies, incompleteness, or other irregularities, they shall immediately notify the Owner of the same to determine an appropriate corrective course of action or notify the Contractor of the same to correct the irregularities.

§ 4.2.13 The Construction Manager will prepare Change Orders and Construction Change Directives.

§ 4.2.14 The Construction Manager and the Architect will take appropriate action on Change Orders or Construction Change Directives in accordance with Article 7, and the Architect will have authority to order minor changes in the Work as provided in Section 7.4. The Architect, in consultation with the Construction Manager, will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.15 ~~Utilizing the documents provided by the Contractor, the~~ The Construction Manager will maintain at the site for the Owner one copy of all Contract Documents, approved Shop Drawings, Product Data, Samples, and similar required submittals, in good order and marked currently to record all changes and selections made during construction. These will be available to the Architect and the Contractor, and will be delivered to the Owner in good condition and reasonably organized upon completion of the Project.

§ 4.2.16 The Construction Manager will assist the Architect in conducting inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion in conjunction with the Architect pursuant to Section 9.8; and receive and forward to the Owner written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10. The Construction Manager will forward to the Architect a final Application and Certificate for Payment or final Project Application and Project Certificate for Payment upon the Contractor's compliance with the requirements of the Contract Documents.

§ 4.2.17 ~~If the Owner and Architect agree, the~~ The Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Construction Manager of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.18 The Architect will interpret ~~and decide~~ matters concerning performance under, and requirements of, the Contract Documents on written request of the Construction Manager, Owner, or Contractor through the Construction Manager. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.19 Interpretations ~~and decisions~~ of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such ~~interpretations and decisions, interpretations, the~~ Architect will endeavor to secure faithful performance by ~~both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions~~ so rendered in good ~~faith~~ faith and without negligence.

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§ 4.2.20 The Architect's ~~decisions-interpretations~~ on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract ~~Documents-Documents~~ and acceptable to the Owner.

§ 4.2.21 The Construction Manager will receive and review requests for information from the Contractor, and forward each request for information to the Architect, with the Construction Manager's recommendation. The Architect will review and respond in writing, through the Construction Manager, to requests for information about the Contract Documents. The Construction Manager's recommendation and the Architect's response to each request will be made in writing within any time limits agreed upon or otherwise with reasonable ~~promptness-promptness~~ promptness given the particular circumstances. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

## ARTICLE 5 SUBCONTRACTORS

### § 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include other Contractors or Separate Contractors or the subcontractors of other Contractors or Separate Contractors. The term "Subcontractor" shall also include material and equipment suppliers.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

### § 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Construction Manager, for review by the Owner, Construction Manager and Architect, of the persons or entities proposed for each principal portion of the Work, including those who are to furnish supplies, materials or equipment equipment, including those fabricated to a special design. Within 14 days of receipt of the information, the Construction Manager ~~may-will~~ notify the Contractor whether the Owner, the Construction Manager or the Architect (1) has reasonable objection to any such proposed person or entity or, (2) requires additional time for review. ~~Failure of the Construction Manager to provide notice within the 14 day period shall constitute notice of no reasonable objection.~~ The Contractor shall remain, in all instances, jointly and severally liable to the Owner for all acts or omissions of its Subcontractor. All contractual agreements with additional persons or entities serving as a subcontractor shall incorporate the Contract Documents, expressly identify the Owner as a third-party beneficiary, give the Owner all rights against the Subcontractor that it would have against the Contractor and state that the Owner shall enjoy all third-party beneficiary rights not prohibited by law.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner, Construction Manager or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner, Construction Manager or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner, Construction Manager or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner, Construction Manager or Architect makes reasonable objection to such substitution. The Contractor shall notify the Owner, the Architect, and the Construction Manager of any proposed subcontractor substitution a minimum of 10 days prior to such proposed change.

### § 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume

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toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, that the Contractor, by these Contract Documents, assumes toward the Owner, Construction Manager and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner, Construction Manager and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

#### § 5.4 Contingent Assignment of Subcontracts

- § 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that
- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
  - .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation ~~shall be equitably adjusted for increases in cost resulting from the suspension.~~ may be equitably adjusted as negotiated by the parties.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor Contractor or other entity. ~~If the Owner assigns the subcontract to a successor Contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor Contractor's obligations under the subcontract.~~

### ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

#### § 6.1 Owner's Right to Perform Construction with Own Forces and to Award Other Contracts

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to ~~insurance and waiver of subrogation.~~ insurance. The Construction Manager and Contractor shall be responsible for coordinating the Work with the work of other Contractors, including the Owner's own forces or Separate Contractors so as to complete the Work in accordance with the Project schedule.

§ 6.1.2 When the Owner performs construction or operations with the Owner's own forces or Separate Contractors, the Owner shall provide for coordination of such forces and Separate Contractors with the Work of the Contractor, who shall cooperate with them.

~~§ 6.1.3 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.~~

#### § 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner's own forces, Separate Contractors, Construction Manager and other Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of

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their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner's own forces, Separate Contractors or other Contractors, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Construction Manager and Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor or other Contractors that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Construction Manager and the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's or other Contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractors or other Contractors that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs, including costs that are payable to a Separate Contractors or to other Contractors, because of the Contractor's delays, improperly timed activities or defective construction. ~~The Owner shall be responsible to the Contractor for costs the Contractor incurs because of delays, improperly timed activities, damage to the Work or defective construction by the Owner's own forces, Separate Contractors, or other Contractors.~~

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction, or to property of the Owner, Construction Manager, Separate Contractors, or other Contractors as provided in Section 10.2.5. Should a claim be made that the Contractor wrongfully delayed or caused damage to the Work or property of another contractor (including the Owner's own forces, other Contractors, or Separate Contractors), the Contractor shall promptly settle the dispute with such other contractor. If such other contractor sues the Owner on account of any delay or damage alleged to have been caused by the Contractor, the Construction Manager will notify the Contractor who shall defend such proceedings at the Contractor's sole expense. If any judgment or award against the Owner arises therefrom, the Contractor shall pay or satisfy it and shall reimburse the Owner for all costs, including attorneys' fees and court costs, which the Owner may have incurred.

§ 6.2.5 The Owner, Separate Contractors, and other Contractors shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

### § 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, other Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and ~~the Construction Manager, with notice to the Architect, will~~ allocate the cost among those responsible. The Owner's right to clean up shall in no event be deemed a duty, and should the Owner choose not to pursue this remedy, the Contractor necessitating such action shall remain fully responsible for the same.

## ARTICLE 7 CHANGES IN THE WORK

### § 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, only by Change Order, Construction Change ~~Directive~~ Directive, written contract amendment, or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Construction Manager, Architect and Contractor. A Construction Change Directive requires agreement by the Owner, Construction Manager and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

## § 7.2 Change Orders

A Change Order is a written instrument prepared by the Construction Manager and signed by the Owner, Construction Manager, Architect, and Contractor, stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.2.3 The Contractor's agreement on any Change Order shall constitute its final settlement of all matters relating to the direct and indirect costs associated with such change and any and all related adjustments to the Contract Sum and the Contract Time.

## § 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Construction Manager and signed by the Owner, Construction Manager and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one or more of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Construction Manager shall ~~determine~~ determine, with the Owner's approval, the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Construction Manager may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to a reasonable amount of the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Construction Manager and Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Construction Manager of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time. Contractor agreements to a Construction Change Directive shall require a follow-up writing or signature as contemplated in Section 7.3.7.

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§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Construction Manager and Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for undisputed Work completed under the Construction Change Directive in Applications for Payment. ~~The~~ For those undisputed portions, the Construction Manager and Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Construction Manager and Architect determine to be reasonably justified. The interim determination of ~~cost~~ cost, if agreed to by the Owner in writing, shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree in writing with a determination made by the Construction Manager and Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the ~~adjustments, adjustments in writing,~~ such agreement shall be effective immediately and the Construction Manager shall prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

#### § 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Owner and Construction Manager and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Owner and Construction Manager that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

### ARTICLE 8 TIME

#### § 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

#### § 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for obtaining all supplies, materials, tools and equipment necessary to perform the Work and for properly performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time. All work shall be completed in sufficient time to allow for clean-up and preparation for Owner move-in prior to the date of Substantial Completion.

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**§ 8.3 Delays and Extensions of Time**

**§ 8.3.1** ~~If~~ Provided the Contractor submits a written request for an extension not more than fourteen days after the occurrence that gives rise to the delay, if the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner, Architect, Construction Manager, or an employee of any of them, or of the Owner's own forces, Separate Contractors, or other Contractors; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, fire, government-declared emergencies, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; litigation, mediation, or arbitration, as applicable; or (5) by other causes that the Contractor asserts and the Architect, based on the recommendation of the Construction Manager, determines justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine. may be extended by Change Order. Failure of the Contractor to submit a timely request for an extension shall irrevocably waive the Contractor's right to such an extension of time. If the contract time is subject to extension pursuant to this subparagraph, such extension shall be the exclusive remedy of the Contractor and the Contractor shall not be entitled to recover damages from the Owner. Further, minor modifications in Contract time resulting from adjustments in the Project construction schedule shall not be deemed a sufficient cause for an extension of time under this Section.

**§ 8.3.2** Claims relating to time shall be made in accordance with applicable provisions of Article 15.

~~§ 8.3.3~~ This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

**§ 8.4 Delay Damage Claims**

**§ 8.4.1** If the Contractor fails to complete its Work on time resulting in loss or damage to the Owner, the Owner shall be entitled to recover any damages caused by the Contractor's breach, including overhead, profit, extended general conditions, actual attorney fees, etc.

**§ 8.4.2** In the event the Contractor is delayed or hindered in the commencement or progress of the Work, including but not limited to those delays caused by the Work or lack of Work of another contractor or subcontractor on the Project, and the Contractor claims monetary damages as a direct and proximate consequences thereof (including, but not limited to, extended general conditions, overhead, profit, overtime, interest, supervisions or other costs or profits whatsoever), then the Contractor shall not assert such claims against the Architect, Construction Manager or Owner and, as to the Architect, Construction Manager and Owner, the Contractor's claims of such delay damages are hereby waived. The Contractor's sole and exclusive remedy regarding claims for monetary delay damages shall be to pursue such claims directly against any contractor(s) and/or subcontractors on the job which may have caused the delay, and with regard to such claims asserted against the Contractor by any other contractor(s) and/or subcontractors, the Contractor hereby waives the defense of absence of contractual privity and hereby assumes liability to other contractor(s) and/or subcontractors arising out of the Contractor's actions or inactions resulting in such delay and claim.

**§ 8.4.3** For any delay claims raised against the Owner, the Contractor's sole and exclusive remedy is an extension of time to perform the Work not to exceed the time frame of any proven delay. Under no circumstances is the Contractor entitled to monetary delay damages from the Owner.

**ARTICLE 9 PAYMENTS AND COMPLETION**

**§ 9.1 Contract Sum**

**§ 9.1.1** The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

**§ 9.1.2** If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably ~~adjusted.~~ adjusted, unless the Contractor provided such unit prices as a part of a competitive bid.

## § 9.2 Schedule of Values

~~Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, Before the first Application for Payment, the Contractor shall submit a schedule of values to the Construction Manager, before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Construction Manager and the Architect. This schedule, unless objected to by the Owner, Construction Manager or Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. The Construction Manager shall forward to the Owner and Architect the Contractor's schedule of values. Any changes to the schedule of values shall be submitted to the Construction Manager and supported by such data to substantiate its accuracy as the Construction Manager and the Architect may require, and unless objected to by the Construction Manager or the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.~~

## § 9.3 Applications for Payment

~~§ 9.3.1 At least fifteen days before the date established for each progress payment, the Contractor shall submit to the Construction Manager an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, values for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner, Construction Manager or Architect require, such as copies of requisitions, and releases of waivers of lien from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.~~

~~§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Construction Manager and Architect, but not yet included in Change Orders. A Contractor's request for payment of sums related to work regarding Construction Change Directive shall, unless qualified in writing at the time of request, constitute full and complete consent to the Construction Change Directive(s) and to the issuance of a Change Order.~~

~~§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.~~

~~§ 9.3.1.3 The Contractor shall submit with each monthly Application for Payment (1) an Affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the previous application was submitted and the Owner might in any way be responsible have been paid or otherwise satisfied, and (2) a release or waiver of liens rising out of the Contract from each Contractor and/or Subcontractor, materialman, supplier and laborer or the Contractor addressing all previous Applications for Payment submitted for the Project.~~

~~§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site. Payment to Contractor for materials stored off site is discouraged. When circumstances indicate that the Owner's best interest is served by off-site storage, the Contractor shall make written request to the Owner and Construction Manager for approval to include such material costs in its next progress payment. The Contractor's request shall include the following information:~~

- ~~.1 A list of the fabricated materials consigned to the Project (which shall be clearly identified, giving the place of storage, together with copies of invoices and reasons why materials cannot be delivered to the site.~~
- ~~.2 Certification that items have been tagged for delivery to the Project and that they will not be used for another purpose.~~
- ~~.3 A letter from the Contractor's Surety indicating agreement to the arrangements and that payment to the Contractor shall not relieve either party of their responsibility to complete the Work.~~
- ~~.4 Evidence of adequate insurance covering the material in storage, which shall name the Owner as additionally insured.~~
- ~~.5 Costs incurred by the Owner, Construction Manager and Architect to inspect material in off-site storage shall be paid by the Contractor.~~

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- .6 Subsequent pay requests shall itemize the materials and their cost which were approved on previous pay requests and remain in off-site storage.
- .7 When a partial payment is allowed on account of material delivered on the site of the Work or in the vicinity thereof or under possession and control of the Contractor, but not yet incorporated therein, such material shall become the property of the Owner, but if such material is stolen, destroyed or damaged by casualty before being used, the Contractor will be required to replace it at its own expense.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials and equipment relating to the Work.

#### § 9.4 Certificates for Payment

§ 9.4.1 Where there is only one Contractor, the Construction Manager will, within seven days after the Construction Manager's receipt of the Contractor's Application for Payment, review the Application, certify the amount the Construction Manager determines is due the Contractor, and forward the Contractor's Application and Certificate for Payment to the Architect. Within seven days after the Architect receives the Contractor's Application for Payment from the Construction Manager, the Architect will either (1) issue to the Owner a Certificate for Payment, in the full amount of the Application for Payment, with a copy to the Construction Manager; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Construction Manager and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Construction Manager and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. The Construction Manager will promptly forward to the Contractor the Architect's notice of withholding certification.

§ 9.4.2 Where there is more than one Contractor performing portions of the Project, the Construction Manager will, within seven days after the Construction Manager receives all of the Contractors' Applications for Payment: (1) review the Applications and certify the amount the Construction Manager determines is due each of the Contractors; (2) prepare a Summary of Contractors' Applications for Payment by combining information from each Contractor's application with information from similar applications for progress payments from the other Contractors; (3) prepare a Project Application and Certificate for Payment; (4) certify the amount the Construction Manager determines is due all Contractors; and (5) forward the Summary of Contractors' Applications for Payment and Project Application and Certificate for Payment to the Architect.

§ 9.4.2.1 Within seven days after the Architect receives the Project Application and Project Certificate for Payment and the Summary of Contractors' Applications for Payment from the Construction Manager, the Architect will either (1) issue to the Owner a Project Certificate for Payment, with a copy to the Construction Manager; or (2) issue to the Owner a Project Certificate for Payment for such amount as the Architect determines is properly due, and notify the Construction Manager and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Project Application for Payment, and notify the Construction Manager and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. The Construction Manager will promptly forward the Architect's notice of withholding certification to the Contractors. As between the Owner and the Contractor, the failure of the Architect or Construction Manager to notify the Contractor or the Owner of a withheld certification does not render such withholding ineffective, and the Owner shall have no obligation to pay a Contractor for uncertified amounts or amounts for which no Certificate for Payment has been issued. If the Contractor does not receive notice of a withheld certification, it shall proceed as provided in Section 9.7.

§ 9.4.3 The Construction Manager's certification of an Application for Payment or, in the case of more than one Contractor, a Project Application and Certificate for Payment, shall be based upon the Construction Manager's evaluation of the Work and the data in the Application or Applications for Payment. The Construction Manager's certification will constitute a representation that, to the best of the Construction Manager's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is, or Contractors are, entitled to payment in the amount certified.

§ 9.4.4 The Architect's issuance of a Certificate for Payment or, in the case of more than one Contractor, Project Application and Certificate for Payment, shall be based upon the Architect's evaluation of the Work, the recommendation of the Construction Manager, and data in the Application for Payment or Project Application for Payment. The Architect's certification will constitute a representation that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is, or Contractors are, entitled to payment in the amount certified.

§ 9.4.5 The representations made pursuant to Sections 9.4.3 and 9.4.4 are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Construction Manager or ~~Architect~~. Architect, in writing, together with the Certification which the qualification pertains.

§ 9.4.6 The issuance of a Certificate for Payment or a Project Certificate for Payment will not be a representation that the Construction Manager or Architect ~~has~~ has, unless otherwise required by contract or law, (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

#### § 9.5 Decisions to Withhold Certification

§ 9.5.1 The Construction Manager or Architect may withhold a Certificate for Payment or Project Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Construction Manager's or Architect's opinion the representations to the Owner required by Section 9.4.3 and 9.4.4 cannot be made. If the Construction Manager or Architect is unable to certify payment in the amount of the Application, the Construction Manager will notify the Contractor and Owner as provided in Section 9.4.1 and 9.4.2. If the Contractor, Construction Manager and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment or a Project Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Construction Manager or Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment or Project Certificate for Payment previously issued, to such extent as may be necessary in the Construction Manager's or Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from the acts and omissions described in Section 3.3.2 because of

- .1 defective Work not ~~remedied~~; remedied, or the Contractor is in breach of the Agreement;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor or other Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; ~~or~~
- .7 ~~repeated~~ failure to carry out the Work in accordance with the Contract Documents.
- .8 the Work not having progressed to the extent set forth in the Application for payment; or
- .9 representations of the Contractor are untrue.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect or Construction Manager withholds certification for payment under Section 9.5.1, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the

Owner makes payments by joint check, the Owner shall notify the Architect and the Construction Manager, and both will reflect such payment on the next Certificate for Payment.

§ 9.5.5 If the Contractor disputes any determination by the Owner, Architect, or Construction Manager with regard to any Certificate for Payment, the Contractor shall nevertheless continue to expeditiously perform the Work and such dispute shall provide no basis for any manner of suspension of the Contractor's performance of the Work.

#### § 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment or Project Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Construction Manager and Architect.

§ 9.6.1.1 The Owner may, in its sole discretion, choose to make payments to Contractors through the Construction Manager. More particularly, the Owner may distribute funds to the Construction Manager for the Construction Manager to then provide payment to each respective and applicable Contractor. The Owner may discontinue this practice at any time in its sole discretion.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Construction Manager will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Owner, Construction Manager and Architect on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner, Construction Manager nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4. Owner may, in its sole discretion, after providing Contractor with ten (10) days prior written notice, make direct payments to the Contractor's Subcontractors, material men, laborers or claimants relating to labor or material provided to the Contractor in the event the Subcontractors, material men, laborers or claimants threaten to or actually cease providing labor and/or materials for the Project due to nonpayment such that, in the Owner's determination, progress of the Project and the Project's schedule are jeopardized. All payments made pursuant to this section shall be considered the same as if paid directly to the Contractor and shall constitute partial payment of the Contract Sum. In the event the Contractor disagrees with the amount proposed to be paid to one or more Subcontractors, material men, laborers or claimants, the Contractor shall provide a bond in the amount the Contractor believes the Owner will overpay, within ten (10) days of receipt of notice, or be barred from making any claim that the amount of the direct payment was incorrect. Payment under this provision shall not jeopardize any other remedy available to the Owner.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

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§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.6.9 Subject to applicable law, if a petition in bankruptcy or any other arrangement or proceeding regarding insolvency, assignment for the benefit of creditors, trust, chattel mortgage, or similar state or federal proceeding, whether voluntary or involuntary, shall be filed with respect to the Contractor, the Owner may withhold the final balance, or any other payments, whether or not an application for progress payment has been properly filed, until expiration of the period of any guarantees or warranties required for the Contractor, and the Owner may pay out such funds the amount necessary to satisfy any claims or costs that otherwise would have been covered by such guarantees or warranties.

### § 9.7 Failure of Payment

If the Construction Manager and Architect do not issue a Certificate for Payment or a Project Certificate for Payment, through no fault of the ~~Contractor~~, Contractor and without justifiable basis under the Contract Documents, within fourteen days after the Construction Manager's receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Construction Manager and Architect or awarded by binding dispute resolution, ~~then the Contractor may, upon seven~~ unless the Owner, in good faith, disputes the amount certified, then the Contractor may, upon twenty-one additional days' notice to the Owner, Construction Manager and Architect, stop the Work until payment of the amount owing has been received. (1) the Contractor receives payment of the amount owing, or (2) the Contractor receives notice from the Architect, Construction Manager, or Owner of a full or partial withheld certification as provided herein. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents. The Owner shall have no obligation to pay the Contractor unless it receives a Certificate for Payment for the amount certified. The Owner may withhold payment from a non-performing Contractor irrespective of the issuance of a Certificate for Payment.

### § 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents and when all required occupancy permits, if any, have been issued, so the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall notify the Construction Manager, and the Contractor and Construction Manager shall jointly prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the list, the Architect, assisted by the Construction Manager, will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item ~~upon notification by the Architect immediately~~. In such case, the Contractor shall then submit a request for another inspection by the Architect, assisted by the Construction Manager, to determine Substantial Completion.

§ 9.8.4 When the Architect, assisted by the Construction Manager, determines that the Work of all of the Contractors, or designated portion thereof, is substantially complete, the Construction Manager will prepare, and the Construction Manager and Architect shall execute, a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of

Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.8.6 Notwithstanding Sections 9.8.1 and 9.8.2, as a condition precedent to establishing the date of Substantial Completion, the Contractor shall prepare and submit to the Architect and Construction Manager a comprehensive list of items to be completed or corrected (a "punch list"). The Contractor shall respond immediately to correct Work deficiencies and/or punch list items. Should the Contractor fail to make corrections in a timely fashion, but not later than thirty (30) calendar days from the date of Substantial Completion or notification of the required corrections, whichever is earlier, such Work may be corrected by the Owner at the Contractor's sole expense, and the Contract Sum may be adjusted accordingly.

#### § 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, ~~provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor and Construction Manager shall jointly prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect after consultation with the Construction Manager, complete.~~ The Contractor shall proceed with the work in such a manner as reasonably directed and shall cooperate with the Owner to limit interruptions.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Construction Manager, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

#### § 9.10 Final Completion and Final Payment

§ 9.10.1 Upon completion of the Work, the Contractor shall forward to the Construction Manager a notice that the Work is ready for final inspection and acceptance, and shall also forward to the Construction Manager a final Contractor's Application for Payment. Upon receipt, the Construction Manager shall perform an inspection to confirm the completion of Work of the Contractor. The Construction Manager shall make recommendations to the Architect when the Work of all of the Contractors is ready for final inspection, and shall then forward the Contractors' notices and Application for Payment or Project Application for Payment, to the Architect, who will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Construction Manager and Architect will promptly issue a final Certificate for Payment or Project Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Construction Manager's and Architect's final Certificate for Payment or Project Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect through the Construction Manager (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or

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encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final ~~payment~~ payment, (5) an affidavit that states the Work is fully completed and performed in accordance with the Contract Documents and is satisfactory to the Architect and the Owner, (6) in the event of Contractor bankruptcy, at the Owner's option, an order entered by the court having jurisdiction of the Contractor's insolvency proceeding authorizing such payment, (7) a general release executed by the Contractor on a form provided by the Construction Manager, (8) all close-out documents and warranties have been provided in a reasonable and acceptable manner, (9) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and ~~(6), (10)~~, if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and ~~reasonable~~ actual attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Construction Manager and Architect so confirm, the Owner shall, upon application by the Contractor and certification by the Construction Manager and Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect through the Construction Manager prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall ~~constitute a waiver of Claims by the Owner except those arising from~~  
~~1~~ liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;  
~~2~~ failure of the Work to comply with the requirements of the Contract Documents;  
~~3~~ terms of special warranties required by the Contract Documents; or  
~~4~~ audits performed by the Owner, if permitted by the Contract Documents, after final payment. ~~not constitute a waiver of any Claims by the Owner.~~

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of all claims by that payee except those previously made in writing and identified by that payee as being unsettled and being an exception to the waiver of this section at the time of final Application for Payment.

§ 9.10.6 All architectural costs incurred after the specified Final Completion date resulting from the Contractor's failure to complete the Work as agreed shall be paid by the Contractor to the Owner prior to the authorization of final payment. Charges to the Contractor shall be made at such times and in such amounts as the Architect invoices the Owner under the current rate schedule in effect at the time of service, for services provided in connection with the Work. The architectural costs incurred after the final completion date will be deducted from the Contractor's progress payment or final payment as applicable.

## ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

### § 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall submit the Contractor's safety program to the Construction Manager for review and coordination with the safety programs of other Contractors. The Construction Manager's responsibilities for review and coordination of safety programs shall not extend to direct control over or charge of the acts or omissions of the Contractors, Subcontractors, agents or employees of the Contractors or Subcontractors, or any other persons performing portions of the Work and not directly employed by the Construction Manager.

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## § 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor;
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction; and
- .4 construction or operations by the Owner, Separate Contractors, or other Contractors.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss. The Contractor shall take all reasonable safety precautions with respect to its Work and the work of others, shall comply with all standard industry safety measures and shall comply with all applicable laws, ordinances, rules, regulations and orders of any public authority and all other requirements of the Contract Documents, including those applicable to the safety of persons or property. The Contractor shall be responsible for the safety of all of the Contractor's employees and the safety of all of the Contractor's Subcontractors, suppliers, and their employees. The Contractor shall report in writing to the Construction Manager any injury to any of Contractor's or its Subcontractors' employees at the site within one (1) day after the occurrence of such injury. The Contractor acknowledges receiving, or having access to an opportunity to review, health and safety information about the Project site(s), including any applicable asbestos management plan and any other environmental information it deems necessary to perform the work.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, ~~reasonable~~ reasonable, necessary, and appropriate safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel. The Contractor shall be solely and fully responsible for any and all damage claims and for defense of all actions against the Owner relating to such explosives, hazardous materials and/or unusual methods.

§ 10.2.5 The Contractor shall promptly remedy damage and loss ~~(other than damage or loss insured under property insurance required by the Contract Documents)~~ to property referred to in Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner, Construction Manager or Architect or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner, Construction Manager and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

### § 10.2.8 Injury or Damage to Person or Property

If ~~either party~~ the Contractor suffers injury or damage to person or property because of an act or omission of ~~the other party, the Owner,~~ or of others for whose acts ~~such party~~ the Owner is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the ~~other party~~ Owner within a reasonable time not exceeding 21

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days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter. Owner to investigate the matter. The Contractor's failure to do so shall be an irrevocable waiver of any claim against the Owner arising out of such injury or damage. Injury or damage to persons or property suffered by the Owner because of an act or omission of the Contractor or others for whose acts the Contractor is legally responsible shall be subject to the limitations provisions established by Michigan law.

§ 10.2.8.1 The Contractor causing damage to the Work of another Contractor shall be responsible for the repair and replacement of such damaged Work. Back charges may be made against the Contract sum of the damaging Contractor when corrections are not made promptly.

§ 10.2.8.2 The Owner reserves the right to pay the Contractor suffering damage from monies due the Contractor who is responsible for the Work required by same and shall deduct it from the Contract amount due the said responsible Contractor.

§ 10.2.9 If the Contractor or any Subcontractor chooses to use any systems, equipment, facilities, or services which have been incorporated in the Project as a permanent part thereof by any other, the Contractor shall assume full responsibility for damages caused to said systems, equipment, facilities or services, and have damages repaired as required, so that in no case will the performance of the used systems, equipment, facilities or services be diminished from the specified criteria as a result of such use.

§ 10.2.10 The Contractor acknowledges that the safety of the Owner's students, employees and guests is of the utmost importance. The Contractor will take no action which would jeopardize the safety of the Owner's students, employees and guests and, without the Owner's written approval, shall take no action which would interfere with the Owner's activities. Without limiting the foregoing provisions, the Contractor shall comply with all laws applicable to students and/or school safety.

### **§ 10.3 Hazardous Materials**

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner, Construction Manager and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner in its discretion shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall, as a courtesy, furnish in writing to the Contractor, Construction Manager and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. ~~The Contractor, the Construction Manager and the Architect will promptly reply to the Owner in writing stating whether or not any of them has reasonable objection to the persons or entities proposed by the Owner. If the Contractor, Construction Manager or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor, the Construction Manager and the Architect have no reasonable objection.~~ When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up to address shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Construction Manager, Architect, their consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of

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tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

~~§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.~~ site. To the extent the Contract requires the removal, transport and disposal of hazardous materials, the Contractor agrees that it assumes responsibility for said tasks as a part of the Agreement.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

~~§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.~~

#### § 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's reasonable discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7. Nothing in this section will be construed as relieving Contractor from the cost and responsibilities for emergencies covered hereby.

#### § 10.5 Notification of Utility Companies

§ 10.5.1 At least five (5) working days prior to the start of work in areas which may involve existing utility lines, the Contractor shall notify the MISS DIG notification system of the planned work.

§ 10.5.2 The utility company should, upon receipt of notice, stake, mark or otherwise designate the location (and depth) of their lines, or temporarily move the line(s).

§ 10.5.3 The Contractor shall immediately report to the respective utility company any break or leak in its lines, or any dent, gouge, groove or other damage to the utility line or to its coating or cathodic protection made or discovered in the course of the Work.

§ 10.5.4 The Contractor shall immediately alert the Owner, Construction Manager, Architect and occupants of nearby premises of any and all emergencies caused or discovered in the utility lines(s) in the course of the Work.

### ARTICLE 11 INSURANCE AND BONDS

#### § 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the ~~Agreement or elsewhere in the Contract Documents.~~ Agreement, as described elsewhere in the Contract Documents, as required by law, or as reasonably required by the Owner in light of the nature of services performed and insurance obligations of its other contractors and consultants. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Construction Manager and Construction Manager's consultants, and the Architect and Architect's consultants, shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents. On all insurance contracts under which the Contractor is obligated to have its insurance company name the Owner as additional insured, the Contractor shall require such insurance company to add to the policy the following clause: "The insurance afforded to the Additional Insured is primary insurance. If the Additional Insureds have other insurance which is applicable to the loss on an excess or contingent basis, the amount of the insurance company's liability under this policy shall not be reduced by the existence of such other insurance." Certificates of insurance acceptable to the Owner shall be submitted by Contractor to the Owner and Construction

Manager prior to commencement of Work and thereafter upon renewal or replacement of each required policy of insurance.

§ 11.1.2 The Contractor shall provide bonds covering faithful performance of 100% of the Contract and payment of 100% of the obligations arising thereunder as stipulated in bidding requirements or specifically required by the Contract Documents or by law on the date of the Contract. The Contractor shall provide such additional surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located and that are reasonably acceptable to the Owner. The Construction Manager shall obtain copies of the Performance Bond and Payment Bond required by the Agreement from the Contractor prior to Contractor beginning performance pursuant to the Agreement. The Contractor's obligation to provide such bonds shall not be waived in any fashion, including any failure to secure such bonds prior to Contractor beginning performance pursuant to the Agreement.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

**§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance.** Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice directly to the Owner, and separately to the Construction Manager, of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

#### **§ 11.2 Owner's Insurance**

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

**§ 11.2.2 Failure to Purchase Required Property Insurance.** If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform both the Contractor and the Construction Manager, separately and in writing, prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. ~~In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.~~

§ 11.2.2.1 The Contractor shall at the Contractor's own expense provide insurance coverage for materials stored off the site after written approval of the Owner at the value established in the approval, and also for portions of the Work in transit until such materials are permanently attached to the Work.

§ 11.2.2.2 The insurance required by Section 11.2 is not intended to cover machinery, tools or equipment owned or rented by the Contractor that are utilized in the performance of the Work, but not incorporated into permanent improvements. The Contractor shall, at the Contractor's own expense, provide insurance for owned or rented machinery, tools or equipment.

**§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance.** Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property

insurance required by the Contract Documents, the Owner shall provide notice directly to the Contractor, and separately to the Construction Manager, of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; and (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) ~~the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. may be adjusted negotiation between the parties.~~ If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

### § 11.3 Waivers of Subrogation

~~§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Construction Manager and Construction Manager's consultants; (3) the Architect and Architect's consultants; (4) other Contractors and any of their subcontractors, sub-subcontractors, agents, and employees; and (5) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Construction Manager, Construction Manager's consultants, Architect, Architect's consultants, other Contractors, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this Section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property. is not waiving any rights its insurer(s) may have to subrogation. To the extent any terms in the General Conditions or any other Contract Documents are contrary to the aforementioned, such terms shall be deemed void and unenforceable.~~

~~§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.~~

### § 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. ~~The Owner waives all rights of action against the Contractor, Architect, and Construction Manager for loss of use of the Owner's property, due to fire or other hazards however caused.~~

### § 11.5 Adjustment and Settlement of Insured Loss

~~§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Construction Manager, Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Construction Manager, Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner. insureds. The Owner shall use its best efforts, with consultation of the Construction Manager, to reach a quick and fair settlement for all interested parties, with the insurance companies after a loss.~~

~~§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the~~

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Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

## ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

### § 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Construction Manager's or Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by either, be uncovered for their examination and be replaced at the Contractor's expense without change in the Contract ~~Time~~ Time or Contract Sum.

§ 12.1.2 If a portion of the Work has been covered that the Construction Manager or Architect has not specifically requested to examine prior to its being covered, the Construction Manager or Architect may ~~request~~ request, with the Owner's consent, to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the ~~Contractor shall be entitled to an equitable adjustment to~~ Owner shall reasonably adjust the Contract Sum and Contract Time as may be appropriate. At the time, Owner's consent is sought as described herein, the Architect and/or Construction Manager shall notify the Owner that additional costs may apply if the Work is in accordance with the Contract Documents. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

### § 12.2 Correction of Work

#### § 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Construction Manager or Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion, and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, shall be at the Contractor's expense. If any portion of the Work is determined by the Owner, Construction Manager or Architect, either during performance of the Work or during any applicable warranty period, to be defective or not in compliance with the contract requirements, the Construction Manager or Owner shall notify the Contractor in writing that such Work is rejected. Thereupon, the Contractor shall immediately replace and/or correct such Work by making the same comply strictly with all the requirements therefor. The Contractor shall bear all costs of correcting such rejected Work, including work of other Subcontractors and including compensation for the Architect's and Construction Manager's additional services and any delay or related damage to the Owner made necessary thereby. The Construction Manager shall have the right to charge the Contractor for any compensation payable for the Architect's or Construction Manager's additional services required by the Contractor's rejected Work and deduct the payment from the next payment due the Contractor.

#### § 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner or Construction Manager to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner or Construction Manager shall give such notice promptly after discovery of the condition. During the one year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner, Construction Manager or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner, Separate Contractors, or other Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.2.6 The Contractor shall respond immediately to correct Work deficiencies and/or punch list items. Failure to correct Work deficiencies and/or punch list items in a timely fashion shall be a substantial breach, and the Owner may terminate the Contract immediately without following the procedure identified in Section 14.2. As used in this Section 12.2.6, "timely" means the Contractor shall begin correction within three days of receiving the punch list or notice of work deficiency, and correction will be completed in a commercially reasonable time in accordance with the direction of the Construction Manager. Whether or not the Contract is terminated, if the Contractor fails to make corrections in a timely fashion, such Work may be corrected by the Owner, in its sole discretion, at the Contractor's expense and the Contract Sum may be adjusted by backcharge accordingly. The Contractor shall promptly notify the Construction Manager, in writing, when the Work deficiencies and/or punch list items are completed. Upon the review of the Work by the Construction Manager after such notification by the Contractor, if Work deficiencies and/or punch list items shall continue to exist, the Contractor shall reimburse any cost incurred by the Owner, including the Construction Manager's and Architect's fees for reinspections of the Work. Failure to pay such costs within ten (10) days of receipt of a demand regarding the same shall permit the Owner to withhold such amounts from the unpaid portion of the Contractor's contract.

### § 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made. The acceptance of nonconforming Work by the Owner shall be by written Change Order, specifically referencing that it addresses nonconforming work, acceptable to the Owner's authorized representative, and signed by all parties. Acceptance of nonconforming Work may only occur pursuant to such written Change Order.

## ARTICLE 13 MISCELLANEOUS PROVISIONS

### § 13.1 Governing Law

~~The Contract shall be governed by the law of the place where the Project is located excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.State of Michigan in all respects, except that claims and causes of action brought by the Owner shall not be deemed untimely if filed within six (6) years of substantial completion of the entire (and all) Project(s).~~

### § 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other.

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If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

### § 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Construction Manager, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

### § 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Construction Manager and Architect timely notice of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Construction Manager, Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Construction Manager and Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Construction Manager and Architect of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Construction Manager's and Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Construction Manager for transmittal to the Architect.

§ 13.4.5 If the Construction Manager or Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Construction Manager or Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid ~~unreasonable~~ delay in the Work.

### § 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

§ 13.6 The Contractor agrees that time is of the essence and to start work when directed by the Construction Manager and to furnish sufficient materials and a sufficient number of properly skilled workers, so as not to delay the work of any other Contractor or completion of the Project.

§ 13.7 Notwithstanding any provisions within the Contract Documents, nothing shall be deemed a waiver of any immunity granted to Owner by law or statute, including but not necessarily limited to, governmental immunity under MCL 691.1407.

§ 13.8 The Owner, being a governmental unit, is protected by the Michigan Void Construction Contracts Act, MCL 691.991.

## ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

### § 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days for reasons within the Owner's control through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, ~~for which may include any~~ of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 ~~An act of government, such as a declaration of national emergency, that requires all Work to be stopped;~~
- .3 ~~Because the Construction Manager has not certified or the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents, subject to justifiable withholding of payment as described herein or~~ in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and ~~profit~~ direct costs on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive ~~days~~ days, for reasons within the Owner's controls and through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees, or any other persons performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3. The Contractor may not terminate the Contract unless it has submitted claims for the delays and sought an extension of time for each delay.

### § 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 ~~repeatedly~~ refuses or fails to supply enough properly skilled workers or proper ~~materials;~~ materials to the point of negatively impacting the Project and/or the related schedule;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 ~~repeatedly~~ disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; ~~or~~
- .4 otherwise is guilty of substantial breach of a provision of the Contract ~~Documents.~~ Documents; or

.5 fails to prosecute the Work or any part thereof with promptness and diligence or fails to perform any provisions of this Contract, or goes into bankruptcy, liquidation, makes an assignment for the benefit of creditors, enters into a composition with its creditors, or becomes insolvent.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, after consultation with the Construction Manager, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety: three days' notice, terminate the Contractor's right to proceed with the Work, or such part of the Work as to which such defaults have occurred, and may take any one or more of the following actions:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

The notice required by this Section 14.2.2 shall not give the Contractor a right to cure defective Work or to cure other grounds for termination under Section 14.2.1. Further, the Owner's failure to strictly comply with the formal requirements of termination (e.g., by providing less than three days' notice of termination) shall not be a substantial breach by the Owner. The Owner may terminate the Contractor immediately if the Contractor endangers persons or property or has breached Project safety requirements).

In the event, the Contractor's surety bond requires notice of intent to declare a default of the Contractor and if such bond notice is provided by the Owner, such notice shall be adequate to satisfy the three (3) day written notice described above in this section.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, and other damages incurred by the Owner in pursuing termination and completion of the Work, including actual attorney and legal fees and costs, and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall, upon application, be certified by the Initial Decision Maker after consultation with the Construction Manager, and this obligation for payment shall survive termination of the Contract.

### § 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and the Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent:

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of this Contract.

### § 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the ~~termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.~~ termination.

## ARTICLE 15 CLAIMS AND DISPUTES

### § 15.1 Claims

§ 15.1.1 **Definition.** A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the ~~Contract.~~ Contract, including but not limited to additional sums, additional time for performance, or damages for delay. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents. The Contractor shall not knowingly (as "knowingly" is defined in the Federal False Claims Act, 31 USC 3729, et seq.) present or cause to be presented a false or fraudulent Claim. As a condition precedent to making a Claim by the Contractor, the Claim shall be accompanied by an affidavit sworn to before a notary public or other person authorized to administer oaths in the State of Michigan and executed by an authorized representative of the Contractor, which states that: "The Claim which is submitted herewith complies with subparagraph 15.1.1 of the General Conditions, as amended, which provides that the Contractor shall not knowingly present or cause to be presented a false or fraudulent claim." Claims of the Owner shall be governed by the relevant Michigan statutory limitations period.

§ 15.1.2.1 Regardless of any provisions to the contrary, the statute of limitations with respect to any defective or nonconforming Work which is not discovered by the Owner shall not commence until the discovery of such defective or nonconforming Work by the Owner. See also Section 13.1.

### § 15.1.2 Time Limits on Claims

~~The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.1, regardless of any other time frames identified in this Agreement. The Contractor shall commence all claims and causes of action in accordance with Section 15.1 and, if shorter, any other provisions of this Agreement and Michigan law.~~

### § 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by ~~either the Owner or Contractor~~, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by written notice to the ~~other party~~ Owner and to the Initial Decision Maker with a copy sent to the Construction Manager and Architect, if the Architect is not serving as the Initial Decision Maker. Claims by ~~either party~~ the Contractor under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the ~~claimant~~ Contractor first recognizes the condition giving rise to the Claim, whichever is later. Failure to timely and properly initiate a claim shall be an irrevocable waiver of such claim. Claims by the Owner shall be governed by the applicable statute of limitations period, except as such time frame may be longer in accordance with Section 13.1 and Section 15.1.2.1.

§ 15.1.3.2 Claims by ~~either the Owner or Contractor~~, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by written notice to the other party. In such event, no decision by the Initial Decision Maker is required. Claims by the Contractor under this Section 15.1.3.2 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the Contractor first recognizes the condition giving rise to the Claim, whichever is later. Failure to timely and properly initiate a claim shall be an irrevocable waiver of such claim. Claims by the Owner shall be governed by the applicable statute of limitations period, except as such time frame may be longer in accordance with Section 13.1 and Section 15.1.2.1.

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#### § 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, including by mediation and/or litigation, as applicable, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make undisputed payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time ~~shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15.~~ may be adjusted as mutually agreed by the Owner and Contractor. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost. If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Failure to provide such notice shall serve as an absolute bar against a claim for such an increase in the Contract Sum. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4. A Project delay shall not be a basis for a Claim for additional cost. Delay claims against the Owner may be remedied only through an extension of time per Section 8.4.2 and Section 8.4.3.

#### § 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, additional notice as provided in Section 15.1.3 shall be ~~given~~ given in addition to the general requirements for filing a claim. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of ~~the Work, the Work due to the increase in Contract Time sought.~~ In the case of a continuing delay only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages. The Contractor ~~and Owner waive Claims against each other~~ waives Claims against the Owner for consequential damages arising out of or relating to this Contract. This ~~mutual~~ waiver includes

- ~~1~~ damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- ~~2~~ damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This ~~mutual~~ waiver is applicable, without limitation, to all consequential damages due to ~~either party's termination~~ the Owner's termination of the Contractor in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated ~~damages, damages in favor of the Owner,~~ when applicable, in accordance with the requirements of the Contract Documents.

#### § 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for ~~initial decision, interpretation.~~ The Architect will serve as the Initial Decision Maker, ~~unless otherwise indicated in the Agreement.~~ Maker. Except for those Claims excluded by this Section 15.2.1, an ~~initial decision, interpretation~~ shall be required as a condition precedent to mediation ~~of any Claim.~~ of any Claim. ~~If an initial decision or litigation of any Claim bought by the Contractor against the Owner. If an initial interpretation has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision an interpretation having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide interpret~~ disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to ~~resolve the Claim~~. interpret the Claim. Within ten (10) days of a written request, the Contractor shall make available to the Owner or its representative all of its books, records, or other documents in its possession or to which it has access relating to a Claim and shall require its subcontractors, regardless of tier, and materialmen to do the same.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker ~~will will, based on its interpretation,~~ either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial ~~decision-interpretation~~ approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial ~~decision-interpretation~~ shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties, the Construction Manager, and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. ~~The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.~~ interpretation shall be subject to the parties' agreed upon binding dispute resolution process.

§ 15.2.6 ~~Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1. Regardless of any other time frames identified herein, claims and causes of action brought by the Owner shall be governed in accordance with the statute of limitations periods under Michigan law, except for such longer periods of time as may be permitted in Section 13.1 and Section 15.1.2.1.~~

~~§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days of receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.~~

§ 15.2.7 ~~In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.~~ **SURETY NOTICE AND PRIOR APPROVAL**

Except where otherwise expressly required by the terms of the Agreement, the Contract Documents or the General Conditions, exercise by the Owner of any contractual or legal right or remedy without prior notice to or approval by the Contractor's surety shall in no way bar or prohibit the Owner's ability to pursue such right or remedy. Further, pursuit of such a right or remedy without prior notice to or approval of surety shall in no way compromise, limit or bar any claim by the Owner against a surety bond of the Contractor. The Owner's claims against a Contractor's surety bond shall be governed by Section 13.1 with respect to any limitations periods.

~~§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.~~

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### § 15.3 Mediation

~~§ 15.3.1~~ ~~Claims.~~ Except as otherwise agreed in writing by the parties, claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

~~§ 15.3.2~~ The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the ~~filing of commencement of the parties' agreed upon~~ binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. ~~If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.~~

~~§ 15.3.3~~ ~~Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.~~

~~§ 15.3.4~~ The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

### ~~§ 15.4 Arbitration~~

~~§ 15.4.1~~ ~~If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.~~

~~§ 15.4.1.1~~ A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

~~§ 15.4.2~~ The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

~~§ 15.4.3~~ The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

### § 15.4.4 Consolidation or Joinder

~~§ 15.4.4.1~~ Subject to the rules of the American Arbitration Association or other applicable arbitration rules, ~~either party may consolidate an arbitration.~~ The Owner, at its sole discretion, may consolidate mediation conducted under this Agreement with any other arbitration-mediation to which it is a party provided that (1) the arbitration-mediation agreement governing the other arbitration-mediation permits consolidation, (2) the arbitration-mediations to be

consolidated substantially involve common questions of law or fact, and (3) the ~~arbitrations~~ mediations employ materially similar procedural rules and methods for selecting ~~arbitrator(s)~~ mediator(s).

§ 15.4.4.2 ~~Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party~~ The Owner, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in ~~arbitration,~~ mediation, provided that the party sought to be joined consents in writing to such joinder. Consent to ~~arbitration~~ mediation involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 ~~The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement. Contractor further agrees to include similar dispute resolution provisions in all agreements with the independent contractors and consultants retained for the Project and to require all independent contractors and consultants also to include similar dispute resolution provisions in all agreements with subcontractors, all subconsultants, suppliers or fabricators so retained, thereby providing for a consistent method of dispute resolution between the parties to those agreements. Subject to the other limitations periods identified in these General Conditions which are understood to govern over this sentence, no demand for mediation shall be made after the date when the applicable statutes of limitations would bar legal or equitable proceedings. During the pendency of any mediation, all applicable limitations periods shall be tolled until the conclusion of that process.~~

The Owner reserves the right in its discretion to require consolidation or joinder of any mediation arising out of or relating to this Agreement with another mediation involving a person or entity not a party to this Agreement in any event the Owner believes such consolidation or joinder is necessary in order to resolve a dispute or avoid duplication of time, expense or effort. In the event the Owner is involved in a dispute which is not subject to mediation involving a person or entity not a party to this Agreement, the mediation provisions applicable to the parties shall be deemed to be void and nonexistent in the event Owner, in its discretion, determines the Contractor should become a party to that dispute by joinder or otherwise. Any mediation hearing shall be held in the general location where the Project is located unless another location is mutually agreed upon.

§ 15.4.5 **Prevailing Wage.** This project is subject to the prevailing wage rates and fringe benefit requirements of the Michigan Prevailing Wage Act, MCL 401.1101, et seq. The Contractor shall comply with, and ensure that its subcontractors comply with, the Michigan Prevailing Wage Act. The Contractor shall indemnify and hold the Owner harmless from any claim, damage, loss, or expense incurred by the Owner, including but not limited to actual attorneys' fees, in any way related to failure of Contractor or its subcontractors to comply with the Michigan Prevailing Wage Act.



**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. Addenda are written or graphic instruments issued prior to execution of construction contracts which add to, delete from, clarify, or correct the Bidding Documents and/or the Contract Documents.
- B. Addenda may be included in the Bidding Documents and may be included in the Contract Documents.
- C. Addenda may be issued by either the Architect or the Construction Manager as deemed necessary to facilitate the building and construction of the Project.

**1.01 BIDDERS' AND CONTRACTORS' RESPONSIBILITIES**

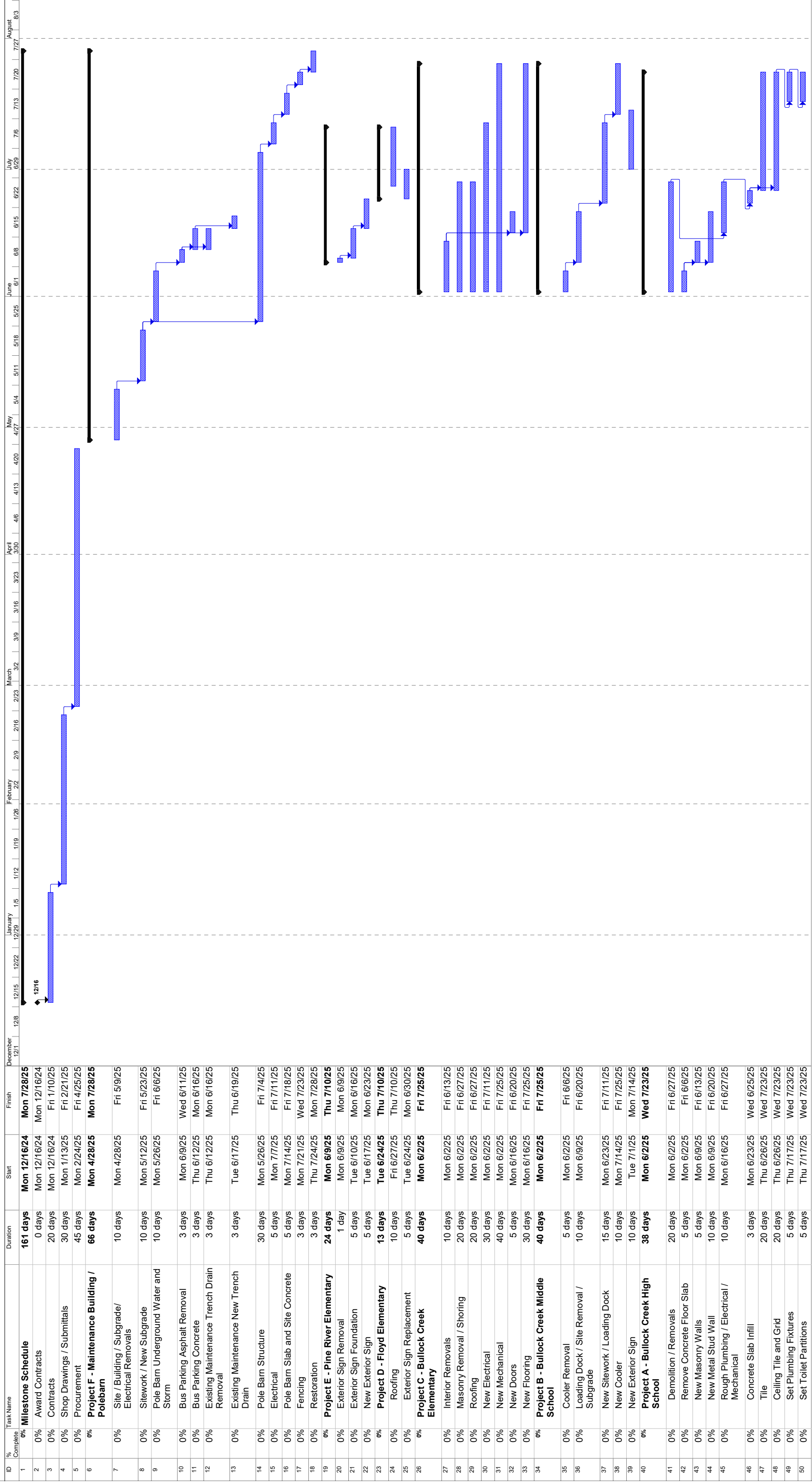
- A. Each Bidder shall be responsible for taking the provisions of all Addenda issued prior to the Bid Date into account during the presentation of his Proposal.
- B. Each Bidder shall be responsible for obtaining all Addenda, and for ascertaining that all Addenda issued prior to the Bid Date have been considered in preparing his Proposal.
- C. Each Contractor shall perform his work in accordance with all Addendums issued.

**END OF SECTION 00900**

**MILESTONE  
SCHEDULE  
ON  
FOLLOWING  
PAGE(S)**

END OF SECTION 00999

# Bullock Creek Schools 2023 Projects Milestone Schedule



◆ Inactive Milestone    ◆ Inactive Summary    ◆ Inactive Task    ◆ External Milestone  
◆ Manual Task    ◆ Manual Summary    ◆ Manual Task    ◆ External Milestone  
◆ Duration-only    ◆ Manual Summary Rollup    ◆ Start-only    ◆ External Milestone  
◆ Finish-only    ◆ External Tasks    ◆ Progress    ◆ Deadline

**PART 1 – GENERAL**

**1.01 PROJECT DESCRIPTION**

**A. Bullock Creek School District – 2024 Bond Series 1 - 2025 Improvements**

**1.02 CONTRACTORS USE OF PREMISES**

- A. Contractors shall limit their use of the Project site for Work and for storage, to allow for:
1. Work by other Contractors.
- B. Contractors shall coordinate their use of the Project site under the direction of the Construction Manager.
- C. Contractors shall assume full responsibility for the protection and safekeeping of materials and equipment stored on the site. No security will be employed.
- D. Each Contractor shall move any stored material or equipment under their control if it interferes with the operations of the Owner or other Contractors, as directed by the Construction Manager.
- E. Contractors shall obtain and pay for additional storage or work areas needed for operations not allowed on the site.

**1.03 OWNER OCCUPANCY**

- A. The owner intends to occupy the Project by [Refer to Milestone Schedule](#). All contractors must comply with this requirement.

**1.04 OWNER FURNISHED PRODUCTS**

- A. Products furnished and paid for by the Owner are described in the Specifications and in the Bid Division List (Section 00309).
- B. Owner's Responsibilities Regarding Owner-Furnished Products:
1. Arrange for and deliver necessary shop drawings, product data and samples to the installing contractor,
  2. Arrange and pay for product delivery to the site, in concert with the Short-Term Construction Activities Plan,
  3. Arrange for the suppliers to submit bills of materials to Contractors,
  4. Inspect deliveries jointly with Contractors,
  5. Submit claims for transportation damage,
  6. Arrange for replacement of damaged, defective, or missing items,
  7. Arrange for manufacturer's warranties, bonds, service, and inspections, as required.

- C. Contractor's Responsibilities Regarding Owner-Furnished Products:
1. Designate needed delivery dates for each product in the Short-Term Construction Activities Plan,
  2. Review shop drawings, product data and samples,
  3. Review and return Owner-Furnished shop drawings, data, and samples with notification of any discrepancies or problems anticipated in use of the product, within 2 weeks,
  4. Promptly inspect products jointly with the Owner, and record shortages, damaged items, and defective items,
  5. Handle products at the site, including uncrating and storage,
  6. Protect products from exposure to elements, and other forms of damage,
  7. Assemble, install, connect, adjust, and finish products as stipulated in the Specification,
  8. Repair or replace items damaged by Contractor,
  9. Dispose of all crating, wrapping, and trash related to the material.

**END OF SECTION 01010**

**PART 1 – GENERAL**

**1.01 NORMAL WORK HOURS**

A. 7 a.m. to 5 p.m., Monday through Friday.

**1.02 EXCEPTIONS**

- A. Necessary variations of normal work hours shall only occur with the express approval of the Construction Manager on the Owner’s behalf.
- B. As a condition to the contract, the Contractor agrees that no premium-time, over-time or other special rate shall be charged for the scheduled completion of the project for any reason or cause.
- C. It will be the responsibility of each Contractor to provide an adequate work force to assure the timely completion of all Work.
- D. The Contractor will work whatever hours required (overtime, weekends, holidays) to complete their work and allow for the completion of all other work to achieve final completion in the time frames required by the Owner.

**END OF SECTION 01030**

**PART 1 – GENERAL**

**1.01 CONSTRUCTION MANAGEMENT**

- A. This is a Construction Management project. There is no General Contractor. All Contractors on this Project are Prime Contractors. The Owner will award contracts for all Bid Divisions involved in the Project. The Project will be controlled and administered by a Construction Manager.

**1.02 WORK ASSIGNMENTS**

- A. Nothing contained on the Contract Documents, and especially in the work scope of any Bid Division, shall be construed as a Work assignment to any construction trade industry. Each Contractor is responsible for their own decisions on Work assignments and shall make them in accord with the prevailing practice in the areas of the Project, and in such a way that neither their progress nor the progress of others will be adversely affected.
- B. Disputes that may arise over improper assignments or over assignments claimed by more than one Contractor shall be settled immediately by the Contractors and shall in no case result in a slowdown or stoppage of Work of any Contractor.

**1.03 RETAINAGE ON OWNER PURCHASED ITEMS**

- A. The Owner may retain an amount of Five Thousand (\$5,000.00) or ten percent (10%); whichever is the larger amount, on material and/or equipment purchased from suppliers for inclusion in the Work, until such time as it is satisfactorily installed. The purpose of this provision is to ensure proper conformance to the Contract Documents.

**1.04 PERFORMANCE OF WORK**

- A. All Contractors shall provide weekly input to aid in the preparation of the Look Ahead Schedule by which the Project will be built. Consequently, it is the responsibility and obligation of each Contractor to utilize their manpower and resources according to the commitments made under the Look Ahead Schedule.

**1.05 PROMPTNESS OF EXECUTION**

- A. It is the intention of the Owner to complete the Project in the fastest practical time frame. Whereas varying conditions inherent in the construction process will affect the progress of the Work, it is the intent of each construction contract that the Contractor maintain the progress pace set forth in the CAP schedule.

**1.06 PROGRESS PAYMENTS**

- A. It is the intention of the Owner to recognize timely performance prescribed in the CAP. Contractors who maintain specified progress will be eligible for 100% Progress Payments.
- B. Contractors who fail to maintain specified progress may be subject to retainage up to 100% of Progress Payments, at such times as those Contractors are judged by the Construction Manager, and/or the Project Architect, to be behind schedule.

**1.07 PAYMENT FOR STORED MATERIALS**

- A. As a means of eliminating cost escalation on available items of material and equipment, and in the interest of obtaining competitive Bids, the Owner will provide payment for contract items purchased early and stored on site, and in specific pre-approved instances, off the Project site as well. To qualify for such payment, the material or equipment must be safely stored, protected, and insured against loss or damage, inspected and dedicated to this Project only. Any extra cost of off-site storage is to be included as part of the Bid Proposal.

- B. Materials stored on the site shall be in the area designated by the Construction Manager. Materials or equipment lost through theft, or mishandling, shall be replaced by the Contractor, without cost to the Owner. The Contractor receiving materials shall provide and maintain protection of stored materials at no additional cost to the Owner. The contractor shall retain responsibility for any loss, damage, or replacement costs of any and all stored materials.
- C. Requests for payment for materials delivered and stored at the site must have acceptable itemized bills attached and available at the time of delivery.

**1.08 SCHEDULE OF VALUES**

- A. The Schedule of Values (Section 00670) shall include the following mandatory items for any Contractor who provides on-site labor as a part of their Contract:

- 1. Labor for each portion of the work to be performed.
- 2. Materials for each portion of the work to be performed.
- 3. Performance Bond and Labor & Material Payment Bond (when required by Owner).  
Value: Actual Cost of Bonds
- 4. Daily housekeeping and clean-up inclusive of any special cleaning and preparation required by the specifications for delivering the building for the Owners occupancy.  
Value: Two percent (2%) of the total Contract Amount
- 5. Retainage / Punch List  
Value: Ten percent (10%) of the total Contract Amount

- B. Monthly allocations shall be made to each item as appropriate and as directed by the Construction Manager.
- C. The value of the Housekeeping/Final Clean-Up item shall be two percent (2%) of the Contract value, or as described by the Construction Manager.

**1.09 MATERIAL AND EQUIPMENT EXPEDITING**

- A. The Construction Manager will initiate and coordinate an expediting program on the Owner's behalf in cooperation with each Contractor, incorporating all critical items of material and/or equipment provided under the various Bid Division contracts.
- B. Each Contractor shall provide the Construction Manager with a completed Material and Equipment Purchase/Delivery list and as a part of the Bid Division Descriptions. The Contractor's purchase order issue date, supplier name and phone number and the delivery date for each material and equipment item required for the project must be provided.
- C. Each Contractor shall further cooperate by keeping the Construction Manager informed of all changes in the commitments previously indicated in the Material and Equipment Purchase/Delivery list and when deemed necessary by the Construction Manager, provide source contacts for direct expediting by the Construction Manager.
- D. The Contractor must require all suppliers to notify the Contractor's office a minimum of twenty-four (24) hours prior to the delivery of any materials or equipment so the Contractor is present to receive and unload the delivery.
- E. If a Contractor is not present on the job site to receive and unload the Contractor's material or equipment the Construction Manager may have the owner authorize others to perform the work. All costs associated with such actions will be deducted from the payments due the Contractor.



**1.10 PROTECTION OF THE WORK OF OTHERS**

- A. Contractors shall consider protection of finished Work of prime importance. Care shall be taken by Contractors not to damage completed Work of other Contractors, and to provide adequate protection to their own completed Work. Contractors who damage the work of others or existing finishes shall be back charged all costs associated with repairing or replacing the damaged work.
- B. When moving laborers and/or materials across floors, grades, roofs, other vulnerable surfaces, or through occupied areas, the Contractor shall provide adequate surface protection to prevent damage to surfaces.

**1.11 MANDATORY ATTENDANCE AT MEETINGS**

- A. Each Contractor shall provide a representative of the Contractor authorized and empowered to enact decisions regarding schedule compliance, manpower commitments and cost changes at all Project and Progress Meetings.

**1.12 PRE-ON-SITE ACTIVITY MEETING**

- A. Each Contractor is required to meet on the site with the Field Construction Manager prior to beginning their Work. The purpose of this meeting is to review the intent of the Contract Documents as they pertain to the Contractor's Work, and to integrate the Contractor's schedule into the Short-Term Construction Activities Plan for the Project.

**1.13 RETURN ACTIVITIES**

- A. Each Contractor is required to report to the Field Construction Manager prior to resuming Work on the Project after an absence from the site of one or more working days. The purpose of reporting is to make the Field Construction Manager aware of the Contractor's re-involvement with the Project, and to provide an update regarding any conditions that could affect the continuing Work of the Contractor.

**1.14 CUTTING AND PATCHING**

- A. Each Contractor shall make arrangements with the Construction Manager for fitting their Work into the Project and shall coordinate all fitting with other Contractors. Whenever any contractor has been given sufficient information as to required openings prior to beginning their Work, they shall pay the cost for cutting and/or restoring if they fail to provide proper required openings.
- B. Each Contractor shall be responsible for any cutting, fitting, and patching that may be required to complete their Work if they have failed to properly notify the Construction Manager and preceding Contractors of any openings required. Contractors shall not endanger the Work of any other Contractor by cutting, excavating, or otherwise altering any Work, and shall not cut or alter the Work of any other contractor except with the consent of the Construction Manager. Any costs caused by defective or ill-timed Work shall be borne by the party responsible for such Work.
- C. Cutting or restoring performed by any Contractor, for work that is rejected by the Architect shall be corrected under the direction of the Construction Manager, as instructed by the Architect. The Contractor responsible for the defective restoration shall incur the cost of such Work.
- D. Openings over six inches in diameter must be formed by the concrete contractor(s).
- E. Cutting and patching of concrete floors and decks shall be performed in a neat and workman like manner, using a coring machine. After coring, each Contractor shall pack and grout openings around sleeves or other Work penetrating floors and decks.

- F. No Contractor shall do any cutting that may impair the strength of any building or its components. No holes, except for small screws or bolts, may be drilled in beams or other structural members for the purpose of supporting or attaching Mechanical Work, without prior approval from the Architect.
- G. Each Contractor shall be responsible for the cutting and patching of holes and openings through existing walls, partitions, floors, ceilings, and roofs necessary for the installation of their work. If the location for a hole or opening is through an existing joist, beam, or column, the Contractor shall notify the Construction Manager who, after consultation with the Architect, will instruct the Contractor how to proceed.
- H. Each Contractor shall be responsible for the closing and patching of holes and openings through existing walls, partitions, floors, ceilings, and roofs created by demolition work they are shown to complete unless noted otherwise.
- I. Temporary removal and replacement of all ceilings not scheduled to be replaced shall be the responsibility of the Contractor requiring access.
- J. The Contractor responsible for patching shall provide both the rough (substrate) and finish surfaces. They shall employ only qualified tradesmen to assure that all work is done in a neat and workmanlike manner. All patching shall match adjacent surfaces.

**1.15 BLOCKING, BACKING AND GROUNDS**

- A. Each Contractor shall be responsible for providing the blocking, backing and grounds necessary for the installation of their work unless specifically noted on the drawings in which case said blocking, backing, and grounds shall be provided by the Bid Division supplying shown backing material.

**1.16 ACCESS PANELS**

- A. Each Contractor shall be responsible for furnishing the necessary access panels for items of work installed under their contract.
- B. Installation of all access panels shall be the responsibility of the contractor erecting the wall or ceiling system.
- C. If not specified, these access panels shall be approved by the Architect prior to installation.

**END OF SECTION 01040**

**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. All Applications for Payment must be submitted on a “Contractor Invoice Form.”
- B. Contractor Invoice Form(s) will be sent to contractors each month by the Construction Manager. The Contractor Invoice Form must be returned to the Construction Manager by the due date (located in the upper left-hand corner of the form) in order to be included in the current month Cost Control Manual to be submitted to the Owner. The due date can also be found on “Attachment A” of the Owner-Contractor contract.
- C. Any completed Contractors Invoice Form received by the Construction Manager **later** than the contract established due date **will not** be accepted and **will need to be re-billed the following month.**

**1.02 SWORN STATEMENTS AND WAIVERS**

- A. All Applications for Payment must be accompanied by a Sworn Statement and applicable waivers.
- B. For complete instructions on preparing Sworn Statements and Waivers, please reference Section 01050 – Sworn Statements and Lien Waivers.
- C. Final Sworn Statement and Full Unconditional Lien Waivers must be provided prior to the release of the final payment or exchanged for final payment by presenting them in person.

**1.03 SCHEDULE OF VALUES**

- A. All billings are processed based on approved Schedules of Values. Absolutely NO CHANGES may be made to approved Schedule of Values.

**1.04 CHANGE ORDERS**

- A. Increases or decreases in the Contract Amount shall be through change orders.
- B. Each Change Order shall be listed as a new line item on the Contractor Invoice Form. This is the only way a change order will be processed for payment.

**1.05 APPROVAL OR REJECTION OF APPLICATION FOR PAYMENT**

- A. Approved Applications for Payment will be included in the current month Cost Control Manual submitted to the Owner for their approval and payment. Following approval, the Owner will process payments and forward them to the Construction Manager for accompaniment of appropriate waiver(s), and payment will be sent on to Contractor.
- B. Contractors with Applications for Payment that were adjusted or rejected will be contacted by Wolgast for an explanation.
- C. No payment will be issued through the Owner for any progress payment when the substantiating sworn statement and lien waiver(s) from the previous payment have not been received by the Construction Manager.

**END OF SECTION 01045**

**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. Sworn Statement shall be included with each Application for Payment.
- B. A sample Sworn Statement follows as Pages 2 and 3 of this Section.
- C. Page 1 of the Sworn Statement shall contain all necessary Project information, including
  - 1. Date of Sworn Statement.
  - 2. County in which the deponent is at the time of the completion of the Sworn Statement.
  - 3. Deponent name.
  - 4. Contractor name on whose behalf the deponent is making statement.
  - 5. County in which the Project is situated.
  - 6. Project name and site location.
  - 7. Deponent signature and typewritten name.
  - 8. Notary name, signature, and commission expiration date.
- D. Page 2 of the Sworn Statement shall contain all necessary Project information, including:
  - 1. Project name and site location.
  - 2. Subcontractor/Supplier listings as submitted for approval at the beginning of the Project.
  - 3. Description of work to be completed by each subcontractor/supplier.
  - 4. Total contract amount for each subcontractor/supplier.
  - 5. Listings of amounts paid, amounts owing, retentions held, and balances to complete.

**1.02 WAIVERS**

- A. All Applications for Payment must be accompanied by a Sworn Statement and applicable waivers.
- B. Sample “partial” and “full” waivers follow as Pages 4 and 5 of this Section.

**1.03 APPLICATION AND CERTIFICATE FOR PAYMENT**

- A. No payment will be issued through the Owner for any progress payment when the substantiating sworn statement and lien waiver(s) from the previous payment have not been received by the Construction Manager.
- B. For additional information and instructions on the Application and Certificate for Payment, please reference Section 01045.

**Sample Sworn Statement**

STATE OF MICHIGAN  
COUNTY OF \_\_\_\_\_

\_\_\_\_\_ Being duly sworn, deposes and says that  
\_\_\_\_\_ Is the Contractor for an improvement to the following described real property situated in  
\_\_\_\_\_ COUNTY, MICHIGAN, known as \_\_\_\_\_. That the following is a statement of each subcontractor and  
supplier and laborer, for which laborer the payment of wages for fringe benefits and withholdings is due but unpaid, with whom the contractor has  
subcontracted for performance under the contract with the owner or lessee thereof, and that the amounts due to the persons as of the date hereof  
are correctly and fully set forth opposite their names, as follows on Page 2.

That the contractor has not procured materials from, or subcontracted with, any other person other than those set forth and owes no money for the  
improvement other than the sums set forth.

Deponent further says that he or she makes the foregoing statement as the contractor for the purpose of representing to the owner or lessee of the  
above described premises and his or her agents that the above described property is free from claims of construction liens, or the possibility of  
construction liens, except as specifically set forth and except for claims of Construction Lien Act, Act No. 497 of the Public Acts of 1980, as amended,  
being Section 570.1109 of the Michigan Compiled Laws.

\_\_\_\_\_  
Deponent Signature

\_\_\_\_\_  
Deponent Name – Typewritten

\_\_\_\_\_  
Subscribed and sworn before me this \_\_\_\_\_ day of \_\_\_\_\_, 19 \_\_\_\_\_.

\_\_\_\_\_  
Notary Public Signature

\_\_\_\_\_  
Notary Public Name – Typewritten

My commission expires: \_\_\_\_\_

Warning to the owner; an owner or lessee of the above described property may not rely on this sworn statement to avoid the claim of a  
subcontractor, supplier, or laborer who has provided a notice of furnishing or a laborer who may provide a notice of furnishing pursuant to Section  
109 of the Construction Lien Act to the designee or the owner of lessee if the designee is not named or has died.

Warning to the deponent; a person, who with intent to defraud, gives a false sworn statement is subject to criminal penalties as provided in Section  
110 of the Construction Lien Act, Act No. 497 of the Public Acts of 1980, as amended, being Section 50.1110 of the Michigan Compiled Laws.

***Page 2 – Sworn Statement Sample***

Project Name:

Site Location:

SUB/SUPPLIER	DESCRIPTION	TOTAL CONTRACT	AMOUNT PAID	AMOUNT OWING	RETENTION HELD	BALANCE TO COMPLETE

**PARTIAL UNCONDITIONAL WAIVER OF LIEN  
Subcontractor/Supplier**

Check No. \_\_\_\_\_

Amount: \$ \_\_\_\_\_

Invoice#: \_\_\_\_\_

I/we have a contract with **Bullock Creek School District – 2024 Bond Series 1 - 2025 Improvements** to provide

\_\_\_\_\_ For the improvement of the property described as **Bullock Creek School District**, and hereby waive my/our construction lien to the amount of \$\_\_\_\_\_ for labor/materials provided through \_\_\_\_\_.

This waiver, together with all previous waivers, if any, (circle one) DOES / DOES NOT cover all amounts due to me/us for contract improvement through the date shown above.

\_\_\_\_\_  
(Name of Lien Claimant)

By: \_\_\_\_\_ Signed on: \_\_\_\_\_  
(Signature of lien claimant or authorized officer or agent of lien claimant) (Date)

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone: \_\_\_\_\_

**FULL UNCONDITIONAL WAIVER OF LIEN  
Subcontractor/Supplier**

Check No. \_\_\_\_\_

Amount: \$ \_\_\_\_\_

Invoice#: \_\_\_\_\_

My/our contract with **Bullock Creek School District – 2024 Bond Series 1 - 2025 Improvements** to provide  
\_\_\_\_\_ For the improvement of the property described as **Bullock Creek  
School District**, having been fully paid and satisfied, all my/our construction lien rights against such property and  
hereby waived and released.

\_\_\_\_\_  
(Name of Lien Claimant)

By: \_\_\_\_\_ Signed on: \_\_\_\_\_  
(Signature of lien claimant or authorized officer or agent of lien claimant) (Date)

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone: \_\_\_\_\_

**END OF SECTION 01050**



**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. The Change Event Form will be used to document any request for a change in the scope of the Work throughout the construction process, and establish owner and architect approval prior to preparing a change order or having work performed.
- B. The Change Event Form will only be used when it IS NOT NECESSARY for work to be performed immediately.

**1.02 PROCESSING OF CHANGE EVENT FORMS**

- A. The Owner, Architect, Engineer, Construction Manager or Contractor may initiate a request for change during the Project in the form of a bulletin/proposal request, construction change directive, request for information, or value engineering proposal. Requests for changes shall be submitted to the Construction Manager for preparation and distribution of the Change Event Form.
- B. The Change Event will be accompanied by a copy of all related sketches, drawings, specifications, instructions, etc.
- C. The Construction Manager will forward the Change Event to the Contractor for the purposes of obtaining an itemized quote (including labor, material, equipment, units, rates, and subtotals) for the changes requested.
- D. The Contractor will complete and return the Change Event Form within five (5) days, or less, to the Construction Manager.
- E. The Construction Manager will review all Change Events and itemized detail for accuracy and validity within 48 hours of receiving said information.
- F. If the Construction Manager approves the costs or deductions submitted by the Contractor in the Change Event, the Construction Manager will:
  - 1. Forward one (1) copy of the Change Event with itemized detail to the Architect for review and endorsement, stipulating the date by the endorsed Change Event is to be returned.
  - 2. Discuss the Change Event and costs or deductions with the Architect to secure their endorsement.
  - 3. Forward one (1) copy of the Change Event with itemized detail to the Owner for approval and signature.
- G. After receiving the endorsed Change Event(s) timely from the Architect and Owner, the Construction Manager will prepare a Change Order for Contractor signature. The Contractor will sign the Change Order, acknowledging notice to proceed with change, and return a copy back to the Construction Manager.
- H. Only Change Events with the Architect's and Owner's signature of approval and acceptance will be processed into Change Orders.

**1.03 PRICING GUIDELINES FOR CHANGE EVENTS**

- A. Pricing Guidelines for Change Events that will be considered for Change Orders shall be fully detailed and itemized showing each of the following:
  - 1. Labor: All field labor indicating worker name, date, and hours worked and hourly rate; hourly rate shall be based on straight time only and shall include the labor classification.

2. Fringes: All established payroll taxes, assessments and fringe benefits on the labor in 7.3.2.1; this may include, but is not limited to, FICA, Federal and State unemployment, Health and Welfare and Workers Compensation; each of the fringes is to be a separate line item.
3. Material: All material purchased by the Contractor and incorporated into the changed Work, showing quantities, unit costs and costs of each item as appropriate; material costs will only be allowed at the Contractor's actual cost including any and all discounts, rebates or related credits. Only one third (33 percent) of the cost of reusable materials for each use, such as formwork lumber, shoring or temporary enclosures will be allowed.
4. Equipment: Rental Equipment – charges for certain non-owned, heavy or specialized equipment up to 100 percent of the documented rental costs; no rental charges will be allowed for hand tools, minor equipment, simple scaffolds, etc.; downtime due to Contractor caused delays, repairs, maintenance, late fees and weather will not be allowed. Owned Equipment – charges for certain owned, heavy or specialized equipment up to 100 percent of the cost listed by the Associated Equipment Dealers Blue Book; no charges will be allowed for hand tools, minor equipment, simple scaffolds, etc.; only the actual time the equipment is necessary to be in use to perform the work will be allowed; downtime due to Contractor caused delays, repairs, maintenance and weather will not be allowed.
5. A total amount of ten (10) percent of the total of all labor, materials and equipment performed by the Contractor's own forces shall be allowed for the Contractor's combined overhead and profit.
6. A total amount of ten (10) percent of the total of all extra work performed by the Contractor's Subcontractor(s) shall be allowed for the Contractor's combined overhead and profit.
7. For work deleted, that would have been completed by the Contractor or the Contractor's Subcontractor(s) an amount equaling the cost of the Work plus an amount equaling five (5) percent of the work shall be credited to the owner.

**1.04 TIME LIMIT**

- A. Contractor must return the Change Event and respective price quotations within five (5) working days, unless noted otherwise on the Construction Management issued Change Event.
- B. Failure to return the completed Change Event within the predefined time period will indicate the contractor shall have no charge for the associated work within their bid division per the Change Event at no additional cost to the Owner, Construction Manager and Architect.

**END OF SECTION 01051**

**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. The Change Order Document is the legal instrument used to modify the Contract Documents.
- B. Change Orders will be prepared, as necessary, following the acceptance of the Change Event amount by the Owner (Section 01051).
- C. A sample Change Order follows as page 2 of this Section.

**1.02 PROCESSING OF CHANGE ORDERS**

- A. All changes and potential changes to the Project shall be documented by using the Change Event Form (Section 01051).
- B. Complete and approved Change Events will be converted into Change Orders as necessary.
- C. One (1) original Change Order shall be prepared by the Construction Manager and forwarded to the Contractor for signature. Signatory parties shall include: the Contractor only on Change Order.

**1.02 PRICING GUIDELINES**

- A. Pricing Guidelines for Change Events that will be considered for Change Orders shall be fully detailed and itemized showing each of the following:
  - 1. Labor: All field labor indicating worker name, date, and hours worked and hourly rate; hourly rate shall be based on straight time only and shall include the labor classification.
  - 2. Fringes: All established payroll taxes, assessments, and fringe benefits on the labor in 7.3.2.1; this may include, but is not limited to, FICA, Federal and State unemployment, Health and Welfare and Workers Compensation; each of the fringes is to be a separate line item.
  - 3. Material: All material purchased by the Contractor and incorporated into the changed Work, showing quantities, unit costs and costs of each item as appropriate; material costs will only be allowed at the Contractor's actual cost including any and all discounts, rebates or related credits. Only one third (33 percent) of the cost of reusable materials for each use, such as formwork lumber, shoring or temporary enclosures will be allowed.
  - 4. Equipment: Rental Equipment – charges for certain non-owned, heavy, or specialized equipment up to 100 percent of the documented rental costs; no rental charges will be allowed for hand tools, minor equipment, simple scaffolds, etc.; downtime due to Contractor caused delays, repairs, maintenance, late fees and weather will not be allowed. Owned Equipment – charges for certain owned, heavy or specialized equipment up to 100 percent of the cost listed by the Associated Equipment Dealers Blue Book; no charges will be allowed for hand tools, minor equipment, simple scaffolds, etc.; only the actual time the equipment is necessary to be in use to perform the work will be allowed; downtime due to Contractor caused delays, repairs, maintenance and weather will not be allowed.
  - 5. A total amount of ten (10) percent of the total of all labor, materials and equipment performed by the Contractor's own forces shall be allowed for the Contractor's combined overhead and profit.

6. A total amount of ten (10) percent of the total of all extra work performed by the Contractor's Subcontractor(s) shall be allowed for the Contractor's combined overhead and profit.
7. For work deleted, that would have been completed by the Contractor or the Contractor's Subcontractor(s) an amount equaling the cost of the Work plus an amount equaling five (5) percent of the work shall be credited to the owner.

**CHANGE ORDER**

---

PROJECT: PROJECT NO:  
CHANGE ORDER NO.:  
CHANGE ORDER DATE:  
  
CONTRACT DATE:  
CONTRACT NO.:

CONTRACTOR: ARCHITECT: OWNER:

---

It is hereby agreed to make the following changes to the Contract:

- 1. QR#
- 2. N/A
- 3. N/A
- 4. N/A
- 5. N/A

This work described by this Change Order becomes a part of and is to be performed by the same terms as the existing Contract. This Change Order must be signed by the Owner, Architect, and Contractor to be valid.

The Original Contract Sum.....	\$
Net change by previously authorized Change Orders.....	\$
The Contract Sum prior to this Change order.....	\$
The Contract Sum will be <input type="checkbox"/> increased / <input type="checkbox"/> decreased by this Change Order.....	
The new Contract Sum including this Change Order is.....	\$

Contractor    Architect    Owner

---

By: \_\_\_\_\_ By: \_\_\_\_\_ By: \_\_\_\_\_

Date: \_\_\_\_\_ Date: \_\_\_\_\_ Date: \_\_\_\_\_

DISTRIBUTION - FULLY EXECUTED CHANGE ORDERS ARE COPIED AND DISTRIBUTED AS FOLLOWS:  
White (original) – Owner; Blue – Construction Manager; Green – Contractor; Yellow – Architect

**END OF SECTION 01053**

**PART 1 – GENERAL**

**1.01 LAYOUT AND MEASUREMENTS**

- A. The responsibility for accurate layout and measurement of the Work of each Contractor is their own. In addition, each Contractor shall verify the dimensional accuracy of the Work upon which their own Work relies before they begin their Work. They shall report all inaccuracies to the Construction Manager and shall not proceed until all corrections are made. If a Contractor proceeds with their Work on dimensionally inaccurate Work of another Contractor, they shall be liable for the cost of corrections to their own Work when the error is corrected and shall cooperate in the correction as directed by the Construction Manager.
- B. The Owner, through the Construction Manager, will provide a bench mark and baseline for all Contractors' reference.
- C. If the Construction Manager performs layout work or must arrange for others to perform layout work that is the responsibility of the Contractor, those costs will be charged to the Contractor. The costs will be submitted to the Owner and the Owner will deduct those costs from the Contractor's contract payment.

**END OF SECTION 01055**

**PART 1 – GENERAL**

**1.01 PREVAILING WAGE**

- A. This project shall be subject to the prevailing wage laws of the State of Michigan.
- B. The Owner has requested the prevailing wage rates applicable for this project and project location. The applicable prevailing wage rates provided by the Owner are enclosed on the following pages.
- C. The Owner and Construction Manager expressly rely upon the contractor to satisfy the pay requirements of the prevailing wage laws of the State of Michigan.
- D. Each proposal shall include the Prevailing Wage for **Midland** County as of the latest published issue by the State of Michigan.

**END OF SECTION 01060**



## STATE OF MICHIGAN

Wage and Hour Division  
PO Box 30476  
Lansing, MI 48909  
517-284-7800

### *Informational Sheet: Prevailing Wages on State Funded Projects*

#### REQUIREMENTS

Effective February 13, 2024

The purpose of establishing prevailing rates is to provide minimum rates of pay that must be paid to workers on construction projects that are financed or financially supported by the state. Prevailing rates compiled from the rates contained in collectively bargained agreements which cover the locations of the state projects. While the prevailing wage rates are compiled through surveys of collectively bargained agreements, a collective bargaining agreement is not required for contractors to be on or be awarded state projects. The prevailing rate schedule provides an hourly rate which includes wage and fringe benefit totals for designated construction mechanic classifications. The overtime rates also include wage and fringe benefit totals. Please pay special attention to the overtime and premium pay requirements. The prevailing wage is satisfied when wages plus fringe benefits are equal to or greater than the required rate.

#### **State of Michigan responsibilities:**

- The department establishes the prevailing rate for each classification of construction mechanic requested by the contracting agents prior to contracts being let out for bid on a state project.

#### **DTMB responsibilities**

- If a contract is not awarded or construction does not start within 90 days of the date of the issuance of rates, a re-determination of rates must be requested by the contracting agents.
- Rates for classifications needed but not provided on the Prevailing Rate Schedule, **must** be obtained **prior** to contracts being let out for bid on a state project.

#### **Contractor responsibilities:**

- Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing rates prescribed in a contract.
- Every contractor and subcontractor shall keep an accurate record showing the name and occupation of and the actual wages and benefits paid to each construction mechanic. This record shall be available for reasonable inspection by DTMB or the department.
- Each contractor or subcontractor is liable for the payment of the prevailing rate to its employees.
- The prime contractor is responsible for advising all subcontractors of the requirement to pay the prevailing rate prior to commencement of work.
- A construction mechanic *shall only* be paid the apprentice rate if registered with the United States Department of Labor, Bureau of Apprenticeship and Training and the rate is included in the contract.

#### **Enforcement:**

A person who has information of an alleged prevailing wage violation on a prevailing wage project may file a complaint with the State of Michigan. The department will investigate and attempt to resolve the complaint informally. During the course of an investigation, if the requested records and posting certification are not made available in compliance with contractual requirements, the Contracting Agent may consider the Contractor to be in material breach of the contract and may terminate the contract for cause at the sole discretion. There are also civil penalties for failure to be in compliance with Act 10. View the entire text of Act 10 of 2023 at [michigan.gov/wagehour](http://michigan.gov/wagehour).





**STATE OF MICHIGAN**  
**Informational Sheet: Prevailing Wages on State Projects**

**General Information Regarding Fringe Benefits**

**Certain** fringe benefits **may** be credited toward the payment of the Prevailing Wage Rate:

- If a fringe benefit is paid directly to a construction mechanic
- If a fringe benefit contribution or payment is made on behalf of a construction mechanic
- If a fringe benefit, which may be provided to a construction mechanic, is pursuant to a written contract or policy
- If a fringe benefit is paid into a fund, for a construction mechanic

When a fringe benefit is not paid by an hourly rate, the hourly credit will be calculated based on the annual value of the fringe benefit divided by 2080 hours per year (52 weeks @ 40 hours per week).

The following is an example of the types of fringe benefits allowed and how an hourly credit is calculated:

Vacation	40 hours X \$14.00 per hour = \$560/2080 =	\$0.27
Dental insurance	\$31.07 monthly premium X 12 mos. = \$372.84 /2080 =	\$.18
Vision insurance	\$5.38 monthly premium X 12 mos. = \$64.56/2080 =	\$.03
Health insurance	\$230.00 monthly premium X 12 mos. = \$2,760.00/2080 =	\$1.33
Life insurance	\$27.04 monthly premium X 12 mos. = \$324.48/2080 =	\$.16
Tuition	\$500.00 annual cost/2080 =	\$.24
Bonus	4 quarterly bonus/year x \$250 = \$1000.00/2080 =	\$.48
401k Employer Contribution	\$2000.00 total annual contribution/2080 =	\$.96
<b>Total Hourly Credit</b>		<b>\$3.65</b>

Other examples of the types of fringe benefits allowed:

- Sick pay
- Holiday pay
- Accidental Death & Dismemberment insurance premiums

The following are examples of items that **will not** be credited toward the payment of the Prevailing Wage Rate

- Legally required payments, such as:
  - Unemployment Insurance payments
  - Workers' Compensation Insurance payments
  - FICA (Social Security contributions, Medicare contributions)
- Reimbursable expenses, such as:
  - Clothing allowance or reimbursement
  - Uniform allowance or reimbursement
  - Gas allowance or reimbursement
  - Travel time or payment
  - Meals or lodging allowance or reimbursement
  - Per diem allowance or payment
- Other payments to or on behalf of a construction mechanic that are not wages or fringe benefits, such as:
  - Industry advancement funds
  - Financial or material loans



**STATE OF MICHIGAN**  
**Informational Sheet: Prevailing Wages on State Projects**

**OVERTIME PROVISIONS for MICHIGAN PREVAILING WAGE RATE COMMERCIAL SCHEDULE**

1. Overtime is represented as a nine character code. Each character represents a certain period of time after the first 8 hours Monday thru Friday.

	Monday thru Friday	Saturday	Sunday & Holidays	Four 10s
First 8 Hours		<b>4</b>		
9th Hour	<b>1</b>	<b>5</b>	<b>8</b>	<b>9</b>
10th Hour	<b>2</b>	<b>6</b>		
Over 10 hours	<b>3</b>	<b>7</b>		

Overtime for Monday thru Friday after 8 hours:

the 1st character is for time worked in the 9th hour (8.1 - 9 hours)  
the 2nd character is for time worked in the 10th hour (9.1 - 10 hours)  
the 3rd character is for time worked beyond the 10th hour (10.1 and beyond)

Overtime on Saturday:

the 4th character is for time worked in the first 8 hours on Saturday (0 - 8 hours)  
the 5th character is for time worked in the 9th hour on Saturday (8.1 - 9 hours)  
the 6th character is for time worked in the 10th hour (9.1 - 10 hours)  
the 7th character is for time worked beyond the 10th hour (10.01 and beyond)

Overtime on Sundays & Holidays

The 8th character is for time worked on Sunday or on a holiday

Four Ten Hour Days

The 9th character indicates if an optional 4-day 10-hour per day workweek can be worked **between Monday and Friday without paying overtime after 8 hours worked, unless otherwise noted in the rate schedule. To utilize a 4 ten workweek, notice is required from the employer to employee prior to the start of work on the project.**

2. Overtime Indicators Used in the Overtime Provision:

H - means TIME AND ONE-HALF due  
X - means TIME AND ONE-HALF due after 40 HOURS worked  
D - means DOUBLE PAY due  
Y - means YES an optional 4-day 10-hour per day workweek can be worked without paying overtime after 8 hours worked  
N - means NO an optional 4-day 10-hour per day workweek *cannot* be worked without paying overtime after 8 hours worked

3. EXAMPLES:

HHHHHHHDN - This example shows that the 1½ rate must be used for time worked after 8 hours Monday thru Friday (characters 1 - 3); for all hours worked on Saturday, 1½ rate is due (characters 4 - 7). Work done on Sundays or holidays must be paid double time (character 8). The N (character 9) indicates that 4 ten-hour days is not an acceptable workweek at regular pay.

XXXHHHHDY - This example shows that the 1½ rate must be used for time worked after 40 hours are worked Monday thru Friday (characters 1-3); for hours worked on Saturday, 1½ rate is due (characters 4 – 7). Work done on Sundays or holidays must be paid double time (character 8). The Y (character 9) indicates that 4 ten-hour days is an acceptable alternative workweek.



**STATE OF MICHIGAN**  
**Informational Sheet: Prevailing Wages on State Projects**

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**ENGINEERS - CLASSES OF EQUIPMENT LIST**

**UNDERGROUND ENGINEERS**

**CLASS I**

Backfiller Tamper, Backhoe, Batch Plant Operator, Clam-Shell, Concrete Paver (2 drums or larger), Conveyor Loader (Euclid type), Crane (crawler, truck type or pile driving), Dozer, Dragline, Elevating Grader, End Loader, Gradall (and similar type machine), Grader, Power Shovel, Roller (asphalt), Scraper (self propelled or tractor drawn), Side Broom Tractor (type D-4 or larger), Slope Paver, Trencher (over 8' digging capacity), Well Drilling Rig, Mechanic, Slip Form Paver, Hydro Excavator.

**CLASS II**

Boom Truck (power swing type boom), Crusher, Hoist, Pump (1 or more 6" discharge or larger gas or diesel powered by generator of 300 amps or more, inclusive of generator), Side Boom Tractor (smaller than type D-4 or equivalent), Tractor (pneu-tired, other than backhoe or front end loader), Trencher (8' digging capacity and smaller), Vac Truck.

**CLASS III**

Air Compressors (600 cfm or larger), Air Compressors (2 or more less than 600 cfm), Boom Truck (non-swinging, non-powered type boom), Concrete Breaker (self-propelled or truck mounted, includes compressor), Concrete Paver (1 drum, ½ yard or larger), Elevator (other than passenger), Maintenance Man, Mechanic Helper, Pump (2 or more 4" up to 6" discharge, gas or diesel powered, excluding submersible pump), Pumpcrete Machine (and similar equipment), Wagon Drill Machine, Welding Machine or Generator (2 or more 300 amp or larger, gas or diesel powered).

**CLASS IV**

Boiler, Concrete Saw (40HP or over), Curing Machine (self-propelled), Farm Tractor (w/attachment), Finishing Machine (concrete), Firemen, Hydraulic Pipe Pushing Machine, Mulching Equipment, Oiler (2 or more up to 4", exclude submersible), Pumps (2 or more up to 4" discharge if used 3 hrs or more a day-gas or diesel powered, excluding submersible pumps), Roller (other than asphalt), Stump Remover, Vibrating Compaction Equipment (6' wide or over), Trencher (service) Sweeper (Wayne type and similar equipment), Water Wagon, Extend-a-Boom Forklift.

**HAZARDOUS WASTE ABATEMENT ENGINEERS**

**CLASS I**

Backhoe, Batch Plant Operator, Clamshell, Concrete Breaker when attached to hoe, Concrete Cleaning Decontamination Machine Operator, Concrete Pump, Concrete Paver, Crusher, Dozer, Elevating Grader, Endloader, Farm Tractor (90 h.p. and higher), Gradall, Grader, Heavy Equipment Robotics Operator, Hydro Excavator, Loader, Pug Mill, Pumpcrete Machines, Pump Trucks, Roller, Scraper (self-propelled or tractor drawn), Side Boom Tractor, Slip Form Paver, Slope Paver, Trencher, Ultra High Pressure Waterjet Cutting Tool System Operator, Vactors, Vacuum Blasting Machine Operator, Vertical Lifting Hoist, Vibrating Compaction Equipment (self-propelled), and Well Drilling Rig.

**CLASS II**

Air Compressor, Concrete Breaker when not attached to hoe, Elevator, End Dumps, Equipment Decontamination Operator, Farm Tractor (less than 90 h.p.), Forklift, Generator, Heater, Mulcher, Pigs (Portable Reagent Storage Tanks), Power Screens, Pumps (water), Stationary Compressed Air Plant, Sweeper, Water Wagon and Welding Machine.



**STATE OF MICHIGAN**  
**Informational Sheet: Prevailing Wages on State Projects**

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**CARPENTER CRAFT JURISDICTION**

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Michigan recognizes the Carpenters for any and all work related to weatherization that has historically been the work of the Carpenter. This work shall include, but not be limited to: all work defined under the Federal Weatherization Assistance Program.

The jurisdiction of Carpenters, as to all work that has historically and traditionally been performed consisting of the milling, fashioning, joining, assembling, erecting, fastening or dismantling of all materials of wood, plastic, metal, fiber, cork, or composition and all other substitute materials, as well as the handling, cleaning, erecting, installing and dismantling of all machinery, equipment and all materials used by Carpenters.

The jurisdiction, therefore, extends over the following divisions and subdivisions of the trade: Carpenters and Joiners, Millwrights, Pile Drivers, Bridge, Dock and Wharf Carpenters, Underpinners, Timbermen, and Core-drillers, Shipwrights, Boat Builders, Ship-hand, Stair-Builders, Millmen, Wood and Resilient Floor Decorators, Floor Finishers, Carpet-layers, Shinglers, Siders, Insulators, Acoustic and Drywall Applicators, Sharers and House Movers, Loggers, Lumber and Sawmill Workers, Reed and Rattan Workers, Shingle Weavers, Casket and Coffin Makers, Railroad Carpenters and Car Builders, regardless of material used and all those engaged in the operation of woodworking or other machinery required in fashioning, milling or manufacturing of products used in the trade, and the handling, erecting and installing materials on any of the above divisions or sub-divisions, burning, welding and rigging incidental to the trade. When the term "Carpenter and Joiner" is used, it shall mean all the subdivisions of the trade. The trade autonomy of Carpenters therefore extends over the divisions and subdivisions of the trade, which are set forth as follows:

- (a) The framing, erecting and prefabrication of roofs, partitions, floors and other parts of buildings of wood, metal, plastic or other substitutes; application of all metal flashing used for hips, valleys and chimneys; the erection of Stran Steel section or its equal. The building and setting of all forms and centers for brick and masonry. The fabrication and erection of all forms for concrete and decking, the dismantling of same (as per International Agreement) when they are to be re-used on the job or stored for re-use. The cutting and handling of all falsework for fireproofing and slabs. Where power is used in the setting or dismantling of forms, all signaling and handling shall be done by carpenters. The setting of templates for anchor bolts for structural members and for machinery, and the placing, leveling and bracing of these bolts. All framing in connection with the setting or metal columns. The setting of all bulkheads, footing forms and the setting of and fabrication of, screeds and stakes for concrete and mastic floors where the screed is notched or fitted, or made up of more than one member. The making of forms for concrete block, bulkheads, figures, posts, rails, balusters and ornaments, etc.
- (b) The handling and erecting of rough material and drywall, the handling, assembly, setting and leveling of all fixtures, display cases, all furniture such as tables, chairs, desks, coat racks, etc., all de-mountable or moveable partitions such as Von wall, E Wall, Steel Case, Herman Miller, Haworth, American Seating, Westinghouse, Lazy Boy, rosewood, etc. All rebuilding, remodeling and setting up of all kinds of partitions, finished lumber, metal and plastic trim to be erected by Carpenters shall be handled from the truck or vehicle delivering same to the job by Carpenters.



**STATE OF MICHIGAN**  
**Informational Sheet: Prevailing Wages on State Projects**

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**CARPENTER CRAFT JURISDICTION**

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- (c) The building and moving of all scaffolding runways and staging where carpenters' tools are used, the building from the ground up of all scaffolds over fourteen (14) feet in height including metal and specially designed scaffolding. The building and construction of all hoists and derricks made of wood; the making of mortar boards, boxes, trestles, all shoring, razing and moving of buildings. Lift type trucks are to be considered a tool of the trade. Metal siding and metal roofing fall within the scope of jurisdiction for the carpenters.
- (d) The cutting or framing and fireproofing of the openings for pipes, conduits, ducts, etc., where they pass through floors, partitions, walls, roofs or fixtures composed in whole or in part of wood. The laying out of making and installation of all inserts and sleeves for pipes, ducts, etc., where carpenters' tools and knowledge are required. The making and installing of all wooden meter boards, crippling and backing for fixtures. The welding of studs and other fastenings to receive material being applied by carpenters.
- (e) The installation of all grounds, furring or stripping, ceilings and sidewalks, application of all types of shingling and siding, etc.
- (f) The installation of all interior and exterior trim or finish of wood, aluminum, kalamein, hollow or extruded metal, plastic, doors, transoms, thresholds, mullions and windows. The setting of jambs, bucks, window frames of wood or metal where braces or wedges are used. The installation of all wood, metal or other substitutes of casing, molding, chair rail, wainscoting, china closets, base of mop boards, wardrobes, metal partitions as per National Decisions or specific agreements, etc. The complete laying out, fabrication and erection of stairs. The making and erecting of all fixtures, cabinets, shelving, racks, louvers, etc. The mortising and application of all hardware in connection with our work. The sanding and refinishing of all wood, cork or composition floors to be sanded or scraped, filled, sized and buffed, either by hand or power machines. The assembling and setting of all seats in theaters, halls, churches, schools, auditorium, grandstands and other buildings. All bowling alley work.
- (g) The manufacture, fabrication and installation of all screens, storm sash, storm doors and garage doors; the installation of wood, canvas, plastic or metal awnings or eye shades, door shelters, jalousies, etc. The laying of wood, wood block and wood composition in floors.
- (h) The installation of all materials used in drywall construction, such as plasterboard, all types of asbestos boards, transite and other composition board. The application of all material which serves as base for acoustic tile, except plaster. All acoustical applications as per National Agreement or specific agreement.
- (i) The building and dismantling of all barricades, hand rails, guard rails, partitions and temporary partitions. The erection and dismantling of all temporary housing on construction projects.
- (j) The installation of rock wool, cork and other insulation material used for sound or weatherproofing. The removal of caulking and placing of staff bead and brick mold and all Oakum caulking, substitutes, etc., and all caulking in connection with carpentry work.
- (k) The installation of all chalk boards/marker boards.



**STATE OF MICHIGAN**  
***Informational Sheet: Prevailing Wages on State Projects***

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**CARPENTER CRAFT JURISDICTION**

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- (l) The operation of all hand operated winches used to raise wooden structures.
- (m) The erection of porcelain enameled panels and siding.
- (n) The unloading and distribution of all furnished, prefabricated and built-up sections such as door bucks, window frames, cupboards, cabinets, store fixtures, counters and show cases or comparably finished or prefabricated materials, to the job sites or points of installation as used in the construction, alteration and remodeling industry.
- (o) The handling of doors, metal, wood or composite, partitions and other finished bulk materials used for trim from the point of delivery.
- (p) All processing of these materials and handling after processing.
- (q) The making up of panels and fitting them into walls, all bracing and securing, all removal of panels from the casting including all braces, walers, hairpins, etc.
- (r) The handling and setting of all metal pans and sections from the stock piles of reasonable distance as required by job needs shall be performed by carpenters. The stripping of such metal pans, panels or sections is to be performed by carpenters.
- (s) The sharpening of all carpenter hand or power tools, or those used by carpenters.
- (t) The layout, fabrication, assembling of and erection and dismantling of all displays made of wood, metal, plastic, composition board or any substitute material; the covering of same with any type of material, the crating and un-crating, the handling from the point of unloading and back to the point of loading of all displays and other materials or components.
- (u) The same shall apply to all other necessary component parts used for display purposes such as turntables, platforms, identification towers and fixtures, regardless of how constructed, assembled or erected or dismantled.
- (v) The make-up, handling, cutting and sewing of all materials used in buntings, flags, banners, decorative paper, fabrics and similar materials used in the display decorative industry for draperies and back drops. The decorative framing of trucks, trailers and autos used as floats or moving displays. The slatting of walls to hand fabrics and other decorative materials, drilling of all holes to accommodate such installations. Setting up and removal of booths constructed of steel or aluminum tubing as stanchions, railings, etc., handling and placing of furniture, appliances, etc., which are being used to complete the booth at the request of the exhibitor. Fabricating and application of leather, plastic and other like materials used for covering of booths. The handling of all materials, fabricating of same. The loading and unloading, erecting and assembling at the exhibit of show area, also in or out of storage when used in booth decorations.



**STATE OF MICHIGAN**  
**Informational Sheet: Prevailing Wages on State Projects**

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**CARPENTER CRAFT JURISDICTION**

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- (w) A display shall be construed as any exhibit or medium of advertising, open to private or public showing, which is constructed of wood, metal, plastic or any other substitute to accomplish the objectives of advertising or displaying.
- (x) Handling, fitting, draping, measuring and installation of fixtures and other hardwares for draperies, all manner of making, measuring, repairing, sizing, hanging and installation of necessary fixtures and hardware for shades and Venetian blinds.
- (y) Work consisting of cutting and/or forming of all materials in preparation for installing of floors, walls and ceilings; the installation of all resilient floor and base; wall and ceiling materials to include cork, linoleum, prefabricated, laminated, rubber, asphalt, vinyl, metal, plastic, seamless floors and all other similar materials in sheet, interlocking liquid or tile form; the installation of all artificial turf, the installation, cutting and/or fitting of carpets; installation of padding, matting, linen crash and all preformed resilient floor coverings; the fitting of all devices for the attachment of carpet and other floor, wall and ceiling coverings; track sewing of carpets, drilling of holes for sockets and pins, putting in dowels and slats; and all metal trimmings used; the installation of all underlayments, sealants in preparation of floors, walls and ceilings, the unloading and handling of all materials to be installed and the removal of all materials in preparing floors when contracted for by the employer, shall be done only by employees covered under this Agreement.
- (z) The installation of all sink-tops and cabinets, to include all metal trim and covering for same. All cork, linoleum, congo-wall, linewall, veos tile, plexiglass, vinawall tile, composition tile, plastic tile, aluminum tile and rubber in sheets or tile form and the application thereof. All bolta-wall and bolta-wall tile and similar products.
- (aa) The handling and placing of all pictures and frames and the assembly of bed frames and accessories. The hanging and placing of all signage.
- (bb) The installation of all framework partitions and trim materials for toilets and bathrooms made of wood, metal, plastics or composition materials; fastening of all wooden, plastic or composition cleats to iron or any other material for accessories.
- (cc) The erection of cooling towers and tanks.
- (dd) The setting, lining, leveling and bracing of all embedded plates, rails and angles. The setting of all stay in place forms.
- (ee) Environmental: Clean room, any type of environmental chamber, walk in refrigerated coolers and all refrigerated rooms or buildings.



**STATE OF MICHIGAN**  
***Informational Sheet: Prevailing Wages on State Projects***

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**CARPENTER CRAFT JURISDICTION**

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**PILE DRIVING AND CAISSON DRILLING**

(ff) All unloading, handling, signaling and driving of piles, whether wood, steel, pipe, beam pile, composite, concrete or molded in place, wood and steel sheeting, cofferdam work, trestle work, dock work, floating derricks, caisson work, foundation work, bridge work, whether old or new, crib work, pipe line work and submarine work. Cutting of all wood, steel or concrete pile, whether by machine or hand; welding and cutting, peeling, and heading of all wood pile, steel sheeting and wood sheeting. The erecting and dismantling of all pile driving rigs, also derricks whether on land or water; also the moving, shoring and underpinning of all buildings. The loading and unloading of all derricks, cranes and pile driving materials. The tending, maintenance and operation of all valves pertaining to the operation of driving of pile. All diving and tending essential to the completion of jurisdictional claims.

All work done in the established yards of the Company and all work not enumerated above, shall be handled and manned as the Employer decides.

The pile driver will unload all material shipped in by rail from the point that the rail car is spotted.

All cleaning and preparation of all piling prior to driving.

The welding and attachment of all boot plates, pile points, splice plates, connectors, rock crosses, driving crosses, driving rigs, point reinforcements and overboots.

The construction, reconstruction, repair, alteration, demolition and partial or complete removal of all marine work including, but not limited to, docks, piers, wharves, quays, jetties, cribs, causeways, breakwaters, lighthouses and permanent buoys, etc. (mixing and placing of concrete excepted).

The driving and pulling of all wood, steel and concrete foundation piles and sheet piling.

The heading, pointing, splicing, cutting and welding of all piles.

The placing of all wales, bolts, studs, lagging, rods and washers including the cutting, drilling, boring or breaking of all holes or openings thereof.

The removal of all materials and/or obstructions of any nature (rip-rap included) that retard or interfere with the driving of piles or with the placing of wales, bolts and rods.





**STATE OF MICHIGAN**  
***Informational Sheet: Prevailing Wages on State Projects***

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**CARPENTER CRAFT JURISDICTION**

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This is to be subject to the discretion of the contractor who may choose to use blasting specialists or other demolition specialists.

The handling on the job of all materials used in the work.

The manning of all floating equipment (towing equipment excepted) engaged in the work enumerated, including deck engines, except machinery manned by Operating Engineers.

The placing of all rip-rap, fill stone, bedding stone, cover stone and concrete blocks in connection with marine construction. Work normally performed by Employers, such as soil tests, shoring, underpinning of buildings, cribbing, driving of sheet piling, marine divers, tenders, underwater construction workers and similar operations shall continue to be included in the jurisdiction of this Agreement.

All burning, cutting, welding and fabrication of pipe, H-beams, sheet pile (metal or wood), done on the job site or in the yard of the Employer shall be done by pile drivers. The driving of bearing piles, sheet piling with heavy equipment, caissons, pile caps, auger drilling and boring, the setting up for load testing for any type of piling, all layout and spotting for piling, caisson and boring work, all earth retention, ditch boarding, installing tiebacks.

**ASBESTOS ABATEMENT CARPENTERS**

(gg) All erection and maintenance of barriers and partitions used in the removing of asbestos or any abatement work. The abatement of any materials previously installed by the carpenter such as transite, ceiling and floor tiles. All operating and maintaining of current equipment used in any abatement work.



**STATE OF MICHIGAN**  
***Informational Sheet: Prevailing Wages on State Projects***

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**ELECTRICIAN – SOUND AND COMMUNICATION / DATA/ VOICE JURISDICTION**

The installation, testing, service and maintenance, of systems which utilize the transmission and/or transference of voice, sound, vision or digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, CATV and CCTV, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, radio page, school intercom and sound, burglar alarms, low voltage fire alarm systems, low voltage master clock systems, distributed antenna systems (DAS), IP data networks, and all surface-mounted (non-power) telecommunications wiremold. Shall additionally include the installation of all raceway systems of unlimited length in telecommunications rooms, entrance facilities, equipment rooms, and similar areas. Energy management systems. Security systems; perimeter, vibration, card access, access control and sonar/infrared monitoring equipment. Communications systems that transmit or receive information and/or control systems that are intrinsic to the above listed systems; SCADA (Supervisory Control and Data Acquisition), PCM (Pulse Code Modulation), Digital Data Systems, Broadband and Baseband and Carriers, POS (Point of Sale systems), VSAT Data Systems, RF and Remote Control Systems, Fiber Optic Data Systems and Voice and Data Infrastructure and Backbone.



GRETCHEN WHITMER  
GOVERNOR

STATE OF MICHIGAN  
DEPARTMENT OF LABOR AND ECONOMIC OPPORTUNITY  
WAGE AND HOUR DIVISION

SUSAN CORBIN  
DIRECTOR

## Prevailing Wage Rates for State Funded Projects Official Rate Schedule

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<b>ORS#:</b>	ORS-001206
<b>Date Issued:</b>	10/31/2024
<b>Contract Award By Date:</b>	01/29/2025
<b>Contracting Agency:</b>	Bullock Creek School District (CA-0190)
<b>Contracting Agency Representative:</b>	Dale Scherwin (dschwerin@wolgast.com)
<b>Project Number:</b>	A24907
<b>Project Name:</b>	2023 Bond Series 1 2025 Improvements
<b>Project Description:</b>	2023 Bond Series 1 2025 Improvements – HS, MS, Elem, Pine River, Floyd and Maintenance build/Pole Barn

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### **FOR ALL AWARDED CONTRACTS ONLY**

- Every Contractor and Subcontractors shall keep Posted on the Construction Site, in a conspicuous place, a copy of all applicable prevailing wage rate schedules contained in a contract.
- The Prevailing rate schedule provides an hourly rate which includes wage and fringe benefit totals for designated classifications.
- Please refer to WHD-9917 & WHD 9918 for any additional information.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Boilermaker</b>	<b>Boilermaker</b>	<b>05/10/2024</b>

**Classification Description:** Boilermaker

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$72.47	\$107.55	\$142.63
Apprentice: 1st Period	\$53.53	\$79.15	\$104.75
Apprentice: 2nd Period	\$55.14	\$81.56	\$107.97
Apprentice: 3rd Period	\$56.73	\$83.94	\$111.15
Apprentice: 4th Period	\$58.31	\$86.31	\$114.31
Apprentice: 5th Period	\$59.85	\$88.62	\$117.39
Apprentice: 6th Period	\$63.03	\$93.39	\$123.75
Apprentice: 7th Period	\$66.17	\$98.10	\$130.03
Apprentice: 8th Period	\$69.32	\$102.83	\$136.33

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$90.82
10th hour	\$90.82
Beyond 10 hours	\$90.82
<b>Saturday</b>	
First 8 hours	\$90.82
9th hour	\$90.82
10th hour	\$90.82
Beyond 10 hours	\$90.82
<b>Sunday/Holiday</b>	
	\$109.17

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Bricklayers, Stone Mason, Pointer, Cleaner &amp; Caulker - BAC 2 - Saginaw</b>	<b>Bricklayer</b>	<b>09/24/2024</b>

**Classification Description:** Bricklayers, Stone Mason, Pointer, Cleaner & Caulker

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$56.61	\$72.78	\$88.94
Apprentice: Bricklayer Apprentice Level 5	\$50.11	\$64.03	\$77.94
Apprentice: Bricklayer Apprentice Level 6	\$51.87	\$66.67	\$81.46
Apprentice: Bricklayers Apprentice Level 3	\$46.60	\$58.76	\$70.92
Apprentice: Bricklayers Apprentice 2ndLevel	\$44.84	\$56.12	\$67.40
Apprentice: Bricklayers Apprentice 4th Level	\$48.36	\$61.40	\$74.44
Apprentice: Bricklayers Apprentice Level 1	\$43.08	\$53.48	\$63.88
Apprentice: Bricklayers Apprentice Level 7 & 8	\$53.63	\$69.31	\$84.98

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$56.61
10th hour	\$56.61
Beyond 10 hours	\$56.61
<b>Saturday</b>	
First 8 hours	\$56.61
9th hour	\$56.61
10th hour	\$56.61
Beyond 10 hours	\$56.61
<b>Sunday/Holiday</b>	
	\$88.94

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Between Nov. 1 and Apr 30, if inclement weather, or other conditions beyond the Employer's control, Saturdays may be worked as make-up days. Make-up time shall be paid at the straight time rate until forty hrs are worked unless the standard workweek included a holiday, then 32 hrs straight time

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Carpenter/Pile Driver 706-Z4</b>	<b>Carpenter</b>	<b>09/17/2024</b>

**Classification Description:** Carpenter/Pile Driver

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$56.95	\$73.76	\$90.56
Apprentice: Apprentice 1st Year	\$46.87	\$58.64	\$70.40
Apprentice: Apprentice 2nd Year	\$48.55	\$61.16	\$73.76
Apprentice: Apprentice 3rd Year	\$55.27	\$71.24	\$87.20
Apprentice: Apprentice 4th Year	\$55.27	\$71.24	\$87.20

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$56.95
10th hour	\$73.75
Beyond 10 hours	\$73.75

#### Saturday

First 8 hours	\$73.75
9th hour	\$73.75
10th hour	\$73.75
Beyond 10 hours	\$73.75

<b>Sunday/Holiday</b>	<b>\$90.56</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Saturday Make-Up Day. In the event inclement weather prevails for two (2) days, Monday through Friday (minimum of four (4) hours lost each day), the make-up day as proposed by the Employer Committee will become operational for that week and the following clause shall become applicable.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Cement Mason</b>	<b>Cement Mason</b>	<b>05/10/2024</b>

**Classification Description:** Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$50.76	\$72.40	\$94.04
Apprentice: 1st Year	\$39.26	\$55.15	\$71.04
Apprentice: 2nd year	\$42.54	\$60.07	\$77.60
Apprentice: 3rd year	\$45.83	\$65.01	\$84.18

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$67.19
10th hour	\$67.19
Beyond 10 hours	\$83.62

#### Saturday

First 8 hours	\$67.19
9th hour	\$67.19
10th hour	\$67.19
Beyond 10 hours	\$67.19

<b>Sunday/Holiday</b>	<b>\$83.62</b>
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Cement Mason - B</b>	<b>Cement Mason</b>	<b>05/10/2024</b>

**Classification Description:** Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$47.49	\$62.61	\$77.73
Apprentice: 1st Year	\$36.91	\$46.74	\$56.57
Apprentice: 2nd Year	\$39.93	\$51.27	\$62.61
Apprentice: 3rd Year	\$42.95	\$55.80	\$68.65

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$62.61
10th hour	\$62.61
Beyond 10 hours	\$62.61

#### Saturday

First 8 hours	\$62.61
9th hour	\$62.61
10th hour	\$62.61
Beyond 10 hours	\$62.61

<b>Sunday/Holiday</b>	<b>\$77.73</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Cement Mason - BR</b>	<b>Cement Mason</b>	<b>05/10/2024</b>

**Classification Description:** Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$43.45	\$56.64	\$69.82
Apprentice: 1st Year	\$34.22	\$42.79	\$51.36
Apprentice: 2nd Year	\$36.86	\$46.75	\$56.64
Apprentice: 3rd Year	\$39.49	\$50.70	\$61.90

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$56.64
10th hour	\$56.64
Beyond 10 hours	\$56.64

#### Saturday

First 8 hours	\$56.64
9th hour	\$56.64
10th hour	\$56.64
Beyond 10 hours	\$56.64

<b>Sunday/Holiday</b>	<b>\$69.82</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Cement Mason - G</b>	<b>Cement Mason</b>	<b>05/10/2024</b>

**Classification Description:** Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$48.21	\$63.42	\$78.63
Apprentice: 1st year	\$37.56	\$47.45	\$57.33
Apprentice: 2nd Year	\$40.61	\$52.02	\$63.43
Apprentice: 3rd Year	\$43.65	\$56.58	\$69.51

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$63.42
10th hour	\$63.42
Beyond 10 hours	\$63.42

#### Saturday

First 8 hours	\$63.42
9th hour	\$63.42
10th hour	\$63.42
Beyond 10 hours	\$63.42

<b>Sunday/Holiday</b>	<b>\$78.63</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Cement Mason - K</b>	<b>Cement Mason</b>	<b>05/10/2024</b>

**Classification Description:** Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$44.49	\$57.87	\$71.25
Apprentice: 1st Year	\$34.95	\$43.64	\$52.34
Apprentice: 2nd Year	\$37.63	\$47.66	\$57.70
Apprentice: 3rd Year	\$40.31	\$51.68	\$63.06

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$57.87
10th hour	\$57.87
Beyond 10 hours	\$57.87

#### Saturday

First 8 hours	\$57.87
9th hour	\$57.87
10th hour	\$57.87
Beyond 10 hours	\$57.87

<b>Sunday/Holiday</b>	<b>\$71.25</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Cement Mason - L</b>	<b>Cement Mason</b>	<b>05/10/2024</b>

**Classification Description:** Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$47.09	\$61.77	\$76.45
Apprentice: 1st Year	\$36.81	\$46.35	\$55.89
Apprentice: 2nd Year	\$39.75	\$50.76	\$61.77
Apprentice: 3rd Year	\$42.69	\$55.17	\$67.65

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$61.77
10th hour	\$61.77
Beyond 10 hours	\$61.77

#### Saturday

First 8 hours	\$61.77
9th hour	\$61.77
10th hour	\$61.77
Beyond 10 hours	\$61.77

<b>Sunday/Holiday</b>	<b>\$76.45</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Cement Mason - M</b>	<b>Cement Mason</b>	<b>05/10/2024</b>

**Classification Description:** Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$42.88	\$55.60	\$68.32
Apprentice: 1st Year	\$33.98	\$42.25	\$50.52
Apprentice: 2nd Year	\$36.52	\$46.06	\$55.60
Apprentice: 3rd Year	\$39.06	\$49.87	\$60.68

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$55.60
10th hour	\$55.60
Beyond 10 hours	\$55.60

#### Saturday

First 8 hours	\$55.60
9th hour	\$55.60
10th hour	\$55.60
Beyond 10 hours	\$55.60

<b>Sunday/Holiday</b>	<b>\$68.32</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Cement Mason - s</b>	<b>Cement Mason</b>	<b>05/10/2024</b>

**Classification Description:** Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$48.12	\$67.83	\$87.53
Apprentice: 1st 6 months	\$31.72	\$43.23	\$54.73
Apprentice: 2nd 6 months	\$33.60	\$46.05	\$58.49
Apprentice: 3rd 6 months	\$35.49	\$48.88	\$62.27
Apprentice: 4th 6 months	\$37.37	\$51.70	\$66.03
Apprentice: 5th 6 months	\$39.25	\$54.52	\$69.79
Apprentice: 6th 6 months	\$41.14	\$57.36	\$73.57

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$63.24
10th hour	\$63.24
Beyond 10 hours	\$78.35
<b>Saturday</b>	
First 8 hours	\$63.24
9th hour	\$63.24
10th hour	\$63.24
Beyond 10 hours	\$63.24
<b>Sunday/Holiday</b>	
	\$78.35

**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Cement Mason - SJ</b>	<b>Cement Mason</b>	<b>05/10/2024</b>

**Classification Description:** Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$47.08	\$61.76	\$76.43
Apprentice: 1st Year	\$36.81	\$46.35	\$55.89
Apprentice: 2nd Year	\$39.74	\$50.75	\$61.75
Apprentice: 3rd Year	\$42.68	\$55.15	\$67.63

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$61.76
10th hour	\$61.76
Beyond 10 hours	\$61.76

#### Saturday

First 8 hours	\$61.76
9th hour	\$61.76
10th hour	\$61.76
Beyond 10 hours	\$61.76

<b>Sunday/Holiday</b>	<b>\$76.43</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Cement Mason - TC</b>	<b>Cement Mason</b>	<b>05/10/2024</b>

**Classification Description:** Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$44.72	\$58.51	\$72.30
Apprentice: 1st Year	\$35.07	\$44.04	\$53.00
Apprentice: 2nd Year	\$37.82	\$48.16	\$58.50
Apprentice: 2rd Year	\$40.58	\$52.30	\$64.02

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$58.51
10th hour	\$58.51
Beyond 10 hours	\$58.51
<b>Saturday</b>	
First 8 hours	\$58.51
9th hour	\$58.51
10th hour	\$58.51
Beyond 10 hours	\$58.51
<b>Sunday/Holiday</b>	
	\$72.30

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Cement Mason - UP</b>	<b>Cement Mason</b>	<b>05/10/2024</b>

**Classification Description:** Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$38.67	\$50.71	\$62.74
Apprentice: 1st Year	\$30.25	\$38.08	\$45.90
Apprentice: 2nd Year	\$32.65	\$41.68	\$50.70
Apprentice: 3rd Year	\$35.06	\$45.29	\$55.52

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$50.71
10th hour	\$50.71
Beyond 10 hours	\$50.71

#### Saturday

First 8 hours	\$50.71
9th hour	\$50.71
10th hour	\$50.71
Beyond 10 hours	\$50.71

<b>Sunday/Holiday</b>	<b>\$62.74</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Cement Mason - W</b>	<b>Cement Mason</b>	<b>05/10/2024</b>

**Classification Description:** Cement Mason

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$52.82	\$74.60	\$96.37
Apprentice: 1st 6 Months	\$34.23	\$46.71	\$59.19
Apprentice: 2nd 6 Months	\$36.30	\$49.82	\$63.33
Apprentice: 3rd 6 Months	\$38.39	\$52.95	\$67.51
Apprentice: 4th 6 Months	\$40.47	\$56.07	\$71.67
Apprentice: 5th 6 Months	\$42.54	\$59.18	\$75.81
Apprentice: 6th 6 Months	\$44.63	\$62.31	\$79.99

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$67.94
10th hour	\$67.94
Beyond 10 hours	\$83.05

#### Saturday

First 8 hours	\$67.94
9th hour	\$67.94
10th hour	\$67.94
Beyond 10 hours	\$67.94

#### Sunday/Holiday

\$83.05

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Communication Technician</b>	<b>Communication Technician</b>	<b>05/13/2024</b>

**Classification Description:**

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$67.89	\$98.24	\$128.58

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$98.24
10th hour	\$98.24
Beyond 10 hours	\$98.24
<b>Saturday</b>	
First 8 hours	\$98.24
9th hour	\$98.24
10th hour	\$98.24
Beyond 10 hours	\$98.24
<b>Sunday/Holiday</b>	
	\$128.58

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Drywall - DF</b>	<b>Drywall</b>	<b>05/10/2024</b>

**Classification Description:** Drywall Finishers

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$51.86	\$67.66	\$83.46
Apprentice: 1st period	\$39.22	\$48.70	\$58.18
Apprentice: 2nd period	\$40.80	\$51.07	\$61.34
Apprentice: 3rd period	\$43.96	\$55.81	\$67.66
Apprentice: 4th period	\$48.70	\$62.92	\$77.14

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$67.66
10th hour	\$67.66
Beyond 10 hours	\$67.66

#### Saturday

First 8 hours	\$67.66
9th hour	\$67.66
10th hour	\$67.66
Beyond 10 hours	\$67.66

<b>Sunday/Holiday</b>	<b>\$83.46</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Drywall Finisher</b>	<b>Drywall</b>	<b>05/10/2024</b>

**Classification Description:** Drywall Finisher

4 10 hour days allowed on consecutive days, Monday-Friday. Make up day allowed M-F for work missed due to holidays or inclement weather.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$44.69	\$57.32	\$69.95
Apprentice: Level 1	\$32.06	\$38.37	\$44.69
Apprentice: Level 2	\$37.11	\$45.95	\$54.79
Apprentice: Level 3	\$42.16	\$53.53	\$64.89

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$57.32
10th hour	\$57.32
Beyond 10 hours	\$57.32
<b>Saturday</b>	
First 8 hours	\$57.32
9th hour	\$57.32
10th hour	\$57.32
Beyond 10 hours	\$57.32
<b>Sunday/Holiday</b>	
	\$69.95

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Monday or Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Electrician - 692 IW - Z1</b>	<b>Electrician</b>	<b>05/10/2024</b>

**Classification Description:** Inside Wireman - Journeyman

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$59.42	\$83.96	\$108.49
Apprentice: 0-1,000 hours	\$24.27	\$32.07	\$39.87
Apprentice: 1,000-1,999 hours	\$26.23	\$35.01	\$43.79
Apprentice: 2,000-2,999 hours	\$28.18	\$37.94	\$47.69
Apprentice: 3,000-3,999 hours	\$30.13	\$40.86	\$51.59
Apprentice: 4,000-5,999 hours	\$34.43	\$47.31	\$60.19
Apprentice: 6,000-7,999 hours	\$27.55	\$39.42	\$51.30
Apprentice: 8,000+ hours	\$43.01	\$60.18	\$77.35

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$77.42
10th hour	\$77.42
Beyond 10 hours	\$77.42

#### Saturday

First 8 hours	\$77.42
9th hour	\$77.42
10th hour	\$77.42
Beyond 10 hours	\$77.42

<b>Sunday/Holiday</b>	<b>\$95.42</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Four 10s allowed M-F; Monday or Friday may be used for make-up days.

**Additional Jurisdiction Detail:** All Townships EXCEPT Mount Haley, Jasper, Porter and Ingersoll.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Electrician - SC</b>	<b>Electrician</b>	<b>05/10/2024</b>

**Classification Description:** Sound and communication installer/technician  
 Four ten hour days allowed M-Th or T-F

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$33.47	\$46.94	\$60.66
Apprentice: 1st Period	\$14.65	\$21.03	\$27.40
Apprentice: 2nd Period	\$17.50	\$25.30	\$33.10
Apprentice: 3rd Period	\$20.32	\$29.53	\$38.74
Apprentice: 4th Period	\$23.17	\$33.81	\$44.44

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$45.72
10th hour	\$45.72
Beyond 10 hours	\$45.72

#### Saturday

First 8 hours	\$45.72
9th hour	\$45.72
10th hour	\$45.72
Beyond 10 hours	\$45.72

<b>Sunday/Holiday</b>	<b>\$57.96</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Additional Jurisdiction Detail:** Townships of Jasper, Porter, Mount Haley and Ingersol ONLY.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Electrician - SC</b>	<b>Electrician</b>	<b>05/10/2024</b>

**Classification Description:** Sound and communication installer/technician  
 Four ten hour days allowed M-Th or T-F

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$33.47	\$46.94	\$60.66
Apprentice: 1st Period	\$14.65	\$21.03	\$27.40
Apprentice: 2nd Period	\$17.50	\$25.30	\$33.10
Apprentice: 3rd Period	\$20.32	\$29.53	\$38.74
Apprentice: 4th Period	\$23.17	\$33.81	\$44.44

### Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	\$45.72
10th hour	\$45.72
Beyond 10 hours	\$45.72
Saturday	
First 8 hours	\$45.72
9th hour	\$45.72
10th hour	\$45.72
Beyond 10 hours	\$45.72
Sunday/Holiday	
	\$57.96

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Additional Jurisdiction Detail:** Townships of Jasper, Porter, Mt. Haley & Ingersol



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Electrician - SC</b>	<b>Electrician</b>	<b>05/10/2024</b>

**Classification Description:** Sound and Communication Installer/Technician

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$29.92	\$41.93	\$53.94
Apprentice: 1st period	\$12.37	\$17.58	\$22.79
Apprentice: 2nd period	\$14.70	\$21.07	\$27.45
Apprentice: 3rd period	\$17.02	\$24.56	\$32.09
Apprentice: 4th period	\$19.33	\$28.02	\$36.71

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$40.45
10th hour	\$40.45
Beyond 10 hours	\$40.45

#### Saturday

First 8 hours	\$40.45
9th hour	\$40.45
10th hour	\$40.45
Beyond 10 hours	\$40.45

<b>Sunday/Holiday</b>	<b>\$50.99</b>
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

**Additional Jurisdiction Detail:** all townships except Mt. Haley, Jasper, Porter & Ingersoll

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Elevator Constructor Mechanic</b>	<b>Elevator Constructor</b>	<b>05/10/2024</b>

**Classification Description:** Elevator Constructor Mechanic

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$96.72	\$83.78	\$152.57
Apprentice: 1st year	\$68.96	\$46.08	\$99.68
Apprentice: 2nd year	\$74.88	\$54.45	\$111.18
Apprentice: 3rd year	\$77.85	\$58.65	\$116.95
Apprentice: 4th year	\$84.65	\$67.02	\$129.33

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$152.57
10th hour	\$152.57
Beyond 10 hours	\$152.57
<b>Saturday</b>	
First 8 hours	\$152.57
9th hour	\$152.57
10th hour	\$152.57
Beyond 10 hours	\$152.57
<b>Sunday/Holiday</b>	
	\$152.57

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Fiber Optic Splicer</b>	<b>Fiber Optic Splicer</b>	<b>05/13/2024</b>

**Classification Description:**

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$67.89	\$98.24	\$128.58

#### Overtime Provisions

##### Over 8-hour day/40-hour week

9th hour	\$98.24
10th hour	\$98.24
Beyond 10 hours	\$98.24

##### Saturday

First 8 hours	\$98.24
9th hour	\$98.24
10th hour	\$98.24
Beyond 10 hours	\$98.24

<b>Sunday/Holiday</b>	<b>\$128.58</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Foreman</b>	<b>Foreman</b>	<b>05/10/2024</b>

#### Classification Description:

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$67.89	\$98.24	\$128.58

#### Overtime Provisions

##### Over 8-hour day/40-hour week

9th hour	\$90.71
10th hour	\$90.71
Beyond 10 hours	\$90.71

##### Saturday

First 8 hours	\$90.71
9th hour	\$90.71
10th hour	\$90.71
Beyond 10 hours	\$90.71

<b>Sunday/Holiday</b>	<b>\$113.52</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Foreman</b>	<b>Foreman</b>	<b>05/10/2024</b>

**Classification Description:**

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$67.89	\$98.24	\$128.58

### Overtime Provisions

**Over 8-hour day/40-hour week**

9th hour	\$90.71
10th hour	\$90.71
Beyond 10 hours	\$90.71

**Saturday**

First 8 hours	\$90.71
9th hour	\$90.71
10th hour	\$90.71
Beyond 10 hours	\$90.71

<b>Sunday/Holiday</b>	<b>\$113.52</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Foreman</b>	<b>Foreman</b>	<b>05/10/2024</b>

#### Classification Description:

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$67.89	\$98.24	\$128.58

#### Overtime Provisions

##### Over 8-hour day/40-hour week

9th hour	\$90.71
10th hour	\$90.71
Beyond 10 hours	\$90.71

##### Saturday

First 8 hours	\$90.71
9th hour	\$90.71
10th hour	\$90.71
Beyond 10 hours	\$90.71

<b>Sunday/Holiday</b>	<b>\$113.52</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Foreman</b>	<b>Foreman</b>	<b>05/10/2024</b>

#### Classification Description:

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$67.89	\$98.24	\$128.58

#### Overtime Provisions

##### Over 8-hour day/40-hour week

9th hour	\$90.71
10th hour	\$90.71
Beyond 10 hours	\$90.71

##### Saturday

First 8 hours	\$90.71
9th hour	\$90.71
10th hour	\$90.71
Beyond 10 hours	\$90.71

<b>Sunday/Holiday</b>	<b>\$113.52</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Foreman</b>	<b>Foreman</b>	<b>05/10/2024</b>

**Classification Description:**

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$75.47	\$109.62	\$143.74

#### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$109.61
10th hour	\$109.61
Beyond 10 hours	\$109.61
<b>Saturday</b>	
First 8 hours	\$109.61
9th hour	\$109.61
10th hour	\$109.61
Beyond 10 hours	\$109.61
<b>Sunday/Holiday</b>	
	\$143.74

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Foreman</b>	<b>Foreman</b>	<b>05/10/2024</b>

**Classification Description:**

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$75.47	\$109.61	\$143.74

### Overtime Provisions

**Over 8-hour day/40-hour week**

9th hour	\$101.14
10th hour	\$101.14
Beyond 10 hours	\$101.14

**Saturday**

First 8 hours	\$101.14
9th hour	\$101.14
10th hour	\$101.14
Beyond 10 hours	\$101.14

<b>Sunday/Holiday</b>	<b>\$126.80</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Foreman</b>	<b>Foreman</b>	<b>05/10/2024</b>

**Classification Description:**

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$76.98	\$111.87	\$146.76

### Overtime Provisions

**Over 8-hour day/40-hour week**

9th hour	\$103.22
10th hour	\$103.22
Beyond 10 hours	\$103.22

**Saturday**

First 8 hours	\$103.22
9th hour	\$103.22
10th hour	\$103.22
Beyond 10 hours	\$103.22

<b>Sunday/Holiday</b>	<b>\$129.45</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Glazier</b>	<b>Glazier</b>	<b>05/10/2024</b>

**Classification Description:** Glazier  
4 tens allowed on consecutive days

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$49.84	\$67.73	\$85.62
Apprentice: 1st level	\$31.62	\$40.40	\$49.18
Apprentice: 2nd level	\$35.12	\$45.66	\$56.18
Apprentice: 3rd Level	\$40.38	\$53.54	\$66.70
Apprentice: 4th level	\$45.66	\$61.46	\$77.26

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$66.72
10th hour	\$66.72
Beyond 10 hours	\$66.72

#### Saturday

First 8 hours	\$66.72
9th hour	\$66.72
10th hour	\$66.72
Beyond 10 hours	\$66.72

**Sunday/Holiday** \$83.59

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Heat &amp; Frost Insulator</b>	<b>Heat and Frost Insulator and Asbestos Worker</b>	<b>05/10/2024</b>

**Classification Description:** Heat and Frost Insulators and Asbestos Workers

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$52.00	\$68.89	\$85.77
Apprentice: 1st year	\$26.38	\$33.69	\$40.99
Apprentice: 2nd year	\$30.15	\$38.92	\$47.68
Apprentice: 3rd year	\$33.92	\$44.15	\$54.37
Apprentice: 4th year	\$37.70	\$49.39	\$61.08
Apprentice: 5th year	\$41.48	\$54.63	\$67.78

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$68.89
10th hour	\$68.89
Beyond 10 hours	\$68.89
<b>Saturday</b>	
First 8 hours	\$68.89
9th hour	\$68.89
10th hour	\$68.89
Beyond 10 hours	\$68.89
<b>Sunday/Holiday</b>	
	\$85.77

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Friday for cancelled work in a 4 10 schedule

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Electrician - IW</b>	<b>Inside Wireman</b>	<b>05/10/2024</b>

**Classification Description:** Journeyman

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$62.85	\$81.35	\$99.85
Apprentice: 1st Period	\$29.84	\$40.46	\$51.08
Apprentice: 2nd Period	\$35.15	\$46.01	\$56.06
Apprentice: 3rd Period	\$40.46	\$56.39	\$72.32
Apprentice: 4th Period	\$43.11	\$60.38	\$77.63
Apprentice: 5th Period	\$48.43	\$68.33	\$88.25
Apprentice: 6th Period	\$55.07	\$78.30	\$101.54

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$81.35
10th hour	\$81.35
Beyond 10 hours	\$81.35

#### Saturday

First 8 hours	\$81.35
9th hour	\$81.35
10th hour	\$81.35
Beyond 10 hours	\$81.35

<b>Sunday/Holiday</b>	<b>\$99.85</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Additional Jurisdiction Detail:** Townships of Jasper, Porter, Mount Haley and Ingersol ONLY.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Electrician - IW</b>	<b>Inside Wireman</b>	<b>05/10/2024</b>

**Classification Description:** Journeyman

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$62.85	\$81.35	\$99.85
Apprentice: 1st Period	\$29.84	\$40.46	\$51.08
Apprentice: 2nd Period	\$35.15	\$46.01	\$56.06
Apprentice: 3rd Period	\$40.46	\$56.39	\$72.32
Apprentice: 4th Period	\$43.11	\$60.38	\$77.63
Apprentice: 5th Period	\$48.43	\$68.33	\$88.25
Apprentice: 6th Period	\$55.07	\$78.30	\$101.54

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$81.35
10th hour	\$81.35
Beyond 10 hours	\$81.35
<b>Saturday</b>	
First 8 hours	\$81.35
9th hour	\$81.35
10th hour	\$81.35
Beyond 10 hours	\$81.35
<b>Sunday/Holiday</b>	
	\$99.85

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Additional Jurisdiction Detail:** Townships of Jasper, Porter, Mt. Haley & Ingersol

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Ironworker - RF</b>	<b>Ironworker</b>	<b>05/10/2024</b>

**Classification Description:** Reinforced Iron Work

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$69.51	\$85.85	\$102.19
Apprentice: Level 1	\$52.63	\$64.23	\$75.83
Apprentice: Level 2	\$54.68	\$66.77	\$78.86
Apprentice: Level 3	\$56.56	\$68.98	\$81.40
Apprentice: Level 4	\$59.41	\$72.65	\$85.88
Apprentice: Level 5	\$62.27	\$76.32	\$90.37
Apprentice: Level 6	\$66.76	\$82.48	\$98.19
Apprentice: Level 7	\$66.76	\$82.48	\$98.19
Apprentice: Level 8	\$66.76	\$82.48	\$98.19

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$85.85
10th hour	\$85.85
Beyond 10 hours	\$102.19
<b>Saturday</b>	
First 8 hours	\$85.85
9th hour	\$85.85
10th hour	\$102.19
Beyond 10 hours	\$102.19
<b>Sunday/Holiday</b>	
	\$102.19

**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - Yes

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Ironworker - RIG</b>	<b>Ironworker</b>	<b>05/10/2024</b>

**Classification Description:** Rigging Work

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$76.08	\$92.93	\$109.78
Apprentice: Level 1	\$51.75	\$62.38	\$73.01
Apprentice: Level 2	\$52.56	\$63.54	\$74.52
Apprentice: Level 3	\$54.83	\$66.33	\$77.83
Apprentice: Level 4	\$57.51	\$69.71	\$81.91
Apprentice: Level 5	\$60.60	\$73.67	\$86.74
Apprentice: Level 6	\$63.27	\$77.04	\$90.80
Apprentice: Level 7	\$66.35	\$80.99	\$95.62
Apprentice: Level 8	\$69.43	\$84.94	\$100.45

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$92.93
10th hour	\$92.93
Beyond 10 hours	\$109.78
<b>Saturday</b>	
First 8 hours	\$92.93
9th hour	\$92.93
10th hour	\$92.93
Beyond 10 hours	\$109.78
<b>Sunday/Holiday</b>	
	\$109.78

**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Ironworker - STR</b>	<b>Ironworker</b>	<b>05/10/2024</b>

**Classification Description:** Structural, ornamental, welder and pre-cast If bad weather, Friday may be a make up day. If holiday celebrated on a Monday, 4 10s may be worked Tuesday thru Friday.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$76.21	\$102.75	\$129.29
Apprentice: Level 1	\$51.25	\$61.88	\$72.51
Apprentice: Level 2	\$52.56	\$63.54	\$74.52
Apprentice: Level 3	\$54.83	\$66.33	\$77.83
Apprentice: Level 4	\$57.51	\$70.34	\$83.17
Apprentice: Level 5	\$60.60	\$73.67	\$86.74
Apprentice: Level 6	\$63.27	\$77.04	\$90.80
Apprentice: Level 7	\$66.35	\$80.98	\$95.62
Apprentice: Level 8	\$69.43	\$84.94	\$100.45

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$93.64
10th hour	\$93.64
Beyond 10 hours	\$111.06

#### Saturday

First 8 hours	\$93.64
9th hour	\$93.64
10th hour	\$93.64
Beyond 10 hours	\$111.06

<b>Sunday/Holiday</b>	<b>\$111.06</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Journeyman Signal Technician</b>	<b>Journeyman Signal Technician</b>	<b>05/13/2024</b>

**Classification Description:**

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$67.89	\$98.24	\$128.58
Apprentice: Apprentice 1st 6 months	\$43.61	\$61.82	\$80.02
Apprentice: Apprentice 2nd 6 months	\$46.65	\$66.38	\$86.10
Apprentice: Apprentice 3rd 6 months	\$49.68	\$70.92	\$92.16
Apprentice: Apprentice 4th 6 months	\$52.71	\$75.47	\$98.22
Apprentice: Apprentice 5th 6 months	\$55.75	\$80.03	\$104.30
Apprentice: Apprentice 6th 6months	\$61.82	\$89.13	\$116.44

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$98.24
10th hour	\$98.24
Beyond 10 hours	\$98.24
<b>Saturday</b>	
First 8 hours	\$98.24
9th hour	\$98.24
10th hour	\$98.24
Beyond 10 hours	\$98.24
<b>Sunday/Holiday</b>	
	\$128.58

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Journeyman Specialist</b>	<b>Journeyman Specialist</b>	<b>05/13/2024</b>

**Classification Description:**

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$76.98	\$111.88	\$146.76

### Overtime Provisions

**Over 8-hour day/40-hour week**

9th hour	\$111.87
10th hour	\$111.87
Beyond 10 hours	\$111.87

**Saturday**

First 8 hours	\$111.87
9th hour	\$111.87
10th hour	\$111.87
Beyond 10 hours	\$111.87

<b>Sunday/Holiday</b>	<b>\$146.76</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Labor Crew Foreman</b>	<b>Labor Crew Foreman</b>	<b>05/13/2024</b>

**Classification Description:**

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$61.86	\$89.19	\$116.52

#### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$89.19
10th hour	\$89.19
Beyond 10 hours	\$89.19
<b>Saturday</b>	
First 8 hours	\$89.19
9th hour	\$89.19
10th hour	\$89.19
Beyond 10 hours	\$89.19
<b>Sunday/Holiday</b>	
	\$116.52

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Asbestos &amp; Lead Abatement Laborer</b>	<b>Laborer</b>	<b>05/10/2024</b>

**Classification Description:** Asbestos & Lead Abatement Laborer

4 ten hour days @ straight time allowed Monday-Saturday, must be consecutive calendar days

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$50.60	\$65.37	\$80.13
Apprentice: Trainee 600 hours +1 year	\$34.07	\$18.89	\$20.54

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$65.37
10th hour	\$65.37
Beyond 10 hours	\$65.37

#### Saturday

First 8 hours	\$65.37
9th hour	\$65.37
10th hour	\$65.37
Beyond 10 hours	\$65.37

<b>Sunday/Holiday</b>	<b>\$80.13</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - Class 1 - RZ2</b>	<b>Laborer</b>	<b>05/10/2024</b>

**Classification Description:** Laborer Road Class 1: asphalt shoveler or loader, yard man, fence erector tender, dumper, joint filling, form setting, form stripper, pavement reinforcing, waterproofing, seal coating, bridge painting, sandblasting, pressure grouting, RC equipment

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$45.39	\$58.38	\$71.36
Apprentice: 0-1,000 hours	\$38.90	\$48.64	\$58.38
Apprentice: 1,001-2,000 hours	\$40.20	\$50.59	\$60.98
Apprentice: 2,001-3,000 hours	\$41.49	\$52.52	\$63.56
Apprentice: 3,001-4,000 hours	\$44.09	\$56.42	\$68.76

### Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	\$58.38
10th hour	\$58.38
Beyond 10 hours	\$58.38
Saturday	
First 8 hours	\$58.38
9th hour	\$58.38
10th hour	\$58.38
Beyond 10 hours	\$58.38
Sunday/Holiday	
	\$71.36

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - Class 2 - RZ2</b>	<b>Laborer</b>	<b>05/10/2024</b>

**Classification Description:** Laborer Road Class 2: mixer operator, air or electric tool operator, spreader, boxman, concreter paddler, power chain saw operator, paving patch truck dumper, tunnel mucker, concrete saw operator, dry pack machine and roto-mill grounds person

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$45.59	\$58.18	\$71.26
Apprentice: 0-1,000 hours	\$39.05	\$48.36	\$58.18
Apprentice: 1,001-2,000 hours	\$40.36	\$50.33	\$60.80
Apprentice: 2,001-3,000 hours	\$41.66	\$52.28	\$63.40
Apprentice: 3,001-4,000 hours	\$44.28	\$56.21	\$68.64

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$58.68
10th hour	\$58.68
Beyond 10 hours	\$58.68
<b>Saturday</b>	
First 8 hours	\$58.68
9th hour	\$58.68
10th hour	\$58.68
Beyond 10 hours	\$58.68
<b>Sunday/Holiday</b>	
	\$71.76

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - Class 3 - RZ2</b>	<b>Laborer</b>	<b>05/10/2024</b>

**Classification Description:** Laborer Road Class 3: tunnel miner, finish tenders, guard rail builder, median barrier installer, earth retention barrier and wall installer, fence erector, bottom man, powder man, wagon drill and air track operator, curb and side rail setter

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$45.43	\$58.64	\$71.84
Apprentice: 0-1,000 hours	\$38.83	\$48.74	\$58.64
Apprentice: 1,001-2,000 hours	\$40.15	\$50.72	\$61.28
Apprentice: 2,001-3,000 hours	\$41.47	\$52.70	\$63.92
Apprentice: 3,001-4,000 hours	\$44.11	\$56.66	\$69.20

### Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	\$58.64
10th hour	\$58.64
Beyond 10 hours	\$58.64
Saturday	
First 8 hours	\$58.64
9th hour	\$58.64
10th hour	\$58.64
Beyond 10 hours	\$58.64
Sunday/Holiday	
	\$71.84

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - Class 4 - RZ2</b>	<b>Laborer</b>	<b>05/10/2024</b>

**Classification Description:** Laborer Road Class 4: asphalt raker

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$46.18	\$59.56	\$72.94
Apprentice: 0-1,000 hours	\$39.49	\$49.52	\$59.56
Apprentice: 1,001-2,000 hours	\$40.83	\$51.54	\$62.24
Apprentice: 2,001-3,000 hours	\$42.17	\$53.54	\$64.92
Apprentice: 3,001-4,000 hours	\$44.84	\$57.55	\$70.26

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$59.56
10th hour	\$59.56
Beyond 10 hours	\$59.56

#### Saturday

First 8 hours	\$59.56
9th hour	\$59.56
10th hour	\$59.56
Beyond 10 hours	\$59.56

<b>Sunday/Holiday</b>	<b>\$72.94</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - Class 5 - RZ2</b>	<b>Laborer</b>	<b>05/10/2024</b>

**Classification Description:** Laborer Road Class 5: pipe layers, oxy-gun

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$46.05	\$59.37	\$72.68
Apprentice: 0-1,000 hours	\$39.39	\$49.38	\$59.36
Apprentice: 1,001-2,000 hours	\$40.72	\$51.37	\$62.02
Apprentice: 2,001-3,000 hours	\$42.06	\$53.38	\$64.70
Apprentice: 3,001-4,000 hours	\$44.72	\$57.37	\$70.02

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$59.37
10th hour	\$59.37
Beyond 10 hours	\$59.37
<b>Saturday</b>	
First 8 hours	\$59.37
9th hour	\$59.37
10th hour	\$59.37
Beyond 10 hours	\$59.37
<b>Sunday/Holiday</b>	
	\$72.68

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - Class 6 - RZ2</b>	<b>Laborer</b>	<b>05/10/2024</b>

**Classification Description:** Laborer Road Class 6: line form setter for curb or pavement, asphalt screed checker/screw man on asphalt paving machines

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$46.39	\$59.88	\$73.36
Apprentice: 0-1,000 hours	\$39.65	\$49.76	\$59.88
Apprentice: 1,001-2,000 hours	\$41.00	\$51.79	\$62.58
Apprentice: 2,001-3,000 hours	\$42.34	\$53.80	\$65.26
Apprentice: 3,001-4,000 hours	\$45.04	\$57.85	\$70.66

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$59.88
10th hour	\$59.88
Beyond 10 hours	\$59.88

#### Saturday

First 8 hours	\$59.88
9th hour	\$59.88
10th hour	\$59.88
Beyond 10 hours	\$59.88

**Sunday/Holiday** \$73.36

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - Class 7 - RZ2</b>	<b>Laborer</b>	<b>05/10/2024</b>

**Classification Description:** Laborer Road Class 7: concrete specialist - including finishing and trowling, cast in place or precast by any method

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$48.96	\$63.73	\$78.50
Apprentice: 0-1,000 hours	\$41.58	\$52.66	\$63.74
Apprentice: 1,001-2,000 hours	\$43.05	\$54.86	\$66.68
Apprentice: 2,001-3,000 hours	\$44.53	\$57.08	\$69.64
Apprentice: 3,001-4,000 hours	\$47.48	\$61.51	\$75.54

Overtime Provisions	
<b>Over 8-hour day/40-hour week</b>	
9th hour	\$63.73
10th hour	\$63.73
Beyond 10 hours	\$63.73
<b>Saturday</b>	
First 8 hours	\$63.73
9th hour	\$63.73
10th hour	\$63.73
Beyond 10 hours	\$63.73
<b>Sunday/Holiday</b>	<b>\$78.50</b>

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - N-A</b>	<b>Laborer</b>	<b>05/10/2024</b>

**Classification Description:** Class A Laborer: building and heavy construction work, demolition, mortar mixers, mason tender, carpenter tender, fire watch, heater tender, all 3" pumps and below, furniture mover, material mixers, vibrator operators, operators of concrete mixers, chipp

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$34.88	\$45.44	\$56.00
Apprentice: 0-1,000 work hours	\$28.29	\$35.56	\$42.82
Apprentice: 1,001-2,000 work hours	\$28.76	\$36.51	\$44.26
Apprentice: 2,001-3,000 work hours	\$29.72	\$37.95	\$46.18
Apprentice: 3,001-4,000 work hours	\$31.66	\$40.86	\$50.06

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$45.44
10th hour	\$45.44
Beyond 10 hours	\$45.44
<b>Saturday</b>	
First 8 hours	\$45.44
9th hour	\$45.44
10th hour	\$45.44
Beyond 10 hours	\$45.44
<b>Sunday/Holiday</b>	
	\$56.00

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Saturday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - S-A</b>	<b>Laborer</b>	<b>05/10/2024</b>

**Classification Description:** Class A Laborer on building and heavy construction work, mortar mixers, mason tender, carpenter tender, fire watch, all 3" pumps and below, plaster mixers, plaster tenders, pipe or crock layers, signal men and top men on caisson work, mechanized buggy ope

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$37.71	\$49.72	\$61.72
Apprentice: 0-1,000 work hours	\$30.97	\$39.52	\$48.12
Apprentice: 1,001-2,000 work hours	\$32.12	\$41.24	\$50.42
Apprentice: 2,001-3,000 work hours	\$33.27	\$42.97	\$52.72
Apprentice: 3,001-4,000 work hours	\$35.56	\$46.40	\$57.30

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$49.71
10th hour	\$49.71
Beyond 10 hours	\$49.71

#### Saturday

First 8 hours	\$49.71
9th hour	\$49.71
10th hour	\$49.71
Beyond 10 hours	\$49.71

<b>Sunday/Holiday</b>	<b>\$61.71</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Saturday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - S-B</b>	<b>Laborer</b>	<b>05/10/2024</b>

**Classification Description:** Class B Laborer air or electric-driven pavement breakers and jackhammers over 50 lbs., tunnel miners and tunnel muckers, tunnel and shaft underpinning contributing to the structural support of buildings

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$38.27	\$50.60	\$62.86
Apprentice: 0-1,000 work hours	\$31.40	\$40.20	\$49.00
Apprentice: 1,001-2,000 work hours	\$32.58	\$41.97	\$51.36
Apprentice: 2,001-3,000 work hours	\$33.75	\$43.72	\$53.70
Apprentice: 3,001-4,000 work hours	\$36.10	\$47.25	\$58.40

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$50.54
10th hour	\$50.54
Beyond 10 hours	\$50.54

#### Saturday

First 8 hours	\$50.54
9th hour	\$50.54
10th hour	\$50.54
Beyond 10 hours	\$50.54

<b>Sunday/Holiday</b>	<b>\$62.80</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Saturday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - S-C</b>	<b>Laborer</b>	<b>05/10/2024</b>

**Classification Description:** Class C Laborer-drillers, blasters, burners, welders, & refractory work

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$38.84	\$51.46	\$64.02
Apprentice: 0-1,000 work hours	\$31.81	\$40.84	\$49.86
Apprentice: 1,001-2,000 work hours	\$33.02	\$42.65	\$52.28
Apprentice: 2,001-3,000 work hours	\$34.22	\$44.45	\$54.68
Apprentice: 3,001-4,000 work hours	\$36.63	\$48.06	\$59.50

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$51.41
10th hour	\$51.41
Beyond 10 hours	\$51.41

#### Saturday

First 8 hours	\$51.41
9th hour	\$51.41
10th hour	\$51.41
Beyond 10 hours	\$51.41

<b>Sunday/Holiday</b>	<b>\$63.97</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Saturday



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer N-B</b>	<b>Laborer</b>	<b>05/10/2024</b>

**Classification Description:** Class B Refractory Work: inside or outside digester, tanks, lime kilns, chests, boilers, and boiler tubes, including the handling of acid, chlorine, chemicals, epoxies, liquids and cleaning of existing precipitators, hydro blasting, hydro washing, and sa

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$36.23	\$47.40	\$58.56
Apprentice: 0-1,000 work hours	\$29.34	\$37.06	\$44.78
Apprentice: 1,001-2,000 work hours	\$29.86	\$38.09	\$46.32
Apprentice: 2,001-3,000 work hours	\$30.89	\$39.64	\$48.38
Apprentice: 3,001-4,000 work hours	\$32.95	\$42.72	\$52.50

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$47.40
10th hour	\$47.40
Beyond 10 hours	\$47.40
<b>Saturday</b>	
First 8 hours	\$47.40
9th hour	\$47.40
10th hour	\$47.40
Beyond 10 hours	\$47.40
<b>Sunday/Holiday</b>	
	\$58.56

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Saturday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - Hazardous - Class A - Z8</b>	<b>Laborer - Hazardous</b>	<b>05/10/2024</b>

**Classification Description:** Class A Laborer - performing work in conjunction with site preparation and other preliminary work prior to actual removal, handling, or containment of hazardous waste substances not requiring use of personal protective equipment required by state or feder

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$34.21	\$44.68	\$55.15
Apprentice: 0-1,000 work hours	\$28.97	\$36.82	\$44.67
Apprentice: 1,001-2,000 work hours	\$30.02	\$38.39	\$46.77
Apprentice: 2,001-3,000 work hours	\$31.07	\$39.97	\$48.87
Apprentice: 3,001-4,000 work hours	\$33.16	\$43.11	\$53.05

Overtime Provisions	
<b>Over 8-hour day/40-hour week</b>	
9th hour	\$44.68
10th hour	\$44.68
Beyond 10 hours	\$44.68
<b>Saturday</b>	
First 8 hours	\$44.68
9th hour	\$44.68
10th hour	\$44.68
Beyond 10 hours	\$44.68
<b>Sunday/Holiday</b>	\$55.15

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th or T-F; inclement weather makeup day Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - Hazardous - Class B - Z8</b>	<b>Laborer - Hazardous</b>	<b>05/10/2024</b>

**Classification Description:** Class B Laborer - performing work in conjunction with the removal, handling, or containment of hazardous waste substances when the use of personal protective equipment levels "A", "B" or "C" is required.

Wage Rates	Straight Time	Time and a Half	Double Time	Overtime Provisions
Total Hourly Wage	\$35.20	\$49.67	\$64.14	<b>Over 8-hour day/40-hour week</b>
Apprentice: 0-1,000 work hours	\$29.71	\$41.44	\$53.16	9th hour \$46.17
Apprentice: 1,001-2,000 work hours	\$30.81	\$43.08	\$55.36	10th hour \$46.17
Apprentice: 2,001-3,000 work hours	\$31.91	\$44.74	\$57.56	Beyond 10 hours \$46.17
Apprentice: 3,001-4,000 work hours	\$34.10	\$48.02	\$61.94	<b>Saturday</b>
				First 8 hours \$46.17
				9th hour \$46.17
				10th hour \$46.17
				Beyond 10 hours \$46.17
				<b>Sunday/Holiday</b> \$57.14

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th or T-F; inclement weather makeup day Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - Landscape - Class B2 - Z2</b>	<b>Laborer - Landscape</b>	<b>05/10/2024</b>

**Classification Description:** Class B2: Skilled Landscape Laborer: small power tool operator, lawn sprinkler installers' tender, irrigation installers' tender material mover

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$30.40	\$39.93	\$49.45

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$39.93
10th hour	\$39.93
Beyond 10 hours	\$39.93

#### Saturday

First 8 hours	\$39.93
9th hour	\$39.93
10th hour	\$39.93
Beyond 10 hours	\$39.93

<b>Sunday/Holiday</b>	<b>\$49.45</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - Landscape - Class C - Z2</b>	<b>Laborer - Landscape</b>	<b>05/10/2024</b>

**Classification Description:** Class C: landscape laborer with 90 or more calendar days worked

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$24.66	\$33.27	\$41.87

#### Overtime Provisions

##### Over 8-hour day/40-hour week

9th hour	\$31.98
10th hour	\$31.98
Beyond 10 hours	\$31.98

##### Saturday

First 8 hours	\$31.98
9th hour	\$31.98
10th hour	\$31.98
Beyond 10 hours	\$31.98

<b>Sunday/Holiday</b>	<b>\$39.30</b>
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - Landscape - Class D - Z2</b>	<b>Laborer - Landscape</b>	<b>05/10/2024</b>

**Classification Description:** Class D: Inexperienced landscape laborer - individual who has worked less than 90 calendar days

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$15.54	\$23.31	\$31.08

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$22.03
10th hour	\$22.03
Beyond 10 hours	\$22.03

#### Saturday

First 8 hours	\$22.03
9th hour	\$22.03
10th hour	\$22.03
Beyond 10 hours	\$22.03

<b>Sunday/Holiday</b>	<b>\$28.51</b>
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer Underground - Tunnel, Shaft &amp; Caisson - Class I - Z2</b>	<b>Laborer Underground - Tunnel, Shaft &amp; Caisson</b>	<b>05/10/2024</b>

**Classification Description:** Class I - Tunnel, shaft and caisson laborer, dump man, shanty man, hog house tender, testing man (on gas), and watchman.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$38.97	\$50.26	\$61.54
Apprentice: 0-1,000 work hours	\$32.85	\$42.64	\$52.43
Apprentice: 1,001-2,000 work hours	\$33.97	\$44.32	\$54.67
Apprentice: 2,001-3,000 work hours	\$35.08	\$45.99	\$56.89
Apprentice: 3,001-4,000 work hours	\$37.31	\$49.33	\$61.35

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$50.26
10th hour	\$50.26
Beyond 10 hours	\$50.26
<b>Saturday</b>	
First 8 hours	\$50.26
9th hour	\$50.26
10th hour	\$50.26
Beyond 10 hours	\$50.26
<b>Sunday/Holiday</b>	
	\$61.54

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer Underground - Tunnel, Shaft &amp; Caisson - Class II - Z2</b>	<b>Laborer Underground - Tunnel, Shaft &amp; Caisson</b>	<b>05/10/2024</b>

**Classification Description:** Class II - Manhole, headwall, catch basin builder, bricklayer tender, mortar man, material mixer, fence erector, and guard rail builder

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$39.06	\$50.39	\$61.72
Apprentice: 0-1,000 work hours	\$32.92	\$42.75	\$52.57
Apprentice: 1,001-2,000 work hours	\$34.04	\$44.43	\$54.81
Apprentice: 2,001-3,000 work hours	\$35.16	\$46.11	\$57.05
Apprentice: 3,001-4,000 work hours	\$37.39	\$49.45	\$61.51

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$50.39
10th hour	\$50.39
Beyond 10 hours	\$50.39
<b>Saturday</b>	
First 8 hours	\$50.39
9th hour	\$50.39
10th hour	\$50.39
Beyond 10 hours	\$50.39
<b>Sunday/Holiday</b>	
	\$61.72

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer Underground - Tunnel, Shaft &amp; Caisson - Class III -Z2</b>	<b>Laborer Underground - Tunnel, Shaft &amp; Caisson</b>	<b>05/10/2024</b>

**Classification Description:** Class III - Air tool operator (jack hammer man, bush hammer man and grinding man), first bottom man, second bottom man, cage tender, car pusher, carrier man, concrete man, concrete form man, concrete repair man, cement invert laborer, cement finisher, con

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$39.16	\$50.54	\$61.92
Apprentice: 0-1,000 work hours	\$32.99	\$42.85	\$52.71
Apprentice: 1,001-2,000 work hours	\$34.12	\$44.55	\$54.97
Apprentice: 2,001-3,000 work hours	\$35.24	\$46.23	\$57.21
Apprentice: 3,001-4,000 work hours	\$37.49	\$49.60	\$61.71

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$50.54
10th hour	\$50.54
Beyond 10 hours	\$50.54
<b>Saturday</b>	
First 8 hours	\$50.54
9th hour	\$50.54
10th hour	\$50.54
Beyond 10 hours	\$50.54
<b>Sunday/Holiday</b>	
	\$61.92

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer Underground - Tunnel, Shaft &amp; Caisson - Class IV -Z2</b>	<b>Laborer Underground - Tunnel, Shaft &amp; Caisson</b>	<b>05/10/2024</b>

**Classification Description:** Class IV - Tunnel, shaft and caisson mucker, bracer man, liner plate man, long haul dinky driver and well point man.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$39.58	\$51.17	\$62.76
Apprentice: 0-1,000 work hours	\$33.11	\$43.03	\$52.95
Apprentice: 1,001-2,000 work hours	\$34.25	\$44.74	\$55.23
Apprentice: 2,001-3,000 work hours	\$35.38	\$46.43	\$57.49
Apprentice: 3,001-4,000 work hours	\$37.64	\$49.83	\$62.01

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$51.17
10th hour	\$51.17
Beyond 10 hours	\$51.17
<b>Saturday</b>	
First 8 hours	\$51.17
9th hour	\$51.17
10th hour	\$51.17
Beyond 10 hours	\$51.17
<b>Sunday/Holiday</b>	
	\$62.76

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer Underground - Tunnel, Shaft &amp; Caisson - Class V -Z2</b>	<b>Laborer Underground - Tunnel, Shaft &amp; Caisson</b>	<b>05/10/2024</b>

**Classification Description:** Class V - Tunnel, shaft and caisson miner, drill runner, keyboard operator, power knife operator, reinforced steel or mesh man (e.g. wire mesh, steel mats, dowel bars)

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$39.58	\$51.17	\$62.76
Apprentice: 0-1,000 work hours	\$33.31	\$43.33	\$53.35
Apprentice: 1,001-2,000 work hours	\$34.45	\$45.04	\$55.63
Apprentice: 2,001-3,000 work hours	\$35.60	\$46.77	\$57.93
Apprentice: 3,001-4,000 work hours	\$37.89	\$50.20	\$62.51

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$51.17
10th hour	\$51.17
Beyond 10 hours	\$51.17
<b>Saturday</b>	
First 8 hours	\$51.17
9th hour	\$51.17
10th hour	\$51.17
Beyond 10 hours	\$51.17
<b>Sunday/Holiday</b>	
	\$62.76

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer Underground - Tunnel, Shaft &amp; Caisson - Class VI - Z2</b>	<b>Laborer Underground - Tunnel, Shaft &amp; Caisson</b>	<b>05/10/2024</b>

**Classification Description:** Class VI - Dynamite man and powder man.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$39.34	\$52.38	\$65.41
Apprentice: 0-1,000 work hours	\$33.54	\$43.67	\$53.81
Apprentice: 1,001-2,000 work hours	\$34.70	\$45.41	\$56.13
Apprentice: 2,001-3,000 work hours	\$35.86	\$47.15	\$58.45
Apprentice: 3,001-4,000 work hours	\$38.18	\$50.63	\$63.09

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$50.94
10th hour	\$50.94
Beyond 10 hours	\$50.94
<b>Saturday</b>	
First 8 hours	\$50.94
9th hour	\$50.94
10th hour	\$50.94
Beyond 10 hours	\$50.94
<b>Sunday/Holiday</b>	
	\$62.53

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer Underground - Tunnel, Shaft &amp; Caisson - Class VII - Z2</b>	<b>Laborer Underground - Tunnel, Shaft &amp; Caisson</b>	<b>05/10/2024</b>

**Classification Description:** Class VII - Restoration laborer, seeding, sodding, planting, cutting, mulching and topsoil grading and the restoration of property such as replacing mail boxes, wood chips, planter boxes and flagstones.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$32.16	\$40.04	\$47.92
Apprentice: 0-1,000 work hours	\$27.75	\$34.99	\$42.23
Apprentice: 1,001-2,000 work hours	\$28.52	\$36.15	\$43.77
Apprentice: 2,001-3,000 work hours	\$29.29	\$37.30	\$45.31
Apprentice: 3,001-4,000 work hours	\$30.84	\$39.63	\$48.41

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$40.04
10th hour	\$40.04
Beyond 10 hours	\$40.04
<b>Saturday</b>	
First 8 hours	\$40.04
9th hour	\$40.04
10th hour	\$40.04
Beyond 10 hours	\$40.04
<b>Sunday/Holiday</b>	
	\$47.92

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer -Underground Open Cut - Class I - Z2</b>	<b>Laborer -Underground Open Cut, Class I</b>	<b>05/10/2024</b>

**Classification Description:** Construction Laborer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$38.17	\$50.57	\$62.97
Apprentice: 0-1,000 work hours	\$32.74	\$42.42	\$52.11
Apprentice: 1,001-2,000 work hours	\$33.83	\$44.06	\$54.29
Apprentice: 2,001-3,000 work hours	\$34.91	\$45.68	\$56.45
Apprentice: 3,001-4,000 work hours	\$37.09	\$48.95	\$60.81

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$49.02
10th hour	\$49.02
Beyond 10 hours	\$49.02
<b>Saturday</b>	
First 8 hours	\$49.02
9th hour	\$49.02
10th hour	\$49.02
Beyond 10 hours	\$49.02
<b>Sunday/Holiday</b>	
	\$59.87

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer -Underground Open Cut - Class I - Z4</b>	<b>Laborer -Underground Open Cut, Class I</b>	<b>05/10/2024</b>

**Classification Description:** Construction Laborer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$35.82	\$45.48	\$55.13
Apprentice: 0-1,000 work hours	\$30.52	\$39.16	\$47.79
Apprentice: 1,001-2,000 work hours	\$31.47	\$40.59	\$49.69
Apprentice: 2,001-3,000 work hours	\$32.42	\$42.01	\$51.59
Apprentice: 3,001-4,000 work hours	\$34.32	\$44.86	\$55.39

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$45.48
10th hour	\$45.48
Beyond 10 hours	\$45.48
<b>Saturday</b>	
First 8 hours	\$45.48
9th hour	\$45.48
10th hour	\$45.48
Beyond 10 hours	\$45.48
<b>Sunday/Holiday</b>	
	\$55.13

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer -Underground Open Cut - Class II - Z2</b>	<b>Laborer -Underground Open Cut, Class II</b>	<b>05/10/2024</b>

**Classification Description:** Mortar and material mixer, concrete form man, signal man, well point man, manhole, headwall and catch basin builder, guard rail builders, headwall, seawall, breakwall, dock builder and fence erector.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$38.28	\$50.74	\$63.19
Apprentice: 0-1,000 work hours	\$32.83	\$42.56	\$52.29
Apprentice: 1,001-2,000 work hours	\$33.92	\$44.20	\$54.47
Apprentice: 2,001-3,000 work hours	\$35.01	\$45.83	\$56.65
Apprentice: 3,001-4,000 work hours	\$37.19	\$49.10	\$61.01

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$49.19
10th hour	\$49.19
Beyond 10 hours	\$49.19
<b>Saturday</b>	
First 8 hours	\$49.19
9th hour	\$49.19
10th hour	\$49.19
Beyond 10 hours	\$49.19
<b>Sunday/Holiday</b>	
	\$60.09

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer -Underground Open Cut - Class II - Z4</b>	<b>Laborer -Underground Open Cut, Class II</b>	<b>05/10/2024</b>

**Classification Description:** Mortar and material mixer, concrete form man, signal man, well point man, manhole, headwall and catch basin builder, guard rail builders, headwall, seawall, breakwall, dock builder and fence erector.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$35.95	\$45.67	\$55.39
Apprentice: 0-1,000 work hours	\$30.62	\$39.31	\$47.99
Apprentice: 1,001-2,000 work hours	\$31.57	\$40.73	\$49.89
Apprentice: 2,001-3,000 work hours	\$32.53	\$42.17	\$51.81
Apprentice: 3,001-4,000 work hours	\$34.44	\$45.04	\$55.63

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$45.67
10th hour	\$45.67
Beyond 10 hours	\$45.67
<b>Saturday</b>	
First 8 hours	\$45.67
9th hour	\$45.67
10th hour	\$45.67
Beyond 10 hours	\$45.67
<b>Sunday/Holiday</b>	
	\$55.39

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer -Underground Open Cut - Class III - Z2</b>	<b>Laborer -Underground Open Cut, Class III</b>	<b>05/10/2024</b>

**Classification Description:** Air, gasoline and electric tool operator, vibrator operator, drillers, pump man, tar kettle operator, bracers, rodder, reinforced steel or mesh man (e.g. wire mesh, steel mats, dowel bars, etc.), cement finisher, welder, pipe jacking and boring man, wagon

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$38.40	\$50.92	\$63.43
Apprentice: 0-1,000 work hours	\$32.92	\$42.70	\$52.47
Apprentice: 1,001-2,000 work hours	\$34.01	\$44.33	\$54.65
Apprentice: 2,001-3,000 work hours	\$35.11	\$45.98	\$56.85
Apprentice: 3,001-4,000 work hours	\$37.30	\$49.26	\$61.23

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$49.37
10th hour	\$49.37
Beyond 10 hours	\$49.37

#### Saturday

First 8 hours	\$49.37
9th hour	\$49.37
10th hour	\$49.37
Beyond 10 hours	\$49.37

<b>Sunday/Holiday</b>	<b>\$60.33</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer -Underground Open Cut - Class III - Z4</b>	<b>Laborer -Underground Open Cut, Class III</b>	<b>05/10/2024</b>

**Classification Description:** Air, gasoline and electric tool operator, vibrator operator, drillers, pump man, tar kettle operator, bracers, rodder, reinforced steel or mesh man (e.g. wire mesh, steel mats, dowel bars, etc.), cement finisher, welder, pipe jacking and boring man, wagon

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$36.06	\$45.84	\$55.61
Apprentice: 0-1,000 work hours	\$30.70	\$39.43	\$48.15
Apprentice: 1,001-2,000 work hours	\$31.66	\$40.87	\$50.07
Apprentice: 2,001-3,000 work hours	\$32.62	\$42.31	\$51.99
Apprentice: 3,001-4,000 work hours	\$34.55	\$45.21	\$55.85

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$45.84
10th hour	\$45.84
Beyond 10 hours	\$45.84
<b>Saturday</b>	
First 8 hours	\$45.84
9th hour	\$45.84
10th hour	\$45.84
Beyond 10 hours	\$45.84
<b>Sunday/Holiday</b>	
	\$55.61

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer -Underground Open Cut - Class IV - Z2</b>	<b>Laborer -Underground Open Cut, Class IV</b>	<b>05/10/2024</b>

**Classification Description:** Trench or excavating grade man.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$38.47	\$51.02	\$63.57
Apprentice: 0-1,000 work hours	\$32.97	\$42.77	\$52.57
Apprentice: 1,001-2,000 work hours	\$34.07	\$44.42	\$54.77
Apprentice: 2,001-3,000 work hours	\$35.17	\$46.07	\$56.97
Apprentice: 3,001-4,000 work hours	\$37.37	\$49.37	\$61.37

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$49.47
10th hour	\$49.47
Beyond 10 hours	\$49.47
<b>Saturday</b>	
First 8 hours	\$49.47
9th hour	\$49.47
10th hour	\$49.47
Beyond 10 hours	\$49.47
<b>Sunday/Holiday</b>	
	\$60.47

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer -Underground Open Cut - Class IV - Z4</b>	<b>Laborer -Underground Open Cut, Class IV</b>	<b>05/10/2024</b>

**Classification Description:** Trench or excavating grade man.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$36.13	\$45.94	\$55.75
Apprentice: 0-1,000 work hours	\$30.75	\$39.51	\$48.25
Apprentice: 1,001-2,000 work hours	\$31.72	\$40.96	\$50.19
Apprentice: 2,001-3,000 work hours	\$32.68	\$42.40	\$52.11
Apprentice: 3,001-4,000 work hours	\$34.61	\$45.29	\$55.97

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$45.94
10th hour	\$45.94
Beyond 10 hours	\$45.94
<b>Saturday</b>	
First 8 hours	\$45.94
9th hour	\$45.94
10th hour	\$45.94
Beyond 10 hours	\$45.94
<b>Sunday/Holiday</b>	
	\$55.75

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer -Underground Open Cut - Class V - Z2</b>	<b>Laborer -Underground Open Cut, Class V</b>	<b>05/10/2024</b>

**Classification Description:** Pipe Layer (including crock, metal pipe, multiplate or other conduits)

Wage Rates	Straight Time	Time and a Half	Double Time	Overtime Provisions
Total Hourly Wage	\$38.62	\$51.25	\$63.87	<b>Over 8-hour day/40-hour week</b>
Apprentice: 0-1,000 work hours	\$33.08	\$42.94	\$52.79	9th hour \$49.70
Apprentice: 1,001-2,000 work hours	\$34.19	\$44.60	\$55.01	10th hour \$49.70
Apprentice: 2,001-3,000 work hours	\$35.30	\$46.26	\$57.23	Beyond 10 hours \$49.70
Apprentice: 3,001-4,000 work hours	\$37.51	\$49.58	\$61.65	<b>Saturday</b>
				First 8 hours \$49.70
				9th hour \$49.70
				10th hour \$49.70
				Beyond 10 hours \$49.70
				<b>Sunday/Holiday</b> \$60.77

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer -Underground Open Cut - Class V - Z4</b>	<b>Laborer -Underground Open Cut, Class V</b>	<b>05/10/2024</b>

**Classification Description:** Pipe Layer (including crock, metal pipe, multiplate or other conduits)

Wage Rates	Straight Time	Time and a Half	Double Time	Overtime Provisions
Total Hourly Wage	\$36.25	\$46.12	\$55.99	<b>Over 8-hour day/40-hour week</b>
Apprentice: 0-1,000 work hours	\$30.84	\$39.64	\$48.43	9th hour \$46.12
Apprentice: 1,001-2,000 work hours	\$31.81	\$41.09	\$50.37	10th hour \$46.12
Apprentice: 2,001-3,000 work hours	\$32.78	\$42.55	\$52.31	Beyond 10 hours \$46.12
Apprentice: 3,001-4,000 work hours	\$34.73	\$45.47	\$56.21	<b>Saturday</b>
				First 8 hours \$46.12
				9th hour \$46.12
				10th hour \$46.12
				Beyond 10 hours \$46.12
				<b>Sunday/Holiday</b> \$55.99

**Four 10-hour days allowed?** - Yes  
**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer -Underground Open Cut - Class VI - Z2</b>	<b>Laborer -Underground Open Cut, Class VI</b>	<b>05/10/2024</b>

**Classification Description:** Grouting man, top man assistant, audio visual television operations and all other operations in connection with closed circuit television inspection, pipe cleaning and pipe relining work and the installation and repair of water service pipe and appurtenan

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$35.92	\$47.20	\$58.47
Apprentice: 0-1,000 work hours	\$31.06	\$39.90	\$48.75
Apprentice: 1,001-2,000 work hours	\$32.03	\$41.36	\$50.69
Apprentice: 2,001-3,000 work hours	\$33.00	\$42.82	\$52.63
Apprentice: 3,001-4,000 work hours	\$34.95	\$45.74	\$56.53

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$45.65
10th hour	\$45.65
Beyond 10 hours	\$45.65
<b>Saturday</b>	
First 8 hours	\$45.65
9th hour	\$45.65
10th hour	\$45.65
Beyond 10 hours	\$45.65
<b>Sunday/Holiday</b>	
	\$55.37

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer -Underground Open Cut - Class VI - Z4</b>	<b>Laborer -Underground Open Cut, Class VI</b>	<b>05/10/2024</b>

**Classification Description:** Grouting man, top man assistant, audio visual television operations and all other operations in connection with closed circuit television inspection, pipe cleaning and pipe relining work & the installation and repair of water service pipe and appurtenance

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$33.47	\$41.95	\$50.43
Apprentice: 0-1,000 work hours	\$28.76	\$36.52	\$44.27
Apprentice: 1,001-2,000 work hours	\$29.59	\$37.77	\$45.93
Apprentice: 2,001-3,000 work hours	\$30.42	\$39.01	\$47.59
Apprentice: 3,001-4,000 work hours	\$32.09	\$41.51	\$50.93

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$41.95
10th hour	\$41.95
Beyond 10 hours	\$41.95

#### Saturday

First 8 hours	\$41.95
9th hour	\$41.95
10th hour	\$41.95
Beyond 10 hours	\$41.95

#### Sunday/Holiday

\$50.43

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer -Underground Open Cut - Class VII - Z2</b>	<b>Laborer -Underground Open Cut, Class VII</b>	<b>05/10/2024</b>

**Classification Description:** Restoration laborer, seeding, sodding, planting, cutting, mulching and topsoil grading and the restoration of property such as replacing mail boxes, wood chips, planter boxes, flagstones etc.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$32.56	\$42.16	\$51.75
Apprentice: 0-1,000 work hours	\$28.54	\$36.12	\$43.71
Apprentice: 1,001-2,000 work hours	\$29.34	\$37.32	\$45.31
Apprentice: 2,001-3,000 work hours	\$30.15	\$38.54	\$46.93
Apprentice: 3,001-4,000 work hours	\$31.76	\$40.96	\$50.15

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$40.61
10th hour	\$40.61
Beyond 10 hours	\$40.61
<b>Saturday</b>	
First 8 hours	\$40.61
9th hour	\$40.61
10th hour	\$40.61
Beyond 10 hours	\$40.61
<b>Sunday/Holiday</b>	
	\$48.65

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer -Underground Open Cut - Class VII - Z4</b>	<b>Laborer -Underground Open Cut, Class VII</b>	<b>05/10/2024</b>

**Classification Description:** Restoration laborer, seeding, sodding, planting, cutting, mulching and topsoil grading and the restoration of property such as replacing mail boxes, wood chips, planter boxes, flagstones etc.

Wage Rates	Straight Time	Time and a Half	Double Time	Overtime Provisions
Total Hourly Wage	\$31.81	\$39.46	\$47.11	<b>Over 8-hour day/40-hour week</b>
Apprentice: 0-1,000 work hours	\$27.51	\$34.65	\$41.77	9th hour \$39.46
Apprentice: 1,001-2,000 work hours	\$28.26	\$35.77	\$43.27	10th hour \$39.46
Apprentice: 2,001-3,000 work hours	\$29.01	\$36.89	\$44.77	Beyond 10 hours \$39.46
Apprentice: 3,001-4,000 work hours	\$30.51	\$39.15	\$47.77	<b>Saturday</b>
				First 8 hours \$39.46
				9th hour \$39.46
				10th hour \$39.46
				Beyond 10 hours \$39.46
				<b>Sunday/Holiday</b> \$47.11

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - Landscape - Class A - Z2</b>	<b>Landscape Laborer</b>	<b>05/10/2024</b>

**Classification Description:** Class A: Irrigation Foremen and Construction Foremen.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$32.40	\$42.96	\$53.48

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$42.93
10th hour	\$42.93
Beyond 10 hours	\$42.93

#### Saturday

First 8 hours	\$42.93
9th hour	\$42.93
10th hour	\$42.93
Beyond 10 hours	\$42.93

<b>Sunday/Holiday</b>	<b>\$53.45</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Laborer - Landscape - Class A - Z2</b>	<b>Landscape Laborer</b>	<b>05/10/2024</b>

**Classification Description:** Class A: Irrigation Foremen and Construction Foremen.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$34.62	\$46.26	\$57.89

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$46.26
10th hour	\$46.26
Beyond 10 hours	\$46.26

#### Saturday

First 8 hours	\$46.26
9th hour	\$46.26
10th hour	\$46.26
Beyond 10 hours	\$46.26

<b>Sunday/Holiday</b>	<b>\$57.89</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Class I</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Class I - diver/wet tender, engineer, blaster, leverman

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$82.82	\$107.82	\$132.82

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$32.82
10th hour	\$107.82
Beyond 10 hours	\$107.82

#### Saturday

First 8 hours	\$107.82
9th hour	\$107.82
10th hour	\$107.82
Beyond 10 hours	\$107.82

#### Sunday/Holiday

	\$132.82
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Class II (A)</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Class II (A) - Crane/backhoe operator, material handler, all self-propelled drill rigs, mechanic/welder, hydraulic dredge, diver tender

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$81.32	\$105.57	\$129.82

#### Overtime Provisions

##### Over 8-hour day/40-hour week

9th hour	\$32.82
10th hour	\$105.57
Beyond 10 hours	\$105.57

##### Saturday

First 8 hours	\$105.57
9th hour	\$105.57
10th hour	\$105.57
Beyond 10 hours	\$105.57

<b>Sunday/Holiday</b>	<b>\$129.82</b>
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Class II (B)</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Class II (B) - friction, lattice boom, tug or tug boat operator

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$84.32	\$110.07	\$135.82

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$110.07
10th hour	\$110.07
Beyond 10 hours	\$110.07

#### Saturday

First 8 hours	\$110.07
9th hour	\$110.07
10th hour	\$110.07
Beyond 10 hours	\$110.07

<b>Sunday/Holiday</b>	<b>\$135.82</b>
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Class III</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Class III - Deck equip. operator, maintenance of crane or excavator, tug/launch operator, loader/dozer on barge/deck machinery, truck-able tug, lead surveyor, ROV operator, AB deckhand, welder

Wage Rates	Straight Time	Time and a Half	Double Time	Overtime Provisions
Total Hourly Wage	\$76.82	\$98.82	\$120.82	<b>Over 8-hour day/40-hour week</b>
				9th hour \$98.82
				10th hour \$98.82
				Beyond 10 hours \$98.82
				<b>Saturday</b>
				First 8 hours \$98.82
				9th hour \$98.82
				10th hour \$98.82
				Beyond 10 hours \$98.82
				<b>Sunday/Holiday</b> \$120.82

**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Class IV</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Class IV - Deck equipment operator, machineryman/fireman, off road trucks, deck hand, tug engineer, assistant tug operator, blaster helper, deck hand, jet machine, subsea plow, trencher, tug engineer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$72.32	\$92.07	\$111.82

Overtime Provisions	
<b>Over 8-hour day/40-hour week</b>	
9th hour	\$32.82
10th hour	\$92.07
Beyond 10 hours	\$92.07
<b>Saturday</b>	
First 8 hours	\$92.07
9th hour	\$92.07
10th hour	\$92.07
Beyond 10 hours	\$92.07
<b>Sunday/Holiday</b>	<b>\$111.82</b>

**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Extended Boom Forklift Operator - Over 5,000</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Extended boom forklift/forktruck over 5,000lb capacity, 1 drum hoist

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$41.43	\$54.43	\$67.42

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$54.43
10th hour	\$54.43
Beyond 10 hours	\$67.42
<b>Saturday</b>	
First 8 hours	\$54.43
9th hour	\$54.43
10th hour	\$54.43
Beyond 10 hours	\$67.42
<b>Sunday/Holiday</b>	
	\$67.42

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Extended Boom Forklift Operator - Over 5,000</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Extended boom forklift/forktruck over 5,000lb capacity, 1 drum hoist

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$58.82	\$73.32	\$87.81

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$73.32
10th hour	\$73.32
Beyond 10 hours	\$87.81
<b>Saturday</b>	
First 8 hours	\$73.32
9th hour	\$73.32
10th hour	\$73.32
Beyond 10 hours	\$87.81
<b>Sunday/Holiday</b>	
	\$87.81

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Extended Boom Forklift Operator - Over 5,000</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Extended boom forklift/forktruck over 5,000lb capacity, 1 drum hoist

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$64.70	\$81.75	\$98.80

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$81.75
10th hour	\$81.75
Beyond 10 hours	\$98.80
<b>Saturday</b>	
First 8 hours	\$81.75
9th hour	\$81.75
10th hour	\$81.75
Beyond 10 hours	\$98.80
<b>Sunday/Holiday</b>	
	\$98.80

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Extended Boom Forklift Operator - Over 5,000</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Extended boom forklift/forktruck over 5,000lb capacity, 1 drum hoist

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$69.61	\$88.88	\$108.15

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$88.88
10th hour	\$88.88
Beyond 10 hours	\$108.15
<b>Saturday</b>	
First 8 hours	\$88.88
9th hour	\$88.88
10th hour	\$88.88
Beyond 10 hours	\$108.15
<b>Sunday/Holiday</b>	
	\$108.15

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Extended Boom Forklift Operator - Over 5,000</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Extended boom forklift/forktruck over 5,000lb capacity, 1 drum hoist

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$63.29	\$79.73	\$96.16

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$79.73
10th hour	\$79.73
Beyond 10 hours	\$96.16
<b>Saturday</b>	
First 8 hours	\$79.73
9th hour	\$79.73
10th hour	\$79.73
Beyond 10 hours	\$96.16
<b>Sunday/Holiday</b>	
	\$96.16

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Journeyman - Class I</b>	<b>Operating Engineer</b>	<b>05/17/2024</b>

**Classification Description:** Journeyman - Class I

Asphalt Transfer Machine (Shuttle Buggy)

Concrete/Asphalt Pavers

Excavators Installing Utilities over 20 feet in depth

GPS or Electronic Grade Equipment (employee must be able to set up and use it on machine themselves, and employee can install it and calibrate it on their own)

Hydraulic/Lattice Lifting Cranes over 25 tons

Mechanic

\*\*On bridge construction projects when a Class I Crane Operator is erecting structural components as part of a composite crew with Structural Ironworkers, the Base Rate and Vacation and Holiday pay shall be at the Crane Operator rate as set forth in the current agreement between the Union and the Great Lakes Fabricators and Erectors Association.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$69.17	\$88.16	\$107.14
Apprentice: Apprentice Engineer 0-6 months	\$56.03	\$71.32	\$86.60
Apprentice: Apprentice Engineer 13-18	\$60.40	\$77.87	\$95.34
Apprentice: Apprentice Engineer 19-24 months	\$62.21	\$80.59	\$98.96
Apprentice: Apprentice Engineer 25-30 months	\$64.76	\$84.42	\$104.06
Apprentice: Apprentice Engineer 31-36 months	\$67.08	\$87.90	\$108.70
Apprentice: Apprentice Engineer 7-12 months	\$58.21	\$74.58	\$90.96

### Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	\$88.16
10th hour	\$88.16
Beyond 10 hours	\$88.16
Saturday	
First 8 hours	\$88.16
9th hour	\$88.16
10th hour	\$88.16
Beyond 10 hours	\$88.16
<b>Sunday/Holiday</b>	<b>\$107.14</b>

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

In the event work is unable to be performed on account of weather, Monday through Thursday, the Friday work may be scheduled for ten (10) hours, at straight time, as a make-up day.



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Journeyman - Class II</b>	<b>Operating Engineer</b>	<b>05/17/2024</b>

**Classification Description:** Journeyman - Class II

- Air Compressors in Manifold with throttle valve +750 cfm
- Asphalt Bituminous Compactor / Roller
- Asphalt Planner self-propelled
- Asphalt Plant on project including operating from on site or operating remotely
- Asphalt Screed or Screw (per Employer Past Practice)
- Auto Grade or similar type machine
- Backhoe on Farm Type Tractor 45 H.P. & over
- Ballast Jack Tamper
- Ballast Regulator (R.R.)
- Batch Plant (concrete-central mix)
- Bituminous Paver (self-propelled)
- Blade Grader
- Bull Dozer
- Caisson Drilling Machine
- Cherry Picker – 15 ton or over
- Chip Spreader
- Concrete Batch or Drum Mix Plant on project including operating from on site or operating remotely
- Concrete Belt Placer (Formless)
- Concrete Cure / Finish Machine (burlap, tinning or grooving)
- Concrete Mixer 21 cu. Ft. Or over
- Concrete Pump (Truck Mount)
- Concrete Pump (3 inch and over)
- Concrete / Asphalt Saw Power Driven (3 yrs experience or more)
- Conveyor Loader (Euclid type)
- Core Drilling Machine
- Curb-Barrier Wall Machine CMI type
- Directional Drill / Boring Machine
- Dredge Engineer
- Dredge
- Drilling Machine on which the drill is an integral part
- Earth Mover – rubber tired – (paddle wheel, Cat 619, 631, TS-24 or similar type)
- Earth Mover rubber tired-tandem

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$68.02	\$86.51	\$104.99

## Overtime Provisions

### Over 8-hour day/40-hour week

9th hour	\$86.50
10th hour	\$86.50
Beyond 10 hours	\$86.50

### Saturday

First 8 hours	\$86.50
9th hour	\$86.50
10th hour	\$86.50
Beyond 10 hours	\$86.50

**Sunday/Holiday** \$104.99

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Journeyman - Class III</b>	<b>Operating Engineer</b>	<b>05/17/2024</b>

**Classification Description:** Journeyman - Class III  
Air Compressor with Throttle Valve or Clever Brooks type comb.  
Backhoe less than 1 cyd. Including Farm Type  
Bituminous Plant Engineer  
Chemical / Grout Machine 21 cft. Or larger  
Cherry Picker under 15 ton  
Chip Spreader (self-propelled)  
Crusher  
Concrete Barrier Moving Machine (per Employer Past Practice)  
Concrete Pump  
Concrete Spreader--Power Driven  
End Loader under 1-1/2 cu yd.  
Grease Truck  
Gunit Machine  
Lowboy (per Employer Past Practice)  
Mesh or Steel Placer (motorized)  
Multiple Tamping Machine (R.R.)  
Refrigerating Machine--Freezing operation  
Roller-Waterbound Macadam, Bituminous Macadam, Brick  
Ross Carrier  
Self-propelled convey transfer devise.  
Side Boom Tractor (smaller than D-4 type or equivalent)  
Sweeper (Wayne type and similar equipment)  
Macadam, Brick Surface  
Trench Machine 24" and under  
Tube Float (motorized)

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$61.29	\$76.85	\$92.41

## Overtime Provisions

### Over 8-hour day/40-hour week

9th hour	\$30.17
10th hour	\$76.85
Beyond 10 hours	\$76.85

### Saturday

First 8 hours	\$76.85
9th hour	\$76.85
10th hour	\$76.85
Beyond 10 hours	\$76.85

<b>Sunday/Holiday</b>	<b>\$92.41</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Journeyman - Class IV</b>	<b>Operating Engineer</b>	<b>05/17/2024</b>

**Classification Description:** Journeyman - Class IV

- Air Compressor
- All mulching equipment
- All Walk Behind or Remote Control Powered Equipment (autonomous equipment)
- Assistant to Engineer Automatic Dry Batch Plant Belt Spreader (motorized including transfer device by remote, wireless or cable)
- Bituminous Distributor
- Bituminous Patching Machine
- Broom & Belt Machine
- Chair Cart (self-propelled)
- Concrete Pumps (under 3")
- Concrete Breaker
- Curb Machine
- Curing Equipment (self-propelled)
- Deck Hand
- Digger Post Hole (power-driven)
- Dump Truck
- End Dumps (per Employer Past Practice)
- End Loader (under ¾ yard capacity)
- Farm Tractor-incl. farm tractor with all attachments except backhoe and incl. highlift end loaders of 1 cu. Yard capacity or less
- Fireman (on boiler)
- Fork Lift – under 10 ton
- Form Grader (if motorized)
- Georgia Buggy – Power wheel barrel ¾ yard with a seat
- Generator (15 kw or greater)
- Greaser Helper
- Guard Post Driver (power driven)

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$60.73	\$76.05	\$91.36

## Overtime Provisions

### Over 8-hour day/40-hour week

9th hour	\$76.05
10th hour	\$76.05
Beyond 10 hours	\$76.05

### Saturday

First 8 hours	\$76.05
9th hour	\$76.05
10th hour	\$76.05
Beyond 10 hours	\$76.05

<b>Sunday/Holiday</b>	<b>\$91.36</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Journeyman - Class V</b>	<b>Operating Engineer</b>	<b>05/17/2024</b>

**Classification Description:** Journeyman - Class V  
 Concrete/Asphalt Saw - Power Driven (Less than 3 yrs. experience)  
 Density/Soil Engineer  
 Directional Boring Utility Man  
 Discharge Pumps 4" or less (1-4 units)  
 Dumper (Wagon, Truck, Etc.)-1/2 yard or less  
 Fence Erector/Power Driven  
 Light Plants (1 to 5 units)  
 Paving Batch Truck Dumper  
 Roto Mill Utility Grade Control  
 Sign Installer/Sign Installer with Remote Control Operated Equipment  
 Top Man, And Railroad Track and Trestle Engineer  
 Utility Engineer  
 Water Blasting Utility Engineer  
 1 to 4 pcs. of minor equip.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$42.35	\$55.33	\$68.31

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$55.33
10th hour	\$55.33
Beyond 10 hours	\$55.33
<b>Saturday</b>	
First 8 hours	\$55.33
9th hour	\$55.33
10th hour	\$55.33
Beyond 10 hours	\$55.33
<b>Sunday/Holiday</b>	
	\$68.31

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - 324 A120</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Crane with boom & jib or leads 120' or longer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$76.41	\$98.55	\$120.69

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$98.55
10th hour	\$98.55
Beyond 10 hours	\$98.55

#### Saturday

First 8 hours	\$98.55
9th hour	\$98.55
10th hour	\$98.55
Beyond 10 hours	\$98.55

<b>Sunday/Holiday</b>	<b>\$120.69</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time over 12 Mon-Sat



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - 324 A140</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Crane with boom & jib or leads 140' or longer

Work in excess of 12 per day M-F shall be paid at double time.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$77.59	\$100.24	\$122.89

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$100.24
10th hour	\$100.24
Beyond 10 hours	\$100.24

#### Saturday

First 8 hours	\$100.24
9th hour	\$100.24
10th hour	\$100.24
Beyond 10 hours	\$100.24

<b>Sunday/Holiday</b>	<b>\$122.89</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time after 12 hours Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - 324 A220</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Crane with boom & jib or leads 220' or longer  
Work in excess of 12 per day M-F shall be paid at double time.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$77.86	\$100.63	\$123.40

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$100.63
10th hour	\$100.63
Beyond 10 hours	\$100.63

#### Saturday

First 8 hours	\$100.63
9th hour	\$100.63
10th hour	\$100.63
Beyond 10 hours	\$100.63

<b>Sunday/Holiday</b>	<b>\$123.40</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time after 12 hours Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - 324 B120</b>	<b>Operating Engineer</b>	<b>06/20/2024</b>

**Classification Description:** Crane Operator w/120' of Boom or Longer w/Oiler

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$77.41	\$99.99	\$122.56

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$99.98
10th hour	\$99.98
Beyond 10 hours	\$99.98

#### Saturday

First 8 hours	\$99.98
9th hour	\$99.98
10th hour	\$99.98
Beyond 10 hours	\$99.98

<b>Sunday/Holiday</b>	<b>\$122.56</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - 324 GM</b>	<b>Operating Engineer</b>	<b>06/20/2024</b>

**Classification Description:** Ground Man/Light Plants/Welder/Pumps Under 6"

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$43.83	\$57.87	\$71.91

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$57.87
10th hour	\$57.87
Beyond 10 hours	\$57.87

#### Saturday

First 8 hours	\$57.87
9th hour	\$57.87
10th hour	\$57.87
Beyond 10 hours	\$57.87

<b>Sunday/Holiday</b>	<b>\$71.91</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - AC</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Compressor or Welding Machine

Four 10 hour days may be scheduled Monday-Thursday or Tuesday-Friday. Work not performed due to weather, Monday-Thursday may be scheduled on Friday.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$56.05	\$69.32	\$82.58

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$69.32
10th hour	\$69.32
Beyond 10 hours	\$69.32
<b>Saturday</b>	
First 8 hours	\$69.32
9th hour	\$82.58
10th hour	\$82.58
Beyond 10 hours	\$82.58
<b>Sunday/Holiday</b>	
	\$82.58

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - Below 5,000lb Capacity</b>	<b>Operating Engineer</b>	<b>06/20/2024</b>

**Classification Description:** Ind. forklift/forktruck under 5,000lb capacity  
power jacks/power packs, composite crew only

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$67.10	\$85.19	\$103.28

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$85.19
10th hour	\$85.19
Beyond 10 hours	\$85.19
<b>Saturday</b>	
First 8 hours	\$85.19
9th hour	\$85.19
10th hour	\$85.19
Beyond 10 hours	\$85.19
<b>Sunday/Holiday</b>	
	\$103.28

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - Crane Operator w/Oiler</b>	<b>Operating Engineer</b>	<b>06/20/2024</b>

**Classification Description:** Crane Operator w/Oiler

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$77.05	\$99.47	\$121.89

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$99.47
10th hour	\$99.47
Beyond 10 hours	\$99.47
<b>Saturday</b>	
First 8 hours	\$99.47
9th hour	\$99.47
10th hour	\$99.47
Beyond 10 hours	\$99.47
<b>Sunday/Holiday</b>	
	\$121.89

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - Crane, TDH, Excavator</b>	<b>Operating Engineer</b>	<b>06/20/2024</b>

**Classification Description:** Crane Operator, Job Mechanic, Three Drum Hoist and Excavator

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$76.05	\$98.04	\$120.02
Apprentice: Apprentice Engineer 0-6 months	\$60.84	\$78.54	\$96.24
Apprentice: Apprentice Engineer 13-18 months	\$65.90	\$86.13	\$106.36
Apprentice: Apprentice Engineer 19-24 months	\$68.42	\$89.92	\$111.40
Apprentice: Apprentice Engineer 25-30 months	\$70.95	\$93.71	\$116.46
Apprentice: Apprentice Engineer 31-36 months	\$73.48	\$97.50	\$121.52
Apprentice: Apprentice Engineer 7-12 months	\$63.40	\$82.38	\$101.36

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$98.03
10th hour	\$98.03
Beyond 10 hours	\$98.03
<b>Saturday</b>	
First 8 hours	\$98.03
9th hour	\$98.03
10th hour	\$98.03
Beyond 10 hours	\$98.03
<b>Sunday/Holiday</b>	
	\$120.02

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time after 12 Mon-Sat



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - CW</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Compressor or welding machine  
 Work in excess of 12 per day M-F shall be paid at double time.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$54.86	\$69.72	\$84.58

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$67.78
10th hour	\$67.78
Beyond 10 hours	\$67.78

#### Saturday

First 8 hours	\$67.78
9th hour	\$80.70
10th hour	\$80.70
Beyond 10 hours	\$80.70

<b>Sunday/Holiday</b>	<b>\$80.70</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - F</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Forklift, lull, extend-a-boom forklift  
Work in excess of 12 per day M-F shall be paid at double time.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$63.36	\$79.81	\$96.25

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$79.81
10th hour	\$79.81
Beyond 10 hours	\$79.81

#### Saturday

First 8 hours	\$79.81
9th hour	\$96.25
10th hour	\$96.25
Beyond 10 hours	\$96.25

#### Sunday/Holiday

	\$96.25
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - FO</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Fireman or Oiler

Four 10 hour days may be scheduled Monday-Thursday or Tuesday-Friday. Work not performed due to weather, Monday-Thursday may be scheduled on Friday.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$55.02	\$67.84	\$80.65

### Overtime Provisions

#### Over 8-hour day/40-hour

##### week

9th hour	\$67.84
10th hour	\$67.84
Beyond 10 hours	\$67.84

#### Saturday

First 8 hours	\$67.84
9th hour	\$80.65
10th hour	\$80.65
Beyond 10 hours	\$80.65

#### Sunday/Holiday

\$80.65

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - FO</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Fireman or oiler

Work in excess of 12 per day M-F shall be paid at double time.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$53.83	\$68.18	\$82.52

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$66.31
10th hour	\$66.31
Beyond 10 hours	\$66.31

#### Saturday

First 8 hours	\$66.31
9th hour	\$78.78
10th hour	\$78.78
Beyond 10 hours	\$78.78

<b>Sunday/Holiday</b>	<b>\$78.78</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - FSM</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Forklift or Straight Mast

Four 10 hour days may be scheduled M-Th or T-F. Work not performed due to weather on M-Th may be scheduled on Friday

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$57.50	\$71.40	\$85.29

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$71.40
10th hour	\$71.40
Beyond 10 hours	\$71.40
<b>Saturday</b>	
First 8 hours	\$71.40
9th hour	\$85.29
10th hour	\$85.29
Beyond 10 hours	\$85.29
<b>Sunday/Holiday</b>	
	\$85.29

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - I</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Lull or Extend-a-Boom Forklift

Four 10 hour days may be scheduled M-Th or T-F. Work not performed due to weather on M-Th may be scheduled on Friday

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$59.73	\$77.09	\$94.45

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$74.83
10th hour	\$74.83
Beyond 10 hours	\$74.83

#### Saturday

First 8 hours	\$74.83
9th hour	\$89.92
10th hour	\$89.92
Beyond 10 hours	\$89.92

<b>Sunday/Holiday</b>	<b>\$89.92</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - os120</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Crane with main boom & jib 120' or longer

Four 10 hour days may be scheduled Monday-Thursday or Tuesday-Friday. Worked not performed due to weather, Monday-Thursday may be scheuled Friday

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$63.27	\$82.40	\$101.53

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$79.91
10th hour	\$79.91
Beyond 10 hours	\$79.91
<b>Saturday</b>	
First 8 hours	\$79.91
9th hour	\$96.54
10th hour	\$96.54
Beyond 10 hours	\$96.54
<b>Sunday/Holiday</b>	
	\$96.54

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - OSA</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Crane w/ main Boom & Jib 220' or longer

Four 10 hour days may be scheduled Monday-Thursday or Tuesday-Friday. Work not performed due to weather, Monday-Thursday may be scheduled on Friday.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$64.38	\$84.07	\$103.75

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$81.50
10th hour	\$81.50
Beyond 10 hours	\$81.50
<b>Saturday</b>	
First 8 hours	\$81.50
9th hour	\$98.61
10th hour	\$98.61
Beyond 10 hours	\$98.61
<b>Sunday/Holiday</b>	
	\$98.61

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Friday



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - OSA3</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Crane w/ main Boom & Jib 300' or longer

Four 10 hour days may be scheduled Monday-Thursday or Tuesday-Friday. Work unable to be performed due to weather, Monday-Thursday may be scheduled on Friday.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$65.89	\$86.33	\$106.77

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$83.67
10th hour	\$83.67
Beyond 10 hours	\$83.67
<b>Saturday</b>	
First 8 hours	\$83.67
9th hour	\$101.44
10th hour	\$101.44
Beyond 10 hours	\$101.44
<b>Sunday/Holiday</b>	
	\$101.44

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - OSA4</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Crane w/ main Boom & Jib 400' or longer

Four 10 hour days may be scheduled Monday-Thursday or Tuesday-Friday. Work not performed due to weather, Monday-Thursday may be scheduled on Friday.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$78.46	\$101.49	\$124.52

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$101.49
10th hour	\$101.49
Beyond 10 hours	\$101.49
<b>Saturday</b>	
First 8 hours	\$101.49
9th hour	\$101.49
10th hour	\$101.49
Beyond 10 hours	\$101.49
<b>Sunday/Holiday</b>	
	\$124.52

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - OSB</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Crane with main boom and jib 140' or longer

Four 10 hour days may be scheduled Monday-Thursday or Tuesday-Friday. Work unable to be performed due to weather, Monday-Thursday may be scheduled on Friday.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$64.09	\$83.63	\$103.17

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$81.08
10th hour	\$81.08
Beyond 10 hours	\$81.08
<b>Saturday</b>	
First 8 hours	\$81.08
9th hour	\$98.07
10th hour	\$98.07
Beyond 10 hours	\$98.07
<b>Sunday/Holiday</b>	
	\$98.07

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - RC</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Regular Crane Operator, Job Mechanic, Concrete Pump with Boom

Four 10 hour days may be scheduled Monday-Thursday or Tuesday-Friday. Work not performed due to weather, Monday-Thursday may be scheduled on Friday.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$66.04	\$83.65	\$101.26
Apprentice: 0-999 hours	\$51.13	\$64.18	\$77.22
Apprentice: 1,000-1,999 hours	\$52.99	\$66.96	\$80.94
Apprentice: 2,000-2,999 hours	\$54.86	\$69.77	\$84.68
Apprentice: 3,000-3,999 hours	\$56.72	\$72.56	\$88.40
Apprentice: 4,000-4,999 hours	\$58.59	\$75.36	\$92.14
Apprentice: 5,000-5,999 hours	\$60.44	\$78.15	\$95.84

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$83.65
10th hour	\$83.65
Beyond 10 hours	\$83.65
<b>Saturday</b>	
First 8 hours	\$83.65
9th hour	\$101.26
10th hour	\$101.26
Beyond 10 hours	\$101.26
<b>Sunday/Holiday</b>	
	\$101.26

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - RE</b>	<b>Operating Engineer</b>	<b>05/10/2024</b>

**Classification Description:** Regular Engineer, Hydro Excavator & Remote Controlled Concrete Breaker

Four 10 hour days may be scheduled Monday-Thursday or Tuesday-Friday. Work not performed due to weather, Monday-Thursday may be scheduled on Friday.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$65.07	\$82.26	\$99.44
Apprentice: 1,000-1,999 hours	\$55.19	\$70.02	\$84.84
Apprentice: 1-999 hours	\$53.21	\$67.02	\$80.85
Apprentice: 2,000-2,999 hours	\$57.16	\$72.97	\$88.78
Apprentice: 3,000-3,999 hours	\$59.13	\$75.93	\$92.72
Apprentice: 4,000-4,999 hours	\$61.11	\$78.90	\$96.68
Apprentice: 5,000-5,999 hours	\$63.09	\$81.87	\$100.64

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$82.26
10th hour	\$82.26
Beyond 10 hours	\$82.26
<b>Saturday</b>	
First 8 hours	\$82.26
9th hour	\$99.44
10th hour	\$99.44
Beyond 10 hours	\$99.44
<b>Sunday/Holiday</b>	
	\$99.44

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - Skidsteer Operator</b>	<b>Operating Engineer</b>	<b>06/20/2024</b>

**Classification Description:** Skidsteer forklift when working with fence and Door companies

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$65.69	\$83.17	\$100.65

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$83.17
10th hour	\$83.17
Beyond 10 hours	\$83.17

#### Saturday

First 8 hours	\$83.17
9th hour	\$83.17
10th hour	\$83.17
Beyond 10 hours	\$83.17

<b>Sunday/Holiday</b>	<b>\$100.65</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - TDH, Backhoe</b>	<b>Operating Engineer</b>	<b>06/20/2024</b>

**Classification Description:** Hoisting Operator, Two Drum Hoist, Rubber Tire Backhoe

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$75.41	\$97.11	\$118.82

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$97.11
10th hour	\$97.11
Beyond 10 hours	\$97.11

#### Saturday

First 8 hours	\$97.11
9th hour	\$97.11
10th hour	\$97.11
Beyond 10 hours	\$97.11

<b>Sunday/Holiday</b>	<b>\$118.82</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Marine Construction and Dredging Class I</b>	<b>Operating Engineer - Marine Construction</b>	<b>08/14/2024</b>

**Classification Description:** Craft Foreman, Diver/Wet Tender, Engineer, Engineer (hydraulic dredge), Blaster

Wage Rates	Straight Time	Time and a Half	Double Time	Overtime Provisions
Total Hourly Wage	\$84.30	\$110.05	\$135.80	<b>Over 8-hour day/40-hour week</b>
				9th hour \$110.05
				10th hour \$110.05
				Beyond 10 hours \$110.05
				<b>Saturday</b>
				First 8 hours \$110.05
				9th hour \$110.05
				10th hour \$110.05
				Beyond 10 hours \$110.05
				<b>Sunday/Holiday</b> \$135.80

**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Marine Construction and Dredging Class II A</b>	<b>Operating Engineer - Marine Construction</b>	<b>08/14/2024</b>

**Classification Description:** Crane, Backhoe, Material Handler, All Self-Propelled Drill Rigs, Mechanic/Welder, Asst. Engineer (hydraulic dredge), Leverman (hydraulic dredge), Diver Tender.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$82.80	\$107.80	\$132.80

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$107.80
10th hour	\$107.80
Beyond 10 hours	\$107.80
<b>Saturday</b>	
First 8 hours	\$107.80
9th hour	\$107.80
10th hour	\$107.80
Beyond 10 hours	\$107.80
<b>Sunday/Holiday</b>	
	\$132.80

**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Marine Construction and Dredging Class II B</b>	<b>Operating Engineer - Marine Construction</b>	<b>08/14/2024</b>

**Classification Description:** Friction, Lattice Boom, or Crane License Cert., Endorse Tug or Tow Boat Operator

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$85.80	\$112.30	\$138.80

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$112.30
10th hour	\$112.30
Beyond 10 hours	\$112.30
<b>Saturday</b>	
First 8 hours	\$112.30
9th hour	\$112.30
10th hour	\$112.30
Beyond 10 hours	\$112.30
<b>Sunday/Holiday</b>	
	\$138.80

**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Marine Construction and Dredging Class III</b>	<b>Operating Engineer - Marine Construction</b>	<b>08/14/2024</b>

**Classification Description:** Deck Equipment Operator, (Machineryman), Maintenance of Crane, Tug/Launch Operator, Loader/Dozer on Barge, Deck Machinery, etc.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$78.30	\$101.05	\$123.80

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$101.05
10th hour	\$101.05
Beyond 10 hours	\$101.05

#### Saturday

First 8 hours	\$101.05
9th hour	\$101.05
10th hour	\$101.05
Beyond 10 hours	\$101.05

<b>Sunday/Holiday</b>	<b>\$123.80</b>
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Marine Construction and Dredging Class IV</b>	<b>Operating Engineer - Marine Construction</b>	<b>08/14/2024</b>

**Classification Description:** Deck Equipment Operator, Machineryman/Fireman, (4 equipment units or more), Off Road Trucks, Deck Hand, Tug/Engineer, Crane Maint. (50 ton and under/Backhoe 115,000 lbs. or less), Asst. Tug Operator, Blaster Helper.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$73.35	\$93.85	\$114.35

### Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	\$93.85
10th hour	\$93.85
Beyond 10 hours	\$93.85
Saturday	
First 8 hours	\$93.85
9th hour	\$93.85
10th hour	\$93.85
Beyond 10 hours	\$93.85
Sunday/Holiday	
	\$114.35

**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Crane Operator - 324 B400</b>	<b>Operating Engineer Steel Work</b>	<b>06/20/2024</b>

**Classification Description:** Crane Operator w/400' Boom or Longer w/Oiler

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$81.86	\$106.37	\$130.88

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$106.37
10th hour	\$106.37
Beyond 10 hours	\$106.37
<b>Saturday</b>	
First 8 hours	\$106.37
9th hour	\$106.37
10th hour	\$106.37
Beyond 10 hours	\$106.37
<b>Sunday/Holiday</b>	
	\$130.88

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time over 12 hours Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - 324 A300</b>	<b>Operating Engineer Steel Work</b>	<b>06/20/2024</b>

**Classification Description:** Crane with boom & jib or leads 300' or longer  
Work in excess of 12 per day M-F shall be paid at double time.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$79.36	\$102.78	\$126.20

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$102.78
10th hour	\$102.78
Beyond 10 hours	\$102.78

#### Saturday

First 8 hours	\$102.78
9th hour	\$102.78
10th hour	\$102.78
Beyond 10 hours	\$102.78

<b>Sunday/Holiday</b>	<b>\$126.20</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time over 12 hours Mon-Sat.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - 324 A400</b>	<b>Operating Engineer Steel Work</b>	<b>06/20/2024</b>

**Classification Description:** Crane with boom & jib or leads 400' or longer  
Work in excess of 12 per day M-F shall be paid at double time.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$80.86	\$104.94	\$129.01

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$104.93
10th hour	\$104.93
Beyond 10 hours	\$104.93
<b>Saturday</b>	
First 8 hours	\$104.93
9th hour	\$104.93
10th hour	\$104.93
Beyond 10 hours	\$104.93
<b>Sunday/Holiday</b>	
	\$129.01

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time over 12 hours/day Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - 324 A50</b>	<b>Operating Engineer Steel Work</b>	<b>06/20/2024</b>

**Classification Description:** Tower Crane & Derrick Operator 50' or More

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$77.14	\$99.59	\$122.05

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$99.59
10th hour	\$99.59
Beyond 10 hours	\$99.59

#### Saturday

First 8 hours	\$99.59
9th hour	\$99.59
10th hour	\$99.59
Beyond 10 hours	\$99.59

<b>Sunday/Holiday</b>	<b>\$122.05</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time after 12 Mon-Sat



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - 324 B140</b>	<b>Operating Engineer Steel Work</b>	<b>06/20/2024</b>

**Classification Description:** Crane Operator w/140' of /Boom or Longer w/Oiler

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$78.59	\$101.68	\$124.76

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$101.67
10th hour	\$101.67
Beyond 10 hours	\$101.67

#### Saturday

First 8 hours	\$101.67
9th hour	\$101.67
10th hour	\$101.67
Beyond 10 hours	\$101.67

<b>Sunday/Holiday</b>	<b>\$124.76</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - 324 B220</b>	<b>Operating Engineer Steel Work</b>	<b>06/20/2024</b>

**Classification Description:** Crane Operator w/220' of Boom or Longer w/Oiler

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$78.86	\$100.76	\$123.97

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$102.06
10th hour	\$102.06
Beyond 10 hours	\$102.06
<b>Saturday</b>	
First 8 hours	\$102.06
9th hour	\$102.06
10th hour	\$102.06
Beyond 10 hours	\$102.06
<b>Sunday/Holiday</b>	
	\$125.27

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time after 12 hours Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - 324 B300</b>	<b>Operating Engineer Steel Work</b>	<b>06/20/2024</b>

**Classification Description:** Crane Operator w/300' of Boom or Longer w/Oiler

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$80.36	\$104.22	\$128.07

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$104.22
10th hour	\$104.22
Beyond 10 hours	\$104.22

#### Saturday

First 8 hours	\$104.22
9th hour	\$104.22
10th hour	\$104.22
Beyond 10 hours	\$104.22

<b>Sunday/Holiday</b>	<b>\$128.07</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time over 12 hours Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - 324 B50</b>	<b>Operating Engineer Steel Work</b>	<b>06/20/2024</b>

**Classification Description:** Tower Crane & Derrick Operator 50' or more w/Oiler

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$78.14	\$101.03	\$123.92

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$101.03
10th hour	\$101.03
Beyond 10 hours	\$101.03
<b>Saturday</b>	
First 8 hours	\$101.03
9th hour	\$101.03
10th hour	\$101.03
Beyond 10 hours	\$101.03
<b>Sunday/Holiday</b>	
	\$123.92

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - 324 PRE60118</b>	<b>Operating Engineer Steel Work</b>	<b>06/20/2024</b>

**Classification Description:** Oiler/pumps over 6" \*\*Applies to Operators who have previously worked under this classification PRIOR to 6/1/18\*\*

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$61.22	\$76.76	\$92.29

### Overtime Provisions

#### Over 8-hour day/40-hour

#### week

9th hour	\$76.75
10th hour	\$76.75
Beyond 10 hours	\$76.75

#### Saturday

First 8 hours	\$76.75
9th hour	\$76.75
10th hour	\$76.75
Beyond 10 hours	\$76.75

#### Sunday/Holiday

\$92.29

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer - EF</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Extended boom forklift over 5,000 lb capacity, 1 Drum Hoist

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$72.21	\$92.53	\$112.84

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$92.53
10th hour	\$92.53
Beyond 10 hours	\$112.84

#### Saturday

First 8 hours	\$92.53
9th hour	\$92.53
10th hour	\$92.53
Beyond 10 hours	\$112.84

<b>Sunday/Holiday</b>	<b>\$112.84</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Steel Work - SW120</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Crane w/ 120' boom or longer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$74.14	\$95.24	\$116.33

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$95.24
10th hour	\$95.24
Beyond 10 hours	\$116.33
<b>Saturday</b>	
First 8 hours	\$95.24
9th hour	\$95.24
10th hour	\$95.24
Beyond 10 hours	\$116.33
<b>Sunday/Holiday</b>	
	\$116.33

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Steel Work - SW120</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Crane w/ 120' boom or longer w/ Oiler

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$75.01	\$96.54	\$118.07

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$96.54
10th hour	\$96.54
Beyond 10 hours	\$118.07
<b>Saturday</b>	
First 8 hours	\$96.54
9th hour	\$96.54
10th hour	\$96.54
Beyond 10 hours	\$118.07
<b>Sunday/Holiday</b>	
	\$118.07

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Steel Work - SW140</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Crane w/ 140' boom or longer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$75.19	\$96.80	\$118.41

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$96.80
10th hour	\$96.80
Beyond 10 hours	\$118.41
<b>Saturday</b>	
First 8 hours	\$96.80
9th hour	\$96.80
10th hour	\$96.80
Beyond 10 hours	\$118.41
<b>Sunday/Holiday</b>	
	\$118.41

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Steel Work - SW140</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Crane w/ 140' boom or longer W/ Oiler

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$76.19	\$98.24	\$120.28

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$98.24
10th hour	\$98.24
Beyond 10 hours	\$120.28

#### Saturday

First 8 hours	\$98.24
9th hour	\$98.24
10th hour	\$98.24
Beyond 10 hours	\$120.28

#### Sunday/Holiday

\$120.28

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Steel Work - SW220</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Boom & Jib 220' or longer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$76.46	\$98.62	\$120.78

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$98.62
10th hour	\$98.62
Beyond 10 hours	\$120.78
<b>Saturday</b>	
First 8 hours	\$98.62
9th hour	\$98.62
10th hour	\$98.62
Beyond 10 hours	\$120.78
<b>Sunday/Holiday</b>	
	\$120.78

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Steel Work - SW220</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Crane w/ 220' boom or longer w/ Oiler

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$74.01	\$95.11	\$116.20

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$95.11
10th hour	\$95.11
Beyond 10 hours	\$116.20
<b>Saturday</b>	
First 8 hours	\$95.11
9th hour	\$95.11
10th hour	\$95.11
Beyond 10 hours	\$116.20
<b>Sunday/Holiday</b>	
	\$116.20

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Steel Work - SW300</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Boom & Jib 300' or longer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$76.96	\$99.34	\$121.72

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$99.34
10th hour	\$99.34
Beyond 10 hours	\$121.72
<b>Saturday</b>	
First 8 hours	\$99.34
9th hour	\$99.34
10th hour	\$99.34
Beyond 10 hours	\$121.72
<b>Sunday/Holiday</b>	
	\$121.72

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Steel Work - SW300</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Crane w/ 300' boom or longer w/ Oiler

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$77.96	\$100.78	\$123.59

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$100.78
10th hour	\$100.78
Beyond 10 hours	\$123.59

#### Saturday

First 8 hours	\$100.78
9th hour	\$100.78
10th hour	\$100.78
Beyond 10 hours	\$123.59

<b>Sunday/Holiday</b>	<b>\$123.59</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Steel Work - SW400</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Boom & Jib 400' or longer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$78.46	\$101.49	\$124.52

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$101.49
10th hour	\$101.49
Beyond 10 hours	\$124.52
<b>Saturday</b>	
First 8 hours	\$101.49
9th hour	\$101.49
10th hour	\$101.49
Beyond 10 hours	\$124.52
<b>Sunday/Holiday</b>	
	\$124.52

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Steel Work - SW400</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Crane w/ 400' boom or longer w/ Oiler

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$79.46	\$102.93	\$126.39

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$102.93
10th hour	\$102.93
Beyond 10 hours	\$126.39
<b>Saturday</b>	
First 8 hours	\$102.93
9th hour	\$102.93
10th hour	\$102.93
Beyond 10 hours	\$126.39
<b>Sunday/Holiday</b>	
	\$126.39

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Steel Work - SWCO</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Crane Operator, Job Mechanic, 3 Drum Hoist & Excavator

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$73.65	\$94.59	\$115.53
Apprentice: 0-999 hours	\$59.16	\$76.02	\$92.88
Apprentice: 1,000-1,999 hours	\$61.56	\$79.63	\$97.68
Apprentice: 2,000-2,999 hours	\$63.96	\$83.22	\$102.48
Apprentice: 3,000-3,999 hours	\$66.38	\$84.18	\$101.98
Apprentice: 4,000-4,999 hours	\$68.78	\$90.46	\$112.12
Apprentice: 5,000 hours	\$71.20	\$91.09	\$110.99

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$94.59
10th hour	\$94.59
Beyond 10 hours	\$115.53
<b>Saturday</b>	
First 8 hours	\$94.59
9th hour	\$94.59
10th hour	\$94.59
Beyond 10 hours	\$115.53
<b>Sunday/Holiday</b>	
	\$115.53

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Steel Work - SWCO-O</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Crane Operator w/ Oiler

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$74.65	\$96.03	\$117.40

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$96.03
10th hour	\$96.03
Beyond 10 hours	\$117.40
<b>Saturday</b>	
First 8 hours	\$96.03
9th hour	\$96.03
10th hour	\$96.03
Beyond 10 hours	\$117.40
<b>Sunday/Holiday</b>	
	\$117.40

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Steel Work - SWCW</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Compressor or Welder Operator

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$37.03	\$49.48	\$61.92

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$47.85
10th hour	\$47.85
Beyond 10 hours	\$58.67
<b>Saturday</b>	
First 8 hours	\$47.85
9th hour	\$47.85
10th hour	\$47.85
Beyond 10 hours	\$58.67
<b>Sunday/Holiday</b>	
	\$58.67

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Steel Work - SWHO</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Hoisting Operator, 2 Drum Hoist, & Rubber Tire Backhoe

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$73.01	\$93.67	\$114.33

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$93.67
10th hour	\$93.67
Beyond 10 hours	\$114.33
<b>Saturday</b>	
First 8 hours	\$93.67
9th hour	\$93.67
10th hour	\$93.67
Beyond 10 hours	\$114.33
<b>Sunday/Holiday</b>	
	\$114.33

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Steel Work - SWO</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Oiler

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$53.42	\$67.61	\$81.80

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$65.74
10th hour	\$65.74
Beyond 10 hours	\$78.06

#### Saturday

First 8 hours	\$65.74
9th hour	\$65.74
10th hour	\$65.74
Beyond 10 hours	\$78.06

<b>Sunday/Holiday</b>	<b>\$78.06</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Steel Work - SWTD50</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Tower Crane & Derrick where work is 50' or more

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$74.74	\$96.16	\$117.57

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$96.16
10th hour	\$96.16
Beyond 10 hours	\$117.57
<b>Saturday</b>	
First 8 hours	\$96.16
9th hour	\$96.16
10th hour	\$96.16
Beyond 10 hours	\$117.57
<b>Sunday/Holiday</b>	
	\$117.57

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Steel Work - SWTD50 O</b>	<b>Operating Engineer Steel Work</b>	<b>05/10/2024</b>

**Classification Description:** Tower Crane & Derrick 50' or more w/ Oiler

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$75.84	\$97.69	\$119.54

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$97.69
10th hour	\$97.69
Beyond 10 hours	\$119.54
<b>Saturday</b>	
First 8 hours	\$97.69
9th hour	\$97.69
10th hour	\$97.69
Beyond 10 hours	\$119.54
<b>Sunday/Holiday</b>	
	\$119.54

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Underground - A1-UC1</b>	<b>Operating Engineer Underground</b>	<b>05/10/2024</b>

**Classification Description:** Class I Equipment

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$66.39	\$84.19	\$101.98
Apprentice: 0-999 hours	\$52.76	\$67.08	\$81.41
Apprentice: 1,000-1,999 hours	\$54.80	\$70.14	\$85.49
Apprentice: 2,000-2,999 hours	\$56.85	\$73.22	\$89.59
Apprentice: 3,000-3,999 hours	\$58.90	\$76.30	\$93.69
Apprentice: 4,000-4,999 hours	\$60.94	\$79.35	\$97.77
Apprentice: 5,000-5,999 hours	\$62.99	\$82.43	\$101.87

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$84.19
10th hour	\$84.19
Beyond 10 hours	\$84.19
<b>Saturday</b>	
First 8 hours	\$84.19
9th hour	\$84.19
10th hour	\$84.19
Beyond 10 hours	\$84.19
<b>Sunday/Holiday</b>	
	\$101.98

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Underground - A1-UC2</b>	<b>Operating Engineer Underground</b>	<b>05/10/2024</b>

**Classification Description:** Class II Equipment

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$61.68	\$77.42	\$93.16

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$77.42
10th hour	\$77.42
Beyond 10 hours	\$77.42
<b>Saturday</b>	
First 8 hours	\$77.42
9th hour	\$77.42
10th hour	\$77.42
Beyond 10 hours	\$77.42
<b>Sunday/Holiday</b>	
	\$93.16

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Underground - A1-UC3</b>	<b>Operating Engineer Underground</b>	<b>05/10/2024</b>

**Classification Description:** Class III Equipment

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$60.93	\$76.35	\$91.77

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$76.35
10th hour	\$76.35
Beyond 10 hours	\$76.35

#### Saturday

First 8 hours	\$76.35
9th hour	\$76.35
10th hour	\$76.35
Beyond 10 hours	\$76.35

<b>Sunday/Holiday</b>	<b>\$91.77</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Underground - A1-UC4</b>	<b>Operating Engineer Underground</b>	<b>05/10/2024</b>

**Classification Description:** Class IV Equipment

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$60.36	\$75.54	\$90.71

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$75.54
10th hour	\$75.54
Beyond 10 hours	\$75.54
<b>Saturday</b>	
First 8 hours	\$75.54
9th hour	\$75.54
10th hour	\$75.54
Beyond 10 hours	\$75.54
<b>Sunday/Holiday</b>	
	\$90.71

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Underground - A2-UC1</b>	<b>Operating Engineer Underground</b>	<b>05/10/2024</b>

**Classification Description:** Class I Equipment - Backfiller Tamper, Backhoe, Batch Plant Operator, Clamshell, Concrete Paver 2 drums or larger, Conveyor Loader Euclid type, Crane (crawler, truck type or pile driving), Dozer, Dragline, Elevating Grader, endloader, gradall, grader, hyd

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$65.17	\$82.61	\$100.05
Apprentice: 0-999 hours	\$49.19	\$61.74	\$74.29
Apprentice: 1,000-1,999 hours	\$50.99	\$64.44	\$77.89
Apprentice: 2,000-2,999 hours	\$52.78	\$67.12	\$81.47
Apprentice: 3,000-3,999 hours	\$54.58	\$69.82	\$85.07
Apprentice: 4,000-4,999 hours	\$56.37	\$72.51	\$88.65
Apprentice: 5,000-5,999 hours	\$58.16	\$75.19	\$92.23

### Overtime Provisions

Over 8-hour day/40-hour week	
9th hour	\$82.61
10th hour	\$82.61
Beyond 10 hours	\$82.61
Saturday	
First 8 hours	\$82.61
9th hour	\$82.61
10th hour	\$82.61
Beyond 10 hours	\$82.61
Sunday/Holiday	
	\$100.05

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Underground - A2-UC2</b>	<b>Operating Engineer Underground</b>	<b>05/10/2024</b>

**Classification Description:** Class II Equipment - Boom Truck, Crusher, Hoist, Pump 6 inch discharge or larger, side boom tractor, Tractor (pneu-tired other than backhoe or front end loader), Trencher 8 ft. digging capacity and smaller, Vac Truck

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$60.42	\$75.80	\$91.17

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$75.80
10th hour	\$75.80
Beyond 10 hours	\$75.80

#### Saturday

First 8 hours	\$75.80
9th hour	\$75.80
10th hour	\$75.80
Beyond 10 hours	\$75.80

<b>Sunday/Holiday</b>	<b>\$91.17</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Underground - A2-UC3</b>	<b>Operating Engineer Underground</b>	<b>05/10/2024</b>

**Classification Description:** Class III Equipment - Air Compressors 600 cfm or larger, Air Compressors 2 or more less than 600 dfm, Boom Truck non-swinging non-powered type boom, Concrete Breaker self-propelled or truck mounted, Concrete paver 1 drum 1/2 yd. or larger, Elevator other

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$59.59	\$74.61	\$89.62

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$74.61
10th hour	\$74.61
Beyond 10 hours	\$74.61
<b>Saturday</b>	
First 8 hours	\$74.61
9th hour	\$74.61
10th hour	\$74.61
Beyond 10 hours	\$74.61
<b>Sunday/Holiday</b>	
	\$89.62

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Operating Engineer Underground - A2-UC4</b>	<b>Operating Engineer Underground</b>	<b>05/10/2024</b>

**Classification Description:** Class IV Equipment - Boiler, Concrete Saw 40 hp or over, curing machine self propelled, end dumps, extend a boom forklift, farm tractor with attachment, finishing machine concrete, firemen, hydraulic pipe pushing machine, mulching equipment, oiler, pumps

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$58.93	\$73.66	\$88.38

### Overtime Provisions

#### Over 8-hour day/40-hour

##### week

9th hour	\$73.66
10th hour	\$73.66
Beyond 10 hours	\$73.66

#### Saturday

First 8 hours	\$73.66
9th hour	\$73.66
10th hour	\$73.66
Beyond 10 hours	\$73.66

#### Sunday/Holiday

\$88.38

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Painter</b>	<b>Painter</b>	<b>05/10/2024</b>

**Classification Description:** Painter

4 10 hour days allowed on consecutive days, Monday-Friday. Make up day allowed M-F for work missed due to holidays or inclement weather.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$41.48	\$53.64	\$65.79
Apprentice: 1st year	\$29.33	\$35.41	\$41.49
Apprentice: 2nd year	\$31.76	\$39.05	\$46.35
Apprentice: 3rd year	\$35.40	\$44.51	\$53.63
Apprentice: 4th year	\$39.05	\$49.99	\$60.93

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$53.64
10th hour	\$53.64
Beyond 10 hours	\$53.64
<b>Saturday</b>	
First 8 hours	\$53.64
9th hour	\$53.64
10th hour	\$53.64
Beyond 10 hours	\$53.64
<b>Sunday/Holiday</b>	
	\$65.79

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

Monday or Friday



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Painter - PT</b>	<b>Painter</b>	<b>05/10/2024</b>

**Classification Description:** Painter

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$50.12	\$65.05	\$79.98
Apprentice: 1st period	\$35.19	\$42.41	\$49.87
Apprentice: 2nd period	\$38.18	\$46.89	\$55.85
Apprentice: 3rd period	\$41.16	\$51.36	\$61.81
Apprentice: 4th period	\$45.64	\$58.08	\$70.77

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$65.05
10th hour	\$65.05
Beyond 10 hours	\$65.05
<b>Saturday</b>	
First 8 hours	\$65.05
9th hour	\$65.05
10th hour	\$65.05
Beyond 10 hours	\$65.05
<b>Sunday/Holiday</b>	
	\$79.98

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Pipe and Manhole Rehab - 1</b>	<b>Pipe and Manhole Rehab</b>	<b>05/10/2024</b>

**Classification Description:** General Laborer for rehab work or normal cleaning and cctv work-top man, scaffold man, CCTV assistant, jetter-vac assistant

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$28.20	\$38.20	\$48.19

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$38.20
10th hour	\$38.20
Beyond 10 hours	\$38.20

#### Saturday

First 8 hours	\$38.20
9th hour	\$38.20
10th hour	\$38.20
Beyond 10 hours	\$38.20

<b>Sunday/Holiday</b>	<b>\$38.20</b>
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Pipe and Manhole Rehab - 2</b>	<b>Pipe and Manhole Rehab</b>	<b>05/10/2024</b>

**Classification Description:** Tap cutter/CCTV Tech/Grout Equipment Operator: unit driver and operator of CCTV; grouting equipment and tap cutting equipment

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$32.70	\$44.95	\$57.19

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$44.95
10th hour	\$44.95
Beyond 10 hours	\$44.95

#### Saturday

First 8 hours	\$44.95
9th hour	\$44.95
10th hour	\$44.95
Beyond 10 hours	\$44.95

<b>Sunday/Holiday</b>	<b>\$44.95</b>
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Pipe and Manhole Rehab - 3</b>	<b>Pipe and Manhole Rehab</b>	<b>05/10/2024</b>

**Classification Description:** CCTV Technician/Combo Unit Operator: unit driver and operator of cctv unit or combo unit in connection with normal cleaning and televising work

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$31.45	\$43.07	\$54.69

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$43.07
10th hour	\$43.07
Beyond 10 hours	\$43.07

#### Saturday

First 8 hours	\$43.07
9th hour	\$43.07
10th hour	\$43.07
Beyond 10 hours	\$43.07

<b>Sunday/Holiday</b>	<b>\$43.07</b>
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Pipe and Manhole Rehab - 4</b>	<b>Pipe and Manhole Rehab</b>	<b>05/10/2024</b>

**Classification Description:** Boiler Operator: unit driver and operator of steam/water heater units and all ancillary equipment associated

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$33.20	\$45.70	\$58.19

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$45.70
10th hour	\$45.70
Beyond 10 hours	\$45.70

#### Saturday

First 8 hours	\$45.70
9th hour	\$45.70
10th hour	\$45.70
Beyond 10 hours	\$45.70

<b>Sunday/Holiday</b>	<b>\$45.70</b>
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Pipe and Manhole Rehab - 5</b>	<b>Pipe and Manhole Rehab</b>	<b>05/10/2024</b>

**Classification Description:** Combo Unit driver & Jetter-Vac Operator

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$33.20	\$45.70	\$58.19

#### Overtime Provisions

##### Over 8-hour day/40-hour week

9th hour	\$45.70
10th hour	\$45.70
Beyond 10 hours	\$45.70

##### Saturday

First 8 hours	\$45.70
9th hour	\$45.70
10th hour	\$45.70
Beyond 10 hours	\$45.70

<b>Sunday/Holiday</b>	<b>\$45.70</b>
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Pipe and Manhole Rehab - 6</b>	<b>Pipe and Manhole Rehab</b>	<b>05/10/2024</b>

**Classification Description:** Pipe Bursting & Slip-lining Equipment Operator

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$34.20	\$47.20	\$60.19

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$47.20
10th hour	\$47.20
Beyond 10 hours	\$47.20

#### Saturday

First 8 hours	\$47.20
9th hour	\$47.20
10th hour	\$47.20
Beyond 10 hours	\$47.20

#### Sunday/Holiday

\$47.20

**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Plasterer - P-G</b>	<b>Plasterer</b>	<b>05/10/2024</b>

**Classification Description:** Plasterer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$42.99	\$56.74	\$70.48
Apprentice: 1st Year	\$33.37	\$42.30	\$51.24
Apprentice: 2nd Year	\$36.12	\$46.43	\$56.74
Apprentice: 3rd Year	\$38.87	\$50.56	\$62.24

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$56.74
10th hour	\$56.74
Beyond 10 hours	\$56.74

#### Saturday

First 8 hours	\$56.74
9th hour	\$56.74
10th hour	\$56.74
Beyond 10 hours	\$56.74

<b>Sunday/Holiday</b>	<b>\$70.48</b>
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Plasterer - P-S</b>	<b>Plasterer</b>	<b>05/10/2024</b>

**Classification Description:** Plasterer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$46.28	\$61.67	\$77.06
Apprentice: 1st Year	\$35.51	\$45.52	\$55.52
Apprentice: 2nd Year	\$38.58	\$50.12	\$61.66
Apprentice: 3rd Year	\$41.66	\$54.74	\$67.82

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$61.67
10th hour	\$61.67
Beyond 10 hours	\$61.67

#### Saturday

First 8 hours	\$61.67
9th hour	\$61.67
10th hour	\$61.67
Beyond 10 hours	\$61.67

<b>Sunday/Holiday</b>	<b>\$77.06</b>
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Plasterer - P-TC</b>	<b>Plasterer</b>	<b>05/10/2024</b>

**Classification Description:** Plasterer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$41.14	\$54.19	\$67.23
Apprentice: 1st Year	\$32.01	\$40.49	\$48.97
Apprentice: 2nd Year	\$34.62	\$44.41	\$54.19
Apprentice: 3rd Year	\$37.23	\$48.32	\$59.41

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$54.19
10th hour	\$54.19
Beyond 10 hours	\$54.19

#### Saturday

First 8 hours	\$54.19
9th hour	\$54.19
10th hour	\$54.19
Beyond 10 hours	\$54.19

<b>Sunday/Holiday</b>	<b>\$67.23</b>
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Plasterer - P-UP</b>	<b>Plasterer</b>	<b>05/10/2024</b>

**Classification Description:** Plasterer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$45.79	\$60.94	\$76.08
Apprentice: 1st Year	\$35.19	\$45.04	\$54.88
Apprentice: 2nd Year	\$38.22	\$49.58	\$60.94
Apprentice: 3rd Year	\$41.25	\$54.12	\$67.00

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$60.94
10th hour	\$60.94
Beyond 10 hours	\$60.94

#### Saturday

First 8 hours	\$60.94
9th hour	\$60.94
10th hour	\$60.94
Beyond 10 hours	\$60.94

<b>Sunday/Holiday</b>	<b>\$76.08</b>
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Plumber, Pipefitter, Welder - Z1</b>	<b>Plumber, Pipefitter, Welder</b>	<b>05/10/2024</b>

**Classification Description:** Plumber, Pipefitter, Welder

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$65.58	\$87.33	\$109.08
Apprentice: 1st 6 months	\$32.54	\$40.57	\$48.59
Apprentice: 2nd 6 months	\$34.69	\$43.52	\$52.35
Apprentice: 3rd 6 months	\$36.84	\$46.47	\$56.10
Apprentice: 4th 6 months	\$38.99	\$49.42	\$59.85
Apprentice: 5th 6 months	\$41.15	\$52.38	\$63.62
Apprentice: 6th 6 months	\$43.31	\$55.35	\$67.39
Apprentice: 7th 6 months	\$45.46	\$58.30	\$71.14
Apprentice: 8th 6 months	\$47.61	\$61.25	\$74.89
Apprentice: 9th & 10th 6 months	\$49.77	\$64.22	\$78.66

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$87.33
10th hour	\$87.33
Beyond 10 hours	\$87.33
<b>Saturday</b>	
First 8 hours	\$87.33
9th hour	\$87.33
10th hour	\$87.33
Beyond 10 hours	\$87.33
<b>Sunday/Holiday</b>	
	\$109.08

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

4 tens allowed M-Th; Friday makeup day

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Roofer - MMA</b>	<b>Roofer</b>	<b>05/10/2024</b>

**Classification Description:** Commercial Roofer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$49.76	\$63.95	\$78.14
Apprentice: Apprentice 1	\$35.27	\$42.22	\$49.16
Apprentice: Apprentice 2	\$36.91	\$44.68	\$52.44
Apprentice: Apprentice 3	\$36.31	\$43.78	\$51.24
Apprentice: Apprentice 4	\$37.93	\$46.20	\$54.48
Apprentice: Apprentice 5	\$34.45	\$40.98	\$47.52
Apprentice: Apprentice 6	\$41.18	\$51.08	\$60.98
Apprentice: Apprentice 7	\$42.51	\$53.08	\$63.64
Apprentice: Apprentice 8	\$44.42	\$55.94	\$67.46

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$63.95
10th hour	\$63.95
Beyond 10 hours	\$63.95
<b>Saturday</b>	
First 8 hours	\$63.95
9th hour	\$63.95
10th hour	\$63.95
Beyond 10 hours	\$63.95
<b>Sunday/Holiday</b>	
	\$78.14

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Sewer Relining Operator - Class I</b>	<b>Sewer Relining</b>	<b>05/10/2024</b>

**Classification Description:** Class I-Operator of audio visual CCTV system including remote in-ground cutter and other equipment used in conjunction with CCTV system.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$52.84	\$69.23	\$85.62
Apprentice: 0-6 months	\$41.58	\$54.66	\$67.74
Apprentice: 6-12 months	\$45.31	\$60.26	\$75.20

Overtime Provisions	
<b>Over 8-hour day/40-hour week</b>	
9th hour	\$69.23
10th hour	\$69.23
Beyond 10 hours	\$69.23
<b>Saturday</b>	
First 8 hours	\$69.23
9th hour	\$69.23
10th hour	\$69.23
Beyond 10 hours	\$69.23
<b>Sunday/Holiday</b>	<b>\$85.62</b>

**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Sewer Relining Operator - Class II</b>	<b>Sewer Relining</b>	<b>05/10/2024</b>

**Classification Description:** Class II-Operator of hot water heaters and circulation system; water jetters; and vacuum and mechanical debris removal systems and those assisting.

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$50.80	\$68.49	\$86.18

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$66.30
10th hour	\$66.30
Beyond 10 hours	\$66.30

#### Saturday

First 8 hours	\$66.30
9th hour	\$66.30
10th hour	\$66.30
Beyond 10 hours	\$66.30

<b>Sunday/Holiday</b>	<b>\$81.79</b>
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**Four 10-hour days allowed?** - No

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Sheet Metal Worker</b>	<b>Sheet Metal Worker</b>	<b>05/10/2024</b>

**Classification Description:** Sheet Metal Worker  
4 10s allowed as consecutive days, M-Th or T-F

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$55.78	\$70.79	\$85.80
Apprentice: 1st year	\$23.74	\$31.25	\$38.75
Apprentice: 2nd year	\$28.99	\$38.00	\$47.00
Apprentice: 3rd year	\$34.26	\$44.77	\$55.27
Apprentice: 4th year	\$39.53	\$51.54	\$63.55

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$70.79
10th hour	\$70.79
Beyond 10 hours	\$85.80

#### Saturday

First 8 hours	\$70.79
9th hour	\$70.79
10th hour	\$70.79
Beyond 10 hours	\$85.80

<b>Sunday/Holiday</b>	<b>\$85.80</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes



# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Sprinkler Fitter</b>	<b>Sprinkler Fitter</b>	<b>05/10/2024</b>

**Classification Description:** Sprinkler Fitter

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$60.34	\$78.45	\$96.56
Apprentice: Class 1	\$24.57	\$32.72	\$40.87
Apprentice: Class 10	\$52.07	\$68.37	\$84.67
Apprentice: Class 2	\$26.38	\$35.43	\$44.49
Apprentice: Class 3	\$39.14	\$49.10	\$59.06
Apprentice: Class 4	\$40.95	\$51.82	\$62.68
Apprentice: Class 5	\$43.01	\$54.78	\$66.55
Apprentice: Class 6	\$44.82	\$57.49	\$70.17
Apprentice: Class 7	\$46.63	\$60.21	\$73.79
Apprentice: Class 8	\$48.45	\$62.94	\$77.43
Apprentice: Class 9	\$50.26	\$65.65	\$81.05

### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$78.45
10th hour	\$78.45
Beyond 10 hours	\$78.45
<b>Saturday</b>	
First 8 hours	\$78.45
9th hour	\$78.45
10th hour	\$78.45
Beyond 10 hours	\$78.45
<b>Sunday/Holiday</b>	
	\$96.56

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Tower Technician</b>	<b>Tower Technician</b>	<b>05/13/2024</b>

**Classification Description:**

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$67.89	\$98.24	\$128.58

#### Overtime Provisions

<b>Over 8-hour day/40-hour week</b>	
9th hour	\$98.24
10th hour	\$98.24
Beyond 10 hours	\$98.24
<b>Saturday</b>	
First 8 hours	\$98.24
9th hour	\$98.24
10th hour	\$98.24
Beyond 10 hours	\$98.24
<b>Sunday/Holiday</b>	
	\$128.58

**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Truck Driver - RB1</b>	<b>Truck Driver</b>	<b>05/10/2024</b>

**Classification Description:** on all trucks of 8 cubic yard capacity or less (except dump trucks of 8 cubic yard capacity or over, tandem axle trucks, transit mix and semis, euclid type equipment, double bottoms and low boys)

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$53.95	\$70.30	\$86.64

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$69.32
10th hour	\$69.32
Beyond 10 hours	\$69.32

#### Saturday

First 8 hours	\$69.32
9th hour	\$69.32
10th hour	\$69.32
Beyond 10 hours	\$69.32

<b>Sunday/Holiday</b>	<b>\$84.69</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Truck Driver - RB1A</b>	<b>Truck Driver</b>	<b>05/10/2024</b>

**Classification Description:** of all trucks of 8 cubic yard capacity or over semi, tractor trailer

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$54.10	\$70.52	\$86.94

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$69.55
10th hour	\$69.55
Beyond 10 hours	\$69.55

#### Saturday

First 8 hours	\$69.55
9th hour	\$69.55
10th hour	\$69.55
Beyond 10 hours	\$69.55

<b>Sunday/Holiday</b>	<b>\$84.99</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Truck Driver - RB1B</b>	<b>Truck Driver</b>	<b>05/10/2024</b>

**Classification Description:** on euclid type equipment, Pole drier, lowboy, doubles, fuel, bus, water

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$54.20	\$69.70	\$85.19

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$69.70
10th hour	\$69.70
Beyond 10 hours	\$69.70

#### Saturday

First 8 hours	\$69.70
9th hour	\$69.70
10th hour	\$69.70
Beyond 10 hours	\$69.70

<b>Sunday/Holiday</b>	<b>\$85.19</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - Yes

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Truck Driver - RB2</b>	<b>Truck Driver</b>	<b>05/10/2024</b>

**Classification Description:** of all trucks of 8 cubic yd capacity or over

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$44.10	\$48.81	\$49.80

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$56.55
10th hour	\$56.55
Beyond 10 hours	\$56.55

#### Saturday

First 8 hours	\$56.55
9th hour	\$56.55
10th hour	\$56.55
Beyond 10 hours	\$56.55

<b>Sunday/Holiday</b>	<b>\$56.55</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Truck Driver - RB2A</b>	<b>Truck Driver</b>	<b>05/10/2024</b>

**Classification Description:** of all trucks of 8 cubic yard capacity or less (except dump trucks of 8 cubic yard capacity or over, tandem axle trucks, transit mix and semis, euclid type equipment, double bottoms and low boys)

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$44.00	\$48.66	\$49.60

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$56.40
10th hour	\$56.40
Beyond 10 hours	\$56.40

#### Saturday

First 8 hours	\$56.40
9th hour	\$56.40
10th hour	\$56.40
Beyond 10 hours	\$56.40

<b>Sunday/Holiday</b>	<b>\$56.40</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

### Midland

Classification Name	Category	Last Updated
<b>Truck Driver - RB2B</b>	<b>Truck Driver</b>	<b>05/10/2024</b>

**Classification Description:** on euclid type equipment

Wage Rates	Straight Time	Time and a Half	Double Time
Total Hourly Wage	\$44.25	\$49.04	\$0.00

### Overtime Provisions

#### Over 8-hour day/40-hour week

9th hour	\$56.78
10th hour	\$56.78
Beyond 10 hours	\$56.78

#### Saturday

First 8 hours	\$56.78
9th hour	\$56.78
10th hour	\$56.78
Beyond 10 hours	\$56.78

<b>Sunday/Holiday</b>	<b>\$56.78</b>
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**Four 10-hour days allowed?** - Yes

**Make Up Day Allowed?** - No



**PART 1 – GENERAL**

**1.01 DESCRIPTION**

A. Work included:

1. Throughout the Contract Documents, reference is made to codes and standards which establish qualities and type of workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics.
2. Where materials or workmanship are required by these Contract Documents to meet or exceed the specifically named code or standard, it is the Contractor's responsibility to provide materials and workmanship that meet or exceed the specifically names code or standard.
3. It is also the Contractor's responsibility, when so required by the Contract Documents or by written request from the Owner, to deliver to the Owner all required proof that the materials or workmanship, or both, meet or exceed the requirements of the specifically named code or standard. Such proof shall be in the form requested in writing by the Owner, and generally will be required to be copies of a certified report of tests conducted by a testing agency approved for that purpose by the Owner.

B. Related Work Described Elsewhere:

1. Specific naming of codes or standards occurs on the Drawings and other Sections of these specifications.

**1.02 QUALITY ASSURANCE**

A. Familiarity with Pertinent Codes and Standards.

1. In procuring all items used in this Work, it is the Contractor's responsibility to verify the detailed requirements of the specifically named codes and standards and to verify that the items procured for use in this Work meet or exceed the specified requirements.

B. Rejection of Non-Complying Items.

1. The Owner reserves the right to reject items incorporated into the Work which fail to meet the specified minimum requirements.
2. The Owner further reserves the right and without prejudice to other recourse the Owner may take, to accept non-complying items subject to an adjustment in the Contract Amount as approved by the Owner.

C. Applicable standards listed in these Specifications include, but are not necessarily limited to, standards promulgated by the following agencies and organizations:

1. AASHTO – American Association of State Highway and Transportation Officials, 341 National Press Building, Washington, D.C. 20004.

ACI – American Concrete Institute, Box 19150, Redford Station, Detroit, Michigan 48219

AISC – American Institute of Steel Construction, Inc., 1221 Avenue of the Americans, New York, New York, 10020.

ANSI – American National Standards Institute (successor to USASI and ASAO), 1430 Broadway, New York, New York 10018.

ASTM – American Society for Testing Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

AWS – American Welding Society, Inc., 2501 N.W. 7<sup>th</sup> Street, Miami, Florida 33125.

AWWA – American Water Works Association, Inc., 6666 West Quincy Avenue, Denver, Colorado 80235.

BOCA – Building Officials Code Administrators International, Inc. 17926 South Halsted Street, Homewood, Illinois 60460.

CRSI – Concrete Reinforcing Steel Institute, 228 North LaSalle Street, Chicago, Illinois 60610.

CS – Commercial Standard of NBS, U.S. Department of Commerce, Government Printing Office, Washington, D.C. 20402.

FGMA – Flat Glass Marketing Association, 3310 Harrison, Topeka, Kansas 66611.

State of Michigan Fire Marshall Bulletin 412.0.

NAAMM – The National Association of Architectural Metal Manufacturers, 1033 South Boulevard, Oak Park, Illinois 60302.

NEC – National Electric Code (see NFPA).

NEMA – National Electrical Manufacturer’s Association, 155 East 44<sup>th</sup> Street, New York, New York 10017.

NFPA – National Fire Protection Association, 470 Atlantic Avenue, Boston, Massachusetts 02210.

SDI – Steel Deck Institute, 135 Addison Avenue, Elmhurst, Illinois 60125.

SSPC – Steel Structures Painting Council, 4400 Fifty Avenue, Pittsburgh, Pennsylvania 15213.

TCA – Tile Council of America, Inc., P.O. Box 326, Princeton, New Jersey 08540.

UL – Underwriters’ Laboratories, Inc., 207 East Ohio Street, Chicago, Illinois 60611.

Fed. Specs, and Fed. Standards: Specifications Sales (3FRI), Building 197, Washington Navy Yard, General Service Administration, Washington, D.C. 20407.

UBC – Uniform Building Code, International Conference of Building Officials, 5360 South Workman Mill Road, Whittier, California 90601.

**END OF SECTION 01085**

**PART 1 – GENERAL**

**1.01 ALTERNATES**

- A. This section identifies each alternate by number and describes the basic changes to be incorporated into the work, only when that alternate is made a part of the Work by specific provisions in the Owner-Contractor Agreement.
- B. Related Requirements in other parts of the Project Manual:
  - 1. Method of quotation of the cost of each alternate, and the basis of the Owner’s acceptance of alternates: Bidding Documents
  - 2. Incorporation of alternates into the Work: Owner-Contractor Agreement.
- C. Related Requirements Specified in Other Sections:
  - 1. Part 1.01: Description of Work
  - 2. Sections of the Specifications as listed under the respective Alternates.
- D. Referenced sections of specifications stipulate pertinent requirements for products and methods to achieve the work stipulated under each Alternate.
- E. Coordinate pertinent related work and modify surrounding work as required to properly integrate the work under each Alternate and to provide the complete construction required by the Contract Documents.
- F. The Owner reserves the right to accept the proposed amount for any alternate at any time during the active construction of the project. If the Owner elects to accept an alternate after the Owner-Contractor contract has been issued, the work shall be added to the contract by change order.

**1.02 DESCRIPTION OF ALTERNATES**

[See Proposal Form](#)

**END OF SECTION 01100**

**PART 1 – GENERAL**

**1.01 PRE-CONSTRUCTION MEETINGS**

- A. Prior to the initiation of on-site activity, a meeting will be held with all Bid Division Contractors for the purpose of planning, scheduling, and coordinating an orderly initiation of on-site construction activity. Attendance at this meeting is required of all Contractors. The Construction Manager will advise all Contractors of the time and location of this meeting.
- B. A representative of the contractor authorized to enact decisions regarding schedule, manpower commitments and costs must attend the pre-construction meeting.

**1.02 PRE-CONSTRUCTION CONFERENCES**

- A. Each Contractor is required to meet on the site with the Construction Manager prior to beginning their Work. The purpose of this meeting is to review the intent of the Contract Documents as they pertain to the Contractor's Work, and to integrate the initiation of that Work with the Work already in progress on the site.

**1.03 PROGRESS AND PROJECT MEETINGS**

- A. Contractors active on-site shall be required to attend Progress and Project Meetings when called by the Construction Manager. These meetings are for the purpose of planning and assessing construction progress and for discussing problems of mutual concern.
- B. It is mandatory that any contractor actively engaged in work on site shall be required to have a representative of the contractor authorized and empowered to enact decisions regarding schedule, manpower commitments and costs and their superintendent attend these meetings, or the Owner may withhold the Contractor's payment.
- C. All decisions, instructions, and interpretations given by the Owner or their designated representatives at these meetings shall be conclusive and shall be binding on the Contractors.
- D. The proceedings of such meetings will be recorded and posted. Copies will be forwarded to Contractors.

**END OF SECTION 01200**

**PART 1 – GENERAL**

**1.01**

- A. Contractor shall be solely responsible to submit all shop drawings, product data, and samples, or other items required by the Construction Documents hereinafter referred to as submittals to the Construction Manager for processing and forwarding to the Architect for their review.
- B. Submittals shall be delivered to the Construction Manager's office in accordance with the procedures and dates required by the Construction Documents and/or this section, Section 01300, of the project manual (specifications) whichever is more stringent in its requirement. All submittals shall be provided to the Construction Manager within 30 calendar days of receipt of the signed contract or Notice to Proceed unless specified otherwise in the Construction Documents.

**1.02 SUBMITTALS - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

- A. The Contractor shall submit to the Construction Manager individual submittals either via Procore or email. All files must include the specification number, item number and name as indicated in the submittal log.
- B. Contractor shall provide electronic copies of submittals. The submittals shall be in PDF format only. COLOR SAMPLES MUST BE SUBMITTED AS PHYSICAL SAMPLES.
- C. In submitting shop drawings, product data and samples, each Contractor represents that they have checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents. All submittals must be stamped or signed by the contractor responsible for submitting, to attest to their review.

**ALL SUBMITTALS MUST BE ACCOMPANIED BY THE WOLGAST CORPORATION SHOP DRAWING / SUBMITTAL FORM (see Page 2 of this section).**

- D. Any submittal not accompanied by the Wolgast Corporation Shop Drawing / Submittal Form will be returned to the contractor for resubmittal.
- E. The Submittal Log provided as part of the Bid Division Descriptions shall be a guideline only and is not to be a representation of every or all submittals required for the completion of the Project. The Contractor shall be required to provide all items and perform all work in complete compliance with the Contract Documents.
- F. The Contractor shall not be relieved of the responsibility for any deviation in the work required by the Contract Documents, or any errors and omissions contained in shop drawings, product data; samples, or other submittal data reviewed and returned to the Contractor by the Architect. Any work performed prior to the Architect's review shall be subject to removal and replacement at the Contractor's expense.
- G. No portion of the Work requiring submission of shop drawings, product data or samples shall commence until the submission has been reviewed by the Architect. If any work is performed prior to the Architect's review of the required submittal(s), the work shall be subject to removal and replacement at the Contractor's expense if that work does not comply with the requirements of the contract documents.

**1.03 START-UP DOCUMENTS (CONTRACT-AWARD SUBMITTALS)**

- A. (Refer to Sections 00100, 00600, 00650, 00670, 00680, 00690.)

**1.04 CONTRACT CLOSEOUT DOCUMENTS (CLOSE-OUT SUBMITTALS)**

- A. (Refer to Sections 01700, 01720, 01730, and 01740.)

**END OF SECTION 01300**

# TRANSMITTAL FORM FOR WOLGAST CORPORATION SHOP DRAWINGS / SUBMITTAL FORM

CONTRACTOR:

PROJECT TITLE AND LOCATION

WOLGAST PROJECT NO. \_\_\_\_\_  
DATE RECEIVED: \_\_\_\_\_  
From Contractor \_\_\_\_\_ To Architect \_\_\_\_\_  
From Architect \_\_\_\_\_ To Contractor. \_\_\_\_\_

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\_\_\_\_\_  
\_\_\_\_\_

Pkg. NO.	Pkg. Name	Item No.	CSI Code No.	CSI Code Name	Item Ref. No.	Item Description	Item Type	No. of each	Subcontractors/MFR

The undersigned certifies that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract documents except as otherwise noted. NOTE: Approval of items submitted does not relieve contractor from complying with all requirements of the contract documents.

CONTRACTOR'S COMMENTS:

CONTRACTOR'S NAME  
SIGNATURE

**PART 1 – GENERAL**

**1.01 CONSTRUCTION SCHEDULES**

- A. A Milestone Schedule is provided as part of the bidding documents to indicate dates by which certain critical tasks and/or portions of the project must be completed. The Milestone schedule also indicates the date by which the Project must be 100% complete, receipt of final inspections, occupancy allowed by all governing authorities, and owner move-in.
- B. Based on the Milestone Schedule each Contractor shall submit to the Construction Manager, at or prior to the Pre-Construction Meeting, two (2) copies of the proposed progress schedule for their Work identifying the critical tasks that they must complete to achieve the Milestone Schedule completion dates.
- C. The Construction Manager will utilize the scheduling input from the Contractors for incorporation into the Project Construction Schedule. The Project Construction Schedule will be compiled and distributed to all contractors.
- D. By signing the Owner-Contractor Agreement the Contractor agrees to cooperate with all of the other multiple contractors and to coordinate all construction activities to allow the work of that contractor and all other contractors to meet the completion date(s) established in the Milestone Schedule. The Contractor also agrees that the Project Construction Schedule shall be followed to achieve or improve upon the completion dates for the various tasks in order to attain the final completion of the project by the scheduled completion date.
- E. The Construction Manager will, at times, issue a weekly Look-Ahead Schedule as part of the weekly Contractor Coordination Meetings. The Look-Ahead Schedule will support the Project Construction Schedule and provide specific scheduling information for the Contractor to assure the scheduled completion dates are achieved. The Contractor agrees to comply with the required work identified in the Look-Ahead Schedules.

**END OF SECTION 01350**

**PART 1 – GENERAL**

**1.01 QUALITY CONTROL BY PROJECT ARCHITECT AND CONSTRUCTION MANAGER**

- A. Each Contractor shall comply with the quality control provisions of the Contract Documents.
- B. The quality and completeness of the Work shall be maintained on a day-to-day basis. Inaccurate, faulty, incomplete, and defective Work shall be corrected by the Contractor without continuous prodding by the Construction Manager. Failure to cooperate in this continuous punch list effort may reduce Progress Payments.

**1.02 CONTRACTOR QUALITY CONTROL**

- A. Each Contractor shall be responsible to provide a quality workmanship consistent with the requirements of the Contract Documents. All Work will be of good quality and free from faults and defects. Every care shall be exercised to ensure that the quality specified is the quality provided.
- A. If at any time a Contractor is of the opinion that the quality of their Work is, or will be, jeopardized as a result of rescheduling or coordination of the Project, or for any other reason known to them, they shall stop work immediately and shall inform the Construction Manager of their action and the reasons thereof. The Contractor shall immediately provide a written explanation to the Field Construction Manager and Project Manager for the record, and shall mail a copy to the Architect. Upon investigation by the Construction Manager, a decision will be made on the note of jeopardy, in order to resolve the problem.
- C. Any Contractor who compounds a mistake by installing their product on another Contractor's obviously faulty work will assume responsibility for repair of said work.

**END OF SECTION 01400**



**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. The Owner may employ and pay for the services of an independent testing laboratory to perform specified testing as identified in the Bid Division Descriptions.
- B. Contractors shall cooperate with the Laboratory to facilitate the execution of this service.
- C. Employment of the Laboratory shall in no way relieve the Contractor's obligation to maintain the quality of their work.

**1.02 CONTRACTOR'S RESPONSIBILITIES**

- A. Contractors shall cooperate with Laboratory personnel, and shall provide access to Work, and to manufacturers' operations.
- B. Contractors shall provide the Laboratory samples of proposed materials, which require testing.
- C. Contractors shall provide to the Laboratory the preliminary design mix proposed to be used for concrete and other materials, which require control, by the Laboratory.
- D. Contractors shall furnish all test results and coordinate testing with the Construction Manager.
- E. Contractors shall furnish incidental labor and facilities necessary:
  - 1. To provide access to Work to be tested.
  - 2. To obtain and handle samples at the Project site or at the source of the project to be tested.
  - 3. To facilitate inspections and tests.
- F. Contractors shall notify the Laboratory sufficiently in advance of operations to allow for Laboratory assignment of personnel and scheduling of tests.
- G. Contractors shall make arrangements with the Laboratory and pay for additional samples and tests required for the Contractor's convenience.
- H. Contractors shall comply with the Project Team's instructions regarding testing.

**END OF SECTION 01410**

**PART 1 - GENERAL**

**1.01 DESCRIPTION**

- A. The Owner will allow each Contractor to use power and water, where available, for use in construction. All usage will be arranged for by the Construction Manager.

**1.02 REQUIREMENTS OF REGULATORY AGENCIES**

- A. Comply with the National Electric Code.
- B. Comply with federal, state and local codes and regulations and with utility company requirements.

**1.03 MATERIALS, GENERAL**

- A. Cords, connectors, etc. may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

**1.04 TEMPORARY ELECTRICITY AND LIGHTING**

- A. The Electrical Contractor shall furnish, install and maintain a complete and adequate temporary electrical service and distribution system for use by the Construction Manager and all Contractors during the construction period.
- B. The Electrical Contractor shall obtain, provide, and pay for all temporary electrical power service installation from the local power company or the existing building if the capacity is available.
- C. The cost of electrical power consumption shall be paid for by the Owner.
- D. Prior to the start of construction, the Electrical Contractor shall provide temporary power at each construction area and at the office of the Construction Manager. Each temporary service will be sufficient in size to provide continuous power for: twelve (12) ground fault protected, 20 amp, duplex receptables; two (2) 220v, 3 phase 40 amp receptable; 20 amp, 120v grounded temporary lighting circuits to provide for a minimum of one (1) lamp holder for each 200 square feet or a minimum of one (1) per room. Each lamp holder will be provided with one (1) 150 watt lamp and guard with no more than twelve (12) lamps per circuit. The Electrical Contractor shall be responsible for replacing all lamps as required.
- E. All wire and cable shall be sized to hold voltage drop at all outlets to a maximum of 5% total from transformer.
- F. Portions of the permanent electrical system may, at the option of the Electrical Contractor, be used for temporary power and lighting. The Electrical Contractor shall replace all burned out lamps, damaged wiring devices, and plates prior to acceptance of building by Owner. When any part of the permanent electrical system is used for temporary power or lighting, the Electrical Contractor will maintain the system until the final acceptance by the Owner and begin all warranties and guarantees upon the date of substantial completion.
- G. Overtime work requiring standby electricians shall be at the expense of the Contractor requiring the same.
- H. Installation of temporary electrical power and lighting shall be as scheduled by the Construction Manager.
- I. All temporary electrical installations shall be in compliance with the latest National Electrical Code (N.E.C.), MIOSHA or OSHA, whichever is more stringent. Compliance with N.E.C Section 210-8(b) shall be the responsibility of the Electrical Contractor. Assured grounding systems as defined in Exception Number 2 of N.E.C. Section 210-8(b) shall not be used in place of ground fault protection 9.

The Electrical Contractor shall completely remove the temporary electrical service and distribution system when directed to do so by the Construction Manager. The contractors responsible for the installation of all ceilings and partitions shall patch their work as necessary after removal of the temporary electrical system at no additional cost to the Construction Manager or Owner.

- J. The Owner shall pay for all electrical energy consumed during the construction period except for energy consumed to provide power or lighting in excess to those listed in this Article.
- K. Any electrical requirements for power or lighting beyond those listed in this Section (including energy charges) shall be the responsibility of the Contractor requiring them.

**1.05 TELEPHONE SERVICE**

- A. A telephone, if located at the Construction Manager's Field Office, may be provided for all Contractors' use in making local or long-distance calls.

**1.06 WATER**

- A. A temporary water distribution center will be provided in a nearby convenient location. The Contractor shall supply all hoses, etc. beyond that point.

**1.07 SANITARY FACILITIES**

- A. The Construction Manager will arrange for temporary sanitary facilities. Contractors shall not use permanent facilities at the site.

**1.08 TEMPORARY HEAT**

- A. When identified and required by the H.V.A.C. Contractor's Bid Division Description, the H.V.A.C. contractor shall install a heating system (permanent or temporary) in readiness for furnishing temporary heat in the new structure.
- B. When the H.V.A.C. Contractor is required to provide a temporary heating system, the H.V.A.C. Contractor shall operate and maintain the temporary heating system. The temporary heating system shall maintain a minimum temperature at all times of 40 degrees during rough-ins and 60 degrees during finishing operations. The H.V.A.C. contractor shall be responsible for the costs of all temporary electrical work relating to the temporary heating system if the permanent system is not used.
- C. In the event that temporary gas fired or open flame heating devices are used, they shall be of the heat exchanger type properly vented to the outdoors, and shall comply with local and state laws, codes, and ordinances.
- D. Portions of the new heating system may, at the option of the H.V.A.C. contractor, be used for temporary heat providing that all parts of the system are cleaned and restored to prime condition prior to acceptance. The H.V.A.C. contractor shall remove any filters used during the temporary heating period and replace with new filters. In addition, the H.V.A.C. subcontractor shall pay the cost of extending warranty and guarantee periods on any permanent equipment used prior to Substantial Completion. The H.V.A.C. contractor shall completely remove the temporary heating system when directed to do so by the Construction Manager.
- E. When identified and required by the H.V.A.C. Contractor's Bid Division Description, all or portions of the new (permanent) H.V.A.C. system shall be used for temporary heat. When the new/permanent system is used for temporary heat, the H.V.A.C. Contractor shall:

1. Maintain the system throughout its use.
2. At the end of the system's use as a temporary system, the H.V.A.C. Contractor shall replace all filters with new filters.
3. Cover openings in permanent return air ductwork with filter media. Maintain and replace filter media as required so air flow is not restricted.
4. Clean and restore all parts of the system to prime condition immediately prior to final acceptance by the Owner.
5. Provide the full warranty and guarantee of the entire system with the warranty/ guarantee period beginning at the time of final acceptance by the Owner.

F. All fuel costs for Temporary Heat shall be paid fo by the Owner.

**1.09 EXECUTION**

A. Each Contractor shall maintain and operate systems to assure continuous service, and avoid disruption of service.

**1.10 REMOVAL**

- A. Each Contractor shall promptly remove their own temporary materials and equipment when their use is no longer required.
- B. Each Contractor shall clean and repair damage they have caused by temporary installations or use of temporary facilities.
- C. Each Contractor shall restore existing facilities they have used for temporary services to their specified or original condition.

**END OF SECTION 01510**

**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. Each Contractor shall furnish, install, and maintain construction aids required for the performance of their own Work, and shall move or remove them when they are no longer needed for the Work.
- B. Certain construction aids will be provided for and maintained by the Owner as indicated in later paragraphs in this Section.

**PART 2 – PRODUCTS**

**2.01 MATERIALS, GENERAL**

- A. Materials may be new or used, shall be suitable for their intended purposes, and shall not violate the requirements of applicable codes and standards.

**2.02 CONSTRUCTION AIDS**

- A. Each Contractor shall provide all required construction aids and equipment to facilitate the execution of the Work, including scaffolds, staging, ladders, and other such facilities and equipment.
- B. Contractors shall maintain all facilities and equipment in a first-class condition.

**2.03 TEMPORARY ENCLOSURES**

- A. The Construction Manager will arrange for temporary enclosures except those required by section 01900 – 2.01 to separate work areas from the areas of existing buildings occupied by the Owner to prevent penetration of dust or moisture into occupied areas, to prevent damage to existing equipment, and to protect the Owner’s employees, customers, and operations from construction work.

**PART 3 – EXECUTION**

**3.01 PREPARATION**

- A. Consult with the Owner, Construction Manager, and other Consultants and review the site conditions and other factors, which could affect construction procedures and construction aids, including adjacent properties and public facilities which may be affected by execution of the project.

**3.02 GENERAL**

- A. Comply with applicable requirements of the Specifications.
- B. Relocate construction aids as required by the progress of construction, by storage requirements, and to accommodate requirements of the Owner and other Contractors employed at the site.

**3.03 REMOVAL**

- A. Completely remove temporary materials, equipment, and services:
  - 1. When construction needs can be met by use of permanent construction.
  - 2. At the completion of the Project.
- B. Clean and repair damage to the permanent facilities caused by installation or by use of temporary facilities.
- C. Restore existing facilities used for temporary purposes to specified or original condition.

**END OF SECTION 01520**

**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. Safety is the responsibility of each individual Contractor. Each Contractor shall comply with all local safety ordinances and MIOSHA regulations and requirements while performing the Work.
- B. Each Contractor is required to submit Safety Data Sheets (SDS) to the Construction Manager via Procore or email, to be used for reference only, prior to transporting the material/chemical on site. In addition, it is the responsibility of each Contractor to maintain an accessible SDS file for their employees, subcontractors, sub-subcontractors, and suppliers that are on site.
- C. Each Contractor shall submit evidence of an Employer Safety Program that complies with current MIOSHA regulations and requirements prior to beginning any contract Work.
- D. Each Contractor and their Subcontractor(s), Sub-subcontractor(s), and Suppliers shall take all necessary precautions to ensure the safety of the public and/or workers on the job, and to prevent accidents or injury to any persons, on, about, or adjacent to the premises where the Work is being performed. The Contractor and their Subcontractor(s), Sub-subcontractor(s), and Supplier(s) shall comply with Federal or State OSHA regulations and all other laws, codes, ordinances, and regulations relative to safety and the prevention of accidents.
- E. The Contractor shall designate a responsible representative at the jobsite as Safety Representative who shall be responsible for the promotion of safety and prevention of accidents, and shall enforce all applicable laws, ordinances, codes, rules, regulations, and standards pertaining to safety and prevention of accidents.

**END OF SECTION 01530**

**PART 1 – GENERAL**

**1.01 SECURITY**

- A. Each Contractor shall bear full responsibility for protecting equipment, materials, and tools from damage, loss and vandalism.

**END OF SECTION 01540**

**PART 1 – GENERAL**

**1.01 PROJECT ACCESS**

- A. All employees of the Contractor(s), employees of the subcontractor(s) of the Contractor, any and all other persons having any related activity to the Contractor including suppliers & sales representatives, Inspectors, Architect/Engineer Representatives and all other Visitors must report to the Construction Manager Field Supervisor in the CM Site Office before being permitted into the project.
- B. Each worker must register at the site office prior to entering the work area each day that worker is engaged in the required tasks for the construction of the project. The worker shall register by signing their name and issued ID number, identifying the company they represent. The supervising foreman for each Contractor shall be responsible for registering all employees or tier subcontractor employees of that Contractor each day and providing that registration to the CM Field Supervisor.
- C. If Owner requested, all workers will be issued a photo identification badge and corresponding number by the Construction Manager allowing them access to the project. The ID badge shall be always worn. Any person failing to wear the photo ID badge will be required to leave the project immediately.
- D. Only workers performing required tasks for the construction of the project will be permitted access to the project site. Workers not actively engaged in performing required tasks will not be permitted on the project.
- E. Suppliers, sales representatives, and any other person having legitimate business with the Contractor or a subcontractor of any tier to the Contractor must remain at the Site Office until the on-site supervisor for that Contractor or tier subcontractor meets with that person at the CM Site Office.
- F. Any visitor to the project must register at the CM Site Office, request permission from the CM Site Supervisor for access to the project, have their own personal protection equipment as required by the CM Site Supervisor, and be issued a "Visitor" identification badge allowing access to the project.
- G. The CM Site Supervisor may deny any person access to the project for any reason the supervisor may see fit.
- H. The Contractor agrees to adhere to this Project Access policy regardless of all other agreements.

**1.02 ACCESS ROADS**

- A. Contractors' access to the Project site and arrangements for periodic, temporary access for specific construction shall be made through the Construction Manager with the Owner's approval.

**1.03 DELIVERY**

- A. Contractors receiving deliveries to site shall request a 24-hour notice to delivery from suppliers. Contractors receiving deliveries shall ensure that their personnel are at the site to receive deliveries, and properly store them.
- B. Bidders of Divisions for supply only should give 48 hours' notice to the Field Construction Manager so proper arrangements can be made for unloading.
- C. Any Contractors or Bid Division suppliers not giving notice shall reimburse Contractors at the site or be back charged accordingly for unloading and storage of said materials.
- D. Since site space is limited, delivery of materials shall not be made to the jobsite before progress of the job schedule calls for it, unless approved by the Construction Manager.



**1.04 PARKING**

- A. Contractor parking will be in an area designated by the Construction Manager on site.

**1.05 SITE PLAN**

- A. Refer to the Contractors use of premises (Section 01010) for further information on the use of the site.

**END OF SECTION 01550**

**PART 1 – GENERAL**

**1.01 CONTROLS**

- A. Control of elements such as noise, dust, water, pests, rodents, debris, pollution, and erosion are the responsibility of the Contractor(s). The Architect and Construction Manager will identify the Contractor(s) responsible for these controls in the event such controls have not been implemented. The Contractor(s) agrees to abide by the assignment of responsibility by the Architect and Construction Manager regarding such controls when required. The Contractor(s) shall be responsible for performing the control measures in strict conformance to all governing codes and restrictions.

**END OF SECTION 01560**

**PART 1 – GENERAL**

**1.01 TRAFFIC REGULATIONS**

- A. Contractors shall abide by all governmental and Owner-established traffic regulations.
- B. Contractors shall use the route designated by the Owner/Construction Manager and shall comply with the requirements of Section 01550 – Access and Deliveries.

**END OF SECTION 01570**

**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. No signs shall be displayed by any Contractor.

**END OF SECTION 01580**

**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. The Project Field Office will be located on-site adjacent to the location of the temporary power.
- B. The Project Field Office will be used by the Owner, Construction Manager, and Architect.
- C. Project meetings and progress meetings will be held in the Project Field Office, or at another location selected by the Construction Manager when deemed necessary.

**1.02 TRAILERS, ETC.**

- A. Trailers to be used as Contractors' site office and storage will be permitted. Approval must be obtained from the Field Construction Manager prior to moving on-site and will be located as directed by the Construction Manager. All trailers must meet federal, state, and local electrical and fire codes.

**END OF SECTION 01590**

**PART 1 – GENERAL**

**1.01 NEW MATERIAL AND EQUIPMENT**

- A. Material and equipment incorporated into the Work shall:
1. Conform to applicable specification and standards,
  2. Comply with sizes, makes, types, and qualities specified or as specifically approved in writing by the Architect or Owner.
- B. Manufactured and Fabricated Products:
1. Design, fabricate and assemble in accord with the best engineering and shop practices.
  2. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
  3. Two or more items of the same kind shall be identical, by the same manufacturer.
  4. Products shall be suitable for service conditions.
  5. Equipment capacities, sizes, and dimensions shown or specified shall be adhered to, unless variations are specifically approved in writing by the Project Architect.
- C. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

**1.02 MANUFACTURERS INSTRUCTIONS**

- A. When the Contract Documents require that installation comply with manufacturers' printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two (2) copies to the Project Architect.
- B. Maintain one set of complete instructions at the site during installation, until project completion.
- C. Handle, install, connect, clean, condition and adjust products in strict accord with such instructions and in conformity with specified requirements.
1. Should job conditions or specified requirements conflict with manufacturers' instructions, consult with the Project Team for further instructions.
- D. Perform Work in accord with manufacturers' instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by the Contract Documents.

**1.03 TRANSPORTATION AND HANDLING**

- A. Arrange deliveries of products in accordance with the Short-Term Construction Activities Plan. Coordinate to avoid conflict with Work and conditions at the site.
1. Deliver products in undamaged condition, in manufacturers' original containers or packaging, and with identifying labels intact and legible.
  2. Immediately upon delivery, inspect shipments to assure compliance with the requirements of the Contract Documents and approved submittals, and to ensure that products are properly protected and undamaged.
- B. Provide equipment and personnel to handle products by methods which will prevent soiling or damage to products or packaging.

**1.04 STORAGE AND PROTECTION**

- A. Store products in accord with manufacturers' instructions, with seals and labels intact and legible.
  - 1. Store products subject to damage by the elements in weather tight enclosures.
  - 2. Maintain temperature and humidity within the ranges required by Manufacturers' instructions.
- B. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that the products are maintained under specific conditions and are free from damage or deterioration.
- C. Protection after Installation:
  - 1. Provide substantial coverings as necessary to protect installed products from damage, traffic, and subsequent construction operations. Remove the coverings when they are no longer needed.

**1.05 SUBSTITUTIONS AND PRODUCT OPTIONS**

- A. Products List:
  - 1. Before commencing Work, submit to the Construction Manager a complete list of major products proposed to be used, with manufacturers and suppliers' names, product names, model numbers, and where applicable, names of installing subcontractors. (Refer to Section 00680.)
- B. Contractor's Options:
  - 1. For products specified only by reference standard, select any product meeting that standard.
  - 2. For products specified by naming several products or manufacturers, select any one of the products or manufacturers named, which complies with the specifications.
  - 3. For products specified by naming one or more products or manufacturer and "or equal," Contractors must submit requests for substitutions for any product or manufacturer not specifically names.
  - 4. For products specified by naming only one product and manufacturer, there is no option.
- C. Substitutions:
  - 1. The Project Team will consider written requests from Contractors for substitution of products.
  - 2. Submit a separate request for each product, supported with complete data, with drawings and samples, as appropriate, including:
    - a. Comparison of the qualities of the proposed substitution with that specified,
    - b. Changes required in other elements of the Work because of the substitution,
    - c. Effect on the construction schedule,
    - d. Cost data comparing the proposed substitution with the product specified,
    - e. Any required license fees or royalties,
    - f. Availability of maintenance service, and source of replacement materials.
  - 3. Architect will be the judge of the acceptability of all proposed substitutions.
  - 4. Any request for a substitution constitutes a representation that the Contractor:
    - a. Has investigated the proposed product and determined that it is equal to or superior in all respects to that specified,
    - b. Will provide the same warranties or bonds for the substitution as for the product specified,
    - c. Will coordinate the installation of accepted substitutions into the Work, and make such other Changes as may be required to make the Work complete in all respects,
    - d. Waivers all claims for additional costs which may subsequently become apparent.
  - 5. The Construction Manager will review requests for substitutions and the Architect's determination of acceptability with reasonable promptness and will notify Contractors in writing of his decisions regarding requested substitutions.

**END OF SECTION 01600**

**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. Each Contractor shall comply with requirements stated in the General Conditions and in the Specifications for procedures in closing out the Work.

**1.02 SUBSTANTIAL COMPLETION AND FINAL INSPECTION PROCEDURE**

- A. When a Contractor's work is 98% complete, and in compliance with Section 10 "Completion" of the Contract, the Contractor will be provided with a Certificate of Substantial Completion, after proper certification by the Construction Manager and Architect. A list of Work in need of correction and a list of incomplete Work will be forwarded to the Contractor. Both the Construction Manager and the Architect will have input to each list.
- B. Each Contractor will be allowed two weeks to complete the items on both lists beginning from the date stipulated on the Certification of Substantial Completion. The Contractor shall begin completion and correction activities within seven (7) days of receipt of the lists and complete all activities within the two-week period specified. Contractors failing to perform in accord with these time parameters will be subject to the provisions of the Additional Conditions, and the Owner will have the right to carry out the corrective Work and/or complete the Work. The cost of correction or completion will be deducted from the Contractor's contract amount.
- C. By the act of submitting the Certificate of Substantial Completion for execution by the Construction Manager and the Architect, the Contractor represents that they have:
1. Reviewed the Contract Documents.
  2. Inspected their Work for compliance with the Contract Documents.
  3. Completed their Work in accord with the Contract Documents and all pertinent submittals.
- D. They further represent that:
1. Equipment and systems have been tested in the presence of the Owner's representative and are operational.
  2. Their Work is completed and ready for final inspection.

**1.03 CONTRACTOR'S CLOSEOUT DOCUMENTS**

- A. Upon Substantial Completion, the Contractor shall submit the following:
1. Evidence of compliance with requirements of governing authorities, including Certificates of Inspection.
  2. Operating and Maintenance Data, Product Data and Instructions to the Owner's personnel.
  3. Warranties and Bonds
  4. Spare Parts and Maintenance Materials
  5. Evidence of Payment and Release of Liens
  6. Certification of Substantial Completion.
  7. As Built Drawings
  8. Contractor Hazardous Materials Compliance Affidavit
  9. Asbestos Free Affidavit
  10. Letter from Contractor's Insurance carrier that a Certificate of Insurance shall be sent to the Construction Manager at renewal time for a two (2) year period after substantial completion.
- B. One (1) hard copy set along with one (1) electronic set of closeout documents shall be submitted to the Construction Manager upon Substantial Completion.



- C. All Close Out documents must be turned in within two weeks of substantial completion. Final payment to the contractor will not be released until all closeout documents have been received and approved and/or punch list items have been completed and signed off.

**1.04 FINAL APPLICATION FOR PAYMENT**

- A. Each Contractor shall submit the final Application for Payment in accord with the procedures and requirements stated in the General Conditions of the Contract for Construction.
- B. Refer to Sections 01720, 01730, and 01740 for further information regarding submittals.

**END OF SECTION 01700**

**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. Each Contractor shall execute cleaning during the progress of the Work, and at completion of the Work, as required by the Additional Conditions and the Specifications.

**1.02 DISPOSAL REQUIREMENTS**

- A. Conduct cleaning and disposal operation to comply with codes, ordinances, regulations, and anti-pollution law.

**PART 2 – PRODUCTS AND EQUIPMENT**

**2.01 MATERIALS**

- A. Use only those cleaning materials which will not create hazards to health or property, and which will not damage surfaces.
- B. Use only those cleaning materials and methods recommended by the manufacturer of the surface material to be cleaned.
- C. Use cleaning materials only on surfaces recommended by the cleaning material manufacturer.
- D. Each Contractor shall provide his/her own cleaning equipment.
- E. Each Contractor shall cooperate with the Owner and the Construction Manager regarding clean up.

**PART 3 – EXECUTION**

**3.01 HOUSEKEEPING AND CLEAN-UP**

- A. Each Contractor shall execute daily housekeeping to keep their Work, the site, and adjacent properties free from accumulations of waste materials, rubbish, and windblown debris resulting from construction operations.
- B. Each Contractor is financially responsible for his/her clean-up operations. Clean up must be timely as well as thorough in order to meet safety regulations and permit other Contractors to perform without hindrance from dirt and debris. The Construction Manager will coordinate Project housekeeping and take appropriate steps to maintain clean, safe working conditions. **Contractors failing to meet housekeeping requirements will be charged for services arranged by the Construction Manager.**

**3.02 DUST CONTROL**

- A. Clean interior spaces prior to the start of finish painting and continue cleaning on an as-needed basis until painting is finished.
- B. Schedule operations so that dust and other contaminants resulting from the cleaning process will not fall on wet or newly coated surfaces.
- C. Clean up must be performed after each task is done.
- D. Each Contractor is responsible for developing a plan for dust control and debris removal for each task prior to starting.

**3.03 FINAL CLEANING**

- A. Each Contractor shall employ qualified people for cleaning.
- B. Installing Contractors shall remove grease, mastic adhesives, dust, dirt, stains, finger-paints, labels, and other foreign materials from exposed interior and exterior surfaces, for acceptance by the Construction Manager, prior to leaving the site.
- C. Prior to final completion or Owner occupancy, each Contractor shall conduct an inspection of exposed interior and exterior surfaces and all work areas, to verify that the entire Project is clean.

**END OF SECTION 01710**

**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. The Construction Manager will make available a set of Record Documents of the following:
1. Drawings.
  2. Specifications.
  3. Addenda.
  4. Change Orders and other Modifications to the Contracts.
  5. Written Instructions.
  6. Approved Shop Drawings, Product Data and Samples.
  7. Field Test Records.
  8. Construction Photographs.

**1.02 RECORD DRAWINGS**

- A. As a condition of final payment, each Contractor shall mark any and all installation information that differs in location, size, dimension or type from that shown on the Construction Documents on a single set of Construction Documents. Location of items of work such as electrical conduits, junction boxes, fire alarm cable, data cable, etc., that are not specifically shown on the Construction Documents shall be included in the Record Drawings. Locations of all work installed under concrete slabs shall be noted with accurate dimensions and the depth below finish floor indicated.

**1.03 SUBMITTAL**

- A. At Contract Closeout, each Contractor shall deliver one (1) hard set along with (1) electronic set of Record Documents, as indicated in 01700.1.03B to the Construction Manager, for delivery to the Owner.
- B. Each Contractor shall accompany their Record Document submittal with a transmittal letter in duplicate, containing:
1. Date.
  2. Project and Phase Designation.
  3. Contractor's name and address.
  4. Bid Division name and number.
  5. Title and number of each Record Document.
  6. Signature of Contractor of his authorized representative.
- D. The receipt of such Record Documents by the Construction Manager or the Owner shall not be a waiver of any deviations from the Contract Documents.

**END OF SECTION 01720**

**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. Each Contractor shall compile product, data, and related information appropriate to the Owner’s maintenance and operation of products furnished under their contract.
- B. Each Contractor shall instruct the Owner’s personnel in the maintenance of products and in the operation of equipment and systems.

**1.02 MAINTENANCE AND OPERATING MANUALS**

- A. Prior to Substantial Completion, each Contractor shall submit to the Construction Manager one (1) hard set along with one (1) electronic set of all comprehensive maintenance and operating materials, presenting complete directions and recommendations for the proper care and maintenance of all visible surfaces, as well as maintenance and operating instructions for all equipment items which the Contractor has provided or installed.
- B. Operating instructions shall include all necessary printed directions for correct operation, adjustment, servicing, and maintenance of movable parts. Also included shall be suitable parts lists and diagrams showing parts location and assembly.

**1.03 INSTRUCTION OF OWNER’S PERSONNEL**

- A. Prior to final inspection or acceptance, each Contractor shall fully instruct the Owner’s designated operating and maintenance personnel in the operation, adjustment, and maintenance of all products, equipment, and systems.
- B. Manufacturer’s operating and maintenance manuals shall constitute the basis of instruction. Each Contractor shall review the contents of such manuals with the Owner’s personnel in full detail to explain all aspects of operation and maintenance.

**END OF SECTION 01730**

**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. The Contractor shall provide a written Guarantee for all labor, material, equipment, and workmanship for a minimum period of two (2) years from the date of Substantial Completion of the project (or longer period if stipulated in the specifications) covering the work of their entire Bid Division(s).
- B. The Contractor shall also provide a written Warranty covering all work of their entire Bid Division(s) for a minimum period of two (2) years from the date of final project completion (or longer period if stipulated in the specifications).
- C. The Contractor shall further provide all suppliers, manufacturer, subcontractor and other written guaranties and warranties covering the work of the entire Bid Division(s) as required by the project specifications.

**1.02 REQUIREMENTS**

- A. The Contractor shall provide one (1) hard copy along with one (1) electronic copy of all written Guaranties and Warranties.
- B. The Contractor shall review all guaranties and warranties to assure of their compliance with all conditions of the contract.
- C. The Contractor shall assemble all guaranties and warranties, fully executed by each respective contractor, supplier, manufacturer and subcontractor and submit to the construction manager within two weeks of the date of Substantial Completion of the project.
- D. If the Owner elects to permit equipment and component parts of equipment into service during the progress of construction and has issues such permission in writing, all such guaranties and warranties must be submitted to the construction manager within two weeks after inspection and acceptance.
- E. For items of work where acceptance is delayed materially beyond the Date of Substantial Completion, the Contractor shall provide revised guaranties and warranties listing the acceptance date as the start of the guaranty or warranty period.

**END OF SECTION 01740**

**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. It shall be the Contractor's responsibility to ensure that the Owner is notified of any hazardous materials brought to the site.
- B. In compliance with Michigan State Law there is to be no smoking anywhere on the project site or owner's property or use of any tobacco product at any time.
- C. The Contractor agrees to disallow any known carcinogens to be brought onto the jobsite at any time.
- D. The Contractor will not permit any employee to be in possession of any firearm or ammunition when on school property either on the worker's person or in the worker's vehicle. It is illegal to possess firearms or ammunition on your person or in a vehicle on school property at any time.

**1.02 REQUIREMENTS**

- A. The Contractor shall provide:
  - 1. One (1) hard copy of each Safety Data Sheet (SDS) for each of the hazardous materials used on the site.
  - 2. Certification that the Contractor (and their subcontractors) has instructed the persons using the hazardous materials in their proper use.
  - 3. For removal of any unused hazardous materials in their proper use.
  - 4. Certification that no asbestos containing materials are being used or brought onto the site by signing and notarizing the asbestos free certificate, which follows as page 3 of this Section.
- B. The Contractor shall utilize employee(s) that have been trained and certified for Hazardous Material Awareness specifically for asbestos and lead awareness.
- C. The Contractor has the responsibility to make themselves, their employees, and their subcontractors aware of any hazardous materials in the area of their specified work.
- D. The above requirements must be fulfilled, in writing, at or prior to a pre-construction meeting by filling out the Contractor Hazardous Materials Compliance Form, which is page 2 of this section.
- E. Standard safety practices and regulations as supplied by all governmental agencies will be in effect.
- F. A list of districts SDS sheets is available on request.
- G. The Contractor shall submit a completed Contractor Hazardous Materials Compliance Affidavit and Asbestos-Free Affidavit certifying that no hazardous material has been incorporated into the Project as part of the documentation for Contract Close-Out.

**2.01 COMPLIANCE**

- A. Compliance with EPA AHERA for Asbestos.
  - 1. The Contractor must adhere to all EPA AHERA and Michigan State Asbestos Regulations for asbestos and other hazardous materials.

B. Compliance with Lead-Containing Materials.

1. All Contractors, Subcontractors and Sub-subcontractors shall adhere to the Environmental Protection Agency (EPA) lead-based paint regulation titled the "Renovation, Repair and Painting (RRP) Rule". Included under this law are "Child Occupied Facilities" (COFs). COFs encompass locations of a pre-1978 constructed buildings where children under age of six (6) regularly visit, such as kindergarten rooms, 1st grade classrooms, applicable restrooms, preschools and day care centers. Therefore portions of each pre-1978 constructed school building falls under the RRP Rule.
2. Any contractor working on this project who disturbs painted surfaces in COF spaces shall ensure that they adhere to all aspects of the RRP Rule. This includes but is not limited to meeting the requirements for being a Certified Firm, having a Certified Lead Renovator involved and following applicable lead safe work practices.
3. Furthermore, all Contractors shall be responsible to comply with all applicable Federal and Michigan State lead regulations including, but not limited to, 29 CFR Part 1926.62 of the OSHA Lead Construction Standard, (Part 603 of the Michigan State Standards). All costs associated with regulatory compliance shall be borne by the Contractor.



**CONTRACTOR HAZARDOUS MATERIALS COMPLIANCE AFFIDAVIT**

PROJECT NAME: \_\_\_\_\_

TITLE: \_\_\_\_\_

Contractor: \_\_\_\_\_

Address: \_\_\_\_\_

Contractor's Representative: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Job Location: \_\_\_\_\_

This document certifies that the Contractor and any subsequent Contractors have complied with the terms set forth in the requirements for **Bullock Creek School District** as they pertain to hazardous materials.

The SDS's are attached for all hazardous materials which will be brought to **Bullock Creek School District**.

There are \_\_\_\_\_ SDS's attached.

The Contractor's employees (including subcontractors) have received appropriate instructions pertaining to the use and handling of hazardous materials.

The Contractor has been informed of hazardous materials in the area of the specified work.

\_\_\_\_\_  
Signature of Contractor's Representative

Date: \_\_\_\_\_

Received by: \_\_\_\_\_

Date: \_\_\_\_\_

**ASBESTOS FREE AFFIDAVIT**

Contractor: \_\_\_\_\_

Company Name: \_\_\_\_\_

Street: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Project: \_\_\_\_\_

Bid Division: \_\_\_\_\_

Name of Building(s) in which work was performed:

\_\_\_\_\_  
\_\_\_\_\_

Certificate Statement:

I \_\_\_\_\_, representing and having authority for  
\_\_\_\_\_, hereby certify that any and all products/materials  
that will be or have been installed/introduced in the above mentioned buildings, are asbestos free or less  
that one percent (1%) asbestos by weight.

Name (printed): \_\_\_\_\_ Position: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Notary Public: \_\_\_\_\_

My Commission Expires: \_\_\_\_\_

**END OF SECTION 01800**

**PART 1 – GENERAL**

**1.01 NOTICE**

- A. This notice is to formally advise you, per AHERA Requirements, that all buildings may have asbestos containing materials present. All areas testing positive for asbestos are documented in booklets located in the **Bullock Creek School District**.

**1.02 DESCRIPTION**

- A. All thermal insulation such as pipe wrap, especially joints, should be assumed to contain asbestos. Contractors are cautioned not to attempt removal of these materials without first notifying the Owner.

# AHERA Notification and Contractor Compliance Affidavit

**Project Name:** Bullock Creek School District – 2024 Bond Series 1 - 2025 Improvements  
**Project #:** A24907  
**Owner:** Bullock Creek School District  
**Address:** 1420 S Badour Road, Midland, MI 48503

**This notice is to formally advise you, per AHERA Requirements, that all buildings may have existing asbestos containing materials. All areas testing positive for asbestos have been documented in the owner’s asbestos inspection report available for inspection at the owner’s main office. All areas currently testing positive for asbestos are documented in the attached Three-Year Re-Inspection Asbestos plan report that has been provided by: Bullock Creek School District.**

**All thermal insulation such as pipe wrap, especially joints, should be assumed to contain asbestos. Contractors are cautioned not to attempt removal of these materials without first notifying the Owner.**

**I / We \_\_\_\_\_ doing business as \_\_\_\_\_ acknowledge receipt of the Three-Year Re-Inspection Asbestos plan for the above mentioned project(s) as provided by Bullock Creek School District and certify that all employees of this contractor shall have been trained in the MIOSHA Two-Hour Asbestos Awareness program. It is this Contractor’s responsibility to inform any subcontractors or suppliers of this information and assume all responsibility for such notification.**

\_\_\_\_\_  
Company

State of \_\_\_\_\_ County of \_\_\_\_\_

\_\_\_\_\_  
Name

Subscribed and sworn to before me this \_\_\_\_\_

day of \_\_\_\_\_

\_\_\_\_\_  
Title

Notary Public: \_\_\_\_\_

\_\_\_\_\_  
Address

My Commission Expires: \_\_\_\_\_

\_\_\_\_\_  
City, State, Zip

\_\_\_\_\_  
Seal

END OF SECTION 01805



**N O R T H E R N**  
**Analytical Services, LLC.**  
ENVIRONMENTAL CONSULTANTS

**Three Year  
Asbestos  
Re-Inspection  
Report**

**For**

**Bullock Creek Schools  
1420 South Badour Road  
Midland, Michigan 48640**

**Prepared By:**

**Northern Analytical Services, LLC.  
14870 225<sup>th</sup> Avenue  
Big Rapids, Michigan 49307**

**Dated: November 21, 2019**

**Project No.: 190321**

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## Introduction

The following Three-Year Asbestos Re-Inspection Report was completed by Northern Analytical Services, LLC. (NAS) for Bullock Creek Schools located at 1420 South Badour Road, Midland, Michigan 48640. Re-inspection activities were limited to the known or assumed asbestos containing materials identified in the previous re-inspection report.

In accordance with the Asbestos Hazard Emergency Response Act (AHERA), all buildings owned and/or operated by K-12 school districts are required to be incorporated in the district's management plan. These regulations allow for buildings, or portions of buildings, constructed after 1988 to either be inspected for the presence of asbestos containing materials (ACM) or be accompanied by a statement from the architect/construction manager that no ACM was installed during construction activities. It is recommended that acceptable statements be obtained and attached to this report for any future renovation/construction activities.

This re-inspection included the following buildings:

<b>School Building Number</b>	<b>Building</b>	<b>Address</b>	<b>Re-Inspection Date</b>
1	Bullock Creek High School	1420 South Badour Road, Midland, Michigan 48640	11/11/2019
2	Bullock Creek Middle School	644 South Badour Road, Midland, Michigan 48640	11/11/2019
3	Bullock Creek Elementary School	1037 Poseyville Road, Midland, Michigan 48640	11/11/2019
4	Floyd Elementary School	725 South 8 Mile Road, Midland, Michigan 48640	11/11/2019
5	Pine River Elementary	1894 East Pine River, Midland, Michigan 48640	11/11/2019

### **Company Statement**

This Re-inspection Report and Management Plan update was prepared by NAS to assist Bullock Creek Schools in meeting the 3-Year Re-Inspection requirements set forth by AHERA.

In preparation of this document, every attempt has been made to recommend the least burdensome response actions consistent with protecting human health and the environment as specified by AHERA.

AHERA states that the management plan is the responsibility of the owner/operator of the facility, also called the Local Education Agency (LEA); in this case the LEA is Bullock Creek Schools. It is the responsibility of the LEA to read and understand the response actions, their obligations, timetables, and to determine if these actions are reasonable actions prior to signing the owner/operator statement. Any changes or additions to this document without written authorization from NAS will automatically void the inspection and management plan statements.

If the LEA decides to make changes to this report without authorization from NAS or decides to make changes which conflict with the advice and/or professional judgment of NAS, a separate statement shall accompany the management plan and should specify which recommended actions the owner/operator has decided to change, the actual changes and rationale for the changes. NAS will not accept any responsibility for changes to any response actions that weren't stated previously by NAS



## **Asbestos Background**

Asbestos is a naturally occurring mineral. It is distinguished from other minerals by the fact that its crystals form long, thin fibers. Deposits of asbestos are found throughout the world. The primary sites of commercial production are Canada, China, Brazil, Zimbabwe, and South Africa. Asbestos is also mined commercially in limited quantities in the United States, in California and Vermont.

Asbestos has been used in thousands of products. Collectively, these are referred to as asbestos-containing material (ACM). Asbestos gained wide-spread use because it was plentiful, readily available and low in cost. Because of its unique properties – fire resistance, high tensile strength, poor heat and electrical conductivity and being generally impervious to chemicals attacks – asbestos proved well-suited for many uses in the construction trades.

Asbestos-related diseases are chronic diseases and symptoms usually do not appear for 15 to 40 years after initial exposures to airborne asbestos fibers. In nearly all cases, many years of exposure to high levels of airborne ACM is necessary for personnel to contract asbestos-related diseases.

The primary exposure route is inhalation. Inhaled fibers may become embedded in the bronchial tubes or alveoli, or they may pass through to the pleura – the lining of the chest cavity. Asbestos-related diseases include asbestosis, lung cancer, mesothelioma and gastrointestinal cancers.

## **Survey Procedures**

Survey procedures were conducted by a State of Michigan accredited Asbestos Building Inspector in accordance with AHERA requirements.

To complete this survey, the inspector(s) reviewed the most recent re-inspection report and performed an inspection of the materials identified in that report as either known or assumed to be asbestos containing. During the inspection, the inspector visually inspected materials for damage or the potential for damage.

NAS did not conduct a thorough inspection of the building(s) to determine the presence, location, or quantity of materials suspected to contain asbestos. NAS only inspected the materials identified in the previous re-inspection. Prior to performing any renovation work NAS strongly recommends a thorough building inspection be performed.

## Facility Recommendations

Based on the findings of the Inspector, the following general site recommendations have been made:

Careful review of the included Response Action Report should be conducted by the Districts Designated Person. The reports titled Material Report will provide a detailed description of the suspect ACM found, asbestos content, friability, type of asbestos present, and the total quantity found in each building. Reports Response Action Report will provide a description of what ACMs were found in each room, comments on the specific location and damage if any was observed and response actions to be taken for each of the known or assumed ACM.

For materials that have been identified as damaged, it is recommended that a licensed abatement contractor be contacted to make any repairs or to conduct any removal activities needed.

In accordance with CFR 1910.1200, it is recommended that each ACM be properly labeled as asbestos containing. Warning labels should contain the following information:

Danger  
Contains Asbestos Fibers  
Avoid Creating Dust  
Cancer and Lung Disease Hazard

Labels should be placed in various locations on each material in a manner to avoid accidental disturbance.

Prior to any renovation or maintenance activity, review the Management Plan to ensure materials being impacted by the renovation/activity do not contain asbestos. Should materials likely to be disturbed not be accurately described in the inspection reports, contact a licensed Asbestos Building Inspector to collect samples. Do not disturb materials not described in the Management Plan or materials identified as asbestos containing or assumed to contain asbestos.

If a disturbance occurs, either accidental or planned (abatement project), area air monitoring should be conducted to establish the airborne concentration of asbestos fibers present. Both State and Federal Agency strictly govern disturbance activities and exposure to employees and building occupants. Proper air sampling can determine if area contamination has occurred as well as help assure employees and building occupants in adjacent areas are not being exposed. In addition to area monitoring, AHERA requires third party area air clearance testing whenever a disturbance occurs.

Records of future renovation activities should be kept. These records should include what materials were disturbed and to what extent. Also, information on replacement materials is vital in keeping this survey up to date. Often Architects or Design Engineers can provide legal statements indicating that replacement materials do not contain asbestos. Other documentation of this sort would be material or product safety data sheets. If proper documentation is not available for suspect ACM's located in building constructed prior to 1986, sample collection and analysis is required by State and Federal Regulations.

Both CFR 1910.110 and CFR 1926.110 require that employers provide awareness training to all employees that are expected to come in contact with or required to work in the general vicinity of ACM. In accordance with regulatory requirements, it is recommended that all housekeeping and maintenance employees receive, at a minimum, 2-hour asbestos awareness training. In addition, employees that are required to conduct minor cleanup projects shall be provided additional training.

### **Management Planner's Recommendations**

All of the ACM or suspect ACM identified in this report was noted by the inspector as being in good condition unless specifically mentioned below under each building name. Continue the facility's operations and maintenance program and conduct periodic assessments (at least every 6 months) of all known or assumed asbestos containing materials.

The following recommendations (not all inclusive, see Response Actions for additional recommendations) are based on the inspector's findings, laboratory results and the management planner's opinion. Please note that all work described below must be completed either by in house properly trained 16-hour asbestos operations and maintenance personnel or a licensed asbestos abatement contractor. Third-party air clearance testing should be conducted following any repair/removal actions described below:

**School Building Number 1 - Bullock Creek High School**

1. All ACM observed during this re-inspection was found to be in good condition.

**School Building Number 2 - Bullock Creek Middle School**

1. All ACM observed during this re-inspection was found to be in good condition.

**School Building Number 3 - Bullock Creek Elementary School**

1. All ACM observed during this re-inspection was found to be in good condition.

**School Building Number 4 - Bullock Creek Elementary School**

1. All ACM observed during this re-inspection was found to be in good condition.


**School Building Number 5 - Pine River Elementary**

1. All ACM observed during this re-inspection was found to be in good condition.

## Signature Page


### Inspection Statement

The person(s) listed below hereby attest(s) that he/she/they did inspect, assess and perform sampling of suspect asbestos containing building materials (ACBM) at the buildings/portions of buildings listed in this report in accordance with AHERA regulations set forth in 40 CFR Section 763.85(a):

Name	Accreditation No.	Signature	Date
Juston Rehkopf	A36980		November 21, 2019

### Management Plan Statement

The person(s) listed below hereby attest(s) that he/she/they did review the asbestos re-inspection data collected by the asbestos building inspector for this re-inspection. Any recommendations are based on the above referenced inspection in accordance with AHERA regulations set forth in 40 CFR Section 763.93 (12), (ii).

Name	Accreditation No.	Signature	Date
John Rehkopf	A16809		November 21, 2019

Bullock Creek Schools  
3 Year Re-inspection Report  
Project No. 190321  
November 21, 2019

**Local Education Information**

Local Education Agency (LEA): Bullock Creek Schools  
LEA Address: 1420 South Badour Road, Midland, Michigan 48640  
Designated Person: William Rogers  
Designated Person Address: 1420 South Badour Road, Midland, Michigan 48640  
Designated Person Telephone: 989-631-9022

**Training Certification**

The Designated Person(s) listed above attests that he/she/they received adequate training covering the Local Education Agency's (LEA) responsibilities for Designated Person in accordance with 763.93 (e)(4). This training included:

- The health effects of asbestos exposure
- Detection, identification and assessment of ACBM
- Options for controlling ACBM
- Asbestos management programs
- Relevant State and Federal regulations regarding asbestos
- The LEA/Designated Person responsibilities.

Training was provided by: Northern Analytical Services, LLC.

Under the course titled: Asbestos Designated Person Training

on: 7/23/2008 , and was 2 hours in length.

Designated Person Signature: \_\_\_\_\_ Date \_\_\_\_\_  
William Rogers

**LEA Responsibility Certification**

The Designated Person listed above certifies that the general LEA responsibilities as required by 763.84 have been or will be satisfied. This includes the following actions:

1. Anyone who conducts any inspections, re-inspections or abatement projects; develops or updates management plans; or performs operations and maintenance that will disturb ACM are licensed asbestos professionals.
2. All custodial and maintenance staff have received two-hour asbestos awareness training and 14 hours of operations and maintenance training (along with annual refreshers) as described in AHERA.
3. The parents, teachers and employee organizations are notified on an annual basis of all inspections, response actions and periodic surveillance that are planned or in progress in regard to asbestos in each school building.
4. Short-term workers (e.g., telephone repair workers, utility workers or exterminators) are informed of the locations of ACBM in school buildings.
5. Warning signs are posted immediately adjacent to ACM in routine maintenance areas that state:  
Danger. Asbestos. Hazardous.  
Do Not Disturb  
Without Proper Training and Equipment
6. Parents, teachers and employee organizations are notified in writing on an annual basis of the availability of the school's asbestos management plan.
7. The management plans are available for inspection in each school and the district office.
8. Records are properly maintained.
9. Each management plan contains a statement, signed by the designated person that certifies the LEA's responsibilities have been or will be met. The statement needs to be amended for each new designated person chosen by the LEA.
10. Re-inspections are conducted at least once every three years after a management plan is in effect.

As the Designated Person for Bullock Creek Schools, I will ensure that the above items are completed in accordance with AHERA.

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Signature of Designated Person

William Rogers

Date

### **Annual Notification**

Annual AHERA Notifications to Employees, Students, and Parents.

The Asbestos Hazard Emergency Response Act (AHERA) requires schools to "ensure that workers and building occupants, or their legal guardians, are informed at least once each school year about inspections, response actions, and post-response action activities, including periodic reinspection and surveillance activities that are planned or in progress (763.84(c)). Such notification must be done in writing and a copy placed in the management plan. Suggested notification methods may be through the publication of an article in a school district newsletter or through a separate written notice distributed to staff and sent home to a student's parent or legal guardian.

In addition, schools "shall make management plans available for inspection to representatives of EPA and the State, the public, including parents, teachers, and other school personnel within 5 working days after receiving a request for inspection (763.93(g)(3)). Furthermore, "the local education agency shall notify in writing parent, teacher, and employee organizations of the availability of management plans and shall include in the management plan a description of steps to notify such organizations, and a dated copy of the notification. In the absence of any such organizations for parents, teachers, or employees, the local education agency shall provide written notice to that relevant group of the availability of management plans and shall include in the management plan a description of the steps taken to notify such groups and a dated copy of the notification" ( 763.93(g)(4).

The LEA asbestos designated person for the school district is to ensure that these AHERA required notifications occur each school year. The school may determine when to do AHERA notification, as long as it occurs at least once each school year.

A copy of the annual notification can be found in Appendix A.



**Appendix A**  
**Notifications & Forms**

## Annual AHERA Notification

Bullock Creek Schools has an Asbestos Management Plan in place in accordance with the Asbestos Hazard Emergency Response Act (AHERA). The plan is available for review in the main office. Please call Mr. William Rogers at (989-631-9022) to view during normal operational hours, 8AM to 4PM Monday through Friday with the exception of holidays.

In accordance with AHERA requirements, Bullock Creek Schools has contracted Northern Analytical Services, LLC. (NAS) to perform all re-inspections of known asbestos containing materials present, to prepare written project designs for all response actions and to perform all post response action testing. As part of this plan, NAS performed the most recent 3-year re-inspection on 11/11/2019.

Over the past 12 months, the following materials were removed from our buildings:

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In the next 12 months we are planning to remove the following materials from our buildings:

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Prior to conducting any work that disturbs asbestos, Bullock Creek Schools will notify all parents and building staff in advance.

Sincerely,

William Rogers  
Bullock Creek Schools

## **Asbestos Removal Notification**

In an effort to provide our students with the best learning environment possible, Bullock Creek Schools is planning a building improvement project that will require the disturbance of asbestos containing materials. We have retained the services of a State of Michigan accredited Asbestos Project Designer to prepare written specifications to help ensure the work is completed in the safest manner possible. All removal work will be performed by a State of Michigan licensed asbestos abatement contractor and overseen by a qualified third-party air quality testing firm.

Third party air clearance testing will be performed before the areas affected by the asbestos removal are returned to normal use.

Asbestos Removal is scheduled to be removed from the following buildings:

Building Name	Start Date	Completion Date

Please contact our District's Designated Person, Mr. William Rogers at 989-631-9022 with any questions.



Local Education Agency (LEA) Name

Bullock Creek Schools

School Building Number/Name

1-Bullock Creek High School

**Periodic Surveillance**

1. Name of Person Performing the Surveillance:

Last

First

M.I.

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2. Date of the Surveillance:

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3. Description of any Changes in the Condition of the Materials:

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Local Education Agency (LEA) Name

Bullock Creek Schools

School Building Number/Name

2-Bullock Creek Middle School

## Periodic Surveillance

1. Name of Person Performing the Surveillance:

Last

First

M.I.

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2. Date of the Surveillance:

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3. Description of any Changes in the Condition of the Materials:

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Local Education Agency (LEA) Name

Bullock Creek Schools

School Building Number/Name

3-Bullock Creek Elementary School

## Periodic Surveillance

1. Name of Person Performing the Surveillance:

Last

First

M.I.

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2. Date of the Surveillance:

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3. Description of any Changes in the Condition of the Materials:

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Local Education Agency (LEA) Name

Bullock Creek Schools

School Building Number/Name

4-Floyd Elementary School

## Periodic Surveillance

1. Name of Person Performing the Surveillance:

Last

First

M.I.

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2. Date of the Surveillance:

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3. Description of any Changes in the Condition of the Materials:

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Local Education Agency (LEA) Name

Bullock Creek Schools

School Building Number/Name

5-Pine River Elementary

## Periodic Surveillance

1. Name of Person Performing the Surveillance:

Last

First

M.I.

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2. Date of the Surveillance:

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3. Description of any Changes in the Condition of the Materials:

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## **Appendix B**

### **Inspection Data**

# **Bullock Creek High School**

## **Material Report**

# Northern Analytical Services, LLC.

14870 225th Avenue, Big Rapids, MI 49307 - (231) 268-0004 - Fax (866) 214-4739

Customer:

Building:

Address:

Bullock Creek Schools  
Bullock Creek High School  
1420 South Badour Road  
Midland, MI 48640

Printed:

November 21, 2019

## Material Report

<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Category</i>	<i>Friability*</i>	<i>RACM**</i>	<i>Asbestos Detected</i>	<i>Percent Asbestos</i>	<i>Asbestos Type</i>	<i>Quantity</i>	<i>Units</i>
2	Pipe Insulation-Mudded Fitting - On fiberglass line	Thermal	Yes	Yes	Yes	10%	Chrysotile	1188	Ln.Ft.
3	Pipe Insulation-Mudded Roof Drain -	Thermal	Yes	Yes	Yes	---	Assumed	1	Ln.Ft.
22	Floor Tile & Mastic - 9 inch	Misc.	Category I Non-Friable	No	Yes	---	Assumed	30840	Sq.Ft.
30	Laboratory Counter Top -	Misc.	Category II Non-Friable	No	Yes	---	Assumed	6	Sq.Ft.
31	Texture - Popcorn paint	Surfacing	Yes	Yes	Yes	---	Assumed	1600	Sq.Ft.
32	Tar, Felt & Associated Mastic Layers Under Wood Floor -	Misc.	Category II Non-Friable	No	Yes	---	Assumed	8100	Sq.Ft.
33	Boiler Insulation -	Thermal	Yes	Yes	Yes	---	Assumed	0	Sq.Ft.
34	Caulk - On exterior steel door frame	Misc.	Category II Non-Friable	No	Yes	3%	Chrysotile	0	Each
35	Window Glazing - In steel door frame	Misc.	Yes	No	No	0%	None Detected	0	Sq.Ft.

\* Non-Friable materials may become friable when damaged.

\*\* May become regulated asbestos containing material (RACM) when damaged.

Misc. = miscellaneous material

Surfacing = surfacing material

Thermal = thermal system insulation

RACM = regulated asbestos containing material

## **Response Action Report**

# Northern Analytical Services, LLC.

14870 225th Avenue, Big Rapids, MI 49307 - (231) 268-0004 - Fax (866) 214-4739

LEA:  
Building:  
Building No.:  
Address:

Bullock Creek Schools  
Bullock Creek High School  
1  
1420 South Badour Road  
Midland, MI 48640

## Response Action Report

Printed:

November 21, 2019

<i>Room Number</i>	<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Quantity</i>	<i>Units</i>	<i>Comments</i>	<i>Response Action (AHERA Ranking)</i>
01	22	Floor Tile & Mastic - 9 inch	900	Sq.Ft.		maintain with O&M plan. (7)
02	22	Floor Tile & Mastic - 9 inch	900	Sq.Ft.		maintain with O&M plan. (7)
03	22	Floor Tile & Mastic - 9 inch	100	Sq.Ft.		maintain with O&M plan. (7)
04	22	Floor Tile & Mastic - 9 inch	800	Sq.Ft.		maintain with O&M plan. (7)
04	31	Texture - Popcorn paint	1600	Sq.Ft.		maintain with O&M plan. (7)
05	22	Floor Tile & Mastic - 9 inch	900	Sq.Ft.		maintain with O&M plan. (7)
06	22	Floor Tile & Mastic - 9 inch	900	Sq.Ft.		maintain with O&M plan. (7)
07	22	Floor Tile & Mastic - 9 inch	900	Sq.Ft.		maintain with O&M plan. (7)
08	22	Floor Tile & Mastic - 9 inch	900	Sq.Ft.		maintain with O&M plan. (7)
09	22	Floor Tile & Mastic - 9 inch	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)
10	22	Floor Tile & Mastic - 9 inch	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)
11	22	Floor Tile & Mastic - 9 inch	900	Sq.Ft.		maintain with O&M plan. (7)
12	22	Floor Tile & Mastic - 9 inch	600	Sq.Ft.		maintain with O&M plan. (7)
13	22	Floor Tile & Mastic - 9 inch	600	Sq.Ft.		maintain with O&M plan. (7)
14	22	Floor Tile & Mastic - 9 inch	600	Sq.Ft.		maintain with O&M plan. (7)
15	22	Floor Tile & Mastic - 9 inch	600	Sq.Ft.		maintain with O&M plan. (7)

# Northern Analytical Services, LLC.

14870 225th Avenue, Big Rapids, MI 49307 - (231) 268-0004 - Fax (866) 214-4739

LEA:  
Building:  
Building No.:  
Address:

Bullock Creek Schools  
Bullock Creek High School  
1  
1420 South Badour Road  
Midland, MI 48640

## Response Action Report

Printed:

November 21, 2019

<i>Room Number</i>	<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Quantity</i>	<i>Units</i>	<i>Comments</i>	<i>Response Action (AHERA Ranking)</i>
16	22	Floor Tile & Mastic - 9 inch	1000	Sq.Ft.		maintain with O&M plan. (7)
17	22	Floor Tile & Mastic - 9 inch	1000	Sq.Ft.		maintain with O&M plan. (7)
18	22	Floor Tile & Mastic - 9 inch	1000	Sq.Ft.		maintain with O&M plan. (7)
19	22	Floor Tile & Mastic - 9 inch	1000	Sq.Ft.		maintain with O&M plan. (7)
20	2	Pipe Insulation-Mudded Fitting - On fiberglass line	2	Ln.Ft.		maintain with O&M plan. (7)
20	22	Floor Tile & Mastic - 9 inch	80	Sq.Ft.		maintain with O&M plan. (7)
21	22	Floor Tile & Mastic - 9 inch	900	Sq.Ft.		maintain with O&M plan. (7)
22	22	Floor Tile & Mastic - 9 inch	200	Sq.Ft.		maintain with O&M plan. (7)
23	32	Tar, Felt & Associated Mastic Layers Under Wood Floor -	8100	Sq.Ft.		maintain with O&M plan. (7)
24	2	Pipe Insulation-Mudded Fitting - On fiberglass line	16	Ln.Ft.		maintain with O&M plan. (7)
24	3	Pipe Insulation-Mudded Roof Drain -	1	Ln.Ft.		maintain with O&M plan. (7)
25	2	Pipe Insulation-Mudded Fitting - On fiberglass line	21	Ln.Ft.		maintain with O&M plan. (7)
26	2	Pipe Insulation-Mudded Fitting - On fiberglass line	0	Ln.Ft.	Removed in 2013	maintain with O&M plan. (7)
26	33	Boiler Insulation -	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)
26.1	2	Pipe Insulation-Mudded Fitting - On fiberglass line	5	Ln.Ft.		maintain with O&M plan. (7)
26.2	2	Pipe Insulation-Mudded Fitting - On fiberglass line	27	Ln.Ft.		maintain with O&M plan. (7)



# Northern Analytical Services, LLC.

14870 225th Avenue, Big Rapids, MI 49307 - (231) 268-0004 - Fax (866) 214-4739

LEA:  
Building:  
Building No.:  
Address:

Bullock Creek Schools  
Bullock Creek High School  
1  
1420 South Badour Road  
Midland, MI 48640

## Response Action Report

Printed:

November 21, 2019

<i>Room Number</i>	<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Quantity</i>	<i>Units</i>	<i>Comments</i>	<i>Response Action (AHERA Ranking)</i>
26.3	2	Pipe Insulation-Mudded Fitting - On fiberglass line	10	Ln.Ft.		maintain with O&M plan. (7)
26.4	2	Pipe Insulation-Mudded Fitting - On fiberglass line	11	Ln.Ft.		maintain with O&M plan. (7)
27	22	Floor Tile & Mastic - 9 inch	0	Sq.Ft.		maintain with O&M plan. (7)
28	22	Floor Tile & Mastic - 9 inch	300	Sq.Ft.		maintain with O&M plan. (7)
29	22	Floor Tile & Mastic - 9 inch	200	Sq.Ft.		maintain with O&M plan. (7)
30	22	Floor Tile & Mastic - 9 inch	0	Sq.Ft.		maintain with O&M plan. (7)
31	22	Floor Tile & Mastic - 9 inch	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)
32	22	Floor Tile & Mastic - 9 inch	400	Sq.Ft.		maintain with O&M plan. (7)
33	22	Floor Tile & Mastic - 9 inch	820	Sq.Ft.		maintain with O&M plan. (7)
34	22	Floor Tile & Mastic - 9 inch	820	Sq.Ft.		maintain with O&M plan. (7)
35	2	Pipe Insulation-Mudded Fitting - On fiberglass line	900	Ln.Ft.		maintain with O&M plan. (7)
35	30	Laboratory Counter Top -	3	Sq.Ft.		maintain with O&M plan. (7)
36	22	Floor Tile & Mastic - 9 inch	900	Sq.Ft.		maintain with O&M plan. (7)
36	30	Laboratory Counter Top -	3	Sq.Ft.		maintain with O&M plan. (7)
37	22	Floor Tile & Mastic - 9 inch	100	Sq.Ft.		maintain with O&M plan. (7)
38	22	Floor Tile & Mastic - 9 inch	100	Sq.Ft.		maintain with O&M plan. (7)

# Northern Analytical Services, LLC.

14870 225th Avenue, Big Rapids, MI 49307 - (231) 268-0004 - Fax (866) 214-4739

LEA:  
Building:  
Building No.:  
Address:

Bullock Creek Schools  
Bullock Creek High School  
1  
1420 South Badour Road  
Midland, MI 48640

## Response Action Report

Printed:

November 21, 2019

<i>Room Number</i>	<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Quantity</i>	<i>Units</i>	<i>Comments</i>	<i>Response Action (AHERA Ranking)</i>
39	22	Floor Tile & Mastic - 9 inch	820	Sq.Ft.		maintain with O&M plan. (7)
40	22	Floor Tile & Mastic - 9 inch	600	Sq.Ft.		maintain with O&M plan. (7)
41	22	Floor Tile & Mastic - 9 inch	600	Sq.Ft.		maintain with O&M plan. (7)
42	22	Floor Tile & Mastic - 9 inch	820	Sq.Ft.		maintain with O&M plan. (7)
43	22	Floor Tile & Mastic - 9 inch	400	Sq.Ft.		maintain with O&M plan. (7)
44	22	Floor Tile & Mastic - 9 inch	820	Sq.Ft.		maintain with O&M plan. (7)
45	22	Floor Tile & Mastic - 9 inch	820	Sq.Ft.		maintain with O&M plan. (7)
46	22	Floor Tile & Mastic - 9 inch	820	Sq.Ft.		maintain with O&M plan. (7)
47	22	Floor Tile & Mastic - 9 inch	820	Sq.Ft.		maintain with O&M plan. (7)
48	22	Floor Tile & Mastic - 9 inch	2700	Sq.Ft.		maintain with O&M plan. (7)
49	22	Floor Tile & Mastic - 9 inch	900	Sq.Ft.		maintain with O&M plan. (7)
50	22	Floor Tile & Mastic - 9 inch	900	Sq.Ft.		maintain with O&M plan. (7)
51	2	Pipe Insulation-Mudded Fitting - On fiberglass line	20	Ln.Ft.		maintain with O&M plan. (7)
51	22	Floor Tile & Mastic - 9 inch	1400	Sq.Ft.		maintain with O&M plan. (7)
52	2	Pipe Insulation-Mudded Fitting - On fiberglass line	9	Ln.Ft.		maintain with O&M plan. (7)
53	2	Pipe Insulation-Mudded Fitting - On fiberglass line	120	Ln.Ft.		maintain with O&M plan. (7)

# Northern Analytical Services, LLC.

14870 225th Avenue, Big Rapids, MI 49307 - (231) 268-0004 - Fax (866) 214-4739

LEA:  
Building:  
Building No.:  
Address:

Bullock Creek Schools  
Bullock Creek High School  
1  
1420 South Badour Road  
Midland, MI 48640

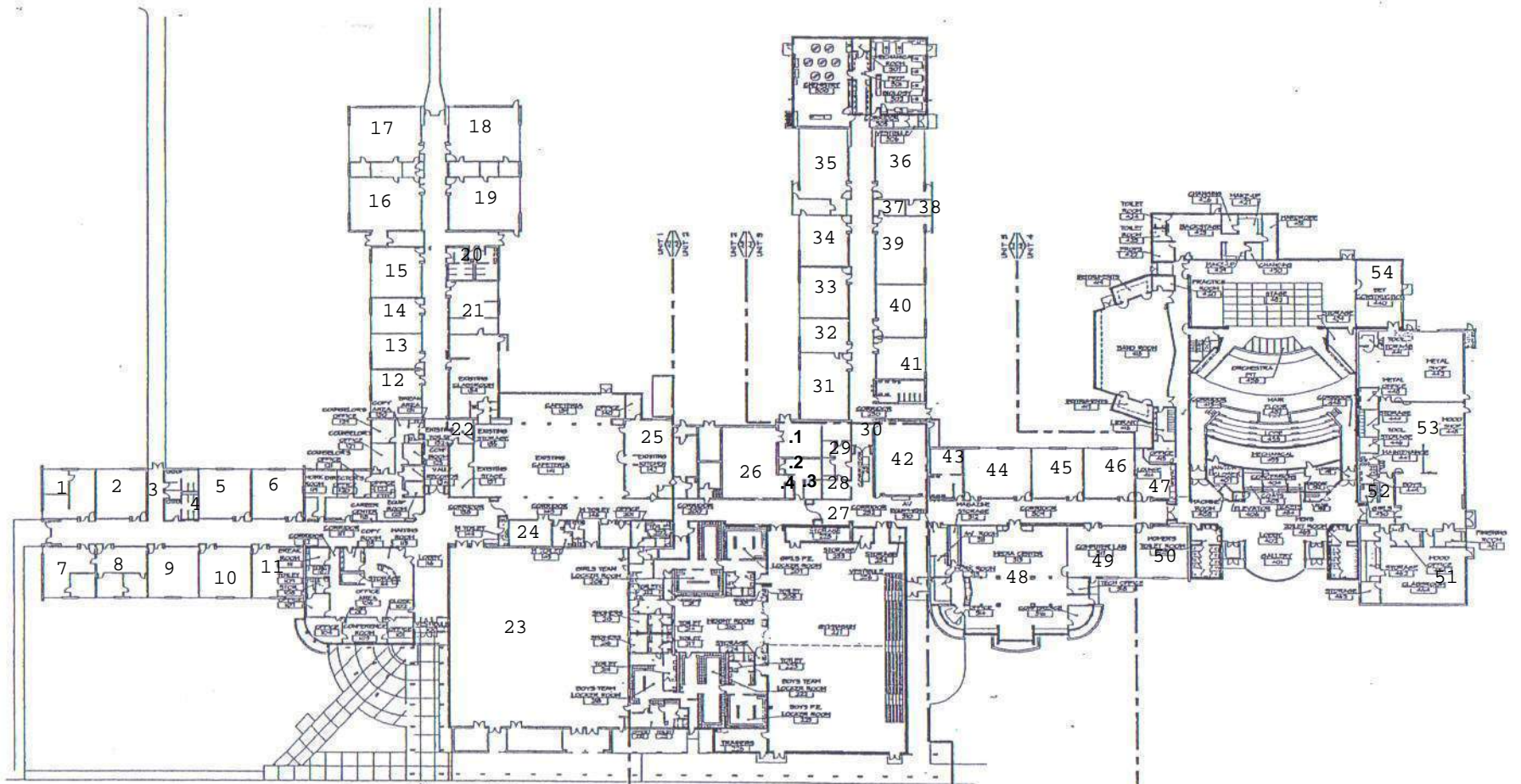
## Response Action Report

Printed:

November 21, 2019

<i>Room Number</i>	<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Quantity</i>	<i>Units</i>	<i>Comments</i>	<i>Response Action (AHERA Ranking)</i>
54	2	Pipe Insulation-Mudded Fitting - On fiberglass line	47	Ln.Ft.		maintain with O&M plan. (7)
Throughout Building	34	Caulk - On exterior steel door frame	0	Each	Removed in 2013	maintain with O&M plan. (7)

## Floor Plan



COMPOSITE FLOOR PLAN

MAIN DOOR ADDRESS SIDE



# BULLOCK CREEK HIGH SCHOOL

## BULLOCK CREEK SCHOOL DISTRICT



# **Bullock Creek Middle School**

## **Material Report**

# Northern Analytical Services, LLC.

14870 225th Avenue, Big Rapids, MI 49307 - (231) 268-0004 - Fax (866) 214-4739

Customer:

Building:

Address:

Bullock Creek Schools  
Bullock Creek Middle School  
644 South Badour Road  
Midland, MI 48640

Printed:

November 21, 2019

## Material Report

<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Category</i>	<i>Friability*</i>	<i>RACM**</i>	<i>Asbestos Detected</i>	<i>Percent Asbestos</i>	<i>Asbestos Type</i>	<i>Quantity</i>	<i>Units</i>
2	Floor Tile & Mastic -	Misc.	Category I Non-Friable	No	Yes		Assumed	31892	Sq.Ft.
3	Laboratory Counter Top - Black	Misc.	Category II Non-Friable	No	Yes		Assumed	0	Sq.Ft.
5	Fire Rated Door -	Misc.	Category II Non-Friable	No	Yes		Assumed	2	Each
6	Tar, Felt & Associated Mastic Layers Under Wood Floor - woolfelt	Misc.	No	No	Yes		Assumed	3600	Sq.Ft.
7	Transite Panels -	Misc.	Category II Non-Friable	No	Yes		Assumed	164	Sq.Ft.
8	Pipe Insulation-Mudded Fitting - and elbows	Thermal	Yes	Yes	Yes		Assumed	3	Ln.Ft.
10	Pipe Insulation-Mudded Fitting - roof drains	Thermal	Yes	Yes	Yes		Assumed	4	Ln.Ft.
11	Caulk - on exterior metal door frame	Misc.	Category II Non-Friable	No	Yes	2%	Chrysotile	18	Sq.Ft.
12	window glazing - on exterior metal door frame	Misc.	No	No	Yes		Chrysotile	18	sq.ft.
13	Drywall - with texture ceiling	Misc.	Yes	Yes	Yes	4%	Chrysotile	438	Sq.Ft.
14	Pipe Insulation-Mudded Fitting - on fiberglass line	Thermal	Yes	Yes	Yes		Assumed	90	Ln.Ft.

\* Non-Friable materials may become friable when damaged.

\*\* May become regulated asbestos containing material (RACM) when damaged.

Misc. = miscellaneous material

Surfacing = surfacing material

Thermal = thermal system insulation

RACM = regulated asbestos containing material



## **Response Action Report**

# Northern Analytical Services, LLC.

14870 225th Avenue, Big Rapids, MI 49307 - (231) 268-0004 - Fax (866) 214-4739

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Bullock Creek Schools  
Bullock Creek Middle School  
2  
644 South Badour Road  
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## Response Action Report

Printed:

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<i>Room Number</i>	<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Quantity</i>	<i>Units</i>	<i>Comments</i>	<i>Response Action (AHERA Ranking)</i>
01	2	Floor Tile & Mastic -	900	Sq.Ft.		maintain with O&M plan. (7)
02	2	Floor Tile & Mastic -	900	Sq.Ft.		maintain with O&M plan. (7)
03	2	Floor Tile & Mastic -	900	Sq.Ft.		maintain with O&M plan. (7)
04	2	Floor Tile & Mastic -	900	Sq.Ft.		maintain with O&M plan. (7)
05	5	Fire Rated Door -	1	Each		maintain with O&M plan. (7)
06	2	Floor Tile & Mastic -	900	Sq.Ft.		maintain with O&M plan. (7)
07	2	Floor Tile & Mastic -	900	Sq.Ft.		maintain with O&M plan. (7)
08	2	Floor Tile & Mastic -	900	Sq.Ft.		maintain with O&M plan. (7)
09	2	Floor Tile & Mastic -	900	Sq.Ft.		maintain with O&M plan. (7)
10	2	Floor Tile & Mastic -	900	Sq.Ft.		maintain with O&M plan. (7)
11	2	Floor Tile & Mastic -	1000	Sq.Ft.		maintain with O&M plan. (7)
12	2	Floor Tile & Mastic -	1000	Sq.Ft.		maintain with O&M plan. (7)
13	2	Floor Tile & Mastic -	900	Sq.Ft.		maintain with O&M plan. (7)
14	2	Floor Tile & Mastic -	900	Sq.Ft.		maintain with O&M plan. (7)
14	11	Caulk - on exterior metal door frame	1	Sq.Ft.		maintain with O&M plan. (7)
14	12	window glazing - on exterior metal door frame	1	sq.ft.		maintain with O&M plan. (7)

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15	2	Floor Tile & Mastic -	550	Sq.Ft.		maintain with O&M plan. (7)
16	2	Floor Tile & Mastic -	900	Sq.Ft.		maintain with O&M plan. (7)
17	2	Floor Tile & Mastic -	900	Sq.Ft.		maintain with O&M plan. (7)
17	11	Caulk - on exterior metal door frame	1	Sq.Ft.		maintain with O&M plan. (7)
17	12	window glazing - on exterior metal door frame	1	sq.ft.		maintain with O&M plan. (7)
18	2	Floor Tile & Mastic -	600	Sq.Ft.		maintain with O&M plan. (7)
19	2	Floor Tile & Mastic -	900	Sq.Ft.		maintain with O&M plan. (7)
20	2	Floor Tile & Mastic -	800	Sq.Ft.		maintain with O&M plan. (7)
20	11	Caulk - on exterior metal door frame	1	Sq.Ft.		maintain with O&M plan. (7)
20	12	window glazing - on exterior metal door frame	1	sq.ft.		maintain with O&M plan. (7)
21	2	Floor Tile & Mastic -	800	Sq.Ft.		maintain with O&M plan. (7)
21	11	Caulk - on exterior metal door frame	1	Sq.Ft.		maintain with O&M plan. (7)
21	12	window glazing - on exterior metal door frame	1	sq.ft.		maintain with O&M plan. (7)
22	2	Floor Tile & Mastic -	800	Sq.Ft.		maintain with O&M plan. (7)
23	2	Floor Tile & Mastic -	800	Sq.Ft.		maintain with O&M plan. (7)
24	2	Floor Tile & Mastic -	800	Sq.Ft.		maintain with O&M plan. (7)

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24	11	Caulk - on exterior metal door frame	1	Sq.Ft.		maintain with O&M plan. (7)
24	12	window glazing - on exterior metal door frame	1	sq.ft.		maintain with O&M plan. (7)
25	2	Floor Tile & Mastic -	800	Sq.Ft.		maintain with O&M plan. (7)
26	2	Floor Tile & Mastic -	2	Sq.Ft.		maintain with O&M plan. (7)
26	2	Floor Tile & Mastic -	1200	Sq.Ft.		maintain with O&M plan. (7)
26	11	Caulk - on exterior metal door frame	2	Sq.Ft.		maintain with O&M plan. (7)
26	12	window glazing - on exterior metal door frame	2	sq.ft.		maintain with O&M plan. (7)
27	2	Floor Tile & Mastic -	200	Sq.Ft.		maintain with O&M plan. (7)
28	2	Floor Tile & Mastic -	80	Sq.Ft.		maintain with O&M plan. (7)
29	13	Drywall - with texture ceiling	219	Sq.Ft.		maintain with O&M plan. (7)
29	14	Pipe Insulation-Mudded Fitting - on fiberglass line	45	Ln.Ft.		maintain with O&M plan. (7)
30	13	Drywall - with texture ceiling	219	Sq.Ft.		maintain with O&M plan. (7)
30	14	Pipe Insulation-Mudded Fitting - on fiberglass line	45	Ln.Ft.		maintain with O&M plan. (7)
31	2	Floor Tile & Mastic -	600	Sq.Ft.		maintain with O&M plan. (7)
31	11	Caulk - on exterior metal door frame	2	Sq.Ft.		maintain with O&M plan. (7)
31	12	window glazing - on exterior metal door frame	2	sq.ft.		maintain with O&M plan. (7)

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<i>Room Number</i>	<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Quantity</i>	<i>Units</i>	<i>Comments</i>	<i>Response Action (AHERA Ranking)</i>
32	2	Floor Tile & Mastic -	800	Sq.Ft.		maintain with O&M plan. (7)
33	2	Floor Tile & Mastic -	600	Sq.Ft.		maintain with O&M plan. (7)
33	11	Caulk - on exterior metal door frame	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)
34	2	Floor Tile & Mastic -	3600	Sq.Ft.		maintain with O&M plan. (7)
34	11	Caulk - on exterior metal door frame	2	Sq.Ft.		maintain with O&M plan. (7)
34	12	window glazing - on exterior metal door frame	2	sq.ft.		maintain with O&M plan. (7)
35	5	Fire Rated Door -	1	Each		maintain with O&M plan. (7)
36	2	Floor Tile & Mastic -	100	Sq.Ft.		maintain with O&M plan. (7)
37	2	Floor Tile & Mastic -	300	Sq.Ft.		maintain with O&M plan. (7)
38	2	Floor Tile & Mastic -	3600	Sq.Ft.		maintain with O&M plan. (7)
38	6	Tar, Felt & Associated Mastic Layers Under Wood Floor - woolfelt	3600	Sq.Ft.		maintain with O&M plan. (7)
38	7	Transite Panels -	80	Sq.Ft.		maintain with O&M plan. (7)
38	10	Pipe Insulation-Mudded Fitting - roof drains	4	Ln.Ft.		maintain with O&M plan. (7)
38	11	Caulk - on exterior metal door frame	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)
39	2	Floor Tile & Mastic -	200	Sq.Ft.		maintain with O&M plan. (7)
39	8	Pipe Insulation-Mudded Fitting - and elbows	3	Ln.Ft.		maintain with O&M plan. (7)

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## Response Action Report

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<i>Room Number</i>	<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Quantity</i>	<i>Units</i>	<i>Comments</i>	<i>Response Action (AHERA Ranking)</i>
41	2	Floor Tile & Mastic -	60	Sq.Ft.		maintain with O&M plan. (7)
42	7	Transite Panels -	84	Sq.Ft.		maintain with O&M plan. (7)
42	11	Caulk - on exterior metal door frame	1	Sq.Ft.		maintain with O&M plan. (7)
42	12	window glazing - on exterior metal door frame	1	sq.ft.		maintain with O&M plan. (7)
43	11	Caulk - on exterior metal door frame	1	Sq.Ft.		maintain with O&M plan. (7)
43	12	window glazing - on exterior metal door frame	1	sq.ft.		maintain with O&M plan. (7)
44	11	Caulk - on exterior metal door frame	1	Sq.Ft.		maintain with O&M plan. (7)
44	12	window glazing - on exterior metal door frame	1	sq.ft.		maintain with O&M plan. (7)
45	11	Caulk - on exterior metal door frame	1	Sq.Ft.		maintain with O&M plan. (7)
45	12	window glazing - on exterior metal door frame	1	sq.ft.		maintain with O&M plan. (7)
46	11	Caulk - on exterior metal door frame	1	Sq.Ft.		maintain with O&M plan. (7)
46	12	window glazing - on exterior metal door frame	1	sq.ft.		maintain with O&M plan. (7)
Hall 2	11	Caulk - on exterior metal door frame	2	Sq.Ft.		maintain with O&M plan. (7)
Hall 2	12	window glazing - on exterior metal door frame	2	sq.ft.		maintain with O&M plan. (7)
Hall 3	11	Caulk - on exterior metal door frame	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)
Hall 4	11	Caulk - on exterior metal door frame	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)

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Bullock Creek Schools  
Bullock Creek Middle School  
2  
644 South Badour Road  
Midland, MI 48640

## Response Action Report

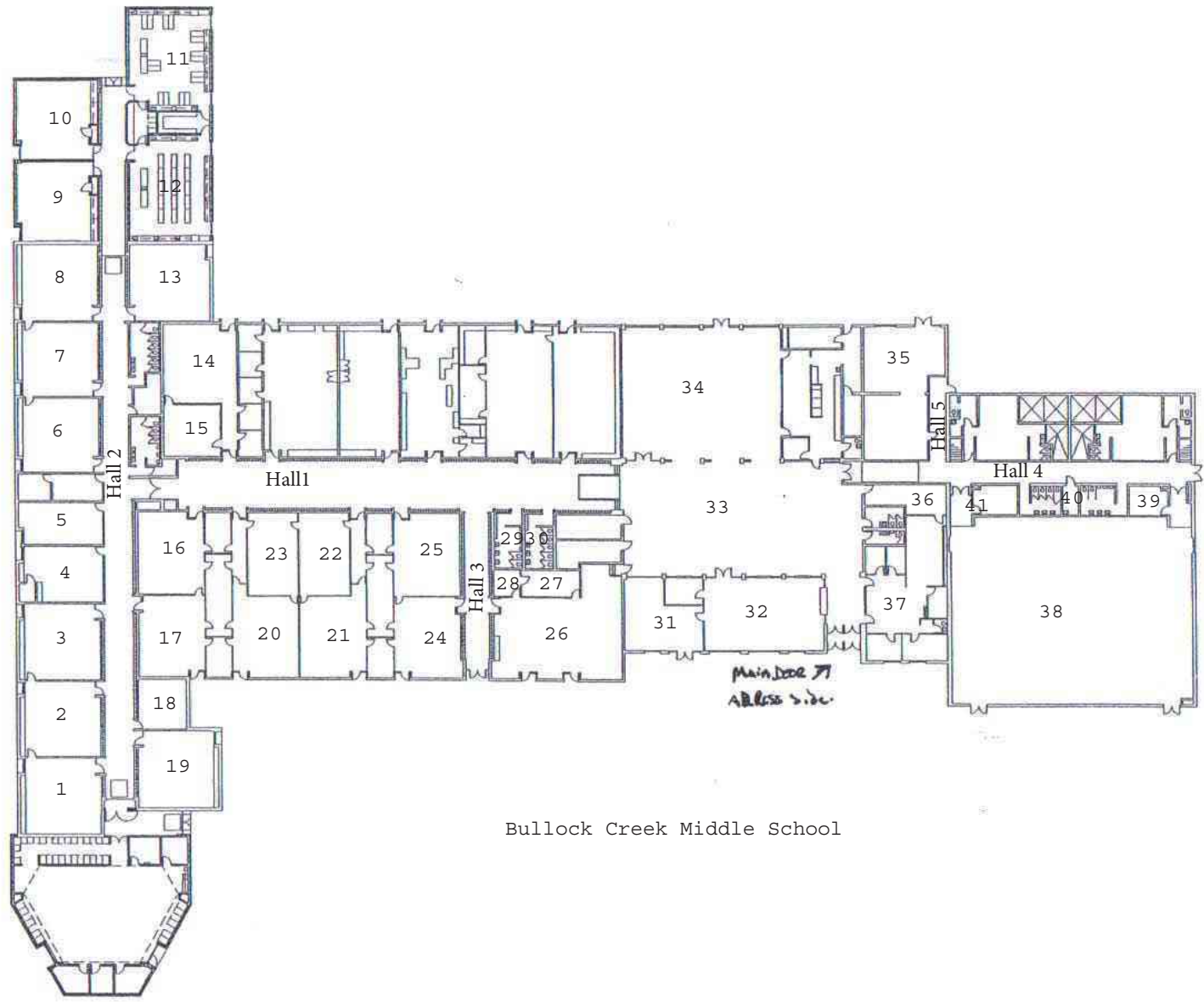
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<i>Room Number</i>	<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Quantity</i>	<i>Units</i>	<i>Comments</i>	<i>Response Action (AHERA Ranking)</i>
Hall 5	11	Caulk - on exterior metal door frame	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)

## Floor Plan





Bullock Creek Middle School

Bullock Creek Elementary School

## **Material Report**

# Northern Analytical Services, LLC.

14870 225th Avenue, Big Rapids, MI 49307 - (231) 268-0004 - Fax (866) 214-4739

Customer:

Building:

Address:

Bullock Creek Schools

Bullock Creek Elementary

1037 Poseyville Road

Midland, MI 48640

Printed:

November 21, 2019

## Material Report

<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Category</i>	<i>Friability*</i>	<i>RACM**</i>	<i>Asbestos Detected</i>	<i>Percent Asbestos</i>	<i>Asbestos Type</i>	<i>Quantity</i>	<i>Units</i>
1	Tank Insulation - water tank	Thermal	Yes	Yes	Yes		Assumed	0	Sq.Ft.
2	Pipe Insulation-Mudded Fitting - fiberglass runs	Thermal	Yes	Yes	Yes		Assumed	35	Ln.Ft.
5	Pipe Insulation - aircell	Thermal	Yes	Yes	Yes		Assumed	35	Ln.Ft.
6	Fire Brick -	Thermal	Yes	Yes	Yes		Assumed	60	Sq.Ft.
7	Ceiling Tile - 12 inch glued on	Misc.	Yes	No	Yes		Assumed	9140	Sq.Ft.
8	Floor Tile & Mastic - 9 inch	Misc.	Category I Non-Friable	No	Yes		Assumed	11480	Sq.Ft.
14	Fire Rated Door -	Misc.	Category II Non-Friable	No	Yes		Assumed	8	Each
15	Concrete Block -	Misc.	Category II Non-Friable	No	Yes		Assumed	240	Sq.Ft.
16	Glue - behind 12 inch ceiling tile	Misc.	Category II Non-Friable	No	Yes		Assumed	10420	Sq.Ft.
17	Vibration Dampener Cloth -	Misc.	Yes	No	No		None Detected	0	Sq.Ft.
18	Tar, Felt & Associated Mastic Layers Under Wood Floor -	Misc.	Category II Non-Friable	No	Yes		Assumed	9300	Sq.Ft.
19	Floor Tile & Mastic - 12"	Misc.	Category I Non-Friable	No	Yes		Assumed	17300	Sq.Ft.

\* Non-Friable materials may become friable when damaged.

\*\* May become regulated asbestos containing material (RACM) when damaged.

Misc. = miscellaneous material

Surfacing = surfacing material

Thermal = thermal system insulation

RACM = regulated asbestos containing material

## **Response Action Report**

# Northern Analytical Services, LLC.

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LEA:  
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Bullock Creek Schools  
Bullock Creek Elementary  
3  
1037 Poseyville Road  
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<i>Room Number</i>	<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Quantity</i>	<i>Units</i>	<i>Comments</i>	<i>Response Action (AHERA Ranking)</i>
01	8	Floor Tile & Mastic - 9 inch	780	Sq.Ft.		maintain with O&M plan. (7)
01	16	Glue - behind 12 inch ceiling tile	580	Sq.Ft.		maintain with O&M plan. (7)
02	8	Floor Tile & Mastic - 9 inch	780	Sq.Ft.		maintain with O&M plan. (7)
03	8	Floor Tile & Mastic - 9 inch	780	Sq.Ft.		maintain with O&M plan. (7)
03	14	Fire Rated Door -	1	Each		maintain with O&M plan. (7)
04	8	Floor Tile & Mastic - 9 inch	780	Sq.Ft.		maintain with O&M plan. (7)
05	8	Floor Tile & Mastic - 9 inch	780	Sq.Ft.		maintain with O&M plan. (7)
06	8	Floor Tile & Mastic - 9 inch	780	Sq.Ft.		maintain with O&M plan. (7)
07	8	Floor Tile & Mastic - 9 inch	780	Sq.Ft.		maintain with O&M plan. (7)
08	8	Floor Tile & Mastic - 9 inch	780	Sq.Ft.	under carpet	maintain with O&M plan. (7)
09	8	Floor Tile & Mastic - 9 inch	780	Sq.Ft.	under carpet	maintain with O&M plan. (7)
10	8	Floor Tile & Mastic - 9 inch	780	Sq.Ft.	under carpet	maintain with O&M plan. (7)
11	8	Floor Tile & Mastic - 9 inch	780	Sq.Ft.		maintain with O&M plan. (7)
12	19	Floor Tile & Mastic - 12"	780	Sq.Ft.		maintain with O&M plan. (7)
13	19	Floor Tile & Mastic - 12"	780	Sq.Ft.		maintain with O&M plan. (7)
14	19	Floor Tile & Mastic - 12"	780	Sq.Ft.		maintain with O&M plan. (7)

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15	16	Glue - behind 12 inch ceiling tile	580	Sq.Ft.		maintain with O&M plan. (7)
15	19	Floor Tile & Mastic - 12"	780	Sq.Ft.		maintain with O&M plan. (7)
16	19	Floor Tile & Mastic - 12"	780	Sq.Ft.		maintain with O&M plan. (7)
17	8	Floor Tile & Mastic - 9 inch	180	Sq.Ft.		maintain with O&M plan. (7)
18	19	Floor Tile & Mastic - 12"	1000	Sq.Ft.		maintain with O&M plan. (7)
20	19	Floor Tile & Mastic - 12"	780	Sq.Ft.		maintain with O&M plan. (7)
21	19	Floor Tile & Mastic - 12"	780	Sq.Ft.		maintain with O&M plan. (7)
22	19	Floor Tile & Mastic - 12"	780	Sq.Ft.		maintain with O&M plan. (7)
23	19	Floor Tile & Mastic - 12"	780	Sq.Ft.		maintain with O&M plan. (7)
24	19	Floor Tile & Mastic - 12"	780	Sq.Ft.		maintain with O&M plan. (7)
25	8	Floor Tile & Mastic - 9 inch	0	Sq.Ft.		maintain with O&M plan. (7)
25	16	Glue - behind 12 inch ceiling tile	0	Sq.Ft.		maintain with O&M plan. (7)
26	7	Ceiling Tile - 12 inch glued on	580	Sq.Ft.		maintain with O&M plan. (7)
26	8	Floor Tile & Mastic - 9 inch	0	Sq.Ft.		maintain with O&M plan. (7)
26	16	Glue - behind 12 inch ceiling tile	580	Sq.Ft.		maintain with O&M plan. (7)
27	7	Ceiling Tile - 12 inch glued on	580	Sq.Ft.		maintain with O&M plan. (7)

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<i>Room Number</i>	<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Quantity</i>	<i>Units</i>	<i>Comments</i>	<i>Response Action (AHERA Ranking)</i>
27	8	Floor Tile & Mastic - 9 inch	0	Sq.Ft.		maintain with O&M plan. (7)
27	16	Glue - behind 12 inch ceiling tile	580	Sq.Ft.		maintain with O&M plan. (7)
28	7	Ceiling Tile - 12 inch glued on	1820	Sq.Ft.		evacuate area immediately; remove or repair damage ASAP. (4)
28	8	Floor Tile & Mastic - 9 inch	1820	Sq.Ft.		maintain with O&M plan. (7)
28	16	Glue - behind 12 inch ceiling tile	1820	Sq.Ft.		maintain with O&M plan. (7)
28.1	16	Glue - behind 12 inch ceiling tile	120	Sq.Ft.		maintain with O&M plan. (7)
29	7	Ceiling Tile - 12 inch glued on	6000	Sq.Ft.		maintain with O&M plan. (7)
29	16	Glue - behind 12 inch ceiling tile	6000	Sq.Ft.		maintain with O&M plan. (7)
29	18	Tar, Felt & Associated Mastic Layers Under Wood Floor -	6000	Sq.Ft.		maintain with O&M plan. (7)
29.1	7	Ceiling Tile - 12 inch glued on	160	Sq.Ft.		maintain with O&M plan. (7)
29.1	16	Glue - behind 12 inch ceiling tile	160	Sq.Ft.		maintain with O&M plan. (7)
30	8	Floor Tile & Mastic - 9 inch	0	Sq.Ft.		maintain with O&M plan. (7)
31	8	Floor Tile & Mastic - 9 inch	0	Sq.Ft.		maintain with O&M plan. (7)
31.1	2	Pipe Insulation-Mudded Fitting - fiberglass runs	6	Ln.Ft.		maintain with O&M plan. (7)
32	2	Pipe Insulation-Mudded Fitting - fiberglass runs	18	Ln.Ft.		maintain with O&M plan. (7)
32	5	Pipe Insulation - aircell	35	Ln.Ft.		maintain with O&M plan. (7)



# Northern Analytical Services, LLC.

14870 225th Avenue, Big Rapids, MI 49307 - (231) 268-0004 - Fax (866) 214-4739

LEA:  
Building:  
Building No.:  
Address:

Bullock Creek Schools  
Bullock Creek Elementary  
3  
1037 Poseyville Road  
Midland, MI 48640

## Response Action Report

Printed:

November 21, 2019

<i>Room Number</i>	<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Quantity</i>	<i>Units</i>	<i>Comments</i>	<i>Response Action (AHERA Ranking)</i>
32	6	Fire Brick -	60	Sq.Ft.		maintain with O&M plan. (7)
32	15	Concrete Block -	240	Sq.Ft.		maintain with O&M plan. (7)
33	2	Pipe Insulation-Mudded Fitting - fiberglass runs	11	Ln.Ft.		maintain with O&M plan. (7)
34	8	Floor Tile & Mastic - 9 inch	900	Sq.Ft.	under carpet	maintain with O&M plan. (7)
35	14	Fire Rated Door -	3	Each		maintain with O&M plan. (7)
36	14	Fire Rated Door -	1	Each		maintain with O&M plan. (7)
36	18	Tar, Felt & Associated Mastic Layers Under Wood Floor -	900	Sq.Ft.		maintain with O&M plan. (7)
36	19	Floor Tile & Mastic - 12"	1000	Sq.Ft.		maintain with O&M plan. (7)
37	18	Tar, Felt & Associated Mastic Layers Under Wood Floor -	900	Sq.Ft.		maintain with O&M plan. (7)
38	14	Fire Rated Door -	1	Each		maintain with O&M plan. (7)
38	18	Tar, Felt & Associated Mastic Layers Under Wood Floor -	900	Sq.Ft.		maintain with O&M plan. (7)
39	14	Fire Rated Door -	2	Each		maintain with O&M plan. (7)
39	18	Tar, Felt & Associated Mastic Layers Under Wood Floor -	600	Sq.Ft.		maintain with O&M plan. (7)
39	19	Floor Tile & Mastic - 12"	600	Sq.Ft.		maintain with O&M plan. (7)
hall 1	19	Floor Tile & Mastic - 12"	4200	Sq.Ft.		maintain with O&M plan. (7)
hall 2	19	Floor Tile & Mastic - 12"	1800	Sq.Ft.		maintain with O&M plan. (7)

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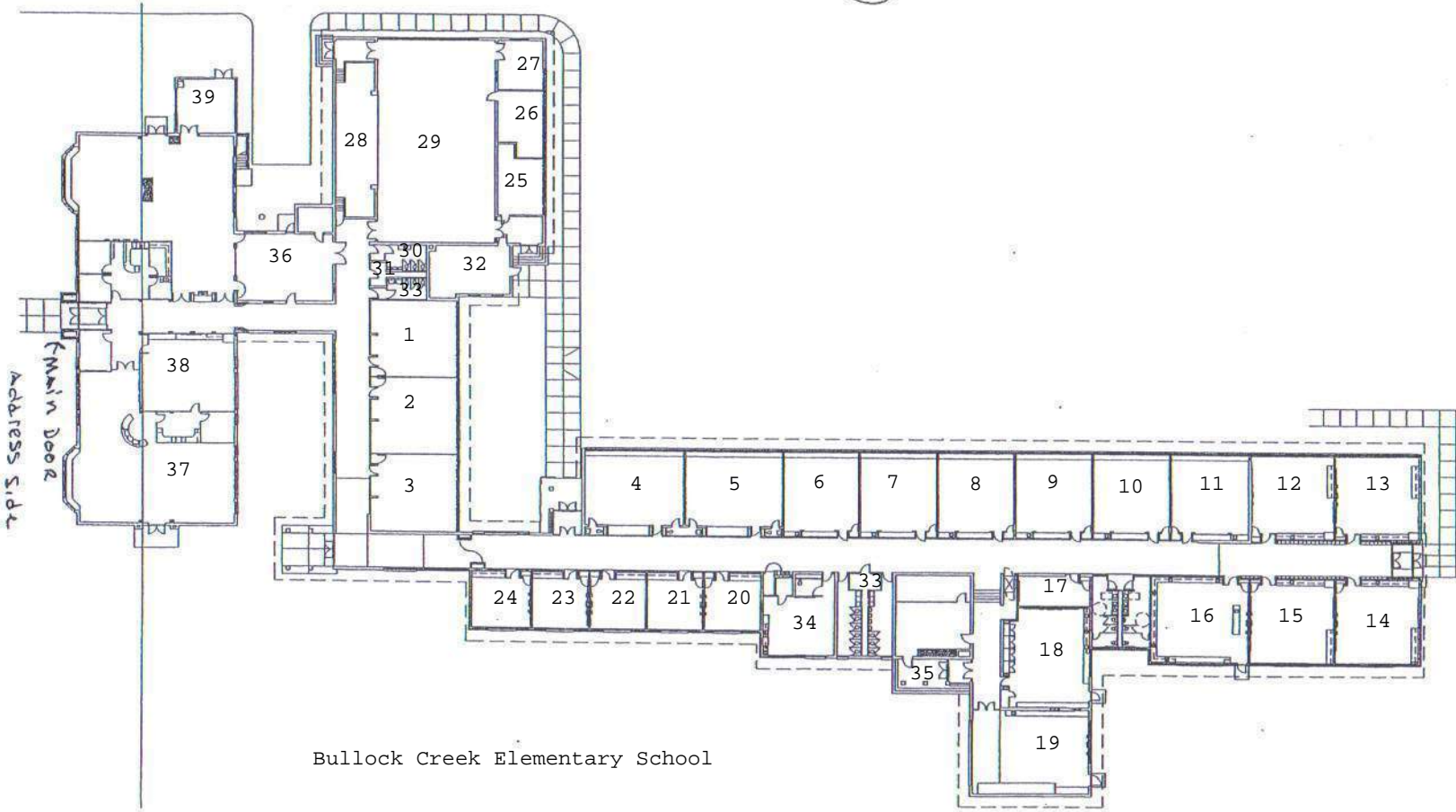
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hall 3	19	Floor Tile & Mastic - 12"	900	Sq.Ft.		maintain with O&M plan. (7)

## Floor Plan



Bullock Creek Elementary School

Floyd Elementary School

## **Material Report**

# Northern Analytical Services, LLC.

14870 225th Avenue, Big Rapids, MI 49307 - (231) 268-0004 - Fax (866) 214-4739

Customer:

Building:

Address:

Bullock Creek Schools

Floyd Elementary

725 South 8 Mile Road

Midland, MI 48640

Printed:

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## Material Report

Material Number	Homogeneous Material Description	Category	Friability*	RACM**	Asbestos Detected	Percent Asbestos	Asbestos Type	Quantity	Units
2	Pipe Insulation-Mudded Fitting - On fittings and elbows on fiberglass runs	Thermal	Yes	Yes	Yes	60%	Chrysotile	66	Ln.Ft.
6	Fire Rated Door -	Misc.	Category II Non-Friable	No	Yes		Assumed	1	Each
7	Floor Tile & Mastic - 9 inch	Misc.	Category I Non-Friable	No	Yes		Assumed	8492	Sq.Ft.
8	Floor Tile & Mastic - 12 inch	Misc.	Category I Non-Friable	No	Yes		Assumed	14790	Sq.Ft.
9	Pipe Insulation - woolfelt	Thermal	Yes	Yes	Yes		Assumed	330	Ln.Ft.
10	Transite Panels -	Misc.	Category II Non-Friable	No	Yes		Assumed	0	Sq.Ft.
11	Floor Tile & Mastic - 9 inch light gray w/ orange, white, and brown streaks	Misc.	Category I Non-Friable	No	Yes	T-4%, M-3%	Chrysotile	0	Sq.Ft.
12	Ceiling Tile - 2x2 fiberglass ceiling tile w/ textured surface	Misc.	Yes	No	No		None Detected	0	Sq.Ft.
13	Cove Base - w/ glue backing	Misc.	No	No	No		None Detected	0	Sq.Ft.
14	Window Glazing - on metal window frame	Misc.	No	No	No		None Detected	0	Sq.Ft.
15	Caulk - on exterior metal window/door frame	Misc.	No	No	No		None Detected	0	Sq.Ft.
16	Drywall -	Misc.	No	No	No		None Detected	0	Sq.Ft.
17	Plaster -	Surfacing	No	No	No		None Detected	0	Sq.Ft.
18	Window Glazing - on interior wood window frame	Misc.	No	No	No		None Detected	0	Sq.Ft.
19	Cove Base - brown w/ glue backing	Misc.	No	No	No		None Detected	0	Sq.Ft.

\* Non-Friable materials may become friable when damaged.

\*\* May become regulated asbestos containing material (RACM) when damaged.

Misc. = miscellaneous material

Surfacing = surfacing material

Thermal = thermal system insulation

RACM = regulated asbestos containing material

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## Material Report

<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Category</i>	<i>Friability*</i>	<i>RACM**</i>	<i>Asbestos Detected</i>	<i>Percent Asbestos</i>	<i>Asbestos Type</i>	<i>Quantity</i>	<i>Units</i>
20	Sink Undercoating - gray	Surfacing	Category II Non-Friable	No	Yes	5%	Chrysotile	0	Sq.Ft.
21	Glue Assumed Behind Visual Display/Mirrors -	Misc.	Category II Non-Friable	No	Yes		Assumed	0	Sq.FT.
22	Ceiling Tile - 2x2 ceiling tile w/ white w/ random gouges	Misc.	Yes	No	No		None Detected	0	Sq.Ft.
24	Cove Base - light green w/ glue backing	Misc.	No	No	No		None Detected	0	Sq.Ft.
25	Cove Base - gray w/ glue backing	Misc.	No	No	No		None Detected	0	Sq.Ft.
26	Ceiling Tile - 2x2 ceiling tile w/ white horizontal gouges	Misc.	Yes	No	No		None Detected	0	Sq.Ft.
27	Floor Tile & Mastic - 12 inch w/ white w/ brown blotches	Misc.	No	No	No		None Detected	0	Sq.Ft.
28	Caulk - on interior metal door frame	Misc.	No	No	No		None Detected	0	Sq.Ft.

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## **Response Action Report**

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01	2	Pipe Insulation-Mudded Fitting - On fittings and elbows on fiberglass runs	0	Ln.Ft.	Removed in 2013	maintain with O&M plan. (7)
01	6	Fire Rated Door -	0	Each	Removed in 2013	maintain with O&M plan. (7)
01	7	Floor Tile & Mastic - 9 inch	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)
01	10	Transite Panels -	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)
01	20	Sink Undercoating - gray	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)
01	21	Glue Assumed Behind Visual Display/Mirrors -	0	Sq.FT.	Removed in 2013	maintain with O&M plan. (7)
02.1	7	Floor Tile & Mastic - 9 inch	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)
02.2	2	Pipe Insulation-Mudded Fitting - On fittings and elbows on fiberglass runs	0	Ln.Ft.	Removed in 2013	maintain with O&M plan. (7)
02.2	7	Floor Tile & Mastic - 9 inch	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)
03	2	Pipe Insulation-Mudded Fitting - On fittings and elbows on fiberglass runs	0	Ln.Ft.	Removed in 2013	maintain with O&M plan. (7)
03	6	Fire Rated Door -	0	Each	Removed in 2013	maintain with O&M plan. (7)
03	7	Floor Tile & Mastic - 9 inch	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)
03.1	2	Pipe Insulation-Mudded Fitting - On fittings and elbows on fiberglass runs	0	Ln.Ft.	Removed in 2013	maintain with O&M plan. (7)
03.1	20	Sink Undercoating - gray	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)
03.2	2	Pipe Insulation-Mudded Fitting - On fittings and elbows on fiberglass runs	0	Ln.Ft.	Removed in 2013	maintain with O&M plan. (7)
03.2	6	Fire Rated Door -	0	Each	Removed in 2013	maintain with O&M plan. (7)

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03.2	7	Floor Tile & Mastic - 9 inch	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)
03.2	10	Transite Panels -	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)
03A	7	Floor Tile & Mastic - 9 inch	0	Sq.Ft.	Removed 2013	maintain with O&M plan. (7)
03A	10	Transite Panels -	0	Sq.Ft.	Removed 2013	maintain with O&M plan. (7)
03B	7	Floor Tile & Mastic - 9 inch	0	Sq.Ft.	Removed 2013	maintain with O&M plan. (7)
03B	10	Transite Panels -	0	Sq.Ft.	Removed 2013	maintain with O&M plan. (7)
04	2	Pipe Insulation-Mudded Fitting - On fittings and elbows on fiberglass runs	0	Ln.Ft.	Removed 2013	maintain with O&M plan. (7)
04	6	Fire Rated Door -	0	Each	Removed 2013	maintain with O&M plan. (7)
04	7	Floor Tile & Mastic - 9 inch	0	Sq.Ft.	Removed 2013	maintain with O&M plan. (7)
04	10	Transite Panels -	0	Sq.Ft.	Removed 2013	maintain with O&M plan. (7)
05	2	Pipe Insulation-Mudded Fitting - On fittings and elbows on fiberglass runs	60	Ln.Ft.		maintain with O&M plan. (7)
06	8	Floor Tile & Mastic - 12 inch	900	Sq.Ft.		maintain with O&M plan. (7)
07	7	Floor Tile & Mastic - 9 inch	900	Sq.Ft.		maintain with O&M plan. (7)
08	7	Floor Tile & Mastic - 9 inch	900	Sq.Ft.		maintain with O&M plan. (7)
09	7	Floor Tile & Mastic - 9 inch	900	Sq.Ft.		maintain with O&M plan. (7)
10	7	Floor Tile & Mastic - 9 inch	900	Sq.Ft.		maintain with O&M plan. (7)

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## Response Action Report

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<i>Room Number</i>	<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Quantity</i>	<i>Units</i>	<i>Comments</i>	<i>Response Action (AHERA Ranking)</i>
11	7	Floor Tile & Mastic - 9 inch	900	Sq.Ft.		maintain with O&M plan. (7)
12	7	Floor Tile & Mastic - 9 inch	900	Sq.Ft.		maintain with O&M plan. (7)
13	8	Floor Tile & Mastic - 12 inch	900	Sq.Ft.		maintain with O&M plan. (7)
14	8	Floor Tile & Mastic - 12 inch	900	Sq.Ft.		maintain with O&M plan. (7)
15	8	Floor Tile & Mastic - 12 inch	900	Sq.Ft.		maintain with O&M plan. (7)
16	8	Floor Tile & Mastic - 12 inch	900	Sq.Ft.		maintain with O&M plan. (7)
17	8	Floor Tile & Mastic - 12 inch	900	Sq.Ft.		maintain with O&M plan. (7)
18	8	Floor Tile & Mastic - 12 inch	900	Sq.Ft.		maintain with O&M plan. (7)
19	8	Floor Tile & Mastic - 12 inch	900	Sq.Ft.		maintain with O&M plan. (7)
20	8	Floor Tile & Mastic - 12 inch	900	Sq.Ft.		maintain with O&M plan. (7)
21	7	Floor Tile & Mastic - 9 inch	800	Sq.Ft.	stage	maintain with O&M plan. (7)
21	8	Floor Tile & Mastic - 12 inch	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)
22	6	Fire Rated Door -	1	Each		maintain with O&M plan. (7)
23	8	Floor Tile & Mastic - 12 inch	900	Sq.Ft.		maintain with O&M plan. (7)
24	8	Floor Tile & Mastic - 12 inch	900	Sq.Ft.		maintain with O&M plan. (7)
25	8	Floor Tile & Mastic - 12 inch	900	Sq.Ft.		maintain with O&M plan. (7)

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26	8	Floor Tile & Mastic - 12 inch	900	Sq.Ft.		maintain with O&M plan. (7)
27	8	Floor Tile & Mastic - 12 inch	900	Sq.Ft.		maintain with O&M plan. (7)
28	8	Floor Tile & Mastic - 12 inch	900	Sq.Ft.		maintain with O&M plan. (7)
29	9	Pipe Insulation - woolfelt	110	Ln.Ft.		maintain with O&M plan. (7)
31	8	Floor Tile & Mastic - 12 inch	195	Sq.Ft.		maintain with O&M plan. (7)
31	9	Pipe Insulation - woolfelt	60	Ln.Ft.		maintain with O&M plan. (7)
32	8	Floor Tile & Mastic - 12 inch	195	Sq.Ft.		maintain with O&M plan. (7)
32	9	Pipe Insulation - woolfelt	80	Ln.Ft.	1 fitting by door above sink	remove or repair damage ASAP. (4)
33	8	Floor Tile & Mastic - 12 inch	600	Sq.Ft.		maintain with O&M plan. (7)
34	2	Pipe Insulation-Mudded Fitting - On fittings and elbows on fiberglass runs	6	Ln.Ft.		maintain with O&M plan. (7)
34	8	Floor Tile & Mastic - 12 inch	300	Sq.Ft.	Assumed under carpet	maintain with O&M plan. (7)
34	9	Pipe Insulation - woolfelt	80	Ln.Ft.		maintain with O&M plan. (7)
35	7	Floor Tile & Mastic - 9 inch	900	Sq.Ft.	Assumed under carpet	maintain with O&M plan. (7)
36	7	Floor Tile & Mastic - 9 inch	900	Sq.Ft.	Assumed under carpet	maintain with O&M plan. (7)
37	7	Floor Tile & Mastic - 9 inch	900	Sq.Ft.	Assumed under carpet	maintain with O&M plan. (7)
Exterior Soffit	10	Transite Panels -	0	Sq.Ft.	Removed in 2017	maintain with O&M plan. (7)

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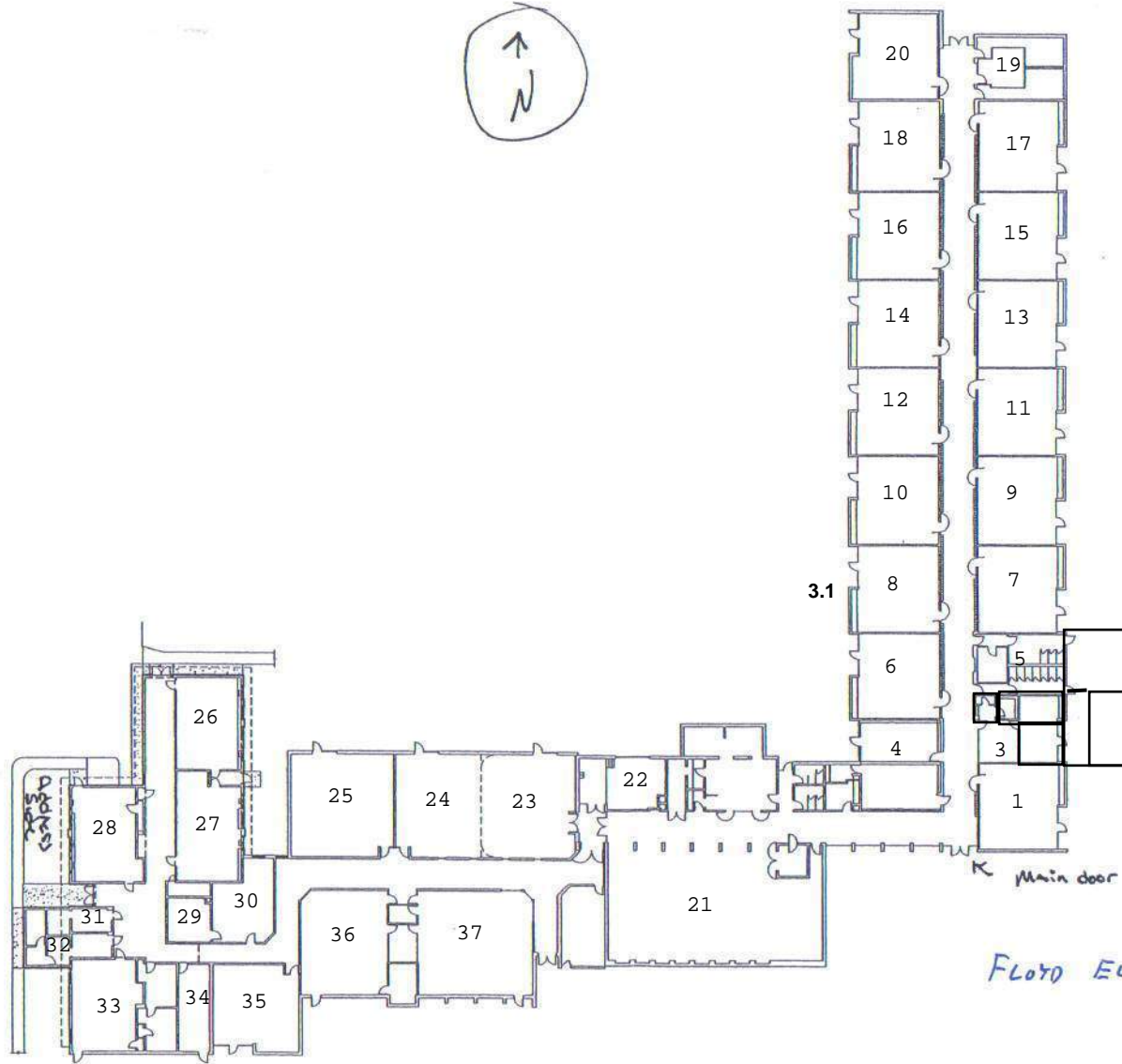
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<i>Room Number</i>	<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Quantity</i>	<i>Units</i>	<i>Comments</i>	<i>Response Action (AHERA Ranking)</i>
Teachers Lounge	2	Pipe Insulation-Mudded Fitting - On fittings and elbows on fiberglass runs	0	Ln.Ft.	Removed 2013	maintain with O&M plan. (7)
Teachers Lounge	6	Fire Rated Door -	0	Each	Removed 2013	maintain with O&M plan. (7)
Teachers Lounge	11	Floor Tile & Mastic - 9 inch light gray w/ orange, white, and brown streaks	0	Sq.Ft.	Removed 2013	maintain with O&M plan. (7)
Teachers Lounge	20	Sink Undercoating - gray	0	Sq.Ft.	Removed in 2013	maintain with O&M plan. (7)

## Floor Plan



FLOYD ELEMENTARY SCHOOL



Pine River Elementary

## **Material Report**

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14870 225th Avenue, Big Rapids, MI 49307 - (231) 268-0004 - Fax (866) 214-4739

Customer:

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Bullock Creek Schools

Pine River Elementary

1894 East Pine River

Midland, MI 48640

Printed:

November 21, 2019

## Material Report

<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Category</i>	<i>Friability*</i>	<i>RACM**</i>	<i>Asbestos Detected</i>	<i>Percent Asbestos</i>	<i>Asbestos Type</i>	<i>Quantity</i>	<i>Units</i>
2	Pipe Insulation-Mudded Fitting - on fittings and elbows	Thermal	Yes	Yes	Yes		Assumed	30	Ln.Ft.
6	Floor Tile & Mastic - 9" Tile	Misc.	Category I Non-Friable	No	Yes		Assumed	10380	Sq.Ft.
11	Ceiling Tile - 12 inch w/ glue pods	Misc.	Yes	Yes	Yes		Assumed	2200	Sq.Ft.
12	Transite Panels -	Misc.	Category II Non-Friable	No	Yes		Assumed	2840	Sq.Ft.
13	Floor Tile & Mastic - 9 inch white w/ brown streaks	Misc.	Category I Non-Friable	No	Yes	T-3%, M-5%	Chrysotile	954	Sq.Ft.
14	Floor Tile & Mastic - 9 inch brown w/ white streaks	Misc.	Category I Non-Friable	No	Yes	T-3%, M-5%	Chrysotile	0	Sq.Ft.
15	Floor Tile & Mastic - 12 inch blue and gray streaks with yellow mastic	Misc.	No	No	No		None Detected	0	Sq.Ft.
16	Cove Base - brown w/ glue backing	Misc.	No	No	No		None Detected	0	Sq.Ft.
17	Floor Tile & Mastic - 12" with black mastic	Misc.	Category I Non-Friable	No	Yes		Assumed	3300	Sq.Ft.

\* Non-Friable materials may become friable when damaged.

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01	6	Floor Tile & Mastic - 9" Tile	900	Sq.Ft.	Assumed under carpet	maintain with O&M plan. (7)
01	11	Ceiling Tile - 12 inch w/ glue pods	900	Sq.Ft.		maintain with O&M plan. (7)
02	6	Floor Tile & Mastic - 9" Tile	200	Sq.Ft.		maintain with O&M plan. (7)
03	6	Floor Tile & Mastic - 9" Tile	900	Sq.Ft.	Assumed under carpet	maintain with O&M plan. (7)
04	6	Floor Tile & Mastic - 9" Tile	1400	Sq.Ft.	Assumed under carpet	maintain with O&M plan. (7)
04	17	Floor Tile & Mastic - 12" with black mastic	400	Sq.Ft.	Along west end of room	maintain with O&M plan. (7)
05	2	Pipe Insulation-Mudded Fitting - on fittings and elbows	15	Ln.Ft.		maintain with O&M plan. (7)
06	2	Pipe Insulation-Mudded Fitting - on fittings and elbows	15	Ln.Ft.		maintain with O&M plan. (7)
07	6	Floor Tile & Mastic - 9" Tile	900	Sq.Ft.		maintain with O&M plan. (7)
08	6	Floor Tile & Mastic - 9" Tile	900	Sq.Ft.		maintain with O&M plan. (7)
09	6	Floor Tile & Mastic - 9" Tile	900	Sq.Ft.		maintain with O&M plan. (7)
10	6	Floor Tile & Mastic - 9" Tile	900	Sq.Ft.		maintain with O&M plan. (7)
11	6	Floor Tile & Mastic - 9" Tile	900	Sq.Ft.		maintain with O&M plan. (7)
12	6	Floor Tile & Mastic - 9" Tile	900	Sq.Ft.		maintain with O&M plan. (7)
12	11	Ceiling Tile - 12 inch w/ glue pods	900	Sq.Ft.		maintain with O&M plan. (7)
13	6	Floor Tile & Mastic - 9" Tile	900	Sq.Ft.		maintain with O&M plan. (7)

# Northern Analytical Services, LLC.

14870 225th Avenue, Big Rapids, MI 49307 - (231) 268-0004 - Fax (866) 214-4739

LEA:  
Building:  
Building No.:  
Address:

Bullock Creek Schools  
Pine River Elementary  
5  
1894 East Pine River  
Midland, MI 48640

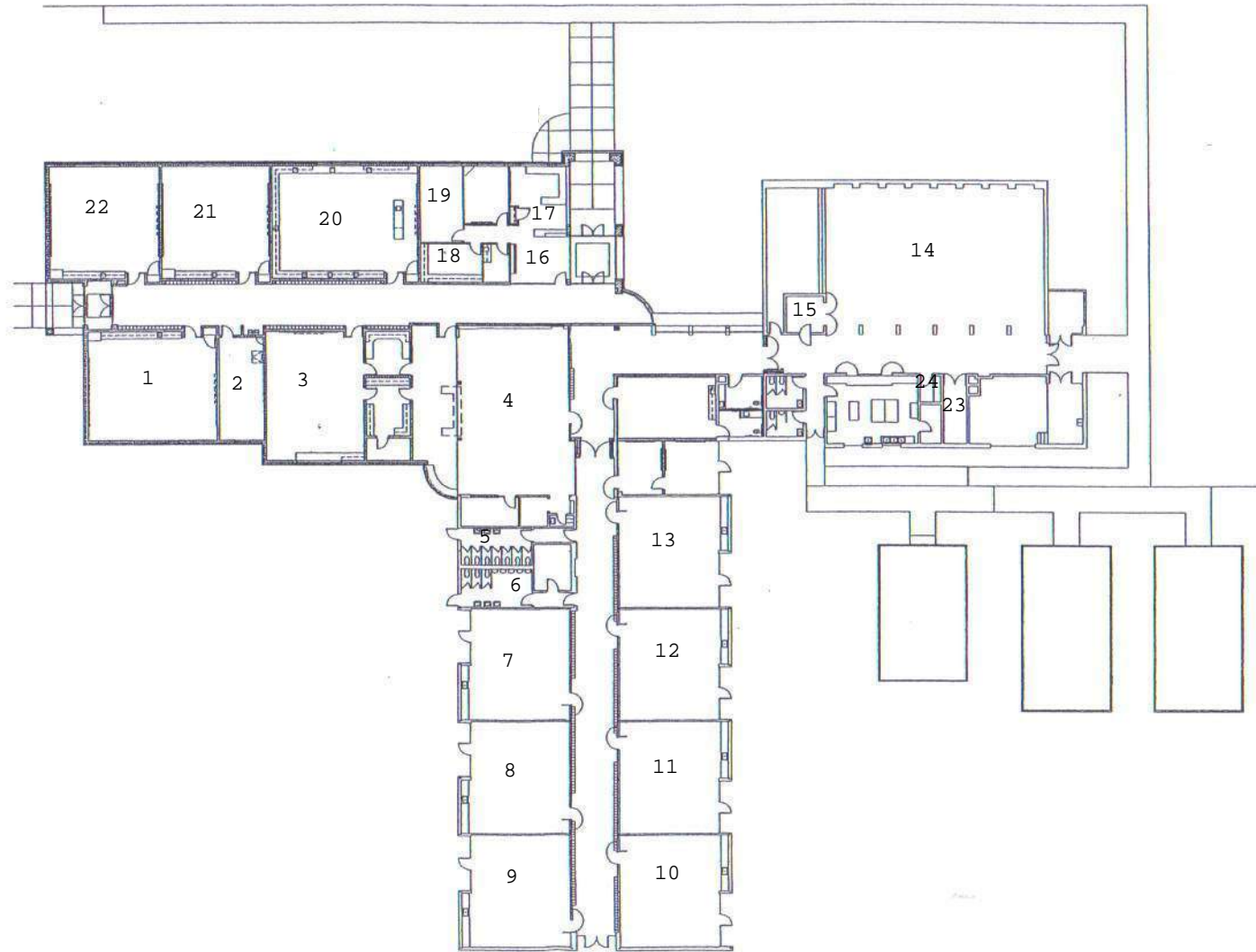
## Response Action Report

Printed:

November 21, 2019

<i>Room Number</i>	<i>Material Number</i>	<i>Homogeneous Material Description</i>	<i>Quantity</i>	<i>Units</i>	<i>Comments</i>	<i>Response Action (AHERA Ranking)</i>
14	13	Floor Tile & Mastic - 9 inch white w/ brown streaks	840	Sq.Ft.	Stage	maintain with O&M plan. (7)
14	14	Floor Tile & Mastic - 9 inch brown w/ white streaks	0	Sq.Ft.	Abated in 2013	maintain with O&M plan. (7)
15	11	Ceiling Tile - 12 inch w/ glue pods	100	Sq.Ft.		maintain with O&M plan. (7)
16	6	Floor Tile & Mastic - 9" Tile	180	Sq.Ft.	Assumed under carpet	maintain with O&M plan. (7)
17	6	Floor Tile & Mastic - 9" Tile	100	Sq.Ft.	Assumed under carpet	maintain with O&M plan. (7)
18	6	Floor Tile & Mastic - 9" Tile	100	Sq.Ft.	Assumed under carpet	maintain with O&M plan. (7)
19	6	Floor Tile & Mastic - 9" Tile	300	Sq.Ft.	Assumed under carpet	maintain with O&M plan. (7)
20	17	Floor Tile & Mastic - 12" with black mastic	1100	Sq.Ft.		maintain with O&M plan. (7)
21	17	Floor Tile & Mastic - 12" with black mastic	900	Sq.Ft.		maintain with O&M plan. (7)
22	17	Floor Tile & Mastic - 12" with black mastic	900	Sq.Ft.		maintain with O&M plan. (7)
23	11	Ceiling Tile - 12 inch w/ glue pods	300	Sq.Ft.		maintain with O&M plan. (7)
23	13	Floor Tile & Mastic - 9 inch white w/ brown streaks	114	Sq.Ft.		maintain with O&M plan. (7)
24	12	Transite Panels -	2840	Sq.Ft.		maintain with O&M plan. (7)

## Floor Plan





**PART 1 – GENERAL**

**1.01 CODES**

- A. All work shall comply with the applicable requirements of the local building code and accident and fire prevention regulations.

**1.02 SCOPE**

- A. The Work covered by this section of Specifications includes, but is not limited to, the following:
1. Demolish and remove existing materials as shown on the plan and noted in the Description of Work.
  2. Cover holes and other hazardous openings with approved materials and barriers.
  3. Remove all demolition materials and debris from the construction site and dispose of in a legal manner.
  4. Protect adequately the construction site, adjoining property, and utility services as work proceeds through all stages.

**1.03 QUALITY ASSURANCE**

- A. The contractor's staff responsible for demolition shall be experienced in this type of work. Equipment is to be of suitable type, in good working condition, and operated by skilled mechanics.

**PART 2 – PRODUCTS**

**2.01 TEMPORARY ENCLOSURES**

- A. Provide temporary enclosures to prevent dust from entering other parts of the facility during demolition. Furnish, install, and remove when directed, temporary weathertight enclosures in all exterior openings created during demolition by the contractor.

**PART 3 – EXECUTION**

**3.01 GENERAL INSTRUCTIONS**

- A. All work shall be done in a safe and cautious manner in order to avoid accidents and property damage.
- B. Protect the work scheduled to remain, and if damaged, repair to match existing work.
- C. All salvaged material unless otherwise noted on plans or in the Description of Work shall become the property of the Contractor and shall be evaluated in the Contractor's bid price. Promptly remove salvaged material from the construction site as the work proceeds.
- D. Carefully dismantle and store on site all material scheduled to remain the Property of the Owner. Protect until removed by the Owner or until end of Contract.
- E. Protect from damage and clean materials scheduled to be reused.
- F. Protect parts of the existing Work scheduled to remain. Cut away carefully the parts to be demolished to reduce the number of necessary repairs.
- G. Support existing structure as needed during cutting of new openings or replacement of structural members.
- H. Prevent accumulation of debris and overloading of any part of the structure.
- I. Prevent access of unauthorized persons to partly demolished areas.
- J. Remove all demolition materials, debris, and rubbish from the site as soon as practicable. Do not permit any accumulation on the site. Transport all demolition materials without spillage on the streets.

**END OF SECTION 001900**



Architects Engineers

817 E. Kearsley St. | Flint, MI 48503

Ph: 810-767-5600 | THA-Flint.com

## **Specification Manual**

# **Bullock Creek School District** **2023 Bond Series 1 –** **2025 Improvements**

**Renovations to Bullock Creek High School**  
1420 South Badour Road, Midland, MI 48640

**Bullock Creek Middle School Improvements**  
664 South Badour Road, Midland, MI 48640

**Renovations to Bullock Creek Elementary School**  
1037 S. Poseyville Road, Midland, MI 48640

**Renovations to Floyd Elementary School**  
725 South Eight Mile Road, Midland, MI 48640

**Pine River Elementary School – New Exterior Sign**  
1894 Pine River Road, Midland, MI 48640

**Sitework at Maintenance Building & New Pole Barn**  
1420 South Badour Road, Midland, MI 48640

**FOR:**  
**BULLOCK CREEK SCHOOL DISTRICT**  
1420 South Badour Road, Midland MI 48640

**THA PROJECT No: 24-120**



**SECTION 00 01 01  
PROJECT MANUAL**

**PROJECT NO:** 24-120

**PROJECTS:**

**2023 BOND – SERIES 1 2025 IMPROVEMENTS**

**PROJECT A: RENOVATIONS TO:  
BULLOCK CREEK HIGH SCHOOL**  
1420 SOUTH BADOUR ROAD, MIDLAND, MICHIGAN 48640

- TOILET ROOM REMODELING

**PROJECT B: BULLOCK CREEK MIDDLE SCHOOL  
IMPROVEMENTS**  
664 SOUTH BADOUR ROAD, MIDLAND, MICHIGAN 48640

- NEW FREEZER ADDITION WITH LOADING DOCK
- EXTERIOR BUILDING SIGN REPLACEMENT

**PROJECT C: RENOVATIONS TO:  
BULLOCK CREEK ELEMENTARY SCHOOL**  
1037 SOUTH POSEYVILLE ROAD, MIDLAND, MICHIGAN 48640

- ROOFING REPLACEMENT
- EXTERIOR WALL RENOVATIONS
- FLOORING REPLACEMENT
- DOOR REPLACEMENT
- LIGHTING REPLACEMENT
- RTU REPLACEMENT
- EXTERIOR SIGN REPLACEMENT

**PROJECT D: RENOVATIONS TO:  
FLOYD ELEMENTARY SCHOOL**  
725 SOUTH EIGHT MILE ROAD, MIDLAND, MICHIGAN 48640

- ROOFING REPLACEMENT
- EXTERIOR SIGN REPLACEMENT

**PROJECT E: PINE RIVER ELEMENTARY SCHOOL  
NEW EXTERIOR SIGN**  
1894 PINE RIVER ROAD, MIDLAND, MICHIGAN 48640

- NEW EXTERIOR SIGN

**PROJECT F: SITEWORK AT MAINTENANCE BUILDING &  
NEW POLE BARN**  
1420 SOUTH BADOUR ROAD, MIDLAND, MICHIGAN 48640

- NEW POLE BARN AND FENCING
- CONCRETE PAVING AT BUS PARKING
- TRENCH DRAIN REPAIR

**OWNER:** BULLOCK CREEK SCHOOLS  
1420 South Badour Road  
Midland, Michigan 48640

**CONSTRUCTION MANAGER:** WOLGAST CORPORATION  
4835 Towne Center Road  
Suite 203  
Saginaw, Michigan 48604

**ARCHITECT:** THA ARCHITECTS ENGINEERS  
817 East Kearsley Street  
Flint, Michigan 48503

**CONTRACT DOCUMENTS DATE:** October 18, 2024



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- 07 84 00 - Firestopping
- 07 90 05 - Joint Sealers

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- 26 28 16.16 - Enclosed Switches
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**DRAWINGS**

**THE FOLLOWING DRAWINGS, BOUND SEPARATELY, AND THIS PROJECT MANUAL FORM THE CONSTRUCTION DOCUMENTS:**

SHEET NO.	SHEET TITLE
-----------	-------------

**PROJECT 'A' - RENOVATIONS TO: BULLOCK CREEK HIGH SCHOOL**

- A-G001      TITLE SHEET**
  
- A-A101      TOILET ROOM DEMOLITION PLANS**
- A-A102      TOILET ROOM ENLARGED PLANS**
- A-A103      TOILET ROOM REFLECTED CEILING PLANS**
- A-A601      DOOR SCHEDULE, ROOM FINISH SCHEDULE, & DETAILS**
  
- A-M101      MECHANICAL TOILET ROOM ENLARGED PLUMBING PLAN**
- A-P101      'A' WING ENLARGED TOILET ROOM PLUMBING PLAN**
- A-P102      'B' WING ENLARGED TOILET ROOM PLUMBING PLAN**
- A-P103      'D' WING ENLARGED TOILET ROOM PLUMBING PLAN**
- A-P104      'E' WING ENLARGED TOILET ROOM PLUMBING PLAN**
- A-P105      'F' WING ENLARGED TOILET ROOM PLUMBING PLAN**
  
- A-E000      ELECTRICAL COVER SHEET**
- A-E101      TOILET ROOM ELECTRICAL DEMOLITION PLANS**
- A-E102      TOILET ROOM ELECTRICAL PLANS**
- A-E601      ELECTRICAL DETAILS AND SCHEDULES**



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B-A102	COOLER/REFRIGERATOR DEMOLITION PLAN, FLOOR PLAN
B-A103	DETAILS
B-FS1	FOOD SERVICE EQUIPMENT FLOOR PLAN, SCHEDULE, UTILITIES AND SPECIAL CONDITIONS
B-E000	ELECTRICAL COVER SHEET
B-E101	ELECTRICAL PLANS

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C-A101	DEMOLITION PLAN
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C-A103	FLOOR PLAN
C-A104	REFLECTED CEILING PLAN
C-A105	ROOF PLAN
C-A106	ROOF DETAILS
C-A107	ROOF DETAILS
C-A201	EXTERIOR ELEVATIONS
C-A301	WALL SECTIONS
C-A601	DOOR SCHEDULE, ROOM FINISH SCHEDULE, & DETAILS
C-M001	MECHANICAL SCHEDULES
C-M101	MECHANICAL DEMOLITION ROOF PLAN
C-M102	MECHANICAL ROOF PLAN
C-M103	UNIT A MECHANICAL PLAN
C-M104	UNITS B & C MECHANICAL PLAN
C-E000	ELECTRICAL COVER SHEET
C-E101	ELECTRICAL DEMOLITION PLAN
C-E102	ELECTRICAL PLANS
C-E103	ELECTRICAL ROOF PLAN

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D-C101	SIGNAGE PLAN WITH ELECTRICAL AND ELEVATIONS
D-A101	ROOF DEMOLITION PLAN AND DETAILS
D-A102	ROOF PLAN AND DETAILS

**PROJECT 'E' – PINE RIVER ELEMENTARY SCHOOL – NEW EXTERIOR SIGN**

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- E-C101 SIGNAGE PLAN WITH ELECTRICAL, ELEVATIONS AND FOOTING DETAIL

**PROJECT 'F' – SITEWORK AT MAINTENANCE BUILDING AND NEW POLE BARN**

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- F-C101 SITE DEMOLITION PLAN
- F-C102 SITE DEVELOPMENT PLAN
- F-C103 MAINTENANCE BUILDING SITE DEVELOPMENT PLAN
- F-C104 SESC PLANS
- F-A101 POLE BARN PLANS AND ELEVATIONS
- F-A102 POLE BARN SECTIONS
- F-A103 POLE BARN ENLARGED DETAILS
- F-A104 MAINTENANCE BUILDING PARTIAL DEMOLITION PLAN, PARTIAL FLOOR PLAN AND DETAIL
- F-P101 POLE BARN PLUMBING PLAN
- F-E000 ELECTRICAL COVER SHEET
- F-E101 SITE ELECTRICAL DEMOLITION PLAN
- F-E102 SITE ELECTRICAL PLAN

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**SECTION 01 33 01  
SUBMITTAL SUMMARY**

THE SPECIFICATION SECTIONS LISTED ON THE FOLLOWING PAGES INCLUDE, BUT ARE NOT LIMITED TO, THE SECTIONS THAT REQUIRE FORMAL SUBMITTALS FOR THE DESIGN PROFESSIONAL'S REVIEW.

CONTRACTORS SHALL THOROUGHLY REVIEW ALL SECTIONS TO ENSURE THAT ALL PRODUCT DATA, SHOP DRAWINGS, SAMPLES, CERTIFICATES AND OTHER DOCUMENTS ARE SUBMITTED IN A TIMELY AND ACCURATE MANNER.

SECTION NUMBER & NAME	Product Data	Shop Drawings	Samples
<b>DIV 03</b>			
03 30 00 – Cast-in-Place Concrete	X	X	
<b>DIV 04</b>			
04 20 00 – Unit Masonry	X		
<b>DIV 05</b>			
05 12 00 – Structural Steel Framing	X	X	
05 50 00 – Metal Fabrications	X	X	
05 52 13 – Pipe and Tube Railings	X	X	
<b>DIV 06</b>			
06 10 00 – Rough Carpentry	X		
06 17 53 – Shop-Fabricated Wood Trusses	X	X	
06 20 00 – Finish Carpentry	X	X	X
<b>DIV 07</b>			
07 42 13 – Metal Wall and Roof Panels	X	X	X
07 54 00 – Thermoplastic Membrane Roofing	X	X	
07 62 00 – Sheet Metal Flashing and Trim	X	X	X
07 84 00 – Firestopping	X		
07 90 05 – Joint Sealers	X		X
<b>DIV 08</b>			
08 11 13 – Hollow Metal Doors and Frames	X	X	
08 14 16 – Flush Wood Doors	X	X	X
08 16 01 – Insulated Composite Doors	X	X	X
08 36 13 – Sectional Doors	X	X	X
08 71 00 – Door Hardware	X		
08 80 00 – Glazing	X		
<b>DIV 09</b>			
09 05 61 – Common Work Results for Flooring Preparation	X		
09 21 16 – Gypsum Board Assemblies	X		
09 30 00 – Tiling	X		X
09 51 00 – Acoustical Ceilings	X		
09 65 00 – Resilient Flooring	X		X
09 68 13 – Tile Carpeting	X		X
09 90 00 – Painting and Coating	X		X
<b>DIV 10</b>			
10 14 63 – Digital Exterior Marquee Sign	X	X	X
10 21 13.19 – Plastic Toilet Compartments	X	X	X
10 28 00 – Toilet, Bath, and Laundry Accessories	X		
<b>DIV 11</b>			
11 13 13 – Loading Dock Bumpers	X		

SECTION NUMBER & NAME	Product Data	Shop Drawings	Samples
11 40 00 – Food Service Equipment	X	X	
<b>DIV 22</b>			
22 05 53 – Identification for Plumbing Piping and Equipment	X		
22 07 19 – Plumbing Piping Insulation	X		
22 10 05 – Plumbing Piping	X	X	
22 10 06 – Plumbing Piping Specialties	X	X	
22 40 00 – Plumbing Fixtures	X		X
<b>DIV 23</b>			
23 05 93 – Testing, Adjusting, and Balancing For HVAC		X	
23 07 13 – Duct Insulation	X		X
23 07 19 – HVAC Piping Insulation	X		
23 09 01 – Building Management and Control System	X	X	
23 31 00 – HVAC Ducts and Casings	X	X	
23 33 00 – Air Duct Accessories	X	X	
23 37 00 – Air Outlets and Inlets	X		
23 74 13 – Packaged Outdoor Central Station Air Handling Units	X	X	
23 81 01 – Terminal Heat Transfer Units	X	X	
<b>DIV 26</b>			
26 05 19 – Low-Voltage Electrical Power Conductors and Cables	X		
26 05 26 – Grounding and Bonding for Electrical Systems	X		
26 05 29 – Hangers and Supports for Electrical Systems	X		
26 05 33.13 – Conduit for Electrical Systems	X		
26 05 33.16 – Boxes for Electrical Systems	X		X
26 05 53 – Identification for Electrical Systems	X		
26 27 26 – Wiring Devices	X		
26 28 13 – Fuses	X		
26 28 16.16 – Enclosed Switches	X		
26 51 00 – Interior Lighting	X		
<b>DIV 32</b>			
32 13 13 – Concrete Paving	X		
32 31 13 – Chain Link Fences and Gates	X	X	

**END OF SUMMARY**

## SECTION 02 41 00

### DEMOLITION

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Building demolition.
- B. Selective demolition of built site elements.
- C. Selective demolition of building elements for alteration purposes.
- D. Abandonment and removal of existing utilities and utility structures.

##### 1.02 RELATED REQUIREMENTS

- A. Construction Manager's General Requirements:
  - 1. Limitations on Contractor's use of site and premises.
  - 2. Site fences, security, protective barriers, and waste removal.
  - 3. Protection of Work and Existing Property.
- B. Section 02 41 13.13 - Pavement Removal.
- C. Section 07 01 50.19 - Preparation for Re-Roofing: Removal of existing roofing, roof insulation, flashing, trim, and accessories.
- D. Section 31 23 01 - Excavating Filling and Grading.

##### 1.03 REFERENCE STANDARDS

- A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).

##### 1.04 SUBMITTALS

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

##### 1.05 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: Company specializing in the type of work required.
  - 1. Minimum of 5 years of documented experience.

##### 1.06 PROJECT CONDITIONS

- A. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

#### PART 2 PRODUCTS

##### 2.01 MATERIALS

- A. Fill Material: As specified in Section 31 23 01.

#### PART 3 EXECUTION

##### 3.01 SCOPE

- A. Remove three (3) entire garage/pole barn buildings at location of new pole barn.
- B. Remove paving as required to accomplish new work.
- C. Remove foundation walls and footings completely
- D. Remove concrete slabs on grade.
- E. Remove fences and gates.
- F. Remove other items indicated.
- G. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as specified in Section 31 23 01.

### **3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS**

- A. Comply with other requirements specified in Construction Manager's General Requirements.
- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
  - 1. Obtain required permits.
  - 2. Comply with applicable requirements of NFPA 241.
  - 3. Use of explosives is not permitted.
  - 4. Take precautions to prevent catastrophic or uncontrolled collapse of structural elements to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
  - 5. Provide, erect, and maintain temporary barriers and security devices.
  - 6. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
  - 7. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
  - 8. Do not close or obstruct roadways or sidewalks without permit.
  - 9. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
  - 10. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- B. Do not begin removal until receipt of notification to proceed from Owner.
- C. Do not begin removal until built elements to be salvaged or relocated have been removed.
- D. Do not begin removal until specified measures have been taken to protect vegetation to remain.
- E. Protect existing structures and other elements that are not to be removed.
  - 1. Provide bracing and shoring.
  - 2. Prevent movement or settlement of adjacent structures.
  - 3. Stop work immediately if adjacent structures appear to be in danger.
- F. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
- G. If hazardous materials are discovered during removal operations, stop work and notify Construction Manager, Design Professional and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.
- H. Hazardous Materials: Comply with 29 CFR 1926 and state and local regulations.
- I. Partial Removal of Paving: Neatly saw cut at right angle to surface.

### **3.03 EXISTING UTILITIES**

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.
- H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.

### **3.04 SELECTIVE DEMOLITION FOR ALTERATIONS**

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
  - 1. Verify that construction and utility arrangements are as shown.
  - 2. Report discrepancies to Design Professional before disturbing existing installation.
  - 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Separate areas in which demolition is being conducted from other areas that are still occupied.
  - 1. Provide, erect, and maintain temporary dustproof partitions of construction.
  - 2. Provide sound retardant partitions of construction indicated on drawings in locations indicated on drawings.
- C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
- D. Remove existing work as indicated and as required to accomplish new work.
  - 1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
  - 2. Remove items indicated on drawings.
- E. Remove all incidental items, (re: trims, fasteners, wiring, conduit, mounting plates, etc.) not required by and/or interfering with new construction or finishes, whether specifically shown or not.
- F. At existing wall or partition openings scheduled for infill, remove any bullnose masonry units and partial (cut) units back to nearest mortar joint so that new masonry may be toothed in to match existing bond patterns.
- G. Services (Including but not limited to HVAC, Plumbing, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
  - 1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
  - 2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
  - 3. See Construction Manager's General Requirements for other limitations on outages and required notifications.
  - 4. Verify that abandoned services serve only abandoned facilities before removal.
  - 5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.
- H. Protect existing work to remain.
  - 1. Prevent movement of structure; provide shoring and bracing if necessary.
  - 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
  - 3. Repair adjacent construction and finishes damaged during removal work.
  - 4. Patch as specified for patching new work.

### **3.05 DEBRIS AND WASTE REMOVAL**

- A. Remove debris, junk, and trash from site.
- B. Remove from site all materials not to be reused on site; do not burn or bury.
- C. Leave site in clean condition, ready for subsequent work.
- D. Clean up spillage and wind-blown debris from public and private lands.

### **3.06 SCHEDULE OF PRODUCTS TO BE REMOVED AND RETAINED**

- A. Remove, store, and protect the following materials and equipment for reinstallation:
  - 1. Toilet Accessories.
  - 2. Plumbing Fixtures.
  - 3. Ceiling tile and gird assemblies
  - 4. Fire alarm strobes.
  - 5. Window assemblies.



- 6. Louvers.
- B. Remove the following materials and equipment to be retained by Owner. Deliver to location designated by Owner.
  - 1. Paper Towel Dispensers.
  - 2. Interior door security boots, floor sleeves and storage case.
- C. Owner shall have the "Right of First Refusal" on any item removed during demolition. If Owner does not exercise that right, Contractor shall dispose of all items off site in a legal manner.

**END OF SECTION**

**SECTION 02 41 13.13  
PAVEMENT REMOVAL**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Removal of an existing pavement, including driveways, sidewalks, curb and/or gutter, and parking areas. For purposes of the work "pavement removal", pavement may include bituminous or concrete paving.
- B. Limits of Removal: Pavement shall be removed to the limits shown on the plans, or as directed by the Design Professional in the field. Where pavement is to be removed to allow for the construction of utilities or other improvements, pavement shall be removed to the limits required for their construction.

**PART 2 MATERIALS**

**2.01 NOT APPLICABLE**

**PART 3 EXECUTION**

**3.01 PAVEMENT REMOVAL (INCLUDING CURB AND GUTTER REMOVAL)**

- A. Pavement shall be removed to an existing joint or to a sawed joint. An existing crack is not suitable for the limit of removal. Sawed joints for pavement removal are to be either parallel or perpendicular to the longitudinal centerline. Sawed joints shall extend substantially through the full thickness of the pavement so that a "clean break" is made and that the adjacent pavement or structures that are to remain are not damaged. If adjacent pavement or structures that are to remain are damaged as a result of the Contractor's removal operations, they shall be replaced to the Owner's satisfaction at the Contractor's expense.
- B. Broken concrete, bituminous, brick, and other debris resulting from pavement removal operations shall become the Contractor's property and disposed of properly.
- C. Where pavements are encountered that are composed of more than one material or multiple courses of the same material. The pavement shall be removed in its entirety and all components shall be considered part of the same pavement area.

**END OF SECTION**



**SECTION 03 30 00**  
**CAST-IN-PLACE CONCRETE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Concrete formwork.
- B. Floors and slabs on grade.
- C. Concrete foundations.
- D. Concrete reinforcement.
- E. Joint devices associated with concrete work.
- F. Miscellaneous concrete elements, including partial slab replacement and concrete pads.
- G. Concrete curing.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 90 05 - Joint Sealers: Sealants for saw cut joints and isolation joints in slabs.
- B. Section 32 13 13 - Concrete Paving: Sidewalks, curbs and gutters.
- C. Section 20 00 00 - Basic Mechanical Requirements: Mechanical items for casting into concrete.
- D. Division 26 - Electrical: Electrical items for casting into concrete.

**1.03 REFERENCE STANDARDS**

- A. ACI 211.1 - Selecting Proportions for Normal-Density and High-Density Concrete - Guide; 2022.
- B. ACI 302.1 - Guide for Concrete Floor and Slab Construction; 2015.
- C. ACI 304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).
- D. ACI 305 - Guide to Hot Weather Concreting; 2020.
- E. ACI 306 - Guide to Cold Weather Concreting; 2016.
- F. ACI 308 - Guide to External Curing of Concrete; 2016.
- G. ACI 347 - Guide to Formwork for Concrete; 2014 (Reapproved 2021).
- H. ACI SPEC 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; American Concrete Institute International; 2015.
- I. ACI SPEC 301 - Specifications for Structural Concrete; American Concrete Institute International; 2016.
- J. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon Billet-Steel Bars for Concrete Reinforcement; 2022.
- K. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2022.
- L. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2018.
- M. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2021.
- N. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2023.
- O. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2020.
- P. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
- Q. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2016.
- R. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a (Reapproved 2016).
- S. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2023 with Editorial Revision.
- T. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; 2017.

- U. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 2021.
- V. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures; 2020.
- W. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2018.
- X. ASTM D1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction; 2018 (reapproved 2023).

#### **1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
  - 1. Portland cement.
  - 2. Fly ash.
  - 3. Slag cement.
  - 4. Blended hydraulic cement.
  - 5. Silica fume.
  - 6. Aggregates.
  - 7. Admixtures.
  - 8. Vapor retarders.
  - 9. Liquid floor treatments.
  - 10. Each type of steel reinforcement.
  - 11. For curing compounds, provide data on method of removal in the event of incompatibility with floor covering adhesives.
- C. Design Mixtures: Submit proposed concrete mix design.
  - 1. Mixture identification.
  - 2. Minimum 28-day compressive strength.
  - 3. Durability exposure class.
  - 4. Maximum w/cm.
  - 5. Calculated equilibrium unit weight.
  - 6. Slump limit.
  - 7. Air content.
  - 8. Nominal maximum aggregate size.
  - 9. Indicate amount of mixing water to be withheld for later addition at Project site if permitted.
  - 10. Intended placement method.
  - 11. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
  - 12. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.
  - 13. Indicate proposed mix design complies with requirements of ACI 318, Chapter 5 - Concrete Quality, Mixing and Placing.
- D. Steel Reinforcement Shop drawings: Comply with ACI SP-066:
  - 1. Include placing drawings that detail fabrication, bending, and placement.
  - 2. Include bar sizes, lengths, materials, grades, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, location of splices, lengths of lap splices, details of mechanical splice couplers, details of welding splices, tie spacing, hoop spacing, and supports for concrete reinforcement.
  - 3. For structural thermal break insulated connection system, indicate general configuration, insulation dimensions, tension bars, compression pads, shear bars, and dimensions.
- E. Construction Joint Layout: Indicate proposed construction joints required to build the structure.
  - 1. Location of construction joints is subject to approval of the Design Professional.
- F. Manufacturer's Installation Instructions: For concrete accessories, indicate installation procedures and interface required with adjacent construction.

## **1.05 QUALITY ASSURANCE**

- A. Installer Qualifications: A qualified installer who employs Project personnel qualified as an ACI-certified Flatwork Technician and Finisher and a supervisor who is a certified ACI Flatwork Concrete Finisher/Technician or an ACI Concrete Flatwork Technician.
- B. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94 requirements for production facilities and equipment.
- C. Laboratory Testing Agency Qualifications: A testing agency qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated and employing an ACI-certified Concrete Quality Control Technical Manager.
- D. Field Quality Testing Agency Qualifications: A independent testing agency, acceptable to the authorities having jurisdiction, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.
- E. Perform work of this section in accordance with ACI 301 and ACI 318.
- F. Follow recommendations of ACI 305R when concreting during hot weather.
- G. Follow recommendations of ACI 306R when concreting during cold weather.

## **PART 2 PRODUCTS**

### **2.01 FORMWORK**

- A. Formwork Design and Construction: Comply with guidelines of ACI 347 to provide formwork that will produce concrete complying with tolerances of ACI 117.
- B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
  - 1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
  - 2. Form Facing for Exposed Finish Concrete: Steel.
  - 3. Earth Cuts: Do not use earth cuts as forms for vertical surfaces. Natural rock formations that maintain a stable vertical edge may be used as side forms.
  - 4. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
  - 5. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches of concrete surface.

### **2.02 STEEL REINFORCEMENT**

- A. Reinforcing Steel: ASTM A615/A615M Grade 60 deformed.
  - 1. Type: Deformed billet-steel bars.
  - 2. Finish: Unfinished.
- B. Steel Welded Wire Reinforcement: ASTM A1064/A1064M, plain type.
  - 1. Form: Flat sheets.
  - 2. Mesh Size and Wire Gage: As indicated on drawings.
- C. Reinforcement Accessories:
  - 1. Tie Wire: Annealed, minimum 16 gage.
  - 2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
- D. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

### **2.03 CONCRETE MATERIALS**

- A. Cement: ASTM C150, Type I, Type II, Type III - Normal Portland type.
  - 1. Acquire all cement for entire project from same source.
- B. Normal-Weight Aggregates: ASTM C33, Class 3S coarse aggregate or better, graded.
  - 1. Acquire all aggregates for entire project from same source.
  - 2. Alkali Content in Concrete: Not more than 4 lb./cu. yd. for moderately reactive aggregate or 3 lb./cu. yd. for highly reactive aggregate, when tested in accordance with ASTM C1293 and categorized in accordance with ASTM C1778, based on alkali content being calculated in accordance with ACI 301.
  - 3. Maximum Coarse Aggregate Size: 1-1/2 inches in footings and foundation, 3/4 inch for balance of work.

4. Free of materials with deleterious reactivity to alkali in cement.
- C. Air-Entraining Admixture: ASTM C260.
- D. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride in steel-reinforced concrete.
  1. Water-Reducing Admixture: ASTM C494, Type A.
  2. Retarding Admixture: ASTM C494, Type B.
  3. Water-Reducing and -Retarding Admixture: ASTM C494, Type D.
  4. High-Range, Water-Reducing Admixture: ASTM C494, Type F.
- E. Fly Ash: ASTM C618, Class C.
- F. Silica Fume: ASTM C1240, proportioned in accordance with ACI 211.1.
- G. Water: Clean and not detrimental to concrete.
- H. Synthetic Fibrillated Micro-Fiber: Fibrillated polypropylene micro-fibers engineered and designed for use in concrete, complying with ASTM C1116, Type III, 1 to 2 1/4 inches long.

#### **2.04 ACCESSORY MATERIALS**

- A. Underslab Vapor Retarder: Multi-Layer, Polyolefin or equivalent, complying with ASTM E 1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. Single ply polyethylene is prohibited.
  1. Thickness: Minimum 10 mil.
  2. Accessories: Seam tape, waterproof mastic as recommended by membrane manufacturer.
  3. Acceptable Products:
    - a. Griffolyn T-85 by Reef Industries.
    - b. Moistop Ultra by Fortifiber Industries.
    - c. Stego Wrap by Stego Industries.
    - d. Strata-Barrier by Strata Systems, Inc.
    - e. Viper Vaporcheck by Insulation Solutions, Inc.
- B. Curing/Sealing Compound (Surfaces scheduled to receive adhered resilient finish flooring materials): Water emulsion, resin base clear liquid type, specifically designed for use on surfaces scheduled to receive adhered finish materials; equivalent to "1100-CLEAR" manufactured by W.R. Meadows, Inc.
  1. Areas scheduled to receive ceramic, quarry, porcelain, terrazzo, stone, clay or any other 'hard' tile shall not receive Curing/Sealing Compounds.
- C. Liquid Curing Compound (Surfaces scheduled to remain exposed): ASTM C 309, Type 1, clear or translucent, Class B. Provide VOCOMP-25 manufactured by W.R. Meadows, Inc.
  1. Areas scheduled to receive application of material specified in Section 03 39 01 shall not receive Curing/Sealing Compounds listed in this section.

#### **2.05 BONDING AND JOINTING PRODUCTS**

- A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059 Type II.
  1. Products:
    - a. SpecChem, LLC; Strong Bond Acrylic Bonder: [www.specchemllc.com](http://www.specchemllc.com).
    - b. W.R. Meadows, Inc.; ACRY-LOK-: [www.wrmeadows.com](http://www.wrmeadows.com).
    - c. INTRALOK manufactured by W.R. Meadows, Inc.
- B. Epoxy Bonding System: Complying with ASTM C881/C881M and of Type required for specific application.
  1. Products:
    - a. Adhesives Technology Corporation; Crackbond SLV302, Crackbond LR321, Crackbond LR321 G, Crackbond LR321 LPL, Ultrabond 2100 LPL, Ultrabond 2100, Ultrabond 1, Ultrabond 2, Ultrabond 4CC, Ultrabond HS200, Miracle Bond 1350 or Miracle Bond 1450: [www.atcepoxy.com](http://www.atcepoxy.com).
    - b. SpecChem, LLC; SpecPoxy 1000, SpecPoxy 2000, SpecPoxy 3000, or SpecPoxy 3000FS: [www.specchemllc.com](http://www.specchemllc.com).
    - c. W.R. Meadows, Inc.; Rezi-Weld Gel Paste, Rezi-Weld Gel Paste State, Rezi-Weld 1000, or Rezi-Weld 1000 State: [www.wrmeadows.com](http://www.wrmeadows.com).
    - d. REZI-WELD 1000 manufactured by W.R. Meadows, Inc.

- C. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.
  - 1. Material: Closed-cell, non-absorbent, compressible polyethylene or polymer foam in sheet form.
- D. Slab Construction Joint Devices: Combination keyed joint form and screed, galvanized steel, with minimum 1 inch diameter holes for conduit or rebars to pass through at 6 inches on center; ribbed steel stakes for setting.
  - 1. Provide removable plastic cap strip that forms wedge-shaped joint for sealant installation.
  - 2. Height: To suit slab thickness.
- E. Sealant and Primer: As specified in Section 07 90 05.

## **2.06 CONCRETE MIXTURES, GENERAL**

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, in accordance with ACI 301.
  - 1. Use a qualified testing agency for preparing and reporting proposed mixture designs, based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
  - 1. Fly Ash or Other Pozzolans: 25 percent by mass.
  - 2. Slag Cement: 50 percent by mass.
  - 3. Silica Fume: 10 percent by mass.
  - 4. Total of Fly Ash or Other Pozzolans, Slag Cement, and Silica Fume: 50 percent by mass, with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceed 10 percent by mass.
  - 5. Total of Fly Ash or Other Pozzolans and Silica Fume: 35 percent by mass with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.
- C. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- D. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
  - 1. For trial mixtures method, employ independent testing agency acceptable to Design Professional for preparing and reporting proposed mix designs.
- E. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
  - 1. Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.
  - 2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
  - 3. Use water-reducing admixture in pumped concrete, concrete for parking structure slabs and concrete with a w/cm below 0.50.
- F. Fiber Reinforcement: Add to mix at rate of 1.5 pounds per cubic yard, or as recommended by manufacturer for specific project conditions.

## **2.07 CONCRETE MIXTURES**

- A. Footings: Normal-weight concrete
  - 1. Minimum Compressive Strength: as shown on the drawings.
  - 2. Maximum W/C Ratio: 0.45
  - 3. Slump Limit: 4 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture plus or minus 1 inch.
  - 4. Air Content: 6 percent, plus or minus 1 percent.
- B. Slabs-on-Grade: Normal-weight concrete
  - 1. Minimum Compressive Strength: as shown on the drawings.
  - 2. Maximum W/C Ratio: 0.45
  - 3. Slump Limit: 4 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture plus or minus 1 inch.
  - 4. Air Content: 6 percent, plus or minus 1 percent.



## **2.08 CONCRETE MIXING**

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94 and ASTM C1116, and furnish batch ticket information.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete in accordance with ASTM C94. Mix concrete materials in appropriate drum-type batch machine mixer.
  - 1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than five minutes after ingredients are in mixer, before any part of batch is released.
  - 2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.
  - 3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify lines, levels, and dimensions before proceeding with work of this section.
  - 1. Before placing concrete, verify that installation of concrete forms, accessories, reinforcement, and embedded items is complete and that required inspections have been performed.
  - 2. Do not proceed until unsatisfactory conditions have been corrected.

### **3.02 PREPARATION**

- A. Provide reasonable auxiliary services to accommodate field testing and inspections, acceptable to testing agency, including the following:
  - 1. Daily access to the Work.
  - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
  - 3. Secure space for storage, initial curing, and field curing of test samples, including source of water and continuous electrical power at Project site during site curing period for test samples.
  - 4. Security and protection for test samples and for testing and inspection equipment at Project site.
- B. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.
- C. Verify that forms are clean and free of rust before applying release agent.
- D. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.
- E. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
  - 1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
  - 2. Use latex bonding agent only for non-load-bearing applications.
- F. Where new concrete with integral waterproofing is to be bonded to previously placed concrete, prepare surfaces to be treated in accordance with waterproofing manufacturer's instructions. Saturate cold joint surface with clean water, and remove excess water before application of coat of waterproofing admixture slurry. Apply slurry coat uniformly with semi-stiff bristle brush at rate recommended by waterproofing manufacturer.
- G. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.
- H. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Lap joints minimum 6 inches. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.
  - 1. Granular Fill Over Vapor Retarder: Cover vapor retarder with compactible granular fill as shown on the drawings. Do not use sand.
  - 2. Vapor Retarder Over Granular Fill: Install compactible granular fill before placing vapor retarder as shown on the drawings. Do not use sand.

### **3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS**

- A. Comply with CRSI's "Manual of Standard Practice" for placing and supporting reinforcement.
- B. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
- C. Preserve clearance between bars of not less than 1 inch, not less than one bar diameter, or not less than 1-1/3 times size of large aggregate, whichever is greater.
- D. Provide concrete coverage in accordance with ACI 318.
- E. Splices: Lap splices as indicated on Drawings.
  - 1. Bars indicated to be continuous, and all vertical bars shall be lapped not less than 36 bar diameters at splices, or 24 inches, whichever is greater.
  - 2. Stagger splices in accordance with ACI 318.
  - 3. Mechanical Splice Couplers: Install in accordance with manufacturer's instructions.
  - 4. Weld reinforcing bars in accordance with AWS D1.4, where indicated on Drawings.
- F. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.
  - 1. Support welded-wire reinforcement in accordance with CRSI "Manual of Standard Practice."
  - 2. Lap edges and ends of adjoining sheets at least one wire spacing plus 2 inches for plain wire and 8 inches for deformed wire.
  - 3. Offset laps of adjoining sheet widths to prevent continuous laps in either direction.
- G. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.
  - 1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of ANSI/AISC 303.
  - 3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
- H. Comply with ACI 117.

### **3.04 PLACING CONCRETE**

- A. Before placing concrete, verify that installation of formwork, reinforcement, embedded items, and vapor retarder is complete and that required inspections are completed
  - 1. Immediately prior to concrete placement, inspect vapor retarder for damage and deficient installation, and repair defective areas.
  - 2. Provide continuous inspection of vapor retarder during concrete placement and make necessary repairs to damaged areas as Work progresses.
- B. Place concrete in accordance with ACI 304R.
- C. Place concrete for floor slabs in accordance with ACI 302.1R.
- D. Notify Design Professional not less than 24 hours prior to commencement of placement operations.
- E. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect in writing, but not to exceed the amount indicated on the concrete delivery ticket.
  - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- F. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301, but not to exceed the amount indicated on the concrete delivery ticket.
  - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- G. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.
  - 1. If a section cannot be placed continuously, provide construction joints as indicated.
  - 2. Deposit concrete to avoid segregation.
  - 3. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.

4. Consolidate placed concrete with mechanical vibrating equipment in accordance with ACI 301.
    - a. Do not use vibrators to transport concrete inside forms.
    - b. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer.
    - c. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity.
  5. At each insertion, limit duration of vibration to time necessary to consolidate concrete, and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- H. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- I. Ensure reinforcement, inserts, waterstops, and embedded parts will not be disturbed during concrete placement.
- J. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.

### **3.05 SLAB JOINTING**

- A. Locate joints as indicated on the drawings.
- B. Anchor joint fillers and devices to prevent movement during concrete placement.
- C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.
  1. Install wherever necessary to separate slab from other building members, including columns, walls, equipment foundations, footings, stairs, manholes, sumps, and drains.
  2. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated on Drawings.
  3. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface, where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.
  4. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- D. Control Joints in Slab-on-Grade: Form weakened-plane control joints, sectioning concrete into areas as indicated. Construct control joints for a depth equal to at least one-fourth of concrete thickness as follows
  1. Grooved Joints: Form control joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of control joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
  2. Sawed Joints: Saw cut joints before concrete begins to cool, within 4 to 12 hours after placing; use 3/16-inch-thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab.
- E. Construction Joints: Coordinate with floor slab pattern and concrete placement sequence.
  1. Install so strength and appearance of concrete are not impaired, at locations indicated on Drawings or as approved by Architect.
  2. Place joints perpendicular to main reinforcement.
  3. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
  4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
  5. Space vertical joints in walls as indicated on Drawings. Unless otherwise indicated on Drawings, locate vertical joints beside piers integral with walls, near corners, and in concealed locations where possible.
  6. Use a bonding agent at locations where fresh concrete is placed against hardened concrete or partially hardened concrete surfaces.
- F. Doweled Joints:
  1. Install dowel bars and support assemblies at joints where indicated on Drawings.
  2. Lubricate or asphalt coat one-half of dowel bar length to prevent concrete bonding to one side of joint.

### **3.06 FLOOR FLATNESS AND LEVELNESS TOLERANCES**

- A. Maximum Variation of Surface Flatness:

1. Exposed Concrete Floors: 1/4 inch in 10 ft.
  2. Under Seamless Resilient Flooring: 1/4 inch in 10 ft.
  3. Under Carpeting: 1/4 inch in 10 ft.
- B. Correct the slab surface if tolerances are less than specified.
- C. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

### **3.07 CONCRETE FINISHING**

- A. Repair surface defects, including tie holes, immediately after removing formwork.
- B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.
- C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.
  2. Grout Cleaned Finish: Wet areas to be cleaned and apply grout mixture by brush or spray; scrub immediately to remove excess grout. After drying, rub vigorously with clean burlap, and keep moist for 36 hours.
- D. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
1. Surfaces to Receive Thick Floor Coverings: "Wood float" as described in ACI 302.1R; thick floor coverings include quarry tile, ceramic tile, and terrazzo with full bed setting system.
  2. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI 302.1R; thin floor coverings include carpeting, resilient flooring, seamless flooring, thin set quarry tile, and thin set ceramic tile.
  3. Decorative Exposed Surfaces: "Steel trowel" as described in ACI 302.1R; use steel-reinforced plastic trowel blades instead of steel blades to avoid black-burnish marks; decorative exposed surfaces include surfaces to be stained or dyed, pigmented concrete, surfaces to be polished, and all other slab surfaces.
  4. Other Surfaces to Be Left Exposed: "Steel trowel" as described in ACI 302.1R, minimizing burnish marks and other appearance defects.
    - a. Chemical Hardener: After slab has cured, apply water-diluted hardener in three coats per manufacturer's instructions, allowing 24 hours between coats.
- E. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains at 1:100 nominal.

### **3.08 CURING AND PROTECTION**

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

### **3.09 FIELD QUALITY CONTROL**

- A. An independent testing agency will perform field quality control tests, as specified in Section 01 10 00.
- B. Provide free access to concrete operations at project site and cooperate with appointed firm.
- A. Special Inspections: Owner will engage a special inspector to perform field tests and inspections and prepare testing and inspection reports.
- B. Testing Agency: Owner will engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
1. Testing agency shall be responsible for providing curing container for composite samples on Site and verifying that field-cured composite samples are cured in accordance with ASTM C31.
  2. Testing agency shall immediately report to Architect, Contractor, and concrete manufacturer any failure of Work to comply with Contract Documents.
  3. Testing agency shall report results of tests and inspections, in writing, to Owner, Architect, Contractor, and concrete manufacturer within 48 hours of inspections and tests.

4. Test reports shall include reporting requirements of ASTM C31, ASTM C39, and ACI 301, including the following as applicable to each test and inspection
  - a. Project name.
  - b. Name of testing agency.
  - c. Names and certification numbers of field and laboratory technicians performing inspections and testing.
  - d. Name of concrete manufacturer.
  - e. Date and time of inspection, sampling, and field testing.
  - f. Date and time of concrete placement.
  - g. Location in Work of concrete represented by samples.
  - h. Date and time sample was obtained.
  - i. Truck and batch ticket numbers.
  - j. Design compressive strength at 28 days.
  - k. Concrete mixture designation, proportions, and materials.
  - l. Field test results.
  - m. Information on storage and curing of samples before testing, including curing method and maximum and minimum temperatures during initial curing period.
  - n. Type of fracture and compressive break strengths at seven days and 28 days.
- C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
- D. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.
- E. Compressive Strength Tests: ASTM C39/C39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 75 cu yd or less of each class of concrete placed.
- F. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
- G. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.

### **3.10 DEFECTIVE CONCRETE**

- A. Test Results: The testing agency shall report test results in writing to Design Professional and Contractor within 24 hours of test.
- B. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- C. Repair or replacement of defective concrete will be determined by the Design Professional. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
- D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Design Professional for each individual area.

### **3.11 PROTECTION**

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.

**END OF SECTION**

**SECTION 04 01 01**  
**MASONRY TUCK POINTING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Tuck pointing of existing masonry.

**1.02 RELATED SECTIONS**

- A. Section 04 20 00 - Unit Masonry.

**1.03 REFERENCES**

- A. ASTM C5 - Standard Specification for Quicklime for Structural Purposes; 2018.
- B. ASTM C91/C91M - Standard Specification for Masonry Cement; 2023.
- C. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2018.
- D. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
- E. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2018.
- F. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2019a, with Editorial Revision.
- G. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2024.
- H. ASTM C476 - Standard Specification for Grout for Masonry; 2023.
- I. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2023.
- J. ASTM C979/C979M - Standard Specification for Pigments for Integrally Colored Concrete; 2016.
- K. ASTM C1019 - Standard Test Method for Sampling and Testing Grout; 2020.
- L. ASTM C1072 - Standard Test Method for Measurement of Masonry Flexural Bond Strength; 2022.
- M. ASTM C1314 - Standard Test Method for Compressive Strength of Masonry Prisms; 2023b.
- N. ASTM E518/E518M - Standard Test Methods for Flexural Bond Strength of Masonry; 2022.
- O. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2022 with Errata (2024).

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Include design mix and indicate whether the Proportion or Property specification of ASTM C270 is to be used. Also include required environmental conditions and admixture limitations.
- C. Samples: Submit two samples of mortar, illustrating mortar color and color range.

**1.05 QUALITY ASSURANCE**

- A. Masonry Contractor: Company specializing in masonry and restoration of existing masonry with minimum three years of documented experience.
- B. Comply with provisions of ACI 530/ASCE 5/TMS 402 and ACI 530.1/ASCE 6/TMS 602, except where exceeded by requirements of the contract documents.
  - 1. Maintain one copy of each document on project site.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

**1.07 FIELD CONDITIONS**

- A. Cold and Hot Weather Requirements: Comply with requirements of ACI 530.1/ASCE 6/TMS 602 or applicable building code, whichever is more stringent.

## **PART 2 PRODUCTS**

### **2.01 TUCK POINTING MORTAR**

- A. Stain Resistant Pointing Mortar: One part portland cement, 1/8 part hydrated lime, and two parts graded (80 mesh) aggregate, proportioned by volume. Add aluminum tristearate, calcium stearate, or ammonium stearate equal to 2 percent of portland cement by weight.
- B. Colored Mortar: Proportion selected pigments and other ingredients to match existing mortar color, without exceeding manufacturer's recommended pigment-to-cement ratio.

### **2.02 MORTAR MIXING**

- A. Thoroughly mix mortar ingredients using mechanical batch mixer, in accordance with ASTM C 270 and in quantities needed for immediate use.
- B. Maintain sand uniformly damp immediately before the mixing process.
- C. Add mortar color in accordance with manufacturer's instructions. Provide uniformity of mix and coloration.
- D. Do not use anti-freeze compounds to lower the freezing point of mortar.
- E. If water is lost by evaporation, re-temper only within two hours of mixing.

## **PART 3 EXECUTION**

### **3.01 CUT OUT OF EXISTING MORTAR JOINTS**

- A. Cut out existing mortar joints (both bed and head joints) and remove by means of a toothing chisel or a special pointer's grinder, to a uniform depth of to 3/4-inch, or until sound mortar is reached. Take care to not damage edges of existing masonry units to remain.
- B. Remove dust and debris from the joints by brushing, blowing with air or rinsing with water. Do not rinse when temperature is below freezing.

### **3.02 JOB CONDITIONS**

- A. Protection: Protect newly pointed joints from rain, until pointed joints are sufficiently hard enough to prevent damage.
- B. Cold Weather Protection:
  - 1. Tuck pointing may be performed in freezing weather when methods of protection are utilized.
  - 2. Comply with applicable sections of "Recommended Practices for Cold Weather Construction" as published by International Masonry Industry All Weather Council.
  - 3. Existing surfaces at temperatures to prevent mortar from freezing or causing other damage to mortar.

### **3.03 INSTALLATION OF TUCK POINTING MORTAR**

- A. Immediately prior to application of mortar, dampen joints to be tuck pointed. Prior to application of pointing mortar, allow masonry units to absorb surface water.
- B. Tightly pack mortar into joints in thin layers, approximately 1/4-inch thick maximum.
- C. Allow layer to become "thumbprint hard" before applying next layer.
- D. Pack final layer flush with surfaces of masonry units. When mortar becomes "thumbprint hard", tool joints.

### **3.04 TOOLING OF JOINTS**

- A. Tool joints with a jointing tool to produce a smooth, compacted, concaved joint.
- B. Tool joints in patch work with a jointing tool to match the existing surrounding joints. //

### **3.05 CLEANING**

- A. Clean exposed masonry surfaces on completion.
- B. Remove mortar droppings and other foreign substances from wall surfaces.
- C. First wet surfaces with clean water, then wash down with a solution of soapless detergent specially prepared for cleaning brick.
- D. Brush with stiff fiber brushes while washing, and immediately thereafter hose down with clean water.
- E. Free clean surfaces from traces of detergent, foreign streaks or stains. Protect materials during cleaning operations including adjoining construction.

F. Use of muratic acid for cleaning is prohibited.

**END OF SECTION**





## SECTION 04 20 00

### UNIT MASONRY

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Concrete Masonry Units.
- B. Clay Facing Brick.
- C. Mortar and Grout.
- D. Ties and Anchors.
- E. Miscellaneous Masonry Accessories.

##### 1.02 RELATED REQUIREMENTS

- A. Section 05 12 00 - Structural Steel Framing: Structural steel lintels.
- B. Section 05 50 00 - Metal Fabrications: Loose steel lintels.
- C. Section 07 84 00 - Firestopping: Firestopping at penetrations of fire-rated masonry and at top of fire-rated walls.
- D. Section 07 90 05 - Joint Sealers: Backing rod and sealant at control and expansion joints.

##### 1.03 REFERENCE STANDARDS

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
- B. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement; 2022.
- C. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire; 2019.
- D. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2023.
- E. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2022.
- F. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units; 2023.
- G. ASTM C91/C91M - Standard Specification for Masonry Cement; 2023.
- H. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2018.
- I. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
- J. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2018.
- K. ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale); 2023.
- L. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2019a, with Editorial Revision.
- M. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2024.
- N. ASTM C476 - Standard Specification for Grout for Masonry; 2023.
- O. ASTM C652 - Standard Specification for Hollow Brick (Hollow Masonry Units Made From Clay or Shale); 2022.
- P. ASTM C1314 - Standard Test Method for Compressive Strength of Masonry Prisms; 2023b.
- Q. ASTM D4637/D4637M - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane; 2015, with Editorial Revision (2022).
- R. ASTM E514/E514M - Standard Test Method for Water Penetration and Leakage Through Masonry; 2020.
- S. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2022.

##### 1.04 SUBMITTALS

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Certificate of Compliance: Submit completed Certificate of Compliance for all products/components included in this Section.

- C. Product Data: Provide data for the following:
  - 1. Masonry units: Show sizes, profiles, coursing, and locations of special shapes.
  - 2. Reinforcing steel: Detail bending, lap lengths, and placement of unit masonry reinforcing bars. Comply with ACI 315. Show elevations of reinforced walls.
- D. Material Certificates: For each type and size of product:
  - 1. For masonry units, include data on material properties and material test reports substantiating compliance with requirements.
  - 2. Cementitious materials.
  - 3. Mortar admixtures.
  - 4. Preblended, dry mortar mixes.
  - 5. Grout mixes.
  - 6. Reinforcing bars.
  - 7. Joint reinforcement.
  - 8. Anchors, ties, and metal accessories.
- E. Qualification Data: For testing agency.
- F. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
  - 1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C109 for compressive strength, ASTM C1506 for water retention, and ASTM C91 for air content.
  - 2. Include test reports, according to ASTM C1019, for grout mixes required to comply with compressive strength requirement.
- G. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to TMS 602/ACI 530.1/ASCE 6.
- H. Cold-Weather and Hot-Weather Procedures: Detailed descriptions of methods, materials, and equipment to be used to comply with requirements.

#### **1.05 QUALITY ASSURANCE**

- A. Testing Agency Qualifications: Qualified according to ASTM C1093 for testing indicated.
- B. Comply with provisions of ACI 530/530.1/ERTA, except where exceeded by requirements of the contract documents.

#### **1.06 MOCK-UP**

- A. At Bullock Creek Elementary, construct a masonry wall as a mock-up panel approximately 6 feet long by 5 feet high showing specialty brick coursing at new lintel work; include mortar, accessories, and structural backup in the mock-up.
- B. Locate where directed.
- C. Mock-up may remain as part of the Work if approved.

#### **1.07 FIELD CONDITIONS**

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.
- E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

## 1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.
- B. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- C. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- D. Store aggregates where grading and other required characteristics can be maintained, and contamination avoided.
- E. Deliver preblended, dry mortar mixes in moisture-resistant containers. Store preblended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.
- F. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

## PART 2 PRODUCTS

### 2.01 UNIT MASONRY, GENERAL

- A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.
- B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.
- C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.
- D. Defective Units: Reference masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.
- E. Fire-Resistance Ratings: Comply with requirements for fire-resistance-rated assembly designs indicated.
  - 1. Where fire-resistance-rated construction is indicated, units shall be listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction.

### 2.02 CONCRETE MASONRY UNITS

- A. Concrete Masonry Units: Comply with referenced standards and as follows:
  - 1. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
    - a. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
  - 2. Size: Standard units with nominal face dimensions of 16 x 8 inches and nominal depths as indicated on the drawings for specific locations.
  - 3. Special Shapes: Provide non-standard blocks configured for corners and other detailed conditions.
  - 4. Non-Loadbearing and Load-Bearing Units: ASTM C90, normal weight.
    - a. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2000 psi at 28-days. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength) method according to TMS 602/ACI 530.1/ASCE 6.
    - b. Density Classification: Normal weight.
    - c. Size (Width): Manufactured to dimensions 3/8-inch less than nominal dimensions.
    - d. Exposed Faces: Provide color and texture matching the range represented by Architect's sample.

### 2.03 BRICK UNITS

- A. Manufacturers:
  - 1. Belden Brick; Bowerston Brick; specialty blend with bark texture: [www.beldenbrick.com](http://www.beldenbrick.com). Contact Mark Lariviere Jr., [markl@beldenbricksales.com](mailto:markl@beldenbricksales.com).

- B. Facing Brick: ASTM C216, Type FBS, Grade SW.
  - 1. Color and texture to match Design Professional's sample.
  - 2. Nominal size: As indicated on drawings.
  - 3. Special shapes: Molded units as required by conditions indicated, unless standard units can be sawn to produce equivalent effect.

## **2.04 MORTAR AND GROUT MATERIALS**

- A. Masonry Cement: ASTM C91, Type N.
- B. Portland Cement: ASTM C150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
  - 1. Not more than 0.60 percent alkali.
  - 2. Hydrated Lime: ASTM C207, Type S.
  - 3. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
  - 4. Mortar Aggregate: ASTM C144.
    - a. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.
  - 5. Grout Aggregate: ASTM C404.
- C. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C494, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
- D. Water: Clean and potable.

## **2.05 REINFORCEMENT AND ANCHORAGE**

- A. Manufacturers of Joint Reinforcement and Anchors:
  - 1. Blok-Lok Limited: [www.blok-lok.com](http://www.blok-lok.com).
  - 2. Hohmann & Barnard, Inc (including Dur-O-Wal brand): [www.h-b.com](http://www.h-b.com).
  - 3. WIRE-BOND: [www.wirebond.com](http://www.wirebond.com).
  - 4. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.
- A. Uncoated Reinforcing Steel Bars: ASTM A615 Grade 60 deformed billet bars; galvanized.
- B. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells to hold reinforcing bars in center of cells. Units are formed from 0.148-inch steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.
- C. Masonry-Joint Reinforcement, General: ASTM A951.
  - 1. Interior Walls: Hot-dip galvanized carbon steel.
  - 2. Wire Size for Side Rods: 0.148-inch diameter.
  - 3. Wire Size for Cross Rods: 0.187-inch diameter.
  - 4. Wire Size for Veneer Ties: 0.187-inch diameter.
  - 5. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
  - 6. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.
- D. Single Wythe Joint Reinforcement: Ladder type; ASTM A1064/A1064M steel wire, mill galvanized to ASTM A641/A641M, Class 3; 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not more than 1 inch and not less than 1/2 inch of mortar coverage on each exposure.
- E. Multiple Wythe Joint Reinforcement: Ladder type; fabricated with moisture drip; ASTM A1064/A1064M steel wire, hot dip galvanized after fabrication to ASTM A153/153M, Class B; 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not more than 1 inch and not less than 1/2 inch of mortar coverage on each exposure.
- F. Strap Anchors: Bent steel shapes configured as required for specific situations, 1-1/4 in width, 0.105 in thick, lengths as required to provide not more than 1 inch and not less than 1/2 inch of mortar coverage from masonry face, corrugated for embedment in masonry joint, hot dip galvanized to ASTM A 153/A 153M, Class B.

## **2.06 FLASHINGS**

- A. EPDM Flashing: ASTM D4637, Type I, 0.040 inch thick.

## 2.07 ACCESSORIES

- A. Weeps: Polyester mesh.
  - 1. Manufacturers:
    - a. CavClear/Archovations, Inc: [www.cavclear.com](http://www.cavclear.com).
    - b. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.
- B. Cavity Vents: Polyester mesh.
  - 1. Manufacturers:
    - a. CavClear/Archovations, Inc: [www.cavclear.com](http://www.cavclear.com).
    - b. Mortar Net Solutions; Mortar Net Weep Vents: [www.mortarnet.com](http://www.mortarnet.com).
    - c. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.
- C. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.
- D. Sealer: Water-based emulsion of siloxane with the ability to bead water and allows substrate to breathe.
  - 1. Manufacturer:
    - a. Dayton Superior; Product: Weather Worker 10% J26WB.
    - b. Design Professional approved equivalent.
  - 2. Material:
    - a. Appearance: No color change once applied to surface.
    - b. V.O.C. Compliant.
    - c. Drying Time: 1-2 hours at 70 degrees F.

## 2.08 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.
  - 1. Do not use calcium chloride in mortar or grout.
  - 2. Use portland cement-lime mortar unless otherwise indicated.
  - 3. For reinforced masonry, use portland cement-lime mortar.
- B. Mortar for Unit Masonry: ASTM C270, Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.
  - 1. Exterior, loadbearing masonry: Type N.
  - 2. Exterior, non-loadbearing masonry: Type N.
  - 3. For reinforced masonry, use Type S.
  - 4. Interior, loadbearing masonry: Type N.
  - 5. Interior, non-loadbearing masonry: Type O
- C. Grout: ASTM C476. Consistency required to fill completely volumes indicated for grouting; fine grout for spaces with smallest horizontal dimension of 2 inches or less; coarse grout for spaces with smallest horizontal dimension greater than 2 inches.
  - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.
  - 2. Proportion grout in accordance with ASTM C476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 3000 psi.
  - 3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C143.
- D. Admixtures: Add to mixture at manufacturer's recommended rate and in accordance with manufacturer's instructions; mix uniformly.
- E. Mixing: Use mechanical batch mixer and comply with referenced standards.
- F. All mortar mixes used with exterior CMU veneer or single wythe wall construction shall contain an integral water repellent. Mix wall repellent with mortar at rate recommended by repellent manufacturer.

## PART 3 EXECUTION

### 3.01 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.

- B. Build chases and recesses to accommodate items specified in this and other Sections.
- C. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- D. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.
- E. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested according to ASTM C67. Allow units to absorb water so they are damp but not wet at time of laying.

### **3.02 EXAMINATION**

- A. Verify that field conditions are acceptable and are ready to receive masonry.
- B. Verify that related items provided under other sections are properly sized and located.
- C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

### **3.03 PREPARATION**

- A. Direct and coordinate placement of metal anchors supplied for installation under other sections.
- B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

### **3.04 COLD AND HOT WEATHER REQUIREMENTS**

- A. Comply with requirements of ACI 530/530.1/ERTA or applicable building code, whichever is more stringent.

### **3.05 COURSING**

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C. Concrete Masonry Units:
  1. Bond: Match existing. Typical is Running Bond.
  2. Coursing: One unit and one mortar joint to equal 8 inches.
  3. Mortar Joints: Concave.
- D. Brick Units:
  1. Bond: Match existing.
  2. Coursing: Three units and three mortar joints to equal 8 inches.
  3. Mortar Joints: Concave.

### **3.06 PLACING AND BONDING**

- A. Lay solid masonry units in full bed of mortar, angle top of mortar toward the center of the units, with full head joints, uniformly jointed with other work.
- B. Lay hollow masonry units with face shell bedding on head and bed joints.
- C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.
- D. Remove excess mortar and mortar smears as work progresses.
- E. Remove excess mortar with water repellent admixture promptly. Do not use acids, sandblasting or high pressure cleaning methods.
- F. Interlock intersections and external corners.
- G. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
- H. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.
- I. Isolate masonry partitions from vertical structural framing members with a control joint.

- J. Isolate top joint of masonry partitions from horizontal structural framing members and slabs or decks with compressible joint filler.

### **3.07 WEEPS/CAVITY VENTS**

- A. Install weeps in veneer and cavity walls at 32 inches on center horizontally above through-wall flashing, above shelf angles and lintels, and at bottom of walls.
- B. Install cavity vents in veneer and cavity walls at 32 inches on center horizontally below shelf angles and lintels and near top of walls.

### **3.08 REINFORCEMENT AND ANCHORAGE - GENERAL**

- A. Unless otherwise indicated on drawings or specified under specific wall type, install horizontal joint reinforcement 16 inches on center.
- B. Masonry reinforcement is not required in below-grade foundation walls that are backfilled on each side and in non-bearing partition walls unless noted on Drawings.
- C. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
- D. Place continuous joint reinforcement in first and second joint below top of walls.
- E. Lap joint reinforcement ends minimum 6 inches.
- F. Continue reinforcement at corners and wall intersections utilizing prefabricated "L" and "T" sections.
- G. Fasten anchors to structural framing and embed in masonry joints as masonry is laid. Unless otherwise indicated on drawings or closer spacing is indicated under specific wall type, space anchors at maximum of 36 inches horizontally and 24 inches vertically.

### **3.09 REINFORCEMENT AND ANCHORAGE - SINGLE WYTHE MASONRY**

- A. Install horizontal joint reinforcement 8 inches on center.
- B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
- C. Place continuous joint reinforcement in first and second joint below top of walls.
- D. Lap joint reinforcement ends minimum 6 inches.

### **3.10 REINFORCEMENT AND ANCHORAGE - MASONRY VENEER**

- A. Install horizontal joint reinforcement 16 inches on center.
- B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
- C. Place continuous joint reinforcement in first and second joint below top of walls.
- D. Lap joint reinforcement ends minimum 6 inches.
- E. Masonry Back-Up: Embed anchors to bond veneer at maximum 16 inches on center vertically and 36 inches on center horizontally. Place additional anchors at perimeter of openings and ends of panels, so maximum spacing of anchors is 8 inches on center.

### **3.11 MASONRY FLASHINGS**

- A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
  - 1. Extend flashings full width at such interruptions and at least 4 inches into adjacent masonry or turn up at least 4 inches to form watertight pan at non-masonry construction.
  - 2. Remove or cover protrusions or sharp edges that could puncture flashings.
  - 3. Seal lapped ends and penetrations of flashing before covering with mortar.
- B. Extend EPDM flashings to 1/4 inch past the exterior face of masonry.
  - 1. Following inspection by the Design Professional, trim back the exposed flashing to the exterior face of the masonry.

### **3.12 GROUTED COMPONENTS**

- A. Lap splices minimum 24 bar diameters.



- B. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.
- C. Place and consolidate grout fill without displacing reinforcing.
- D. At bearing locations, fill masonry cores with grout for a minimum 12 inches either side of opening.

### **3.13 CONTROL AND EXPANSION JOINTS**

- A. Do not continue horizontal joint reinforcement through control and expansion joints.
- B. Form control joint with a sheet building paper bond breaker fitted to one side of the hollow contour end of the block unit. Fill the resultant core with grout fill. Rake joint at exposed unit faces for placement of backer rod and sealant.
  - 1. Fit bond-breaker strips into hollow contour in ends of CMUs on one side of control joint. Fill resultant core with grout and rake out joints in exposed faces for application of sealant.
  - 2. Install preformed control-joint gaskets designed to fit standard sash block.
  - 3. Install interlocking units designed for control joints. Install bond-breaker strips at joint. Keep head joints free and clear of mortar or rake out joint for application of sealant.
  - 4. Install temporary foam-plastic filler in head joints and remove filler when unit masonry is complete for application of sealant.
- C. Size control joint in accordance with Section 07 90 05 for sealant performance.

### **3.14 REINFORCED UNIT MASONRY**

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
  - 1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
  - 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and that of other loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
  - 1. Comply with requirements in TMS 602/ACI 530.1/ASCE 6 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
  - 2. Limit height of vertical grout pours to not more than 60 inches.

### **3.15 BUILT-IN WORK**

- A. As work progresses, install built-in metal door frames, window frames, anchor bolts, and plates and other items to be built into the work and furnished under other sections.
- B. Install built-in items plumb, level, and true to line.
- C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout.
  - 1. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.
- D. Do not build into masonry construction organic materials that are subject to deterioration.

### **3.16 TOLERANCES**

- A. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.
- B. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.
- C. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
- D. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.
- E. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.
- F. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch.

### **3.17 CUTTING AND FITTING**

- A. Cut and fit for pipes, conduit, and sleeves. Coordinate with other sections of work to provide correct size, shape, and location.

- B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

### **3.18 FIELD QUALITY CONTROL**

- A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.
- B. Inspections: Special inspections according to Level B in TMS 402/ACI 530/ASCE 5.
  - 1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
  - 2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
  - 3. Place grout only after inspectors have verified proportions of site-prepared grout.
- C. Testing Prior to Construction: One set of tests.
- D. Testing Frequency: One set of tests for each 5000 sq. ft. of wall area or portion thereof.
- E. Clay Masonry Unit Test: For each type of unit provided, according to ASTM C67 for compressive strength.
- F. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C140 for compressive strength.
- G. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C780.
- H. Mortar Test (Property Specification): For each mix provided, according to ASTM C780. Test mortar for air content and compressive strength.
- I. Grout Test (Compressive Strength): For each mix provided, according to ASTM C1019.

### **3.19 CLEANING**

- A. Remove excess mortar and mortar droppings.
- B. Replace defective mortar. Match adjacent work.
- C. Clean soiled surfaces with cleaning solution.
- D. Use non-metallic tools in cleaning operations.

### **3.20 SEALING**

- A. All surfaces should be cleaned with detergent recommended by sealant manufacturer and free of oil, grease, dirt, paint and other debris.
- B. Sealer may be applied with low pressure airless sprayer, roller, brush or lambs wool applicator.
- C. A minimum of three (3) coats shall be applied.

### **3.21 PROTECTION**

- A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

**END OF SECTION**



**SECTION 05 12 00**  
**STRUCTURAL STEEL FRAMING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Structural steel.
- B. Grout.

**1.02 DEFINITIONS**

- A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

**1.03 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.

**1.04 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
- B. Shop Drawings: Show fabrication of structural-steel components.
- C. Delegated-Design Submittal: For structural-steel connections indicated to comply with design loads, include analysis data.

**1.05 INFORMATIONAL SUBMITTALS**

- A. Qualification Data: For Installer and fabricator.
- B. Welding certificates.
- C. Mill test reports for structural steel, including chemical and physical properties.
- D. Source quality-control reports.
- E. Field quality-control and special inspection reports.

**1.06 QUALITY ASSURANCE**

- A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- B. Comply with applicable provisions of the following specifications and documents:
  - 1. AISC 303.
  - 2. AISC 360.
  - 3. RCSC's "Specification for Structural Joints Using ASTM A325 or A490 Bolts."

**1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.
  - 1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.
- B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.
  - 1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
  - 2. Clean and relubricate bolts and nuts that become dry or rusty before use.
  - 3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F1852 fasteners and for retesting fasteners after lubrication.

**PART 2 PRODUCTS**

**2.01 PERFORMANCE REQUIREMENTS**

- A. Connections: Provide details of simple shear connections required by the Contract Documents to be selected or completed by structural-steel fabricator to withstand loads indicated and comply with other information and restrictions indicated.
  - 1. Select and complete connections using schematic details indicated and AISC 360.

- B. Moment Connections: Fully restrained.
- C. Construction: Combined system of moment frame, braced frame, and shear walls.

## **2.02 STRUCTURAL-STEEL MATERIALS**

- A. W-Shapes: ASTM A992/A992M.
- B. Channels, Angles-Shapes: ASTM A36/A36M.
- C. Plate and Bar: ASTM A36/A36M.
- D. Cold-Formed Hollow Structural Sections: ASTM A500/A500M, Grade C, structural tubing.
- E. Welding Electrodes: Comply with AWS requirements.

## **2.03 BOLTS, CONNECTORS, AND ANCHORS**

- A. High-Strength Bolts, Nuts, and Washers: ASTM A325, Type 1, heavy-hex steel structural bolts; ASTM A563, Grade C, heavy-hex carbon-steel nuts; and ASTM F436, Type 1, hardened carbon-steel washers; all with plain finish.
  - 1. Direct-Tension Indicators: ASTM F959, Type 325, compressible-washer type with plain finish.
- B. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F1852, Type 1, heavy-hex round head assemblies consisting of steel structural bolts with splined ends, heavy-hex carbon-steel nuts, and hardened carbon-steel washers.
  - 1. Finish: Plain.
- C. Shear Connectors: ASTM A108, Grades 1015 through 1020, headed-stud type, cold-finished carbon steel; AWS D1.1/D1.1M, Type B.
- D. Headed Anchor Rods: ASTM F1554, Grade 36, straight.
  - 1. Finish: Plain.
- E. Threaded Rods: ASTM A36/A36M.
  - 1. Finish: Plain.
- F. Steel Rod Bracing System: Stainless steel rod system. Basis of design is Halfen DETAN Rod System. Alternate suppliers/systems may be submitted for owner approval.
  - 1. Tension Rods.
    - a. Material: Stainless steel, A4, Type 316 with 51,500 psi yield strength. [ASTM A666].
    - b. Finish: Electropolished or Hand polished.
    - c. Diameter: As required for design loads.
  - 2. Couplers: 5-1/2 inches.
    - a. Material: Stainless steel with 235 MPa (34,000 psi) minimum yield strength [ASTM A666].
  - 3. Anchor Discs:
    - a. Material: Stainless steel A4 with 235 MPa (34,000 psi) minimum yield strength [ASTM A666].
  - 4. Connecting Plates:
    - a. Material: Stainless steel, Type 316 with 205 MPa (30,000 psi) minimum yield strength, ASTM A666. Finned for welding to steelwork.

## **2.04 PRIMER**

- A. Primer: Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.

## **2.05 GROUT**

- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C1107/C1107M, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

## **2.06 FABRICATION**

- A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," and to AISC 360.
- B. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1/D1.1M and manufacturer's written instructions.

## **2.07 SHOP CONNECTIONS**

- A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A325 or A490 Bolts" for type of bolt and type of joint specified.
  - 1. Joint Type: Snug tightened.
- B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

## **2.08 GALVANIZING**

- A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel in accordance with ASTM A123/A123M.
  - 1. Fill vent and drain holes that are exposed in the finished Work unless they function as weep holes, by plugging with zinc solder and filing off smooth.
  - 2. Galvanize lintels and shelf angles attached to structural-steel frame and located in exterior walls.

## **2.09 SHOP PRIMING**

- A. Shop prime steel surfaces except the following:
  - 1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
  - 2. Surfaces to be field welded.
  - 3. Surfaces of high-strength bolted, slip-critical connections.
  - 4. Galvanized surfaces.
- B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:
  - 1. SSPC-SP 2, "Hand Tool Cleaning."
  - 2. SSPC-SP 3, "Power Tool Cleaning."
  - 3. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
- C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

## **2.10 SOURCE QUALITY CONTROL**

- A. Testing Agency: Owner will engage a qualified testing agency to perform shop tests and inspections.
  - 1. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.
- B. Bolted Connections: Inspect shop-bolted connections according to RCSC's "Specification for Structural Joints Using ASTM A325 or A490 Bolts."
- C. Welded Connections: Visually inspect shop-welded connections according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
  - 1. Liquid Penetrant Inspection: ASTM E165.
  - 2. Magnetic Particle Inspection: ASTM E709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
  - 3. Ultrasonic Inspection: ASTM E164.
  - 4. Radiographic Inspection: ASTM E94.
- D. Prepare test and inspection reports.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.02 ERECTION**

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.

- B. Baseplates Bearing Plates and Leveling Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
  - 1. Set plates for structural members on wedges, shims, or setting nuts as required.
  - 2. Weld plate washers to top of baseplate.
  - 3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
  - 4. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- C. Maintain erection tolerances of structural steel within AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

### **3.03 FIELD CONNECTIONS**

- A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A325 or A490 Bolts" for type of bolt and type of joint specified.
  - 1. Joint Type: Snug tightened.
- B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
  - 1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
  - 2. Remove backing bars or runoff tabs where indicated, back gouge, and grind steel smooth.
  - 3. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," for mill material.

### **3.04 FIELD QUALITY CONTROL**

- A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:
  - 1. Verify structural-steel materials and inspect steel frame joint details.
  - 2. Verify weld materials and inspect welds.
  - 3. Verify connection materials and inspect high-strength bolted connections.
- B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- C. Bolted Connections: Inspect bolted connections according to RCSC's "Specification for Structural Joints Using ASTM A325 or A490 Bolts."
- D. Welded Connections: Visually inspect field welds according to AWS D1.1/D1.1M.
  - 1. In addition to visual inspection, test and inspect field welds according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
    - a. Liquid Penetrant Inspection: ASTM E165.
    - b. Magnetic Particle Inspection: ASTM E709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
    - c. Ultrasonic Inspection: ASTM E164.
    - d. Radiographic Inspection: ASTM E94.

**END OF SECTION**

**SECTION 05 50 00**  
**METAL FABRICATIONS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Shop fabricated steel items, including:
  - 1. Steel lintels.
  - 2. Steel pipe bollards.

**1.02 RELATED REQUIREMENTS**

- A. Section 04 20 00 - Unit Masonry: Placement of metal fabrications in masonry.
- B. Section 05 12 00 - Structural Steel Framing: Structural steel anchor bolts.
- C. Section 05 52 13 - Pipe and Tube Railings.
- D. Section 09 90 00 - Painting and Coating: Paint finish.

**1.03 REFERENCE STANDARDS**

- A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.
- B. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2022.
- C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.
- D. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
- E. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2018.
- F. ASTM A500A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2023.
- G. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020 with Errata (2022).
- H. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel AC172; 2019.
- I. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 2004.
- J. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic); 2019.
- K. SSPC-SP 2 - Hand Tool Cleaning; 2018.

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
- C. Product Data: Submit manufacturer's information for bollard sleeves including standard colors, dimensions and profiles.

**1.05 COORDINATION**

- A. Coordinate scheduling of this Work with other Contractors to assure efficient and orderly sequence of installation of interdependent construction elements.
- B. Review shop drawings, product data, and samples for compliance with Contract Documents and for coordination with related work.
- C. Participate in meetings among Contractors, Subcontractors, Vendors, Suppliers, and Fabricators and others concerned, to establish and maintain coordination and schedules, and to resolve coordination matters in dispute.

**1.06 QUALITY ASSURANCE**

- A. Design lintels under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State of Michigan.
- B. Fabricator Qualifications: A qualified steel fabricator that is accredited by IAS AC172.



## **PART 2 PRODUCTS**

### **2.01 MATERIALS - STEEL**

- A. Steel Sections: ASTM A36.
- B. Plates: ASTM A283.
- C. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.
- D. Bolts, Nuts, and Washers: ASTM A325, Type 1, galvanized to ASTM A153 where connecting galvanized components.
- E. Welding Materials: AWS D1.1; type required for materials being welded.
- F. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.
- G. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

### **2.02 FABRICATION**

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Continuously seal joined members by continuous welds.
- D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

### **2.03 FABRICATED ITEMS**

- A. Lintels: As detailed; prime paint finish.
- B. In addition to lintels noted on Drawings, provide lintels at masonry openings required for work of all trades.
  - 1. Lintels shall be typically 12 inches longer than width of opening.
  - 2. Where lintel abuts steel or concrete structural element, weld a 5/16 inch thick plate to end of lintel. Weld plate to steel or anchor to concrete as required.
  - 3. Lintels not sized on Drawing shall comply with the following:
    - a. For each 4 inch width of masonry at openings:
      - 1) Up to 4'-0": One 3-1/2" x 3-1/2" x 5/16" angle
      - 2) 4'-0" to 6'-4": One 4" x 3-1/2" x 5/16" angle
      - 3) 6'-4" to 8'-0": One 5" x 3-1/2" x 5/16" angle
      - 4) Over 8'-0": Structural lintel required.

### **2.04 FINISHES - STEEL**

- A. Prime paint all steel items.
  - 1. Exceptions: Galvanize items to be embedded in concrete, items to be imbedded in masonry, and items specified for galvanized finish.
  - 2. Exceptions: Do not prime surfaces in direct contact with concrete, where field welding is required, and items to be covered with sprayed fireproofing.
- B. Prepare surfaces to be primed in accordance with SSPC-SP2.
- C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- D. Prime Painting: One coat.
- E. Galvanizing of Structural Steel Members: Galvanize after fabrication to ASTM A123 requirements.
- F. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A123 requirements.

### **2.05 BOLLARD SLEEVES**

- A. Acceptable Manufacturers:
  - 1. Ideal Shield, LLC; [www.idealshield.com](http://www.idealshield.com).

- a. Product: "IDEAL SLEEVE".
  2. Innoplast; www.innoplast.com.
    - a. Product: "BOLLARDGARD".
  3. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.
- B. Sleeve: Polyethylene thermoplastic sized to fit bollard pipe size.
- C. Color: OSHA Yellow.

## **2.06 FABRICATION TOLERANCES**

- A. Squareness: 1/8 inch maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch.
- C. Maximum Misalignment of Adjacent Members: 1/16 inch.
- D. Maximum Bow: 1/8 inch in 48 inches.
- E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that field conditions are acceptable and are ready to receive work.

### **3.02 PREPARATION**

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

### **3.03 INSTALLATION**

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Field weld components indicated.
- D. Perform field welding in accordance with AWS D1.1/D1.1M.
- E. Obtain approval prior to site cutting or making adjustments not scheduled.
- F. After erection, prime welds, abrasions, and surfaces not shop primed or galvanized, except surfaces to be in contact with concrete.

### **3.04 TOLERANCES**

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.
- C. Maximum Out-of-Position: 1/4 inch.

**END OF SECTION**



**SECTION 05 52 13**  
**PIPE AND TUBE RAILINGS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Stair railings and guardrails.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 30 00 - Cast-in-Place Concrete: Placement of anchors in concrete.
- B. Section 09 90 00 - Painting and Coating: Paint finish.

**1.03 REFERENCE STANDARDS**

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.
- B. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2023.
- C. ASTM E935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings; 2021.
- D. ASTM E985 - Standard Specification for Permanent Metal Railing Systems and Rails for Buildings; 2024.
- E. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 2004.

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements, for submittal procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

**1.05 QUALITY ASSURANCE**

- A. Structural Designer Qualifications: Professional Structural Engineer experienced in design of this work and licensed in the State of Michigan, or personnel under direct supervision of such an engineer.
- B. Welder Qualifications: Show certification of welders employed on the Work, verifying AWS qualification within the previous 12 months.
- C. Fabricator Qualifications:
  - 1. A qualified steel fabricator that is certified by the American Institute for Steel Construction (AISC) under AISC 201.
  - 2. A qualified steel fabricator that is accredited by the International Accreditation Service (IAS) Fabricator Inspection Program for Structural Steel (AC172).
  - 3. A company specializing in manufacturing products specified in this section, with not less than ten years of documented experience.

**PART 2 PRODUCTS**

**2.01 RAILINGS - GENERAL REQUIREMENTS**

- A. Design, fabricate, and test railing assemblies in accordance with the most stringent requirements of ASTM E985 and applicable local code.
- B. Distributed Loads: Design railing assembly, wall rails, and attachments to resist distributed force of 75 pounds per linear foot applied to the top of the assembly and in any direction, without damage or permanent set. Test in accordance with ASTM E935.
- C. Concentrated Loads: Design railing assembly, wall rails, and attachments to resist a concentrated force of 200 pounds applied at any point on the top of the assembly and in any direction, without damage or permanent set. Test in accordance with ASTM E935.
- D. Allow for expansion and contraction of members and building movement without damage to connections or members.
- E. Provide anchors and other components as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.

1. For vertical post anchorage to concrete, provide inserts to be cast into concrete, for embedment anchorage.
  - a. Acrylic or Epoxy adhesive anchoring system, including nylon screens, to be utilized for fastening supports to concrete surfaces if vertical posts are flange mounted to concrete surface.
- F. Guardrail and Handrail Design:
  1. Steel Handrails: Round pipe or tube rails unless otherwise indicated.
    - a. Outside Diameter: 1-1/4 inch, minimum, to 1-1/2 inches, maximum.

## **2.02 STEEL RAILING SYSTEM**

- A. Steel Tube: ASTM A500/A500M, Grade B cold-formed structural tubing.
- B. Steel Pipe: ASTM A53/A53M, Grade B Schedule 80, black finish.
- C. Welding Materials: AWS D1.1; type required for materials being welded.
- D. Welding Fittings: Factory- or shop-welded from matching pipe or tube; seams continuously welded; joints and seams ground smooth.
- E. Exposed Fasteners: Flush countersunk screws or bolts; consistent with design of railing.
- F. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

## **2.03 FABRICATION**

- A. Accurately form components to suit specific project conditions and for proper connection to building structure.
- B. Fit and shop assemble components in largest practical sizes for delivery to site.
- C. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.
- D. Welded Joints:
  1. Exterior Components: Continuously seal joined pieces by continuous welds. Drill condensate drainage holes at bottom of members at locations that will not encourage water intrusion.
  2. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

## **2.04 SHOP FINISHING - STEEL**

- A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- B. Do not prime surfaces in direct contact with concrete or where field welding is required.
- C. Prime Painting: Use specified shop and touch-up primer.
  1. Preparation of Steel: In accordance with SSPC-SP 2, Hand Tool Cleaning.
  2. Number of Coats: One.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that field conditions are acceptable and are ready to receive work.

### **3.02 PREPARATION**

- A. Review installation drawings before beginning installation. Coordinate diagrams, templates, instructions, and directions for installation of anchorages and fasteners.
- B. Clean and strip primed steel items to bare metal where site welding is required.
- C. Supply items required to be cast into concrete or embedded in masonry with setting templates, for installation as work of other sections.

### **3.03 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install components plumb and level, accurately fitted, free from distortion or defects, with tight joints.
- C. Anchor railings securely to structure.

- D. Conceal anchor bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.
- E. Install anchorage devices and fasteners where necessary for securing items to in-place construction. Cut with rotary power tools of exact required size where possible.
- F. Set posts plumb and secure to supporting construction as follows:
  - 1. Horizontal Concrete Surfaces: Set posts into sleeves, fill annular space solid with shrink-resistant grout. Secure cover flange to post.

#### **3.04 TOLERANCES**

- A. Maximum Variation from Plumb: 1/4 inch per floor level, non-cumulative.
- B. Maximum Offset from True Alignment: 1/4 inch.
- C. Maximum Out-of-Position: 1/4 inch.

#### **3.05 CLEANING**

- A. Remove masking or protective covering from finished surfaces.
- B. Metal: Clean exposed metal finishes with cloth moistened with potable water; do not use abrasive materials or chemicals, detergents, or other substances that may damage material or finish.

#### **3.06 PROTECTION**

- A. Protect installed products until completion of project.
- B. Touch up, repair, or replace damaged products before Substantial Completion.
- C. Repair damage to exposed finishes to be indistinguishable from undamaged areas.
  - 1. If damage to finishes and components cannot be repaired to be indistinguishable from undamaged finishes and components, replace damaged items.

#### **3.07 SCHEDULE**

- A. Guardrails at Bullock Creek Middle School Exterior Ramp and Stair:
  - 1. Top Rails and Wall Rails: 1-1/2 inches diameter, round.
  - 2. Intermediate Rails: 1-1/2 inches diameter, round.
  - 3. Posts: 1-1/2 inches diameter, round.
  - 4. Spacing: As indicated on drawings.
  - 5. Mounting: Anchor to concrete ramp or stairs.

**END OF SECTION**



**SECTION 06 10 00**  
**ROUGH CARPENTRY**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Structural dimension lumber framing.
- B. Non-structural dimension lumber framing.
- C. Rough opening framing for doors, windows, and roof openings.
- D. Sheathing.
- E. Roofing nailers.
- F. Preservative treated wood materials.
- G. Fire retardant treated wood materials.
- H. Miscellaneous framing and sheathing.
- I. Concealed wood blocking, nailers, and supports.
- J. Miscellaneous wood nailers, furring, and grounds.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 17 53 - Shop-Fabricated Wood Trusses.

**1.03 REFERENCE STANDARDS**

- A. ANSI A208.1 - American National Standard for Particleboard; 2022.
- B. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; 2024.
- C. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
- D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2022.
- E. ASTM D2898 - Standard Test Methods for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing; 2010 (Reapproved 2017).
- F. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2021.
- G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023.
- H. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rates of Materials; 2022a, with Editorial Revision (2023).
- I. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; 2024.
- J. AWPA U1 - Use Category System: User Specification for Treated Wood; 2023.
- K. PS 1 - Structural Plywood; 2019.
- L. PS 2 - Performance Standard for Wood Structural Panels; 2018.
- M. PS 20 - American Softwood Lumber Standard; 2021.

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Provide technical data on wood preservative materials and application instructions.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.
- B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, or installation.

**PART 2 PRODUCTS**

**2.01 GENERAL REQUIREMENTS**

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.



1. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee ([www.alsc.org](http://www.alsc.org)) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

## **2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS**

- A. Sizes: Nominal sizes as indicated on drawings, S4S.
- B. Moisture Content: S-dry or MC19.
- C. Stud Framing (2 by 2 through 2 by 6):
  1. Species: Any allowed under referenced grading rules.
  2. Grade: No. 2.
- D. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16):
  1. Machine stress-rated (MSR) as follows:
    - a. Fb-single (minimum extreme fiber stress in bending): 1350 psi.
    - b. E (minimum modulus of elasticity): 1,300,000 psi.
  2. Species: Any allowed under grading rules.
  3. Grade: No. 1 & Btr.
- E. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
  1. Lumber: S4S, No. 2 or Standard Grade.
  2. Boards: Standard or No. 3.

## **2.03 CONSTRUCTION PANELS**

- A. Subflooring: Any PS 2 type, rated Sheathing.
  1. Bond Classification: Exterior.
  2. Span Rating: 48.
  3. Performance Category: 3/4 PERF CAT.
- B. Other Applications:
  1. Plywood Concealed From View But Located Within Exterior Enclosure: PS 1, C-C Plugged or better, Exterior grade.
  2. Plywood Exposed to View But Not Exposed to Weather: PS 1, A-D, or better.
  3. Other Locations: PS 1, C-D Plugged or better.

## **2.04 ACCESSORIES**

- A. Fasteners and Anchors:
  1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
- B. Die-Stamped Connectors: Hot dipped galvanized steel, sized to suit framing conditions.
  1. For contact with preservative treated wood in exposed locations, provide minimum G185 galvanizing per ASTM A653.
- C. Joist Hangers: Hot dipped galvanized steel, sized to suit framing conditions.
  1. For contact with preservative treated wood in exposed locations, provide minimum G185 galvanizing per ASTM A653/A653M.
- D. Post Protector: In-ground HDPE post protection sleeve; 6 inch x 6 inch x 42 inch high.
  1. Provide at all wood post for new pole barn building.

## **2.05 FACTORY WOOD TREATMENT**

- A. Treated Lumber and Plywood: Comply with requirements of AWWA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
  1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
  2. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWWA standards.
- B. Fire Retardant Treatment:

1. Exterior Type: AWP A U1, Category UCFB, Commodity Specification H, chemically treated and pressure impregnated; capable of providing a maximum flame spread rating of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes both before and after accelerated weathering test performed in accordance with ASTM D2898.
    - a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
    - b. Do not use treated wood in direct contact with the ground.
  2. Interior Type A: AWP A U1, Use Category UCFA, Commodity Specification H, low temperature (low hygroscopic) type, chemically treated and pressure impregnated; capable of providing a maximum flame spread rating of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes.
    - a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
    - b. Treat rough carpentry items as indicated.
    - c. Do not use treated wood in applications exposed to weather or where the wood may become wet.
- C. Preservative Pressure Treatment of Lumber Above Grade: AWP A U1, Use Category UC3B, Commodity Specification A using waterborne preservative to 0.25 lb/cu ft retention.
1. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
    - a. Treat lumber exposed to weather.
  2. Treat lumber in contact with roofing, flashing, or waterproofing.
  3. Treat lumber in contact with masonry or concrete.
  4. Treat lumber less than 18 inches above grade.
    - a. Treat lumber in other locations as indicated.
  5. Preservative Pressure Treatment of Plywood Above Grade: AWP A U1, Use Category UC2 and UC3B, Commodity Specification F using waterborne preservative to 0.25 lb/cu ft retention.
    - a. Kiln dry plywood after treatment to maximum moisture content of 19 percent.
    - b. Treat plywood in contact with roofing, flashing, or waterproofing.
    - c. Treat plywood in contact with masonry or concrete.
    - d. Treat plywood less than 18 inches above grade.
    - e. Treat plywood in other locations as indicated.
- D. Preservative Pressure Treatment of Lumber in Contact with Soil: AWP A U1, Use Category UC4A, Commodity Specification A using waterborne preservative to 0.4 lb/cu ft retention.
1. Preservative for Field Application to Cut Surfaces: As recommended by manufacturer of factory treatment chemicals for brush-application in the field.
  2. Restrictions: Do not use lumber or plywood treated with chromated copper arsenate (CCA) in exposed exterior applications subject to leaching.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Coordinate installation of rough carpentry members specified in other sections.

### **3.02 INSTALLATION - GENERAL**

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

### **3.03 FRAMING INSTALLATION**

- A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

- B. Make provisions for temporary construction loads and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.
- C. Install structural members full length without splices unless otherwise specifically detailed.
- D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.
- E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.
- F. Construct double joist headers at floor and ceiling openings that are parallel to floor joists; use metal joist hangers unless otherwise detailed.
- G. Provide bridging at joists in excess of 8 feet span as detailed. Fit solid blocking at ends of members.
- H. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

### **3.04 BLOCKING, NAILERS, AND SUPPORTS**

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.
- C. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.
- D. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
- E. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.
- F. Specifically, provide the following non-structural framing and blocking:
  1. Wall brackets.
  2. Toilet partition and urinal screen supports.
  3. Grab bars.
  4. Towel and bath accessories.
  5. Wall-mounted door stops.

### **3.05 ROOF-RELATED CARPENTRY**

- A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.
- B. Provide wood curb at all roof openings except where prefabricated curbs are specified and where specifically indicated otherwise. Form corners by alternating lapping side members.

### **3.06 INSTALLATION OF CONSTRUCTION PANELS**

- A. Subflooring: Glue and nail to framing; staples are not permitted.

### **3.07 SITE APPLIED WOOD TREATMENT**

- A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.
- B. Allow preservative to dry prior to erecting members.

### **3.08 TOLERANCES**

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Surface Flatness of Floor: 1/8 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.
- C. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

### **3.09 CLEANING**

- A. Waste Disposal: Comply with the General Requirements.
  1. Comply with applicable regulations.

2. Do not burn scrap on project site.
  3. Do not burn scraps that have been pressure treated.
  4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.
- B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

**END OF SECTION**



**SECTION 06 17 53**  
**SHOP-FABRICATED WOOD TRUSSES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Shop fabricated wood trusses for roof framing.
- B. Bridging, bracing, and anchorage.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 10 00 - Rough Carpentry: Installation requirements for miscellaneous framing.

**1.03 REFERENCE STANDARDS**

- A. ANSI/TPI 1 - National Design Standard for Metal-Plate-Connected Wood Truss Construction; 2014.
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2022.
- C. SBCA (BCSI) - Building Component Safety Information: Guide to Good Practice for Handling, Installing, Restraining & Bracing of Metal Plate Connected Wood Trusses; 2018 (Updated 2020).

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Manufacturer's data sheets on plate connectors, bearing plates, and metal bracing components.
- C. Shop Drawings: Show truss configurations, sizes, spacing, size and type of plate connectors, cambers, framed openings, bearing and anchor details, and bridging and bracing.
  - 1. Include identification of engineering software used for design.
  - 2. Provide shop drawings stamped or sealed by design engineer.
  - 3. Submit design calculations.

**1.05 QUALITY ASSURANCE**

- A. Designer Qualifications: Perform design by or under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State of Michigan.
- B. Fabricator Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Handle and erect trusses in accordance with TPI BCSI 1.
- B. Store trusses in vertical position resting on bearing ends.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Truss Plate Connectors:
  - 1. Alpine Engineered Products, Inc: [www.alpeng.com](http://www.alpeng.com).
  - 2. MiTek Industries, Inc: [www.mii.com](http://www.mii.com).
  - 3. Truswal Systems: [www.truswal.com](http://www.truswal.com).
  - 4. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.
- B. Truss Fabricators:
  - 1. Bear Truss Inc; [www.beartruss.com](http://www.beartruss.com).
  - 2. Delta Truss, Inc.
  - 3. Heart Truss and Engineering Corp.
  - 4. Letherer Truss & Wall Systems Inc: [www.letherer.com](http://www.letherer.com).
  - 5. Michigan Timber and Truss: [www.michigantimberandtruss.com](http://www.michigantimberandtruss.com).
  - 6. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.

## **2.02 TRUSSES**

- A. Wood Trusses: Designed and fabricated in accordance with ANSI/TPI 1 and to achieve specified design requirements indicated.
  - 1. Connectors: Steel plate.
  - 2. Structural Design: Comply with applicable code for structural loading criteria.
  - 3. Design Roof Live and Dead Load: As indicated on Drawings.
  - 4. Roof Deflection: 1/240, maximum.

## **2.03 MATERIALS**

- A. Lumber:
  - 1. Moisture Content: Between 7 and 9 percent.
- B. Steel Connectors: Hot-dipped galvanized steel sheet, ASTM A653/A653M Structural Steel (SS) Grade 33/230, with G90/Z275 coating; die stamped with integral teeth; thickness as indicated.
- C. Truss Bridging: Type, size and spacing recommended by truss manufacturer.

## **2.04 ACCESSORIES**

- A. Wood Blocking, Bridging, Plates, and Miscellaneous Framing: Softwood lumber, any species, construction grade, 19 percent maximum and 7 percent minimum moisture content.
- B. Hangers and Miscellaneous Connectors: Hot-dipped galvanized steel, type and size to suit framing conditions and as indicated on Drawings; equivalent to products manufactured by Simpson Strong-Tie Company, Inc.:
  - 1. Hold Down (Hurricane) Ties:
    - a. Double Wood Plate Connection: "MODEL No. H2.5A", 18 gauge.
    - b. Single Wood Plate Connection: "MODEL No. H4", 18 gauge.
- C. Fasteners: Electrogalvanized steel, type to suit application.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that field measurements are as indicated.
- B. Verify that supports and openings are ready to receive trusses.

### **3.02 PREPARATION**

- A. Coordinate placement of bearing items.

### **3.03 ERECTION**

- A. Install trusses in accordance with manufacturer's instructions, SBCA (BCSI); maintain a copy of applicable documents on site until installation is complete.
- B. Set members level and plumb, in correct position.
- C. Install 'Hurricane' ties at each bearing point on the bottom chords of every truss.
  - 1. Ties shall be installed on both faces of the bottom chord (Right & Left).
  - 2. Ties shall be fastened with type and quantity of nails recommended by the manufacturer.
- D. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure plumb, and in true alignment until completion of erection and installation of permanent bracing.
- E. Do not field cut or alter structural members without approval of Design Professional.
- F. Install permanent bridging and bracing.
- G. Install headers and supports to frame openings required.
- H. Frame openings between trusses with lumber in accordance with Section 06 10 00.
- I. After erection, touch-up primed surfaces with primer consistent with shop coat.

### **3.04 TOLERANCES**

- A. Framing Members: 1/2 inch maximum, from true position.

**END OF SECTION**

**SECTION 06 20 00**  
**FINISH CARPENTRY**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Finish carpentry items.
- B. Installation of door hardware.
- C. Installation of toilet accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 10 00 - Rough Carpentry: Support framing, grounds, and concealed blocking.
- B. Section 08 14 16 - Flush Wood Doors.
- C. Section 08 71 00 - Door Hardware.
- D. Section 08 71 01 - Door Hardware Schedule.
- E. Section 10 28 00 - Toilet, Bath and Laundry Accessories.

**1.03 REFERENCE STANDARDS**

- A. ANSI A208.1 - American National Standard for Particleboard; 2022.
- B. AWI (QCP) - Quality Certification Program; Current Edition.
- C. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition; 2014, with Errata (2016).
- D. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards; 2021, with Errata.
- E. BHMA A156.9 - Cabinet Hardware 2020.
- F. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood; 2020.
- G. PS 1 - Structural Plywood; 2019.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate the work with plumbing rough-in, electrical rough-in, and installation of associated and adjacent components.
- B. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

**1.05 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data:
  - 1. Provide instructions for attachment hardware and finish hardware.
  - 2. Provide data on solid surfacing materials.
- C. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
  - 1. Minimum Scale of Detail Drawings: 1-1/2 inch to 1 foot.
- D. Submit manufacturer's samples of solid surfacing material.

**1.06 QUALITY ASSURANCE**

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.
  - 1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.

**1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Protect work from moisture damage.

**1.08 PROJECT CONDITIONS**

- A. Sequence installation to ensure utility connections are achieved in and orderly and expeditious manner.
- B. Coordinate the work with plumbing rough-in, electrical rough-in, and installation of associated and adjacent components.



## **PART 2 PRODUCTS**

### **2.01 FINISH CARPENTRY ITEMS**

- A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI/AWMAC/WI Architectural Woodwork Standards for Premium Grade.
- B. Interior Woodwork Items:
  - 1. High School: Solid Surfacing toilet room shelf.
  - 2. Bullock Creek Middle School: Painted wood trim at wall jamb.
  - 3. Bullock Creek Elementary: Wood shoe molding at wall base for new flooring in some rooms; stain finish.
  - 4. New Pole Barn: Painted room trim at top of Tool Room walls.

### **2.02 LUMBER MATERIALS**

- A. Softwood Lumber: Pine species, Plain sawn, maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.
- B. Hardwood Lumber: Oak species, plain sawn, maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.

### **2.03 SHEET MATERIALS**

- A. Softwood Plywood Not Exposed to View: Any face species, veneer core; PS 1 Grade A-B; glue type as recommended for application.

### **2.04 SOLID SURFACING: SOLID SURFACING SHEET OR PLASTIC RESIN CASTING SELF-SUPPORTING OVER STRUCTURAL MEMBERS.**

- A. Flat Sheet Thickness: 1/2 inch, minimum.
- B. Solid Surfacing Sheet: Complying with ISSFA-2 and NEMA LD 3; acrylic or polyester resin, mineral filler, and pigments; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.
  - 1. Surface Burning Characteristics: Flame spread 25, maximum; smoke developed 450, maximum; when tested in accordance with ASTM E84.
  - 2. Finish on Exposed Surfaces: Semi-gloss, gloss rating of 25 to 50.
  - 3. Color and Pattern: To be selected from manufacturer's full line.
  - 4. Manufacturers:
    - a. Dupont: [www.corian.com](http://www.corian.com).
    - b. Formica Corporation: [www.formica.com](http://www.formica.com).
    - c. Wilsonart International, Inc: [www.wilsonart.com](http://www.wilsonart.com).
    - d. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.
- C. The Design Professional reserves the right to select the solid surfacing colors/patterns from any combination of the manufacturer's listed above.
- D. Other Components Thickness: 1/2 inch, minimum.
- E. Exposed Edge Treatment: Square edge.

### **2.05 FASTENINGS**

- A. Adhesive for Purposes Other Than Laminate Installation: Suitable for the purpose; not containing formaldehyde or other volatile organic compounds.
- B. Fasteners: Of size and type to suit application; zinc finish in concealed locations and nickel chrome finish in exposed locations.
- C. Concealed Joint Fasteners: Threaded steel.

### **2.06 ACCESSORIES**

- A. Primer: Alkyd primer sealer.
- B. Wood Filler: Solvent base, tinted to match surface finish color.

### **2.07 HARDWARE**

- A. Hardware: Comply with BHMA A156.9.

- B. Aluminum Countertop Supports:
  - 1. "Rakks EH-1209 Countertop Support Bracket manufactured by Rangine Corporation, [www.rakks.com](http://www.rakks.com).
  - 2. Size: 12 inch x 9 inch x 2 inch.
  - 3. Finish: To be selected from manufacturers full color range.

## **2.08 FABRICATION**

- A. Shop assemble work for delivery to site, permitting passage through building openings.
- B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

## **2.09 FABRICATION - SOLID SURFACING**

- A. Fabricate solid surfacing in accordance with manufacturer's fabrication instructions. Fabricate units without joints where possible.
- B. Color of joint adhesive used must produce a totally invisible seamless surface.
- C. Surface and edge gloss must be consistent throughout.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify adequacy of backing and support framing.
- B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

### **3.02 INSTALLATION**

- A. Install work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards requirements for grade indicated.
- B. Set and secure materials and components in place, plumb and level.
- C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.
- D. Install hardware supplied by Section 08 71 00 in accordance with manufacturer's instructions.
- E. Install toilet accessories supplied by Section 10 28 13 in accordance with manufacturer's instructions.

### **3.03 TOLERANCES**

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

**END OF SECTION**



**SECTION 07 01 50.19**  
**PREPARATION FOR RE-ROOFING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Removal of existing roofing system in preparation for a new roof membrane system.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 54 00 - Thermoplastic Membrane Roofing.

**1.03 REFERENCE STANDARDS**

- A. ASTM C208 - Standard Specification for Cellulosic Fiber Insulating Board; 2022.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate with affected mechanical and electrical work associated with temporary removal and replacement of rooftop equipment, conduit and piping support installation and flashing at roof penetrations.
- B. Preinstallation Meeting: Convene one week before starting work of this section.
- C. Schedule work to coincide with commencement of installation of new roofing system.
- D. The use of motorized, driven equipment on the roof is prohibited.
  - 1. Motorized, walk-behind equipment may be allowed with submission of a written report from a Structural Engineer verifying the ability of the existing roof structure to adequately support the imposed loads of the equipment.
  - 2. If motorized equipment is permitted, it remains the Contractor's responsibility to protect the Owner's rooftop equipment, appurtenances, finishes, antennae, communication equipment, mechanical piping and electrical conduit, glazing and other items from damage related to the roof preparation functions.
    - a. If motorized equipment is permitted, it remains the Contractor's responsibility to install temporary protection board material on existing roof insulation to prevent crushing and damage.

**1.05 QUALITY ASSURANCE**

- A. Materials Removal Firm Qualifications: Company specializing in performing the work of this section with minimum five years of documented experience.

**1.06 FIELD CONDITIONS**

- A. Do not remove existing roofing membrane when weather conditions threaten the integrity of the building contents or intended continued occupancy.
- B. Maintain continuous temporary protection prior to and during installation of new roofing system.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Temporary Protection: Sheet fiber reinforced plastic; provide weights to retain sheeting in position.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify that existing roof surface is clear and ready for work of this section.

**3.02 PREPARATION**

- A. Sweep roof surface clean of loose matter.
- B. Remove loose refuse and dispose offsite.

**3.03 MATERIAL REMOVAL**

- A. Remove only existing roofing materials that can be replaced with new materials the same day.
- B. Remove metal counter flashings.
- C. Remove roofing membrane where required, perimeter base flashings, flashings around roof protrusions, pitch pans and pockets.

**3.04 FIELD QUALITY CONTROL**

- A. The drawings identify the approximate limits to material removal.

### **3.05 PROTECTION**

- A. Provide temporary protective sheeting over uncovered surfaces.
- B. Turn sheeting up and over parapets and curbing. Retain sheeting in position with weights.
- C. Provide for surface drainage from sheeting to existing drainage facilities.

**END OF SECTION**

**SECTION 07 42 13**  
**METAL WALL AND ROOF PANELS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Manufactured exposed-fastener, lap-seam metal panels for walls, roofs, soffits, trim, and accessory components for use at pole barn building.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 10 00 - Rough Carpentry.
- B. Section 07 62 00 - Sheet Metal Flashing and Trim.
- C. Section 07 90 05 - Joint Sealers.

**1.03 REFERENCE STANDARDS**

- A. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2023.
- B. ASTM E1592 – Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference; 2005 (Reapproved 2017).

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Shop Drawings: Indicate dimensions, layout, joints, construction details, methods of anchorage, and manufacturer's standard color options.
- C. Samples: Submit two samples of wall/roof panel and soffit panel, 12 inch by 12 inch in size illustrating finish color, sheen, and texture.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in installing the products specified in this section with minimum three years of documented experience.
- C. System performance to accommodate movement without damage to components or deterioration of seals, movement within system; movement between system and perimeter components when subject to seasonal temperature cycling; dynamic loading and release of loads; and deflection of structural support framing.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.
- B. Store prefinished material off ground and protected from weather. Prevent twisting, bending, or abrasion, and provide ventilation to stored materials. Slope metal sheets to ensure drainage.
- C. Prevent contact with materials that may cause discoloration or staining of products.

**1.07 WARRANTY**

- A. Correct defective work within a forty year period after Substantial Completion for degradation of panel finish, including color fading caused by exposure to weather.
- B. Correct defective Work within a five year period after Substantial Completion, including defects in water tightness and integrity of seals.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Manufacturers:
  - 1. Basis-of-Design Product: Mid-Michigan Metal Sales; "Hardy Rib Panels":  
[www.midmichiganmetalsales.us.com](http://www.midmichiganmetalsales.us.com).
  - 2. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.

## **2.02 MANUFACTURED METAL PANELS**

- A. Wall & Roof Panel System: Factory fabricated prefinished metal panel system; site assembled.
  - 1. Provide exterior panels for walls, roof and soffits.
  - 2. Drainage: Provide positive drainage to exterior for moisture entering or condensation occurring within panel system.
  - 3. Fabrication: Formed true to shape, accurate in size, square, and free from distortion or defects; pieces of longest practical lengths.
  - 4. Exterior Finish: Panel manufacturer's standard polyvinylidene fluoride (PVDF) coating, top coat over epoxy primer.
  - 5. Exterior Panel Back Coating: Panel manufacturer's standard polyester wash coat.
- B. Exterior Wall and Roof Panels:
  - 1. Profile: Main ribs at 9 inches on center, 3/4" rib height, with two intermediate stiffener ribs.
  - 2. Side Joint: Lapped exposed fastener.
  - 3. Material: Precoated steel sheet, minimum 29 gage thick.
  - 4. Panel Width: Nominal 36 inch coverage.
  - 5. Color: As selected by Design Professional from manufacturer's standard line.
- C. Soffit Panels:
  - 1. Profile: Flush panel 1 inch high; with and without lanced perforations.
  - 2. Material: Precoated steel sheet, minimum 24 gage thick.
  - 3. Panel Width: Nominal 12 inch.
  - 4. Side Joint: Lapped, concealed fastener.
  - 5. Color: As selected by Design Professional from manufacturer's standard line.

## **2.03 MATERIALS**

- A. Precoated Steel Sheet: Aluminum-zinc alloy-coated steel sheet, ASTM A792/A792M, Commercial Steel (CS) or Forming Steel (FS), with AZ50/AZM150 coating; continuous-coil-coated on exposed surfaces with specified finish coating and on panel back with specified panel back coating.

## **2.04 ACCESSORIES**

- A. Flashings, Corners and Trim: Same material, thickness, and finish as exterior sheets; brake formed to required profiles.
- B. Gaskets: Manufacturer's standard type suitable for use with system, permanently resilient; ultraviolet and ozone resistant.
- C. Sealants: Galvanized steel; manufacturer's standard type suitable for use with installation of system; non-staining.
  - 1. Color: To be selected by Design Professional.
- D. Fasteners: Manufacturer's standard type to suit application; with soft neoprene washers, steel, hot dip galvanized. Fastener cap same color as exterior panel.
  - 1. Metal-to-Metal Fasteners: Self-drilling, self-tapping screws.
- E. Field Touch-up Paint: As recommended by panel manufacturer.
- F. Bituminous Paint: Asphalt base.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that building framing members are ready to receive panels.
- B. Verify that substrate is plumb and true, with maximum surface variations of 1/8 inch in 10 feet.

### **3.02 PREPARATION**

- A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages in accordance with ASTM C754 and metal panel manufacturer's written instructions.

### **3.03 INSTALLATION**

- A. Install panels on walls, roof and soffits in accordance with manufacturer's instructions.

- B. Protect surfaces in contact with cementitious materials and dissimilar metals with bituminous paint. Allow to dry prior to installation.
- C. Fasten panels to structural supports; aligned, level, and plumb.
- D. Locate joints over supports. Lap panel ends minimum 2 inches.
- E. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.
- F. Seal and place gaskets to prevent weather penetration. Maintain neat appearance.

**3.04 TOLERANCES**

- A. Maximum Offset from True Alignment Between Adjacent Members Butting or In Line: 1/16 inch.
- B. Maximum Variation from Plane or Location Indicated on Drawings: 1/4 inch.

**3.05 CLEANING**

- A. Remove site cuttings from finish surfaces.
- B. Clean and wash prefinished surfaces with mild soap and water, rinse with clean water.
- C. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

**END OF SECTION**





**SECTION 07 54 00**  
**THERMOPLASTIC MEMBRANE ROOFING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Mechanically attached system with thermoplastic roofing membrane.
- B. Insulation, flat and tapered.
- C. Flashings.
- D. Roofing stack boots and walkway pads.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 10 00 - Rough Carpentry: Wood nailers.
- B. Section 07 01 50.19 - Preparation for Re-Roofing.
- C. Section 07 62 00 - Sheet Metal Flashing and Trim.
- D. Section 20 00 00 - Basic Mechanical Requirements: Temporary removal and reinstallation of rooftop equipment.
- E. Division 26 - Electrical: Temporary removal and reinstallation of rooftop equipment.

**1.03 REFERENCE STANDARDS**

- A. ASCE 7 - Minimum Design loads for Buildings and Other Structure; 2022.
- B. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2020.
- C. ASTM D751 - Standard Test Methods for Coated Fabrics; 2019.
- D. ASTM D4434 - Standard Specification for Poly (Vinyl Chloride) Sheet Roofing; 2012.
- E. ASTM D6878 - Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing; 2019.
- F. ASTM E108 - Standard Test Method for Fire Tests of Roof Coverings; 2020.
- G. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2020.
- H. NRCA ML104 - The NRCA Roofing and Waterproofing Manual; Fifth Edition, with interim updates.
- I. UL - Roofing Materials and Systems Directory, Roofing Systems (TGFU.R10128).

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements, for submittal procedures.
- B. Product Data: Provide data indicating membrane materials, flashing materials, insulation, vapor retarder, surfacing, fasteners, and adhesives.
- C. Shop Drawings: Indicate joint or termination detail conditions, conditions of interface with other materials, and paver layout.
- D. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section:
  - 1. With minimum five years documented experience.
  - 2. Approved by membrane manufacturer.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact.
- B. Store products in weather protected environment, clear of ground and moisture.
- C. Protect foam insulation from direct exposure to sunlight.

## 1.07 WARRANTY

- A. System Warranty: Provide manufacturer's system warranty agreeing to repair or replace roofing that leaks or is damaged due to wind or other natural causes.
  - 1. Warranty Term: 20 year.
  - 2. For repair and replacement include costs of both material and labor in warranty.
  - 3. Exceptions **NOT** Permitted:
    - a. Damage due to roof traffic.
    - b. Damage due to wind of speed greater than 56 mph but less than 90 mph.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. PVC Membrane Materials:
  - 1. Basis-Of-Design: Duro-Last 50-mil (DL50) membrane: [www.duro-last.com](http://www.duro-last.com)
  - 2. Substitutions: Not permitted.
- B. Insulation:
  - 1. Atlas Roofing Corporation: [www.atlasroofing.com](http://www.atlasroofing.com).
  - 2. Carlisle SynTec: [www.carlisle-syntec.com](http://www.carlisle-syntec.com).
  - 3. Duro-Last: [www.duro-last.com](http://www.duro-last.com).
  - 4. GAF: [www.gaf.com](http://www.gaf.com).
  - 5. Owens Corning Corp: [www.owenscorning.com](http://www.owenscorning.com).
  - 6. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.

### 2.02 ROOFING

- A. Thermoplastic Membrane Roofing: One ply membrane, mechanically fastened, over insulation.
- B. Acceptable Insulation Types – Any type that meets requirements and is approved by membrane manufacturer for application.
  - 1. Minimum 1 layer of 1-1/2 inch thick polyisocyanurate board insulation; unless otherwise noted on Drawings.

### 2.03 ROOFING MEMBRANE AND ASSOCIATED MATERIALS

- A. Membrane:
  - 1. Material: Polyvinyl chloride copolymer alloy complying with ASTM D4434.
  - 2. Reinforcing: Internal fabric.
  - 3. Thickness: 0.050 mil, minimum.
  - 4. Color: White.
- B. Seaming Materials: As recommended by membrane manufacturer.
- C. Membrane Fasteners: As recommended and approved by membrane manufacturer for metal and wood roof deck.
  - 1. Membrane-surfaced washers and screws.
- D. Flexible Flashing Material: Same material as membrane.

### 2.04 INSULATION

- A. Polyisocyanurate Board Insulation: Rigid cellular foam, complying with ASTM C1289, Type II, Class 1, cellulose felt or glass fiber mat both faces; Grade 1 and with the following characteristics:
  - 1. Compressive Strength: 16 psi
  - 2. Board Size: 48 x 96 inch.
  - 3. Board Thickness: As noted otherwise on Drawings.
  - 4. Tapered Board: Slope as indicated; minimum thickness 1/2 inch; fabricate of fewest layers possible.
  - 5. Board Edges: Square.

### 2.05 ACCESSORIES

- A. Stack Boots: Prefabricated flexible boot and collar for pipe stacks through membrane; same material as membrane.
- B. Pre-Cut Tapered Insulation:

1. Manufacturers:
  - a. Atlas Roofing Corporation; Gemini Pre-Cut Crickets, Gemini One-Piece Drain Set, Gemini One-Piece Miter, and Gemini Tapered Edge Strip: [www.atlasroofing.com](http://www.atlasroofing.com).
- C. Prefabricated Drain Boot: Prefabricated boot compression rings for installing in existing roof drain piped; same material as roof membrane.
- D. Insulation Joint Tape: Glass fiber reinforced type as recommended by insulation manufacturer, compatible with roofing materials; 6 inches wide; self adhering.
- E. Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.
  1. Length as required for thickness of insulation material and penetration of deck substrate, with metal washers.
- F. Thinners and Cleaners: As recommended by adhesive manufacturer, compatible with membrane.
- G. Roofing Nails: Galvanized, hot dipped type, size and configuration as required to suit application.
- H. Strip Reglet Devices: Galvanized steel, maximum possible lengths per location, with attachment flanges.
- I. Sealants: As recommended by membrane manufacturer.
- J. Traffic Protection: Provide non-skid, maintenance-free walkway pads below each pipe support and each mechanical rail support.
  1. Basis-of-Design:
    - a. Duro-Last Roof Trak® III Walkway Pad as manufactured by Duro-Last, Inc.: [www.duro-last.com](http://www.duro-last.com).
    - b. Surface Color: White.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION - GENERAL**

- A. Perform work in accordance with NRCA Roofing and Waterproofing Manual and manufacturer's instructions.
- B. Do not apply roofing membrane during unsuitable weather.
- C. Do not apply roofing membrane when ambient temperature is outside the temperature range recommended by manufacturer.
- D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- E. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.
- F. Coordinate the work with installation of associated counter flashings installed by other sections as the work of this section proceeds.
- G. Coordinate temporary disconnection of natural gas piping and electrical wiring to existing rooftop equipment if lifting of equipment is required to achieve acceptable flashing requirements.

#### **3.02 EXAMINATION**

- A. Verify that surfaces and site conditions are ready to receive work.
- B. Verify deck is supported and secure.
- C. Verify roof surfaces are dry and free of snow or ice.
- D. Verify that roof openings, curbs, and penetrations through roof are solidly set, and reglets are in place.

#### **3.03 INSULATION - UNDER MEMBRANE**

- A. Attachment of Insulation: Mechanically fasten first layer of insulation, over existing insulation, to deck in accordance with roofing manufacturer's instructions and Factory Mutual requirements.
- B. Lay subsequent layers of insulation with joints staggered minimum 6 inch from joints of preceding layer.
- C. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.
- D. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.
- E. Tape joints of insulation in accordance with roofing and insulation manufacturers' instructions.

- F. At roof drains, use factory-tapered boards to slope down to roof drains over a distance of 18 inches.
- G. Do not apply more insulation than can be covered with membrane in same day.

#### **3.04 MEMBRANE APPLICATION**

- A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.
- B. Shingle joints on sloped substrate in direction of drainage.
- C. Overlap edges and ends and seal seams by contact adhesive, minimum 3 inches. Seal permanently waterproof. Apply uniform bead of sealant to joint edge.
- D. Mechanical Attachment: Apply membrane and mechanical attachment devices in accordance with manufacturer's instructions.
- E. At intersections with vertical surfaces:
  - 1. Extend membrane over cant strips and up a minimum of 8 inches onto vertical surfaces.
  - 2. Fully adhere flexible flashing over membrane and up to nailing strips.
  - 3. Insert flashing into reglets and secure.
- F. At coping, extend membrane under sheet metal and to the outside face of the wall.
- G. Around roof penetrations, seal flanges and flashings with flexible flashing.

#### **3.05 FINISHING**

- A. Install walkway pads at pipe and equipment supports.

#### **3.06 FIELD QUALITY CONTROL**

- A. Require site attendance of roofing and insulation material manufacturers daily during installation of the Work.

#### **3.07 CLEANING**

- A. Remove bituminous markings from finished surfaces.
- B. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.
- C. Repair or replace defaced or damaged finishes caused by work of this section.

#### **3.08 PROTECTION**

- A. Protect installed roofing and flashings from construction operations.
- B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

**END OF SECTION**

**SECTION 07 62 00**  
**SHEET METAL FLASHING AND TRIM**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Fabricated sheet metal items, including flashings, counterflashings, fascias, gutters and downspouts.
- B. Sealants for joints within sheet metal fabrications.
- C. Concrete splash pans.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 10 00 - Rough Carpentry: Wood nailers.
- B. Section 07 01 50-19 - Preparation for Re-Roofing.
- C. Section 07 54 00 - Thermoplastic Membrane Roofing: Roofing system.
- D. Section 07 90 05 - Joint Sealers.

**1.03 REFERENCE STANDARDS**

- A. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.
- B. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.
- C. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
- D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
- E. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2018).
- F. CDA A4050 - Copper in Architecture - Handbook; current edition.
- G. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures,
- B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.
- C. Product Data: Include manufacturer's data related to galvanized coatings for all typical fasteners intended for use on this Project, galvanized coatings for all sheet steel fabrications and certification that all galvanized metals comply with the references listed in the Documents.
- D. Samples: Submit two samples 6 x 6 inch in size illustrating metal finish color.

**1.05 QUALITY ASSURANCE**

- A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.
- B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with five years of documented experience.

**1.06 DELIVERY, STORAGE AND HANDLING**

- A. Stack material to prevent twisting, bending and abrasion and to provide ventilation. Slope metal sheets to ensure drainage.
- B. Prevent contact with materials that could cause discoloration or staining.

## **PART 2 PRODUCTS**

### **2.01 SHEET MATERIALS**

- A. Pre-Finished Aluminum: ASTM B209/B209M, 3005 alloy, H14 temper; plain finish shop pre-coated with fluoropolymer coating.
  - 1. Aluminum Sheet Thicknesses: shop finished after forming; of the following minimum thickness:
    - a. Up to 6 inch face: 0.040 inch thick.
    - b. 6 to 8 inch face: 0.050 inch thick.
    - c. 8 to 10 inch face: 0.064 inch thick.
  - 2. Fluoropolymer Coating: High performance organic powder coating, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system.
  - 3. Color: As selected by Design Professional from manufacturer's standard colors to match existing.

### **2.02 FABRICATION**

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Fabricate cleats of same material as sheet, minimum three inches wide, interlocking with sheet.
- C. Form pieces in longest possible lengths.
- D. Hem exposed edges on underside 1/2 inch; miter and seam corners.
- E. Form material with butt-type seams, except where otherwise indicated. At moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- F. Fabricate corners from one piece with minimum 18 inch long legs; solder for rigidity, seal with sealant.
- G. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.
- H. Form fascia with 1/4 inch expansion space at all joints. Provide back up plate behind joints, minimum 6 inches wide, of same material, profile and finish to match fascia.

### **2.03 GUTTER AND DOWNSPOUT FABRICATION**

- A. Gutters: SMACNA Architectural Sheet Metal Manual, Rectangular profile.
  - 1. SMACNA Style: A
  - 2. Material: Minimum 0.040 aluminum and as per SMACNA Architectural Sheet Metal Manual standards.
- B. Downspouts: Rectangular profile.
- C. Gutters and Downspouts: Sizes indicated.
  - 1. Minimum Sizes:
    - a. Gutters: 6 x 6 inches.
    - b. Downspouts: 6 x 6 inches.
- D. Accessories: Profiled to suit gutters and downspouts.
  - 1. Anchorage Devices: In accordance with SMACNA requirements.
  - 2. Gutter Supports: Brackets.
    - a. Material: Aluminum; 3/16 inch thick x 1 inch wide; formed to match gutter shape.
  - 3. Downspout Supports: Brackets.
    - a. Material: Aluminum; 1/16 inch thick x 1 inch wide with flanges for fastening to wall.
- E. Splash Pads: Precast concrete type, of size and profiles indicated; minimum 3000 psi at 28 days, with minimum 5 percent air entrainment.

### **2.04 ACCESSORIES**

- A. Fasteners: Galvanized steel.
  - 1. Fasteners for pressure preservative and fire-retardant-treated wood shall be hot-dipped galvanized in accordance with ASTM A153, Class D.
- B. Primer Type: Zinc chromate.
- C. Concealed Sealants: Non-curing butyl sealant.
- D. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.
- E. Asphalt Roof Cement: ASTM D4586/D4586M, Type I, asbestos-free

## **EXECUTION**

### **2.05 EXAMINATION**

- A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.
- B. Verify roofing termination and base flashings are in place, sealed, and secure.
- C. Verify that barrier membrane or single-ply roofing membrane is in place over preservative or fire-retardant-treated nailers, blocking or backing.
  - 1. Membrane must cover the treated wood completely, preventing the sheet metal from contacting all wood surfaces.

### **2.06 3.02 PREPARATION**

- A. Install starter and edge strips, and cleats before starting installation.
- B. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil, 0.015 inch.

### **2.07 INSTALLATION**

- A. Comply with drawing details.
- B. Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted.
- C. Apply plastic cement compound between metal flashings and felt flashings.
- D. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- E. Seal metal joints watertight.
- F. Secure gutters and downspouts in place using concealed fasteners.
- G. Slope gutters 1/4 inch per 10 feet, minimum.
- H. Set splash pans under downspouts

### **2.08 FIELD QUALITY CONTROL**

- A. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

**END OF SECTION**





## SECTION 07 84 00

### FIRESTOPPING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Firestopping systems.
- B. Firestopping of all joints and penetrations in fire-resistance rated and smoke-resistant assemblies, whether indicated on drawings or not, and other openings indicated.

##### 1.02 RELATED REQUIREMENTS

- A. Section 04 20 00 - Unit Masonry.
- B. Section 06 10 00 - Rough Carpentry.
- C. Section 07 95 00 - Joint Sealers.
- D. Section 09 21 16 - Gypsum Board Assemblies: Gypsum wallboard fireproofing.
- E. Section 20 00 00 - Basic Mechanical Requirements.
- F. Division 26 - Electrical.

##### 1.03 REFERENCE STANDARDS

- A. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems; 2013a (Reapproved 2017).
- B. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems; 2015 (Reapproved 2019).
- C. ASTM E2174 - Standard Practice for On-Site Inspection of Installed Firestop Systems; 2020a.
- D. ASTM E2393 - Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers; 2020a.
- E. ASTM E2307 - Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus; 2020.
- F. ASTM E2837 - Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed Between Rated Wall Assemblies and Nonrated Horizontal Assemblies; 2013 (Reapproved 2017).
- G. ITS (DIR) - Directory of Listed Products Current Edition.
- H. FM (AG) - FM Approval Guide current edition.
- I. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2022).
- J. UL 2079 - Standard for Tests for Fire Resistance of Building Joint Systems; Current Edition, Including All Revisions.
- K. UL (DIR) - Online Certifications Directory; Current Edition.
- L. UL (FRD) - Fire Resistance Directory; Current Edition.

##### 1.04 SUBMITTALS

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Schedule of Firestopping: List each type of penetration, fire rating of the penetrated assembly, and firestopping test or design number.
- C. Product Data: Provide data on product characteristics, performance ratings, and limitations.

##### 1.05 QUALITY ASSURANCE

- A. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.
  - 1. Listing in the current-year classification or certification books of UL, FM, or ITS (Warnock Hersey) will be considered as constituting an acceptable test report.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Installer Qualifications: Company specializing in performing the work of this section and:

1. With minimum 3 years documented experience installing work of this type.

## **1.06 FIELD CONDITIONS**

- A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation. Maintain minimum temperature before, during, and for 3 days after installation of materials.
- B. Provide ventilation in areas where solvent-cured materials are being installed.

## **PART 2 PRODUCTS**

### **2.01 FIRESTOPPING - GENERAL REQUIREMENTS**

- A. Manufacturers:
  1. A/D Fire Protection Systems Inc: [www.adfire.com](http://www.adfire.com).
  2. 3M Fire Protection Products: [www.3m.com/firestop](http://www.3m.com/firestop).
  3. Hilti, Inc: [www.us.hilti.com](http://www.us.hilti.com).
  4. Nelson FireStop Products: [www.nelsonfirestop.com](http://www.nelsonfirestop.com).
  5. Specified Technologies, Inc: [www.stifirestop.com](http://www.stifirestop.com).
  6. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.
- B. Firestopping: Any material meeting requirements.
- C. Materials: Use any material meeting requirements.
- D. Firestopping Materials with Volatile Content: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168.
- E. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Type required for tested assembly design.
- F. Fire Ratings: See Drawings for required systems and ratings.

### **2.02 FIRESTOPPING ASSEMBLY REQUIREMENTS**

- A. Perimeter Fire Containment Firestopping: Use any system that has been tested according to ASTM E2307 to have fire resistance F Rating equal to required fire rating of the floor assembly.
  1. Movement: In addition, provide systems that have been tested to show movement capability as indicated.
  2. Temperature Rise: In addition, provide systems that have been tested to show T Rating as indicated.
  3. Air Leakage: In addition, provide systems that have been tested to show L Rating as indicated.
  4. Where floor assembly is not required to have a fire rating, provide systems that have been tested to show L Rating as indicated.
- B. Head-of-Wall Firestopping at Joints Between Non-Rated Floor and Fire-Rated Wall: Use any system that has been tested according to ASTM E2837 to have fire resistance F Rating equal to required fire rating of floor or wall, whichever is greater.
  1. Movement: In addition, provide systems that have been tested to show movement capability as indicated.
- C. Floor-to-Floor, Wall-to-Wall, and Wall-to-Floor Joints, Except Perimeter, Where Both Are Fire-Rated: Use any system that has been tested according to ASTM E1966 or UL 2079 to have fire resistance F Rating equal to required fire rating of the assembly in which the joint occurs.
  1. Movement: In addition, provide systems that have been tested to show movement capability as indicated.
  2. Air Leakage: In addition, provide systems that have been tested to show L Rating as indicated.
  3. Watertightness: In addition, provide systems that have been tested to show W Rating as indicated.
  4. Listing by UL, FM, or Intertek in their certification directory will be considered evidence of successful testing.
- D. Through Penetration Firestopping: Use any system that has been tested according to ASTM E814 to have fire resistance F Rating equal to required fire rating of penetrated assembly.
  1. Temperature Rise: In addition, provide systems that have been tested to show T Rating as indicated.
  2. Air Leakage: In addition, provide systems that have been tested to show L Rating as indicated.
  3. Watertightness: In addition, provide systems that have been tested to show W Rating as indicated.

4. Listing by UL, FM, or Intertek in their certification directory will be considered evidence of successful testing.

### **2.03 FIRESTOPPING SYSTEMS**

- A. Firestopping: Any material meeting requirements.
  1. Fire Ratings: Use any system listed by UL or tested in accordance with ASTM E814 that has F Rating equal to fire rating of penetrated assembly and T Rating Equal to F Rating and that meets all other specified requirements.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify openings are ready to receive the work of this section.

### **3.02 PREPARATION**

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter that could adversely affect bond of firestopping material.
- B. Remove incompatible materials that could adversely affect bond.
- C. Install backing materials to arrest liquid material leakage.

### **3.03 INSTALLATION**

- A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.
- B. Do not cover installed firestopping until inspected by authority having jurisdiction.
- C. Install labeling required by code.

### **3.04 CLEANING**

- A. Clean adjacent surfaces of firestopping materials.

### **3.05 PROTECTION**

- A. Protect adjacent surfaces from damage by material installation.

**END OF SECTION**



**SECTION 07 90 05**  
**JOINT SEALERS**

**1.01 GENERAL SECTION INCLUDES**

- A. Sealants and joint backing.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 30 00 - Cast-In-Place Concrete.
- B. Section 04 20 00 - Unit Masonry.
- C. Section 06 20 00 - Finish Carpentry.
- D. Section 07 42 13 - Metal Wall and Roof Panels.
- E. Section 07 54 00 - Thermoplastic Membrane Roofing.
- F. Section 07 62 00 - Sheet Metal Flashing and Trim.
- G. Section 07 84 00 - Firestopping.
- H. Section 08 11 13 - Hollow Metal Doors and Frames.
- I. Section 08 16 01 - Insulated Composite Doors.
- J. Section 08 80 00 - Glazing.
- K. Section 09 90 00 - Painting and Coating.
- L. Section 32 13 13 - Concrete Paving.

**1.03 REFERENCE STANDARDS**

- A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2015 (Reapproved 2022).
- B. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants; 2018 (Reapproved 2022).
- C. ASTM C834 - Standard Specification for Latex Sealants; 2017.
- D. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2020a.
- E. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2022.
- F. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
- G. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems; 2016.
- H. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016.
- I. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2022.
- J. ASTM C1311 - Standard Specification for Solvent Release Sealants; 2022.
- K. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2018.
- L. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints; 2019 (Reapproved 2020).
- M. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness; 2015 (Reapproved 2021).
- N. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension; 2016 (Reapproved 2021).
- O. ASTM D638 - Standard Test Method for Tensile Properties of Plastics; 2022.
- P. ASTM D695 - Standard Test Method for Compressive Properties of Rigid Plastics; 2015.
- Q. ASTM D4541 - Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers; 2022.
- R. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2022.
- S. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2022.

- T. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2022)
- U. SWRI (VAL) - SWR Institute Validated Products Directory Current Edition.
- V. UL 263 - Standard for Fire Tests of Building Construction and Materials; Current Edition, Including All Revisions.

#### **1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate the work with other sections referencing this section.

#### **1.05 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.
- C. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.
- D. Samples: Submit manufacturer's physical samples (beads), 4 inches in size illustrating sealant colors for selection.

#### **1.06 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Applicator Qualifications: Company specializing in performing the work of this section with minimum three years documented experience and approved by manufacturer.

#### **1.07 FIELD CONDITIONS**

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

#### **1.08 WARRANTY**

- A. See Construction Manager's General Requirements for additional warranty requirements.
- B. Manufacturer Warranty: Provide 2-year manufacturer warranty for installed sealants and accessories that fail to achieve a watertight seal, exhibit loss of adhesion or cohesion, or do not cure. Complete forms in Owner's name and register with manufacturer.
  - 1. Extended Correction Period: Correct defective work within 2-year period commencing on Date of Substantial Completion.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Gunnable and Pourable Sealants:
  - 1. Adfast USA Inc: [www.adfastcorp.com](http://www.adfastcorp.com).
  - 2. Bostik Inc: [www.bostik-us.com](http://www.bostik-us.com).
  - 3. Dow: [www.dow.com](http://www.dow.com).
  - 4. Hilti, Inc: [www.hilti.com](http://www.hilti.com).
  - 5. Momentive Performance Materials, Inc (formerly GE Silicones): [www.momentive.com](http://www.momentive.com).
  - 6. Pecora Corporation: [www.pecora.com](http://www.pecora.com).
  - 7. Sherwin-Williams Company: [www.sherwin-williams.com](http://www.sherwin-williams.com).
  - 8. Tremco Commercial Sealants & Waterproofing: [www.tremcosealants.com](http://www.tremcosealants.com).
  - 9. W.R. Meadows, Inc: [www.wrmeadows.com](http://www.wrmeadows.com).
  - 10. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.

#### **2.02 SEALANTS**

- A. Sealants and Primers - General: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168.
- B. Type A - General Purpose Exterior Sealant: Polyurethane; ASTM C920, Grade NS, Class 25, Uses M, G, and A; single component.
  - 1. Color: To be selected by Design Professional from manufacturer's full range.
  - 2. Applications: Use for:

- a. Control, expansion, and soft joints in masonry.
  - b. Joints between concrete and other materials.
  - c. Joints between metal frames and other materials.
  - d. Other exterior joints for which no other sealant is indicated.
- C. Type B - Exterior Metal Lap Joint Sealant: Butyl or polyisobutylene, nondrying, nonskinning, noncuring.
- 1. Applications: Use for:
    - a. Concealed sealant bead in sheet metal work.
    - b. Concealed sealant bead in siding overlaps.
- D. Type C - General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.
- 1. Color: To be selected by Design Professional from manufacturer's full range.
  - 2. Applications: Use for:
    - a. Interior wall and ceiling control joints.
    - b. Joints between door and window frames and wall surfaces.
    - c. Other interior joints for which no other type of sealant is indicated.
- E. Type D - Bathtub/Tile Sealant: White silicone; ASTM C920, Uses I, M and A; single component, mildew resistant.
- 1. Applications: Use for:
    - a. Joints between plumbing fixtures and floor and wall surfaces.
    - b. Joints between kitchen and bath countertops and wall surfaces.
- F. Type E - Interior Floor Joint Sealant: Polyurethane, self-leveling; ASTM C920, Grade P, Class 25, Uses T, M and A; single component.
- 1. Color: To be selected by Design Professional from manufacturer's standard range.
  - 2. Applications: Use for:
    - a. Expansion joints in floors.
- G. Type F - Silicone Sealant: ASTM C920, Grade NS, Class 25, Uses NT, A, G, M, O; single component, solvent curing, non-sagging, non-staining, fungus resistant, non-bleeding.
- 1. Color: To be selected by Design Professional from manufacturer's standard range.
  - 2. Movement Capability: Plus and minus 25 percent.
  - 3. Service Temperature Range: -65 to 180 degrees F.
  - 4. Shore A Hardness Range: 15 to 35.

### **2.03 ACCESSORIES**

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that substrate surfaces and joint openings are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.

### **3.02 PREPARATION**

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Protect elements surrounding the work of this section from damage or disfigurement.



### **3.03 INSTALLATION**

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Perform acoustical sealant application work in accordance with ASTM C919.
- D. Install bond breaker where joint backing is not used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- G. Tool joints concave.

### **3.04 CLEANING**

- A. Clean adjacent soiled surfaces.

### **3.05 PROTECTION**

- A. Protect sealants until cured.

### **3.06 SCHEDULE**

- A. Exterior Joints for Which No Other Sealant Type is Indicated: Type A.
- B. Control and Expansion Joints in Paving: Type A.
- C. Exterior Wall Expansion Joints: Type A.
- D. Control, Expansion, and Soft Joints in Masonry, and Between Masonry and Adjacent Work: Type A.
- E. Lap Joints in Exterior Sheet Metal Work: Type B.
- F. Butt Joints in Exterior Metal Work and Siding: Type B.
- G. Joints Between Exterior Metal Frames and Adjacent Work (except masonry): Type A.
- H. Under Exterior Door Thresholds: Type E.
- I. Interior Joints for Which No Other Sealant is Indicated: Type C.
- J. Control and Expansion Joints in Interior Concrete Slabs and Floors: Type E.
- K. Joints Between Plumbing Fixtures and Walls and Floors, and Between Countertops and Walls: Type D.

**END OF SECTION**

**SECTION 08 11 13**  
**HOLLOW METAL DOORS AND FRAMES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Non-fire-rated hollow metal doors and frames.
- B. Hollow metal frames for wood doors.
- C. Fire-rated hollow metal doors and frames.
- D. Thermally insulated hollow metal doors with frames.
- E. Accessories, including wall anchors.

**1.02 RELATED REQUIREMENTS**

- A. Section 04 20 00 - Masonry.
- B. Section 08 14 16 - Flush Wood Doors.
- C. Section 08 71 00 - Door Hardware.
- D. Section 09 90 00 - Painting and Coating: Field painting.

**1.03 REFERENCE STANDARDS**

- A. ADA Standards - 2010 ADA Standards for Accessible Design 2010.
- B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors 2022.
- C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100) 2017.
- D. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames 2020.
- E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinclron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2022.
- F. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable 2021a.
- G. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength 2018a.
- H. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete 2020.
- I. ASTM C476 - Standard Specification for Grout for Masonry 2023.
- J. BHMA A156.115 - Hardware Preparation in Steel Doors and Steel Frames 2016.
- K. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.
- L. ITS (DIR) - Directory of Listed Products Current Edition.
- M. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames 2002.
- N. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames 2011.
- O. NAAMM HMMA 840 - Guide Specifications for Receipt, Storage and Installation of Hollow Metal Doors and Frames 2017.
- P. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames 2014.
- Q. NFPA 80 - Standard for Fire Doors and Other Opening Protectives 2022.
- R. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies 2022.
- S. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames 2023.
- T. UL (DIR) - Online Certifications Directory Current Edition.
- U. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies Current Edition, Including All Revisions.

#### **1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.
- C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.

#### **1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- B. Maintain at project site copies of reference standards relating to installation of products specified.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
- B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Hollow Metal Doors and Frames:
  - 1. Ceco Door, an Assa Abloy Group company: [www.assaabloydss.com](http://www.assaabloydss.com).
  - 2. Republic Doors, an Allegion brand: [www.republicdoor.com](http://www.republicdoor.com).
  - 3. Steelcraft, an Allegion brand: [www.allegion.com](http://www.allegion.com).

#### **2.02 PERFORMANCE REQUIREMENTS**

- A. Requirements for Hollow Metal Doors and Frames:
  - 1. Steel Sheet: Comply with one or more of the following requirements; galvanized steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
  - 2. Accessibility: Comply with ICC A117.1 and ADA Standards.
  - 3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
  - 4. Door Edge Profile: Manufacturers standard for application indicated.
  - 5. Typical Door Face Sheets: Flush.
  - 6. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
  - 7. Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvanized) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.
- B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

#### **2.03 HOLLOW METAL DOORS**

- A. Door Finish: Factory primed and field finished.
- B. Exterior Doors: Thermally insulated.
  - 1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
    - a. Level 3 - Extra Heavy-duty.
    - b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
    - c. Model 2 - Seamless.
    - d. Door Face Metal Thickness: 16 gauge, 0.053 inch, minimum.

2. Door Core Material: Manufacturers standard core material/construction and in compliance with requirements.
  3. Door Thickness: 1-3/4 inches, nominal.
  4. Door Face Sheets: Flush.
  5. Door Finish: Factory primed and field finished.
  6. Weatherstripping: Refer to Section 08 71 00.
- C. Interior Doors, Non-Fire-Rated:
1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
    - a. Level 3 – Extra Heavy-duty.
    - b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
    - c. Model 2 – Seamless.
    - d. Door Face Metal Thickness: 16 gauge, 0.053 inch, minimum.
  2. Door Core Material: Kraftpaper honeycomb.
  3. Door Thickness: 1-3/4 inches, nominal.
  4. Door Face Sheets: Flush.
  5. Door Finish: Factory primed and field finished.
- D. Interior Doors, Fire-Rated Doors:
1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
    - a. Level 3 – Extra Heavy-duty.
    - b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
    - c. Model 2 - Seamless.
    - d. Door Face Metal Thickness: 16 gauge, 0.053 inch, minimum.
  2. Fire Rating: As indicated on Door Schedule, tested in accordance with UL 10C and NFPA 252 ("positive pressure fire tests").
  3. Provide units listed and labeled by UL (DIR) or ITS (DIR).
    - a. Attach fire rating label to each fire rated unit.
  4. Door Core Material: Manufacturers standard core material/construction in compliance with requirements.
  5. Door Thickness: 1-3/4 inches, nominal.
  6. Door Face Sheets: Flush.
  7. Door Finish: Factory primed and field finished.

## **2.04 HOLLOW METAL FRAMES**

- A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.
- B. Exterior Door Frames: Face welded type.
  1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A40/ZF120 coating.
  2. Frame Metal Thickness: 14 gauge, 0.067 inch, minimum.
  3. Frame Finish: Factory primed and field finished.
  4. Weatherstripping: Separate, see Section 08 71 00.
- C. Interior Door Frames, Non-Fire Rated: Face welded type.
  1. Frame Metal Thickness: 14 gauge, 0.067 inch, minimum.
  2. Frame Finish: Factory primed and field finished.
- D. Door Frames, Fire-Rated: Face welded type.
  1. Fire Rating: Same as door, labeled.
  2. Frame Metal Thickness: 14 gauge, 0.067 inch, minimum.
  3. Frame Finish: Factory primed and field finished.
- E. Frames for Wood Doors: Comply with frame requirements in accordance with corresponding door.
- F. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.
- G. Frames in Masonry Walls: Size to suit masonry coursing with head member 4 inches high to fill opening without cutting masonry units.

## **FINISHES**

H. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

### **2.05 ACCESSORIES**

- A. Mechanical Fasteners for Concealed Metal-to-Metal Connections: Self-drilling, self-tapping, steel with electroplated zinc finish.
- B. Grout for Frames: Mortar grout complying with ASTM C476 with maximum slump of 4 inches as measured in accordance with ASTM C143/C143M for hand troweling in place; plaster grout and thinner pumpable grout are prohibited.
- C. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.
- D. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Verify that finished walls are in plane to ensure proper door alignment.

### **3.02 INSTALLATION**

- A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.
- B. Install fire rated units in accordance with NFPA 80.
- C. Coordinate frame anchor placement with wall construction.
- D. Grout frames in masonry construction, using pumped methods; bore hole in frame head for grouting; brace frames so that pressure of grout before setting will not deform frames.
- E. Install door hardware as specified in Section 08 71 00.
- F. Touch up damaged factory finishes.

### **3.03 TOLERANCES**

- A. Clearances Between Door and Frame: Comply with related requirements of specified frame standards or custom guidelines indicated in accordance with SDI 117 or NAAMM HMMA 861.
- B. Maximum Diagonal Distortion: 1/16 in measured with straight edge, corner to corner.

### **3.04 ADJUSTING**

- A. Adjust for smooth and balanced door movement.

### **3.05 SCHEDULE**

- A. Refer to Door and Frame Schedule on the drawings.

**END OF SECTION**

**SECTION 08 14 16**  
**FLUSH WOOD DOORS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Flush wood doors; flush configuration; fire rated.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 20 00 - Finish Carpentry.
- B. Section 08 11 13 - Hollow Metal Doors and Frames.
- C. Section 08 71 00 - Door Hardware.
- D. Section 08 80 00 - Glazing.

**1.03 REFERENCE STANDARDS**

- A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition 2014, with Errata (2016).
- B. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards 2021, with Errata.
- C. NFPA 80 - Standard for Fire Doors and Other Opening Protectives 2022.
- D. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies Current Edition, Including All Revisions.

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
- C. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.
- D. Samples: Submit two samples of door veneer, 4 inch by 4 inch in size illustrating wood grain, stain color, and sheen.
- E. Warranty executed in Owner's name.

**1.05 QUALITY ASSURANCE**

- A. Maintain one copy of the specified door quality standard on site for review during installation and finishing.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- C. Installed Fire Rated Door and Transom Panel Assembly: Conform to NFPA 80 for fire rated class as indicated.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Package, deliver and store doors in accordance with specified quality standard.
- B. Accept doors on site in manufacturer's packaging. Inspect for damage.
- C. Protect doors with resilient packaging sealed with heat shrunk plastic. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

**1.07 WARRANTY**

- A. See Construction Manager's General Requirements for additional warranty procedures.
- B. Manufacturer Warranty: Provide manufacturer's warranty on interior doors for the life of the installation. Complete forms in Owner's name and register with manufacturer.
  - 1. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Wood Veneer Faced Doors:

1. Graham Wood Doors: [www.grahamdoors.com](http://www.grahamdoors.com).
2. Eggers Industries: [www.eggersindustries.com](http://www.eggersindustries.com).
3. Haley Brothers: [www.haleybros.com](http://www.haleybros.com).
4. Marshfield Door Systems, Inc: [www.marshfielddoors.com](http://www.marshfielddoors.com).
5. Mohawk Flush Doors, Inc.: [www.mohawkdoors.com](http://www.mohawkdoors.com).
6. VT Industries: [www.vtindustries.com](http://www.vtindustries.com).
7. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.

## **2.02 DOORS**

- A. Doors: See drawings for locations and additional requirements.
  1. Quality Standard: Custom Grade, Heavy Duty performance, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
  2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.
- B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
  1. Provide solid core doors at all locations.
  2. Fire Rated Doors: Tested to ratings indicated on drawings in accordance with UL 10C - Positive Pressure; Underwriters Laboratories Inc (UL) or Intertek/Warnock Hersey (WHI) labeled without any visible seals when door is open.

## **2.03 DOOR AND PANEL CORES**

- A. Non-Rated Solid Core and 20 Minute Rated Doors: Type particleboard core (PC), plies and faces as indicated above.
- B. Fire-Rated Doors: Mineral core type, with fire resistant composite core (FD), plies and faces as indicated above; with core blocking as required to provide adequate anchorage of hardware without through-bolting.

## **2.04 DOOR FACINGS**

- A. Bullock Creek Elementary:
  1. Wood Veneer Facing for Transparent Finish: Birch, veneer grade as specified by quality standard, plain sliced, book veneer match, running assembly match; unless otherwise indicated.
- B. Bullock Creek High School:
  1. Wood Veneer Facing for Transparent Finish: Red Oak, veneer grade as specified by quality standard, plain sliced, book veneer match, running assembly match; unless otherwise indicated.
- C. Vertical Edges: Any option allowed by quality standard for grade.
- D. Facing Adhesive: Type I - waterproof.

## **2.05 DOOR CONSTRUCTION**

- A. Fabricate doors in accordance with door quality standard specified.
- B. Cores Constructed with stiles and rails:
  1. Provide solid blocks at lock edge for hardware reinforcement.
  2. Provide solid blocking for other through-bolted hardware.
- C. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
- D. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
- E. Provide edge clearances in accordance with the quality standard specified.

## **2.06 FACTORY FINISHING - WOOD VENEER DOORS**

- A. Finish work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards, Section 5 - Finishing for Grade specified and as follows:
  1. Transparent:
    - a. System - 11, Polyurethane, Catalyzed.
    - b. Stain: As selected by Design Professional.
    - c. Sheen: Satin.
- B. Factory finish doors in accordance with approved sample.

- C. Seal door top edge with color sealer to match door facing.

## **2.07 ACCESSORIES**

- A. Glazing: See Section 08 80 00.
- B. Glazing Stops: Wood, of same species as door facing, butted corners; prepared for countersink style tamper proof screws.
- C. Door Hardware: See Section 08 71 00.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

### **3.02 INSTALLATION**

- A. Install doors in accordance with manufacturer's instructions and specified quality standard.
  - 1. Install fire-rated doors in accordance with NFPA 80 requirements.
- B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.
- C. Use machine tools to cut or drill for hardware.
- D. Coordinate installation of doors with installation of frames and hardware.
- E. Coordinate installation of glazing.

### **3.03 TOLERANCES**

- A. Conform to specified quality standard for fit and clearance tolerances.
- B. Conform to specified quality standard for telegraphing, warp, and squareness.

### **3.04 ADJUSTING**

- A. Adjust doors for smooth and balanced door movement.
- B. Adjust closers for full closure.

### **3.05 SCHEDULE - SEE DRAWINGS**

**END OF SECTION**





**SECTION 08 16 01**  
**INSULATED COMPOSITE DOORS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Fiberglass reinforced polyester faced flush doors and transom panels.
- B. Aluminum framing.
- C. Manufacturer provided hardware and weatherstripping.
- D. Coordination with other Sections for installation of hardware.

**1.02 RELATED SECTIONS**

- A. Section 07 90 05 - Joint Sealers.
- B. Section 08 71 00 - Door Hardware.

**1.03 REFERENCES**

- A. AAMA 1503-98 - Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.
- B. ANSI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcings.
- C. ASTM E84 - Surface Burning Characteristics of Building Materials.
- D. ASTM E90 - Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.
- E. ASTM B117 - Operating Salt Spray (Fog) Apparatus.
- F. ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.
- G. ASTM B221 - Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- H. ASTM D256 - Determining the Pendulum Impact Resistance of Notched Specimens of Plastics.
- I. ASTM E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen; 2004
- J. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Stratic Air Pressure Difference; 2002
- K. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Pressure Difference; 2000
- L. ASTM F476 - Security of Swinging Door Assemblies.
- M. ASTM D543 - Evaluating the Resistance of Plastics to Chemical Reagents.
- N. ASTM D570 - Water Absorption of Plastics.
- O. ASTM D638 - Tensile Properties of Plastics.
- P. ASTM D790 - Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- Q. ASTM D1308 - Effect of Household Chemicals on Clear and Pigmented Organic Finishes.
- R. ASTM D1621 - Compressive Properties of Rigid Cellular Plastics.
- S. ASTM D1623 - Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.
- T. ASTM D2126 - Response of Rigid Cellular Plastics to Thermal and Humid Aging.
- U. ASTM D2583 - Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.
- V. ASTM D5420 - Impact Resistance of Flat Rigid Plastic Specimens by Means of a Falling Weight.
- W. ASTM D6670-01 - Standard Practice for Full-Scale Chamber Determination of Volatile Organic Emissions from Indoor Materials/Products.
- X. NWWDA T.M. 7-90 - Cycle Slam Test Method
- Y. SFBC PA 201 - Impact Test Procedures.

Z. SFBC PA 203 - Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.

AA. SFBC 3603.2 (b)(5) - Forced Entry Resistance Test.

#### **1.04 PERFORMANCE REQUIREMENTS**

- A. General: Provide door assemblies that have been designed and fabricated to comply with specified performance requirements, as demonstrated by testing manufacturer's corresponding standard systems.
- B. Air Infiltration: For a single door 3'-0" x 7'-0", test specimen shall be tested in accordance with ASTM E 283 at pressure differential of 6.24 psf. Door shall not exceed 0.90 cfm per linear foot of perimeter crack.
- C. Water Resistance: For a single door 3'-0" x 7'-0", test specimen shall be tested in accordance with ASTM E 331 at pressure differential of 7.50 psf. Door shall not have water leakage.
- D. Indoor air quality testing per ASTM D 6670-01: GREENGUARD Environmental Institute Certified including GREENGUARD for Children and Schools Certification.
- E. Hurricane Test Standards, Single Door with Single-Point Latching:
  - 1. Uniform Static Load, ASTM E 330: Plus or minus 75 pounds per square foot.
  - 2. Forced Entry Test, 300 Pound Load Applied, SFBC 3603.2 (b)(5): Passed.
  - 3. Cyclic Load Test, SFBC PA 203: Plus or minus 53 pounds per square foot.
  - 4. Large Missile Impact Test, SFBC PA 201: Passed.
- F. Swinging Door Cycle Test, Doors and Frames, ANSI A250.4: Minimum of 25,000,000 cycles.
- G. Cycle Slam Test Method, NWWDA T.M. 7-90: Minimum 5,000,000 Cycles.
- H. Swinging Security Door Assembly, Doors and Frames, ASTM F 476: Grade 40.
- I. Salt Spray, Exterior Doors and Frames, ASTM B 117: Minimum of 500 hours.
- J. Sound Transmission, Exterior Doors, STC, ASTM E 90: Minimum of 25.
- K. Thermal Transmission, Exterior Doors, U-Value, AAMA 1503-98: Maximum of 0.29 BTU/hr x sf x degrees F. Minimum of 55 CRF value.
- L. Surface Burning Characteristics, FRP Doors and Panels, ASTM E 84:
  - 1. Flame Spread: Maximum of 200, Class C.
  - 2. Smoke Developed: Maximum of 450, Class C.
- M. Surface Burning Characteristics, Class A Option On Interior Faces of FRP Exterior Panels and Both Faces of FRP Interior Panels, ASTM E 84:
  - 1. Flame Spread: Maximum of 25.
  - 2. Smoke Developed: Maximum of 450.
- N. Impact Strength, FRP Doors and Panels, Nominal Value, ASTM D 256: 15.0 foot-pounds per inch of notch.
- O. Tensile Strength, FRP Doors and Panels, Nominal Value, ASTM D 638: 14,000 psi.
- P. Flexural Strength, FRP Doors and Panels, Nominal Value, ASTM D 790: 21,000 psi.
- Q. Water Absorption, FRP Doors and Panels, Nominal Value, ASTM D 570: 0.20 percent after 24 hours.
- R. Indentation Hardness, FRP Doors and Panels, Nominal Value, ASTM D 2583: 55.
- S. Gardner Impact Strength, FRP Doors and Panels, Nominal Value, ASTM D 5420: 120 in-lb.
- T. Abrasion Resistance, Face Sheet, Taber Abrasion Test, 25 Cycles at 1,000 Gram Weight with CS-17 Wheel: Maximum of 0.029 average weight loss percentage.
- U. Stain Resistance, ASTM D 1308: Face sheet unaffected after exposure to red cabbage, tea, and tomato acid. Stain removed easily with mild abrasive or FRP cleaner when exposed to crayon and crankcase oil.
- V. Chemical Resistance, ASTM D 543. Excellent rating.
  - 1. Acetic acid, Concentrated.
  - 2. Ammonium Hydroxide, Concentrated.
  - 3. Citric Acid, 10%.
  - 4. Formaldehyde.
  - 5. Hydrochloric Acid, 10%
  - 6. Sodium hypochlorite, 4 to 6 percent solution.
- W. Compressive Strength, Foam Core, Nominal Value, ASTM D 1621: 79.9 psi.

- X. Compressive Modulus, Foam Core, Nominal Value, ASTM D 1621: 370 psi.
- Y. Tensile Adhesion, Foam Core, Nominal Value, ASTM D 1623: 45.3 psi.
- Z. Thermal and Humid Aging, Foam Core, Nominal Value, 158 Degrees F and 100 Percent Humidity for 14 Days, ASTM D 2126: Minus 5.14 percent volume change.

#### **1.05 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Shop Drawings: Indicate door elevations, dimensions, framed opening requirements and tolerances; anchorage and fasteners; door hardware requirements.
- C. Product Data: Provide hardware schedule listing manufacturer, quantity, description and finish of each item; include manufacturer's catalog cuts. Note: On hardware items with more than one acceptable manufacturer, submit catalog cut on scheduled item and submitted item.
- D. Selection Samples: Submit manufacturer's complete set of color chips, illustrating available finishes, colors, and textures.

#### **1.06 COORDINATION**

- A. Arrange meeting with door hardware vendors/suppliers to ensure that templates for all hardware are submitted to door manufacturer for factory preparation related to drilling, boring, cutting and tapping.
  - 1. If door manufacturer offers factory installation of hardware, coordinate this function with door hardware vendors/suppliers.

#### **1.07 WARRANTY**

- A. See Construction Manager's General Requirements for additional warranty requirements.
- B. Warrant doors, frames, and factory hardware against failure in materials and workmanship, including excessive deflection, faulty operation, defects in hardware installation, and deterioration of finish or construction in excess of normal weathering.
- C. Provide manufacturer's materials and workmanship warranties in accordance with General Requirements, as follows:
  - 1. Entry System: Minimum ten years starting on date of shipment. In addition, a limited lifetime (while the door is in its specified application in its original installation) warranty covering: failure of corner joinery, core deterioration, delamination or bubbling of door skin.
  - 2. Factory Installed Hardware: Minimum five (5) years.

### **PART 2 PRODUCTS**

#### **2.01 MATERIALS**

- A. Acceptable Manufacturers:
  - 1. Special-Lite, Inc; [www.special-lite.com](http://www.special-lite.com).
  - 2. Simon Door Company LLC: [www.simondoors.com](http://www.simondoors.com).
  - 3. Vale Door Solutions; [www.valedoors.com](http://www.valedoors.com).
- B. Extruded Aluminum: ASTM B221; 6063-T5 alloy.
- C. Face Sheet - FRP: Fiberglass reinforced polyester, 0.120 inch thick, embossed surface texture; integral color through full thickness of fiberglass sheet or seamless gel coat finish (Minimum 15 mil thickness).
- D. Foam Core: Closed cell urethane type, foamed in place, minimum 4 lbs per cubic foot density or rigid block polyurethane laminated to face sheets.
- E. Steel Sections: Structural shapes to suit mullion sections; galvanized.
- F. Fasteners: Stainless or galvanized steel, size and type to suit application.

#### **2.02 FABRICATED COMPONENTS**

- A. FRP Flush Doors and Transom Panels: Fiberglass reinforced polyester face sheets interlocked to aluminum tubular stiles and rails of minimum 0.125 inch wall thickness; solid foam core construction; 1-3/4 inches thick.
- B. Door Frames: Extruded aluminum, minimum 0.125 inch wall thickness, 2 x 6 inch profile, internally reinforced at joints and hardware attachment points, applied glazing stops.
  - 1. Finish: Anodized; Clear.

### **2.03 HARDWARE BY DOOR MANUFACTURER**

- A. Pull: SL82, aluminum, recessed; as furnished by door manufacturer.
- B. Weatherstrip: Wool pile, integral with door frame and insert frame.
- C. Door Sweep: Nylon brush type, replaceable.
- D. Meeting Stile Sweep: Nylon brush type, replaceable.

### **2.04 HARDWARE BY CONTRACTOR**

- A. Provide and install door hardware as specified in Section 08 71 00.
- B. Furnish templates for all hardware to door manufacturer for preparation at factory.

### **2.05 FABRICATION**

- A. Fabricate doors and frames allowing for minimum clearance and shim spacing around perimeter of assembly.
- B. Accurately and rigidly fit and secure joints and corners, flush, hairline, and weatherproof.
- C. Fabricate frames with door jambs extended full height of opening.
- D. Internally reinforce all frame joints with full width joint anchors.
- E. Fabricate door joinery with steel tie rods, top and bottom, bolted through continuous extruded splines and reinforcing angles or high modulus pultruded fiberglass tubes.
- F. Prepare components with internal reinforcement for door hardware.

### **2.06 FINISHES**

- A. Aluminum Surfaces: Anodized, Architectural Class I.
  - 1. Bullock Creek Elementary: Clear.
- B. FRP Surfaces: Color to be selected by Design Professional.
- C. Concealed Steel Items: Galvanized to 2.0 ounces per square foot.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION AND PREPARATION**

- A. Verify that wall openings are ready to receive work of this section.

### **3.02 INSTALLATION**

- A. Install doors in accordance with manufacturer's installation instructions.
- B. If the Contractor opts to field-install the door hardware, the following items apply:
  - 1. The door and frame manufacturer must agree, in writing, that warranties will remain valid if the door and frame is drilled, bored, threaded or cut in the field.
  - 2. Hardware templates shall be used to locate and identify all holes.
  - 3. All holes shall be drilled properly and accurately threaded with appropriate tapping tools.
  - 4. The use of self-drilling or self-tapping screws is not acceptable and shall be cause for rejection of the door and frame.
  - 5. Replacement of the door and frame shall be the Contractor's responsibility and no costs will be assessed to the Owner.
- C. Use anchorage devices to securely attach frame assembly to structure.
- D. Align assembly plumb and square, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- E. Install thresholds, surface applied door closers and holders in accordance with manufacturer's installation instructions using templates provided.
  - 1. Utilize masonry grout or leveling compounds to provide a level threshold installation where floors are not level or flat.
- F. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- G. Install perimeter exterior type sealant and backing materials in accordance with Joint Sealants, Section 07 90 05.
- H. Install panels in openings as noted on Drawings.

- I. Adjust hardware for smooth and balanced door operation.

**END OF SECTION**



**SECTION 08 36 13**  
**SECTIONAL DOORS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Overhead sectional doors, manually operated.
- B. Operating hardware and supports.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 10 00 - Rough Carpentry: Rough wood framing for door opening.
- B. Section 07 90 05 - Joint Sealers: Perimeter sealant and backup materials.

**1.03 REFERENCE STANDARDS**

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinclron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2022.
- B. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
- C. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.
- D. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014 (Reapproved 2021).
- E. DASMA 102 - American National Standard Specifications for Sectional Doors; 2018.
- F. ITS (DIR) - Directory of Listed Products Current Edition.
- G. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems Current Edition, Including All Revisions.

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Shop Drawings: Indicate opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.
- C. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
  - 4. Operation and maintenance data.
- D. Samples: Submit two panel finish samples, 6 x 6 inch in size, illustrating color and finish.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- B. Installer: Company specializing in performing the work of this section with minimum five years of experience.

**1.06 WARRANTY**

- A. Correct defective Work within a five year period after Date of Substantial Completion.
- B. Finish Warranty: Provide manufacturer's standard ten year finish warranty against rusting.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Basis of Design: Clopay Corporation; "MODEL 3724": [www.clopaydoor.com](http://www.clopaydoor.com).
- B. Other Acceptable Manufacturers:
  - 1. Fimbel Architectural Door Specialties: [www.fimbelads.com](http://www.fimbelads.com).
  - 2. Wayne-Dalton, a Division of Overhead Door Corporation: [www.wayne-dalton.com](http://www.wayne-dalton.com).



3. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.

## **2.02 STEEL DOORS**

- A. Door Construction:
  1. Panels: Foamed in place Polyurethane core construction between exterior and interior steel skins.
  2. Steel Skins: Formed from roll formed commercial or drawing quality steel sheet, hot-dip galvanized per ASTM A924/A924M and ASTM A653/A653M, pre-painted with primer and baked-on polyester topcoat; sections formed to create weather tight tongue-in-groove meeting joint.
  3. Reinforcing: Galvanized and primed steel reinforcement located under each hinge location, pre-punched for hinge attachment.
- B. Premium Duty 2-inches Door: Clopay Model 3724.
  1. Style: Steel doors with minor ribs, thermally-broken, polyurethane insulated.
  2. Overall Panel Thickness: 2-inches.
  3. Steel Skin Thickness: Minimum 24 gauge 0.022 inch exterior; minimum 27 gauge 0.016 inch interior.
  4. End Stiles: Galvanized steel end stiles, engineered for easy hardware attachment through pre-punched holes. Minimum 18 gauge, 0.045 inch thick for single end hinge style and 16 gauge .056 inch minimum for double end hinge style.
  5. Astragal: U-shaped flexible PVC in retainer of full-length 0.055 inch rigid PVC.
  6. Thermal Resistance (R-value): 18.4 deg F hr sq ft/Btu; calculated door section R-value in accordance with DASMA TDS-163.
  7. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated.
  8. U-Factor: 0.16.
  9. Air Infiltration: .022 cfm @ 25 mph.
  10. Windows: None.
  11. Finish: Interior stucco embossed texture with shallow U ribbed pattern, white interior color. Exterior stucco embossed with ribbed pattern, color to be selected from manufacturer's full range.
  12. Locking: Inside spring loaded slide bolt lock on end stile that engages slot in track.
  13. Weatherstripping: Provide complete perimeter seals. Provide flexible top seal, flexible jamb seal and U shaped bottom seal.
  14. Track:
    - a. Provide standard lift tracks with 15 inches radius track as indicated.
    - b. 2-inch track designed for 2" diameter rollers. Vertical tracks minimum 0.061 inch galvanized steel. Horizontal tracks minimum 0.075 inch galvanized steel.
    - c. Provide track configuration to maximize headroom available per plans.
  15. Spring Counterbalance: Torsion spring counterbalance mechanism sized to weight of the door, with with high strength galvanized aircraft cable with minimum 7 to 1 safety factor.
    - a. Standard Cycle Spring: 10,000 cycle.
  16. Manual Operation: Pull rope.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.

### **3.02 PREPARATION**

- A. Prepare opening to permit correct installation of door unit to perimeter air and vapor barrier seal.
- B. Apply primer to wood frame.

### **3.03 INSTALLATION**

- A. Install door unit assembly in accordance with manufacturer's instructions.
- B. Anchor assembly to wall construction and building framing without distortion or stress.
- C. Securely brace door tracks suspended from structure. Secure tracks to structural members only.
- D. Fit and align door assembly including hardware.

- E. Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07 90 05.
- F. Install perimeter trim.

**3.04 TOLERANCES**

- A. Maximum Variation from Plumb: 1/16 inch.
- B. Maximum Variation from Level: 1/16 inch.
- C. Longitudinal or Diagonal Warp: Plus or minus 1/8 inch from 10 ft straight edge.
- D. Maintain dimensional tolerances and alignment with adjacent work.

**3.05 ADJUSTING**

- A. Adjust door assembly for smooth operation and full contact with weatherstripping.

**3.06 CLEANING**

- A. Clean doors and frames.
- B. Remove temporary labels and visible markings.

**3.07 PROTECTION**

- A. Protect installed products from damage during subsequent construction.
- B. Do not permit construction traffic through overhead door openings after adjustment and cleaning.

**END OF SECTION**



**SECTION 08 71 00  
DOOR HARDWARE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Furnish all items of Finish Hardware specified, scheduled, shown or required herein except those items specifically excluded from this section of the specification.
- B. This Section includes commercial door hardware for the following:
  - 1. Swinging doors.
  - 2. Other doors to the extent indicated.
- C. Door hardware includes, but is not necessarily limited to, the following:
  - 1. Mechanical door hardware.
  - 2. Cylinders specified for doors in other sections.

**1.02 RELATED SECTIONS**

- A. Section 06 20 00 - Finish Carpentry: Installation of hardware.
- B. Section 08 11 13 - Hollow Metal Doors and Frames.
- E. Section 08 16 01 - Insulated Composite Doors.

**1.03 QUALITY ASSURANCE**

- A. Requirements of Regulatory Agencies:
  - 1. Furnish finish hardware to comply with the requirements of laws, codes, ordinances, and regulations of the governmental authorities having jurisdiction where such requirements exceed the requirements of the Specifications.
  - 2. Furnish finish hardware to comply with the requirements of the regulations for public building accommodations for physically handicapped persons of the governmental authority having jurisdiction and to comply with Americans with Disabilities Act.
  - 3. Provide hardware for fire-rated openings in compliance with NFPA 80 and state and local building code requirements. Provide only hardware that has been tested and listed by UL for types and sizes of doors required and complies with requirements of door and door frame labels.
  - 4. Hardware Supplier:
    - a. Shall be an established firm dealing in contract builders' hardware. He must have adequate inventory, qualified personnel on staff and be located within 50 miles of the project. The distributor must be a factory-authorized dealer for all materials required. The supplier shall be or have in employment an Architectural Hardware Consultant (AHC).
  - 5. Manufacturer:
    - a. Obtain each type of hardware (latch and locksets, hinges, closers, etc.) from a single manufacturer, although several may be indicated as offering products complying with requirements.
    - b. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated.
- B. Pre-installation Meeting:
  - 1. Before hardware installation, General Contractor will request a hardware installation meeting be conducted on the installation of hardware; specifically that of locksets, closers, exit devices, overhead stops and coordinators. Manufacturer's representatives of the above products, in conjunction with the hardware supplier for the project, shall conduct the meeting. Meeting to be held at job site and attended by installers of hardware for aluminum, hollow metal and wood doors. Meeting to address proper coordination and installation of hardware, per finish hardware schedule for this specific project, by using installation manuals, hardware schedule, templates, physical product samples and installation videos.
  - 2. When any electrical hardware is specified this meeting shall also include the following trades/installers: Electrical, Security, Alarm systems and Design Professional.
  - 3. Convene one week or more prior to commencing work of this Section.
  - 4. The Hardware Supplier shall include the cost of this meeting in his proposal.

## 1.04 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
  - 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
  - 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
  - 3. Content: Include the following information:
    - a. Type, style, function, size, label, hand, and finish of each door hardware item.
    - b. Manufacturer of each item.
    - c. Fastenings and other pertinent information.
    - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
    - e. Explanation of abbreviations, symbols, and codes contained in schedule.
    - f. Mounting locations for door hardware.
    - g. Door and frame sizes and materials.
    - h. Warranty information for each product.
  - 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- D. Informational Submittals:
  - 1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
- E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals.

## 1.05 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

- D. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
  - 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
- E. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- F. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
  - 1. Function of building, purpose of each area and degree of security required.
  - 2. Plans for existing and future key system expansion.
  - 3. Requirements for key control storage and software.
  - 4. Installation of permanent keys, cylinder cores and software.
  - 5. Address and requirements for delivery of keys.
- G. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
  - 1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
  - 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
  - 3. Review sequence of operation narratives for each unique access controlled opening.
  - 4. Review and finalize construction schedule and verify availability of materials.
  - 5. Review the required inspecting, testing, commissioning, and demonstration procedures.
- H. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

#### **1.07 COORDINATION**

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

#### **1.08 WARRANTY**

- A. General Warranty: Reference Construction Manager's General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.
  2. Faulty operation of the hardware.
  3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
  4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
1. Ten years for mortise locks and latches.
  2. Five years for exit hardware.
  3. Twenty five years for manual surface door closer bodies.

## **1.09 MAINTENANCE SERVICE**

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

## **PART 2 - PRODUCTS**

### **2.01 SCHEDULED DOOR HARDWARE**

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
- C. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
- D. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Construction Manager's Requirements. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

### **2.02 HANGING DEVICES**

- A. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge. with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.
1. Acceptable Manufacturers:
    - a. Hager Companies (HA).
    - b. McKinney Products (MK).
    - c. Pemko Manufacturing (PE).
    - d. Stanley Hardware (ST).

### **2.03 CYLINDERS AND KEYING**

- A. Keying System: Each type of lock and cylinders to be factory keyed.
1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.
  2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
  3. Existing System: Key locks to Owner's existing system.
- B. Key Quantity: Provide the following minimum number of keys:
1. Change Keys per Cylinder: Two (2)
  2. Master Keys (per Master Key Level/Group): Five (5).
  3. Construction Keys (where required): Ten (10).
  4. Construction Control Keys (where required): Two (2).
  5. Permanent Control Keys (where required): Two (2).
- C. Construction Keying: Provide temporary keyed construction cores.

## **2.04 MECHANICAL LOCKS AND LATCHING DEVICES**

- A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 certified. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.
  - 1. Acceptable Manufacturers:
    - a. Sargent Manufacturing (SA) – 8200 Series.
    - b. Falcon (FAL) – MA Series

## **2.05 LOCK AND LATCH STRIKES**

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
  - 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
  - 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
  - 3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
  - 4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.
- B. Standards: Comply with the following:
  - 1. Strikes for Mortise Locks and Latches: BHMA A156.13.
  - 2. Strikes for Bored Locks and Latches: BHMA A156.2.
  - 3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
  - 4. Dustproof Strikes: BHMA A156.16.

## **2.06 CONVENTIONAL EXIT DEVICES**

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
  - 1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
  - 2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
  - 3. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
  - 4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
  - 5. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
    - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
    - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
  - 6. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
  - 7. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
  - 8. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
  - 9. Rail Sizing: Provide exit device rails factory sized for proper door width application.
  - 10. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
  - 1. Acceptable Manufacturers:
    - a. Sargent Manufacturing (SA) - 80 Series.



- b. Falcon (FAL) – 25 Series.
- C. Tube Steel Removable Mullions: ANSI/BHMA A156.3 removable steel mullions with malleable-iron top and bottom retainers and a primed paint finish.
  - 1. Provide keyed removable feature where specified in the Hardware Sets.
  - 2. Provide stabilizers and mounting brackets as required.
  - 3. Provide electrical quick connection wiring options as specified in the hardware sets.
  - 4. Acceptable Manufacturers:
    - a. Sargent Manufacturing (SA) - 980S Series.
    - b. Falcon (FAL) - 4023 Series.

## 2.07 DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:
  - 1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
  - 2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
  - 3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.
  - 4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.
  - 5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
  - 6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
  - 7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.
- B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.
  - 1. Acceptable Manufacturers:
    - a. LCN (LCN) – 4050 Series.
    - b. Sargent Manufacturing (SA) - 351 Series.

## 2.08 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
  - 1. Acceptable Manufacturers:
    - a. Burns Manufacturing (BU).
    - b. Rockwood Manufacturing (RO).
    - c. Trimco (TC).
- C. Overhead Door Stops and Holders: ANSI/BHMA A156.6, Grade 1 certified overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.
  - 1. Acceptable Manufacturers:
    - a. Glynn Johnson (GLY).
    - b. Rixson Door Controls (RF).

## **2.09 ARCHITECTURAL SEALS**

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
  - 1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
  - 1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Acceptable Manufacturers:
  - 1. National Guard Products (NG).
  - 2. Pemko Manufacturing (PE).
  - 3. Zero (ZER).

## **2.10 FABRICATION**

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

## **2.11 FINISHES**

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

## **PART 3 - EXECUTION**

### **3.01 EXAMINATION**

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

### **3.02 PREPARATION**

- A. Hollow Metal Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

### **3.03 INSTALLATION**

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
  - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
  - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
  - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
  - 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
  - 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

### **3.04 FIELD QUALITY CONTROL**

- A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

### **3.05 ADJUSTING**

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

### **3.06 CLEANING AND PROTECTION**

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

### **3.07 DEMONSTRATION**

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

### **3.08 DOOR HARDWARE SETS – SEE SECTION 08 71 01.**






**END OF SECTION**

**SECTION 08 71 01  
DOOR HARDWARE SCHEDULE**

The hardware sets represent the design intent and direction of the Owner and Design Professional. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the Design Professional with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.







**Hardware Group No. 01**  
132B

EACH TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>		<u>FINISH</u>	<u>MFR</u>
1	EA	CONT. HINGE	112XY		628	IVE
1	EA	PANIC HARDWARE	CD-25-R-EO		626	FAL
1	EA	CYLINDER	(MATCH EXISTING SYSTEM)		626	
1	EA	RECESSED PULL	(BY DOOR MFR)			
1	EA	SURFACE CLOSER	4050A SCUSH		689	LCN
1	SET	WEATHER SEAL	(BY FRAME MFR)			
1	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	655A-V3-223		A	ZER

**Hardware Group No. 02**  
159B






EACH TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>		<u>FINISH</u>	<u>MFR</u>
1	EA	CONT. HINGE	112XY		628	IVE
1	EA	EXIT LOCK	MA161 DG		626	FAL
1	EA	LOCK GUARD	LG12		630	IVE
1	EA	RECESSED PULL	(BY DOOR MFR)			
1	EA	SURFACE CLOSER	4050A SCUSH		689	LCN
1	SET	WEATHER SEAL	(BY FRAME MFR)			
1	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	655A-V3-223		A	ZER

**Hardware Group No. 03**

167A







EACH TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>		<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	CLASSROOM LOCK	MA561L DG		626	FAL
1	EA	CYLINDER	(MATCH EXISTING SYSTEM)		626	
1	EA	SURFACE CLOSER	4050A SCUSH		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	GASKETING	488S		BK	ZER

**Hardware Group No. 04**

145A	146A	147A	148A	149A	150A
151A	152A	154A	155A	156A	







EACH TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>		<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	CLASSRM SEC LOCK	MA441L DG		626	FAL
2	EA	CYLINDER	(MATCH EXISTING SYSTEM)		626	
1	EA	SURFACE CLOSER	4050A EDA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CVX		630	IVE
1	EA	GASKETING	488S		BK	ZER

**Hardware Group No. 05**

113A 125A







EACH TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>		<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	CLASSRM SEC LOCK	MA441L DG		626	FAL
1	EA	CYLINDER	(MATCH EXISTING SYSTEM)		626	
1	EA	SURFACE CLOSER	4050 RW/PA (MOUNT PULL SIDE)		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CVX		630	IVE
1	EA	GASKETING	488S		BK	ZER

**Hardware Group No. 06**

134A                      135A                      166A






EACH TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>		<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	FIRE EXIT HARDWARE	F-25-R-L-2-DANE		626	FAL
1	EA	CYLINDER	(MATCH EXISTING SYSTEM)		626	
1	EA	RIM CYL THUMBTURN	XB13-379		626	SCH
1	EA	SURFACE CLOSER	4050A SCUSH		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CVX		630	IVE
1	EA	GASKETING	488S		BK	ZER

**Hardware Group No. 07**

A101                      B101                      D101                      E101






EACH TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>		<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	CLASSROOM LOCK	MA561L DG		626	FAL
1	EA	CYLINDER	(MATCH EXISTING SYSTEM)		626	
1	EA	SURFACE CLOSER	4050 RW/PA (MOUNT PULL SIDE)		689	LCN
1	EA	WALL STOP	WS406/407CVX		630	IVE
1	EA	GASKETING	488S		BK	ZER

**Hardware Group No. 08**

A103                      B103






EACH TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>		<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	CLASSROOM LOCK	MA561L DG		626	FAL
1	EA	CYLINDER	(MATCH EXISTING SYSTEM)		626	
1	EA	OH STOP	90S		630	GLY
1	EA	SURFACE CLOSER	4050 RW/PA (MOUNT PULL SIDE)		689	LCN
1	EA	GASKETING	488S		BK	ZER

**Hardware Group No. 09**

159A                      161A                      162A










EACH TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>		<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	MA581L DG		626	FAL
1	EA	CYLINDER	(MATCH EXISTING SYSTEM)		626	
1	EA	SURFACE CLOSER	4050A SCUSH		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	GASKETING	488S		BK	ZER

**Hardware Group No. 10**

163A






EACH TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>		<u>FINISH</u>	<u>MFR</u>
6	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	SET	CONST LATCHING BOLT	FB51P		630	IVE
1	EA	DUST PROOF STRIKE	DP2		626	IVE
1	EA	COORDINATOR	COR X FL (MB AS REQ'D)		628	IVE
2	EA	SURFACE CLOSER	4050 RW/PA (MOUNT PULL SIDE)		689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS		630	IVE
2	EA	WALL STOP	WS406/407CVX		630	IVE
1	EA	GASKETING	488S		BK	ZER
1	EA	MEETING STILE	8217S		BK	ZER

**Hardware Group No. 11**

132A







EACH TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>		<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	MA581L DG		626	FAL
1	EA	CYLINDER	(MATCH EXISTING SYSTEM)		626	
1	EA	SURFACE CLOSER	4050 RW/PA (MOUNT PULL SIDE)		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	GASKETING	488S		BK	ZER

**Hardware Group No. 12**

164A

EACH TO HAVE:







<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>		<u>FINISH</u>	<u>MFR</u>
6	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
2	EA	FIRE EXIT HARDWARE	F-25-V-L-LBR-DANE		626	FAL
1	EA	CYLINDER	(MATCH EXISTING SYSTEM)		626	
2	EA	SURFACE CLOSER	4050A SCUSH		689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS		630	IVE
1	EA	GASKETING	488S		BK	ZER
1	EA	MEETING STILE	8217S		BK	ZER

**Hardware Group No. 13**

160A

165A

EACH TO HAVE:






<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>		<u>FINISH</u>	<u>MFR</u>
6	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
2	EA	FIRE EXIT HARDWARE	F-25-V-L-BE-LBR-DANE		626	FAL
2	EA	SURFACE CLOSER	4050A SCUSH		689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS		630	IVE
1	EA	GASKETING	488S		BK	ZER
1	EA	MEETING STILE	8217S		BK	ZER

**Hardware Group No. H04**

H106

H107

EACH TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>		<u>FINISH</u>	<u>MFR</u>
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	CLASSROOM LOCK	MA561L DG		626	FAL
1	EA	CYLINDER	(MATCH EXISTING SYSTEM)		626	
1	EA	OH STOP	90S		630	GLY
1	EA	SURFACE CLOSER	4050 RW/PA (MOUNT PULL SIDE)		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE











**Hardware Group No. H07**

H100

H108

H110

EACH TO HAVE:

<u>QTY</u>		<u>DESCRIPTION</u>	<u>CATALOG NUMBER</u>		<u>FINISH</u>	<u>MFR</u>
1	EA	CONT. HINGE	224XY		628	IVE
1	EA	STOREROOM LOCK	MA581L DG		626	FAL
1	EA	CYLINDER	(MATCH EXISTING SYSTEM)		626	
1	EA	SURFACE CLOSER	4050A SCUSH		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	RAIN DRIP	142AA		AA	ZER
1	EA	GASKETING	429AA		AA	ZER
1	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	655A-V3-223		A	ZER

**END OF SECTION**

## SECTION 08 80 00

### GLAZING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Glass.
- B. Glazing compounds and accessories.

##### 1.02 RELATED REQUIREMENTS

- A. Section 08 14 16 - Flush Wood Doors.
- B. Section 07 90 05 - Joint Sealers: Sealant and back-up material.

##### 1.03 REFERENCE STANDARDS

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; current edition.
- B. ANSI Z97.1 – American National Standard for Safety Glazing Materials Used in Buildings – Safety Performance Specifications and Methods Test; 2015 (Reaffirmed 2020).
- C. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2019).
- D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
- E. ASTM C1036 - Standard Specification for Flat Glass; 2021.
- F. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2018.
- G. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass; 2019.
- H. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016.
- I. GANA (GM) - GANA Glazing Manual; 2022.
- J. GANA (SM) - GANA Sealant Manual; 2008.
- K. GANA (LGRM) - Laminated Glazing Reference Manual; 2019.
- L. ITS (DIR) - Directory of Listed Products; Current Edition.
- M. UL (DIR) - Online Certifications Directory; Current Edition.
- N. ICC (IBC) - International Building Code; 2015.

##### 1.04 SUBMITTALS

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data on Glass Types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
- C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.
- D. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

##### 1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with GANA Glazing Manual and GANA Sealant Manual for glazing installation methods.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience.

##### 1.06 FIELD CONDITIONS

- A. Do not install glazing when ambient temperature is less than 50 degrees F.
- B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

##### 1.07 WARRANTY

- A. See Construction Manager's General Requirements for additional warranty procedures.

- B. Laminated Glass: Provide a five (5) year warranty to include coverage for delamination, including replacement of failed units.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Glass Fabricators:
  - 1. Thompson I.G., LLC: [www.thompsonig.com](http://www.thompsonig.com).
  - 2. Trulite Glass & Aluminum Solutions, LLC: [www.trulite.com](http://www.trulite.com).
  - 3. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.
- B. Float Glass Manufacturers:
  - 1. Cardinal Glass Industries: [www.cardinalcorp.com](http://www.cardinalcorp.com).
  - 2. Guardian Glass, LLC: [www.guardianglass.com](http://www.guardianglass.com).
  - 3. Pilkington North America Inc: [www.pilkington.com/na](http://www.pilkington.com/na).
  - 4. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.
- C. Laminated Glass Manufacturers:
  - 1. Cardinal Glass Industries: [www.cardinalcorp.com](http://www.cardinalcorp.com).
  - 2. Thompson I.G., LLC; Laminated Glass: [www.thompsonig.com](http://www.thompsonig.com).
  - 3. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.

### **2.02 GLASS MATERIALS**

- A. Float Glass: Provide float glass based glazing unless otherwise indicated.
  - 1. Annealed Type: ASTM C1036, Type I - Transparent Flat, Class 1 - Clear, Quality - Q3.
  - 2. Kind FT - Fully Tempered Type: Complies with ASTM C1048.
  - 3. Fully Tempered Safety Glass: Complies with ANSI Z97.1 or 16 CFR 1201 criteria for safety glazing used in hazardous locations.
  - 4. Thicknesses: As indicated; provide greater thickness as required for exterior glazing wind load design.
- B. Laminated Glass: Float glass laminated in accordance with ASTM C1172.
  - 1. Laminated Safety Glass: Complies with ANSI Z97.1 - Class B or 16 CFR 1201 - Category I impact test requirements.

### **2.03 GLAZING UNITS**

- A. Type G-1 - Monolithic Safety Glazing: Non-fire-rated.
  - 1. Applications:
    - a. Glazed lites in doors, except fire doors.
    - b. Glazed sidelights to doors, except in fire-rated walls and partitions.
    - c. Other locations required by applicable federal, state, and local codes and regulations.
    - d. Other locations indicated on the drawings.
  - 2. Type: Fully tempered float glass as specified.
  - 3. Tint: Clear.
  - 4. Thickness: 1/4 inch, nominal.
- B. Type G-2 – Safety Wired Glass: Flat glass with embedded wire mesh and safety film.
  - 1. Applications: Glazing in fire-resistance-rated door assembly.
  - 2. Provide products listed by ITS (DIR) or UL (DIR) and approved by authorities having jurisdiction.
  - 3. Safety Glazing Certification: 16 CFR 1201 Category II.
  - 4. Glazing Method: As required for fire rating.
  - 5. Fire-Rating Period: As indicated on drawings.
  - 6. Mesh: M1 – Diamond.
  - 7. Tint: Clear.
  - 8. Thickness: 1/4 inch, nominal.

## **2.04 GLAZING COMPOUNDS**

- A. Type GC-1- Silicone Sealant: Single component; neutral curing; capable of water immersion without loss of properties; nonbleeding, nonstaining; ASTM C920 Type S, Grade NS, Class 25, Uses M, A, and G; with cured Shore A hardness range of 15 to 25; color as selected.
- B. Manufacturers:
  - 1. Bostik Inc: [www.bostik-us.com/#sle](http://www.bostik-us.com/#sle).
  - 2. Pecora Corporation: [www.pecora.com/#sle](http://www.pecora.com/#sle).
  - 3. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.

## **2.05 GLAZING ACCESSORIES**

- A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch by width of glazing rabbet space minus 1/16 inch by height to suit glazing method and pane weight and area.
- B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness; ASTM C864 Option II. Minimum 3 inch long by one half the height of the glazing stop by thickness to suit application, self adhesive on one face.
- C. Glazing Tape, Back Bedding Mastic Type: Preformed, butyl-based, 100 percent solids compound with integral resilient spacer rod applicable to application indicated; 5 to 30 cured Shore A durometer hardness; coiled on release paper; black color.
- D. Glazing Tape: Closed cell polyvinyl chloride (PVC) foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume of 2 percent, designed for compression of 25 percent to effect an air barrier and vapor retarder seal.
- E. Glazing Splines: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option II; color Grey.
- F. Glazing Clips: Manufacturer's standard type.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that openings for glazing are correctly sized and within tolerance.
- B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

### **3.02 PREPARATION**

- A. Clean contact surfaces with solvent and wipe dry.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant.

### **3.03 INSTALLATION, GENERAL**

- A. Install glazing sealants in accordance with ASTM C1193, GANA (SM), and manufacturer's instructions.

### **3.04 INSTALLATION - INTERIOR WET METHOD (COMPOUND AND COMPOUND)**

- A. Install glazing resting on setting blocks. Install applied stop and center pane by use of spacer shims at 24 inch centers, kept 1/4 inch below sight line.
- B. Locate and secure glazing pane using glazers' clips.
- C. Fill gaps between glazing and stops with glazing compound until flush with sight line. Tool surface to straight line.

### **3.05 CLEANING**

- A. Remove glazing materials from finish surfaces.
- B. Remove labels after Work is complete.
- C. Clean glass and adjacent surfaces.

### **3.06 PROTECTION**

- A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.

### **3.07 SCHEDULE**

- A. Flush Wood Door Glazing - Interior:
  - 1. Fire-rated openings: G-2.
  - 2. Unrated openings: G-1.

**END OF SECTION**

**SECTION 09 05 61**  
**COMMON WORK RESULTS FOR FLOORING PREPARATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. This section applies to all floors identified in the contract documents as to receive the following types of floor coverings:
  - 1. Resilient tile and sheet.
  - 2. Carpet tile.
  - 3. Thin-set porcelain tile.
- B. Removal of existing floor coverings.
- C. Preparation of existing concrete floor slabs for installation of floor coverings.
- D. Testing of concrete floor slabs for moisture.
- E. Patching compound.
- F. Remedial floor coatings.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 30 00 - Cast-In-Place Concrete: Moisture emission reducing curing and sealing compound for slabs to receive adhered flooring, to prevent moisture content-related flooring failures; to remain in place, not to be removed.

**1.03 REFERENCES**

- A. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. Cube Specimens); 2021.
- B. ASTM C472 - Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete; 2020.
- C. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2022.
- D. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2023.
- E. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.
- F. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; 2018.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate scheduling of the Work with the Construction Manager and Owner to verify that alternate building egress routes are in place.
- B. Coordinate scheduling of cleaning and testing, so that preliminary cleaning has been completed for at least 24 hours prior to testing.

**1.05 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Visual Observation Report: For existing floor coverings to be removed.
- C. Floor Covering and Adhesive Manufacturers' Product Literature: For each specific combination of substrate, floor covering, and adhesive to be used; showing:
  - 1. Moisture and alkalinity (pH) limits and test methods.
  - 2. Manufacturer's required bond/compatibility test procedure.
- D. Testing Agency's Report:
  - 1. Description of areas tested; include floor plans and photographs if helpful.
  - 2. Summary of conditions encountered.
  - 3. Moisture and alkalinity (pH) test reports.
  - 4. Copies of specified test methods.
  - 5. Recommendations for remediation of unsatisfactory surfaces.
  - 6. Submit report directly to Owner.

7. Submit report not more than two business days after conclusion of testing.
- E. Adhesive Bond and Compatibility Test Report.
- F. Copy of RFCI (RWP).

#### **1.06 QUALITY ASSURANCE**

- A. Moisture and alkalinity (pH) testing shall be performed by an independent testing agency employed and paid by Contractor.
- B. Contractor may perform adhesive and bond test with his own personnel or hire a testing agency.
- C. Testing Agency Qualifications: Independent testing agency experienced in the types of testing specified.
  1. Submit evidence of experience consisting of at least 3 test reports of the type required, with project Owner's project contact information.
- D. Contractor's Responsibility Relating to Independent Agency Testing:
  1. Provide access for and cooperate with testing agency.
  2. Confirm date of start of testing at least 10 days prior to actual start.
  3. Allow at least 4 business days on site for testing agency activities.
  4. Achieve and maintain specified ambient conditions.
  5. Notify Owner when specified ambient conditions have been achieved and when testing will start.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, handle, and protect products in accordance with manufacturer's instructions and recommendations.
- B. Deliver materials in manufacturer's packaging; include installation instructions.
- C. Keep materials from freezing.

#### **1.08 FIELD CONDITIONS**

- A. Maintain ambient temperature in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 65 degrees F or more than 85 degrees F.
- B. Maintain relative humidity in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 40 percent and not more than 60 percent.

### **PART 2 PRODUCTS**

#### **2.01 MATERIALS**

- A. Patching Compound: Floor covering manufacturer's recommended product, suitable for conditions, and compatible with adhesive and floor covering. In the absence of any recommendation from flooring manufacturer, provide a product with the following characteristics:
  1. Cementitious moisture-, mildew-, and alkali-resistant compound, compatible with floor, floor covering, and floor covering adhesive, and capable of being feathered to nothing at edges.
  2. Latex or polyvinyl acetate additions are permitted; gypsum content is prohibited.
  3. Compressive Strength: 3000 psi, minimum, after 28 days, when tested in accordance with ASTM C109/C109M or ASTM C472, whichever is appropriate.
- B. Alternate Flooring Adhesive: Floor covering manufacturer's recommended product, suitable for the moisture and pH conditions present; low-VOC. In the absence of any recommendation from flooring manufacturer, provide a product recommended by adhesive manufacturer as suitable for substrate and floor covering and for conditions present.
- C. Remedial Floor Coating: Single- or multi-layer coating or coating/overlay combination intended by its manufacturer to resist water vapor transmission to degree sufficient to meet flooring manufacturer's emission limits, resistant to the level of pH found, and suitable for adhesion of flooring without further treatment.
  1. Thickness: 1/8 inch, maximum.
  2. Products:
    - a. ARDEX Engineered Cements; ARDEX MC ULTRA, with ARDEX FEATHERFINISH: [www.ardexamericas.com](http://www.ardexamericas.com).
    - b. Floor Seal Technology, Inc; MES 100, with ARDEX K-15 or Mapei Ultraplan 1 Plus: [www.floorseal.com](http://www.floorseal.com).

- c. Koster American Corporation; Koster VAP I 2000, with Koster SL Premium overlay: [www.kosterusa.com](http://www.kosterusa.com).
- d. Sika Corporation; Sikafloor Moisture Tolerance Epoxy Primer and Sikafloor Self-Leveling Moisture Tolerant Resurfacer: [www.sikafloorusa.com](http://www.sikafloorusa.com).
- e. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.

## **PART 3 EXECUTION**

### **3.01 CONCRETE SLAB PREPARATION**

- A. Perform following operations in the order indicated:
  - 1. Preliminary cleaning.
  - 2. Moisture vapor emission tests; 3 tests in the first 1000 square feet and one test in each additional 1000 square feet, unless otherwise indicated or required by flooring manufacturer.
  - 3. Internal relative humidity tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
  - 4. Alkalinity (pH) tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
  - 5. Specified remediation, if required.
  - 6. Patching, smoothing, and leveling, as required.
  - 7. Other preparation specified.
  - 8. Adhesive bond and compatibility test.
  - 9. Protection.

### **3.02 REMOVAL OF EXISTING FLOOR COVERINGS**

- A. Comply with local, State, and federal regulations and recommendations of RFCI Recommended Work Practices for Removal of Resilient Floor Coverings, as applicable to floor covering being removed.
- B. Dispose of removed materials in accordance with local, State, and federal regulations and as specified.

### **3.03 PRELIMINARY CLEANING**

- A. Clean floors of dust, solvents, paint, wax, oil, grease, asphalt, residual adhesive, adhesive removers, film-forming curing compounds, sealing compounds, alkaline salts, excessive laitance, mold, mildew, and other materials that might prevent adhesive bond.
- B. Do not use solvents or other chemicals for cleaning.

### **3.04 MOISTURE VAPOR EMISSION TESTING**

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.
- C. Test in accordance with ASTM F1869 and as follows.
- D. Plastic sheet test and mat bond test may not be substituted for the specified ASTM test method, as those methods do not quantify the moisture content sufficiently.
- E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if test values exceed 3 pounds per 1000 square feet per 24 hours.
- F. Report: Report the information required by the test method.

### **3.05 INTERNAL RELATIVE HUMIDITY TESTING**

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.
- C. Test in accordance with ASTM F2170 Procedure A and as follows.
- D. Testing with electrical impedance or resistance apparatus may not be substituted for the specified ASTM test method, as the values determined are not comparable to the ASTM test values and do not quantify the moisture content sufficiently.



- E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if any test value exceeds 75 percent relative humidity.
- F. Report: Report the information required by the test method.

### **3.06 AKALINITY TESTING**

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. The following procedure is the equivalent of that described in ASTM F710, repeated here for the Contractor's convenience.
  - 1. Use a wide range alkalinity (pH) paper, its associated chart, and distilled or deionized water.
  - 2. Place several drops of water on a clean surface of concrete, forming a puddle approximately 1 inch in diameter. Allow the puddle to set for approximately 60 seconds, then dip the alkalinity (pH) paper into the water, remove it, and compare immediately to chart to determine alkalinity (pH) reading.
  - 3. Use of a digital pH meter with probe is acceptable: follow meter manufacturer's instructions.
- C. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if alkalinity (pH) test value is over 10.

### **3.07 PREPARATION**

- A. See individual floor covering section(s) for additional requirements.
- B. Comply with requirements and recommendations of floor covering manufacturer.
- C. Fill and smooth surface cracks, grooves, depressions, control joints and other non-moving joints, and other irregularities with patching compound.
- D. Do not fill expansion joints, isolation joints, or other moving joints.

### **3.08 ADHESIVE BOND AND COMPATIBILITY TESTING**

- A. Comply with requirements and recommendations of floor covering manufacturer.

### **3.09 APPLICATION OF REMEDIAL FLOOR COATING**

- A. Comply with requirements and recommendations of coating manufacturer.

### **3.10 PROTECTION**

- A. Cover prepared floors with building paper or other durable covering.

**END OF SECTION**

**SECTION 09 21 16**  
**GYPSUM BOARD ASSEMBLIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Performance criteria for gypsum board assemblies.
- B. Metal stud wall framing.
- C. Gypsum wallboard.
- D. Joint treatment and accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 10 00 - Rough Carpentry: Wood blocking product and execution requirements.
- B. Section 07 84 00 - Firestopping: Top-of-wall assemblies at fire rated walls.
- C. Section 09 30 00 - Tiling.

**1.03 REFERENCE STANDARDS**

- A. AISI S100 - North American Specification for the Design of Cold-Formed Steel Structural Members 2016, with Supplement (2020).
- B. AISI S220 - North American Standard for Cold-Formed Steel Nonstructural Framing 2020.
- C. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units; 2019.
- D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2022.
- E. ASTM A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members; 2015.
- F. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2017 (Reapproved 2022).
- G. ASTM C514 - Standard Specification for Nails for the Application of Gypsum Board; 2004 (Reapproved 2020).
- H. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2018.
- I. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2020.
- J. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2020.
- K. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2022.
- L. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2022.
- M. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2019.
- N. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2017.
- O. ASTM C1629 - Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels; 2019.
- P. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2021.
- Q. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009 (Reapproved 2016).
- R. ASTM E413 - Classification for Rating Sound Insulation; 2022.
- S. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2021.
- T. GA-600 - Fire Resistance Design Manual; Gypsum Association; 2021.

#### **1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

#### **1.05 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in performing gypsum board application and finishing, with minimum five years of documented experience.

### **PART 2 PRODUCTS**

#### **2.01 GYPSUM BOARD ASSEMBLIES**

- A. Provide completed assemblies complying with ASTM C840 and GA-216.
  - 1. See PART 3 for finishing requirements.

#### **2.02 METAL FRAMING MATERIALS**

- A. Manufacturers - Metal Framing, Connectors, and Accessories:
  - 1. Clarkwestern Dietrich Building Systems LLC: [www.clarkdietrich.com](http://www.clarkdietrich.com).
  - 2. Marino: [www.marinoware.com](http://www.marinoware.com).
- B. Partition Wall Studs: Non-Loadbearing Framing System Components; ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf.
  - 1. Thickness: 20 gauge.
  - 2. Studs: "C" shaped with flat or formed webs with knurled faces.
- C. Studs and Headers at Wall Openings: Heavy-duty, ASTM A653:
  - 1. Thickness: 16 gauge.
  - 2. Dimensions: 3-5/8 x 3 x 2-1/16 x 3/4 inch and 6 x 3 x 2-1/4 x 3/4 inch.
  - 3. Header Brackets: 14 gauge, 3-1/2 x 3-1/16 x 2 inch.
- D. Runners: U shaped, sized to match studs.
- E. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection using slotted holes, screws and anti-friction bushings, preventing rotation of studs while maintaining structural performance of partition.
  - 1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI North American Specification for the Design of Cold-Formed Steel Structural Members.
  - 2. Material: ASTM A653 steel sheet, SS Grade 50/340, with G60/Z180 hot dipped galvanized coating.
  - 3. Provide components UL-listed for use in UL-listed fire-rated head of partition joint systems of fire rating and movement required.
  - 4. Deflection and Firestop Track:
    - a. Provide mechanical anchorage devices as described above that accommodate deflection while maintaining the fire-rating of the wall assembly.
    - b. Acceptable Products:
      - 1) "Posi Clip" by Fire Trak Corporation.
      - 2) "The System" by Metal-Lite, Inc.
  - 5. Provide top track preassembled with connection devices spaced to fit stud spacing indicated on drawings; minimum track length of 12 feet.

#### **2.03 BOARD MATERIALS**

- A. Manufacturers - Gypsum-Based Board:
  - 1. CertainTeed Corporation: [www.certainteed.com](http://www.certainteed.com).
  - 2. Georgia-Pacific Gypsum: [www.gpgypsum.com](http://www.gpgypsum.com).
  - 3. National Gypsum Company: [www.nationalgypsum.com](http://www.nationalgypsum.com).
  - 4. Temple-Inland Building Product by Georgia-Pacific, LLC: [www.temple.com](http://www.temple.com).
  - 5. USG Corporation: [www.usg.com](http://www.usg.com).
- B. Type A Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396; sizes to minimize joints in place; ends square cut.
  - 1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.

2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
  3. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
  4. Thickness:
    - a. Vertical Surfaces: 5/8 inch.
    - b. Ceilings: 5/8 inch.
- C. Type B Mold Resistant Wallboard for Wet Areas: Paper-faced gypsum panels with enhanced mold and moisture resistance.
1. Application: Surfaces behind tile in areas with limited water exposure.
  2. Mold Resistance: When tested in accordance with ASTM D3273 the panels exceed the requirements of ASTM C1396.
  3. Type: Fire-resistance rated Type X, UL or WH listed.
  4. Thickness: 5/8 inch.
  5. Water Absorption: less than 5 percent when tested in accordance with ASTM C 473
  6. Products:
    - a. National Gypsum Company; Gold Bond XP.
    - b. USG Corporation; Ecosmart Panels Mold Tough Firecode X.
- D. Type C Abuse-Rated Wallboard: Tested to Level 2 soft-body and Level 1 hard-body impact in accordance with ASTM C1629.
1. Application: All interior wall surfaces within 8'-0" of finish floor.
  2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
  3. Paper-Faced Type: Gypsum wallboard as defined in ASTM C1396/C1396M.
  4. Type: Fire-resistance rated Type X, UL or WH listed.
  5. Thickness: 5/8 inch.
  6. Edges: Tapered.
  7. Products:
    - a. National Gypsum Company; Gold Bond Hi-Abuse Brand XP Wallboard.
    - b. Temple-Inland Building Product by Georgia-Pacific, LLC.
    - c. USG Corporation.

## 2.04 ACCESSORIES

- A. Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless otherwise indicated.
1. Types: As detailed or required for finished appearance.
  2. Special Shapes: In addition to conventional cornerbead and control joints, provide U-bead at exposed panel edges.
  3. Manufacturers - Finishing Accessories:
    - a. Same manufacturer as framing materials.
- B. Joint Materials: ASTM C475 and as recommended by gypsum board manufacturer for project conditions.
1. Glass-Mat Faced Drywall Tape: 2 inch wide, coated glass fiber tape for joints and corners, except as otherwise indicated.
  2. Paper-Faced Drywall Tape: 2 inch wide, creased paper tape for joints and corners, except as otherwise indicated.
  3. Powder-type vinyl-based joint compound.
- C. Screws for Attachment to Steel Members Less Than 0.03 inch In Thickness, to Wood Members, and to Gypsum Board: ASTM C1002; self-piercing tapping type; cadmium-plated for exterior locations.
- D. Screws for Attachment to Steel Members From 0.033 to 0.112 Inch in Thickness: ASTM C954; steel drill screws for application of gypsum board to loadbearing steel studs.
- E. Nails for Attachment to Wood Members: ASTM C514.
- F. Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence.

### **3.02 FRAMING INSTALLATION**

- A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.
- A. Studs: Space studs at 16 inches on center.
  - 1. Extend partition framing to structure in all locations.
  - 2. Partitions Terminating at Structure: Attach extended leg top runner to structure, maintain clearance between top of studs and structure, and brace both flanges of studs with continuous bridging.
  - 3. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.
- B. Openings: Reinforce openings as specified above for weight of doors or operable panels, using special shapes.
- C. Blocking: Install wood blocking for support of:
  - 1. Framed openings.
  - 2. Wall mounted cabinets.
  - 3. Wall mounted door hardware.
  - 4. Plumbing fixtures.
  - 5. Toilet partitions.
  - 6. Toilet accessories.

### **3.03 BOARD INSTALLATION**

- A. Comply with ASTM C840 and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Non-Rated: Install gypsum board perpendicular to framing, with ends and edges occurring over firm bearing.
  - 1. Exception: Tapered edges to receive joint treatment at right angles to framing.
- C. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.
- D. Installation on Metal Framing: Use screws for attachment of all gypsum board.

### **3.04 INSTALLATION OF TRIM AND ACCESSORIES**

- A. Control Joints: Place control joints consistent with lines of building spaces and as directed.
  - 1. Not more than 30 feet apart on walls and ceilings over 50 feet long.
- B. Corner Beads: Install at external corners, using longest practical lengths.
- C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials and as indicated.

### **3.05 JOINT TREATMENT**

- A. Paper Faced Gypsum Board: Use paper joint tape, bedded with powder-type vinyl-based joint compound and finished with powder-type vinyl-based joint compound.
- B. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
  - 1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
  - 2. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated.
  - 3. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction.
- C. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
  - 1. Feather coats of joint compound so that camber is maximum 1/32 inch.
- D. Where Level 5 finish is indicated, skim-coat entire surface after have been properly treated; achieve a flat and tool mark-free finish.

### **3.06 TOLERANCES**

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

### **3.07 SCHEDULE**

- A. Type A: All interior vertical and horizontal surfaces and bulkheads more than 8 feet above finished floor, unless noted otherwise.
- B. Type B: All surfaces to have tile installed.
- C. Type C: All interior vertical surfaces up to 8 feet, unless noted otherwise.

**END OF SECTION**



## SECTION 09 30 00

### TILING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Tile for floor applications.
- B. Tile for wall applications.
- C. Stone thresholds.
- D. Non-ceramic trim.

##### 1.02 RELATED REQUIREMENTS

- A. Section 07 90 05 - Joint Sealers.

##### 1.03 REFERENCE STANDARDS

- A. ANSI A108/A118/A136 - American National Standard Specifications for the Installation of Ceramic Tile – (Compendium); 2019.
- B. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 2023.
- C. ANSI A108.1b - Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set, Modified Dry-Set, or Improved Modified Dry-Set Cement Mortar; 2023.
- D. ANSI A108.1c - Contractor's Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set, Modified Dry-Set, or Improved Modified Dry-Set Cement Mortar; 2023.
- E. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesive or Water Cleanable Tile-Setting Epoxy Adhesive; 2023.
- F. ANSI A108.5 - Setting of Ceramic Tile with Dry-Set Cement Mortar, Modified Dry-Set Cement Mortar, EGP (Exterior Glue Plywood) Modified Dry-Set Cement Mortar, or Improved Modified Dry-Set Cement Mortar; 2023.
- G. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grout Epoxy; 2023.
- H. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout; 1999 (Reaffirmed 2019).
- I. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout; 2023.
- J. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 2017 (Reaffirmed 2022).
- K. ANSI A108.12 - Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Modified Dry-Set Mortar; 2023.
- L. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone; 2005 (Reaffirmed 2021).
- M. ANSI A108.19 - American National Standard Specifications for Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method Bonded with Modified Dry-Set Cement Mortar or Improved Modified Dry-Set Cement Mortar; 2020.
- N. ANSI A108.20 - American National Standard Specifications for Exterior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs; 2020.
- O. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive; 2021.
- P. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar; 2023.
- Q. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation; 2019.



- R. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation; 2014 (Reaffirmed 2019).
- S. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2022.
- T. ASTM C373 - Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products; 2018 (Reapproved 2023).
- U. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2023.
- V. TCNA (HB-GP) - Handbook for Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs Installation; 2023.

#### **1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section to confirm tile patterns and installation quality; require attendance by affected installers.

#### **1.05 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.
- C. Samples: Submit manufacturer's panels, minimum 18 x 18 inches in size illustrating tile pattern, color variations and trims.

#### **1.06 QUALITY ASSURANCE**

- A. Maintain one copy of and ANSI A108/A118/A136, TCNA (HB) and TCNA (HB-GP) on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum 5 years of documented experience.
- C. Installer Qualifications: Company specializing in performing tile installation, with minimum of 5 years of documented experience.
- D. The material and workmanship of the crack isolation waterproof membrane shall be warranted under a single document signed by the Contractor, Manufacturer and Applicator, jointly and severally.

#### **1.07 MOCK-UPS**

- A. Construct tile mock-up indicating pattern and installation quality.
  - 1. Approved mock-up may remain as part of work.

#### **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

#### **1.09 FIELD CONDITIONS**

- A. Do not install solvent-based products in an unventilated environment.
- B. Maintain ambient and substrate temperature of 50 degrees F and below 100 degrees F during installation and curing of setting materials.

### **PART 2 PRODUCTS**

#### **2.01 PORCELAIN CERAMIC TILE**

- A. Manufacturers:
  - 1. Crossville Ceramics, Inc: [www.crossvilleinc.com](http://www.crossvilleinc.com).
    - a. Product: Accent: Argent 2.0.
    - b. Product: Field: Cross Colors Mingles.
  - 2. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.
- B. Glazed Wall Tile: ANSI A137.1, and as follows:
  - 1. Moisture Absorption: 3.0 to 7.0 percent.
  - 2. Size and Shape:
    - a. Field Tile: 12 x 12 inches, 5/16 inch thick; polished finish.
    - b. Accent Tile: 6 x 6 inches, 5/16 inch tile; matte finish.

- c. Refer to drawing detail for tile pattern.
- 3. Edges: Cushioned.
- 4. Colors: To be selected by Design Professional from manufacturer's full range.
- C. Floor Tile: ANSI A137.1, and as follows:
  - 1. Moisture Absorption: 0 to 0.5 percent.
  - 2. Size and Shape:
    - a. Field Tile: 12 x 12 inches, 5/16 inch thick.
    - b. Accent Border: 6 x 6 inches, 5/16 inch thick.
    - c. Refer to drawing detail for tile pattern.
  - 3. Surface Finish: Matte
  - 4. Colors: To be selected by Design Professional from manufacturer's full range.
- D. Wall Base at Toilet Rooms:
  - 1. Size: Cut to 6 inch high x 6 inches long.
  - 2. Surface Finish: Unglazed; matte, with square toe and square factory-finished edge at top.
  - 3. Colors: To be selected by Design Professional from manufacturer's full range.

## 2.02 QUARRY TILE

- A. Quarry Tile Wall Base: ANSI A137.1, and as follows:
  - 1. Moisture Absorption: 0.5 to 3.0 percent.
  - 2. Size and Shape: 6 inch square.
  - 3. Thickness: 1/2 inch.
  - 4. Edges: Cushioned.
  - 5. Surface Finish: Unglazed.
  - 6. Color(s): Match existing; To be selected by Design Professional from manufacturer's standard range.
  - 7. Products:
    - a. Metropolitan Ceramics: [www.metroceramics.com](http://www.metroceramics.com).
    - b. Summitville Tiles, Inc: [www.summitville.com](http://www.summitville.com).

## 2.03 TRIM AND ACCESSORIES

- A. Non-Ceramic Trim: Satin brass anodized extruded aluminum, style and dimensions to suit application, for setting using tile mortar or adhesive.
  - 1. Applications: Use in the following locations:
    - a. Open edges of wall tile.
    - b. Open edges of floor tile.
    - c. Open top edge of wall base as indicated on drawings.
    - d. Wall corners, outside.
    - e. Transition between floor finishes of different heights.
    - f. Thresholds at door openings.
  - 2. Manufacturer:
    - a. Schluter-Systems: [www.schluter.com](http://www.schluter.com).
    - b. Genesis APS International: [www.genesis-aps.com](http://www.genesis-aps.com).
- B. Thresholds: Marble, white or gray, honed finish; 4 inches wide by full width of wall or frame opening; 1/2 inch thick; beveled one long edge with radiused corners on top side; without holes, cracks, or open seams.
  - 1. Applications: Provide at the following locations:
    - a. At doorways where tile terminates.
    - b. At open edges of floor tile where adjacent finish is a different height.
    - c. As indicated on drawings.

## 2.04 SETTING MATERIALS

- A. Provide setting materials made by the same manufacturer as grout.
- B. Latex-Portland Cement Mortar Bond Coat: ANSI A118.4.
  - 1. Application(s): Use this type of bond coat where indicated and where no other type of bond coat is indicated.
  - 2. Products:
    - a. ARDEX Engineered Cements; ARDEX X 77 MICROTEC: [www.ardexamericas.com](http://www.ardexamericas.com).

- b. Bostik Inc: [www.bostik-us.com](http://www.bostik-us.com).
  - c. LATICRETE International, Inc; LATICRETE 254 Platinum: [www.laticrete.com](http://www.laticrete.com).
  - d. Merkrete, by Parex USA, Inc; Merkrete 720 Marble Pro: [www.merkrete.com](http://www.merkrete.com).
  - e. ProSpec, an Oldcastle brand; Permalastic System: [www.prospec.com](http://www.prospec.com).
- C. Epoxy Adhesive and Mortar Bond Coat: ANSI A118.3.
- 1. Application(s): Where indicated.
  - 2. Products:
    - a. LATICRETE International, Inc; LATICRETE LATAPOXY 300 Adhesive: [www.laticrete.com](http://www.laticrete.com).
    - b. Merkrete, by Parex USA, Inc; Merkrete Pro Epoxy: [www.merkrete.com](http://www.merkrete.com).
    - c. ProSpec, an Oldcastle brand; B-7000 Epoxy Mortar and Grout: [www.prospec.com](http://www.prospec.com).
- D. Mortar Bond Coat Primer:
- 1. Application(s): Use this primer on existing glazed cement masonry walls before installing mortar bond coat.
  - 2. Products:
    - a. LATICRETE International, Inc; LATICRETE Prime-N-Bond: [www.laticrete.com](http://www.laticrete.com).
    - b. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.

## 2.05 GROUTS

- A. Provide setting and grout materials from same manufacturer.
- B. Manufacturers:
- 1. ARDEX Engineered Cements: [www.ardexamericas.com](http://www.ardexamericas.com).
  - 2. Bostik Inc: [www.bostik-us.com](http://www.bostik-us.com).
  - 3. LATICRETE International, Inc; [www.laticrete.com](http://www.laticrete.com).
  - 4. Merkrete, by Parex USA, Inc: [www.merkrete.com](http://www.merkrete.com).
  - 5. ProSpec, an Oldcastle brand: [www.prospec.com](http://www.prospec.com).
- C. High Performance Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
- 1. Applications: Use this type of grout where indicated and where no other type of grout is indicated.
  - 2. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.
  - 3. Color(s): As selected by Design Professional from manufacturer's full line.
  - 4. Products:
    - a. ARDEX Engineered Cements; ARDEX FG-C MICROTEC: [www.ardexamericas.com](http://www.ardexamericas.com).
    - b. Bostik Inc: [www.bostik-us.com](http://www.bostik-us.com).
    - c. LATICRETE International, Inc; LATICRETE PermaColor: [www.laticrete.com](http://www.laticrete.com).
    - d. Merkrete, by Parex USA, Inc; Merkrete Non-Sanded Color Grout: [www.merkrete.com](http://www.merkrete.com).
    - e. ProSpec, an Oldcastle brand; ProColor Sanded Tile Grout: [www.prospec.com](http://www.prospec.com).
- D. Epoxy Grout: ANSI A118.3 chemical resistant and water-cleanable epoxy grout.
- 1. Applications: At all toilet room floors.
  - 2. Color(s): As selected by Design Professional from manufacturer's full line.
  - 3. Products:
    - a. ARDEX Engineered Cements; ARDEX WA: [www.ardexamericas.com](http://www.ardexamericas.com).
    - b. LATICRETE International, Inc; LATICRETE SpectraLOCK PRO Premium Grout: [www.laticrete.com](http://www.laticrete.com).
    - c. Merkrete, by Parex USA, Inc; Merkrete Pro Epoxy: [www.merkrete.com](http://www.merkrete.com).
    - d. ProSpec, an Oldcastle brand; B-7000 Epoxy Mortar and Grout: [www.prospec.com](http://www.prospec.com).

## 2.06 ACCESSORY MATERIALS

- A. Concrete Floor Slab Crack Isolation Membrane: Material complying with ANSI A118.12; not intended as waterproofing.
- 1. Thickness: 20 mils, maximum.
  - 2. Crack Resistance: No failure at 1/16 inch gap, minimum.
  - 3. Products:
    - a. LATICRETE International, Inc; LATICRETE Blue 92 Anti-Fracture Membrane: [www.laticrete.com](http://www.laticrete.com).

- b. Merkrete, by Parex USA, Inc.; Merkrete Fracture Guard 5000: [www.merkrete.com](http://www.merkrete.com).

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.
- C. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of setting materials to sub-floor surfaces.
- D. Cementitious Subfloor Surfaces: Verify that substrates are ready for tiling installation by testing for moisture and alkalinity (pH).
  - 1. Obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer.
- E. Verify that required floor-mounted utilities are in correct location.

### **3.02 PREPARATION**

- A. Protect surrounding work from damage.
- B. Vacuum clean surfaces and damp clean.
- C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- D. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

### **3.03 INSTALLATION - GENERAL**

- A. Install tile, thresholds and grout in accordance with applicable requirements of ANSI A108.1A thru A108.13, manufacturer's instructions, and TCNA (HB) or TCNA (HB-GP) recommendations, as applicable.
- B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings. Review tile pattern installation with Design Professional prior to installation.
- C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.
- E. Form internal angles square and external angles bullnosed.
- F. Install non-ceramic trim in accordance with manufacturer's instructions.
- G. Install thresholds where indicated.
- H. Sound tile after setting. Replace hollow sounding units.
- I. Keep control and expansion joints free of mortar, grout, and adhesive.
- J. Prior to grouting, allow installation to completely cure; minimum of 48 hours.
- K. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.
- L. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.
- M. Grout tile joints. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

### **3.04 INSTALLATION - FLOORS - THIN-SET METHODS**

- A. Over interior concrete substrates, install in accordance with TCA (HB) Method F113, dry-set or latex-portland cement bond coat, with standard grout, unless otherwise indicated.
  - 1. Where epoxy bond coat and grout are indicated, install in accordance with TCNA (HB) Method F131.
- B. Where existing ceramic tile and full bed have been removed, provide new grout bed for level installation.

### **3.05 INSTALLATION - WALL TILE**

- A. Over gypsum wallboard on metal studs install in accordance with TCNA (HB) Method W243, thin-set with dry-set or latex-Portland cement bond coat, unless otherwise indicated.
- B. Over interior concrete and masonry install in accordance with TCNA (HB) Method W202, thin-set with dry-set or latex-Portland cement bond coat.

### **3.06 CLEANING**

- A. Clean tile and grout surfaces.

### **3.07 PROTECTION**

- A. Do not permit traffic over finished floor surface for 4 days after installation.

### **3.08 SCHEDULE**

- A. High School Toilet Room Floors:
  - 1. Tile: Porcelain ceramic.
    - a. Size: 12 x 12 inch field with 6 x 6 inch border.
    - b. Color: To be selected by Design Professional.
  - 2. Installation method: Thin set.
  - 3. Grout: Epoxy.
- B. High School Toilet Room Walls:
  - 1. Tile: Porcelain ceramic.
    - a. Size: 12 x 12 inch and 6 x 6 inch accent tiles as indicated on drawings.
    - b. Color: To be selected by Design Professional.
  - 2. Base: Porcelain Ceramic: 6 inches high x 6 inches long.
  - 3. Installation method: Thin set.
  - 4. Grout: Standard.
- C. High School Unit F Toilet Room, new walls at corridor.
  - 1. Tile Base: Quarry tile.
    - a. Size: 6 x 6 inch base tiles to match existing as indicated on drawings.
    - b. Color: Match existing.

**END OF SECTION**

**SECTION 09 51 00**  
**ACOUSTICAL CEILINGS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Suspended metal grid ceiling system.
- B. Acoustical units.

**1.02 RELATED REQUIREMENTS**

- A. Section 23 37 00 - Air Outlets and Inlets: Air diffusion devices in ceiling.
- B. Section 26 51 00 - Interior Lighting: Light fixtures in ceiling system.

**1.03 REFERENCE STANDARDS**

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinclron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2022.
- B. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2022.
- C. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2019.
- D. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2022.
- E. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2023.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
- B. Do not install acoustical units until after interior wet work is dry.

**1.05 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Provide data on suspension system components and acoustical units.
- C. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Construction Manager's General Requirements, for additional provisions.
  - 2. Extra Acoustical Units: 10 sq ft of each type and size.

**1.06 QUALITY ASSURANCE**

- A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

**1.07 FIELD CONDITIONS**

- A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Armstrong World Industries, Inc: [www.armstrong.com](http://www.armstrong.com).
- B. CertainTeed Corporation: [www.certainteed.com](http://www.certainteed.com).
- C. USG: [www.usg.com](http://www.usg.com).

**2.02 ACOUSTICAL UNITS**

- A. Acoustical Units - General: ASTM E1264, Class A.

- B. Type 'A' - Acoustical Panels: Painted mineral fiber, with the following characteristics:
  - 1. Classification: ASTM E1264 Type III.
  - 2. Size: 24 x 24 inches.
  - 3. Thickness: 5/8 inches.
  - 4. Composition: Wet felted.
  - 5. Light Reflectance: 82 percent, determined as specified in ASTM E1264.
  - 6. NRC Range: 50 to 60, determined as specified in ASTM E1264.
  - 7. Ceiling Attenuation Class (CAC): 33, determined as specified in ASTM E1264.
  - 8. Edge: Reveal edge.
  - 9. Surface Pattern: Non-directional fissured.
  - 10. Products:
    - a. "CORTEGA" manufactured by Armstrong World Industries: [www.armstrong.com](http://www.armstrong.com).
    - b. "BAROQUE" manufactured by CertainTeed Corporation: [www.bpb-na.com](http://www.bpb-na.com).
    - c. "RADAR" manufactured by USG Corporation: [www.usg.com](http://www.usg.com).

### **2.03 SUSPENSION SYSTEM(S)**

- A. Manufacturers:
  - 1. Same as for acoustical units.
- B. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with stabilizer bars, clips, splices, perimeter moldings, and hold down clips as required.
- C. Exposed Steel Suspension System: Hot-dipped galvanized steel grid with steel cap.
  - 1. Structural Classification: Intermediate-duty, when tested in accordance with ASTM C635/C635M.
  - 2. Profile: Tee; 15/16 inch wide face.
  - 3. Finish: Baked enamel.
  - 4. Color: White.

### **2.04 ACCESSORIES**

- A. Support Channels and Hangers: Galvanized steel; size and type to suit application and ceiling system flatness requirement specified.
- B. Hanger Wire: 12 gauge, 0.08 inch galvanized steel wire.
- C. Hold-Down Clips: Manufacturer's standard clips to suit application.
- D. Perimeter Moldings: Same material and finish as grid.
  - 1. Angle Molding: Provide L-shaped, for mounting at same elevation as face of grid.
- E. Touch-up Paint: Type and color to match acoustical and grid units.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that layout of hangers will not interfere with other work.

### **3.02 PREPARATION**

- A. Install after major above-ceiling work is complete.
- B. Coordinate the location of hangers with other work.

### **3.03 INSTALLATION - SUSPENSION SYSTEM**

- A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.
- B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
- C. Locate system on room axis according to reflected plan.
- D. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
  - 1. Use longest practical lengths.
  - 2. Overlap and rivet corners.

- E. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- F. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- G. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- H. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.
- I. Do not eccentrically load system or induce rotation of runners.

#### **3.04 INSTALLATION - ACOUSTICAL UNITS**

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Fit border trim neatly against abutting surfaces.
- D. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- E. Cutting Acoustical Units:
  - 1. Make field cut edges of same profile as factory edges.
- F. Where round obstructions occur, provide preformed closures to match perimeter molding.
- G. Install hold-down clips on panels within 20 ft. of an exterior door and throughout High School Toilet Room ceilings.

#### **3.05 TOLERANCES**

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

#### **3.06 CLEANING**

- A. Clean surfaces.
- B. Replace damaged or abraded components.

**END OF SECTION**





**SECTION 09 65 00**  
**RESILIENT FLOORING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Resilient tile flooring.
- B. Resilient base.
- C. Installation accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 30 00 - Cast-in-Place Concrete.
- B. Section 09 05 61 - Existing Flooring Removal and Preparation.
- C. Section 09 68 13 - Tile Carpeting.

**1.03 REFERENCE STANDARDS**

- A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2023.
- B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2022.
- C. ASTM F970 - Standard Test Method for Measuring Recovery Properties of Floor Coverings after Static Loading; 2022.
- D. ASTM F1303 - Standard Specification for Sheet Vinyl Floor Covering with Backing; 2004 (Reapproved 2021).
- E. ASTM F1700 - Standard Specification for Solid Vinyl Floor Tile; 2020.
- F. ASTM F1861 - Standard Specification for Resilient Wall Base; 2021.
- G. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 2023.

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- C. Selection Samples: Submit manufacturer's complete set of color samples for Design Professional's initial selection.
- D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Construction Manager's General Requirements, for additional provisions.
  - 2. Extra Flooring Material: 35 square feet of each type and color.
  - 3. Extra Wall Base: 12 linear feet of each type and color.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing specified flooring with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in installing specified flooring with minimum three years documented experience.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Upon receipt, immediately remove any shrink-wrap and check materials for damage and the correct style, color, quantity and run numbers.
- B. Store all materials off of the floor in an acclimatized, weather-tight space.
- C. Protect roll materials from damage by storing on end.

**1.07 FIELD CONDITIONS**

- A. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

## **PART 2 PRODUCTS**

### **2.01 LUXURY VINYL TILE FLOORING**

- A. Description: A layered construction consisting of a tough, clear, vinyl wear layer protecting a high-fidelity print layer on a solid vinyl backing. Protected by a UV-cured polyurethane finish, the wear surface is embossed with different textures to enhance each of the printed visuals. Colors are insoluble in water and resistant to cleaning agents and light.
  - 1. Minimum Requirements: Comply with ASTM F1700, "Standard Specification for Solid Vinyl Tile", Class III, Type A & B – Embossed Surface.
  - 2. Pattern and Color: To be selected by Design Professional from manufacturer's full color range.
  - 3. Size: Varies from 12 inches by 12 inches to 18 inches by 36 inches.
  - 4. Wear layer thickness: 40 mil.
  - 5. Thickness: 0.096 inches.
  - 6. Pattern: Block weave layout.
  - 7. Manufacturers:
    - a. Basis-of-Design: AMTICO COLLECTION – "ABSTRACT" by Mannington Commercial: [www.manningtoncommercial.com](http://www.manningtoncommercial.com).
    - b. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.

### **2.02 RESILIENT BASE**

- A. Resilient Base: ASTM F1861, Type TS rubber, vulcanized thermoset; top set Style B, Cove, and as follows:
  - 1. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
  - 2. Height: 4 inch.
  - 3. Thickness: 0.125 inch thick.
  - 4. Finish: Satin.
  - 5. Length: Roll.
  - 6. Color: Color as selected from manufacturer's standards.
  - 7. Manufacturers:
    - a. Burke Flooring: [www.burkemercer.com](http://www.burkemercer.com).
    - b. Johnsonite, a Tarkett Company: [www.johnsonite.com](http://www.johnsonite.com).
    - c. Roppe Corp: [www.roppe.com](http://www.roppe.com).
    - d. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.

### **2.03 ACCESSORIES**

- A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.
- B. Primers, Adhesives, and Seaming Materials: Waterproof; types recommended by flooring manufacturer.
- C. Moldings, Transition and Edge Strips: Same material as flooring.
- D. Filler for Coved Base: Plastic.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.
- C. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for resilient flooring installation by testing for moisture and pH.
  - 1. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.
- D. Verify that required floor-mounted utilities are in correct location.

### **3.02 PREPARATION**

- A. Prepare floor substrates for installation of flooring in accordance with Section 09 05 61.
- B. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
- C. Remove sub-floor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.
- D. Prohibit traffic until filler is cured.
- E. Clean substrate.
- F. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed.

### **3.03 INSTALLATION - GENERAL**

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. Install in accordance with manufacturer's instructions.
- C. Spread only enough adhesive to permit installation of materials before initial set.
- D. Fit joints tightly.
- E. Set flooring in place, press with heavy roller to attain full adhesion.
- F. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
- G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
  - 1. Resilient Strips: Attach to substrate using adhesive.
- H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

### **3.04 INSTALLATION - LUXURY VINYL TILE FLOORING**

- A. Review layout of flooring in each area with Design Professional to determine pattern of planks and tiles before installation.
- B. Lay flooring with tightly butted seams, without any seam sealer unless otherwise indicated.

### **3.05 INSTALLATION - RESILIENT BASE**

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.
- B. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.
- C. Install base on solid backing. Bond tightly to wall and floor surfaces.

### **3.06 CLEANING**

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean in accordance with manufacturer's instructions.

### **3.07 PROTECTION**

- A. Prohibit traffic on resilient flooring for 48 hours after installation.

**END OF SECTION**



## SECTION 09 68 13

### TILE CARPETING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Carpet tile, loose laid with edges and control grid adhered.

##### 1.02 RELATED REQUIREMENTS

- A. Section 03 30 00 - Cast-in-Place Concrete: Restrictions on curing compounds for concrete slabs and floors.
- B. Section 09 05 61 Common Work Results for Flooring Preparation: Independent agency testing of concrete slabs, removal of existing floor coverings, cleaning, and preparation.
- C. Section 09 65 00 Resilient Flooring: Vinyl wall base.

##### 1.03 REFERENCE STANDARDS

- A. ASTM D2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials; 2016 (Reapproved 2021).
- B. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2023.
- C. CRI 104 - Standard for Installation of Commercial Carpet; 2015.
- D. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 2023.

##### 1.04 SUBMITTALS

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.
- C. Samples: Submit four carpet tiles illustrating color and pattern design for each carpet color selected.

##### 1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet tile with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in installing carpet with minimum five years experience.

##### 1.06 FIELD CONDITIONS

- A. Store materials in area of installation for minimum period of 24 hours prior to installation.

#### PART 2 PRODUCTS

##### 2.01 MANUFACTURERS

- A. Acceptable Manufacturers:
  - 1. Shaw Contract Carpets; Product: "Altered – Glitch Tile": [www.shawcontract.com](http://www.shawcontract.com).

##### 2.02 MATERIALS

- A. Carpet Tile:
  - 1. Multi-level pattern loop; solution dyed nylon.
  - 2. Tile Size: 9 x 36 inch, nominal.
  - 3. Gage: 1/12.
  - 4. Color: To be selected by Design Professional.
  - 5. Backing Material: Ecoworx®.

##### 2.03 ACCESSORIES

- A. Sub-Floor Filler: White premix latex; type recommended by flooring material manufacturer.
- B. Edge Strips: Vinyl, color as selected.

- C. Adhesives: Acceptable to carpet tile manufacturer, compatible with materials being adhered; maximum VOC of 50 g/L; CRI Green Label certified; in lieu of labeled product, independent test report showing compliance is acceptable.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that sub-floor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.
- B. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to sub-floor surfaces.
- C. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for flooring installation by testing for moisture and pH.
  - 1. Test in accordance with Section 09 05 61.
  - 2. Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.

### **3.02 PREPARATION**

- A. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
- B. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler.
- C. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.
- D. Vacuum clean substrate.

### **3.03 INSTALLATION**

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. Install carpet tile in accordance with manufacturer's instructions and CRI Carpet Installation Standard.
- C. Blend carpet from different cartons to ensure minimal variation in color match.
- D. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
- E. Lay carpet tile in Brick pattern, set parallel to building lines.
- F. Locate change of color or pattern between rooms under door centerline.
- G. Adhere carpet tile to substrate along centerline of rooms, at perimeter of rooms, where tiles are cut, and at 15 foot intervals throughout rooms. Lay remainder of tile dry over substrate.
- H. Trim carpet tile neatly at walls and around interruptions.
- I. Complete installation of wall base and edge strips, concealing exposed edges.

### **3.04 CLEANING**

- A. Remove excess adhesive without damage, from floor, base, and wall surfaces.
- B. Clean and vacuum carpet surfaces.

**END OF SECTION**

**SECTION 09 90 00**  
**PAINTING AND COATING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Surface preparation.
- B. Field application of paints, stains, varnishes, and other coatings.
- C. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
  - 1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
  - 2. Exposed surfaces of steel lintels and ledge angles.
  - 3. Mechanical and Electrical:
    - a. In finished areas, paint all insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
    - b. In finished areas, paint shop-primed items.
    - c. On the roof and outdoors, paint all equipment that is exposed to weather or to view, including that which is factory-finished.
    - d. Paint interior surfaces of air ducts and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
    - e. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.
- D. Do Not Paint or Finish the Following Items:
  - 1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
  - 2. Items indicated to receive other finishes.
  - 3. Items indicated to remain unfinished.
  - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
  - 5. Non-metallic roofing and flashing.
  - 6. Stainless steel, anodized aluminum, bronze, terne, and lead items.
  - 7. Floors, unless specifically so indicated.
  - 8. Ceramic and other tiles.
  - 9. Brick, architectural concrete, cast stone, integrally colored plaster and stucco.
  - 10. Glass.
  - 11. Concealed pipes, ducts, and conduits.

**1.02 RELATED REQUIREMENTS**

- A. Section 05 50 00 - Metal Fabrications: Shop-primed items.
- B. Section 22 05 53 - Identification for Plumbing Piping and Equipment: Color coding scheme for items to be painted under this section.
- C. Section 26 05 53 - Identification for Electrical Systems: Color coding scheme for items to be painted under this section.

**1.03 DEFINITIONS**

- A. Conform to ASTM D16 for interpretation of terms used in this section.
- B. The terms "Latex" and/or "Acrylic Latex", when used in this Specification Manual, shall refer to paint that is stabilized with Acrylic Resin and shall be universally defined within these Documents as "100% Acrylic Resin". Vinyl Acrylic paints are not acceptable.

**1.04 REFERENCE STANDARDS**

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2019.



- C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2020.
- D. SSPC V1 (PM1) - Good Painting Practice: SSPC Painting Manual, Volume 1; 2016.

#### **1.05 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Provide complete list of all products to be used, with the following information for each:
  - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
  - 2. MPI product number (e.g. MPI #47).
  - 3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
- C. Samples: Submit manufacturer's paper chip samples illustrating range of colors and textures available for each surface finishing product scheduled.
- D. Samples: Submit two painted samples, illustrating selected colors and textures for each color and system selected with specified coats cascaded. Submit on coated card stock, 8 x 10 inch in size.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. Extra Paint and Coatings: 1 gallon of each color and type; store where directed.
  - 2. Label each container with color and type in addition to the manufacturer's label.

#### **1.06 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum five years experience.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

#### **1.08 FIELD CONDITIONS**

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- E. Minimum Application Temperature for Varnish Finishes: 65 degrees F for interior or exterior, unless required otherwise by manufacturer's instructions.
- F. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Provide all paint and coating products from the same manufacturer to the greatest extent possible.
- B. Paints:
  - 1. Base Manufacturer: Sherwin-Williams Company: [www.sherwin-williams.com](http://www.sherwin-williams.com).
  - 2. Glidden Professional: [www.gliddenprofessional.com](http://www.gliddenprofessional.com).

3. Benjamin Moore & Co: [www.benjaminmoore.com](http://www.benjaminmoore.com).
4. PPG Architectural Finishes, Inc: [www.ppgaf.com](http://www.ppgaf.com).

## **2.02 PAINTS AND COATINGS - GENERAL**

- A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
  1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
  2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
  3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
  4. Supply each coating material in quantity required to complete entire project's work from a single production run.
  5. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
- B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
- C. Volatile Organic Compound (VOC) Content:
  1. Provide coatings that comply with the most stringent requirements specified in the following:
    - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
    - b. Architectural coatings VOC limits of State in which the project is located.
  2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- D. Chemical Content: The following compounds are prohibited:
  1. Aromatic Compounds: In excess of 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
  2. Acrolein, acrylonitrile, antimony, benzene, butyl benzyl phthalate, cadmium, di (2-ethylhexyl) phthalate, di-n-butyl phthalate, di-n-octyl phthalate, 1,2-dichlorobenzene, diethyl phthalate, dimethyl phthalate, ethylbenzene, formaldehyde, hexavalent chromium, isophorone, lead, mercury, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, naphthalene, toluene (methylbenzene), 1,1,1-trichloroethane, vinyl chloride.
- E. Flammability: Comply with applicable code for surface burning characteristics.
- F. Colors: To be selected from manufacturer's full range of available colors.
  1. Selection to be made by Design Professional after award of contract.
  2. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.
  3. In utility areas, finish equipment, piping, conduit, and exposed duct work in colors according to the color coding scheme indicated.

## **2.03 PAINT SYSTEMS - EXTERIOR**

- A. Ferrous Metals, Unprimed, Acrylic Latex, 3 Coat:
  1. One coat of latex primer.
  2. Semi-gloss: Two coats of acrylic latex enamel.
- B. Ferrous Metals, Primed, Acrylic Latex, 2 Coat:
  1. Touch-up with rust-inhibitive primer recommended by top coat manufacturer.
  2. Semi-gloss: Two coats of acrylic latex enamel.
- C. Galvanized Metals, Acrylic Latex, 3 Coat:
  1. One coat galvanize primer.
  2. Semi-gloss: Two coats of acrylic latex enamel.

## **2.04 PAINT SYSTEMS - INTERIOR**

- A. Wood, Opaque, Acrylic Latex, 3 Coat:

1. One coat of latex primer sealer.
  2. Semi-gloss: Two coats of acrylic latex enamel.
  3. Eggshell: Two coats of acrylic latex enamel.
  4. Flat: Two coats of acrylic latex enamel.
- B. Existing Painted Wood, Opaque, Acrylic Latex, 2 Coat:
1. Semi-gloss: Two coats of acrylic latex enamel.
  2. Eggshell: Two coats of acrylic latex enamel.
  3. Flat: Two coats of acrylic latex enamel.
- C. Wood, Transparent, Polyurethane, No Stain:
1. One coat sealer.
  2. Satin: Two coats of polyurethane.
- D. Wood, Transparent, Polyurethane, Stain:
1. Filler coat (for open grained wood only).
  2. One coat of stain.
  3. One coat sealer.
  4. Satin: Two coats of polyurethane.
- E. Concrete/Masonry, Opaque, Acrylic Latex, 3 Coat:
1. One coat of block filler.
  2. Semi-gloss: Two coats of acrylic latex enamel.
- F. Existing Painted Concrete/Masonry, Opaque, Acrylic Latex, 2 Coat:
1. One coat of latex primer sealer.
  2. Semi-gloss: One coat of acrylic latex enamel.
- G. Ferrous Metals, Unprimed, Acrylic Latex, 3 Coat:
1. One coat of latex primer.
  2. Semi-gloss: Two coats of acrylic latex enamel.
- H. Existing Painted Ferrous Metals, Acrylic Latex, 2 Coat:
1. Touch-up with primer.
  2. Semi-gloss: Two coats of acrylic latex enamel.
- I. Ferrous Metals, Primed, Acrylic Latex, 2 Coat:
1. Touch-up with latex primer.
  2. Semi-gloss: Two coats of acrylic latex enamel.
- J. Galvanized Metals, Acrylic Latex, 3 Coat:
1. One coat galvanize primer.
  2. Semi-gloss: Two coats of acrylic latex enamel.
- K. Gypsum Board/Plaster, Acrylic Latex, 3 Coat:
1. One coat of primer sealer.
  2. Semi-gloss: Two coats of acrylic latex enamel.
  3. Eggshell: Two coats of acrylic latex enamel.
  4. Flat: Two coats of acrylic latex enamel.
- L. Existing Painted Gypsum Board/Plaster, Acrylic Latex, 2 Coat:
1. Semi-gloss: Two coats of acrylic latex enamel.
  2. Eggshell: Two coats of acrylic latex enamel.
  3. Flat: Two coats of acrylic latex enamel.

## **2.05 ACCESSORY MATERIALS**

- A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Do not begin application of coatings until substrates have been properly prepared.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- D. If substrate preparation is the responsibility of another installer, notify Design Professional of unsatisfactory preparation before proceeding.
- E. Test shop-applied primer for compatibility with subsequent cover materials.
- F. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
  - 1. Gypsum Wallboard: 12 percent.
  - 2. Plaster and Stucco: 12 percent.
  - 3. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
  - 4. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
  - 5. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

### **3.02 PREPARATION**

- A. Clean surfaces thoroughly and correct defects prior to coating application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or repair existing coatings that exhibit surface defects.
- D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- E. Seal surfaces that might cause bleed through or staining of topcoat.
- F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- G. Concrete and Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- H. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.
- I. Plaster Surfaces to be Painted: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- J. Insulated Coverings to be Painted: Remove dirt, grease, and oil from canvas and cotton.
- K. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- L. Corroded Steel and Iron Surfaces to be Painted: Prepare using at least SSPC-PC 2 (hand tool cleaning) or SSPC-SP 3 (power tool cleaning) followed by SSPC-SP 1 (solvent cleaning).
- M. Uncorroded Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand or power tool wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.
- N. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
- O. Interior Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.

- P. Interior Wood Surfaces to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.
- Q. Metal Door Frames to be Painted: Prime metal door top and bottom edge surfaces.

### **3.03 APPLICATION**

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply products in accordance with manufacturer's instructions.
- C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- E. Apply each coat to uniform appearance.
- F. Sand metal surfaces lightly between coats to achieve required finish.
- G. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
- H. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

### **3.04 FIELD QUALITY CONTROL**

- A. Design Professional will provide field inspection.

### **3.05 CLEANING**

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

### **3.06 PROTECTION**

- A. Protect finished coatings until completion of project.
- B. Touch-up damaged coatings after Substantial Completion.

### **3.07 SCHEDULE - PAINT SYSTEMS**

- A. Concrete, Concrete Block Masonry: Finish all surfaces exposed to view.
  - 1. Interior: Acrylic latex, semi-gloss.
- B. Gypsum Board: Finish all surfaces exposed to view.
  - 1. Interior Ceilings and Bulkheads: Acrylic latex, flat.
  - 2. Interior Walls: Acrylic latex, eggshell.
- C. Plaster: Finish all surfaces exposed to view.
  - 1. Interior Walls and Ceilings:
- D. Wood Doors: Factory-finished.
- E. Steel Doors and Frames: Finish all surfaces exposed to view; Acrylic latex, semi-gloss.
- F. Steel Fabrications: Finish all surfaces exposed to view.
  - 1. Exterior: Acrylic latex, gloss; finish all surfaces, including concealed surfaces, before installation.
  - 2. Interior: Acrylic latex, semi-gloss.
- G. Galvanized Steel: Finish all surfaces exposed to view.
  - 1. Exterior: Acrylic latex, semi-gloss.
  - 2. Interior: Acrylic latex, semi-gloss.
- H. Shop-Primed Metal Items: Finish all surfaces exposed to view.
  - 1. Finish the following items:
    - a. Exposed surfaces of lintels.
    - b. Exposed surfaces of steel railings.
    - c. Mechanical equipment.
    - d. Electrical equipment.
  - 2. Exterior: Acrylic latex, semi-gloss.
  - 3. Interior: Acrylic latex, semi-gloss.

- I. Pipe and Duct Insulation Jackets: Finish all surfaces exposed to view; flat.

**END OF SECTION**



**SECTION 10 14 63**  
**DIGITAL EXTERIOR MARQUEE SIGN**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Cabinet, face and message area of exterior marquee signs.
- B. Lighting.
- C. Structural support.
- D. LED digital message center.
- E. Control software.

**1.02 RELATED SECTIONS**

- A. Section 03 20 00 - Cast-in-place Concrete: Foundations.
- B. Division 26 - Electrical.

**1.03 REFERENCES**

- A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.
- B. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength; 2021.
- C. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Structural Tubing in Rounds and Shapes; 2021a.
- D. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement; 2024.
- E. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2023.
- F. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
- G. ASTM C270 Standard Specification for Mortar for Unit Masonry; 2024.
- H. ASCE 7 Minimum Design Loads for Buildings and Other Structures; current edition.
- I. UL Underwriters Laboratories, Inc.; current edition.
- J. NEMA Standards; current edition.
- K. Standard for Electric Signs, UL48, CUL48, UL Energy Efficiency Verified (Green Leaf certification).
- L. Standard for Control Centers for Changing Message Type Signs.
- M. Federal Communications Commission Part 15 Regulations for A Class devices.

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Manufacturer's product literature including components and accessories.
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Printed installation and maintenance instructions.
  - 4. For LED Message Center provide:
    - a. All LED display manufacturer qualifications, as specified herein.
    - b. LED display installation drawing.
    - c. AC Site Power Requirements, including legs and Amps per leg.
    - d. LED display control software operator's manual.
    - e. LED display installation and maintenance manual.
- C. Shop Drawings shall indicate sign styles, lettering font, foreground and background colors, locations, overall dimensions of each sign and anchorage for Design Professional review and approval.
  - 1. Anchorage shall include as a minimum an engineered foundation plans/details, structural components and connections to each other, the sign cabinet, sign face, and the foundation in compliance with MBC.
- D. Provide color samples for selection.



- E. Submit graphics being applied to the sign for approval.
- F. Submit closeout information on operation and maintenance data for installed products.
- G. Submit executed warranty.

#### **1.05 QUALIFICATIONS**

- A. Obtain all products in this section from single supplier.
- B. Manufacturing company specializing in manufacturing the products specified in this section with minimum 5-years documented experience.
- C. Installation by installer specializing and with minimum 5-years of experience in the installation of products specified in this section.
- D. Design Work under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State of Michigan.
- E. LED display manufacturer shall:
  - 1. Have an onsite quality assurance lab to verify product integrity.
  - 2. Have at least one (1) Project Manager with PMI certification. Have a minimum of 75 years electrical sign manufacturing experience and 20 years of LED display manufacturing experience prior to the contract bid date.
  - 3. Have a minimum of 50,000 permanently mounted LED displays in operation for a minimum period of one (1) year prior to the contract bid date.
  - 4. Provide support via domestic, toll-free help desk and an online service knowledge base.
  - 5. Provide proof of liability coverage of \$10,000,000 aggregate.
  - 6. Manufacturing experience with the following types electronic signs shall not satisfy the requirements:
    - a. Matrix displays that show a limited quantity of messages.
    - b. LCD displays.
    - c. Back-lit displays.

#### **1.06 WARRANTY**

- A. Non LED Electronic Display warranty:
  - 1. Minimum warranty for 10-years against defects in workmanship and materials, warranty does not cover lightning, lamps or damage from vandalism.
  - 2. Sign Structure and Identification Cabinet: Under Normal use and service should the sign structure or sign malfunction due to defects in workmanship or materials, the Manufacturer will repair or replace any of the defective materials, except as limited below for ballasts.
    - a. The warranty also includes refinishing and reinstallation, which may be required due to repair or replacement of defective sign where defect was not apparent prior to installation.
  - 3. Contractor is responsible for replacement or refinishing of sign where Contractor's work contributed to rejection or to voiding of manufacturer's warranty.
- B. LED Electronic Display warranty:
  - 1. Manufacturer shall warrant the LED Electronic Display to be free from defects in workmanship or materials for a period of 5-years from the date of Substantial Completion.
  - 2. Provide a ten (10) year parts availability guarantee.
  - 3. Damage caused by abuse, misuse, misapplication or accidental damage outside the control of the Manufacturer (including Lightning), and any consequential or contingent liability is excluded from the warranty.
  - 4. Manufacturer will repair or replace malfunctioning or defective parts.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, protect, and handle products to site per manufactures requirements.

### **PART 2 PRODUCTS**

#### **2.01 LED SIGNAGE**

- A. General:
  - 1. Internally illuminated top cabinet.
  - 2. Provide product in compliance with UL or other approved agency.
  - 3. Approximate Cabinet Size: As indicated on Drawings.

4. Top of sign height: As indicated on Drawings.
- B. Cabinet Specifications:
  1. Double sided extruded aluminum and sized as indicated on Drawings.
  2. Heliarc welded and mitered at corners.
  3. Powder coated color finish: 3.0 to 4.0 mils thick electrostatically applied and permanently bonded guaranteed non-fading. Color to be selected by Design Professional.
- C. Cabinet Face Specifications:
  1. Provide Lexan faces with vinyl lettering and graphics.
  2. Powder coat covers to match cabinet.
- D. Lighting Specifications:
  1. All electrical components shall be UL listed and approved.
  2. Lighting: Internal lighting spaced to provide uniform lighting over entire face of the sign.
  3. Illumination Source: "White" LED's.
  4. Control: Photocell.
  5. Install per current NEC edition.
- E. Support Structure Specifications:
  1. Existing Steel Structure and Foundations to Remain at Floyd Elementary and Bullock Creek Elementary.
  2. New Steel Support Structure and Foundations require at Pine River Elementary and will match the Structure at Floyd Elementary.
    - a. See Drawings for structure requirements.
    - b. Structure to meet the requirements for MBC wind load.
  3. Existing and new post/frames to be painted in color approved by the Design Professional.
- F. Copy, Graphics and Size: Refer to Drawings, typestyle to be determined by Design Professional.
- G. Electrical Data:
  1. 120 volt.
  2. Integrated solid state power supply.
  3. UL approved for wet locations.
  4. Manufacturer recommended switches.

## **2.02 LED ELECTRONIC MESSAGE CENTER**

- A. Manufacturer:
  1. Watchfire Brand Electronic Message Center - 16mm color EMC.
  2. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.
- B. Cabinet Construction:
  1. Cabinet dimensions shall not exceed 41" high by 99" wide. The front-to-back cabinet depth shall not exceed 5 inches.
  2. The cabinet shall contain a full LED matrix measuring a minimum of 54 pixel rows high by 144 columns wide.
  3. Display configuration is a twin view, two sided display
  4. The distance from the center of one line or column of pixels to the center of all adjacent lines or columns shall be Line Spacing 16.93mm both horizontally and vertically.
  5. Maximum display power per face shall not exceed 7 Amps when 100% of the pixels are operating at their maximum possible drive current.
  6. Cabinet weight per face shall not exceed 9lbs/sq ft
  7. Display shall operate from the following power sources: 120 VAC, 60 Hz single-phase, including neutral and earth ground.
  8. Display shall operate in a minimum ambient temperature range of -40° to +140°F (-40 to +60°C) and to a 95% humidity.
  9. Internal display component hardware (nuts, bolts, screws, standoffs, rivets, fasteners, etc.) shall be fabricated from stainless steel, aluminum, nylon, or other durable corrosion-resistant materials suitable for the signage application.
  10. Module components shall be 100% solid-state.

11. Display performance may not cause harmful radio, magnetic or electromagnetic interference. The display must accept any interference received, including interferences that may cause undesired operation.
- C. Housing Frame:
1. Display materials shall use non-corrosive materials or have a protective coating so they shall be anti-corrosive and not degrade or oxidize.
  2. Cabinets must be constructed from extruded aluminum with precision-mitered corners, solid welds, and stainless fasteners.
  3. The display shall be front or rear ventilated with adequate ventilation provided by the use of fans.
  4. Steel mounting points that can be used for mounting purposes shall be provided with the display and have the ability to be adjusted for alternative mounting methods.
  5. Shall include lifting supports that can be removed after installation.
- D. Exterior Finish:
1. The LED display front-facing cabinet shall be coated with a baked acrylic enamel.
- E. Front Face Construction:
1. To meet the display readability requirements, the front face must be constructed in such a manner that it provides high contrast, low sunlight reflection and durability in all weather and site conditions.
  2. Minimum features of front face shall:
    - a. Provide UV resistance to prevent discoloring.
    - b. Include horizontal louvers over LEDs for contrast enhancement and sunlight shading.
    - c. Include vertical light traps to reduce light spill.
    - d. Use surface materials in the active LED area, such as metal, plastic, or other face materials, designed for low sunlight reflectivity.
- F. Serviceability:
1. The display housing shall provide safe and convenient rear and/or front service access for all modular assemblies, components, wiring, and other materials located within the housing.
  2. All internal components shall be removable and replaceable by a single technician with proper tooling.
  3. Service access shall be easily obtained by removal of one or more modules in front of the associated internal component and/or rear access panel.
  4. Each module should allow easy removal with a latch with positive stops.
  5. Displays shall be designed with service features that minimize potential bodily harm.
- G. Display Components:
1. LED display modules shall be constructed for good readability, long life, and ease of service. Each display module shall be constructed as follows:
    - a. Each module within the product family shall be designed with the same physical footprint of 12" x 12".
    - b. All modules and their components shall be fully encapsulated and sealed to meet IP-67 standards.
    - c. An LED module shall consist of LEDs with all drive electronics mounted on a single Printed Circuit Board (PCB).
    - d. LEDs shall be auto-inserted in order to maintain quality and uniformity of the LEDs within each LED module.
    - e. All surface mount LEDs shall be soldered using a reflow process to ensure uniformity, quality, and durability of all solder joints.
    - f. All PCBs shall be cleaned in a manner so as not to contain more than 2 parts per million contaminants.
    - g. Module signal and electrical connections shall be of the positive locking and removable type. Removal of a module from the display shall not require a de-soldering operation.
    - h. All LED display modules in a single display shall be identical in construction and interchangeable throughout the display with the ability to be field calibrated.
    - i. Modules shall be individually attached to the cabinet frame.
    - j. Removal of one or more modules shall not affect the display's structural integrity.

- k. The distance from the center of one line or column of pixels to the center of all adjacent lines or columns shall be 16.93mm both horizontally and vertically.
  - l. Confines high speed data signals to individual smart LED modules, each with its own microcontroller that runs the LEDs.
  - m. The display must not send high speed data signals from a receiver card to the module over multi-conductor cables to display an image.
  - n. The failure of a single pixel, module or power supply shall not cause the failure of any other pixel, module or power supply in the display.
  - o. All modules shall have no less than a 140° horizontal half-intensity viewing angle.
  - p. The transition of the viewing intensity shall be consistent throughout the viewing cone.
  - 2. Pixels shall be constructed with discrete LEDs, and these discrete LEDs shall conform to the following specifications:
    - a. LEDs shall be non-diffused, ultra-bright, solid-state light emitting diodes.
    - b. Each color of LEDs used in all LED displays provided for this contract shall be from the same bin.
    - c. LED half-life shall be an estimated minimum of 100,000 hours.
    - d. Display shall have a minimum intensity of 10,000 nits maximum light output.
  - 3. Power Supply:
    - a. All power supplies shall be regulated, auto-ranging AC to DC power, with protection for the LED pixel, LED display and driver circuitry in the event of power spikes or surges.
    - b. Each power supply and their connectors shall be fully sealed to protect from corrosive environmental factors meeting IP-67 standards.
  - 4. Internal Wiring:
    - a. Use smart module design to minimize cables needed, reduce potential points of failure and reduce Mean Time Between Failures (MTBF).
    - b. Cables must be engineered and tested to withstand environmental conditions by using high grade automotive connectors instead of insulation displacement (ribbon-type cables) connectors.
    - c. Wiring for LED display modules and other internal components shall be installed in the housing in a neat and professional manner.
    - d. Wiring shall not impede the removal of display modules, power supplies or other display components.
    - e. Wires shall not make contact with or be bent around sharp metal edges.
    - f. All wiring shall conform to the National Electric Code.
  - 5. The display shall be protected from electrical spikes and transients.
  - 6. The manufacturer shall provide an earth-ground lug on the display.
- H. Display Performance
- 1. Display Capability:
    - a. The LED display shall present messages that are continuous, uniform, and unbroken in appearance.
    - b. The LED display shall be capable of producing 18 quadrillion colors.
    - c. Each display pixel shall be composed of one each – red, green, and blue LEDs.
    - d. The display shall be able to display messages composed of any combination of alphanumeric text, punctuation symbols, and graphic images.
    - e. Video and message files shall have up to a 30 frame per second playback capability.
  - 2. Controller:
    - a. The display's controller shall be able to run independently from a content management system, allowing the display to continue to operate even if the controlling system is unreachable.
    - b. Each controller shall be connected to a light sensor allowing each LED display to automatically adjust brightness according to display direction and lighting conditions.
    - c. The controller shall allow connection to a temperature sensor that provides accurate site temperatures.
    - d. Active presentations, stored presentations, schedules, display configuration, time and date shall be stored in non-volatile memory. No external power or battery backup will be required to maintain this data.
  - 3. Control and Communications:
    - a. The display controller should be DHCP-enabled. or allow for static IP addressing.

- b. A double-faced display shall be controlled and monitored by a single display controller.
  - c. The display controller shall receive content and schedule instructions using the following communication modes:
    - 1) 4G cellular modem with life of the unit data plan.
- I. Control Software:
- 1. Control Software: Create, schedule and deliver content via Ignite OPx cloud-based software. Software to be hosted on manufacturer's servers at no cost to the customer.
    - a. Includes browser-based online editor for creating content, multiple content zones, playlists
    - b. Able to integrate widgets and RSS feeds.
    - c. Include a content library of more than 1000 pieces of graphics and animations.
    - d. Allows for smart scheduling, which eliminates competing products to display in the same daypart.
    - e. Import and store JPG, GIF, PNG, and TGA image files; MP4 video files with HD 1080 capability; MP3, WAV and WMA audio files.
    - f. PC computer is not included.

## 2.03 LOCATION REQUIREMENTS

- A. Electronic Message Center:
- 1. Elementary Schools:
    - a. Pixel Pitch: W16mm LED RGB.
    - b. Pixel Matrix: 54H x 144W.
    - c. Ventilation Style: Front Ventilation.
    - d. Cabinet Size: 41 inches high x 8 feet 3 inches wide x 5 inches deep.
    - e. Viewing Area: 3 feet high x 8 feet wide.
    - f. Cabinet Style: Double Face (Slim)
    - g. Character Size: 6 lines / 28.8 Characters at a 4 inch type
    - h. Approx. Weight: 652.00 Lbs.
    - i. Warranty: Standard 5 Year Watchfire warranty applies.
  - 2. Middle School:
    - a. Pixel Pitch: W10mm LED RGB
    - b. Pixel Matrix: 120H X 240W
    - c. Ventilation Style: Front Ventilation
    - d. Cabinet Size: 4 feet 5 inches high x 8 feet 3 inches wide x 5 inches deep.
    - e. Viewing Area: 4 feet high x 8 feet wide.
    - f. Cabinet Style: Single Face (Slim)
    - g. Character Size: 15 lines / 48.0 Characters at a 3 inch type.
    - h. Approx. Weight: 457.00 Lbs.
    - i. Warranty: Standard 5 Year Watchfire warranty applies.
  - 3. Electrical Service: 120 VOLT 20.0 amps (20.00 per face) Single Phase Service.
    - a. Power to the sign by others.
  - 4. Graphics:
    - a. Elementary School Signs:
      - 1) Brightness Daytime 10000 NITs Maximum; Nighttime 750 NITs Maximum
      - 2) Color LED RGB
      - 3) Color Capability Min. 18.0 Quadrillion
      - 4) Energy-Conscious LED Use optional Sign Brightness Adjustment to run sign at less than 10000 NITs.
      - 5) Includes Ignite Graphics Software
      - 6) Video plays prerecorded clips up to 30FPS
      - 7) Imports Windows Video (AVI); Animated Text & graphics.
      - 8) Viewing Angles 140 Horizontal/70 Vertical.
    - b. Middle School Signs:
      - 1) Brightness: Daytime 7500 NITs Maximum; Nighttime 700 NITs Maximum.
      - 2) Color: LED RGB.
      - 3) Color Capability: Min. 1.2 Quintillion.
      - 4) Includes Ignite Graphics Software.

- 5) Video plays prerecorded clips up to 30FPS
  - 6) Imports Windows Video (AVI); Animated Text & graphics.
  - 7) Viewing Angles: 150 Horizontal/95 Vertical.
5. Control Software:
    - a. Software: Ignite OPx (cloud-based, single region at 16mm EMC's only) Software.
    - b. Network Interface: Work with Owner's IT department to obtain network requirements.
    - c. Software Training: Web Based Software Training.
    - d. Communications: OPx - 4G Wireless with Watchfire Cellular
    - e. Data Plan: Wireless Data Plan Life-of-sign Data Plan.
  6. Hardware:
    - a. Elementary Signs:
      - 1) Provide all required hardware for installation of message boards to sign structure.
    - b. Middle School:
      - 1) Provide all required hardware for installation of message board to building masonry wall.
  - B. Power Supplies:
    1. Verify the line voltage to the sign at existing school building.
    2. New power line from the building shall be in conduit sized and installed per the NEC and division 26 of the specifications.
    3. Provide the electronic switching power supplies with short circuit and surge protection.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
- B. Mounting structure to be installed by contractor to support desired displays in all locations. Verify that separate conduit is in place for power and data to display, unless fiber is being used. Verify that all control equipment has access to 120/240 VAC.
- C. Verify areas are ready to receive signage.

#### **3.02 PREPARATION**

- A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.

#### **3.03 INSTALLATION**

- A. Install signs in accordance with manufacturer's instructions. Ensure the installation is proper so as to avoid warps, buckles, distortions, opening up of joints or overstressing of welds and fasteners.
- B. Locate and install signs in locations indicated on drawings in accordance with approved shop drawings.
- C. Support structure design depends on the mounting methods, display size, and weight. The structure design is critical and should be done only by a qualified individual. It is the customer's responsibility to ensure that the structure and mounting hardware are adequate.
- D. It is the customer's responsibility to ensure that the installation meet local standards. The mounting hardware shall be capable of supporting all components to be mounted.
- E. All mounted displays must be inspected by a qualified structural engineer.
- F. Possible power and signal entrances are designated by etched markings. Separate conduit must be used to route the power, signal in wires, and signal out wires.
- G. Displays must be grounded according to the provisions outlined in Article 250 of the National Electrical Code. The display must be connected to earth-ground. Proper grounding is necessary for reliable equipment operation and protects the equipment from damaging electrical disturbances and lightning.
- H. All installations shall conform to Article 600 of the National Electrical Code.

#### **3.04 ADJUSTING**

- A. Adjusting: Make all final adjustments to components to ensure proper alignment, fit and smooth operation.

### **3.05 TRAINING**

- A. Provide training by:
  - 1. Onsite training of at least two school staff members.
  - 2. Additional online training provided at no charge through secure access log-in at the vendor's or the manufacturer's web site.

### **3.06 CLEANING**

- A. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.
- B. Upon completion of installation, clean all exposed surfaces in accordance with the manufacturer instructions and restore all damaged material to its original condition or replace with new material.

**END OF SECTION**

**SECTION 10 21 13.19**  
**PLASTIC TOILET COMPARTMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Solid plastic toilet compartments.
- B. Urinal screens.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 10 00 - Rough Carpentry: Blocking and supports.
- B. Section 09 30 00 - Tiling.
- C. Section 10 28 00 - Toilet, Bath, and Laundry Accessories.

**1.03 REFERENCE STANDARDS**

- A. NFPA 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth; 2019

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Shop Drawings: Indicate partition plan, elevation views, dimensions, details of wall supports, door swings.
- C. Product Data: Provide data on panel construction, hardware, and accessories.
- D. Samples: Submit two samples of partition panels, 2 inch x 2 inch in size illustrating panel finish, color, and sheen.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Manufacturer with minimum 5 years experience in the manufacture of the product types specified. If requested submit a list of successful installations of similar products for evaluation by Architect.
- B. Accessibility Requirements: Comply with requirements of ICC/ANSI 117.1, and with requirements of authorities having jurisdiction.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver and store products in manufacturer's unopened packaging until ready for installation.
- B. Do not deliver toilet compartments to site until building is enclosed and HVAC systems are in operation.
- C. Lay cartons flat, with adequate support to ensure flatness and to prevent damage to pre-finished surfaces.

**1.07 WARRANTY**

- A. Manufacturer's Warranty: Submit written warranty against defects resulting in breakage, corrosion or delamination for fifteen (15) years from date of Substantial Completion.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Solid Plastic Toilet Compartments:
  - 1. Accurate Partitions, Inc; Product: [www.accuratepartitions.com](http://www.accuratepartitions.com).
  - 2. ASI Global Partitions; Product: [ww.globalpartitions.com](http://ww.globalpartitions.com).
  - 3. General Partitions Mfg; Product: [www.generalpartitions.com](http://www.generalpartitions.com).
  - 4. ASI Global Partitions; Product: [ww.globalpartitions.com](http://ww.globalpartitions.com).
  - 5. Metpar Corporation; Product: [www.metpar.com](http://www.metpar.com).
  - 6. Weis/Robart Partitions, Inc; Product: [www.weisrobert.com](http://www.weisrobert.com)
  - 7. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.

**2.02 SOLID PLASTIC TOILET COMPARTMENTS**

- A. Toilet Compartments: Factory fabricated doors, pilasters, and divider panels made of solid molded high density polyethylene (HDPE).



1. Toilet Partitions: Floor-mounted; overhead braced.
  2. Urinal Screens: Pilastered mounted; floor-anchored.
  3. Color: To be selected from manufacturer's full range of colors.
- B. Doors:
1. Thickness: 1 inch.
  2. Width: 24 inch.
  3. Width for Handicapped Use: 36 inch, out-swinging.
  4. Height: 55 inch.
- C. Panels:
1. Thickness: 1 inch.
  2. Height: 55 inch.
  3. Depth: As indicated on drawings.
- D. Pilasters:
1. Thickness: 1 inch.
  2. Width: As required to fit space; minimum 3 inches.
- E. Screens: Without doors; to match compartments; mounted to wall with two panel brackets and to be overhead braced.

### **2.03 ACCESSORIES**

- A. Pilaster Shoes: Formed chromed steel with polished finish, 3 in high, concealing floor fastenings.
1. Provide adjustment for floor variations with screw jack through steel saddles integral with pilaster.
- B. Head Rails: Hollow anodized aluminum, 1 x 1-1/2 inch size, with anti-grip profile and cast socket wall brackets.
- C. Pilaster Brackets: Polished stainless steel.
- D. Wall Brackets: Continuous type, polished stainless steel.
- E. Attachments, Screws, and Bolts: Stainless steel, tamper proof type.
- F. Hardware: Polished stainless steel:
1. Pivot hinges, gravity type, adjustable for door close positioning; two per door.
  2. Door Latch: Slide type with exterior emergency access feature.
  3. Door strike and keeper with rubber bumper; mounted on pilaster in alignment with door latch.
  4. Coat hook with rubber bumper; one per compartment, mounted on door.
  5. Provide door pull for outswinging doors.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that field measurements are as indicated.
- B. Verify correct spacing of and between plumbing fixtures.
- C. Verify correct location of built-in framing, anchorage, and bracing.

### **3.02 INSTALLATION**

- A. Install partitions secure, rigid, plumb, and level in accordance with manufacturer's instructions.
- B. Maintain 3/8 to 1/2 inch space between wall and panels and between wall and end pilasters.
- C. Attach panel brackets securely to walls using anchor devices.
- D. Attach panels and pilasters to brackets. Locate head rail joints at pilaster center lines.
- E. Field touch-up of scratches or damaged finish will not be permitted. Replace damaged or scratched materials with new materials.

### **3.03 TOLERANCES**

- A. Maximum Variation From Plumb: 1/8 inch.

### **3.04 ADJUSTING**

- A. Adjust and align hardware to uniform clearance at vertical edge of doors, not exceeding 3/16 inch.

- B. Adjust hinges to position doors in partial opening position when unlatched. Return out-swinging doors to closed position.
- C. Adjust adjacent components for consistency of line or plane.

**END OF SECTION**



**SECTION 10 28 00**  
**TOILET, BATH, AND LAUNDRY ACCESSORIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Accessories for toilet rooms.
- B. Electric hand dryers; cool dry.
- C. Grab bars.
- D. Salvaged soap dispensers and toilet paper dispensers to be re-installed.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 10 00 - Rough Carpentry: Concealed blocking for mounting of equipment.
- B. Section 10 21 13.19 - Plastic Toilet Compartments.
- C. Division 26 - Electrical: Power connections.

**1.03 REFERENCE STANDARDS**

- A. ADA Standards – 2010 ADA Standards for Accessible Design; 2010.
- B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.
- C. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2022.
- D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2020.
- E. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.
- F. ASTM B456 - Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium; 2017 (Reapproved 2022).
- G. ASTM C1036 - Standard Specification for Flat Glass; 2021.
- H. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror; 2018.
- I. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2022.
- J. ASTM F2285 - Standard Consumer Safety Performance Specification for Diaper Changing Tables for Commercial Use; 2022.
- K. ASTM G21 – Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015, with Editorial Revision (2021).
- L. ICC A117.1 – Accessible and Usable Buildings and Facilities; 2017.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate the work with the placement of internal wall reinforcement to receive anchor attachments.

**1.05 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Provide data on accessories describing size, finish, details of function, attachment methods.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Products listed are made by American Specialties, Inc: [www.americanspecialties.com](http://www.americanspecialties.com).
- B. Other Acceptable Manufacturers:
  - 1. Bradley Corporation: [www.bradleycorp.com](http://www.bradleycorp.com).
  - 2. Bobrick Washroom Equipment, Inc: [www.bobrick.com](http://www.bobrick.com).

## 2.02 MATERIALS

- A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
  - 1. Grind welded joints smooth.
  - 2. Fabricate units made of metal sheet of seamless sheets, with flat surfaces.
- B. Keys: Provide two (2) keys for each accessory to Owner; master key all lockable accessories.
- C. Stainless Steel Sheet: ASTM A666, Type 304.
- D. Stainless Steel Tubing: ASTM A269, Type 304 or 316.
- E. Galvanized Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M, with G90/Z275 coating.
- F. Mirror Glass: Float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.
- G. Adhesive: Two component epoxy type, waterproof.
- H. Fasteners, Screws, and Bolts: Hot dip galvanized, tamper-proof, security type.

## 2.03 FINISHES

- A. Stainless Steel: No. 4 satin brushed finish, unless otherwise noted.
- B. Chrome/Nickel Plating: ASTM B456, SC 2, satin finish, unless otherwise noted.
- C. Baked Enamel: Pretreat to clean condition, apply one coat primer and minimum two coats epoxy baked enamel.
- D. Galvanizing for Items Other than Sheet: Comply with ASTM A123; galvanize ferrous metal and fastening devices.
- E. Shop Primed Ferrous Metals: Pretreat and clean, spray apply one coat primer and bake.
- F. Back paint components where contact is made with building finishes to prevent electrolysis.

## 2.04 TOILET ROOM ACCESSORIES

- A. Toilet Paper Dispenser: Existing double roll, surface mounted, to be re-installed.
- B. Electric Hand Dryers: Traditional fan-in-case type, with downward nozzle.
  - 1. Operation: Touch-free, Automatic, sensor-operated on and off.
  - 2. Style: Traditional horizontal, rectangular case.
  - 3. Mounting: Surface mounted.
  - 4. Cover: Sheet steel with glossy enamel finish.
    - a. Color: White.
    - b. Tamper-resistant screw attachment of cover to mounting plate.
    - c. Screened or shielded air intake.
    - d. Screen or shield to prevent access to motor/heater.
  - 5. Heater: Owner adjustable on/off heater setting for cool air drying.
  - 6. Fan/Heater Control: Field adjustable.
  - 7. Runtime: Field adjustable.
  - 8. Supply Voltage: 115- 120V AC.
  - 9. Warranty: Three (3) years.
  - 10. Basis-Of-Design: "TURBO ADA HIGH SPEED" manufactured by American Specialties, Inc: [www.americanspecialties.com](http://www.americanspecialties.com).
- C. Soap Dispenser: Existing liquid soap dispenser, wall-mounted, surface, to be re-installed.
- D. Mirrors: Stainless steel framed, 1/4 inch thick float glass mirror.
  - 1. Frame: 0.05 inch angle shapes, with mitered and welded and ground corners, and tamperproof hanging system; No.4 finish.
  - 2. Backing: Full-mirror sized, minimum 0.03 inch galvanized steel sheet and nonabsorptive filler material.
- E. Grab Bars: Stainless steel, nonslip grasping surface finish.
  - 1. Heavy Duty Grab Bars: Floor supports are acceptable if necessary to achieve load rating.
    - a. Push/Pull Point Load: Minimum 1000 pound-force, minimum.

- b. Dimensions: 1-1/2 inch outside diameter, minimum 0.125 inch wall thickness, exposed flange mounting, 1-1/2 inch clearance between wall and inside of grab bar.
- c. Length and Configuration: As indicated on drawings.
- 2. Fabricated to comply with ASTM F446 and to withstand a 900 pound force, from ASTM A554 stainless steel tubing, Type 304, 18-8 alloy; each end heliarc-welded to minimum 11 gage stainless steel circular flange; welds finished to match tube finish.
- F. Sanitary Napkin Disposal Unit: Stainless steel, surface-mounted, self-closing door, locking bottom panel with full-length stainless steel piano-type hinge, removable wax paper collection bag.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify exact location of accessories for installation.
- C. For electrically-operated accessories, verify that electrical power connections are ready and in the correct locations.
- D. Verify that field measurements are as indicated on drawings.

**3.02 PREPARATION**

- A. Deliver inserts and rough-in frames to site for timely installation.
- B. Provide templates and rough-in measurements as required.

**3.03 INSTALLATION**

- A. Install accessories in accordance with manufacturers' instructions in locations indicated on the drawings.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.

**3.04 PROTECTION**

- A. Protect installed accessories from damage due to subsequent construction operations.

**3.05 SCHEDULE**

- A. Items listed below are identified by American Specialties catalog numbers (except where noted) to set quality standards. Equivalent products by specified acceptable manufacturers may be considered.

**TAS-1**

High School

Mens Toilet A101 & B103

3	Mirror	0600 Series (24 inches x 36 inches)
2	Soap Dispenser	Re-install existing salvaged unit
2	Toilet Paper Dispenser	Re-install existing salvaged unit
2	Hand Dryer	0199-1
1	Grab Bar	36 inches
1	Grab Bar	42 inches
1	Grab Bar	18 inches

**TAS-2**

High School

Womens Toilet A103 &amp; B103

3	Mirror	0600 Series (24 inches x 36 inches)
2	Soap Dispenser	Re-install existing salvaged unit
4	Toilet Paper Dispenser	Re-install existing salvaged unit
2	Hand Dryer	0199-1
1	Grab Bar	36 inches
1	Grab Bar	42 inches
1	Grab Bar	18 inches
4	Sanitary Napkin Disposal	0852

**TAS-3**

High School

Mens Toilet D101

5	Mirror	0600 Series (24 inches x 36 inches)
3	Soap Dispenser	Re-install existing salvaged unit
4	Toilet Paper Dispenser	Re-install existing salvaged unit
4	Hand Dryer	0199-1
1	Grab Bar	36 inches
3	Grab Bar	42 inches
3	Grab Bar	18 inches

**TAS-4**

High School

Womens Toilet E101

5	Mirror	0600 Series (24 inches x 36 inches)
3	Soap Dispenser	Re-install existing salvaged unit
9	Toilet Paper Dispenser	Re-install existing salvaged unit
4	Hand Dryer	0199-1
1	Grab Bar	36 inches
3	Grab Bar	42 inches
3	Grab Bar	18 inches
9	Sanitary Napkin Disposal	0852

**TAS-5**

High School

Mens Toilet F101 & Womens Toilet F102

1	Mirror	0600 Series (24 inches x 36 inches)
1	Soap Dispenser	Existing to remain in current location
2	Toilet Paper Dispenser	Existing to remain in current location
1	Hand Dryer	0199-1

**TAS-6**

High School

Corridor Outside Toilet Rooms F101 & F102

1	Paper Towel Dispenser	Re-install existing salvaged unit
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**END OF SECTION**





**SECTION 11 13 13**  
**LOADING DOCK BUMPERS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Dock bumpers of reinforced rubber with attachment frame.

**1.02 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Indicate unit dimensions, method of anchorage, and details of construction.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Dock Bumpers:
  - 1. Blue Giant Equipment Corporation: [www.bluegiant.com](http://www.bluegiant.com).
  - 2. Chalfant Sewing Fabricators, Inc.: [www.chalfantusa.com](http://www.chalfantusa.com).
  - 3. Durable Corp: [www.durablecorp.com](http://www.durablecorp.com).
  - 4. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.

**2.02 COMPONENTS**

- A. Bumpers: Molded rubber, ozone resistant, nylon reinforced, minimum Shore A Durometer of 70, tensile strength of 950 to 1050 psi:
  - 1. Thickness From Wall: 3 inches.
  - 2. Profile: Rectangular.
  - 3. Size:
    - a. Vertical Height: 12 inches.
    - b. Width: 24 inches.
- B. Attachment Hardware: 3/4 inch diameter galvanized bolts and expansion shields.
- C. Provide Four (4) bumpers per dock (4 total).

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify that anchor placement is acceptable.

**3.02 INSTALLATION**

- A. Install dock bumpers in accordance with manufacturer's instructions.
- B. Set plumb and level.

**END OF SECTION**



**SECTION 11 40 00**  
**FOOD SERVICE EQUIPMENT**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section includes food service equipment indicated on Drawings and schedules.
- B. Related Sections include the following:
  - 1. Not used.
  - 2. Division 23 Sections "Mechanical" for supply and exhaust fans; exhaust ductwork; service roughing-ins; drain traps; atmospheric vents; valves, pipes, and fittings; fire-extinguishing systems (unless specified herein); and other materials required to complete food service equipment installation.
  - 3. Division 26 Sections "Electrical" for connections to fire alarm systems, wiring, disconnects, and other electrical materials required to complete food service equipment installation.
- C. Not used.
- D. Work by Others:
  - 1. Final utilities connections and interconnections by Mechanical Technical Division #20 and Electrical Technical Division #26 Contractors.
  - 2. Furnishing and installation of disconnect switches, stop clocks, traps, strainers or other fittings, and accessories required to permit removal of equipment for adjustment or repairs, unless specifically called for otherwise. The Contractor shall, however, provide any required information and direct on-site supervision to allow proper completion by other trades.
  - 3. Installation of sleeves in floors and walls.
  - 4. Not used.
  - 5. Flushing out of lines before making final connections. It is the responsibility of this Contractor to verify, however, that lines are properly flushed before final connection.
  - 6. Temporary electric power during installation for power tools, lighting, and so on or for testing prior to commissioning of permanent service.
  - 7. Not used.
  - 8. Demolition.
  - 9. Other trades must review complete project specifications for definition of their total responsibilities.

**1.03 DEFINITIONS**

- A. Terminology Standard: Refer to NSF 2, "Food Equipment" or other applicable NSF standards for definitions of food service equipment and installation terms not otherwise defined in this Section or in other referenced standards.
- B. General: The following define the intent and context as it applies to this section of the specifications, and does not supersede or in any way replace definitions found in other sections.
  - 1. Furnish: The term "furnish" is used to mean "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation, and similar operations".

2. Install: The term "install" is used to describe operations at the project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations".
3. Provide: The term "provide" means "to furnish and install, complete and ready for intended use".

#### 1.04 SUBMITTALS

##### A. Floor Plans and Rough-ins

1. The Contractor shall submit copies of the following drawings to the Design Professional for review:
  - a. A floor plan of all food service areas showing all items of equipment and sufficient dimensions to indicate placement of equipment from walls, other items, etc. This sheet shall include an equipment schedule indicating item number, quantity, and description.

This sheet shall also include an equipment schedule, and the appropriate item number shall accompany each utility description on the body of the sheet. It is expected that the Contractor will refer to the data prepared by the Design Professional to complete this requirement; however, it is the Contractor's responsibility to verify information shown thereon, and the Contractor's submittal will warrant that he is fully satisfied that the information shown on the submittal is totally correct, complete, and ready for use in the field by other trades. Rough-in dimensions shall be calculated from column centerlines or other established datum points.
  - b. A completely and clearly dimensioned electrical rough-in plan indicating exact locations, heights, and services required for each item of food service equipment, as well as any incidental services (for example, convenience receptacles) shown on the Design Professional's spot connection plan.
  - c. A plumbing rough-in plan conforming to the requirements noted in (b) above.
  - d. A ventilation rough-in plan conforming to the requirements noted in (b) above.
  - e. A building conditions plan conforming to the requirements noted in (b) above, and including all pertinent information regarding masonry bases, curbs, recesses, critical dimensions of walls and openings, wall anchorages and overhead supports, and any other special information required to insure a properly completed installation.
  - f. Electronic copies of the Consultant's work, which is copyrighted, shall not be authorized for use by the Contractor. The Consultant assumes no responsibility for any use, whether authorized or not, or whether electronically editable or not, for the use of his documentation by the Contractor.
2. The scale of these drawings shall be 1/4" = 1'-0", and it shall be the responsibility of the Contractor to insure that his drawings are properly coordinated and that there are no conflicts between sheets. The Contractor may, at his option, combine [(b) and (c)] and [(d) and (e)], providing that the scale of all drawings is increased to 1/2" = 1'-0".
3. The review of these drawings by the Design Professional is for design purposes only, and that review and/or the reviewer's election to review drawings submitted not in accordance with the above directions will not relieve the Contractor from responsibility for the consequences of not having prepared the drawings as above described.

##### B. Manufacturer's Drawings

1. It is the responsibility of the Contractor to insure that drawings required from his vendors are received and submitted so as to allow review, correction, resubmittal, and production within the requirements of the project schedule.

2. The Contractor shall review, coordinate, and correct these drawings before submitting them for review.
  3. The Contractor is responsible for verifying that notes and revisions on these drawings do not conflict with his rough-in drawings, and shall immediately notify the Design Professional of any such conflicts.
- C. Shop Fabrication Drawings
1. The Contractor shall submit copies of drawings showing complete fabrication details of custom fabricated equipment.
  2. The scale of these drawings shall be 3/4" = 1'-0", with sufficient cross sections to accurately describe construction. Sections shall be at a scale of 1-1/2" = 1'-0". Each drawing shall show name and address of fabricator.
  3. These drawings shall indicate locations of utilities and interconnections in relation to the custom equipment. Junction boxes and breaker panels shall be presented in schedule form showing individual connections and total load. If requested by the Owner, provide complete wiring diagrams.
- D. Manufacturers' Illustrations
1. Within 30 days from award of contract, the Contractor shall submit a **single, complete, hard copy bound brochure in a suitable binder with front and rear cover.**
  2. Provide a cover sheet for each item number, indicating item number, quantity, description, manufacturer, model number, utilities required, and accessories.
  3. **To insure manageable file size, electronic brochure submittals will be accepted only under the following conditions:**
    - a. **There are no repeated sheets in reference to an individual item;**
    - b. **The file size does not exceed 100 MB;**
    - c. **Manufacturers' literature related to equipment for which shop drawings will be submitted may, at the FSE Contractor's option, be deleted if they are not necessary to augment the shop drawing information.**
    - d. **In the event these conditions are not met, prior to review the FSE Contractor shall submit a payment in the amount of \$1,000 to the FSE Consultant as reimbursement for making the necessary size reductions.**
  4. The Contractor is responsible for verifying that notes and revisions on these drawings do not conflict with his rough-in drawings, and shall immediately notify the Design Professional of any such conflicts.
- E. The review of these items by the Design Professional or his representative is for the assistance of the Contractor, and does not relieve the Contractor of any responsibility for accuracy and completeness. When the Contractor is notified that further resubmittals will not be required, he shall provide to the Design Professional for the Owner a reasonable number of copies of prints and brochures without charge.

#### 1.05 QUALITY ASSURANCE

- A. Contractor Qualifications: It is the intent of these specifications that fabricated equipment be manufactured by a contractor who has the plant, personnel, and engineering facilities to properly detail and manufacture best quality kitchen equipment in accordance with the specifications. The manufacturer shall be subject to the approval of the Design Professional.
1. All fabricated equipment must be fabricated by one contractor in his own plant and shall be of uniform quality, design, and finish. Millwork fabrication need not be provided by the sheet metal fabricator, however.

2. The Contractor shall not sublet any portion of the fabricated equipment unless the names of the subcontractors have been submitted with the bid. The Contractor shall be fully responsible for the entire performance of his subcontractors.
  3. Upon demand, the bidder shall submit evidence of having successfully executed contracts of similar size and scope. He shall also be prepared to submit a financial statement giving evidence of his ability to properly execute this project.
- B. The Contractor shall be a recognized and qualified distributor of buy-out kitchen equipment.
- C. Manufacturer Qualifications: Engage a firm in continuous business at least ten (10) years, experienced in manufacturing food service equipment similar to that indicated for this Project and with a record of successful in-service performance.
- D. Source Limitations: Obtain each type of food service equipment through one source from a single manufacturer.
- E. Product Options: Various items are specified by brand, trade name, or name of manufacturer and model number. The base bid must include the price for the manufacturer and model number exactly as specified.
1. Specifications may include the suffix **\*C004** as part of the model number or elsewhere in the individual item description. This identifies the specifying office of the Food Service Consultant to insure that equipment vendors receiving information from bidders can communicate questions, clarifications, and comments which will serve to help resolve any specification issues before bid award. **The bidder shall not remove this number from the specifications**, and it is to be included in all correspondence regarding the item.
  2. The Specification Identification System described above is administrated through the auspices of the North American Association of Foodservice Equipment Manufacturers (NAFEM). The use of the SIS code does not modify model numbers recognized by the National Sanitation Foundation (NSF) or other listing bodies. Additional information is available from NAFEM at 312-644-6610.
  3. The Contractor may propose equivalent equipment for substitution, supplying full data and illustration sheet for each item. Alternate prices on all substitute equipment shall be submitted on a SEPARATE SHEET attached to the base proposal and shall state the amount to be added to or deducted from the base bid, as well as any other benefits that may accrue to the owner (delivery, maintenance, warranty, utility savings, and so on) if the alternate item is accepted. Refer to the "Application for Substitution of Specified Food Service Equipment" in this specification.
  4. The Contract Documents are based on the named (or first-named, in the case of additional named alternates) manufacturer and model number in regard to size, utility requirements, interface with other equipment, and so on. Where the Contractor elects to employ approved products other than the named (or first-named), whether included in the specifications or approved during the submittal process, it is the Contractor's responsibility to verify any differences in requirements and so advise the Design Professional.
  5. The Contractor shall be responsible for any additional costs incurred by any parties as the result of using any manufacturer other than the named (or first-named).
  6. The Design Professional shall be the sole judge of the quality and acceptability of the substitute offered.
  7. Alternates or substitutions shall be considered only at the time of bidding.
  8. Following is the Application for Substitution of Specified Food Service Equipment.

**APPLICATION FOR SUBSTITUTION OF SPECIFIED FOOD SERVICE EQUIPMENT**

This form is to be submitted in support of each suggestion or request to substitute a manufacturer and/or model number that is not included as the only-named, first-named, or additionally-named product in the Division 11400 (Food Service Equipment) specifications. Refer to Section 1.5.E in those specifications for additional information.

The decision to accept an unnamed alternate will be based exclusively on the information provided hereon and the Owner's or his designee's research and verifications of the claims, which may include sharing the information with the manufacturer(s) of the originally specified equipment. Accordingly, any proprietary information regarding the proposed substitution should be so identified and submitted as an addendum to this form.

By submitting this application the Contractor guarantees that the information is correct and accepts total responsibility for any and all additional costs that may directly or indirectly result from acceptance of the proposed substitution. It is in the interest of the Contractor to declare on this form ALL benefits that will accrue to the Owner, as additional information provided after this form is submitted will not be considered. Include the proposed manufacturer's catalog information.

The original specifications describe the minimum standards of the equipment – proposed substitutions that do not exceed this minimum standard or otherwise benefit the Owner will not be considered except in the case of an originally specified item that is no longer available. The Owner or his designee is the sole authority in regard to identifying specific features, capacities, and so on that are operationally critical (for instance, pan capacity). Acceptance of a proposed substitution does not in any way relieve the Contractor of responsibility for any and all direct or indirect costs associated with the substitution.

- 1. Date submitted \_\_\_\_\_
- 2. Item Number \_\_\_\_\_ Description \_\_\_\_\_ Quantity \_\_\_\_\_
- 3. Specified Manufacturer \_\_\_\_\_ Specified Model Number \_\_\_\_\_
- 4. Proposed Manufacturer \_\_\_\_\_ Proposed Model Number \_\_\_\_\_
- 5. Does the proposed equipment incorporate all features and options expressed or implied by the specifications, including features and options that are provided as standard by the specified item number?  
 Yes  No (describe – attach additional sheets if necessary) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

6. Compare the utilities of the specified equipment with the proposed equipment:

Specified: Hot water \_\_\_\_\_ Cold water \_\_\_\_\_ Electrical (w/ amps) \_\_\_\_\_  
Gas (w/ BTUH) \_\_\_\_\_ Exhaust/supply volume w/ duct connections \_\_\_\_\_

Proposed: Hot water \_\_\_\_\_ Cold water \_\_\_\_\_ Electrical (w/ amps) \_\_\_\_\_  
Gas (w/ BTUH) \_\_\_\_\_ Exhaust/supply volume w/ duct connections \_\_\_\_\_

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7. Compare the dimensions of the specified equipment with the proposed equipment:

Specified: Left to right \_\_\_\_\_ Front to rear \_\_\_\_\_ Height \_\_\_\_\_

Proposed: Left to right \_\_\_\_\_ Front to rear \_\_\_\_\_ Height \_\_\_\_\_

8. Does the proposed equipment require any changes to the work to be provided by other trades?

No  Yes (describe – attach additional sheets if necessary) \_\_\_\_\_

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9. Does the proposed equipment require any changes or create any issues in regard to adjacent or associated equipment (for instance: door swing interference; stretch/shrink of established dimensions; service access clearances; air circulation space)?

No  Yes (describe – attach additional sheets if necessary) \_\_\_\_\_

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10. What benefits will the owner realize as a result of this substitution being approved (for instance: capital expense; energy savings; future flexibility; warranty terms; shipping time)? Provide specific information (how much less energy will be necessary? How much capital expense will be saved? How much longer is the warranty?).

There are no benefits to the Owner

The following will benefit the Owner (attach additional sheets if necessary): \_\_\_\_\_

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11. What are the actual or potential disadvantages to the substitution being approved?

There are no actual or potential disadvantages

The following are actual or potential disadvantages (attach additional sheets if necessary): \_\_\_\_\_

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12. Are there any other considerations that should be evaluated? \_\_\_\_\_

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13. Signature of Contractor's representative \_\_\_\_\_

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- F. Regulatory Requirements: Comply with the following National Fire Protection Association (NFPA) codes:
  - 1. NFPA 70, "National Electrical Code."
  - 2. NFPA 17: Standard for Dry Chemical Extinguishing Systems
  - 3. NFPA 17A: Standard for Wet Chemical Extinguishing Systems
  - 4. NFPA 96: Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations
- G. Listing and Labeling: Provide electrically operated equipment or components specified in this Section that are listed and labeled.
  - 1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.
  - 2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.
- H. NSF Standards: Comply with applicable NSF International (NSF) standards and criteria and provide NSF Certification Mark on each equipment item, unless otherwise indicated.
- I. ANSI Standards: Comply with applicable ANSI standards for electric-powered and gas-burning appliances; for piping to compressed-gas cylinders; and for plumbing fittings, including vacuum breakers and air gaps, to prevent siphonage in water piping.
- J. SMACNA Standard: Where applicable, fabricate food service equipment to comply with the Sheet Metal and Air Conditioning Contractors National Association's (SMACNA) "Kitchen Equipment Fabrication Guidelines," unless otherwise indicated.
- K. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Section 01 10 00 "General Requirements".
- L. Warranty: All equipment shall be warranted in writing from the date of substantial completion for a minimum period of one (1) year (regardless of the duration of the manufacturer's warranty) from defective parts, material, design, and workmanship, whether furnished by the Contractor or any of his subcontractors. The Contractor will be responsible for the cost of the affected equipment and/or its parts as well as any related costs of affected structural, electrical, mechanical, or other work requiring removal or replacement as a direct or indirect result of the failure of the equipment.
  - 1. The warranty shall also include start-up and one (1) years' service for all refrigeration equipment, with an additional four (4) year warranty on compressors.
  - 2. Neither the final certificate nor payment will relieve the Contractor of responsibility for honoring the warranty.
  - 3. The Contractor shall forward all manufacturers' warranty information to the Owner.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. The Contractor shall furnish all labor, materials, equipment, and services necessary for all items specified. These shall be delivered prepaid; uncrated; assembled with all components within the equipment proper completely connected; set in place; leveled; fastened to the walls, floor, and ceiling if required; and left ready for final connections by other trades, which shall extend utility lines from rough-in locations to the final connection points on the equipment.

**1.07 PROJECT CONDITIONS**

- A. Field Measurements: Verify dimensions of food service equipment installation areas by field measurements before equipment fabrication and indicate measurements on Shop Drawings and Coordination Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
  - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish required dimensions and proceed with fabricating equipment without

field measurements. Other trades are responsible for coordinating construction to ensure actual dimensions correspond to established dimensions.

- B. Should it become necessary to schedule construction so that partitions and other structural features are erected prior to the delivery of equipment, equipment shall be fabricated so that it can be handled through available openings. The Contractor will be responsible for checking delivery access into the building and arranging delivery details as required.

## **1.08 COORDINATION**

- A. Coordinate equipment layout and installation with other work, including light fixtures, HVAC equipment, and fire-suppression system components.
- B. Coordinate location and requirements of service-utility connections.
- C. Where interfacing with food service equipment, coordinate size, location, and requirements of concrete bases, floor depressions, and insulated floors. Concrete, reinforcement, and formwork requirements are specified in Section 03 30 00 "Cast-in-Place Concrete."
- D. All work is to be performed by the proper trades using skilled labor. All work shall be performed at hours required to maintain consistent work schedules with all other trades without additional cost to the Design Professionals.
- E. If any work specified under this Contract must be done by others as a result of jurisdictional trade agreements or other restrictions, this Contractor shall sublet such work as necessary or make other satisfactory arrangements at his own expense and with the understanding that such work shall be done in accordance with the specifications and work schedule.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. Stainless-Steel Sheet, Strip, Plate, and Flat Bar: ASTM A 666, Type 304, stretcher leveled, and in finish specified in "Stainless-Steel Finishes" Article.
- B. Stainless-Steel Tube: ASTM A 554, Grade MT-304, and in finish specified in "Stainless-Steel Finishes" Article.
- C. Sealant: ASTM C 920; Type S, Grade NS, Class 25, Use NT. Provide elastomeric sealant NSF certified for end-use application indicated. Provide sealant that, when cured and washed, meets requirements of Food and Drug Administration's 21 CFR, Section 177.2600 for use in areas that come in contact with food.
  - 1. Color: As selected by Design Professional from manufacturer's full range of colors.
  - 2. Backer Rod: Closed-cell polyethylene, in diameter larger than joint width.

### **2.02 ACCESSORIES**

- A. The Contractor is responsible for providing the following accessories for all equipment, either mounted on the equipment or clearly identified if the accessory is to be mounted by others:
  - 1. Plumbing Accessories- crumb cup strainer waste outlets, lever handle wastes with strainers, tailpieces, faucets, standing or connected overflows, vacuum breakers, and other specialty fittings standard or necessary for the item specified. Where such accessories are mounted by the Contractor, this shall be done in the Contractor's shop whenever possible.
  - 2. Steam Fitting Accessories- steam supply valves with composition handles which shall remain reasonably cool to the touch in service, gauges, thermostats, pressure reducing valves, tinned copper coils, and injectors, as specified.
  - 3. Electrical Accessories- terminal blocks, conduit, wiring, signal lamps, on-off switches, control panels, heating elements, junction boxes, cords and plugs as required, and control switches.

4. Refrigeration Accessories- refrigerant tubing, valves, fittings, hangers, pipe covering, thermometers, combined high and low pressure control switches, solenoid valves, thermostats, condensate evaporators, insulation, heaters, and condensate heater wires.
- B. Install an appropriately sized Superior, Everpure, or equal water conditioner/filter for all ice makers, coffee makers, water coolers, compartment steamers, and drink dispensers specified herein. These shall be concealed and accessible. Where possible, install a single such unit in the line prior to branching to individual items.
- C. The Contractor shall provide neoprene cords and plugs for all items requiring same, and shall coordinate his work with the electrical contractor to insure proper receptacle match. Shorten all cords to an appropriate length.
- D. The Contractor shall install fluorescent light fixtures, lamps, ballasts, and protective non-breakable sleeves for all equipment requiring fluorescent lighting.
- E. The Contractor shall provide refrigeration systems included in the specifications, self-contained and remote, completely installed, charged, tested, and operating properly. For walk-in units, verify proper system sizing with the manufacturer. The scope of this requirement includes all compressors, racks, coils, vibration eliminators, moisture-indicating sight glasses, expansion valves, filters, separators, thermostats, controls, control wiring between compressor and coil (self-contained only; remote by electrical contractor), liquid line dryers, refrigeration grade copper tubing with all sweat joints, and 1/2" or equal Armaflex or equal insulation. Also provide copper indirect condensate waste lines run to a suitable air gap receptor (or, if specified, condensate evaporator), complete with heat trace and Armaflex or equal insulation in freezer compartments and elsewhere as required.

### **2.03 FABRICATION, GENERAL**

- A. Fabricate food service equipment according to NSF 2 requirements. Factory assemble equipment to greatest extent possible.
- B. Welding: Use welding rod of same composition as metal being welded. Use methods that minimize distortion and develop strength and corrosion resistance of base metal. Provide ductile welds free of mechanical imperfections such as gas holes, pits, or cracks.
  1. Welded Butt Joints: Provide full-penetration welds for full-joint length. Make joints flat, continuous, and homogenous with sheet metal without relying on straps under seams, filling in with solder, or spot welding.
  2. Grind exposed welded joints flush with adjoining material and polish to match adjoining surfaces.
  3. Where fasteners are welded to underside of equipment, finish reverse side of weld smooth and undepressed.
  4. Coat unexposed stainless-steel welded joints with suitable metallic-based paint to prevent corrosion.
  5. Tack welds shall have at least 1/2" of welding material at a maximum spacing of 4" with the exception of channel ends where a minimum of two welds will be required regardless of spacing.
  6. Field joints will be performed only when accessibility or transportation considerations prohibit a single unit. Such joints will be welded whenever a welded joint would otherwise be required, and shall be equal in quality to welds performed in the shop.
  7. Any welding of galvanized metal shall be followed by treating to prevent rusting or corrosion at the weld.
- C. Fabricate field-assembled equipment prepared for field-joining methods indicated. For metal butt joints, comply with referenced SMACNA standard, unless otherwise indicated.
- D. Where stainless steel is joined to a dissimilar metal, use stainless steel welding material or fastening devices.

- E. Form metal with break bends that are not flaky, scaly, or cracked in appearance; where breaks mar uniform surface appearance of material, remove marks by grinding, polishing, and finishing.
- F. Sheared edges shall be ground and polished to eliminate the possibility of injury or damage to personnel or equipment. Raw corners shall be ground to a minimum 1/4" radius. Overlapping materials will not be acceptable.
- G. Provide surfaces in food zone, as defined in NSF 2, free from exposed fasteners.
- H. Cap exposed fastener threads, including those inside cabinets, with stainless-steel lock washers and stainless-steel cap (acorn) nuts.
- I. The Contractor shall provide suitable pipe chases and pockets and/or perform all necessary drilling, punching, and cutting of his equipment for work or connections performed by other trades. This includes grinding to eliminate any possibility of injury to damage or equipment. Such work shall be performed in the Contractor's shop whenever possible, and if done in the field shall be of the same quality as if shop performed.
- J. Provide enclosures, including panels, housings, and skirts, to conceal service lines, operating components, and mechanical and electrical devices including those inside cabinets, unless otherwise indicated.
- K. Rivets are not acceptable under any circumstances, nor are manufacturers' name plates except in the case of catalog equipment, where a name plate must appear bearing the model number of the equipment along with all pertinent mechanical and electrical data.

## **2.04 STAINLESS STEEL EQUIPMENT**

- A. Edges and Backsplashes: Provide equipment edges and backsplashes indicated complying with referenced SMACNA standard, unless otherwise indicated.
- B. Tables: Fabricate with reinforced tops, legs, and reinforced under-shelves or cross bracing to comply with referenced SMACNA standard, unless otherwise indicated, and as follows:
  - 1. Tops: Minimum #14 gauge 0.0781-inch- (1.984-mm-) thick stainless steel, unless otherwise indicated.
  - 2. Legs: 1-5/8 inch (41.3 mm) OD, minimum #16 gauge 0.0625-inch- (1.588-mm-) thick stainless steel with stainless-steel gusset and adjustable insert bullet-type feet with minimum adjustment of 1 inch (25 mm) up or down without exposing threads, unless otherwise indicated.
  - 3. Undershelves: Minimum #16 gauge 0.0625 (1.588-mm-) thick stainless steel, unless otherwise indicated.
  - 4. Top and Undershelf Reinforcement: Provide minimum #12 gauge 0.1094 inch thick, stainless-steel reinforcing, unless otherwise indicated.
  - 5. Cross Bracing: 1-1/4 inch (31.75 mm) OD, minimum #16 gauge 0.0625-inch- (1.588-mm-) thick stainless steel, unless otherwise indicated.
- C. Sinks: Fabricate of minimum #14 gauge 0.0781-inch- (1.984-mm-) thick stainless steel with fully welded, 1-piece construction. Construct 2 sides and bottom of sink compartment from 1 stainless-steel sheet with ends welded integral and without overlapping joints or open spaces between compartments. Provide double-wall partitions between compartments with 1/2-inch- (13-mm-) radius rounded tops that are welded integral with sink body. Cove horizontal, vertical, and interior corners with 3/4-inch (19-mm) radius. Pitch and crease sinks to waste for drainage without pooling. Seat wastes in die-stamped depressions without solder, rivets, or welding.
  - 1. Wastes: 2-inch (50-mm) nickel-plated bronze, rotary-handle waste assembly with stainless-steel strainer plate and nickel-plated brass, connected overflow.

2. Drainboards: Minimum #14 gauge 0.0781-inch- (1.984-mm-) thick stainless steel, pitched to sink at 1/8 inch/12 inches (3 mm/300 mm) of length. Reinforce drainboards with minimum #14 gauge 0.0781-inch- (1.984-mm-) thick stainless steel, unless otherwise indicated.
  3. Legs: 1-5/8 inch (41.3 mm) OD, minimum #14 gauge 0.0625-inch- (1.588-mm-) thick stainless steel with stainless steel gusset welded to #12 gauge 0.1094-inch- (2.779-mm-) thick, stainless steel support plate. Provide adjustable insert bullet-type feet with minimum adjustment of 1 inch (25 mm) up or down without exposing threads, unless otherwise indicated.
  4. Drainboard Braces: 1 inch (25 mm) OD, minimum #16 gauge 0.0625-inch- (1.588-mm-) thick stainless steel, unless otherwise indicated.
  5. Cross Bracing: 1-1/4 inch (31.75 mm) OD, minimum #16 gauge 0.0625-inch- (1.588-mm-) thick stainless steel, unless otherwise indicated.
- D. Wall Shelves and Overshelves: Fabricate to comply with referenced SMACNA standard, unless otherwise indicated, and with minimum #16 gauge 0.0625-inch- (1.588-mm-) thick, stainless steel shelf tops.
- E. Refer to the sheets in the drawing set which describe specific fabrication details to be used in the course of construction.

## **2.05 STAINLESS STEEL FINISHES**

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations relative to applying and designating finishes.
1. Remove or blend tool and die marks and stretch lines into finish.
  2. Grind and polish surfaces to produce uniform, directional textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.
- B. Concealed Surfaces: No. 2B finish (bright, cold-rolled, unpolished finish).
- C. Exposed Surfaces: No. 4 finish (bright, directional polish).
- D. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.
- E. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipment.

## **2.06 MILLWORK**

- A. Core materials shall be 3/4" exterior or marine grade plywood unless otherwise specified.
- B. Particle board or other pressed wood products are not acceptable.
- C. Plastic laminate shall be by Formica, Wilson Art, or approved equal, applied according to manufacturer's recommendations with a urea-based adhesive. Rubber based adhesives are not acceptable. Plastic laminate shall be NSF listed.

## **2.07 PRESENTATION OF BIDS**

- A. It is intended that the contract be awarded as a whole to the successful bidder. An itemized breakdown is required so that the Owner may, at his option, delete the item in its entirety, supply any part or portion thereof, or increase the quantity, making a suitable adjustment in the contract price based on the breakdown.
- B. Fill out the following Itemized Price List.

QTY.	DESCRIPTION	PRICE
1	1 Walk-In Refrigerator/Freezer	.....
1a	1 Refrigerator Compressor (Verify Location)	.....
1b	1 Refrigerator Evaporator Coil	.....
1c	1 Freezer Compressor (Verify Location)	.....
1d	1 Freezer Evaporator Coil	.....
2	6 Mobile Shelving Unit	.....
3	2 High-Density Shelving	.....
	<b>Subtotal</b>	.....
	Any extra charges (describe)	.....
	<b>TOTAL COST (excluding taxes)</b>	.....
	Taxable amount	.....

## 2.08 ITEM SPECIFICATIONS

### 2.08.01 ITEM #1 WALK-IN REFRIGERATOR/FREEZER w/ SYSTEMS LOT REQUIRED

- A. Install the KOLPAK\*C004 (refer to Section 1.05.E in regard to the “\*C004” suffix) prefabricated walk-in refrigerator/freezer size, shape, and configuration as shown on Plan measuring 12'-6½" left to right by 20'-2½" front to rear by 9'-6" high a.f.f. (nominal o.d.). The interior shall be of patterned aluminum throughout except the ceiling, which shall be of white baked-on enamel. The exterior sides shall be patterned aluminum, clad where exposed with diamond-pattern aluminum treadplate to a height of 4'-0". Provide prefabricated insulated structural floor panels for installation onto a new pad area provided by other trades. The exposed interior top surface of the floor shall be provided with smooth aluminum with integral cove at the walls. Coordinate the interface with new and existing structural elements with the appropriate trades.
- B. The unit will be provided for exterior use, including a pitched membrane roof and any other options necessary for outdoor use. Mount the compressors on an adjacent concrete pad (by other trades) on 24" high angle iron or similar support frames provided by the Food Service Equipment Contractor. Provide fan coil condensate drains exiting onto the adjacent concrete pad, gravel, or other area as directed – coordinate exact line runs and discharge areas in the field. Provide flashing around the base where the walk-in walls meet the concrete pad.
- C. The entire installation shall meet or exceed the requirements of the 2009 U.S. Energy Independence Act. Specific requirements include, but are not necessarily limited to:
1. Automatic door closers when the door is in an open position less than 90°;
  2. R-25 rating for coolers and R-32 rating for freezers for insulation in walls, ceilings, and doors;
  3. R-28 rating for insulation in freezer floors;
  4. EC (electronically commutated) or 3-phase evaporator fan motors;
  5. EC, PSC (permanent split capacitor), or 3-phase condenser fan motors under 1.0 horsepower;
  6. Interior lighting standards.
- D. The unit shall be separated into two compartments as shown. Provide (3) heavy-duty doors hinged as shown, each complete with (3) heavy duty spring-loaded hinges, and diamond-pattern aluminum treadplate protection on the lower portion. The doors not facing outdoors shall be provided with a vision panel. The door leading directly to the outside shall not be provided with a vision panel, and shall be provided with an overhead drip gutter, heated perimeter, and any other accessories recommended by the manufacturer for doors exposed to weather and seasonal extremes. All doors shall include a positive closure device to insure complete closure from within 1" of the fully closed position.
- E. Provide matching patterned aluminum horizontal and vertical closure panels at the interior and exterior where the unit abuts (or is in proximity to) building walls.
- F. As part of this item install: L.E.D. ceiling lighting as required to maintain 10 footcandles at 30" above the floor; vapor-proof door fixture with L.E.D. interior light fixture; Weiss thermometer/light switch/temperature alarm system; OSHA three-way switches; and foamed-in-place internal personnel alarm with waterproof hardware. The alarm shall emit a signal audible from the exterior of the unit, both in the kitchen and in the area outside the exterior door.



- 2.08.02 ITEM #1a REFRIGERATOR COMPRESSOR (1) REQUIRED**
- A. Install the KOLPAK #PC49MOP-2EP\*C004 medium temperature condensing unit including all components, installation, charging, testing, and so on required for outdoor installation. Verify location of the compressor. The system shall be capable of wi-fi connectivity and diagnosis to the factory via the owner's wi-fi system.
  - B. Verify correct matching of this equipment with Item #1b.
- 2.08.03 ITEM #1b REFRIGERATOR EVAPORATOR COIL (1) REQUIRED**
- A. The specification for this item is identical to Item #1a, with the following exceptions:
    - 1. The equipment shall be the KOLPAK #AM16-052-1EC-PR-8\*C004 medium temperature fan coil evaporator;
    - 2. Verify correct matching of this equipment with Item #1a.
- 2.08.04 ITEM #1c FREEZER COMPRESSOR (1) REQUIRED**
- A. The specification for this item is identical to Item #1a, with the following exceptions:
    - 1. The equipment shall be the KOLPAK #PC249LZOP-3EP\*C004 low temperature condensing unit;
    - 2. Verify correct matching of this equipment with Item #1d.
- 2.08.05 ITEM #1d FREEZER EVAPORATOR COIL (1) REQUIRED**
- A. The specification for this item is identical to Item #1a, with the following exceptions:
    - 1. The equipment shall be the KOLPAK #EL26-066-2EC-PR-8 low temperature fan coil evaporator;
    - 2. Verify correct matching of this equipment with Item #1c.
- 2.08.06 ITEM #2 MOBILE SHELVING UNIT (6) REQUIRED**
- A. Provide the following METRO components in the sizes and configurations shown. The Food Service Equipment Contractor is responsible for verifying that the space available in the field will accommodate the units:
  - B. (10) #MQ2154G\*C004 shelves;
  - (20) #MQ2454G\*C004 shelves;
  - (24) #MQ63UP\*C004 posts;
  - (12) 5" x 1.25" threaded stem casters;
  - (12) 5" x 1.25" threaded stem casters with brakes.
- 2.08.07 ITEM #3 HIGH DENSITY SHELVING (2) REQUIRED**
- A. Provide (2) identical systems made up of the following METRO components in the sizes and configurations shown. The Food Service Equipment Contractor is responsible for verifying that the space available in the field will accommodate the units:
  - B. (15) #MQ2448G\*C004 shelves;
  - (1) #MQTTE24\*C004 stationary end unit kit with components, hardware and (8) posts;
  - (1) #MQTTM24C\*C004 mobile unit kit, each with components, casters and (4) posts;

- (1) #TTS6NA\*C004 (verify length) track set.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances, service-utility connections, and other conditions affecting installation and performance of food service equipment. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Examine roughing-in for piping, mechanical, and electrical systems to verify actual locations of connections before installation.

#### **3.02 INSTALLATION, GENERAL**

- A. A minimum of three (3) weeks before the job opening, the Contractor shall provide three (3) copies of original maintenance and repair manuals, giving operating and maintenance instructions, parts lists, and names and addresses of local service agencies and representatives for each piece of equipment having electrical and/or mechanical components. Provide wiring and connection diagrams where one or more items are interconnected.
- B. Indicate field joints and methods of connection on Drawings. Correlate with NSF 2 requirements.
- C. Complete equipment field assembly, where required, using methods indicated.
  1. Provide closed butt and contact joints that do not require a filler.
  2. Grind field welds on stainless-steel equipment smooth, and polish to match adjacent finish. Comply with welding requirements in "Fabrication, General" Article.
- D. Any field cutting or welding shall comply with the provisions of the National Fire Protection Association's "National Fire Codes" or local requirement, whichever is more stringent, pertaining to such work, and the Contractor shall be responsible for any damage resulting from failure to comply.
- E. Verify equipment maintenance-clearance requirements of authorities having jurisdiction and of local sanitation and health codes. Reflect minimum clearances on Drawings and revise below to suit Project.
- F. Install equipment with access and maintenance clearances according to manufacturer's written instructions and requirements of authorities having jurisdiction.
- G. Except for mobile and adjustable-leg equipment, securely anchor and attach items and accessories to walls, floors, or bases with stainless-steel fasteners, unless otherwise indicated.
- H. Install cabinets and similar equipment on concrete or masonry bases in a bed of sealant.
- I. Install trim strips and similar items requiring fasteners in a bed of sealant. Fasten with stainless-steel fasteners at 48 inches (1200 mm) o.c. maximum.
- J. Install sealant in joints between equipment and abutting surfaces with continuous joint backing, unless otherwise indicated. Provide airtight, watertight, vermin-proof, sanitary joints.
- K. Prior to turning completed areas over to the Owner, the Contractor shall clean and polish all equipment herein specified and make it ready for use, including commissioning and demonstration to the Owner.

#### **3.03 PROTECTION**

- A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer, that ensure food service equipment is without damage or deterioration at the time of Substantial Completion.

- B. Care shall be taken to prevent any damage whatsoever to the equipment, building, or previous work. Such damage will be repaired at the expense of the Contractor causing it.
- C. Tile, terrazzo, and finished floors and walls shall be protected by the Contractor with suitable planking or other material prior to movement or installation of equipment on it.

**3.04 DEMONSTRATION AND TURNOVER**

- A. The Contractor shall retain title and responsibility for all equipment until accepted by the Owner. Any items lost or damaged shall be immediately replaced or repaired to a new condition to the satisfaction of the Design Professional.
- B. Prior to acceptance by Owner the Contractor shall commission and test all equipment in the presence of the Owner or his agent to his satisfaction that the equipment is operating properly.
- C. Prior to Owner's acceptance, the Contractor shall have a qualified representative on hand to instruct the Owner's employees in the proper operation and maintenance of the equipment.

**END OF SECTION**

**SECTION 20 00 00**  
**BASIC MECHANICAL REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. General Requirements specifically applicable to Division 22, and 23.
- B. This Contractor shall provide and pay for all labor, materials, equipment, appliances, tools, construction equipment and machinery, transportation, and all services required for the execution, completion and operation of all mechanical systems, whether temporary or permanent and whether or not incorporated in the Work.

**1.02 LOCAL CONDITIONS**

- A. Contractor shall visit the site and become familiar with conditions which will affect work that is to be performed. Submission of a proposal by this Contractor shall be conclusive evidence that this Contractor has visited the site and has given proper consideration and evaluation of these conditions in preparation of his proposal. No allowance shall be made to the Contractor for extra expense incurred due to neglect to properly make this visit and examination.
- B. Where active sewers, gas, electric or other services are encountered during performance of this contract, Contractor shall protect, brace and support them as required. Do not prevent, interrupt or disturb operation of existing services that are to remain. Relocate existing services as required.
- C. Drawings show approximate locations of existing utilities. Contractor shall verify exact location of services which they may expect to encounter.

**1.03 RELATED SECTIONS**

- A. Section 02 41 00 - Demolition.
- B. Section 03 30 00 - Cast-In-Place Concrete.
- C. Section 04 20 00 - Unit Masonry.
- D. Section 05 50 00 - Metal Fabrications.
- E. Section 07 54 00 - Thermoplastic Membrane Roofing.
- F. Section 07 84 00 - Firestopping.
- G. Section 07 90 05 - Joint Sealers.
- H. Section 09 21 16 - Gypsum Board Assemblies.
- I. Section 09 90 00 - Painting and Coating.
- J. Section 10 28 13 - Toilet Accessories.
- K. Division 26 - Electrical.

**1.04 CODES AND STANDARDS**

- A. All work shall be installed in accordance with applicable local and state regulations, including but not limited to the following:
  - 1. Plumbing work shall be done in accordance with plumbing code of the State of Michigan, local regulations, codes, and ordinances, and any other codes or regulations having legal jurisdiction in the area.
  - 2. Mechanical work shall be done in accordance with applicable Standards and all State, Federal and local codes, regulations or ordinances which may legally apply in the area.
  - 3. In the event Drawings and Specifications conflict with applicable rules, regulations or codes, said rules, regulations and codes shall govern Contractor. Should any change in Drawings and/or Specifications be required to comply with rules, regulations or codes, Contractor shall notify Design Professional, in writing, before entering into contract. After entering into contract, all work shall be completed without addition to contract amount. Any changes in the work to secure certificates shall be made by Contractor at his own expense.
  - 4. Standards of Industry: Reference to industry standards where applicable:
    - a. UL - Underwriters' Laboratories, Inc.
    - b. AGA - American Gas Association

- c. ASA - American Standards Association
- d. ASHRAE - American Society of Heating, Refrigeration and Air Conditioning Engineers
- e. ASME - American Society of Mechanical Engineers
- f. ASTM - American Society for Testing and Materials
- g. AMCA - Air Moving and Conditioning Association
- h. NBFU - National Board of Fire Underwriters
- i. NFPA - National Fire Protection Association
- j. AWWA - American Water Works Association
- k. FIA - Factory Insurance Association
- l. FM - Factory Mutual Insurance Companies
- m. SMACNA - Sheet Metal and Air Conditioning Contractor's National Association, Inc.
- n. Local and State Codes
- o. National Plumbing Codes
- p. State of Michigan Boiler Act of 1965 and Board of Boiler Rules
- q. Michigan Barrier Free Design Graphics Manual
- r. PDI - Plumbing Drainage Institute

#### **1.05 PERMITS AND INSPECTIONS**

- A. Contractor shall file approval forms when required, obtain and pay for all required permits, pay all required deposits, arrange for and pay for all required or necessary inspections.
- B. Contractor shall make all arrangements for inspections in keeping with project progress to prevent unnecessary delays. Upon completion of the project, Contractor shall submit all final inspection certificates to Design Professional for Owner's file.

#### **1.06 COORDINATION**

- A. Coordinate with Construction Manager's General Requirements.
- B. Coordinate fully with all other Contractors and trades to assure efficient and orderly sequence of installation of interdependent systems and system elements.
- C. Installation shall be made so that all component parts function together as a workable system, which shall be complete with all accessories necessary for proper operation. When installation is complete, all equipment shall be operative and in proper adjustment. All work shall be executed in conformity with the best practice so as to contribute to efficiency of operation, minimum maintenance, accessibility and aesthetics.
- D. Contractor shall consult Drawings, Shop Drawings, manufacturer's literature, and specifications for all trades to determine nature and extent of work specified in other sections which adjoins or attaches to their work.
- E. Contractor shall confer with other Contractors and Subcontractors at the site to coordinate the work in view of job conditions so that interferences may be eliminated, and maximum head room and clearance may be obtained.
- F. In the event that interferences develop, Design Professional's decision will be final as to which trade shall relocate its work and no additional compensation will be allowed for the moving of pipes, ductwork or equipment to clear such interferences.
- G. Cutting, patching and painting resulting from this Contractor's improper location or coordination of the work shall be done by Contractor who originally installed same, but this Contractor will be required to bear expenses.
- H. Contractor is responsible for providing and installing any access panels or doors which may be required to provide access to valves, controls, fittings, etc. that are installed behind permanent walls, ceilings, bulkheads, soffits or floors. RE: Section 08 31 00 - ACCESS DOORS AND PANELS.

#### **1.07 CUTTING AND PATCHING**

- A. Contractor shall do all cutting and patching required for work and coordinate pipe, duct, and equipment locations with other trades.
- B. All major patching and repairing of work caused by this Contractor shall be done by Contractor who originally installed same, but this Contractor will be required to bear expenses.

- C. No cutting or drilling of structural members shall be done without written permission from the Design Professional.
- D. Provide fire stops for all mechanical openings in fire rated surfaces. Seal space between sleeves and pipes with approved fire proofing material. Integrity of system shall be maintained to the rating of the item pierced.

#### **1.08 MINOR DEVIATIONS**

- A. Drawings are diagrammatic and indicate the general arrangement of systems and work included in the contract. Drawings are not to be scaled nor serve as Shop Drawings.
- B. Drawings show design intent and this Contractor shall field check dimensions, actual locations, distances and levels will be governed by actual field conditions and variations in equipment being provided.
- C. Contractor shall follow Drawings in laying out work and checking Drawings of other trades to verify spaces in which work will be installed. Where headroom or space conditions are inadequate, Design Professional shall be notified before proceeding with installation.
- D. Items not specifically mentioned in Specifications or noted on Drawings, but which are obviously necessary to make a complete working installation shall be included at no extra cost to the Owner.
- E. If directed by Design Professional, this Contractor shall, without extra charge, make reasonable modifications in layout as needed to prevent conflicts with work of other trades or for proper execution of work.

#### **1.09 SUBMITTALS**

- A. Coordinate with Construction Manager's General Requirements for submittal procedures.
- B. Design Professional will not be responsible for errors in quantities, dimensions to fit job conditions, details of fabrication to insure proper assembly at job site, or for errors resulting from mistakes in Submittals even though reviewed.
- C. Responsibility for these items rests with Contractor and his Suppliers.
- D. Any equipment used by the Contractor that is not specifically shown on drawings is considered alternate equipment and all additional installation costs incurred by the use of this equipment shall be at the Contractor's expense.

#### **1.10 EQUIPMENT**

- A. Coordinate with Construction Manager's General Requirements.
- B. Only substitutions made by addendum, prior to receipt of bids, will be binding.
- C. After Award of Contract substitutions will only be considered when a Product becomes unavailable through no fault of this Contractor.
- D. Where equipment manufacturer's names are listed, they are listed not only to indicate an acceptable manufacturer, but further to insure providing a certain quality, a feature, or other item of design not specifically mentioned in the detailed description.
- E. Where Contractor proposes to use an item of equipment other than specified or detailed on the Drawings, which requires any redesign of structure, partitions, foundations, wiring or any other part of mechanical, electrical or architectural layout, all such redesign, and all new Drawings and detailing required therefore, shall be prepared by this Contractor at their own expense.
- F. Where such approved deviation requires a different quantity and arrangement of piping, ductwork and equipment from that specified or indicated on Drawings or Shop Drawings, Contractor shall furnish and install any such piping, ductwork, etc., and any other additional equipment required by system at no additional cost to Owner. Contractor shall also be responsible for electrical and other trade work not mentioned above upon such equipment substitution.

#### **1.11 CLEANING AND FINISHING**

- A. Coordinate with Construction Manager's General Requirements.
- B. All piping, insulation, unfinished iron work, fixtures and equipment shall be cleaned at completion of Work.
- C. Two (2) weeks after turning systems over to Owner, all strainers, filters, and automatic controls shall be cleaned and checked.

- D. Owner shall be instructed on system operations and maintenance, including lubrication, filter replacement or cleaning, seasonal change over as required, control operation, and such other information as necessary.

#### **1.12 GUARANTEE AND WARRANTY**

- A. Contractor shall guarantee all of their work and the work of their subcontractors to be free from defects in material and workmanship for a period of one (2) year from date of final acceptance of the work, unless a longer period is stipulated under specific headings, and shall repair or replace at no additional cost to Owner any material or equipment developing defects and shall also make good any damage caused by such defects or the correction of defects. Repairs or replacements shall be guaranteed for one year, dated from the final acceptance of the repair or replacement. This replacement shall be binding even though it will exceed product guarantees normally furnished by some manufacturers.
- B. Contractor shall submit their own and each equipment manufacturer's written certificates, warranting that each such item of equipment furnished complies with all requirements of the Drawings and Specifications.
- C. Note that guarantee shall run from date of final acceptance of the work, **NOT** from date of installation of a device or piece of equipment.

**END OF SECTION**

**SECTION 22 05 53**  
**IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Nameplates.
- B. Tags.
- C. Pipe Markers.

**1.02 RELATED REQUIREMENTS**

- A. Section 09 90 00 - Painting and Coating: Identification painting.

**1.03 REFERENCE STANDARDS**

- A. ASME A13.1 - Scheme for the Identification of Piping Systems; The American Society of Mechanical Engineers; 2023.
- B. ASTM D709 - Standard Specification for Laminated Thermosetting Materials; 2017.

**1.04 SUBMITTALS**

- A. See See Construction Manager's General Requirements for submittal procedures.
- B. List: Submit list of wording, symbols, letter size, and color coding for mechanical identification.
- C. Chart and Schedule: Submit valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.
- D. Product Data: Provide manufacturers catalog literature for each product required.

**PART 2 PRODUCTS**

**2.01 IDENTIFICATION APPLICATIONS**

- A. Rooftop Units: Nameplates.
- B. Automatic Controls: Tags. Key to control schematic.
- C. Control Panels: Nameplates.
- D. Major Control Components: Nameplates.
- E. Piping: Tags.
- F. Small-sized Equipment: Tags.
- G. Valves: Tags and ceiling tacks where located above lay-in ceiling.

**2.02 NAMEPLATES**

- A. Description: Laminated three-layer plastic with engraved letters.
  - 1. Letter Color: White.
  - 2. Letter Height: 1/4 inch.
  - 3. Background Color: Black.
  - 4. Plastic: Conform to ASTM D709.

**2.03 TAGS**

- A. Plastic Tags: Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inch diameter.
- B. Metal Tags: Brass with stamped letters; tag size minimum 1-1/2 inch diameter with smooth edges.
- C. Valve Tag Chart: Typewritten letter size list in anodized aluminum frame.

**2.04 PIPE MARKERS**

- A. Comply with ASME A13.1.
- B. Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid being conveyed.
- C. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.



- D. Color code as follows:
  - 1. Potable, Cooling, Boiler, Feed, Other Water: Green with white letters.
  - 2. Flammable Fluids: Yellow with black letters.

## **2.05 CEILING TACKS**

- A. Description: Steel with 3/4 inch diameter color coded head.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Degrease and clean surfaces to receive adhesive for identification materials.
- B. Prepare surfaces in accordance with Section 09 90 00 for stencil painting.

### **3.02 INSTALLATION**

- A. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.
- B. Install tags with corrosion resistant chain.
- C. Install plastic pipe markers in accordance with manufacturer's instructions.
- D. Install plastic tape pipe markers complete around pipe in accordance with manufacturer's instructions.
- E. Install underground plastic pipe markers 6 to 8 inches below finished grade, directly above buried pipe.
- F. Use tags on piping 3/4 inch diameter and smaller.
  - 1. Identify service, flow direction, and pressure.
  - 2. Install in clear view and align with axis of piping.
  - 3. Locate identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and Tee, at each side of penetration of structure or enclosure, and at each obstruction.

**END OF SECTION**

**SECTION 22 07 19**  
**PLUMBING PIPING INSULATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Piping insulation.
- B. Jackets and accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 84 00 - Firestopping.
- B. Section 09 90 00 - Painting and Coating: Painting insulation jacket.
- C. Section 22 10 05 - Plumbing Piping: Placement of hangers and hanger inserts.

**1.03 REFERENCE STANDARDS**

- A. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2023.
- B. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
- C. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot Plate Apparatus; 2019 with Editorial Revision (2023).
- D. ASTM C195 - Standard Specification for Mineral Fiber Thermal Insulating Cement; 2007 (Reapproved 2019).
- E. ASTM C449 - Standard Specification for Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement; 2007 (Reapproved 2019).
- F. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2021.
- G. ASTM C547 - Standard Specification for Mineral Fiber Pipe Insulation; 2022a.
- H. ASTM C552 - Standard Specification for Cellular Glass Thermal Insulation; 2022.
- I. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2022.
- J. ASTM C585 - Standard Practice for Inner and Outer Diameters of Rigid Thermal Insulation for Nominal Sizes of Pipe and Tubing; 2022.
- K. ASTM D1056 - Standard Specification for Flexible Cellular Materials--Sponge or Expanded Rubber; 2020.
- L. ASTM D2842 - Standard Test Method for Water Absorption of Rigid Cellular Plastics; 2019.
- M. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023.
- N. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2022a with Editorial Revision (2021).
- O. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Underwriters Laboratories Inc.; Current Edition, Including All Revisions.

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years of documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified in this section with minimum five years of experience.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.

## 1.07 FIELD CONDITIONS

- A. Maintain ambient conditions required by manufacturers of each product.
- B. Maintain temperature before, during, and after installation for minimum of 24 hours.

## PART 2 PRODUCTS

### 2.01 REQUIREMENTS FOR ALL PRODUCTS OF THIS SECTION

- A. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84, NFPA 255, or UL 723.

### 2.02 GLASS FIBER

- A. Manufacturers:
  - 1. Knauf Insulation: [www.knaufusa.com](http://www.knaufusa.com).
  - 2. Johns Manville Corporation: [www.jm.com](http://www.jm.com).
  - 3. Owens Corning Corp: [www.owenscorning.com](http://www.owenscorning.com).
  - 4. CertainTeed Corporation: [www.certainteed.com](http://www.certainteed.com).
  - 5. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.
- B. Insulation: ASTM C547 and ASTM C795; rigid molded, noncombustible.
  - 1. 'K' value: ASTM C177, 0.24 at 75 degrees F.
  - 2. Maximum service temperature: 850 degrees F.
  - 3. Maximum moisture absorption: 0.2 percent by volume.
- C. Vapor Barrier Jacket: White Kraft paper with glass fiber yarn, bonded to aluminized film; moisture vapor transmission when tested in accordance with ASTM E96/E96M of 0.02 perm-inches.
- D. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.
- E. Vapor Barrier Lap Adhesive:
  - 1. Compatible with insulation.
- F. Insulating Cement/Mastic:
  - 1. ASTM C195; hydraulic setting on mineral wool.
- G. Fibrous Glass Fabric:
  - 1. Cloth: Untreated; 9 oz/sq yd weight.
  - 2. Blanket: 1.0 lb/cu ft density.
  - 3. Weave: 5x5.
- H. Indoor Vapor Barrier Finish:
  - 1. Cloth: Untreated; 9 oz/sq yd weight.
  - 2. Vinyl emulsion type acrylic, compatible with insulation, black color.

### 2.03 JACKETS

- A. PVC Plastic.
  - 1. Manufacturers:
    - a. Knauf Insulation: [www.knaufusa.com](http://www.knaufusa.com).
    - b. Johns Manville Corporation: [www.jm.com](http://www.jm.com).
    - c. Owens Corning Corp: [www.owenscorning.com](http://www.owenscorning.com).
    - d. CertainTeed Corporation: [www.certainteed.com](http://www.certainteed.com).
  - 2. Jacket: One piece molded type fitting covers and sheet material, off-white color.
    - a. Minimum Service Temperature: 0 degrees F.
    - b. Maximum Service Temperature: 150 degrees F.
    - c. Moisture Vapor Permeability: 0.002 perm inch, maximum, when tested in accordance with ASTM E96/E96M.
    - d. Thickness: 10 mil.
    - e. Connections: Brush on welding adhesive.
  - 3. Covering Adhesive Mastic:
    - a. Compatible with insulation.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that piping has been tested before applying insulation materials.
- B. Verify that surfaces are clean and dry, with foreign material removed.

### 3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install in accordance with NAIMA National Insulation Standards.
- C. Exposed Piping: Locate insulation and cover seams in least visible locations.
- D. Insulated pipes conveying fluids below ambient temperature: Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, and expansion joints.
- E. Glass fiber insulated pipes conveying fluids below ambient temperature:
  - 1. Provide vapor barrier jackets, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples and vapor barrier mastic.
  - 2. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor barrier adhesive or PVC fitting covers.
- F. For hot piping conveying fluids over 140 degrees F, insulate flanges and unions at equipment.
- G. Glass fiber insulated pipes conveying fluids above ambient temperature:
  - 1. Provide standard jackets, with or without vapor barrier, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples.
  - 2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.
- H. Inserts and Shields:
  - 1. Application: Piping 1-1/2 inches diameter or larger.
  - 2. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.
  - 3. Insert location: Between support shield and piping and under the finish jacket.
  - 4. Insert configuration: Minimum 6 inches long, of same thickness and contour as adjoining insulation; may be factory fabricated.
  - 5. Insert material: Hydrous calcium silicate insulation or other heavy density insulating material suitable for the planned temperature range.
- I. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions. At fire separations, refer to Section 07 84 00.

### 3.03 SCHEDULES

Piping System Type	Fluid Temp Range	Insulation Thickness For Pipe Sizes (inches)				
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		To 1"	1"-1-1/4"	1-1/2"-4"	5"-6"	8" & up
Domestic Water	40-70 F	.5	1.0	1.0	1.0	1.5
Domestic Hot Water		1.0	1.0	1.5	1.5	1.5

- A. Plumbing Systems:
  - 1. Domestic Hot Water Supply:
    - a. Glass Fiber Insulation:
  - 2. Domestic Cold Water:
    - a. Glass Fiber Insulation

**END OF SECTION**



**SECTION 22 10 05**  
**PLUMBING PIPING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Pipe, pipe fittings, valves, and connections for piping systems.
  - 1. Sanitary sewer.
  - 2. Domestic water.
  - 3. Natural Gas.

**1.02 RELATED REQUIREMENTS**

- A. Section 31 23 01 - Excavating Filling and Grading.
- B. Section 07 54 00 - Thermoplastic Membrane Roofing: Roof penetrations and pipe supports.
- C. Section 07 84 00 - Firestopping.
- D. Section 22 05 53 - Identification for Plumbing Piping and Equipment.
- E. Section 22 07 19 - Plumbing Piping Insulation.
- F. Section 22 40 00 - Plumbing Fixtures.
- G. Division 26 - Electrical.

**1.03 REFERENCE STANDARDS**

- A. ANSI Z21.22 - American National Standard for Relief Valves for Hot Water Supply Systems; 2015 (Reaffirmed 2020).
- B. ASME B16.3 - Malleable Iron Threaded Fittings: Classes 150 and 300; 2021.
- C. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2021.
- D. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2021.
- E. ASME B31.1 - Power Piping; 2022.
- F. ASME B31.3 - Process Piping; 2022.
- G. ASME B31.9 - Building Services Piping; 2020.
- H. ASSE 1003 – Performance Requirements for Water Pressure Reducing Valves for Potable Water Distribution Systems; 2020.
- I. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2022.
- J. ASTM B32 - Standard Specification for Solder Metal; 2020.
- K. ASTM B42 - Standard Specification for Seamless Copper Pipe, Standard Sizes; 2020.
- L. ASTM B68/B68M - Standard Specification for Seamless Copper Tube, Bright Annealed; 2019.
- M. ASTM B75/B75M - Standard Specification for Seamless Copper Tube; 2020.
- N. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2022.
- O. ASTM B306 - Standard Specification for Copper Drainage Tube (DWV); 2020.
- P. ASTM D2239 - Standard Specification for Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter; 2022.
- Q. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40; 2021.
- R. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems; 2020.
- S. ASTM D2609 - Standard Specification for Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe; 2021.
- T. ASTM D2665 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings; 2020.

- U. ASTM D2683 - Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing; 2020.
- V. ASTM D2729 - Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings; 2021.
- W. ASTM D2855 - Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets; 2020.
- X. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings; 2021.
- AA. ASTM E84 -Standard Test Method for Surface Burning Characteristics of Building Materials; 2023.
- AB. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe; 2014 (Reapproved 2021).
- AC. ASTM F876 - Standard Specification for Crosslinked Polyethylene (PEX) Tubing; 2023.
- AD. ASTM F877 - Standard Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems; 2023.
- AE. ASTM F1281 - Standard Specification for Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene (PEX-AL-PEX) Pressure Pipe; 2023.
- AF. AWWA C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings; 2017.
- AG. AWWA C151/A21.51 - Ductile-Iron Pipe, Centrifugally Cast; 2017, with Errata (2018).
- AH. AWWA C651 - Disinfecting Water Mains; 2014, with Addendum (2020).
- AI. CISPI 310 - Specification for Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications; 2020.
- AJ. ICC-ES AC01 - Acceptance Criteria for Expansion Anchors in Masonry Elements; 2015.
- AK. ICC-ES AC106 - Acceptance Criteria for Predrilled Fasteners (Screw Anchors) in Masonry Elements; 2015.
- AL. MSS SP-85 - Gray Iron Globe and Angle Valves, Flanged and Threaded Ends; 2011.
- AM. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends; 2010, with Errata.
- AN. NFPA 54 - National Fuel Gas Code; National Fire Protection Association; 2024.
- AO. NSF 61 - Drinking Water System Components - Health Effects; 2023, with Errata.
- AP. NSF 372 - Drinking Water System Components - Lead Content; 2022.

#### **1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements, for submittal procedures.
- B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.
- C. Shop Drawings: For non-penetrating rooftop supports, submit detailed layout developed for this project, with design calculations for loadings and spacings.

#### **1.05 QUALITY ASSURANCE**

- A. Valves: Manufacturer's name and pressure rating marked on valve body.
- B. Welding Materials and Procedures: Conform to ASME (BPV IX) and applicable state labor regulations.
- C. Welder Qualifications: Certified in accordance with ASME (BPV IX).
- D. Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
- B. Provide temporary protective coating on cast iron and steel valves.
- C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

- D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

## **PART 2 PRODUCTS**

### **2.01 SANITARY SEWER PIPING, BURIED BEYOND 5 FEET OF BUILDING**

- A. PVC Pipe: ASTM D3034 SDR 35.
  - 1. Fittings: PVC.
  - 2. Joints: Push-on, using ASTM F477 elastomeric gaskets.
- B. PVC Pipe: ASTM D2665 or ASTM D3034.
  - 1. Fittings: PVC.
  - 2. Joints: Solvent welded, with ASTM D2564 solvent cement.

### **2.02 SANITARY SEWER PIPING, BURIED WITHIN 5 FEET OF BUILDING**

- A. PVC Pipe: ASTM D2665 or ASTM D3034.
  - 1. Fittings: PVC.
  - 2. Joints: Solvent welded, with ASTM D2564 solvent cement.

### **2.03 SANITARY SEWER PIPING, ABOVE GRADE**

- A. Cast Iron Pipe: ASTM A74, service weight.
  - 1. Fittings: Cast iron.
  - 2. Joint Seals: ASTM C 564 neoprene gaskets.
- B. Cast Iron Pipe: CISPI 301, hubless, service weight.
  - 1. Fittings: Cast iron.
  - 2. Joints: CISPI 310, neoprene gaskets and stainless steel clamp-and-shield assemblies.

### **2.04 WATER PIPING, BURIED BEYOND 5 FEET OF BUILDING**

- A. PE Pipe: ASTM D2239, or ASTM D2447 Schedule 40.
  - 1. Fittings: ASTM D2609, PE.
  - 2. Joints: Mechanical with stainless steel clamp.
- B. PE Pipe: AWWA C901.
- C. Copper Pipe: ASTM B42, annealed.
  - 1. Fittings: ASME B16.26, cast bronze.
  - 2. Joints: Flared.
- D. Polyethylene/Aluminum Composite Pipe: ASTM F1281 or ASTM F1282, tested for potable water and residual chlorine use.
  - 1. Fittings and Joints: Brass compression type.

### **2.05 WATER PIPING, BURIED WITHIN 5 FEET OF BUILDING**

- A. Copper Pipe: ASTM B42, hard drawn.
  - 1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22 wrought copper and bronze.
  - 2. Joints: ASTM B 32, alloy Sn95 solder.
- B. Copper Pipe: ASTM B42, annealed.
  - 1. Fittings: ASME B16.26, cast bronze.
  - 2. Joints: Flared.
- C. PE Pipe: ASTM D2239, or ASTM D2447 Schedule 40.
  - 1. Fittings: ASTM D2609, PE.
  - 2. Joints: Mechanical with stainless steel clamp.
- D. Cross-Linked polyethylene (PEX) pipe: ASTM F876 or ASTM F877.
  - 1. PPI TR-4 Pressure Desing Basis:
  - 2. Fittings: Brass Copper.
  - 3. Brass and Engineered polymer (EP) ASTM F1960.
  - 4. Joints: Mechanical Compression
  - 5. Joints: ASTM F1960 cold expansion fittings



- E. Polyethylene/Aluminum Composite Pipe: ASTM F1281 or ASTM F1282, tested for potable water and residual chlorine use.
  - 1. Fittings and Joints: Brass compression type.

## **2.06 WATER PIPING, ABOVE GRADE**

- A. Copper Tube: ASTM B88 (ASTM B88M), Type L (B), Drawn (H).
  - 1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
  - 2. Fittings: Cast iron, coated.
  - 3. Joints: ASTM B32, alloy Sn95 solder.
  - 4. Joints: Grooved mechanical couplings.
  - 5. (Accessible Location Only) Mechanical Press Sealed Fittings: Double pressed type, NSF 61 and NSF 372 approved or certified, utilizing EPDM, non toxic synthetic rubber sealing elements.
    - a. Manufacturers:
      - 1) Grinnell Mechanical Products, a Tyco International Company [www.grinnell.com](http://www.grinnell.com).
      - 2) Viega LLC; [www.viega.com](http://www.viega.com).
- B. (Only at noted locations) Cross-Linked Polyethylene Pipe: ASTM F876 or ASTM F877.
  - 1. Manufacturers:
    - a. Zurn Industries, Inc; [www.zurn.com](http://www.zurn.com).
    - b. Viega LLC; [www.viega.com](http://www.viega.com).
  - 2. PPI TR-4 Pressure Design Basis:
    - a. 160 psig at maximum 73 degrees F.
    - b. 100 psig at maximum 180 degrees F.
    - c. 80 psig at maximum 200 degrees F.
  - 3. Fittings: Brass and copper.
  - 4. Joints: Mechanical compression fittings.

## **2.07 NATURAL GAS PIPING, ABOVE GRADE**

- A. Steel Pipe: ASTM A53/A53M Schedule 40 black.
  - 1. Fittings: ASME B16.3, malleable iron, or ASTM A234/A234M, wrought steel welding type.
  - 2. Joints: NFPA 54, threaded or welded to ASME B31.1.

## **2.08 FLANGES, UNIONS, AND COUPLINGS**

- A. Unions for Pipe Sizes two (2) inch and Under:
  - 1. Ferrous pipe: Class 150 malleable iron threaded unions.
  - 2. Copper tube and pipe: Class 150 bronze unions with soldered joints.
- B. Flanges for Pipe Size Over two (2) inch:
  - 1. Ferrous pipe: Class 150 malleable iron threaded or forged steel slip-on flanges; preformed neoprene gaskets.
  - 2. Copper tube and pipe: Class 150 slip-on bronze flanges; preformed neoprene gaskets.
- C. Mechanical Couplings for Grooved and Shouldered Joints: Two or more curved housing segments with continuous key to engage pipe groove, circular C-profile gasket, and bolts to secure and compress gasket.
  - 1. Dimensions and Testing: In accordance with AWWA C606.
  - 2. Housing Material: Malleable iron or ductile iron, galvanized.
  - 3. Gasket Material: EPDM suitable for operating temperature range from -30 degrees F to 230 degrees F.
  - 4. Gasket Material: Nitrile rubber suitable for operating temperature range from -20 degrees F to 180 degrees F.
  - 5. Bolts and Nuts: Hot dipped galvanized or zinc-electroplated steel.
  - 6. When pipe is field grooved, provide coupling manufacturer's grooving tools.
  - 7. Manufacturers:
    - a. Grinnell Mechanical Products, a Tyco International Company: [www.grinnell.com](http://www.grinnell.com).
- D. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

## **2.09 PIPE HANGERS AND SUPPORTS**

- A. Provide hangers and supports that comply with MSS SP-58.

1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
  2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
  3. Trapeze Hangers: Welded steel channel frames attached to structure.
  4. Vertical Pipe Support: Steel riser clamp.
  5. Floor Supports: Concrete pier or steel pedestal with floor flange; fixture attachment.
  6. Rooftop Supports for Low-Slope Roofs: Steel pedestals with bases that rest on top of roofing membrane, not requiring any attachment to the roof structure and not penetrating the roofing assembly, with support fixtures as specified; and as follows:
    - a. Bases: High density polypropylene.
    - b. Base Sizes: As required to distribute load sufficiently to prevent indentation of roofing assembly.
    - c. Steel Components: Stainless steel, or carbon steel hot-dip galvanized after fabrication in accordance with ASTM A123/A123M.
    - d. Attachment/Support Fixtures: As recommended by manufacturer, same type as indicated for equivalent indoor hangers and supports; corrosion resistant material.
    - e. Height: Provide minimum clearance of 6 inches under pipe to top of roofing.
    - f. Manufacturers:
      - 1) PHP Systems/Design; PHP Pipe Supports: [www.phpsd.com](http://www.phpsd.com).
- B. Plumbing Piping - Drain, Waste, and Vent:
1. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inches: Malleable iron, adjustable swivel, split ring.
  2. Hangers for Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.
  3. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.
  4. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
  5. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.
- C. Plumbing Piping - Water:
1. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inches: Malleable iron, adjustable swivel, split ring.
  2. Hangers for Cold Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.
  3. Hangers for Hot Pipe Sizes 2 Inches to 4 Inches: Carbon steel, adjustable, clevis.
  4. Hangers for Hot Pipe Sizes 6 Inches and Over: Adjustable steel yoke, cast iron pipe roll, double hanger.
  5. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.
  6. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp.
  7. Wall Support for Hot Pipe Sizes 6 Inches and Over: Welded steel bracket and wrought steel clamp with adjustable steel yoke and cast iron pipe roll.
  8. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
  9. Floor Support for Hot Pipe Sizes to 4 Inches: Cast iron adjustable pipe saddle, locknut, nipple, floor flange, and concrete pier or steel support.
  10. Floor Support for Hot Pipe Sizes 6 Inches and Over: Adjustable cast iron pipe roll and stand, steel screws, and concrete pier or steel support.
  11. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.
- D. Hanger Fasteners: Attach hangers to structure using appropriate fasteners, as follows:
1. Concrete Wedge Expansion Anchors: Complying with ICC-ES AC193.
  2. Masonry Wedge Expansion Anchors: Complying with ICC-ES AC01.
  3. Concrete Screw Type Anchors: Complying with ICC-ES AC193.
  4. Masonry Screw Type Anchors: Complying with ICC-ES AC106.
  5. Concrete Adhesive Type Anchors: Complying with ICC-ES AC308.
  6. Other Types: As required.
  7. Manufacturers:
    - a. Powers Fasteners, Inc: [www.powers.com](http://www.powers.com).
- E. Shields
1. Shield for Insulated Piping 2 Inches and Smaller: 18 gauge galvanized steel shield over insulation in 180 degree segments, minimum 12 inches long at pipe support.

2. Shield for Insulated Piping 2-1/2 Inches and Larger (Except Cold Water Piping): Pipe covering protective saddles.
3. Shields for Insulated Cold Water Piping 2-1/2 Inches and Larger: Hard block non-conducting saddles in 90 degree segments, 12 inch minimum length, block thickness same as insulation thickness.

## **2.10 BALL VALVES**

- A. Manufacturers:
  1. Conbraco Industries; [www.apollovalves.com](http://www.apollovalves.com).
  2. Crane Company; Nibco, Inc: [www.cranevalve.com](http://www.cranevalve.com).
  3. Hammond Valve Company: [www.hammondvalve.com](http://www.hammondvalve.com).
  4. Milwaukee Valve Company: [www.milwaukeevalve.com](http://www.milwaukeevalve.com).
  5. Mueller Water Products, Inc: [www.muellerwaterproducts.com](http://www.muellerwaterproducts.com).
  6. Nibco, Inc: [www.nibco.com](http://www.nibco.com).
  7. Tyco Flow Control: [www.tycoflowcontrol.com](http://www.tycoflowcontrol.com).
  8. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.
- B. Construction, two (2) inches and Smaller: MSS SP-110, CWP, bronze, two piece body, chrome plated brass ball, regular port, teflon seats and stuffing box ring, blow-out proof stem, lever handle with balancing stops, solder ends with union.
- C. Over 2 Inches: Cast steel body, chrome plated steel ball, teflon seat and stuffing box seals, lever handle, flanged or grooved ends.

## **2.11 GAS COCKS**

- A. Manufacturers:
  1. Crane Company; Nibco, Inc: [www.cranevalve.com](http://www.cranevalve.com).
  2. Hammond Valve Company: [www.hammondvalve.com](http://www.hammondvalve.com).
  3. Mueller Water Products, Inc: [www.muellerwaterproducts.com](http://www.muellerwaterproducts.com).
  4. Nibco, Inc: [www.nibco.com](http://www.nibco.com).
  5. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.
- B. Up to 2 Inches: Bronze body, bronze tapered plug (non-lubricated), teflon packing, threaded ends.
- C. Over 2 Inches: Cast iron body and plug, non-lubricated, teflon packing, flanged ends.
- D. Gas valves must meet AGA approval standards.

## **2.12 PRESSURE AND TEMPERATURE RATINGS**

- A. Unless otherwise indicated, use valves suitable for 125 minimum psig working pressure and 450 degrees F.
- B. Valves for fire protection suitable for 175 psig working pressure.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that excavations are to required grade, dry, and not over-excavated.

### **3.02 PREPARATION**

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

### **3.03 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- D. Install piping to maintain headroom, conserve space, and not interfere with use of space.
- E. Group piping whenever practical at common elevations.

- F. Install ball valves for shut-off and isolating service. Install valves on all equipment, major branch lines, and as shown on drawings.
- G. Provide drain valves at main shut-off valves, and low points of piping and apparatus. Include drain valves and piping to a point of drainage for all hydronic coils. Hose thread fittings shall be acceptable for a drain connection, if piping is not indicated on drawings.
- H. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings. Refer to Section 22 07 19.
- I. Provide access where valves and fittings are not exposed.
- J. Establish elevations of buried piping outside the building to ensure not less than 4 ft of cover.
- K. Install vent piping penetrating roofed areas to maintain integrity of roof assembly; refer to Section 07 54 00.
- L. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
- M. Provide support for utility meters in accordance with requirements of utility companies.
- N. Prepare exposed, unfinished pipe, fittings, supports, and accessories ready for finish painting. Refer to Section 09 90 00.
- O. Excavate in accordance with Section 31 23 01.
- P. Backfill in accordance with Section 31 23 01.
- Q. Install bell and spigot pipe with bell end upstream.
- R. Install valves with stems upright or horizontal, not inverted.
- S. Install water piping to ASME B31.9.
- T. Sleeve pipes passing through partitions, walls and floors.
- U. Inserts:
  - 1. Provide inserts for placement in concrete formwork.
  - 2. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
  - 3. Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches.
  - 4. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
  - 5. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut above slab.
- V. Pipe Hangers and Supports:
  - 1. Install in accordance with ASME B31.9.
  - 2. Support horizontal piping as scheduled.
  - 3. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
  - 4. Place hangers within 12 inches of each horizontal elbow.
  - 5. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
  - 6. Support vertical piping at every other floor. Support riser piping independently of connected horizontal piping.
  - 7. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
  - 8. Provide copper plated hangers and supports for copper piping.
  - 9. Prime coat exposed steel hangers and supports. Refer to Section 09 90 00. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.
  - 10. Support cast iron drainage piping at every joint.

### **3.04 APPLICATION**

- A. Install unions downstream of valves and at equipment or apparatus connections.
- B. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.
- C. Install gate valves for shut-off and to isolate equipment, part of systems, or vertical risers.
- D. Provide flow controls in water recirculating systems where indicated.

### **3.05 TOLERANCES**

- A. Drainage Piping: Establish invert elevations within 1/2 inch vertically of location indicated and slope to drain at minimum of 1/4 inch per foot slope.
- B. Water Piping: Slope at minimum of 1/32 inch per foot and arrange to drain at low points.

### **3.06 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM**

- A. Disinfect water distribution system.
- B. Prior to starting work, verify system is complete, flushed and clean.
- C. Ensure Ph of water to be treated is between 7.4 and 7.6 by adding alkali (caustic soda or soda ash) or acid (hydrochloric).
- D. Inject disinfectant, free chlorine in liquid, powder, tablet or gas form, throughout system to obtain 50 to 80 mg/L residual.
- E. Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets.
- F. Maintain disinfectant in system for 24 hours.
- G. If final disinfectant residual tests less than 25 mg/L, repeat treatment.
- H. Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L.
- I. Take samples no sooner than 24 hours after flushing, from 10 percent of outlets and from water entry, and analyze in accordance with AWWA C651.

### **3.07 SERVICE CONNECTIONS (NEW PLOE BARN)**

- A. Provide new sanitary sewer services. Before commencing work check invert elevations required for sewer connections, confirm inverts and ensure that these can be properly connected with slope for drainage and cover to avoid freezing.

### **3.08 SCHEDULES**

- A. Pipe Hanger Spacing:
  - 1. Metal Piping:
    - a. Pipe size: 1/2 inches to 1-1/4 inches:
      - 1) Maximum hanger spacing: 6.5 ft.
      - 2) Hanger rod diameter: 3/8 inches.
    - b. Pipe size: 1-1/2 inches to 2 inches:
      - 1) Maximum hanger spacing: 10 ft.
      - 2) Hanger rod diameter: 3/8 inch.
    - c. Pipe size: 2-1/2 inches to 3 inches:
      - 1) Maximum hanger spacing: 10 ft.
      - 2) Hanger rod diameter: 1/2 inch.
    - d. Pipe size: 4 inches to 6 inches:
      - 1) Maximum hanger spacing: 10 ft.
      - 2) Hanger rod diameter: 5/8 inch.
    - e. Pipe size: 8 inches to 12 inches:
      - 1) Maximum hanger spacing: 14 ft.
      - 2) Hanger rod diameter: 7/8 inch.
    - f. Pipe size: 14 inches and Over:
      - 1) Maximum hanger spacing: 20 ft.
      - 2) Hanger rod diameter: 1 inch.
  - 2. Plastic Piping:
    - a. All Sizes:
      - 1) Maximum hanger spacing: 6 ft.
      - 2) Hanger rod diameter: 3/8 inch.

**END OF SECTION**

**SECTION 22 10 06**  
**PLUMBING PIPING SPECIALTIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Roof drains.
- B. Cleanouts.
- C. Hose bibbs.
- D. Water hammer arrestors.
- E. Oil Interceptors.
- F. Trap seal primers.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 30 00 - Cast-in-Place Concrete: Manhole bottoms.
- B. Section 07 54 00 - Thermoplastic Membrane Roofing.
- C. Section 22 10 05 - Plumbing Piping.
- D. Section 22 40 00 - Plumbing Fixtures.
- E. Section 22 30 00 - Plumbing Equipment.

**1.03 REFERENCE STANDARDS**

- A. ASME A112.6.3 - Floor and Trench Drains; 2019.
- B. ASSE 1011 – Performance Requirements for Hose Connection Vacuum Breakers; 2017.
- C. ASSE 1012 – Performance Requirements for Backflow Preventer with Intermediate Atmospheric Vent; American Society of Sanitary Engineering; 2009 (ANSI/ASSE 1012).
- D. ASSE 1013 - Reduced Pressure Principle Backflow Preventers with an Intermediate Atmospheric Vent; 2021.
- E. ASSE 1019 – Performance Requirements for Wall Hydrant with Backflow Protection and Freeze Resistance: 2011 (Reaffirmed 2016).
- F. ASTM C478/C478M - Standard Specification for Precast Reinforced Concrete Manhole Sections; 2020.
- G. PDI-WH 201 - Water Hammer Arresters; 2017.

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements, for submittal procedures.
- B. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.
- C. Shop Drawings: Indicate dimensions, weights, and placement of openings and holes.
- D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. Extra Loose Keys for Outside Hose Bibbs: Two.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years documented experience.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Accept specialties on site in original factory packaging. Inspect for damage.

**PART 2 PRODUCTS**

**2.01 DRAINS**

- A. Manufacturers:
  - 1. Josam Company: [www.josam.com](http://www.josam.com).
  - 2. Jay R. Smith Manufacturing Company: [www.jayrsmith.com](http://www.jayrsmith.com).
  - 3. MIFAB: [www.mifab.com](http://www.mifab.com).
  - 4. Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).

- B. Floor Drain (FD):
  - 1. ASME A112.6.3; lacquered cast iron or stainless steel, two piece body with double drainage flange, weep holes, reversible clamping collar, and round, adjustable nickel-bronze strainer.

## **2.02 TRENCH DRAINS**

- A. Manufacturers:
  - 1. Zurn Plumbing Products Group. Product "Z882 PERMA-TRENCH", [www.zurn.com](http://www.zurn.com).
  - 2. Jay R. Smith Manufacturing Company: [www.jayrsmith.com](http://www.jayrsmith.com).
  - 3. ACO Polymer Products, Inc., [www.acousa.com](http://www.acousa.com).
  - 4. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if request is submitted within the parameters outlined in the bidding documents.
- B. Prefabricated 12" wide Trench Drain: Made out of high density polyethylene (HDPE) shall have interlocking ends and radiused bottom. Channel shall be provided with 1.04% built-in slope. Channels shall have clips molded into sides to accommodate vertical rebar for positioning and anchoring. Provide with model BG-L Galvanized steel slotted bar grate meeting ANSI heavy-duty D rating, provide with heavy-duty steel frame to distribute load between grates and the HDPE Channel. Provide with end caps and connectors.
- C. Catch Basin: Made out of fiber reinforced polyester (FRP) fiberglass. Provide with model BG-L Galvanized steel slotted bar grate meeting ANSI heavy-duty D rating, provide with heavy-duty steel frame. Provide with sediment bucket and outlet connectors.

## **2.03 CLEANOUTS**

- A. Manufacturers:
  - 1. Jay R. Smith Manufacturing Company: [www.jayrsmith.com](http://www.jayrsmith.com).
  - 2. Josam Company: [www.josam.com](http://www.josam.com).
  - 3. Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).
- B. Cleanouts at Exterior Surfaced Areas:
  - 1. Round cast nickel bronze access frame and non-skid cover.
- C. Cleanouts at Exterior Unsurfaced Areas:
  - 1. Line type with lacquered cast iron body and round epoxy coated gasketed cover.
- D. Cleanouts at Interior Finished Floor Areas:
  - 1. Lacquered cast iron body with anchor flange, reversible clamping collar, threaded top assembly, and round gasketed scored cover in service areas and round gasketed depressed cover to accept floor finish in finished floor areas.
- E. Cleanouts at Interior Finished Wall Areas:
  - 1. Line type with lacquered cast iron body and round epoxy coated gasketed cover, and round stainless steel access cover secured with machine screw.

## **2.04 HOSE BIBBS**

- A. Manufacturers:
  - 1. Jay R. Smith Manufacturing Company; [www.jayrsmith.com](http://www.jayrsmith.com).
  - 2. Watts Regulator Company; [www.wattsregulator.com](http://www.wattsregulator.com).
  - 3. Zurn Industries, Inc; [www.zurn.com](http://www.zurn.com).
  - 4. Prier Products, Inc: [www.prier.com](http://www.prier.com).
- B. Interior Hose Bibbs:
  - 1. Bronze or brass with integral mounting flange, replaceable hexagonal disc, hose thread spout, chrome plated where exposed with handwheel, integral vacuum breaker in conformance with ASSE 1011.

## **2.05 WATER HAMMER ARRESTORS**

- A. Manufacturers:
  - 1. Jay R. Smith Manufacturing Company: [www.jayrsmith.com](http://www.jayrsmith.com).
  - 2. Watts Regulator Company: [www.wattsregulator.com](http://www.wattsregulator.com).
  - 3. Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).
- B. Water Hammer Arrestors:
  - 1. Copper construction, bellows type sized in accordance with PDI-WH 201, precharged suitable for operation in temperature range -100 to 300 degrees F and maximum 250 psi working pressure.

## 2.06 OIL INTERCEPTORS

- A. Basis of Design: Model OMC-750 oil interceptor. Elliptical Fiberglass (FRP) grease interceptor construction, as supplied by Green Turtle Americas Ltd. or Green Turtle Technologies Ltd., with inlet piping and baffle penetration designed to introduce wastewater in a tangential laminar flow pattern, to be appropriately sized based on anticipated usage and flow rates to meet applicable sanitary sewer discharge limits, incl. municipal by-laws. Include accessways, tanks, and piping and baffle openings to retain grease and solids and to permit tangential laminar wastewater flow.
1. Factory installed Schedule 40 PVC cement welded type socket ports, or straight pipe, fitted into interceptor walls for each pipe connection.
  2. Accessway Extension Collar:
    - a. Fiberglass risers (EC2), 24-inch.
  3. Accessway Frames and Covers: Round cover with non-slip cover finish, gasketed and non-vented top design with "Proceptor" lettering cast into cover.
    - a. Cast Iron: AASHTO M306 Traffic load rated. 24-inch diameter cover with 0.25" gasket. Two closed pickholes, Bolted, Weight 249 lbs. ASTM A48 CL35B.
    - b. Fiberglass: Pedestrian loading 24" diameter bolted and gasketed.
  4. Watertight Flexible Caulking: Sikaflex 255 or Sikaflex 221 or approved alternate to provide watertight seal at extension collar joints.
  5. Coalescing filter for small diameter oil globules. Coalescing elements cause fine free oil droplets to agglomerate into larger droplets.
- B. Capacities and Characteristics:
1. Number of Compartments: 1 .
  2. Oil Retention Capacity: 410 Gallons.
  3. Solids Retention Capacity: 200 Gallons.
  4. Inlet and Outlet Schedule 40 PVC Pipe Size: 4".
  5. Vent Pipe Size: 3".
  6. Installation Position: Underground with accessway collar riser to grade.
  7. OPTIONS as required:
    - a. 4" Top Suction port for remote pump-out.
    - b. Alarm for high oil accumulation. Includes alarm probe to be installed in top of tank accessway and alarm panel with buzzer and light for indoor wall mount.
  8. Green Turtle Proceptor Model: OMC 750
- C. Fiberglass accessway extensions: Fiberglass wound pipe.
1. Length: From top of underground tank to underside of access frame at grade.
  2. Extension Sections: 0.25-inch minimum thickness and 24-inch as a single continuous piece, without joints unless approved by the manufacturer.
  3. Sealant: Watertight Flexible Caulking, Sikaflex 255 or Sikaflex 221 or approved alternate to provide watertight seal at extension collar joining to tank on bottom and access frame at top.

## 2.07 TRAP SEAL PRIMER VALVES

- A. Supply-Type Trap Seal Primer Valves: ASSE 1018, water-supply-fed type, with the following characteristics:
1. Acceptable Manufacturers
    - a. Josam Co.
    - b. MIFAB Manufacturing Co.
    - c. Precision Plumbing Products, Inc.
    - d. Smith, Jay R. Mfg. Co.
    - e. Tyler Pipe; Wade Div.
    - f. Watts Industries, Inc.
    - g. Zurn Industries
  2. 125 psi (860 kPa) minimum working pressure.
  3. Bronze body with atmospheric-vented drain chamber.
  4. Inlet and Outlet Connections: NPS 1/2 (DN 15) threaded, union or solder joint.
  5. Gravity Drain Outlet Connection: NPS 3/4 (DN 15) threaded or solder joint.
  6. Finish: Chrome-plated; or rough bronze for units used with pipe or tube that is not chrome finished



- B. Drainage-Type Trap Seal Primer Valves; ASSE 1440, fixture-trap, waste-drainage-fed type, with the following characteristics:
  - 1. Acceptable Manufacturers:
    - a. Smith, Jay R. Mfg. Co.
    - b. Design Professional Approved Equivalent
  - 2. Chrome-plated, cast-brass, NPS 1-1/4 (DN 32) minimum, lavatory P-trap with NPS 3/8 (DN 10) minimum, trap makeup connection.
- C. Trap Seal Primer System: Factory-fabricated, automatic-operation assembly for wall mounting with the following characteristics:
  - 1. Acceptable Manufacturers:
    - a. Precision Plumbing Products, Inc.
    - b. Design Professional Approved Equivalent.
  - 2. Piping: NPS 3/4, ASTM B 88, Type L (DN 20, ASTM B 88M, Type B); copper, water tubing inlet and outlet with PEX-type piping.
  - 3. Cabinet: Steel box with Stainless steel cover.
  - 4. Electric Controls: 24-Hour timer, solenoid valve and manual switch for 120 VAC power.
  - 5. Water Hammer Arrester: ASSE 1010.
  - 6. Vacuum Breaker: ASSE 1001
  - 7. Steps: 3/4 inch diameter galvanized steel on 16 inch centers.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.
- C. Encase exterior cleanouts in concrete flush with grade.
- D. Install floor cleanouts at elevation to accommodate finished floor.
- E. Provide trap seal primer at all new floor drains, ASSE 1018 or ASSE 1044. Install trap primer at each floor drain (No distribution unit).
- F. Install water hammer arrestors complete with accessible isolation valve on hot and cold water supply piping to lavatories sinks and other fixtures as needed.
- G. Install air chambers on hot and cold water supply piping to each fixture or group of fixtures (each washroom). Fabricate same size as supply pipe or 3/4 inch minimum, and minimum 18 inches long.
- H. Install Oil interceptor per manufacture requirements, including Granular back fill and hold downs.

**END OF SECTION**

**SECTION 22 40 00**  
**PLUMBING FIXTURES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Water closets.
- B. Urinals.
- C. Lavatories.
- D. Sinks

**1.02 RELATED REQUIREMENTS**

- A. Section 06 20 00 - Finish Carpentry: Preparation of vanities for lavatories.
- B. Section 07 90 05 - Joint Sealers: Seal fixtures to walls and floors.
- C. Section 22 10 05 - Plumbing Piping.
- D. Section 22 10 06 - Plumbing Piping Specialties.
- E. Section 22 30 00 - Plumbing Equipment.

**1.03 REFERENCE STANDARDS**

- A. ANSI Z124.1.2 - American National Standard for Plastic Bathtub and Shower Units; 2005.
- B. ARI 1010 - Self-Contained, Mechanically-Refrigerated Drinking-Water Coolers; Air-Conditioning and Refrigeration Institute; 2002.
- C. ASME A112.6.1M - Supports for Off-the-Floor Plumbing Fixtures for Public Use; The American Society of Mechanical Engineers; 1997 (R2017).
- D. ASME A112.18.1 - Plumbing Supply Fittings; The American Society of Mechanical Engineers; 2018.
- E. ASME A112.19.1 - Enamelled Cast Iron and Enamelled Steel Plumbing Fixtures; 2018.
- F. ASME A112.19.2 - Ceramic Plumbing Fixtures; The American Society of Mechanical Engineers; 2018.
- G. ASME A112.19.3 - Stainless Steel Plumbing Fixtures (Designed for Residential Use); The American Society of Mechanical Engineers; 2017.
- H. ASME A112.19.4M - Porcelain Enameled Formed Steel Plumbing Fixtures; The American Society of Mechanical Engineers; 1994 (R1999).
- I. ASME A112.19.5 - Trim for Water-Closet Bowls, Tanks and Urinals; The American Society of Mechanical Engineers; 2017.
- J. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2020.
- K. ISFA-2 - Classification and Standards for Solid Surfacing Material; International Solid Surface Fabricators Association; 2013.
- L. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements, for submittal procedures.
- B. Product Data: Provide catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.
- C. Samples: Submit two sets of color chips for each standard color.
- D. Waterless Urinals: Submit recommended frequency of maintenance and parts replacement, methods of cleaning, sources of replacement supplies and parts.
- E. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

## **1.06 REGULATORY REQUIREMENTS**

- A. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

## **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Accept fixtures on site in factory packaging. Inspect for damage.
- B. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

## **1.08 WARRANTY**

- A. Provide five year manufacturer warranty for electric water cooler.

## **PART 2 PRODUCTS**

### **2.01 HIGH SCHOOL**

#### **A. FLUSH VALVE WATER CLOSETS (WC-1 and WC-2) (EXISTING REINSTALL)**

- 1. Existing fixture to be reinstalled:

#### **B. FLUSH VALVE WATER CLOSETS (WC-3) (NEW)**

- 1. Manufacturers:
  - a. American Standard Inc: [www.americanstandard.com](http://www.americanstandard.com).
  - b. Kohler Company: [www.kohlerco.com](http://www.kohlerco.com).
  - c. Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).
- 2. Water Closets: Vitreous china, ASME A112.19.2, elongated rim, floor mounted, 15 inches high, siphon jet flush action, china bolt caps.
- 3. Flush Valve Manufacturers:
  - a. Delany Products: [www.delanyvalve.com](http://www.delanyvalve.com).
  - b. Sloan Valve Company: [www.sloanvalve.com](http://www.sloanvalve.com).
  - c. Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).
- 4. Exposed Flush Valve:
  - a. ASME A112.18.1; exposed chrome plated, diaphragm type with oscillating handle, escutcheon, integral screwdriver stop and vacuum breaker; maximum 1.6 gallon flush volume.
- 5. Seat:
  - a. Manufacturers:
    - 1) Bemis Manufacturing Company: [www.bemismfg.com](http://www.bemismfg.com).
    - 2) Church Seat Company: [www.churchseats.com](http://www.churchseats.com).
    - 3) Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).
  - b. Solid white plastic, open front, extended back, self-sustaining hinge, brass bolts

#### **C. WALL HUNG URINALS (UR-1) (NEW)**

- 1. Wall Hung Urinal Manufacturers:
  - a. American Standard, Inc: [www.americanstandard-us.com](http://www.americanstandard-us.com).
  - b. Kohler Company: [www.kohler.com](http://www.kohler.com).
  - c. Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).
- 2. Urinals: ASME A112.19.2; vitreous china, wall hung washout urinal with shields, integral trap, removable stainless-steel strainer, top spud, steel supporting hanger.
  - a. Flush Volume: 0.125 gallon, maximum.
  - b. Flush Style: Washout.
  - c. Flush Valve: Exposed (top spud).
  - d. Removable stainless steel strainer.
  - e. Supply Size: 3/4 inch.
  - f. Outlet Size: 2 inches.
- 3. Flush Valves: ASME A112.18.1; exposed chrome plated, diaphragm type with oscillating handle, escutcheon, integral screwdriver stop and vacuum breaker; maximum and accessories.
  - a. Exposed Type: Chrome plated, escutcheon, integral screwdriver stop.
  - b. Manufacturers:
    - 1) Delany Products: [www.delanyvalve.com](http://www.delanyvalve.com)
    - 2) Sloan Valve Company: [www.sloanvalve.com](http://www.sloanvalve.com).

- 3) Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).
  - 4. Accessories:
    - a. Carrier:
      - 1) Manufacturers:
        - (a) JOSAM Company: [www.josam.com](http://www.josam.com).
        - (b) Jay R. Smith Mfg. Co., Division of Smith Industries: [www.jrsmith.com](http://www.jrsmith.com).
        - (c) Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).
      - 2) ASME A112.6.1M; concealed arm supports, bearing plate and studs.
- D. WALL HUNG URINALS (UR-2) (NEW AT EXSITNG SUPPORTS)**
- 1. Wall Hung Urinal Manufacturers:
    - a. American Standard, Inc: [www.americanstandard-us.com](http://www.americanstandard-us.com).
    - b. Kohler Company: [www.kohler.com](http://www.kohler.com).
    - c. Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).
  - 2. Urinals: ASME A112.19.2; vitreous china, wall hung washout urinal with shields, integral trap, removable stainless-steel strainer, top spud, steel supporting hanger.
    - a. Flush Volume: 0.125 gallon, maximum.
    - b. Flush Style: Washout.
    - c. Flush Valve: Exposed (top spud).
    - d. Removable stainless steel strainer.
    - e. Supply Size: 3/4 inch.
    - f. Outlet Size: 2 inches.
  - 3. Flush Valves: ASME A112.18.1; exposed chrome plated, diaphragm type with oscillating handle, escutcheon, integral screwdriver stop and vacuum breaker; maximum and accessories.
    - a. Exposed Type: Chrome plated, escutcheon, integral screwdriver stop.
    - b. Manufacturers:
      - 1) Delany Products: [www.delanyvalve.com](http://www.delanyvalve.com)
      - 2) Sloan Valve Company: [www.sloanvalve.com](http://www.sloanvalve.com).
      - 3) Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).
- E. LAVATORIES (L-1) (EXISTING REINSTALL WITH NEW FAUCET)**
- 1. Supply Faucet Manufacturers:
    - a. American Standard, Inc: [www.americanstandard-us.com](http://www.americanstandard-us.com).
    - b. Faucet to match school standard.
  - 2. Supply Faucet:
    - a. ASME A112.18.1; chrome plated supply fitting with offset open grid strainer, water economy aerator with maximum 2.0 gpm flow, single lever handle.
    - b. Mixing Valve: Internal, automatic.
    - c. Water Supply: 3/8 inch compression connections.
    - d. Aerator: Vandal resistant, 0.5 GPM, laminar flow device.
  - 3. Accessories:
    - a. Provide ASSE 1070 mixing valve.
    - b. Chrome plated 17 gage brass P-trap with clean-out plug and arm with escutcheon.
    - c. Offset waste with perforated open strainer.
    - d. Loose key stops.
    - e. Flexible supplies.
    - f. Truebro LAV SHIELD (field verify mounting with existing wall supports)
    - g. Carrier:
      - 1) Manufacturers:
        - (a) JOSAM Company: [www.josam.com](http://www.josam.com).
        - (b) Jay R. Smith Mfg. Co., Division of Smith Industries: [www.jrsmith.com](http://www.jrsmith.com).
        - (c) Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).
- F. LAVATORIES (L-2) (EXISTING REINSTALL WITH EXISTING FAUCET)**
- 1. Lavatory Manufacturers:
    - a. American Standard, Inc: [www.americanstandard-us.com](http://www.americanstandard-us.com).
    - b. Kohler Company: [www.kohler.com](http://www.kohler.com).

- c. Mansfield Plumbing Products LLC: [www.mansfieldplumbing.com](http://www.mansfieldplumbing.com).
- d. Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).
- 2. Vitreous China Wall Hung Basin:
  - a. ASME A112.19.2; vitreous china wall hung lavatory 20 x 18 inch minimum, with 4 inch high back, rectangular basin with splash lip, front overflow, and soap depression.
    - 1) Drilling Centers: 4 inch.
- 3. Supply Faucet Manufacturers:
  - a. American Standard, Inc: [www.americanstandard-us.com](http://www.americanstandard-us.com).
  - b. Faucet to match school standard.
- 4. Supply Faucet:
  - a. ASME A112.18.1; chrome plated supply fitting with offset open grid strainer, water economy aerator with maximum 2.0 gpm flow, single lever handle.
  - b. Mixing Valve: Internal, automatic.
  - c. Water Supply: 3/8 inch compression connections.
  - d. Aerator: Vandal resistant, 0.5 GPM, laminar flow device.
- 5. Accessories:
  - a. Provide ASSE 1070 mixing valve.
  - b. Chrome plated 17 gage brass P-trap with clean-out plug and arm with escutcheon.
  - c. Offset waste with perforated open strainer.
  - d. Loose key stops.
  - e. Flexible supplies.
  - f. Truebro LAV SHIELD (field verify mounting with existing wall supports)
  - g. Carrier:
    - 1) Manufacturers:
      - (a) JOSAM Company: [www.josam.com](http://www.josam.com).
      - (b) Jay R. Smith Mfg. Co., Division of Smith Industries: [www.jrsmith.com](http://www.jrsmith.com).
      - (c) Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).
    - 2) ASME A112.6.1M; concealed arm supports, bearing plate and studs ASME A112.6.1M; concealed arm supports, bearing plate and studs.

**G. LAVATORIES (L-3) (NEW AT EXSITNG LOCATION)**

- 1. Lavatory Manufacturers:
  - a. American Standard, Inc: [www.americanstandard-us.com](http://www.americanstandard-us.com).
- 2. Vitreous China Wall Hung Basin:
  - a. ASME A112.19.2; vitreous china wall hung lavatory 20 x 18 inch minimum, with 4 inch high back, rectangular basin with splash lip, front overflow, and soap depression.
    - 1) Drilling Centers: 4 inch.
- 3. Supply Faucet Manufacturers:
  - a. American Standard, Inc: [www.americanstandard-us.com](http://www.americanstandard-us.com).
  - b. Faucet to match school standard.
- 4. Supply Faucet:
  - a. ASME A112.18.1; chrome plated supply fitting with offset open grid strainer, water economy aerator with maximum 2.0 gpm flow, single lever handle.
  - b. Mixing Valve: Internal, automatic.
  - c. Water Supply: 3/8 inch compression connections.
  - d. Aerator: Vandal resistant, 0.5 GPM, laminar flow device.
- 5. Accessories:
  - a. Provide ASSE 1070 mixing valve.
  - b. Chrome plated 17 gage brass P-trap with clean-out plug and arm with escutcheon.
  - c. Offset waste with perforated open strainer.
  - d. Loose key stops.
  - e. Flexible supplies.
  - f. Truebro LAV SHIELD (field verify mounting with existing wall supports)
  - g. ASME A112.6.1M; concealed arm supports, bearing plate and studs.

## **1.01 SINK (S-1)**

- H. Manufacturers:  
Advance Tabco: [www.advancetabco.com](http://www.advancetabco.com).  
Elkay Manufacturing Company: [www.elkay.com](http://www.elkay.com).  
Just Manufacturing: [www.justmfg.com](http://www.justmfg.com).
- I. Single Compartment Bowl:  
ASME A112.19.3; 18 x 18 x 12 inch bowl with drain board, 18 gage thick, Type 304 stainless steel, tile edge splash, rolled edge, with ledge back drilled for 8" center faucet.  
Drain: 1 1/2 inch chromed brass drain.
- J. Trim: ASME A112.18.1; chrome plated brass back slash mounted faucet, with high rise swing spout, wrist blades, 8" centers vandal proof water economy aerator maximum 2.0 gpm flow, single.  
Equivalent to Model K-101 manufactured by Advance Tabco or equal by American Standard, Chicago or Kohler
- K. Accessories: Chrome plated 17 gage brass P-trap with clean-out plug and arm with escutcheon, wheel handle ball valve stops, flexible supplies.
- L. Plaster trap: Jay R Smith model 8710T, 1 1/2" outlet, Duco coated cast iron, Cast aluminum bucket strainer, gasket cover or equal by Zurn.

## **2.02 EXAMINATION**

- A. Verify that walls and floor finishes are prepared and ready for installation of fixtures.
- B. Verify that electric power is available and of the correct characteristics.
- C. Confirm that millwork is constructed with adequate provision for the installation of countertop lavatories and sinks.

## **2.03 PREPARATION**

- A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

## **2.04 INSTALLATION**

- A. Install each fixture with trap, easily removable for servicing and cleaning.
- B. Provide chrome plated rigid or flexible supplies to fixtures with loose key stops, reducers, and escutcheons.
- C. Install components level and plumb.
- D. Install and secure fixtures in place with wall supports and bolts.
- E. Seal fixtures to wall and floor surfaces with sealant as specified in Section 07 90 05, color to match fixture.

## **2.05 INTERFACE WITH WORK OF OTHER SECTIONS**

- A. Review millwork shop drawings. Confirm location and size of fixtures and openings before rough-in and installation.

## **2.06 ADJUSTING**

- A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

## **2.07 CLEANING**

- A. Clean plumbing fixtures and equipment.

## **2.08 PROTECTION**

- A. Protect installed products from damage due to subsequent construction operations.
- B. Do not permit use of fixtures by construction personnel.
- C. Repair or replace damaged products before Date of Substantial Completion.

## **2.09 SCHEDULES**

- A. Fixture Heights: Install fixtures to heights above finished floor as indicated.
  - 1. Water Closet:
    - a. Standard: 15 inches to top of bowl rim.

- b. Accessible: 18 inches to top of seat.
  - 2. Water Closet Flush Valves:
    - a. Standard: 11 inches min. above bowl rim.
    - a. Recessed: 10 inches min. above bowl rim.
  - 3. Urinal:
    - a. Standard: 22 inches to top of bowl rim.
    - a. Accessible: 17 inches to top of bowl rim.
  - 4. Lavatory:
    - a. Standard: 31 inches to top of basin rim.
    - b. Accessible: 34 inches to top of basin rim.
    - c. RE: Drawings for additional height requirements.
- B. Fixture Rough-In
- 1. Water Closet (Flush Valve Type):
    - a. Cold Water: 1 Inch.
    - a. Waste: 4 Inch.
    - b. Vent: 2 Inch.
  - 2. Urinal (Flush Valve Type):
    - a. Cold Water: 3/4 Inch.
    - a. Waste: 2 Inch.
    - b. Vent: 1-1/2 Inch.
  - 3. Lavatory:
    - a. Hot Water: 1/2 Inch.
    - a. Cold Water: 1/2 Inch.
    - b. Waste: 1-1/2 Inch.
    - c. Vent: 1-1/4 Inch.
  - 4. Sink:
    - b. Hot Water: 1/2 Inch.
    - a. Cold Water: 1/2 Inch.
    - b. Waste: 1-1/2 Inch.
    - c. Vent: 1-1/4 Inch.

**END OF SECTION**

**SECTION 23 05 93**  
**TESTING, ADJUSTING, AND BALANCING FOR HVAC**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Testing, adjustment, and balancing of air systems.
- B. Testing, adjustment, and balancing of hydronic systems.
- C. Measurement of final operating condition of HVAC systems.

**1.02 REFERENCE STANDARDS**

- A. AABC (NSTSB) - AABC National Standards for Total System Balance, 7<sup>th</sup> Edition; 2016.
- B. ASHRAE Std 111 - Measurement, Testing, Adjusting and Balancing of Building HVAC Systems; 2008, with Errata (2019).
- C. NEBB (TAB) - Procedural Standards for Testing Adjusting Balancing of Environmental Systems; 2019.
- D. SMACNA (TAB) - HVAC Systems Testing, Adjusting, and Balancing; 2002.

**1.03 SUBMITTALS**

- A. See Construction Manager's General Requirements, for submittal procedures.
- B. TAB Plan: Submit a written plan indicating the testing, adjusting, and balancing standard to be followed and the specific approach for each system and component.
  - 1. Submit to Construction Manager and Design Professional.
  - 2. Include at least the following in the plan:
    - a. List of all air flow, water flow, sound level, system capacity and efficiency measurements to be performed and a description of specific test procedures, parameters, formulas to be used.
    - b. Copy of field checkout sheets and logs to be used, listing each piece of equipment to be tested, adjusted and balanced with the data cells to be gathered for each.
    - c. Identification and types of measurement instruments to be used and their most recent calibration date.
    - d. Final test report forms to be used.
    - e. Detailed step-by-step procedures for TAB work for each system and issue, including:
      - 1) Terminal flow calibration (for each terminal type).
      - 2) Diffuser proportioning.
      - 3) Branch/submain proportioning.
      - 4) Total flow calculations.
      - 5) Rechecking.
      - 6) Diversity issues.
    - f. Details of how TOTAL flow will be determined; for example:
      - 1) Air: Sum of terminal flows via control system calibrated readings or via hood readings of all terminals, supply (SA) and return air (RA) pitot traverse, SA or RA flow stations.
      - 2) Water: Pump curves, circuit setter, flow station, ultrasonic, etc.
    - g. Specific procedures that will ensure that both air and water side are operating at the lowest possible pressures and methods to verify this.
    - h. Confirmation of understanding of the outside air ventilation criteria under all conditions.
    - i. Method of verifying and setting minimum outside air flow rate will be verified and set and for what level (total building, zone, etc.).
    - j. Method of checking building static and exhaust fan and/or relief damper capacity.
    - k. Proposed selection points for sound measurements and sound measurement methods.
    - l. Methods for making coil or other system plant capacity measurements, if specified.
    - m. Time schedule for TAB work to be done in phases (by floor, etc.).
    - n. Description of TAB work for areas to be built out later, if any.
    - o. Time schedule for deferred or seasonal TAB work, if specified.
    - p. False loading of systems to complete TAB work, if specified.
    - q. Exhaust fan balancing and capacity verifications, including any required room pressure differentials.



- r. Interstitial cavity differential pressure measurements and calculations, if specified.
  - s. Procedures for field technician logs of discrepancies, deficient or uncompleted work by others, contract interpretation requests and lists of completed tests (scope and frequency).
  - t. Procedures for formal progress reports, including scope and frequency.
  - u. Procedures for formal deficiency reports, including scope, frequency and distribution.
- C. Control System Coordination Reports: Communicate in writing to the controls installer all setpoint and parameter changes made or problems and discrepancies identified during TAB which affect the control system setup and operation.
- D. Final Report: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.
- 1. Revise TAB plan to reflect actual procedures and submit as part of final report.
  - 2. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for Design Professional and for inclusion in operating and maintenance manuals.
  - 3. Provide reports in soft cover, letter size, 3-ring binder manuals, complete with index page and indexing tabs, with cover identification at front and side. Include set of reduced drawings with air outlets and equipment identified to correspond with data sheets, and indicating thermostat locations.
  - 4. Include actual instrument list, with manufacturer name, serial number, and date of calibration.
  - 5. Form of Test Reports: Where the TAB standard being followed recommends a report format use that; otherwise, follow ASHRAE Std 111.
  - 6. Units of Measure: Report data in I-P (inch-pound) units only.
  - 7. Include the following on the title page of each report:
    - a. Name of Testing, Adjusting, and Balancing Agency.
    - b. Address of Testing, Adjusting, and Balancing Agency.
    - c. Telephone number of Testing, Adjusting, and Balancing Agency.
    - d. Project name.
    - e. Project location.
    - f. Project Design Professional.
    - g. Project Engineer.
    - h. Project Contractor.
    - i. Project altitude.
    - j. Report date.
- E. Project Record Documents: Record actual locations of flow measuring stations and balancing valves and rough setting.

## **PART 2 PRODUCTS - NOT USED**

## **PART 3 EXECUTION**

### **3.01 GENERAL REQUIREMENTS**

- A. Perform total system balance in accordance with one of the following:
  - 1. AABC MN-1, AABC National Standards for Total System Balance.
  - 2. ASHRAE Std 111, Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air-Conditioning, and Refrigeration Systems.
  - 3. NEBB Procedural Standards for Testing Adjusting Balancing of Environmental Systems.
  - 4. SMACNA HVAC Systems Testing, Adjusting, and Balancing.
  - 5. Maintain at least one copy of the standard to be used at project site at all times.
- B. Begin work after completion of systems to be tested, adjusted, or balanced and complete work prior to Substantial Completion of the project.
- C. Where HVAC systems and/or components interface with life safety systems, including fire and smoke detection, alarm, and control, coordinate scheduling and testing and inspection procedures with the authorities having jurisdiction.
- D. TAB Agency Qualifications:
  - 1. Company specializing in the testing, adjusting, and balancing of systems specified in this section.
  - 2. Having minimum of three years documented experience.
  - 3. Certified by one of the following:

- a. AABC, Associated Air Balance Council: [www.aabchq.com](http://www.aabchq.com); upon completion submit AABC National Performance Guaranty.
- b. NEBB, National Environmental Balancing Bureau: [www.nebb.org](http://www.nebb.org).
- c. TABB, The Testing, Adjusting, and Balancing Bureau of National Energy Management Institute: [www.tabbcertified.org](http://www.tabbcertified.org).

### **3.02 EXAMINATION**

- A. Verify that systems are complete and operable before commencing work. Ensure the following conditions:
  - 1. Systems are started and operating in a safe and normal condition.
  - 2. Temperature control systems are installed complete and operable.
  - 3. Proper thermal overload protection is in place for electrical equipment.
  - 4. Final filters are clean and in place. If required, install temporary media in addition to final filters.
  - 5. Duct systems are clean of debris.
  - 6. Fans are rotating correctly.
  - 7. Fire and volume dampers are in place and open.
  - 8. Air coil fins are cleaned and combed.
  - 9. Access doors are closed and duct end caps are in place.
  - 10. Air outlets are installed and connected.
  - 11. Duct system leakage is minimized.
  - 12. Hydronic systems are flushed, filled, and vented.
  - 13. Pumps are rotating correctly.
  - 14. Proper strainer baskets are clean and in place.
  - 15. Service and balance valves are open.
- B. Submit field reports. Report defects and deficiencies noted during performance of services which prevent system balance.
- C. Beginning of work means acceptance of existing conditions.

### **3.03 PREPARATION**

- A. Provide instruments required for testing, adjusting, and balancing operations. Make instruments available to Design Professional to facilitate spot checks during testing.
- B. Provide additional balancing devices as required.

### **3.04 INSTALLATION TOLERANCES**

- A. Air Handling Systems: Adjust to within plus or minus 5 percent of design for supply systems and plus or minus 10 percent of design for return and exhaust systems.
- B. Air Outlets and Inlets: Adjust total to within plus 10 percent and minus 5 percent of design to space. Adjust outlets and inlets in space to within plus or minus 10 percent of design.
- C. Hydronic Systems: Adjust to within plus or minus 10 percent of design.

### **3.05 RECORDING AND ADJUSTING**

- A. Field Logs: Maintain written logs including:
  - 1. Running log of events and issues.
  - 2. Discrepancies, deficient or uncompleted work by others.
  - 3. Contract interpretation requests.
  - 4. Lists of completed tests.
- B. Ensure recorded data represents actual measured or observed conditions.
- C. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.
- D. Mark on the drawings the locations where traverse and other critical measurements were taken and cross reference the location in the final report.
- E. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.
- F. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

- G. At final inspection, recheck random selections of data recorded in report. Recheck points or areas as selected and witnessed by the Owner.

### **3.06 AIR SYSTEM PROCEDURE**

- A. Adjust air handling and distribution systems to provide required or design supply, return, and exhaust air quantities at site altitude.
- B. Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of duct.
- C. Measure air quantities at air inlets and outlets.
- D. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.
- E. Use volume control devices to regulate air quantities only to extend that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices such as dampers and splitters.
- F. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation.
- G. Provide system schematic with required and actual air quantities recorded at each outlet or inlet.
- H. Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across the fan. Make allowances for 50 percent loading of filters.
- I. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design conditions.
- J. Measure temperature conditions across outside air, return air, and exhaust dampers to check leakage.
- K. Where modulating dampers are provided, take measurements and balance at extreme conditions. Balance variable volume systems at maximum air flow rate, full cooling, and at minimum air flow rate, full heating.
- L. Measure building static pressure and adjust supply, return, and exhaust air systems to provide required relationship between each to maintain approximately 0.05 inches positive static pressure.
- M. For variable air volume system powered units set volume controller to air flow setting indicated. Confirm connections properly made and confirm proper operation for automatic variable air volume temperature control.

### **3.07 WATER SYSTEM PROCEDURE**

- A. Adjust water systems to provide required or design quantities.
- B. Use calibrated Venturi tubes, orifices, or other metered fittings and pressure gauges to determine flow rates for system balance. Where flow metering devices are not installed, base flow balance on temperature difference across various heat transfer elements in the system.
- C. Adjust systems to provide specified pressure drops and flows through heat transfer elements prior to thermal testing. Perform balancing by measurement of temperature differential in conjunction with air balancing.
- D. Effect system balance with automatic control valves fully open to heat transfer elements.
- E. Effect adjustment of water distribution systems by means of balancing cocks, valves, and fittings. Do not use service or shut-off valves for balancing unless indexed for balance point.
- F. Where available pump capacity is less than total flow requirements or individual system parts, full flow in one part may be simulated by temporary restriction of flow to other parts.

### **3.08 SCOPE**

- A. Test, adjust, and balance the following:
  - 1. Packaged Roof Top Heating/Cooling Units
  - 2. Air Inlets and Outlets

### **3.09 MINIMUM DATA TO BE REPORTED**

- A. Air Moving Equipment:
  - 1. Location
  - 2. Manufacturer
  - 3. Model number
  - 4. Serial number

5. Arrangement/Class/Discharge
  6. Air flow, specified and actual
  7. Return air flow, specified and actual
  8. Outside air flow, specified and actual
  9. Total static pressure (total external), specified and actual
  10. Inlet pressure
  11. Discharge pressure
  12. Sheave Make/Size/Bore
  13. Number of Belts/Make/Size
  14. Fan RPM
- B. Return Air/Outside Air:
1. Identification/location
  2. Design air flow
  3. Actual air flow
  4. Design return air flow
  5. Actual return air flow
  6. Design outside air flow
  7. Actual outside air flow
  8. Return air temperature
  9. Outside air temperature
  10. Required mixed air temperature
  11. Actual mixed air temperature
  12. Design outside/return air ratio
  13. Actual outside/return air ratio

**END OF SECTION**



**SECTION 23 07 13**  
**DUCT INSULATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. New Duct insulation.
- B. Existing Duct Insulation and Jacket.
- C. Insulation jackets.

**1.02 RELATED REQUIREMENTS**

- A. Section 09 90 00 - Painting and Coating: Painting insulation jackets.
- B. Section 23 05 53 - Identification for HVAC Piping and Equipment.
- C. Section 23 31 00 - HVAC Ducts and Casings.

**1.03 REFERENCE STANDARDS**

- A. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
- B. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2021.
- C. ASTM C553 - Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2013 (Reapproved 2019).
- D. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation; 2014 (Reapproved 2019).
- E. ASTM C1071 - Standard Specification for Fibrous Glass Duct Lining Insulation (Thermal and Sound Absorbing Material); 2019.
- F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023.
- G. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2022a, with Editorial Revision (2023).
- H. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015, with Editorial Revision (2021).
- I. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.
- C. Samples: Submit two samples of any representative size illustrating each insulation type.
- D. Manufacturer's Instructions: Indicate installation procedures necessary to ensure acceptable workmanship and that installation standards will be achieved.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section with not less than three years of documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified in this section, with minimum five years of experience and approved by manufacturer.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Accept materials on site in original factory packaging, labelled with manufacturer's identification, including product density and thickness.
- B. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

## 1.07 FIELD CONDITIONS

- A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics, and insulation cements.
- B. Maintain temperature during and after installation for minimum period of 24 hours.

## PART 2 PRODUCTS

### 2.01 REQUIREMENTS FOR ALL PRODUCTS OF THIS SECTION

- A. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84, NFPA 255, or UL 723.

### 2.02 GLASS FIBER, FLEXIBLE

- A. Manufacturer:
  - 1. Knauf Insulation: [www.knaufusa.com](http://www.knaufusa.com).
  - 2. Johns Manville Corporation: [www.jm.com](http://www.jm.com).
  - 3. Owens Corning Corp: [www.owenscorning.com](http://www.owenscorning.com).
  - 4. CertainTeed Corporation: [www.certainteed.com](http://www.certainteed.com).
- B. Insulation: ASTM C553; flexible, noncombustible blanket.
  - 1. 'K' value: 0.36 at 75 degrees F, when tested in accordance with ASTM C518.
  - 2. Maximum Service Temperature: 450 degrees F.
  - 3. Maximum Water Vapor Sorption: 5.0 percent by weight.
- C. Vapor Barrier Jacket:
  - 1. Kraft paper with glass fiber yarn and bonded to aluminized film.
  - 2. Moisture Vapor Permeability: 0.02 perm inch, when tested in accordance with ASTM E96/E96M.
  - 3. Secure with pressure sensitive tape.
- D. Vapor Barrier Tape:
  - 1. Kraft paper reinforced with glass fiber yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.

### 2.03 GLASS FIBER, RIGID

- A. Manufacturer:
  - 1. Knauf Insulation: [www.knaufusa.com](http://www.knaufusa.com).
  - 2. Johns Manville Corporation: [www.jm.com](http://www.jm.com).
  - 3. Owens Corning Corp: [www.owenscorning.com](http://www.owenscorning.com).
  - 4. CertainTeed Corporation: [www.certainteed.com](http://www.certainteed.com).
- B. Insulation: ASTM C612; rigid, noncombustible blanket.
  - 1. 'K' value: 0.24 at 75 degrees F, when tested in accordance with ASTM C518.
  - 2. Maximum service temperature: 450 degrees F.
  - 3. Maximum Water Vapor Sorption: 5.0 percent.
  - 4. Maximum Density: 8.0 lb/cu ft.

### 2.04 JACKETS

- A. Canvas Jacket: UL listed 6 oz/sq yd plain weave cotton fabric treated with dilute fire retardant lagging adhesive.
  - 1. Lagging Adhesive:
    - a. Compatible with insulation.
- B. Exterior Duct Field-Applied Jacket:
  - 1. Laminated Self-Adhesive Water and Weather Seals: Permanent acrylic self-adhesive system.
    - a. Product: "MODEL 1577CW-W" by GTA-NHT, Inc: [www.venturetape.com](http://www.venturetape.com).
    - b. Color: White.
    - c. Moisture Vapor Permeability: 0.00 perm inch, when tested in accordance with ASTM E96.
    - d. Thickness: 6 mils.
    - e. Adhesive Peel Strength: 55 oz/in.
    - f. Tensile Strength: 68 lb/in width.
    - g. Puncture Strength: 35.4 lb.

- h. Tear Strength: 8.5 lb.

## **2.05 DUCT LINER**

- A. Manufacturers:
  - 1. Knauf Insulation: [www.knaufusa.com](http://www.knaufusa.com).
  - 2. Johns Manville Corporation: [www.jm.com](http://www.jm.com).
  - 3. Owens Corning Corp: [www.owenscorning.com](http://www.owenscorning.com).
  - 4. CertainTeed Corporation: [www.certainteed.com](http://www.certainteed.com).
- B. Insulation: Incombustible glass fiber complying with ASTM C1071; flexible blanket, rigid board, and preformed round liner board; impregnated surface and edges coated with poly vinyl acetate polymer or acrylic polymer shown to be fungus and bacteria resistant by testing to ASTM G 21.
  - 1. Apparent Thermal Conductivity: Maximum of 0.31 at 75 degrees F.
  - 2. Service Temperature: Up to 250 degrees F.
  - 3. Rated Velocity on Coated Air Side for Air Erosion: 5,000 fpm, minimum.
  - 4. Minimum Noise Reduction Coefficients:
    - a. 1/2 inch Thickness: 0.30.
    - b. 1 inch Thickness: 0.45.
    - c. 1-1/2 inches Thickness: 0.60.
    - d. 2 inch Thickness: 0.70.
- C. Adhesive: Waterproof, fire-retardant type.
- D. Liner Fasteners: Galvanized steel, self-adhesive pad with integral head.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that ducts have been tested before applying insulation materials.
- B. Verify that surfaces are clean, foreign material removed, and dry.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install in accordance with NAIMA National Insulation Standards.
- C. Insulated ducts conveying air below ambient temperature:
  - 1. Provide insulation with vapor barrier jackets.
  - 2. Finish with tape and vapor barrier jacket.
  - 3. Continue insulation through walls, sleeves, hangers, and other duct penetrations.
  - 4. Insulate entire system including fittings, joints, flanges, fire dampers, flexible connections, and expansion joints.
- D. Insulated ducts conveying air above ambient temperature:
  - 1. Provide with or without standard vapor barrier jacket.
  - 2. Insulate fittings and joints. Where service access is required, bevel and seal ends of insulation.
- E. Exterior Applications: Provide insulation with vapor barrier jacket. Cover with duct board and FSK jacket..
- F. External Duct Insulation Application:
  - 1. Secure insulation with vapor barrier with wires and seal jacket joints with vapor barrier adhesive or tape to match jacket.
  - 2. Secure insulation without vapor barrier with staples, tape, or wires.
  - 3. Install without sag on underside of duct. Use adhesive or mechanical fasteners where necessary to prevent sagging. Lift duct off trapeze hangers and insert spacers.
  - 4. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive.
  - 5. Stop and point insulation around access doors and damper operators to allow operation without disturbing wrapping.
- G. Duct and Plenum Liner Application:
  - 1. Adhere insulation with adhesive for 90 percent coverage.
  - 2. Secure insulation with mechanical liner fasteners. Refer to SMACNA HVAC Duct Construction Standards - Metal and Flexible for spacing.



3. Seal and smooth joints. Seal and coat transverse joints.
4. Seal liner surface penetrations with adhesive.
5. Duct dimensions indicated are net inside dimensions required for air flow. Increase duct size to allow for insulation thickness.

### **3.03 SCHEDULES**

- A. Concealed Supply Air Ducts: Flexible Glass Fiber Duct Insulation.
  1. Thickness: 1-1/2 inch.
- B. Return Ducts: Rigid Glass Fiber Duct Insulation Liner.
  1. Thickness: 1/2 inch.
- C. Ducts **NEW** Exposed to the Outdoors: Two (2) inches of 3 lb. density duct board with FSK Jacket, minimum R-Value of 8.7.
  1. Jacketing: VentureClad 1577CW-W (white), 6.0 mils, 5-Ply self adhesive.
- D. Ducts **EXISTING** Exposed to the Outdoors: ONE (1) inches of 3 lb. density duct board with FSK Jacket, minimum R-Value of 8.7.
  1. Jacketing: VentureClad 1577CW-W (white), 6.0 mils, 5-Ply self adhesive.

**END OF SECTION**

**SECTION 23 07 19**  
**HVAC PIPING INSULATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Piping insulation.
- B. Jackets and accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 84 00 - Firestopping.
- B. Section 09 90 00 - Painting and Coating: Painting insulation jacket.
- C. Section 22 10 05 - Plumbing Piping: Placement of hangers and hanger inserts.
- D. Section 23 21 13 - Hydronic Piping: Placement of hangers and hanger inserts.

**1.03 REFERENCE STANDARDS**

- A. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2023.
- B. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
- C. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot Plate Apparatus; 2019, with Editorial Revision (2023).
- D. ASTM C195 - Standard Specification for Mineral Fiber Thermal Insulating Cement; 2007 (Reapproved 2019).
- E. ASTM C449 - Standard Specification for Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement; 2007 (Reapproved 2019).
- F. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2021.
- G. ASTM C533 - Standard Specification for Calcium Silicate Block and Pipe Thermal Insulation; 2017 (Reapproved 2023).
- H. ASTM C534/C534M - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form; 2023.
- I. ASTM C547 - Standard Specification for Mineral Fiber Pipe Insulation; 2022a.
- J. ASTM C552 - Standard Specification for Cellular Glass Thermal Insulation; 2022.
- K. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2022.
- L. ASTM C585 - Standard Practice for Inner and Outer Diameters of Rigid Thermal Insulation for Nominal Sizes of Pipe and Tubing (NPS System); 2022.
- M. ASTM C591 - Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation; 2022.
- N. ASTM C610 - Standard Specification for Molded Expanded Perlite Block and Pipe Thermal Insulation; 2017 (Reapproved 2023).
- O. ASTM C795 - Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel; 2008 (Reapproved 2023).
- P. ASTM D1056 - Standard Specification for Flexible Cellular Materials--Sponge or Expanded Rubber; 2020.
- Q. ASTM D2842 - Standard Test Method for Water Absorption of Rigid Cellular Plastics; 2019.
- R. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023.
- S. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2022a, with Editorial Revision (2023).
- T. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

#### **1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.

#### **1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years of documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified in this section with minimum 5 years of experience.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.

#### **1.07 FIELD CONDITIONS**

- A. Maintain ambient conditions required by manufacturers of each product.
- B. Maintain temperature before, during, and after installation for minimum of 24 hours.

### **PART 2 PRODUCTS**

#### **2.01 REQUIREMENTS FOR ALL PRODUCTS OF THIS SECTION**

- A. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E 84, NFPA 255, or UL 723.

#### **2.02 GLASS FIBER**

- A. Manufacturers:
  - 1. Knauf Insulation: [www.knaufusa.com](http://www.knaufusa.com).
  - 2. Johns Manville Corporation: [www.jm.com](http://www.jm.com).
  - 3. Owens Corning Corp: [www.owenscorning.com](http://www.owenscorning.com).
  - 4. CertainTeed Corporation: [www.certainteed.com](http://www.certainteed.com).
- B. Insulation: ASTM C547 and ASTM C 795; rigid molded, noncombustible.
  - 1. 'K' value: ASTM C177, 0.24 at 75 degrees F.
  - 2. Maximum service temperature: 850 degrees F.
  - 3. Maximum moisture absorption: 0.2 percent by volume.
- C. Insulation: ASTM C547 and ASTM C 795; semi-rigid, noncombustible, end grain adhered to jacket.
  - 1. 'K' value: ASTM C177, 0.24 at 75 degrees F.
  - 2. Maximum service temperature: 650 degrees F.
  - 3. Maximum moisture absorption: 0.2 percent by volume.
- D. Vapor Barrier Jacket: White kraft paper with glass fiber yarn, bonded to aluminized film; moisture vapor transmission when tested in accordance with ASTM E96/E96M of 0.02 perm-inches.
- E. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.
- F. Vapor Barrier Lap Adhesive:
  - 1. Compatible with insulation.

#### **2.03 JACKETS**

- A. PVC Plastic.
  - 1. Manufacturers:
    - a. Johns Manville Corporation: [www.jm.com](http://www.jm.com).
  - 2. Jacket: One piece molded type fitting covers and sheet material, off-white color.
    - a. Minimum Service Temperature: 0 degrees F.
    - b. Maximum Service Temperature: 150 degrees F.
    - c. Moisture Vapor Permeability: 0.002 perm inch, maximum, when tested in accordance with ASTM E96/E96M.
    - d. Thickness: 10 mil.
    - e. Connections: Brush on welding adhesive.
  - 3. Covering Adhesive Mastic:

- a. Compatible with insulation.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that piping has been tested before applying insulation materials.
- B. Verify that surfaces are clean and dry, with foreign material removed.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install in accordance with NAIMA National Insulation Standards.
- C. Exposed Piping: Locate insulation and cover seams in least visible locations.
- D. Insulated pipes conveying fluids below ambient temperature: Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump bodies, and expansion joints.
- E. Glass fiber insulated pipes conveying fluids below ambient temperature:
  - 1. Provide vapor barrier jackets, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples and vapor barrier mastic.
  - 2. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor barrier adhesive or PVC fitting covers.
- F. For hot piping conveying fluids 140 degrees F or less, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation.
- G. For hot piping conveying fluids over 140 degrees F, insulate flanges and unions at equipment.
- H. Glass fiber insulated pipes conveying fluids above ambient temperature:
  - 1. Provide standard jackets, with or without vapor barrier, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples.
  - 2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.
- I. Inserts and Shields:
  - 1. Application: Piping 1-1/2 inches diameter or larger.
  - 2. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.
  - 3. Insert location: Between support shield and piping and under the finish jacket.
  - 4. Insert configuration: Minimum 6 inches long, of same thickness and contour as adjoining insulation; may be factory fabricated.
  - 5. Insert material: Hydrous calcium silicate insulation or other heavy density insulating material suitable for the planned temperature range.
- J. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions. At fire separations, refer to Section 07 84 00.
- K. Pipe Exposed in Mechanical Equipment Rooms or Finished Spaces (less than 10 feet above finished floor): Finish with canvas jacket sized for finish painting.
- L. Exterior Applications: Provide vapor barrier jacket. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe, and finish with glass mesh reinforced vapor barrier cement. Cover with aluminum jacket with seams located on bottom side of horizontal piping.
- M. Buried Piping: Provide factory fabricated assembly with inner all-purpose service jacket with self-sealing lap, and asphalt impregnated open mesh glass fabric, with one mil thick aluminum foil sandwiched between three layers of bituminous compound; outer surface faced with a polyester film.
- N. Heat Traced Piping: Insulate fittings, joints, and valves with insulation of like material, thickness, and finish as adjoining pipe. Size large enough to enclose pipe and heat tracer. Cover with aluminum jacket with seams located on bottom side of horizontal piping.

### **3.03 SCHEDULE**

- A. Heating Systems:
  - 1. Heating Water Supply and Return:

- a. Thickness: One (1) inch glass fiber.

**END OF SECTION**

**SECTION 23 09 01**  
**BUILDING MANAGEMENT AND CONTROL SYSTEM**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Building Management and Control System.

**1.02 RELATED SECTIONS**

- A. Section 20 00 00 - Basic Mechanical Requirements.
- B. Section 23 05 93 - Testing, Adjusting and Balancing for HVAC.
- D. Section 23 31 00 - HVAC Ducts and Casings.
- I. Section 23 74 13 - Packaged Outdoor Central-Station Air-Handling Units.
- K. Division 26 – Electrical.

**1.03 EXISTING BUILDING MANAGEMENT AND CONTROL SYSTEM**

- A. The temperature control system shall be an extension of the existing district-wide Honeywell Building Management and Control System control network and shall be integrated directly into the existing Honeywell Graphical User Interface software and computer located at the maintenance office.

**1.04 WORK INCLUDED**

- A. Temperature Control Contractor (TCC) shall furnish all labor, materials and equipment necessary for a complete and operating Building Management and Control System (BMCS) incorporating Direct Digital Control (DDC), equipment monitoring, and control through an existing PC based Operator Work Station (OWS) with color graphical displays (GUI); microcomputer based General Purpose Controllers (GPC's) interfacing directly with sensors, actuators and environmental delivery systems (i.e. HVAC units, fan coils, boilers, and chillers); pneumatic and electric controls and mechanical devices for all items indicated on drawings described herein including dampers, valves, panels, and compressed air plant; a primary communication network to allow data exchange from GPC to GPC, interfacing with sensors, actuators, and terminal equipment control devices.
- B. BMCS control capabilities shall include time-of-day control, monitoring, optimum start/stop, temperature control, after-hours overrides, and reporting and trending.
- C. Communication to the BMCS control system shall be an extension of the existing Honeywell Communication Bus allowing communication of new controllers to Existing Honeywell EBI GUI.
- D. The TCC shall completely check out, calibrate and test all connected hardware and software to insure that the system performs in accordance with approved specifications and operating sequences. The TCC shall verify with the Owner's representative the correct operation of each unit and shall provide a copy of the documentation used during the commissioning of the system.
- E. During system commissioning the TCC shall provide a minimum of 8 hours on-site operator instruction to the Owner's maintenance personnel. Operator instruction shall be done during normal working hours and shall be performed by a competent representative familiar with the system hardware, software and accessories. Operator training shall be completed prior to final acceptance of the BMCS by the Owner.

**1.05 WORK BY OTHERS**

- A. Access doors and setting in place of valves, flow meters, water pressure and differential taps, flow switches, thermal wells, dampers, airflow stations, and current transformers.
- B. The Rooftop Units (RTU) manufacturer shall furnish and completely install, including factory wiring, the following controls and equipment with each unit: dampers; internal safety controls; relays; variable speed drives (if applicable); and low ambient lockout control, and BACnet Control Communication Interface.
- C. Division 26 contractor shall furnish the necessary materials and install 110-volt power to each control panel. Power shall be brought into control enclosure and connected to controller power module.

**1.06 MANUFACTURER**

- A. Existing Building Management and Control System: Honeywell International Inc., manufacturers' Saginaw branch office only.

## **1.07 SUBMITTALS**

- A. Four copies of shop drawings of the entire control system shall be submitted and shall consist of a complete list of equipment and materials, including manufacturers catalog data sheets and installation instructions. Shop drawings shall also contain complete wiring and schematic diagrams, software descriptions, calculations, and any other details required to demonstrate that the system has been coordinated and will properly function as a system. Terminal identification for all control wiring shall be shown on the shop drawings. A complete written Sequence of Operation as well as a hard copy graphical depiction of the application control programs shall also be included with the submittal package.
- B. Submittal shall also include a trunk cable schematic diagram depicting the Graphical User Interface (GUI) computer, control panel locations and a description of the communication type, media and protocol.
- C. Submittal shall also include a complete point list of all connected points to the DDC system.
- D. Upon completion of the work, BMCS contractor shall provide a complete set of 'as-built' drawings and application software on magnetic floppy disk media or compact disk. Drawings shall be provided as AutoCAD™ or Visio™ compatible files. Eight copies of the 'as-built' drawings shall be provided in addition to the documents on flash storage drive.
- E. Product Data: Data entry, electrical installation, programming, start up, test and validation acceptance documentation, and system warranty.
- F. Operation and Maintenance Manuals: Shall contain the following:
  - 1. Operators Manual shall be provided with graphical explanations of keyboard use for all operator functions specified under Operator Training.
  - 2. Computerized printouts of all direct digital controller's data file including all point processing assignments, physical terminal relationship, scales and offsets, command and alarm limits, etc.
  - 3. A manual shall be provided including revised as-built documents of all materials required of this specification.

## **1.08 AGENCY AND CODE APPROVALS**

- A. All products of the BMCS shall be provided with the following agency approvals. Verification that the approvals exist for all submitted products shall be provided with the submittal package. Systems or products not currently offering the following approvals are not acceptable.
  - 1. UL-916; Energy Management Systems
  - 2. ULC; UL - Canadian Standards Association
  - 3. FCC, Part 15, Subpart J, Class A Computing Devices

## **1.09 SOFTWARE LICENSE AGREEMENT**

- A. The Owner shall sign a copy of the Honeywell EBI Specifier BMCS manufacturer's standard software and firmware licensing agreement as a condition of this contract for license expansion. Such license shall grant use of all programs and application software to Owner as defined by the manufacturer's license agreement but shall protect manufacturer's rights to disclosure of trade secrets contained within such software.

## **1.10 DELIVERY, STORAGE AND HANDLING**

- A. Provide factory-shipping cartons for each piece of equipment and control device. Maintain cartons through shipping, storage, and handling as required to prevent equipment damage. Store equipment and materials inside and protected from weather.

## **1.11 JOB CONDITIONS**

- A. Cooperation with Other Trades: Coordinate the Work of this section with that of other sections to insure that the Work will be carried out in an orderly fashion. It shall be this Contractor's responsibility to check the Contract Documents for possible conflicts between his Work and that of other crafts in equipment location, pipe, duct and conduit runs, electrical outlets and fixtures, air diffusers, and structural and architectural features.

## **1.12 WARRANTY**

- A. Provide Contractor's one year material and workmanship warranty in accordance with General Requirements, Division 1; include all components, system software, and parts; labor to repair, reprogram or replace components.

- B. All corrective software modifications made during warranty period shall be updated on all user documentation, on user and manufacturer's archived software disks.

### **1.13 QUALITY ASSURANCE**

- A. Complete BMCS installation shall be in strict compliance to national, state and local mechanical and electric codes and electrical section of these specifications. All devices shall be UL or FM listed and labeled for specific use, application and environment to which they are applied.

## **PART 2 MATERIALS**

### **2.01 BMCS SOFTWARE**

- A. Honeywell International shall provide a license expansion to the Existing Honeywell EBI GUI.

### **2.02 GENERAL PURPOSE CONTROLLERS**

- A. Any General Purpose Controllers (GPC's) shall be stand-alone custom programmable to perform the sequences specified, and with Input/Output (I/O) selected for the application. All GPC's shall use BACnet MTSP communications application protocol for field bus and be directly connected to the existing control network. GPC's shall comply with FCC rules and be tested and listed under UL864 and UL916 for computing devices, and plenum rated for air handling compartments. GPC enclosures shall be metal, suitable for the environment in which they are located. Each controller shall be designed with on-board jacks for quick commissioning and troubleshooting with a portable programming tool.

### **2.03 APPLICATION SPECIFIC CONTROLLERS**

- A. Any Application Specific Controllers (ASC's) shall be able to perform the sequences specified, with sufficient I/O capacity selected for the application. All ASC's shall be BACnet certified and shall be fully compliant with the associated BACnet HVAC profile. All ASC's shall communicate via the existing Honeywell control network.

### **2.04 CONTROLLER POWER MODULES**

- A. Power modules shall meet all standards necessary to pass UL864, UL916, and NFPA92A requirements. Power modules shall include line bypass capacitors, metal oxide varistors, and meet UL "power limiting" requirements.

### **2.05 SENSORS**

- A. Temperature sensors shall be Resistance Temperature Detector (RTD) type. Sensors shall have + or - 1.0 degrees F accuracy between 32 degrees and 212 degrees.
  1. Wall mounted room temperature sensors shall be provided where shown on the plans and shall be mounted 48" above finished floor.
  2. Wall mounted room temperature sensors located in gymnasium and cafeteria shall have lockable, clear plastic guard installed over sensor.
  3. Wall mounted room temperature sensor for New RTU's shall include the following features:
    - Occupied/unoccupied override button.
  4. Plastic used on subbase or housing shall be UL94-5V rated.
    - a. Duct temperature sensors shall be rigid stem or averaging type as specified in the sequence of operation.
    - b. Current sensing relays used for proof-of-loading for exhaust air fans shall be H-800. Each relay shall be provided with an LED to allow ready observation of the relay status.
- B. Carbon Dioxide Sensors (CO2): Sensors shall utilize Non-dispersive infrared technology (N.D.I.R.), repeatable to plus or minus 20 PPM. Sensor range shall be 0 - 2000 PPM. Accuracy shall be plus or minus five percent (5%) or 75 PPM, whichever is greater. Response shall be less than one minute. Input voltage shall be 20 to 30 VAC or DC. Output shall be 0 - 10 VDC. Sensor shall be wall or duct mounted type, as appropriate for the application, housed in a high impact plastic enclosure.

### **2.06 VALVES**

- A. Gas valves for RTU's shall be furnished and factory installed by the equipment manufacturer.

### **2.07 ACTUATORS**

- A. For all automatically controlled devices shall be provided by the equipment manufacturer. Actuators shall be provided with suitable corrosion resistant linkages for valves or dampers. Except as specified herein, all



actuators shall be sized for load and close off encountered in strict accordance with manufacturer recommendations.

## **2.08 AUTOMATIC CONTROL DAMPERS**

- A. Dampers for RTU's shall be furnished and factory installed by the equipment manufacturer. Equipment Manufacturer to furnish and install damper linkage between return air damper and outside air damper.
- B. Frames shall not be less than 13-gauge galvanized steel. Blades shall not be over 8 inches wide nor less than 16-gauge galvanized steel roll formed. Bearings shall be oilite, ball-bearing or nylon with steel shafts. Side seals shall be stainless steel of the tight-seal spring type. Dampers and seals shall be suitable for temperature ranges of -40 to 200F.
  - 1. All proportional control dampers shall be opposed, or parallel blade type as hereinafter specified and all two-position dampers shall be parallel blade types.
  - 2. Dampers shall be sized to meet flow requirements of the application. The sheet metal contractor shall furnish and install baffles to fit the damper to duct size. Baffles shall not exceed 6".
  - 3. Dampers shall be minimum leakage type to conserve energy and the temperature control manufacturer shall submit leakage data for all control dampers with the temperature control submittal. Maximum leakage for dampers in excess of sixteen inches square shall be 30 CFM per square foot at static pressure of 1 inch of WC.
    - a. Where ultra-low leakage dampers are specified the blade edges shall be fitted with replaceable, snap-on, inflatable seals to limit damper leakage to 6 CFM per square foot for dampers in excess of sixteen inches square at 1 inch of WC.

## **2.09 MISCELLANEOUS MATERIALS**

- A. All material not identified in this Specification that is required for a complete and operating temperature control system is the responsibility of the TCC.

## **PART 3 EXECUTION**

### **3.01 CONTROL WIRING**

- A. All wiring and tubing shall be properly supported and run in a neat and workmanlike manner.
- B. All wiring and tubing exposed and in equipment rooms shall run parallel to or at right angles to the building structure.
- C. All piping and wiring within enclosures shall be neatly bundled and anchored to prevent obstruction to devices and terminals.
- D. All wiring shall be in accordance with all local and national codes. All line voltage wiring, all wiring exposed, and all wiring in equipment rooms shall be installed in conduit in accordance to the electrical specifications.
- E. All electronic wiring shall be #18 AWG minimum THHN and shielded if required, except standard network (Ethernet, BACnet, etc.) cabling shall be as tested and recommended in lieu of #18 gauge twisted, #22 or #24 gauge is acceptable if used as a part of an engineered structured cabling system.
- F. The control manufacturer must submit technical and application documentation demonstrating that this cabling system has been tested and approved for use by the manufacturer of both the control system and the engineered structured cabling system.
- G. All wiring for heating plant, chilled water plant, mechanical and electrical control panels shall be concealed in an approved manner.
- H. TCC shall install and connect sensors for boiler manufacturers sequencing panel.

### **3.02 SENSORS**

- A. Temperature Sensor
  - a. Room sensor should have digital read out with override capabilities
- B. General Purpose Controller
  - a. Purpose is to enable and provide status of exhaust fans
- C. Division 26 Contractor shall furnish necessary materials and install 110-volt power to each monitoring panel. Power shall be brought into control enclosure and connected to controller power module as indicated on TCC drawings.

### 3.03 CONTROLLER POWER SUPPLY

- A. Division 26 Contractor shall furnish necessary materials and install 110-volt power to each control panel. Power shall be brought into control enclosure and connected to controller power module as indicated on TCC drawings.

### PART 4 SEQUENCE OF OPERATIONS

#### RTU-A1, A2, A3, B1, AND C1 – Equipment Manufactures Supplied Sequence

##### Building Automation System Interface:

- The Building Automation System (BAS) shall send the controller Occupied Bypass, Morning Warm-up/Pre-Cool, Occupied/Unoccupied and Heat/Cool modes.
- If a BAS is not present, or communication is lost with the BAS the controller shall operate using default modes and setpoints

##### Occupied:

- During occupied periods, the supply fan shall run continuously, and the mixed air dampers shall open to maintain minimum ventilation requirements.
- The DX cooling and the gas heat shall control to maintain the active discharge air temperature setpoint.
- If economizing is enabled, the outdoor air or mixed air dampers shall modulate to maintain the discharge air temperature setpoint and the exhaust air damper shall track the mixed air dampers.
- The discharge air temperature setpoint shall be dynamically reset based on the deviation of actual space temperature from the active space temperature setpoint.
- If the discharge air temperature sensor fails, the DX cooling and the gas heat shall control to maintain the active space temperature setpoint and an alarm shall be annunciated at the BMCS.
- If the discharge air temperature sensor and the space temperature sensor fail, the DX cooling shall be disabled, the gas heat shall be disabled, and an alarm shall be annunciated at the BMCS.

##### Unoccupied:

- When the space temperature is below the unoccupied heating setpoint of 60.0 deg. F (adj.) the supply fan shall start, the outside air damper shall remain closed and the gas heat shall be enabled. When the space temperature rises above the unoccupied heating setpoint of 60.0 deg. F (adj.) plus the unoccupied differential of 4.0 deg. F (adj.) the supply fan shall stop and the gas heat shall be disabled.
- When the space temperature is above the unoccupied cooling setpoint of 85.0 deg. F (adj.) the supply fan shall start, the outside air damper shall open if economizing is enabled and remain closed if economizing is disabled and the DX cooling shall be enabled.
- When the space temperature falls below the unoccupied cooling setpoint of 85.0 deg. F minus the Unoccupied differential of 4.0 deg. F (adj.) the supply fan shall stop, the DX cooling shall be disabled and the outside air damper shall close.

##### Optimal Start:

- The BAS shall monitor the scheduled occupied time, occupied space setpoints and space temperature to calculate when the optimal start occurs.

##### Morning Warm-Up Mode

- During optimal start, if the space temperature is below the occupied heating setpoint a morning warm-up mode shall be activated.
- When morning warm-up is initiated the unit shall enable the heating and fan(s).
- The outside air damper shall remain closed.
- When the space temperature reaches the occupied heating setpoint (adj.), the unit shall transition to the occupied mode.

##### Pre-Cool Mode:

- During optimal start, if the space temperature is above the occupied cooling setpoint, pre-cool mode shall be activated.
- When pre-cool is initiated the unit shall enable the fan and cooling or economizer.
- The outside air damper shall remain closed, unless economizing.
- When the space temperature reaches occupied cooling setpoint (adj.), the unit shall transition to the occupied mode.

**Optimal Stop:**

- The BAS shall monitor the scheduled unoccupied time, occupied setpoints and space temperature to calculate when the optimal stop occurs. When the optimal stop mode is
- active the unit controller shall maintain the space temperature to the space temperature offset setpoint.
- Outside air damper shall remain enabled to provide minimum ventilation.

**Occupied Bypass:**

- The BAS shall monitor the status of the ON and CANCEL buttons of the space temperature sensor.
- When an occupied bypass request is received from a space sensor, the unit shall transition from its current occupancy mode to occupied bypass mode and the unit shall
- maintain the space temperature to the occupied setpoints (adj.).

**Heat/Cool Mode:**

- When the space temperature rises above the occupied cooling setpoint the mode shall transition to cooling.
- When the space temperature falls below the occupied heating setpoint the mode shall transition to heating.
- When the space temperature is above the occupied cooling setpoint or below the occupied heating setpoint the mode shall remain in its last state.
- If the space temperature sensor fails, the mode shall remain in its last state and an alarm shall be annunciated at the BMCS.
- If the local and communicated setpoints fail the controller shall disable the supply fan and an alarm shall be annunciated at the BMCS.

**Economizer:**

- ENABLE (Comparative Enthalpy): Outside air (OA) enthalpy shall be compared with Return air (RA) enthalpy point. The economizer shall enable when OA enthalpy is less than RA enthalpy - 2.0 BTU/LB. The economizer shall disable when OA enthalpy is greater than RA enthalpy.
- OPERATION: The supply air sensor shall measure the dry bulb temperature of the air leaving the evaporator coil while economizing. When economizing is enabled, and the unit is operating in the cooling mode, the economizer damper shall modulate between its minimum position and 100% to maintain the space temperature setpoint. Minimum position shall be calculated based on supply fan speed. If the supply air temperature starts to fall below supply air temperature setpoint, the outdoor damper shall be at minimum position. Compressors shall be delayed from operating until the economizer has opened to 100% for 5 minutes.

**Demand Control Ventilation (DCV):**

- If the return air CO2 level is greater than or equal to the Design Minimum CO2 Setpoint, the outdoor air damper shall open to the Design Minimum Outdoor Air Damper
- Setpoint.
- If there is a call for economizer cooling, the damper may be opened further to satisfy the cooling request.
- If the return air CO2 level is less than or equal to the DCV Minimum CO2 Setpoint, the outdoor air damper shall close to the DCV Minimum Outdoor Air Damper Setpoint.
- If there is a call for economizer cooling, the damper may be opened further to satisfy the cooling request.
- If the return air CO2 level is greater than the DCV Minimum CO2 Setpoint and less than the Design Minimum CO2 Setpoint, the outdoor air damper position shall be
- modulated proportionally to the space CO2 level relative to a target position between the DCV Minimum CO2 Setpoint and the Design Minimum CO2 Setpoint.
- If there is a call for economizer cooling, the damper may be opened further to satisfy the cooling request.

**Supply Fan:**

- The unit controller shall vary the supply fan speed to optimize minimum fan speed in all cooling and heating modes.

**Supply Duct Static Pressure Control:**

- The unit controller shall modulate the supply fan output as required to maintain the duct static pressure setpoint. If the duct static pressure falls below the supply air static
- setpoint + deadband, the unit controller shall increase the output to the supply fan to maintain setpoint. If the duct static pressure rises above the supply air static setpoint +
- deadband, the unit controller shall decrease the output to the supply fan to maintain setpoint.

**Building Pressure Control:**

- The barometric relief dampers shall open with increased building pressure. As the building pressure increases, the pressure in the unit return section also increases, opening
- the dampers and relieving air.

**Filter Timer:**

- The fan-run time (hrs) shall be compared to the filter maintenance timer setpoint. Once the setpoint is reached a filter timer alarm diagnostic shall be annunciated at the
- BAS. When the diagnostic is cleared, the filter-maintenance timer is reset to zero, and the timer begins accumulating fan-run time again.

**Smoke Detector Shutdown:**

- The unit shall shut down in response to a signal from the smoke detector indicating the presence of smoke. The smoke detector shall be interlocked to the unit through the
- dry contacts of the smoke detector. A manual reset of the smoke detector shall be required to restart the unit.

**RTU-C2, C3, K1 – Equipment Manufactures Supplied RTU 3****Building Automation System Interface:**

- The Building Automation System (BAS) shall send the controller Occupied Bypass, Morning Warm-up/Pre-Cool, Occupied/Unoccupied and Heat/Cool modes.
- If a BAS is not present, or communication is lost with the BAS the controller shall operate using default modes and setpoints

**Occupied:**

- During occupied periods, the supply fan shall run continuously, and the mixed air dampers shall open to maintain minimum ventilation requirements.
- The DX cooling and the gas heat shall control to maintain the active discharge air temperature setpoint.
- If economizing is enabled, the outdoor air or mixed air dampers shall modulate to maintain the discharge air temperature setpoint and the exhaust air damper shall track the mixed air dampers.
- The discharge air temperature setpoint shall be dynamically reset based on the deviation of actual space temperature from the active space temperature setpoint.
- If the discharge air temperature sensor fails, the DX cooling and the gas heat shall control to maintain the active space temperature setpoint and an alarm shall be annunciated at the BMCS.
- If the discharge air temperature sensor and the space temperature sensor fail, the DX cooling shall be disabled, the gas heat shall be disabled, and an alarm shall be annunciated at the BMCS.

**Unoccupied:**

- When the space temperature is below the unoccupied heating setpoint of 60.0 deg. F (adj.) the supply fan shall start, the outside air damper shall remain closed and the gas heat shall be enabled. When the space temperature rises above the unoccupied heating setpoint of 60.0 deg. F (adj.) plus the unoccupied differential of 4.0 deg. F (adj.) the supply fan shall stop and the gas heat shall be disabled.
- When the space temperature is above the unoccupied cooling setpoint of 85.0 deg. F (adj.) the supply fan shall start, the outside air damper shall open if economizing is enabled and remain closed if economizing is disabled and the DX cooling shall be enabled.
- When the space temperature falls below the unoccupied cooling setpoint of 85.0 deg. F minus the Unoccupied differential of 4.0 deg. F (adj.) the supply fan shall stop, the DX cooling shall be disabled and the outside air damper shall close.

**Optimal Start:**

- The BAS shall monitor the scheduled occupied time, occupied space setpoints and space temperature to calculate when the optimal start occurs.

**Morning Warm-Up Mode**

- During optimal start, if the space temperature is below the occupied heating setpoint a morning warm-up mode shall be activated.
- When morning warm-up is initiated the unit shall enable the heating and fan(s).
- The outside air damper shall remain closed.
- When the space temperature reaches the occupied heating setpoint (adj.), the unit shall transition to the occupied mode.

**Pre-Cool Mode:**

- During optimal start, if the space temperature is above the occupied cooling setpoint, pre-cool mode shall be activated.
- When pre-cool is initiated the unit shall enable the fan and cooling or economizer.
- The outside air damper shall remain closed, unless economizing.
- When the space temperature reaches occupied cooling setpoint (adj.), the unit shall transition to the occupied mode.

**Optimal Stop:**

- The BAS shall monitor the scheduled unoccupied time, occupied setpoints and space temperature to calculate when the optimal stop occurs. When the optimal stop mode is
- active the unit controller shall maintain the space temperature to the space temperature offset setpoint.
- Outside air damper shall remain enabled to provide minimum ventilation.

**Occupied Bypass:**

- The BAS shall monitor the status of the ON and CANCEL buttons of the space temperature sensor.
- When an occupied bypass request is received from a space sensor, the unit shall transition from its current occupancy mode to occupied bypass mode and the unit shall
- maintain the space temperature to the occupied setpoints (adj.).

**Heat/Cool Mode:**

- When the space temperature rises above the occupied cooling setpoint the mode shall transition to cooling.
- When the space temperature falls below the occupied heating setpoint the mode shall transition to heating.
- When the space temperature is above the occupied cooling setpoint or below the occupied heating setpoint the mode shall remain in its last state.
- If the space temperature sensor fails, the mode shall remain in its last state and an alarm shall be annunciated at the BMCS.
- If the local and communicated setpoints fail the controller shall disable the supply fan and an alarm shall be annunciated at the BMCS.

**Economizer:**

- ENABLE (Comparative Enthalpy): Outside air (OA) enthalpy shall be compared with Return air (RA) enthalpy point. The economizer shall enable when OA enthalpy is less than RA enthalpy - 2.0 BTU/LB. The economizer shall disable when OA enthalpy is greater than RA enthalpy.
- OPERATION: The supply air sensor shall measure the dry bulb temperature of the air leaving the evaporator coil while economizing. When economizing is enabled, and the unit is operating in the cooling mode, the economizer damper shall modulate between its minimum position and 100% to maintain the space temperature setpoint. Minimum position shall be calculated based on supply fan speed. If the supply air temperature starts to fall below supply air temperature setpoint, the outdoor damper shall be at minimum position. Compressors shall be delayed from operating until the economizer has opened to 100% for 5 minutes.

**Supply Fan:**

- The unit controller shall vary the supply fan speed to optimize minimum fan speed in all cooling and heating modes.

**Supply Duct Static Pressure Control:**

- The unit controller shall modulate the supply fan output as required to maintain the duct static pressure setpoint. If the duct static pressure falls below the supply air static
- setpoint + deadband, the unit controller shall increase the output to the supply fan to maintain setpoint. If the duct static pressure rises above the supply air static setpoint +
- deadband, the unit controller shall decrease the output to the supply fan to maintain setpoint.

**Building Pressure Control:**

- The barometric relief dampers shall open with increased building pressure. As the building pressure increases, the pressure in the unit return section also increases, opening
- the dampers and relieving air.

**Filter Timer:**

- The fan-run time (hrs) shall be compared to the filter maintenance timer setpoint. Once the setpoint is reached a filter timer alarm diagnostic shall be annunciated at the

- BAS. When the diagnostic is cleared, the filter-maintenance timer is reset to zero, and the timer begins accumulating fan-run time again.

**Smoke Detector Shutdown:**

- The unit shall shut down in response to a signal from the smoke detector indicating the presence of smoke. The smoke detector shall be interlocked to the unit through the
- dry contacts of the smoke detector. A manual reset of the smoke detector shall be required to restart the unit.

**END OF SECTION**



**SECTION 23 31 00**  
**HVAC DUCTS AND CASINGS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Metal ductwork.

**1.02 RELATED REQUIREMENTS**

- A. Section 23 05 93 - Testing, Adjusting, and Balancing for HVAC.
- B. Section 23 33 00 - Air Duct Accessories.
- C. Section 23 37 00 - Air Outlets and Inlets.

**1.03 REFERENCE STANDARDS**

- A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2022.
- C. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2023.
- D. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength, Low Alloy, and High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2021a.
- E. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low Alloy, High-Strength Low-Alloy With Improved Formability, and Ultra-High Strength; 2018a.
- F. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
- G. ASTM C14/C14M - Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe; 2020.
- H. ASTM C443/C443M - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets; 2021.
- I. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2021.
- J. NFPA 90B - Standard for the Installation of Warm Air Heating and Air Conditioning Systems; 2021.
- K. NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations; 2021.
- L. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2021.
- M. SMACNA (FGD) - Fibrous Glass Duct Construction Standards; 2021.
- N. SMACNA (LEAK) - HVAC Air Duct Leakage Test Manual; 2012.
- O. UL 181 – Standard for Factory-Made Air Ducts and Air Connectors; Current Edition, Including All Revisions.

**1.04 PERFORMANCE REQUIREMENTS**

- A. No variation of duct configuration or sizes permitted except by written permission. Size round ducts installed in place of rectangular ducts in accordance with ASHRAE table of equivalent rectangular and round ducts.

**1.05 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Provide data for duct materials, duct liner, and duct connections.
- C. Shop Drawings: Indicate duct fittings, particulars such as gages, sizes, welds, and configuration prior to start of work for low pressure class and higher systems.
- D. Test Reports: Indicate pressure tests performed. Include date, section tested, test pressure, and leakage rate, following SMACNA (LEAK) – HVAC Air Duct Leakage Test Manual.
- E. Project Record Documents: Record actual locations of ducts and duct fittings. Record changes in fitting location and type. Show additional fittings used.



## **1.06 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in performing the type of work specified in this section, with minimum 5 years of documented experience.

## **1.07 REGULATORY REQUIREMENTS**

- A. Construct ductwork to NFPA 90A, NFPA 90B, and NFPA 96 standards.

## **1.08 FIELD CONDITIONS**

- A. Do not install duct sealants when temperatures are less than those recommended by sealant manufacturers.
- B. Maintain temperatures within acceptable range during and after installation of duct sealants.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. Galvanized Steel Ducts: Hot-dipped galvanized steel sheet, ASTM A653/A653M FS Type B, with G60/Z180 coating.
- B. Un-Galvanized Steel for Ducts: ASTM A1008/A1008M, Designation CS, cold-rolled commercial steel.
- C. Stainless Steel for Ducts: ASTM A240/A240M, Type 304.
- D. Joint Sealers and Sealants: Non-hardening, water resistant, mildew and mold resistant.
  - 1. Type: Heavy mastic or liquid used alone or with tape, suitable for joint configuration and compatible with substrates, and recommended by manufacturer for pressure class of ducts.
  - 2. Surface Burning Characteristics: Flame spread of zero, smoke developed of zero, when tested in accordance with ASTM E84.
- E. Hanger Rod: ASTM A36/A36M; steel, galvanized; threaded both ends, threaded one end, or continuously threaded.
- F. Hanger Fasteners: Attach hangers to structure using appropriate fasteners, as follows:
  - 1. Concrete Wedge Expansion Anchors: Complying with ICC-ES AC193.
  - 2. Masonry Wedge Expansion Anchors: Complying with ICC-ES AC01.
  - 3. Concrete Screw Type Anchors: Complying with ICC-ES AC193.
  - 4. Masonry Screw Type Anchors: Complying with ICC-ES AC106.
  - 5. Concrete Adhesive Type Anchors: Complying with ICC-ES AC308.
  - 6. Other Types: As required.
- G. Insulated Flexible Ducts:
  - 1. Two ply vinyl film supported by helically wound spring steel wire; fiberglass insulation; polyethylene vapor barrier film.
    - a. Pressure Rating: 10 inches WG positive and 1.0 inches WG negative.
    - b. Maximum Velocity: 4000 fpm.
    - c. Temperature Range: -10 degrees F to 160 degrees F.

### **2.02 DUCTWORK FABRICATION**

- A. Fabricate and support in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.
- B. Where ducts are connected to exterior wall louvers and duct outlet is smaller than louver frame, provide blank-out panels sealing louver area around duct. Use same material as duct, painted black on exterior side; seal to louver frame and duct.
- C. Low Pressure Supply (Heating & Cooling Systems): 1 inch w.g. pressure class, galvanized steel.
- D. General Exhaust: 1/2 inch w.g. pressure class, galvanized steel.
- E. Provide air foil turning vanes when rectangular elbows must be used.
- F. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.

- G. Fabricate continuously welded round and oval duct fittings two gages heavier than duct gages indicated in SMACNA Standard. Joints shall be minimum 4 inch cemented slip joint, brazed or electric welded. Prime coat welded joints.
- H. Provide standard 45 degree lateral wye takeoffs unless otherwise indicated where 90 degree conical tee connections may be used.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Duct sizes indicated are inside clear dimensions. For lined ducts, maintain sizes inside lining.
- C. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.
- D. Install and seal metal and flexible ducts in accordance with SMACNA HVAC Duct Construction Standards – Metal and Flexible.
- E. Install fibrous glass ducts in accordance with SMACNA Fibrous Glass Duct Construction Standards. Obtain manufacturer's inspection and acceptance of fabrication and installation at beginning of installation.
- F. Provide openings in ductwork where required to accommodate thermometers and controllers. Provide pilot tube openings where required for testing of systems, complete with metal can with spring device or screw to ensure against air leakage. Where openings are provided in insulated ductwork, install insulation material inside a metal ring.
- G. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.
- H. Use crimp joints with or without bead for joining round duct sizes 8 inch and smaller with crimp in direction of air flow.
- I. Connect flexible ducts to metal ducts with draw bands.

#### **3.02 SCHEDULES**

- A. Ductwork Material:
  - 1. Low Pressure Supply (Heating Systems): Steel.
  - 2. Low Pressure Supply (System with Cooling Coils): Steel.
  - 3. Return and Relief: Steel.

**END OF SECTION**



**SECTION 23 33 00**  
**AIR DUCT ACCESSORIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Air turning devices/extractors.
- B. Duct access doors.
- C. Duct test holes.
- D. Flexible duct connections.
- E. Volume control dampers.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 84 00 - Firestopping.
- B. Section 23 31 00 - HVAC Ducts and Casings.

**1.03 REFERENCE STANDARDS**

- A. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2021.
- B. NFPA 92 - Standard for Smoke-Control Systems; 2021 with Amendment.
- C. NFPA 96 - Standard Ventilation Control and Fire Protection of Commercial Cooking Operations; 2021.
- D. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2021.
- E. UL 33 - Heat Responsive Links for Fire-Protection Service; Current Edition, Including All Revisions.
- F. UL 555 - Standard for Fire Dampers; Current Edition, Including All Revisions.
- G. UL 555S - Standard for Leakage Rated Dampers for Use in Smoke Control Systems; Current Edition, Including All Revisions.

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Provide for shop fabricated assemblies including volume control dampers. Include electrical characteristics and connection requirements.
- C. Shop Drawings: Indicate for shop fabricated assemblies including volume control dampers.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.
- B. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Protect dampers from damage to operating linkages and blades.

**PART 2 PRODUCTS**

**2.01 AIR TURNING DEVICES/EXTRACTORS**

- A. Multi-blade device with blades aligned in short dimension; steel construction; with individually adjustable blades, mounting straps.

**2.02 DUCT ACCESS DOORS**

- A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards and as indicated.

**2.03 DUCT TEST HOLES**

- A. Temporary Test Holes: Cut or drill in ducts as required. Cap with neat patches, neoprene plugs, threaded plugs, or threaded or twist-on metal caps.

**2.04 VOLUME CONTROL DAMPERS**

- A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards and as indicated.

- B. Splitter Dampers:
  1. Material: Same gage as duct to 24 inches size in either direction, and two gages heavier for sizes over 24 inches.
  2. Blade: Fabricate of single thickness sheet metal to streamline shape, secured with continuous hinge or rod.
  3. Operator: Minimum 1/4 inch diameter rod in self aligning, universal joint action, flanged bushing with set screw.
- C. Single Blade Dampers: Fabricate for duct sizes up to 6 x 30 inch.
  1. Blade: 24 gage, minimum.
- D. Multi-Blade Damper: Fabricate of opposed blade pattern with maximum blade sizes 8 x 72 inch. Assemble center and edge crimped blades in prime coated or galvanized channel frame with suitable hardware.
  1. Blade: 18 gage, minimum.
- E. End Bearings: Except in round ducts 12 inches and smaller, provide end bearings. On multiple blade dampers, provide oil-impregnated nylon, thermoplastic elastomer, or sintered bronze bearings.
- F. Quadrants:
  1. Provide locking, indicating quadrant regulators on single and multi-blade dampers.
  2. On insulated ducts mount quadrant regulators on stand-off mounting brackets, bases, or adapters.
  3. Where rod lengths exceed 30 inches provide regulator at both ends.

## **2.05 MISCELLANEOUS PRODUCTS**

- A. Internal Strut End Plugs: Combination end-mounting and sealing plugs for metal conduit used as internal reinforcement struts for metal ducts; plug crimped inside conduit with outside gasketed washer seal.
- B. Duct Opening Closure Film: Mold-resistant, self-adhesive film to keep debris out of ducts during construction.
  1. Thickness: 2 mils.
  2. High tack water based adhesive.
  3. UV stable light blue color.
  4. Elongation Before Break: 325 percent, minimum.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Verify that electric power is available and of the correct characteristics.

### **3.02 INSTALLATION**

- A. Install accessories in accordance with manufacturer's instructions, NFPA 90A, and follow SMACNA HVAC Duct Construction Standards. Refer to Section 23 31 00 for duct construction and pressure class.
- B. Provide backdraft dampers on exhaust fans or exhaust ducts nearest to outside and where indicated.
- C. Provide duct access doors for inspection and cleaning before and after filters, coils, fans, automatic dampers, at fire dampers, combination fire and smoke dampers, and elsewhere as indicated. Provide for cleaning kitchen exhaust ducts in accordance with NFPA 96. Provide minimum 8 x 8 inch size for hand access, size for shoulder access, and as indicated. Provide 4 x 4 inch for balancing dampers only. Review locations prior to fabrication.
- D. Provide duct test holes where required for testing and balancing purposes.
- E. Provide fire dampers and combination fire and smoke dampers at locations indicated, where ducts and outlets pass through fire rated components, and where required by authorities having jurisdiction. Install with required perimeter mounting angles, sleeves, breakaway duct connections, corrosion resistant springs, bearings, bushings and hinges.
- F. Install smoke dampers and combination smoke and fire dampers in accordance with NFPA 92.
- G. Demonstrate re-setting of fire dampers to Owner's representative.
- H. At fans and motorized equipment associated with ducts, provide flexible duct connections immediately adjacent to the equipment.
- I. At equipment supported by vibration isolators, provide flexible duct connections immediately adjacent to the equipment; see Section 22 05 48.

- J. For fans developing static pressures of 5.0 inches and over, cover flexible connections with leaded vinyl sheet, held in place with metal straps.
- K. Provide balancing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Install minimum 2 duct widths from duct take-off.
- L. Use splitter dampers only where indicated.
- M. Provide balancing dampers on high velocity systems where indicated. Refer to Section 23 36 00 - Air Terminal Units.
- N. Provide balancing dampers on duct take-off to diffusers, grilles, and registers, regardless of whether dampers are specified as part of the diffuser, grille, or register assembly.

**END OF SECTION**



**SECTION 23 37 00**  
**AIR OUTLETS AND INLETS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Diffusers.
- B. Registers/grilles.

**1.02 RELATED REQUIREMENTS**

- A. Section 09 90 00 - Painting and Coating: Painting of ducts visible behind outlets and inlets.
- B. Section 23 31 00 - HVAC Ducts and Casings.

**1.03 REFERENCE STANDARDS**

- A. AMCA 500-L - Laboratory Methods of Testing Louvers for Rating; 2012, with Editorial Revision (2015).
- B. ASHRAE Std 70 - Method of Testing the Performance of Air Outlets and Inlets; 2006 (Reaffirmed 2021).
- C. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2021.

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of experience.
- B. Test and rate air outlet and inlet performance in accordance with ASHRAE Std 70.
- C. Test and rate louver performance in accordance with AMCA 500-L.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Carnes Company HVAC: [www.carnes.com](http://www.carnes.com).
- B. Greenheck Fan Corporation: [www.greenheck.com](http://www.greenheck.com).
- C. Loren Cook Company: [www.lorencook.com](http://www.lorencook.com).
- D. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.

**2.02 CEILING EGG CRATE EXHAUST AND RETURN GRILLES**

- A. Type: Egg crate style face consisting of 1/2 x 1/2 x 1/2 inch, grid core.
- B. Fabrication: Grid core consists of aluminum with mill aluminum finish.
- C. Color: As shown on the drawings
- D. .Frame: Channel lay-in frame for suspended grid ceilings.

**2.03 WALL EXHAUST AND RETURN REGISTERS/GRILLES**

- A. Type: Streamlined blades, 3/4 inch minimum depth, 3/4 inch maximum spacing, with spring or other device to set blades, vertical face.
- B. Frame: 1-1/4 inch margin with countersunk screw mounting.
- C. Fabrication: Steel frames and blades, with factory baked enamel finish.
- D. Color: As shown on the drawings.
- E. Damper: Integral, gang-operated, opposed blade type with removable key operator, operable from face.



## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Check location of outlets and inlets and make necessary adjustments in position to conform with architectural features, symmetry, and lighting arrangement.
- C. Install diffusers to ductwork with air tight connection.
- D. Provide balancing dampers on duct take-off to diffusers, and grilles and registers, despite whether dampers are specified as part of the diffuser, or grille and register assembly.
- E. Paint ductwork visible behind air outlets and inlets matte black. Refer to Section 09 90 00.

### **3.02 SCHEDULES - SEE DRAWINGS**

**END OF SECTION**

**SECTION 23 74 13**  
**PACKAGED OUTDOOR CENTRAL-STATION AIR-HANDLING UNITS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Packaged roof top unit.
- B. Unit controls.
- C. Roof mounting curb and base.
- D. Maintenance service.

**1.02 REFERENCE STANDARDS**

- A. AHRI 270 - Sound Performance Rating of Outdoor Unitary Equipment; 2015, with Addendum (2016).
- B. Packaged air-cooled condenser units shall be certified in accordance with ANSI/AHRI Standard 340/360 performance rating of commercial and industrial unitary air-conditioning and heat pump equipment.
- C. Unit shall be certified in accordance with UL Standard 1995/CSA C22.2 No. 236, Safety Standard for Heating and Cooling Equipment.
- D. Unit and refrigeration system shall comply with ASHRAE 15, Safety Standard for Mechanical Refrigeration.
- E. Unit shall be certified in accordance with ANSI Z21.47b/CSA 2.3b and ANSI Z83.8/CSA 2.6, Safety Standard Gas-Fired Furnaces.
- F. Unit Energy Efficiency Ratio (EER) shall be equal to or greater that prescribed by ASHRAE 90.1, Energy Efficient Design of New Buildings except Low-Rise Residential Buildings.
- G. Unit shall be safety certified by ETL and ETL US listed. Unit nameplate shall include the ETL/ETL Canada label.

**1.03 SUBMITTALS**

- A. See Construction Managers requirements for submittal procedures.
- B. Product Data: Literature shall be provided that indicates dimensions, operating and shipping weights, capacities, ratings, fan performance, filter information, factory supplied accessories, electrical characteristics, and connection requirements. Installation, Operation, and Maintenance manual with startup requirements shall be provided.
- C. Shop Drawings: Unit drawings shall be provided that indicate assembly, unit dimensions, construction details, clearances, and connection details. Computer generated fan curves for each fan shall be submitted with specific design operation point noted. Wiring diagram shall be provided with details for both power and control systems and differentiate between factory installed and field installed wiring. Indicate capacity and dimensions of manufactured products and assemblies required for this project. Indicate electrical service with electrical characteristics and connection requirements, and duct connections
- D. Warranty: Submit manufacturer's warranty and ensure forms have been filled out in Owner's name and registered with manufacturer.

**1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.
- B. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

**PART 2 PRODUCTS**

**2.01 DELIVERY, STORAGE, AND HANDLING**

- A. Protect units from physical damage by storing off site until roof mounting curbs are in place, ready for immediate installation of units.
- B. Unit shall be shipped with doors screwed shut and outside air hood closed to prevent damage during transport and thereafter while in storage awaiting installation.

- C. Follow Installation, Operation, and Maintenance manual instructions for rigging, moving, and unloading the unit at its final location.
- D. Unit shall be stored in a clean, dry place protected from construction traffic in accordance with the Installation, Operation, and Maintenance manual.

## **2.02 WARRANTY**

- A. Provide a two-year warranty to include coverage for parts and labor.
- B. Provide a fifteen-year warranty on stainless steel exchanger.
- C. Provide a three-year warranty on coil and system and controller.

## **PART 3 PRODUCTS**

### **3.01 MANUFACTURERS**

- A. Trane Inc: [www.trane.com](http://www.trane.com).
- B. Daikin Inc.: [www.daikin.com](http://www.daikin.com)
- C. Aaon: [www.aaon.com](http://www.aaon.com).

### **3.02 PERFORMANCE REQUIREMENTS**

- 1. See Schedule on drawing for performance requirements.

### **3.03 AIR CONDITIONING UNITS**

- A. General: Roof mounted units having gas burner and electric refrigeration.
- B. Description: Self-contained, packaged, factory assembled and prewired, consisting of cabinet and frame, supply fan, return fan, heat exchanger and burner, heat recovery coil, controls, air filters, refrigerant cooling coil and compressor, condenser coil and condenser fan.
- C. Electrical Characteristics:
  - 1. See Drawing for schedule and coordinate with electrical drawings.
- D. Disconnect Switch: Factory mount disconnect switch in control panel.

### **3.04 FABRICATION**

- A. Cabinet: Steel with baked enamel finish, including access panels with screwdriver operated flush cam type fasteners. Structural members shall be minimum 18 gage, with access doors or panels of minimum 20 gage.
- B. Insulation: one inch thick neoprene coated glass fiber with edges protected from erosion.
- C. Heat Exchangers: Stainless steel, of welded construction.
- D. Supply Fan: Backwards curved centrifugal type, resiliently mounted with high efficiency ECM direct drive motor, and rubber isolated hinge mounted. Isolate complete fan assembly.
- E. Condenser Fans: ECM motors, direct drive with permanently lubricated ball bearings, thermal overload protection and automatic reset.
- F. Air Filters: 2 inch thick MERV-13 glass fiber disposable media.
- G. Roof Curb Adaptors: Provide curb adaptor for mounting on existing roof curb with rotating unit 90 degrees. Field verify existing curbs and units for required curb adaptors prior to ordering units.

### **3.05 BURNER**

- A. Gas Burner: Induced draft, Natural gas fired system with direct spark ignition, electronic flame sensors, flame rollout switches, High heat Limit switches, pressure regulator, gas valves, manual shut-off, and automatic
- B. Gas Burner Safety Controls: Energize ignition, limit time for establishment of flame, prevent opening of gas valve until pilot flame is proven, stop gas flow on ignition failure, energize blower motor, and after air flow proven and slight delay, allow gas valve to open.
- C. High Limit Control: Temperature sensor with fixed stop at maximum permissible setting, de-energize burner on excessive bonnet temperature and energize burner when temperature drops to lower safe value.
- D. Supply Fan Control: Temperature sensor sensing bonnet temperatures and independent of burner controls, with provisions for continuous fan operation.

### **3.06 EVAPORATOR COIL**

- A. Provide copper tube aluminum fin coil assembly with galvanized drain pan and connection.
- B. Provide capillary tubes or thermostatic expansion valves for units of 6 tons capacity and less, and thermostatic expansion valves and alternate row circuiting for units 7.5 tons cooling capacity and larger.

### **3.07 COMPRESSOR**

- A. Provide hermetic compressors, 3600 rpm maximum, resiliently mounted with positive lubrication, crankcase heater, high and low pressure safety controls, motor overload protection, suction and discharge service valves and gage ports, and filter drier.
- B. Five minute timed off circuit to delay compressor start.
- C. Outdoor thermostat to energize compressor above 35 degrees F ambient.
- D. Outdoor thermostat to energize compressor above 57 degrees F ambient.
- E. Provide step capacity control by hot gas by-pass.

### **3.08 CONDENSER COIL**

- A. Provide copper tube aluminum fin coil assembly with subcooling rows and coil hail guard.
- B. Provide direct drive propeller fans, resiliently mounted with fan guard, motor overload protection, wired to operate with compressor. Provide high efficiency fan motors.
- C. Provide refrigerant pressure switches to cycle condenser fans.

### **3.09 MIXED AIR CASING**

- A. Dampers: Provide manual outside and return air dampers for fixed outside air quantity.
- B. Dampers: Provide remote controlled outside and return air dampers with damper operator and remote rheostat for adjusting outside air quantity.
- C. Dampers: Provide outside, return, and relief dampers with damper operator and control package to automatically vary outside air quantity. Outside air damper to fall to closed position. Relief dampers may be gravity balanced.
- D. Gaskets: Provide tight fitting dampers with edge gaskets.
- E. Gaskets: Provide tight fitting dampers with edge gaskets maximum leakage 5 percent at 2 inches pressure differential.
- F. Damper Operator: 24 volt with gear train sealed in oil.
- G. Damper Operator, Units 7.5 Ton Cooling Capacity and Larger: 24 volt with gear train sealed in oil with spring return on.
- H. Damper Operator: Pneumatic piston or gear driven type with spring return and pilot positioner.
- I. Mixed Air Controls: Maintain selected supply air temperature and return dampers to minimum position on call for heating and above 75 degrees F ambient, or when ambient air temperature exceeds return air temperature.

### **3.10 FACTORY INSTALLED AND FACTORY PROVIDED CONTROLLER**

- A. Unit controller shall be capable of controlling all features and options of the unit. Controller shall be factory installed in the unit controls compartment and factory tested. Controller shall be capable of standalone operation with unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling available without dependence on a building management system.
- B. Controller shall have an onboard clock and calendar functions that allow for occupancy scheduling.
- C. Controller shall include non-volatile memory to retain all programmed values without the use of a battery, in the event of a power failure.
- D. Single Zone VAV Controller
- E. Unit shall utilize a variable capacity compressor system and a variable speed fan system to modulate the cooling and airflow as required in meeting the space temperature needs and to save unit operating energy. Unit fan speed shall modulate based on space temperature, not supply air pressure.

- F. Unit shall be provided with supply air temperature control. Mixing boxes and bypass ducts shall not be required for operation as a single zone VAV system.
- G. Unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling shall be accomplished with connection to interface module capable of communicating and integrating with a BACnet network to existing Honeywell control system.

### **3.11 ROOM THERMOSTATS AND CO2 DETECTORS**

- A. Coordinate with control contractor for thermostat and CO2 sensors.

## **PART 4 EXECUTION**

### **4.01 EXAMINATION**

- A. Verify that roof is ready to receive work and opening dimensions are as indicated on shop drawings.
- B. Verify that proper power supply is available.
- C. Field verify all existing roof curbs for new curb adaptor.

### **4.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Mount units on curb adapters providing watertight enclosure to protect ductwork and utility services. Install roof mounting curb level.
- C. Modify gas piping for new RTU connection location.

### **4.03 SYSTEM STARTUP**

- A. Prepare and start equipment. Adjust for proper operation.

### **4.04 CLOSEOUT ACTIVITIES**

- A. Demonstrate operation to Owner's maintenance personnel.

### **4.05 MAINTENANCE**

- A. Provide a separate maintenance contract for specified maintenance service.
- B. Provide service and maintenance of packaged roof top units for one year from Date of Substantial Completion.
- C. Provide routine maintenance service with a six month interval as maximum time period between calls.
- D. Include maintenance items as outlined in manufacturer's operating and maintenance data, including minimum of four filter replacements, and controls check-out, adjustments, and recalibration.
- E. Provide 24-hour emergency service on breakdowns and malfunctions.
- F. After each service call, submit copy of service call work order or report that includes description of work performed.

### **4.06 SCHEDULES - SEE DRAWINGS**

**END OF SECTION**

**SECTION 23 81 01**  
**TERMINAL HEAT TRANSFER UNITS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Convectors.

**1.02 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Provide typical catalog of information including arrangements.
- C. Shop Drawings:
  - 1. Submit schedules of equipment and enclosures typically indicating length and number of pieces of element and enclosure, corner pieces, end caps, cap strips, access doors, pilaster covers, and comparison of specified heat required to actual heat output provided.

**PART 2 PRODUCTS**

**2.01 CONVECTORS**

- A. Manufacturers:
  - 1. HVAC Custom Enclosure: [www.hvaccustomenclosure.com](http://www.hvaccustomenclosure.com).
  - 2. Sterling Hydronics/Mestek Technology, Inc: [www.sterlingheat.com](http://www.sterlingheat.com).
  - 3. Trane Inc: [www.trane.com](http://www.trane.com).
- B. Cabinet: steel front and top, steel back and ends; exposed corners rounded; easily secured removable front panels. Field verify existing cabinet and match grille opening and cover size
- C. Finish: Factory applied baked primer coat Color to be selected during shop drawings.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Convectors: Install where indicated. Coordinate to assure correct recess size for recessed convectors.

**3.02 CLEANING**

- A. After construction is completed, including painting, clean exposed surfaces of units. Vacuum clean coils and inside of cabinets.
- B. Touch-up marred or scratched surfaces of factory-finished cabinets, using finish materials furnished by manufacturer.

**END OF SECTION**



**SECTION 26 05 05  
SELECTIVE DEMOLITION FOR ELECTRICAL**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Electrical demolition.

**PART 2 PRODUCTS**

**2.01 MATERIALS AND EQUIPMENT**

- A. Materials and equipment for patching and extending work: As specified in individual sections.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify field measurements and circuiting arrangements are as indicated.
- B. Verify that abandoned wiring and equipment serve only abandoned facilities.
- C. Demolition drawings are based on casual field observation and existing record documents.
- D. Report discrepancies to Engineer before disturbing existing installation.
- E. Beginning of demolition means installer accepts existing conditions.

**3.02 PREPARATION**

- A. Disconnect electrical systems in walls, floors, and ceilings to be removed.
- B. Coordinate utility service outages with utility company.
- C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.
- D. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Minimize outage duration.
  - 1. Make temporary connections to maintain service in areas adjacent to work area.
- E. Existing Fire Alarm System: Maintain existing system in service until new system is accepted. Disable system only to make switchovers and connections. Minimize outage duration.
  - 1. Notify Owner before partially or completely disabling system.
  - 2. Notify local fire service.
  - 3. Make notifications at least 24 hours in advance.

**3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK**

- A. Remove, relocate, and extend existing installations to accommodate new construction.
- B. Remove abandoned wiring to source of supply.
- C. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.
- D. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets that are not removed.
- E. Disconnect and remove abandoned panelboards and distribution equipment.
- F. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.
- G. Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessories.
- H. Repair adjacent construction and finishes damaged during demolition and extension work.



- I. Maintain access to existing electrical installations that remain active. Modify installation or provide access panel as appropriate.

#### **3.04 CLEANING AND REPAIR**

- A. See Section 01 74 19 - Construction Waste Management and Disposal for additional requirements.
- B. Clean and repair existing materials and equipment that remain or that are to be reused.
- C. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.
- D. Luminaires: Remove existing luminaires for cleaning. Use mild detergent to clean all exterior and interior surfaces; rinse with clean water and wipe dry. Replace lamps, ballasts and broken electrical parts.

**END OF SECTION**

**SECTION 26 05 19**  
**LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Single conductor building wire.
- B. Metal-clad cable.
- C. Wiring connectors.
- D. Electrical tape.
- E. Heat shrink tubing.
- F. Wire pulling lubricant.
- G. Cable ties.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 84 00 - Firestopping.
- B. Section 26 05 26 - Grounding and Bonding for Electrical Systems: Additional requirements for grounding conductors and grounding connectors.
- C. Section 26 05 53 - Identification for Electrical Systems: Identification products and requirements.
- D. Section 28 46 00 - Fire Detection and Alarm: Fire alarm system conductors and cables.

**1.03 REFERENCE STANDARDS**

- A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire; 2013 (Reapproved 2018).
- B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft; 2011 (Reapproved 2017).
- C. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes; 2010, with Editorial Revision (2020).
- D. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation; 2004 (Reapproved 2020).
- E. ASTM D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape; 2017.
- F. ASTM D4388 - Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes; 2020.
- G. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
- H. NECA 120 - Standard for Installing Armored Cable (AC) and Type Metal-Clad (MC) Cable; 2018.
- I. NEMA WC 70 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy; 2021.
- J. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- K. UL 44 - Thermoset-Insulated Wires and Cables; Current Edition, Including All Revisions.
- L. UL 83 - Thermoplastic-Insulated Wires and Cables; Current Edition, Including All Revisions.
- M. UL 486A-486B - Wire Connectors; Current Edition, Including All Revisions.
- N. UL 486C - Splicing Wire Connectors; Current Edition, Including All Revisions.
- O. UL 486D - Sealed Wire Connector Systems; Current Edition, Including All Revisions.

- P. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape; Current Edition, Including All Revisions.
- Q. UL 1569 - Metal-Clad Cables; Current Edition, Including All Revisions.

#### **1.04 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for conductors and cables, including detailed information on materials, construction, ratings, listings, and available sizes, configurations, and stranding.
- C. Project Record Documents: Record actual installed circuiting arrangements. Record actual routing for underground circuits.

### **PART 2 PRODUCTS**

#### **2.01 CONDUCTOR AND CABLE APPLICATIONS**

- A. Do not use conductors and cables for applications other than as permitted by NFPA 70 and product listing.
- B. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.
- C. Nonmetallic-sheathed cable is not permitted.
- D. Underground feeder and branch-circuit cable is not permitted.
- E. Service entrance cable is not permitted.
- F. Armored cable is not permitted.
- G. Metal-clad cable is permitted only as follows:
  - 1. Where not otherwise restricted, may be used only:
    - a. Where concealed above accessible ceilings for final connections from junction boxes to luminaires.
      - 1) Maximum Length: 6 feet.
    - b. Where concealed in hollow stud walls for branch circuits up to 20 A.
      - 1) Exception: Provide single conductor building wire in EMT raceway for circuit homerun to room served.

#### **2.02 CONDUCTOR AND CABLE GENERAL REQUIREMENTS**

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Provide new conductors and cables manufactured not more than one year prior to installation.
- D. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.
- E. Comply with NEMA WC 70.
- F. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.
- G. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.
- H. Conductors for Grounding and Bonding: Also comply with Section 26 05 26.
- I. Conductor Material:
  - 1. Provide copper conductors only. Aluminum conductors are not acceptable for this project. Conductor sizes indicated are based on copper.
  - 2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
  - 3. Tinned Copper Conductors: Comply with ASTM B33.

- J. Minimum Conductor Size:
  - 1. Branch Circuits: 12 AWG.
    - a. Exceptions:
      - 1) 20 A, 120 V circuits longer than 75 feet: 10 AWG, for voltage drop.
      - 2) 20 A, 120 V circuits longer than 150 feet: 8 AWG, for voltage drop.
  - 2. Control Circuits: 14 AWG.
- K. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- L. Conductor Color Coding:
  - 1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
  - 2. Color Coding Method: Integrally colored insulation.
  - 3. Color Code:
    - a. 208Y/120 V, 3 Phase, 4 Wire System:
      - 1) Phase A: Black.
      - 2) Phase B: Red.
      - 3) Phase C: Blue.
      - 4) Neutral/Grounded: White.
    - b. Equipment Ground, All Systems: Green.
    - c. Travelers for 3-Way and 4-Way Switching: Purple.

### **2.03 SINGLE CONDUCTOR BUILDING WIRE**

- A. Manufacturers:
  - 1. Copper Building Wire:
    - a. Cerro Wire LLC: [www.cerrowire.com/#sle](http://www.cerrowire.com/#sle).
    - b. Encore Wire Corporation: [www.encorewire.com/#sle](http://www.encorewire.com/#sle).
    - c. Southwire Company: [www.southwire.com/#sle](http://www.southwire.com/#sle).
- B. Description: Single conductor insulated wire.
- C. Conductor Stranding:
  - 1. Feeders and Branch Circuits:
    - a. Size 10 AWG and Smaller: Solid.
    - b. Size 8 AWG and Larger: Stranded.
- D. Insulation Voltage Rating: 600 V.
- E. Insulation:
  - 1. Copper Building Wire: Type THHN/THWN or THHN/THWN-2, except as indicated below.
    - a. Size 4 AWG and Larger: Type XHHW-2.
    - b. Installed Underground: Type XHHW-2.
    - c. Fixture Wiring Within Luminaires: Type TFFN/TFN for luminaires with labeled maximum temperature of 90 degrees C; Approved suitable type for luminaires with labeled maximum temperature greater than 90 degrees C.
- F. Provide dedicated neutral conductor for each phase conductor.

### **2.04 METAL-CLAD CABLE**

- A. Manufacturers:
  - 1. AFC Cable Systems Inc: [www.afcweb.com/#sle](http://www.afcweb.com/#sle).
  - 2. Encore Wire Corporation: [www.encorewire.com/#sle](http://www.encorewire.com/#sle).
  - 3. Southwire Company: [www.southwire.com/#sle](http://www.southwire.com/#sle).
- B. Description: NFPA 70, Type MC cable listed and labeled as complying with UL 1569, and listed for use in classified firestop systems to be used.
- C. Conductor Stranding:

1. Size 10 AWG and Smaller: Solid.
  2. Size 8 AWG and Larger: Stranded.
- D. Insulation Voltage Rating: 600 V.
- E. Insulation: Type THHN, THHN/THWN, or THHN/THWN-2.
- F. Provide dedicated neutral conductor for each phase conductor .
- G. Grounding: Full-size integral equipment grounding conductor.
- H. Armor: Steel, interlocked tape.

## **2.05 WIRING CONNECTORS**

- A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.
- B. Connectors for Grounding and Bonding: Comply with Section 26 05 26.
- C. Wiring Connectors for Splices and Taps:
1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.
  2. Copper Conductors Size 6 AWG and Larger: Use mechanical connectors or compression connectors.
- D. Wiring Connectors for Terminations:
1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed for terminal lugs.
  2. Provide compression adapters for connecting conductors to equipment furnished with mechanical lugs when only compression connectors are specified.
  3. Where over-sized conductors are larger than the equipment terminations can accommodate, provide connectors suitable for reducing to appropriate size, but not less than required for the rating of the overcurrent protective device.
  4. Provide motor pigtail connectors for connecting motor leads in order to facilitate disconnection.
  5. Copper Conductors Size 8 AWG and Larger: Use mechanical connectors or compression connectors where connectors are required.
- E. Do not use insulation-piercing or insulation-displacement connectors designed for use with conductors without stripping insulation.
- F. Do not use push-in wire connectors as a substitute for twist-on insulated spring connectors.
- G. Twist-on Insulated Spring Connectors: Rated 600 V, 221 degrees F for standard applications and 302 degrees F for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.
- H. Mechanical Connectors: Provide bolted type or set-screw type.
- I. Compression Connectors: Provide circumferential type or hex type crimp configuration.

## **2.06 WIRING ACCESSORIES**

- A. Electrical Tape:
1. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F and suitable for continuous temperature environment up to 221 degrees F.
  2. Rubber Splicing Electrical Tape: Ethylene Propylene Rubber (EPR) tape, complying with ASTM D4388; minimum thickness of 30 mil; suitable for continuous temperature environment up to 194 degrees F and short-term 266 degrees F overload service.
  3. Electrical Filler Tape: Rubber-based insulating moldable putty, minimum thickness of 125 mil; suitable for continuous temperature environment up to 176 degrees F.

- 4. Moisture Sealing Electrical Tape: Insulating mastic compound laminated to flexible, all-weather vinyl backing; minimum thickness of 90 mil.
- B. Heat Shrink Tubing: Heavy-wall, split-resistant, with factory-applied adhesive; rated 600 V; suitable for direct burial applications; listed as complying with UL 486D.
- C. Wire Pulling Lubricant: Listed; suitable for use with the conductors or cables to be installed and suitable for use at the installation temperature.
- D. Cable Ties: Material and tensile strength rating suitable for application.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that interior of building has been protected from weather.
- B. Verify that work likely to damage wire and cable has been completed.
- C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.
- D. Verify that field measurements are as shown on the drawings.
- E. Verify that conditions are satisfactory for installation prior to starting work.

### **3.02 INSTALLATION**

- A. Circuiting Requirements:
  - 1. Unless dimensioned, circuit routing indicated is diagrammatic.
  - 2. When circuit destination is indicated and routing is not shown, determine exact routing required.
  - 3. Arrange circuiting to minimize splices.
  - 4. Include circuit lengths required to install connected devices within 10 ft of location shown.
  - 5. Maintain separation of Class 1, Class 2, and Class 3 remote-control, signaling, and power-limited circuits in accordance with NFPA 70.
  - 6. Circuiting Adjustments: Unless otherwise indicated, when branch circuits are shown as separate, combining them together in a single raceway is permitted, under the following conditions:
    - a. Provide no more than six current-carrying conductors in a single raceway. Dedicated neutral conductors are considered current-carrying conductors.
    - b. Increase size of conductors as required to account for ampacity derating.
    - c. Size raceways, boxes, etc. to accommodate conductors.
  - 7. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among single phase branch circuits of different phases is not permitted. Provide dedicated neutral/grounded conductor for each individual branch circuit.
- B. Install products in accordance with manufacturer's instructions.
- C. Install conductors and cable in a neat and workmanlike manner in accordance with NECA 1.
- D. Install metal-clad cable (Type MC) in accordance with NECA 120.
- E. Installation in Raceway:
  - 1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
  - 2. Pull all conductors and cables together into raceway at same time.
  - 3. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
  - 4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.
- F. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.

- G. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.
  - 1. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conductors and cables to lay on ceiling tiles.
- H. Terminate cables using suitable fittings.
  - 1. Metal-Clad Cable (Type MC):
    - a. Use listed fittings.
    - b. Cut cable armor only using specialized tools to prevent damaging conductors or insulation. Do not use hacksaw or wire cutters to cut armor.
- I. Install conductors with a minimum of 12 inches of slack at each outlet.
- J. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.
- K. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.
- L. Make wiring connections using specified wiring connectors.
  - 1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.
  - 2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
  - 3. Do not remove conductor strands to facilitate insertion into connector.
  - 4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminates. Do not use wire brush on plated connector surfaces.
  - 5. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
  - 6. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- M. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.
  - 1. Dry Locations: Use insulating covers specifically designed for the connectors, electrical tape, or heat shrink tubing.
    - a. For taped connections, first apply adequate amount of rubber splicing electrical tape or electrical filler tape, followed by outer covering of vinyl insulating electrical tape.
  - 2. Damp Locations: Use insulating covers specifically designed for the connectors, electrical tape, or heat shrink tubing.
    - a. For connections with insulating covers, apply outer covering of moisture sealing electrical tape.
    - b. For taped connections, follow same procedure as for dry locations but apply outer covering of moisture sealing electrical tape.
  - 3. Wet Locations: Use heat shrink tubing.
- N. Insulate ends of spare conductors using vinyl insulating electrical tape.
- O. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 84 00.
- P. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

**END OF SECTION**

**SECTION 26 05 26**  
**GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Grounding and bonding requirements.
- B. Conductors for grounding and bonding.

**1.02 RELATED REQUIREMENTS**

- A. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables: Additional requirements for conductors for grounding and bonding, including conductor color coding.
- B. Section 26 05 53 - Identification for Electrical Systems: Identification products and requirements.
- C. Section 26 56 00 - Exterior Lighting: Additional grounding and bonding requirements for pole-mounted luminaires.

**1.03 REFERENCE STANDARDS**

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
- B. NETA ATS - Standard For Acceptance Testing Specifications For Electrical Power Equipment And Systems; 2021.
- C. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- D. UL 467 - Grounding and Bonding Equipment; Current Edition, Including All Revisions.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Verify exact locations of underground metal water service pipe entrances to building.
  - 2. Coordinate the work with other trades to provide steel reinforcement complying with specified requirements for concrete-encased electrode.
  - 3. Notify Engineer of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.

**1.05 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements for submittals procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for grounding and bonding system components.
- C. Field quality control test reports.

**PART 2 PRODUCTS**

**2.01 GROUNDING AND BONDING REQUIREMENTS**

- A. Do not use products for applications other than as permitted by NFPA 70 and product listing.
- B. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.
- C. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- D. Service-Supplied System Grounding:
  - 1. For each service disconnect, provide grounding electrode conductor to connect neutral (grounded) service conductor to grounding electrode system. Unless otherwise indicated, make connection at neutral (grounded) bus in service disconnect enclosure.



2. For each service disconnect, provide main bonding jumper to connect neutral (grounded) bus to equipment ground bus where not factory-installed. Do not make any other connections between neutral (grounded) conductors and ground on load side of service disconnect.
- E. Bonding and Equipment Grounding:
1. Provide bonding for equipment grounding conductors, equipment ground busses, metallic equipment enclosures, metallic raceways and boxes, device grounding terminals, and other normally non-current-carrying conductive materials enclosing electrical conductors/equipment or likely to become energized as indicated and in accordance with NFPA 70.
  2. Provide insulated equipment grounding conductor in each feeder and branch circuit raceway. Do not use raceways as sole equipment grounding conductor.
  3. Where circuit conductor sizes are increased for voltage drop, increase size of equipment grounding conductor proportionally in accordance with NFPA 70.
  4. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
  5. Terminate branch circuit equipment grounding conductors on solidly bonded equipment ground bus only. Do not terminate on neutral (grounded) or isolated/insulated ground bus.
  6. Provide bonding jumper across expansion or expansion/deflection fittings provided to accommodate conduit movement.
  7. Provide bonding for interior metal piping systems in accordance with NFPA 70. This includes, but is not limited to:
    - a. Metal water piping where not already effectively bonded to metal underground water pipe used as grounding electrode.
- F. Pole-Mounted Luminaires: Also comply with Section 26 56 00.

## **2.02 GROUNDING AND BONDING COMPONENTS**

- A. General Requirements:
1. Provide products listed, classified, and labeled as suitable for the purpose intended.
  2. Provide products listed and labeled as complying with UL 467 where applicable.
- B. Conductors for Grounding and Bonding, in Addition to Requirements of Section 26 05 26:
1. Use insulated copper conductors unless otherwise indicated.
    - a. Exceptions:
      - 1) Use bare copper conductors where installed underground in direct contact with earth.
      - 2) Use bare copper conductors where directly encased in concrete (not in raceway).
- C. Connectors for Grounding and Bonding:
1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
  2. Unless otherwise indicated, use exothermic welded connections for underground, concealed and other inaccessible connections.
    - a. Exceptions:
      - 1) Use mechanical connectors for connections to electrodes at ground access wells.
  3. Unless otherwise indicated, use mechanical connectors, compression connectors, or exothermic welded connections for accessible connections.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that work likely to damage grounding and bonding system components has been completed.

- B. Verify that field measurements are as shown on the drawings.
- C. Verify that conditions are satisfactory for installation prior to starting work.

### **3.02 INSTALLATION**

- A. Install products in accordance with manufacturer's instructions.
- B. Install grounding and bonding system components in a neat and workmanlike manner in accordance with NECA 1.
- C. Make grounding and bonding connections using specified connectors.
  - 1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.
  - 2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.
  - 3. Exothermic Welds: Make connections using molds and weld material suitable for the items to be connected in accordance with manufacturer's recommendations.
  - 4. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
  - 5. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- D. Identify grounding and bonding system components in accordance with Section 26 05 53.

### **3.03 FIELD QUALITY CONTROL**

- A. See Section 01 40 00 - Quality Requirements, for additional requirements.
- B. Perform inspection, testing, and adjusting in accordance with Section 01 40 00.
- C. Inspect and test in accordance with NETA ATS except Section 4.
- D. Perform inspections and tests listed in NETA ATS, Section 7.13.
- E. Perform ground electrode resistance tests under normally dry conditions. Precipitation within the previous 48 hours does not constitute normally dry conditions.
- F. Investigate and correct deficiencies where measured ground resistances do not comply with specified requirements.
- G. Submit detailed reports indicating inspection and testing results and corrective actions taken.

**END OF SECTION**



**SECTION 26 05 29  
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Support and attachment components for equipment, conduit, cable, boxes, and other electrical work.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 30 00 - Cast-in-Place Concrete: Concrete equipment pads.
- B. Section 26 05 33.13 - Conduit for Electrical Systems: Additional support and attachment requirements for conduits.
- C. Section 26 05 33.16 - Boxes for Electrical Systems: Additional support and attachment requirements for boxes.
- D. Section 26 51 00 - Interior Lighting: Additional support and attachment requirements for interior luminaires.

**1.03 REFERENCE STANDARDS**

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
- C. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2023.
- D. MFMA-4 - Metal Framing Standards Publication; 2004.
- E. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
- F. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Coordinate sizes and arrangement of supports and bases with the actual equipment and components to be installed.
  - 2. Coordinate the work with other trades to provide additional framing and materials required for installation.
  - 3. Coordinate compatibility of support and attachment components with mounting surfaces at the installed locations.
  - 4. Coordinate the arrangement of supports with ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
  - 5. Notify Engineer of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.
- B. Sequencing:
  - 1. Do not install products on or provide attachment to concrete surfaces until concrete has fully cured in accordance with Section 03 30 00.

**1.05 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for metal channel (strut) framing systems, non-penetrating rooftop supports, and post-installed concrete and masonry anchors.

## **PART 2 PRODUCTS**

### **2.01 SUPPORT AND ATTACHMENT COMPONENTS**

- A. General Requirements:
  - 1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of electrical work.
  - 2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
  - 3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported with a minimum safety factor of 25%. Include consideration for vibration, equipment operation, and shock loads where applicable.
  - 4. Do not use products for applications other than as permitted by NFPA 70 and product listing.
  - 5. Steel Components: Use corrosion resistant materials suitable for the environment where installed.
    - a. Indoor Dry Locations: Use zinc-plated steel or approved equivalent unless otherwise indicated.
    - b. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
    - c. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.
- B. Conduit and Cable Supports: Straps, clamps, etc. suitable for the conduit or cable to be supported.
  - 1. Conduit Straps: One-hole or two-hole type; steel or malleable iron.
  - 2. Conduit Clamps: Bolted type unless otherwise indicated.
- C. Outlet Box Supports: Hangers, brackets, etc. suitable for the boxes to be supported.
- D. Metal Channel (Strut) Framing Systems: Factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for field-assembly of supports.
  - 1. Comply with MFMA-4.
- E. Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.
  - 1. Minimum Size, Unless Otherwise Indicated or Required:
    - a. Equipment Supports: 1/2 inch diameter.
    - b. Single Conduit up to 1 inch (27mm) trade size: 1/4 inch diameter.
    - c. Single Conduit larger than 1 inch (27mm) trade size: 3/8 inch diameter.
    - d. Trapeze Support for Multiple Conduits: 3/8 inch diameter.
    - e. Outlet Boxes: 1/4 inch diameter.
    - f. Luminaires: 1/4 inch diameter.
- F. Non-Penetrating Rooftop Supports for Low-Slope Roofs: Steel pedestals with thermoplastic or rubber bases that rest on top of roofing membrane, not requiring any attachment to the roof structure and not penetrating the roofing assembly, with support fixtures as specified.
  - 1. Base Sizes: As required to distribute load sufficiently to prevent indentation of roofing assembly.
  - 2. Attachment/Support Fixtures: As recommended by manufacturer, same type as indicated for equivalent indoor hangers and supports.
  - 3. Mounting Height: Provide minimum clearance of 6 inches under supported component to top of roofing.
- G. Anchors and Fasteners:
  - 1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install products in accordance with manufacturer's instructions.
- B. Install support and attachment components in a neat and workmanlike manner in accordance with NECA 1.
- C. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
- D. Unless specifically indicated or approved by Engineer, do not provide support from suspended ceiling support system or ceiling grid.
- E. Unless specifically indicated or approved by Engineer, do not provide support from roof deck.
- F. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.
- G. Equipment Support and Attachment:
  - 1. Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.
  - 2. Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
  - 3. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
  - 4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.
- H. Secure fasteners according to manufacturer's recommended torque settings.
- I. Remove temporary supports.

**END OF SECTION**



**SECTION 26 05 33.13  
CONDUIT FOR ELECTRICAL SYSTEMS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Galvanized steel rigid metal conduit (RMC).
- B. Aluminum rigid metal conduit (RMC).
- C. Intermediate metal conduit (IMC).
- D. PVC-coated galvanized steel rigid metal conduit (RMC).
- E. Flexible metal conduit (FMC).
- F. Liquidtight flexible metal conduit (LFMC).
- G. Electrical metallic tubing (EMT).
- H. Rigid polyvinyl chloride (PVC) conduit.
- I. Conduit fittings.

**1.02 REFERENCE STANDARDS**

- A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC); 2020.
- B. ANSI C80.3 - American National Standard for Electrical Metallic Tubing -- Steel (EMT-S); 2020.
- C. ANSI C80.5 - American National Standard for Electrical Rigid Metal Conduit -- Aluminum (ERMC-A); 2020.
- D. ANSI C80.6 - American National Standard for Electrical Intermediate Metal Conduit; 2018.
- E. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
- F. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT); 2020.
- G. NECA 102 - Standard for Installing Aluminum Rigid Metal Conduit; 2004.
- H. NECA 111 - Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC); 2017.
- I. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2014.
- J. NEMA RN 1 - Polyvinyl-Chloride (PVC) Externally Coated Galvanized Rigid Steel Metal Conduit and Intermediate Metal Conduit; 2018.
- K. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit; 2020.
- L. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing; 2021.
- M. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- N. UL 1 - Flexible Metal Conduit; Current Edition, Including All Revisions.
- O. UL 6 - Electrical Rigid Metal Conduit-Steel; Current Edition, Including All Revisions.
- P. UL 6A - Electrical Rigid Metal Conduit-Aluminum, Red Brass, and Stainless Steel; Current Edition, Including All Revisions.
- Q. UL 360 - Liquid-Tight Flexible Metal Conduit; Current Edition, Including All Revisions.
- R. UL 514B - Conduit, Tubing, and Cable Fittings; Current Edition, Including All Revisions.
- S. UL 651 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings; Current Edition, Including All Revisions.
- T. UL 797 - Electrical Metallic Tubing-Steel; Current Edition, Including All Revisions.
- U. UL 1242 - Electrical Intermediate Metal Conduit-Steel; Current Edition, Including All Revisions.



### 1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
  - 1. Coordinate minimum sizes of conduits with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
  - 2. Coordinate the arrangement of conduits with structural members, ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
  - 3. Verify exact conduit termination locations required for boxes, enclosures, and equipment installed under other sections or by others.
  - 4. Coordinate the work with other trades to provide roof penetrations that preserve the integrity of the roofing system and do not void the roof warranty.
  - 5. Notify Engineer of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.
- B. Sequencing:
  - 1. Do not begin installation of conductors and cables until installation of conduit is complete between outlet, junction and splicing points.

### 1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements for submittals procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for conduits and fittings.
- C. Project Record Documents: Record actual routing for conduits installed underground, conduits embedded within concrete slabs, and conduits 2 inch (53 mm) trade size and larger.

## PART 2 PRODUCTS

### 2.01 CONDUIT APPLICATIONS

- A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70 and product listing.
- B. Unless otherwise indicated and where not otherwise restricted, use the conduit types indicated for the specified applications. Where more than one listed application applies, comply with the most restrictive requirements. Where conduit type for a particular application is not specified, use galvanized steel rigid metal conduit.
- C. Underground:
  - 1. Under Slab on Grade: Use galvanized steel rigid metal conduit, intermediate metal conduit (IMC), PVC-coated galvanized steel rigid metal conduit, or rigid PVC conduit.
  - 2. Where rigid polyvinyl (PVC) conduit is provided, transition to galvanized steel rigid metal conduit where emerging from underground.
  - 3. Where rigid polyvinyl (PVC) conduit larger than 2 inch (53 mm) trade size is provided, use galvanized steel rigid metal conduit elbows for bends.
  - 4. Where steel conduit is installed in direct contact with earth where soil has a resistivity of less than 2000 ohm-centimeters or is characterized as severely corrosive based on soils report or local experience, use corrosion protection tape to provide supplementary corrosion protection or use PVC-coated galvanized steel rigid metal conduit.
  - 5. Where steel conduit emerges from concrete into soil, use corrosion protection tape to provide supplementary corrosion protection for a minimum of 4 inches on either side of where conduit emerges or use PVC-coated galvanized steel rigid metal conduit.
- D. Concealed Within Hollow Stud Walls: Use galvanized steel rigid metal conduit, intermediate metal conduit (IMC), or electrical metallic tubing (EMT).
- E. Concealed Above Accessible Ceilings: Use galvanized steel rigid metal conduit, intermediate metal conduit (IMC), or electrical metallic tubing (EMT).

- F. Interior, Damp or Wet Locations: Use galvanized steel rigid metal conduit or intermediate metal conduit (IMC).
- G. Exposed, Interior, Not Subject to Physical Damage: Use galvanized steel rigid metal conduit, intermediate metal conduit (IMC), or electrical metallic tubing (EMT).
- H. Exposed, Interior, Subject to Physical Damage: Use galvanized steel rigid metal conduit or intermediate metal conduit (IMC).
  - 1. Locations subject to physical damage include, but are not limited to:
    - a. Where exposed below 8 feet, except within electrical and communication rooms or closets.
- I. Connections to Luminaires Above Accessible Ceilings: Use flexible metal conduit or MC Cable.
  - 1. Maximum Length: 6 feet.
- J. Connections to Vibrating Equipment:
  - 1. Dry Locations: Use flexible metal conduit.
  - 2. Damp, Wet, or Corrosive Locations: Use liquidtight flexible metal conduit.
  - 3. Maximum Length: 6 feet unless otherwise indicated.
  - 4. Vibrating equipment includes, but is not limited to:
    - a. Transformers.
    - b. Motors.

## **2.02 CONDUIT REQUIREMENTS**

- A. Electrical Service Conduits: Also comply with Section 26 21 00.
- B. Provide all conduit, fittings, supports, and accessories required for a complete raceway system.
- C. Provide products listed, classified, and labeled as suitable for the purpose intended.
- D. Minimum Conduit Size, Unless Otherwise Indicated:
  - 1. Branch Circuits: 3/4 inch (21 mm) trade size.
  - 2. Branch Circuit Homeruns: 3/4 inch (21 mm) trade size.
  - 3. Underground, Interior: 3/4 inch (21 mm) trade size.
  - 4. Underground, Exterior: 1 inch (27 mm) trade size.
- E. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

## **2.03 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)**

- A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.
- B. Fittings:
  - 1. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
  - 2. Material: Use steel or malleable iron.
  - 3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

## **2.04 ALUMINUM RIGID METAL CONDUIT (RMC)**

- A. Description: NFPA 70, Type RMC aluminum rigid metal conduit complying with ANSI C80.5 and listed and labeled as complying with UL 6A.
- B. Fittings:
  - 1. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
  - 2. Material: Use aluminum.
  - 3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

## **2.05 INTERMEDIATE METAL CONDUIT (IMC)**

- A. Description: NFPA 70, Type IMC galvanized steel intermediate metal conduit complying with ANSI C80.6 and listed and labeled as complying with UL 1242.
- B. Fittings:
  - 1. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
  - 2. Material: Use steel or malleable iron.
  - 3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

## **2.06 PVC-COATED GALVANIZED STEEL RIGID METAL CONDUIT (RMC)**

- A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit with external polyvinyl chloride (PVC) coating complying with NEMA RN 1 and listed and labeled as complying with UL 6.
- B. Exterior Coating: Polyvinyl chloride (PVC), nominal thickness of 40 mil.
- C. PVC-Coated Fittings:
  - 1. Manufacturer: Same as manufacturer of PVC-coated conduit to be installed.
  - 2. Non-Hazardous Locations: Use fittings listed and labeled as complying with UL 514B.
  - 3. Material: Use steel or malleable iron.
  - 4. Exterior Coating: Polyvinyl chloride (PVC), minimum thickness of 40 mil.
- D. PVC-Coated Supports: Furnish with exterior coating of polyvinyl chloride (PVC), minimum thickness of 15 mil.

## **2.07 FLEXIBLE METAL CONDUIT (FMC)**

- A. Description: NFPA 70, Type FMC standard wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems to be used.
- B. Fittings:
  - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
  - 2. Material: Use steel or malleable iron.

## **2.08 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)**

- A. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.
- B. Fittings:
  - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
  - 2. Material: Use steel or malleable iron.

## **2.09 ELECTRICAL METALLIC TUBING (EMT)**

- A. Description: NFPA 70, Type EMT steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.
- B. Fittings:
  - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
  - 2. Material: Use steel or malleable iron.
  - 3. Connectors and Couplings: Use compression (gland) or set-screw type.
    - a. Do not use indenter type connectors and couplings.

## **2.10 RIGID POLYVINYL CHLORIDE (PVC) CONDUIT**

- A. Description: NFPA 70, Type PVC rigid polyvinyl chloride conduit complying with NEMA TC 2 and listed and labeled as complying with UL 651; Schedule 40 unless otherwise indicated,

Schedule 80 where subject to physical damage; rated for use with conductors rated 90 degrees C.

- B. Fittings:
  - 1. Manufacturer: Same as manufacturer of conduit to be connected.
  - 2. Description: Fittings complying with NEMA TC 3 and listed and labeled as complying with UL 651; material to match conduit.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Install products in accordance with manufacturer's instructions.
- B. Install conduit in a neat and workmanlike manner in accordance with NECA 1.
- C. Install galvanized steel rigid metal conduit (RMC) in accordance with NECA 101.
- D. Install aluminum rigid metal conduit (RMC) in accordance with NECA 102.
- E. Install intermediate metal conduit (IMC) in accordance with NECA 101.
- F. Install PVC-coated galvanized steel rigid metal conduit (RMC) using only tools approved by the manufacturer.
- G. Install rigid polyvinyl chloride (PVC) conduit in accordance with NECA 111.
- H. Install liquidtight flexible nonmetallic conduit (LFNC) in accordance with NECA 111.
- I. Conduit Routing:
  - 1. Unless dimensioned, conduit routing indicated is diagrammatic.
  - 2. When conduit destination is indicated and routing is not shown, determine exact routing required.
  - 3. Conceal all conduits unless specifically indicated to be exposed.
  - 4. Conduits in the following areas may be exposed, unless otherwise indicated:
    - a. Electrical rooms.
    - b. Within joists in areas with no ceiling.
  - 5. Unless otherwise approved, do not route conduits exposed:
    - a. Across floors.
    - b. Across roofs.
    - c. Across top of parapet walls.
    - d. Across building exterior surfaces.
  - 6. Conduits installed underground or embedded in concrete may be routed in the shortest possible manner unless otherwise indicated. Route all other conduits parallel or perpendicular to building structure and surfaces, following surface contours where practical.
  - 7. Arrange conduit to provide no more than the equivalent of four 90 degree bends between pull points.
  - 8. Arrange conduit to provide no more than 150 feet between pull points.
  - 9. Route conduits above water and drain piping where possible.
  - 10. Maintain minimum clearance of 6 inches between conduits and piping for other systems.
  - 11. Group parallel conduits in the same area together on a common rack.
- J. Conduit Support:
  - 1. Secure and support conduits in accordance with NFPA 70 and Section 26 05 29 using suitable supports and methods approved by the authority having jurisdiction.
  - 2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
  - 3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
  - 4. Use conduit strap to support single surface-mounted conduit.

- a. Use clamp back spacer with conduit strap for damp and wet locations to provide space between conduit and mounting surface.
  - 5. Use metal channel (strut) with accessory conduit clamps to support multiple parallel surface-mounted conduits.
  - 6. Use conduit clamp to support single conduit from beam clamp or threaded rod.
  - 7. Use trapeze hangers assembled from threaded rods and metal channel (strut) with accessory conduit clamps to support multiple parallel suspended conduits.
  - 8. Use of wire for support of conduits is not permitted.
- K. Connections and Terminations:
- 1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
  - 2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
  - 3. Use suitable adapters where required to transition from one type of conduit to another.
  - 4. Provide drip loops for liquidtight flexible conduit connections to prevent drainage of liquid into connectors.
  - 5. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
  - 6. Provide insulating bushings or insulated throats at all conduit terminations to protect conductors.
  - 7. Secure joints and connections to provide maximum mechanical strength and electrical continuity.
- L. Penetrations:
- 1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
  - 2. Make penetrations perpendicular to surfaces unless otherwise indicated.
  - 3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
  - 4. Conceal bends for conduit risers emerging above ground.
  - 5. Seal interior of conduits entering the building from underground at first accessible point to prevent entry of moisture and gases.
  - 6. Provide suitable modular seal where conduits penetrate exterior wall below grade.
  - 7. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
  - 8. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty. Include proposed locations of penetrations and methods for sealing with submittals.
  - 9. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 84 00.
- M. Underground Installation:
- 1. Provide trenching and backfilling in accordance with Sections 31 23 16 and 31 23 23.
  - 2. Minimum Cover, Unless Otherwise Indicated or Required:
    - a. Underground, Exterior: \_\_\_\_\_.
  - 3. Provide underground warning tape in accordance with Section 26 05 53 along entire conduit length for service entrance where not concrete-encased.
- N. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
- 1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
  - 2. Where conduits are subject to earth movement by settlement or frost.

- O. Condensation Prevention: Where conduits cross barriers between areas of potential substantial temperature differential, provide sealing fitting or approved sealing compound at an accessible point near the penetration to prevent condensation. This includes, but is not limited to:
  - 1. Where conduits pass from outdoors into conditioned interior spaces.
  - 2. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.
- P. Provide pull string in all empty conduits and in conduits where conductors and cables are to be installed by others. Leave minimum slack of 12 inches at each end.
- Q. Provide grounding and bonding in accordance with Section 26 05 26.
- R. Identify conduits in accordance with Section 26 05 53.

### **3.02 PROTECTION**

- A. Immediately after installation of conduit, use suitable manufactured plugs to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.

**END OF SECTION**



**SECTION 26 05 33.16**  
**BOXES FOR ELECTRICAL SYSTEMS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Outlet and device boxes up to 100 cubic inches, including those used as junction and pull boxes.
- B. Cabinets and enclosures, including junction and pull boxes larger than 100 cubic inches.
- C. Floor boxes.

**1.02 RELATED REQUIREMENTS**

- A. Section 08 31 00 - Access Doors and Panels: Panels for maintaining access to concealed boxes.
- B. Section 26 05 29 - Hangers and Supports for Electrical Systems.
- C. Section 26 05 53 - Identification for Electrical Systems: Identification products and requirements.
- D. Section 26 27 26 - Wiring Devices:
  - 1. Wall plates.
  - 2. Floor box service fittings.
  - 3. Additional requirements for locating boxes for wiring devices.

**1.03 REFERENCE STANDARDS**

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
- B. NECA 130 - Standard for Installing and Maintaining Wiring Devices; 2016.
- C. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2014.
- D. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports; 2013 (Reaffirmed 2020).
- E. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2020.
- F. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.
- H. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.
- I. UL 508A - Industrial Control Panels; Current Edition, Including All Revisions.
- J. UL 514A - Metallic Outlet Boxes; Current Edition, Including All Revisions.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
  - 2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
  - 3. Coordinate minimum sizes of boxes with the actual installed arrangement of conductors, clamps, support fittings, and devices, calculated according to NFPA 70.
  - 4. Coordinate minimum sizes of pull boxes with the actual installed arrangement of connected conduits, calculated according to NFPA 70.



5. Coordinate the placement of boxes with millwork, furniture, devices, equipment, etc. installed under other sections or by others.
6. Coordinate the work with other trades to preserve insulation integrity.
7. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted boxes where indicated.
8. Notify Engineer of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.

## **1.05 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for cabinets and enclosures, boxes for hazardous (classified) locations, floor boxes, and underground boxes/enclosures.
- C. Samples:
  1. Floor Boxes: Provide one sample(s) of each floor box proposed for substitution upon request.
- D. Project Record Documents: Record actual locations for outlet and device boxes, pull boxes, cabinets and enclosures, floor boxes, and underground boxes/enclosures.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  1. See Section 01 60 00 - Product Requirements, for additional provisions.
  2. Keys for Lockable Enclosures: Two of each different key.

## **PART 2 PRODUCTS**

### **2.01 BOXES**

- A. General Requirements:
  1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.
  2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
  3. Provide products listed, classified, and labeled as suitable for the purpose intended.
  4. Where box size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
  5. Provide grounding terminals within boxes where equipment grounding conductors terminate.
- B. Outlet and Device Boxes Up to 100 cubic inches, Including Those Used as Junction and Pull Boxes:
  1. Use sheet-steel boxes for dry locations unless otherwise indicated or required.
  2. Use cast iron boxes or cast aluminum boxes for damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
  3. Use suitable concrete type boxes where flush-mounted in concrete.
  4. Use suitable masonry type boxes where flush-mounted in masonry walls.
  5. Use raised covers suitable for the type of wall construction and device configuration where required.
  6. Use shallow boxes where required by the type of wall construction.
  7. Do not use "through-wall" boxes designed for access from both sides of wall.
  8. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.
  9. Cast Metal Boxes: Comply with NEMA FB 1, and list and label as complying with UL 514A; furnish with threaded hubs.
  10. Boxes for Supporting Luminaires and Ceiling Fans: Listed as suitable for the type and weight of load to be supported; furnished with fixture stud to accommodate mounting of luminaire where required.

11. Boxes for Ganged Devices: Use multigang boxes of single-piece construction. Do not use field-connected gangable boxes.
12. Minimum Box Size, Unless Otherwise Indicated:
  - a. Wiring Devices (Other Than Communications Systems Outlets): 4 inch square by 1-1/2 inch deep (100 by 38 mm) trade size.
  - b. Ceiling Outlets: 4 inch octagonal or square by 1-1/2 inch deep (100 by 38 mm) trade size.
13. Wall Plates: Comply with Section 26 27 26.
- C. Cabinets and Enclosures, Including Junction and Pull Boxes Larger Than 100 cubic inches:
  1. Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E, or UL 508A.
  2. NEMA 250 Environment Type, Unless Otherwise Indicated:
    - a. Indoor Clean, Dry Locations: Type 1, painted steel.
    - b. Outdoor Locations: Type 3R, painted steel.
  3. Junction and Pull Boxes Larger Than 100 cubic inches:
    - a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.
  4. Cabinets and Hinged-Cover Enclosures, Other Than Junction and Pull Boxes:
    - a. Provide lockable hinged covers, all locks keyed alike unless otherwise indicated.
- D. Floor Boxes:
  1. Description: Floor boxes compatible with floor box service fittings provided in accordance with Section 26 27 26; with partitions to separate multiple services; furnished with all components, adapters, and trims required for complete installation.
  2. Use cast iron floor boxes within slab on grade.
  3. Metallic Floor Boxes: Fully adjustable (with integral means for leveling adjustment prior to and after concrete pour).
  4. Manufacturer: Same as manufacturer of floor box service fittings.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in a neat and workmanlike manner in accordance with NECA 1 and, where applicable, NECA 130, including mounting heights specified in those standards where mounting heights are not indicated.
- C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- D. Unless otherwise indicated, provide separate boxes for line voltage and low voltage systems.
- E. Flush-mount boxes in finished areas unless specifically indicated to be surface-mounted.
- F. Unless otherwise indicated, boxes may be surface-mounted where exposed conduits are indicated or permitted.
- G. Box Locations:
  1. Locate boxes to be accessible. Provide access panels in accordance with Section 08 31 00 as required where approved by the Architect.
  2. Locate boxes as required for devices installed under other sections or by others.
    - a. Switches, Receptacles, and Other Wiring Devices: Comply with Section 26 27 26.
  3. Locate boxes so that wall plates do not span different building finishes.
  4. Locate boxes so that wall plates do not cross masonry joints.
  5. Unless otherwise indicated, where multiple outlet boxes are installed at the same location at different mounting heights, install along a common vertical center line.
  6. Do not install flush-mounted boxes on opposite sides of walls back-to-back. Provide minimum 6 inches horizontal separation unless otherwise indicated.

7. Acoustic-Rated Walls: Do not install flush-mounted boxes on opposite sides of walls back-to-back; provide minimum 24 inches horizontal separation.
  8. Fire Resistance Rated Walls: Install flush-mounted boxes such that the required fire resistance will not be reduced.
    - a. Do not install flush-mounted boxes on opposite sides of walls back-to-back; provide minimum 24 inches separation where wall is constructed with individual noncommunicating stud cavities or protect both boxes with listed putty pads.
    - b. Do not install flush-mounted boxes with area larger than 16 square inches or such that the total aggregate area of openings exceeds 100 square inches for any 100 square feet of wall area.
  9. Locate junction and pull boxes in the following areas, unless otherwise indicated or approved by the Architect:
    - a. Concealed above accessible suspended ceilings.
    - b. Within joists in areas with no ceiling.
    - c. Electrical rooms.
    - d. Mechanical equipment rooms.
- H. Box Supports:
1. Secure and support boxes in accordance with NFPA 70 and Section 26 05 29 using suitable supports and methods approved by the authority having jurisdiction.
  2. Provide independent support from building structure except for cast metal boxes (other than boxes used for fixture support) supported by threaded conduit connections in accordance with NFPA 70. Do not provide support from piping, ductwork, or other systems.
  3. Installation Above Suspended Ceilings: Do not provide support from ceiling grid or ceiling support system.
- I. Install boxes plumb and level.
- J. Flush-Mounted Boxes:
1. Install boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that front edge of box or associated raised cover is not set back from finished surface more than 1/4 inch or does not project beyond finished surface.
  2. Install boxes in combustible materials such as wood so that front edge of box or associated raised cover is flush with finished surface.
  3. Repair rough openings around boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that there are no gaps or open spaces greater than 1/8 inch at the edge of the box.
- K. Install boxes as required to preserve insulation integrity.
- L. Metallic Floor Boxes: Install box level at the proper elevation to be flush with finished floor.
- M. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.
- N. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 84 00.
- O. Close unused box openings.
- P. Install blank wall plates on junction boxes and on outlet boxes with no devices or equipment installed or designated for future use.
- Q. Provide grounding and bonding in accordance with Section 26 05 26.
- R. Identify boxes in accordance with Section 26 05 53.

**END OF SECTION**

**SECTION 26 05 53**  
**IDENTIFICATION FOR ELECTRICAL SYSTEMS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Electrical identification requirements.
- B. Identification nameplates and labels.
- C. Wire and cable markers.
- D. Voltage markers.
- E. Underground warning tape.
- F. Floor marking tape.
- G. Warning signs and labels.

**1.02 RELATED REQUIREMENTS**

- A. Section 09 91 13 - Exterior Painting.
- B. Section 09 91 23 - Interior Painting.
- C. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables: Color coding for power conductors and cables 600 V and less; vinyl color coding electrical tape.
- D. Section 26 27 26 - Wiring Devices - Lutron: Device and wallplate finishes; factory pre-marked wallplates.

**1.03 REFERENCE STANDARDS**

- A. ANSI Z535.2 - American National Standard for Environmental and Facility Safety Signs; 2023.
- B. ANSI Z535.4 - American National Standard for Product Safety Signs and Labels; 2023.
- C. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- D. UL 969 - Marking and Labeling Systems; Current Edition, Including All Revisions.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Verify final designations for equipment, systems, and components to be identified prior to fabrication of identification products.
- B. Sequencing:
  - 1. Do not conceal items to be identified, in locations such as above suspended ceilings, until identification products have been installed.
  - 2. Do not install identification products until final surface finishes and painting are complete.

**1.05 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements for submittals procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product.

**PART 2 PRODUCTS**

**2.01 IDENTIFICATION REQUIREMENTS**

- A. Existing Work: Unless specifically excluded, identify existing elements to remain that are not already identified in accordance with specified requirements.
- B. Identification for Equipment:
  - 1. Use identification nameplate to identify each piece of electrical distribution and control equipment and associated sections, compartments, and components.

- a. Switchboards:
  - 1) Identify ampere rating.
  - 2) Identify voltage and phase.
  - 3) Identify power source and circuit number. Include location when not within sight of equipment.
  - 4) Use identification nameplate to identify main overcurrent protective device.
  - 5) Use identification nameplate to identify load(s) served for each branch device. Do not identify spares and spaces.
- b. Panelboards:
  - 1) Identify ampere rating.
  - 2) Identify voltage and phase.
  - 3) Identify power source and circuit number. Include location when not within sight of equipment.
  - 4) Identify main overcurrent protective device. Use identification label for panelboards with a door. For power distribution panelboards without a door, use identification nameplate.
  - 5) Use typewritten circuit directory to identify load(s) served for panelboards with a door. Identify spares and spaces using pencil.
  - 6) For power panelboards without a door, use identification nameplate to identify load(s) served for each branch device. Do not identify spares and spaces.
- c. Enclosed switches, circuit breakers, and motor controllers:
  - 1) Identify voltage and phase.
  - 2) Identify power source and circuit number. Include location when not within sight of equipment.
  - 3) Identify load(s) served. Include location when not within sight of equipment.
- 2. Service Equipment:
  - a. Use identification nameplate to identify each service disconnecting means.
  - b. Use identification nameplate at each piece of service equipment to identify the available fault current and the date calculations were performed.
- 3. Use identification label or handwritten text using indelible marker on inside of door at each fused switch to identify required NEMA fuse class and size.
- 4. Use floor marking tape to identify required equipment working clearances for all electrical distribution equipment.
- 5. Available Fault Current Documentation: Use identification label to identify the available fault current and date calculations were performed at locations requiring documentation by NFPA 70 including but not limited to the following.
  - a. Service equipment.
  - b. Industrial control panels.
  - c. Motor control centers.
  - d. Elevator control panels.
  - e. Industrial machinery.
- 6. Use warning signs to identify electrical hazards for entrances to all rooms and other guarded locations that contain exposed live parts operating at 600 V nominal or less with the word message "DANGER; Electrical hazard; Authorized personnel only" or approved equivalent.
- C. Identification for Conductors and Cables:
  - 1. Color Coding for Power Conductors 600 V and Less: Comply with Section 26 05 19.
  - 2. Use identification nameplate or identification label to identify color code for ungrounded and grounded power conductors inside door or enclosure at each piece of feeder or branch-circuit distribution equipment when premises has feeders or branch circuits served by more than one nominal voltage system.
  - 3. Use wire and cable markers to identify circuit number or other designation indicated for power, control, and instrumentation conductors and cables at the following locations:

- a. At each source and load connection.
  - b. Within boxes when more than one circuit is present.
- 4. Use wire and cable markers to identify connected grounding electrode system components for grounding electrode conductors.
- D. Identification for Raceways:
  - 1. Use identification labels or plastic marker tags to identify circuits enclosed for accessible conduits at wall penetrations, at floor penetrations, at roof penetrations, and at equipment terminations when source is not within sight.
  - 2. Use identification labels or plastic marker tags to identify spare conduits at each end. Identify purpose and termination location.
  - 3. Use underground warning tape to identify underground raceways.
- E. Identification for Boxes:
  - 1. Use voltage markers or color coded boxes to identify systems other than normal power system.
    - a. Color-Coded Boxes: Field-painted in accordance with Section 09 91 23 and 09 91 13 per the same color code used for raceways.
  - 2. Use identification labels to identify circuits enclosed.
- F. Identification for Devices:
  - 1. Wiring Device and Wallplate Finishes: Comply with Section 26 27 26.
  - 2. Use identification label to identify fire alarm system devices.
  - 3. Use identification label or engraved wallplate to identify serving branch circuit for all receptacles and switches..
  - 4. Use identification label to identify receptacles protected by upstream GFI protection, where permitted.

## 2.02 IDENTIFICATION NAMEPLATES AND LABELS

- A. Identification Nameplates:
  - 1. Materials:
    - a. Indoor Clean, Dry Locations: Use plastic nameplates.
    - b. Outdoor Locations: Use plastic, stainless steel, or aluminum nameplates suitable for exterior use.
  - 2. Plastic Nameplates: Two-layer or three-layer laminated acrylic or electrically non-conductive phenolic with beveled edges; minimum thickness of 1/16 inch; engraved text.
  - 3. Stainless Steel Nameplates: Minimum thickness of 1/32 inch; engraved or laser-etched text.
  - 4. Aluminum Nameplates: Anodized; minimum thickness of 1/32 inch; engraved or laser-etched text.
  - 5. Mounting Holes for Mechanical Fasteners: Two, centered on sides for sizes up to 1 inch high; Four, located at corners for larger sizes.
- B. Identification Labels:
  - 1. Materials: Use self-adhesive laminated plastic labels; UV, chemical, water, heat, and abrasion resistant.
    - a. Use only for indoor locations.
  - 2. Text: Use factory pre-printed or machine-printed text. Do not use handwritten text unless otherwise indicated.
- C. Format for Equipment Identification:
  - 1. Minimum Size: 1 inch by 2.5 inches.
  - 2. Legend:
    - a. System designation where applicable:
      - 1) Fire Alarm System: Identify with text "FIRE ALARM".
    - b. Equipment designation or other approved description.

3. Text: All capitalized unless otherwise indicated.
  4. Minimum Text Height:
    - a. System Designation: 1 inch.
    - b. Equipment Designation: 1/2 inch.
  5. Color:
    - a. Normal Power System: White text on black background.
    - b. Fire Alarm System: White text on red background.
- D. Format for Receptacle Identification:
1. Minimum Size: 3/8 inch by 1.5 inches.
  2. Legend: Power source and circuit number or other designation indicated.
  3. Text: All capitalized unless otherwise indicated.
  4. Minimum Text Height: 3/16 inch.
  5. Color: Black text on clear background.
- E. Format for Fire Alarm Device Identification:
1. Minimum Size: 3/8 inch by 1.5 inches.
  2. Legend: Designation indicated and device zone or address.
  3. Text: All capitalized unless otherwise indicated.
  4. Minimum Text Height: 3/16 inch.
  5. Color: Red text on white background.

### **2.03 WIRE AND CABLE MARKERS**

- A. Markers for Conductors and Cables: Use wrap-around self-adhesive vinyl cloth, wrap-around self-adhesive vinyl self-laminating, heat-shrink sleeve, plastic sleeve, plastic clip-on, or vinyl split sleeve type markers suitable for the conductor or cable to be identified.
- B. Markers for Conductor and Cable Bundles: Use plastic marker tags secured by nylon cable ties.
- C. Legend: Power source and circuit number or other designation indicated.
- D. Text: Use factory pre-printed or machine-printed text, all capitalized unless otherwise indicated.
- E. Minimum Text Height: 1/8 inch.
- F. Color: Black text on white background unless otherwise indicated.

### **2.04 VOLTAGE MARKERS**

- A. Markers for Boxes and Equipment Enclosures: Use factory pre-printed self-adhesive vinyl or self-adhesive vinyl cloth type markers.
- B. Minimum Size:
  1. Markers for Pull Boxes: 1 1/8 by 4 1/2 inches.
  2. Markers for Junction Boxes: 1/2 by 2 1/4 inches.
- C. Legend:
  1. Markers for System Identification:
- D. Color: Black text on orange background unless otherwise indicated.

### **2.05 UNDERGROUND WARNING TAPE**

- A. Materials: Use non-detectable type polyethylene tape suitable for direct burial, unless otherwise indicated.
- B. Non-detectable Type Tape: 6 inches wide, with minimum thickness of 4 mil.
- C. Legend: Type of service, continuously repeated over full length of tape.
- D. Color:

## **2.06 FLOOR MARKING TAPE**

- A. Floor Marking Tape for Equipment Working Clearance Identification: Self-adhesive vinyl or polyester tape with overlamine, 3 inches wide, with alternating black and white stripes.

## **2.07 WARNING SIGNS AND LABELS**

- A. Comply with ANSI Z535.2 or ANSI Z535.4 as applicable.
- B. Warning Signs:
  - 1. Materials:
  - 2. Minimum Size: 7 by 10 inches unless otherwise indicated.
- C. Warning Labels:
  - 1. Materials: Use factory pre-printed or machine-printed self-adhesive polyester or self-adhesive vinyl labels; UV, chemical, water, heat, and abrasion resistant; produced using materials recognized to UL 969.
  - 2. Machine-Printed Labels: Use thermal transfer process printing machines and accessories recommended by label manufacturer.
  - 3. Minimum Size: 2 by 4 inches unless otherwise indicated.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install products in accordance with manufacturer's instructions.
- B. Install identification products to be plainly visible for examination, adjustment, servicing, and maintenance. Unless otherwise indicated, locate products as follows:
  - 1. Surface-Mounted Equipment: Enclosure front.
  - 2. Flush-Mounted Equipment: Inside of equipment door.
  - 3. Free-Standing Equipment: Enclosure front; also enclosure rear for equipment with rear access.
  - 4. Elevated Equipment: Legible from the floor or working platform.
  - 5. Branch Devices: Adjacent to device.
  - 6. Interior Components: Legible from the point of access.
  - 7. Conduits: Legible from the floor.
  - 8. Boxes: Outside face of cover.
  - 9. Conductors and Cables: Legible from the point of access.
  - 10. Devices: Outside face of cover.
- C. Install identification products centered, level, and parallel with lines of item being identified.
- D. Secure nameplates to exterior surfaces of enclosures using stainless steel screws and to interior surfaces using self-adhesive backing or epoxy cement.
- E. Install self-adhesive labels and markers to achieve maximum adhesion, with no bubbles or wrinkles and edges properly sealed.
- F. Install underground warning tape above buried lines with one tape per trench at 3 inches below finished grade.
- G. Mark all handwritten text, where permitted, to be neat and legible.

**END OF SECTION**





**SECTION 26 27 26  
WIRING DEVICES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Wall switches.
- B. Receptacles.
- C. Wall plates.
- D. Floor box service fittings.

**1.02 RELATED REQUIREMENTS**

- A. Section 26 05 33.16 - Boxes for Electrical Systems.
- B. Section 26 05 33.16 - Boxes for Electrical Systems.
- C. Section 26 05 53 - Identification for Electrical Systems: Identification products and requirements.
- D. Section 26 09 23 - Lighting Control Devices: Devices for automatic control of lighting, including occupancy sensors, in-wall time switches, and in-wall interval timers.

**1.03 REFERENCE STANDARDS**

- A. FS W-C-596 - Connector, Electrical, Power, General Specification for; 2014h (Validated 2022).
- B. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
- C. NECA 130 - Standard for Installing and Maintaining Wiring Devices; 2016.
- D. NEMA WD 1 - General Color Requirements for Wiring Devices; 1999 (Reaffirmed 2020).
- E. NEMA WD 6 - Wiring Devices - Dimensional Specifications; 2021.
- F. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. UL 498 - Attachment Plugs and Receptacles; Current Edition, Including All Revisions.
- H. UL 514D - Cover Plates for Flush-Mounted Wiring Devices; Current Edition, Including All Revisions.
- I. UL 943 - Ground-Fault Circuit-Interrupters; Current Edition, Including All Revisions.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Coordinate the placement of outlet boxes with millwork, furniture, equipment, etc. installed under other sections or by others.
  - 2. Coordinate wiring device ratings and configurations with the electrical requirements of actual equipment to be installed.
  - 3. Coordinate the placement of outlet boxes for wall switches with actual installed door swings.
  - 4. Coordinate the installation and preparation of uneven surfaces, such as split face block, to provide suitable surface for installation of wiring devices.
  - 5. Notify Engineer of any conflicts or deviations from the contract documents to obtain direction prior to proceeding with work.

**1.05 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.

## **PART 2 PRODUCTS**

### **2.01 WIRING DEVICE APPLICATIONS**

- A. Provide wiring devices suitable for intended use and with ratings adequate for load served.
- B. For single receptacles installed on an individual branch circuit, provide receptacle with ampere rating not less than that of the branch circuit.
- C. Provide weather resistant GFCI receptacles with specified weatherproof covers for receptacles installed outdoors or in damp or wet locations.
- D. Provide tamper resistant receptacles for all receptacles installed in classrooms.
- E. Provide GFCI protection for receptacles installed within 6 feet of sinks.
- F. Provide GFCI protection for receptacles installed in kitchens.
- G. Provide GFCI protection for receptacles serving electric drinking fountains.
- H. Unless noted otherwise, do not use combination switch/receptacle devices.
- I. For flush floor service fittings, use tile rings for installations in tile floors.
- J. For flush floor service fittings, use carpet flanges for installations in carpeted floors.

### **2.02 ALL WIRING DEVICES**

- A. Provide products listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.
- B. Finishes:
  - 1. All Wiring Devices: White with white nylon wall plate unless otherwise indicated.
  - 2. Wiring Devices Installed in Wet or Damp Locations: White with specified weatherproof cover unless otherwise indicated.
  - 3. Flush Floor Box Service Fittings: Gray wiring devices with aluminum cover and ring/flange.

### **2.03 WALL SWITCHES**

- A. Manufacturers:
  - 1. Leviton Manufacturing Company, Inc: [www.leviton.com/#sle](http://www.leviton.com/#sle).
  - 2. Pass & Seymour, a brand of Legrand North America, Inc: [www.legrand.us/#sle](http://www.legrand.us/#sle).
- B. Standard Wall Switches: Industrial specification grade, 20 A, 120/277 V with standard toggle type switch actuator and maintained contacts; single pole single throw, double pole single throw, three way, or four way as indicated on the drawings.

### **2.04 RECEPTACLES**

- A. Manufacturers:
  - 1. Leviton Manufacturing Company, Inc: [www.leviton.com/#sle](http://www.leviton.com/#sle).
  - 2. Pass & Seymour, a brand of Legrand North America, Inc: [www.legrand.us/#sle](http://www.legrand.us/#sle).
- B. Receptacles - General Requirements: Self-grounding, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 498 and where applicable FS W-C-596; types as indicated on the drawings.
  - 1. Wiring Provisions: Terminal screws for side wiring or screw actuated binding clamp for back wiring with separate ground terminal screw.
  - 2. NEMA configurations specified are according to NEMA WD 6.
- C. Convenience Receptacles:
  - 1. Standard Convenience Receptacles: Commercial specification grade, 20A, 125V, NEMA 5-20R; single or duplex as indicated on the drawings.
  - 2. Tamper Resistant Convenience Receptacles: Industrial specification grade, 20A, 125V, NEMA 5-20R, listed and labeled as tamper resistant type; single or duplex as indicated on the drawings.

- D. GFCI Receptacles:
  - 1. GFCI Receptacles - General Requirements: Self-testing, with feed-through protection and light to indicate ground fault tripped condition and loss of protection; listed as complying with UL 943, class A.
    - a. Provide test and reset buttons of same color as device.
  - 2. Standard GFCI Receptacles: Industrial specification grade, duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style.
  - 3. Weather Resistant GFCI Receptacles: Industrial specification grade, duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style, listed and labeled as weather resistant type complying with UL 498 Supplement SE suitable for installation in damp or wet locations.
  - 4. Tamper Resistant GFCI Receptacles: Industrial specification grade, duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style, listed and labeled as tamper resistant type.

## 2.05 WALL PLATES

- A. Manufacturers:
  - 1. Hubbell Incorporated: [www.hubbell-wiring.com/#sle](http://www.hubbell-wiring.com/#sle).
  - 2. Leviton Manufacturing Company, Inc: [www.leviton.com/#sle](http://www.leviton.com/#sle).
  - 3. Pass & Seymour, a brand of Legrand North America, Inc: [www.legrand.us/#sle](http://www.legrand.us/#sle).
- B. Wall Plates: Comply with UL 514D.
  - 1. Configuration: One piece cover as required for quantity and types of corresponding wiring devices.
  - 2. Size: Standard; \_\_\_\_\_.
  - 3. Screws: Metal with slotted heads finished to match wall plate finish.
- C. Nylon Wall Plates: Smooth finish, high-impact thermoplastic.
- D. Weatherproof Covers for Wet Locations: Gasketed, cast aluminum, with hinged lockable cover and corrosion-resistant screws; listed as suitable for use in wet locations while in use with attachment plugs connected and identified as extra-duty type.

## 2.06 FLOOR BOX SERVICE FITTINGS

- A. Manufacturers:
  - 1. Thomas & Betts Corporation: [www.tnb.com/#sle](http://www.tnb.com/#sle).
  - 2. Wiremold, a brand of Legrand North America, Inc: [www.legrand.us/#sle](http://www.legrand.us/#sle).
- B. Description: Service fittings compatible with floor boxes provided under Section 26 05 33.16 with components, adapters, and trims required for complete installation.
- C. Flush Floor Service Fittings:
  - 1. Dual Service Flush Combination Outlets:
    - a. Cover: Rectangular.
    - b. Configuration:
      - 1) Power: Two standard convenience duplex receptacle(s) with duplex flap opening(s).
      - 2) Voice and Data Jacks: \_\_\_\_\_.
  - 2. Accessories:
    - a. Tile Rings: Finish to match covers; configuration as required to accommodate specified covers.
    - b. Carpet Flanges: Finish to match covers; configuration as required to accommodate specified covers.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that field measurements are as shown on the drawings.

- B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate devices and conductors in accordance with NFPA 70.
- C. Verify that wall openings are neatly cut and will be completely covered by wall plates.
- D. Verify that final surface finishes are complete, including painting.
- E. Verify that branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.
- F. Verify that conditions are satisfactory for installation prior to starting work.

### **3.02 INSTALLATION**

- A. Perform work in a neat and workmanlike manner in accordance with NECA 1 and, where applicable, NECA 130, including mounting heights specified in those standards unless otherwise indicated.
- B. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of wiring devices provided under this section.
  - 1. Mounting Heights: Unless otherwise indicated, as follows:
    - a. Wall Switches: 48 inches above finished floor.
    - b. Receptacles: 18 inches above finished floor or 6 inches above counter.
  - 2. Orient outlet boxes for vertical installation of wiring devices unless otherwise indicated.
  - 3. Where multiple receptacles, wall switches, or wall dimmers are installed at the same location and at the same mounting height, gang devices together under a common wall plate.
  - 4. Locate wall switches on strike side of door with edge of wall plate 3 inches from edge of door frame. Where locations are indicated otherwise, notify Engineer to obtain direction prior to proceeding with work.
  - 5. Locate receptacles for electric drinking fountains concealed behind drinking fountain according to manufacturer's instructions.
- C. Install wiring devices in accordance with manufacturer's instructions.
- D. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.
- E. Where required, connect wiring devices using pigtails not less than 6 inches long. Do not connect more than one conductor to wiring device terminals.
- F. Connect wiring devices by wrapping conductor clockwise 3/4 turn around screw terminal and tightening to proper torque specified by the manufacturer. Where present, do not use push-in pressure terminals that do not rely on screw-actuated binding.
- G. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
- H. Provide GFCI receptacles with integral GFCI protection at each location indicated. Do not use feed-through wiring to protect downstream devices.
- I. Install wiring devices plumb and level with mounting yoke held rigidly in place.
- J. Install wall switches with OFF position down.
- K. Install vertically mounted receptacles with grounding pole on top and horizontally mounted receptacles with grounding pole on left.
- L. Install wall plates to fit completely flush to wall with no gaps and rough opening completely covered without strain on wall plate. Repair or reinstall improperly installed outlet boxes or improperly sized rough openings. Do not use oversized wall plates in lieu of meeting this requirement.
- M. Install blank wall plates on junction boxes and on outlet boxes with no wiring devices installed or designated for future use.

N. Identify wiring devices in accordance with Section 26 05 53.

**3.03 ADJUSTING**

A. Adjust devices and wall plates to be flush and level.

**END OF SECTION**



**SECTION 26 28 13  
FUSES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Fuses.

**1.02 REFERENCE STANDARDS**

- A. NEMA FU 1 - Low Voltage Cartridge Fuses; 2012.
- B. UL 248-1 - Low-Voltage Fuses - Part 1: General Requirements; Current Edition, Including All Revisions.
- C. UL 248-10 - Low-Voltage Fuses - Part 10: Class L Fuses; Current Edition, Including All Revisions.
- D. UL 248-12 - Low-Voltage Fuses - Part 12: Class R Fuses; Current Edition, Including All Revisions.

**1.03 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard data sheets including voltage and current ratings, interrupting ratings, time-current curves, and current limitation curves.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Bussmann, a division of Eaton Corporation; \_\_\_\_\_: [www.cooperindustries.com/#sle](http://www.cooperindustries.com/#sle).
- B. Mersen (formerly Ferraz Shawmut): [ferrazshawmut.mersen.com](http://ferrazshawmut.mersen.com).
- C. Littelfuse, Inc; \_\_\_\_\_: [www.littelfuse.com/#sle](http://www.littelfuse.com/#sle).

**2.02 APPLICATIONS**

- A. Feeders:
  - 1. Fusible Switches up to 600 Amperes: Class RK1, time-delay.
  - 2. Fusible Switches Larger Than 600 Amperes: Class L, time-delay.
- B. General Purpose Branch Circuits: Class RK1, time-delay.

**2.03 FUSES**

- A. Provide products listed, classified, and labeled as suitable for the purpose intended.
- B. Unless specifically indicated to be excluded, provide fuses for all fusible equipment as required for a complete operating system.
- C. Provide fuses of the same type, rating, and manufacturer within the same switch.
- D. Comply with UL 248-1.
- E. Unless otherwise indicated, provide cartridge type fuses complying with NEMA FU 1, Class and ratings as indicated.
- F. Voltage Rating: Suitable for circuit voltage.
- G. Class R Fuses: Comply with UL 248-12.
- H. Class L Fuses: Comply with UL 248-10.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Do not install fuses until circuits are ready to be energized.



B. Install fuses with label oriented such that manufacturer, type, and size are easily read.

**END OF SECTION**

**SECTION 26 28 16.16  
ENCLOSED SWITCHES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Enclosed safety switches.

**1.02 RELATED REQUIREMENTS**

- A. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
- B. Section 26 05 29 - Hangers and Supports for Electrical Systems.
- C. Section 26 28 13 - Fuses.

**1.03 REFERENCE STANDARDS**

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
- B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2020.
- C. NEMA KS 1 - Heavy Duty Enclosed and Dead-Front Switches (600 Volts Maximum); 2013.
- D. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- E. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.
- F. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.
- G. UL 98 - Enclosed and Dead-Front Switches; Current Edition, Including All Revisions.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Coordinate the work with other trades. Avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and within working clearances for electrical equipment required by NFPA 70.
  - 2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
  - 3. Verify with manufacturer that conductor terminations are suitable for use with the conductors to be installed.
  - 4. Notify Engineer of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.

**1.05 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for enclosed switches and other installed components and accessories.
- C. Project Record Documents: Record actual locations of enclosed switches.

**1.06 FIELD CONDITIONS**

- A. Maintain ambient temperature between -22 degrees F and 104 degrees F during and after installation of enclosed switches.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Siemens Industry, Inc: [www.usa.siemens.com](http://www.usa.siemens.com).
- B. Eaton Corporation; \_\_\_\_\_: [www.eaton.com/#sle](http://www.eaton.com/#sle).
- C. Schneider Electric; Square D Products; \_\_\_\_\_: [www.schneider-electric.us/#sle](http://www.schneider-electric.us/#sle).

- D. Source Limitations: Furnish enclosed switches and associated components produced by the same manufacturer as the other electrical distribution equipment used for this project and obtained from a single supplier.

## **2.02 ENCLOSED SAFETY SWITCHES**

- A. Description: Quick-make, quick-break enclosed safety switches listed and labeled as complying with UL 98; heavy duty; ratings, configurations, and features as indicated on the drawings.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
  - 1. Altitude: Less than 6,600 feet.
  - 2. Ambient Temperature: Between -22 degrees F and 104 degrees F.
- D. Horsepower Rating: Suitable for connected load.
- E. Voltage Rating: Suitable for circuit voltage.
- F. Short Circuit Current Rating:
  - 1. Provide enclosed safety switches, when protected by the fuses or supply side overcurrent protective devices to be installed, with listed short circuit current rating not less than the available fault current at the installed location as indicated on the drawings.
- G. Provide with switch blade contact position that is visible when the cover is open.
- H. Conductor Terminations: Suitable for use with the conductors to be installed.
- I. Provide insulated, groundable fully rated solid neutral assembly where a neutral connection is required, with a suitable lug for terminating each neutral conductor.
- J. Provide solidly bonded equipment ground bus in each enclosed safety switch, with a suitable lug for terminating each equipment grounding conductor.
- K. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.
  - 1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
    - a. Indoor Clean, Dry Locations: Type 1.
    - b. Outdoor Locations: Type 3R.
  - 2. Finish for Painted Steel Enclosures: Manufacturer's standard, factory applied grey unless otherwise indicated.
- L. Provide safety interlock to prevent opening the cover with the switch in the ON position with capability of overriding interlock for testing purposes.
- M. Heavy Duty Switches:
  - 1. Comply with NEMA KS 1.
  - 2. Conductor Terminations:
    - a. Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
  - 3. Provide externally operable handle with means for locking in the OFF position, capable of accepting three padlocks.
- N. Provide the following features and accessories where indicated or where required to complete installation:
  - 1. Auxiliary Switch: SPDT switch suitable for connection to system indicated, with auxiliary contact operation before switch blades open and after switch blades close.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install enclosed switches in accordance with manufacturer's instructions.

- B. Install enclosed switches securely, in a neat and workmanlike manner in accordance with NECA 1.
- C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- D. Provide required supports in accordance with Section 26 05 29.
- E. Install enclosed switches plumb.
- F. Except where indicated to be mounted adjacent to the equipment they supply, mount enclosed switches such that the highest position of the operating handle does not exceed 79 inches above the floor or working platform.
- G. Provide grounding and bonding in accordance with Section 26 05 26.
- H. Provide fuses complying with Section 26 28 13 for fusible switches as indicated or as required by equipment manufacturer's recommendations.

**END OF SECTION**



**SECTION 26 51 00  
INTERIOR LIGHTING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Interior luminaires.
- B. Emergency lighting units.
- C. Exit signs.
- D. Ballasts and drivers.
- E. Fluorescent emergency power supply units.
- F. Lamps.
- G. Luminaire accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 26 05 33.16 - Boxes for Electrical Systems.

**1.03 REFERENCE STANDARDS**

- A. 47 CFR 15 - Radio Frequency Devices; current edition.
- B. ANSI C82.11 - American National Standard for Lamp Ballasts - High Frequency Fluorescent Lamp Ballasts; 2023.
- C. IEEE C62.41.2 - IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits; 2002 (Corrigendum 2012).
- D. IESNA LM-63 - ANSI Approved Standard File Format for Electronic Transfer of Photometric Data and Related Information; 2002 (Reaffirmed 2008).
- E. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
- F. NECA/IESNA 500 - Standard for Installing Indoor Lighting Systems; 2006.
- G. NECA/IESNA 502 - Standard for Installing Industrial Lighting Systems; 2006.
- H. NEMA LE 4 - Recessed Luminaires, Ceiling Compatibility; 2023.
- I. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- J. NFPA 101 - Life Safety Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- K. UL 924 - Emergency Lighting and Power Equipment; Current Edition, Including All Revisions.
- L. UL 935 - Fluorescent-Lamp Ballasts; Current Edition, Including All Revisions.
- M. UL 1598 - Luminaires; Current Edition, Including All Revisions.
- N. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products; Current Edition, Including All Revisions.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Coordinate the installation of luminaires with mounting surfaces installed under other sections or by others. Coordinate the work with placement of supports, anchors, etc. required for mounting. Coordinate compatibility of luminaires and associated trims with mounting surfaces at installed locations.
  - 2. Coordinate the placement of luminaires with structural members, ductwork, piping, equipment, diffusers, fire suppression system components, and other potential conflicts installed under other sections or by others.

3. Coordinate the placement of exit signs with furniture, equipment, signage or other potential obstructions to visibility installed under other sections or by others.
4. Notify Engineer of any conflicts or deviations from the contract documents to obtain direction prior to proceeding with work.

### **1.05 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, installed accessories, and ceiling compatibility; include model number nomenclature clearly marked with all proposed features.
  1. Provide electronic files of photometric data certified by a National Voluntary Laboratory Accreditation Program (NVLAP) lab or independent testing agency in IESNA LM-63 standard format upon request.
  2. Ballasts: Include wiring diagrams and list of compatible lamp configurations.
  3. Lamps: Include rated life, color temperature, color rendering index (CRI), and initial and mean lumen output.
  4. Fluorescent Emergency Power Supply Unit: Include list of compatible lamp configurations and associated lumen output.
- C. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  1. See Section 01 60 00 - Product Requirements, for additional provisions.
  2. Extra Lamps: Five percent of total quantity installed for each type, but not less than two of each type.
  3. Extra Ballasts: Two percent of total quantity installed for each type, but not less than one of each type.
- D. Project Record Documents: Record actual connections and locations of luminaires and any associated remote components.

### **1.06 WARRANTY**

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Provide two year manufacturer warranty for all linear fluorescent ballasts.
- C. Provide five year pro-rata warranty for batteries for emergency lighting units.
- D. Provide ten year pro-rata warranty for batteries for self-powered exit signs.
- E. Provide three year full warranty for fluorescent emergency power supply units.

## **PART 2 PRODUCTS**

### **2.01 LUMINAIRE TYPES**

- A. Furnish products as indicated in luminaire schedule included on the drawings.

### **2.02 LUMINAIRES**

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products that are listed and labeled as complying with UL 1598, where applicable.
- C. Provide products listed, classified, and labeled as suitable for the purpose intended.
- D. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.
- E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, supports, trims, accessories, etc. as necessary for a complete operating system.

- F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.
- G. Recessed Luminaires:
  - 1. Ceiling Compatibility: Comply with NEMA LE 4.
  - 2. Luminaires Recessed in Insulated Ceilings: Listed and labeled as IC-rated, suitable for direct contact with insulation and combustible materials.
  - 3. Luminaires Recessed in Sloped Ceilings: Provide suitable sloped ceiling adapters.
- H. Fluorescent Luminaires:
  - 1. Provide ballast disconnecting means complying with NFPA 70 where required.
  - 2. Fluorescent Luminaires Controlled by Occupancy Sensors: Provide programmed start ballasts.
- I. LED Luminaire Components: UL 8750 recognized or listed as applicable.

### **2.03 EMERGENCY LIGHTING UNITS**

- A. Description: Emergency lighting units complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.
- B. Operation: Upon interruption of normal power source or brownout condition exceeding 20 percent voltage drop from nominal, solid-state control automatically switches connected lamps to integral battery power for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.
- C. Battery:
  - 1. Size battery to supply all connected lamps, including emergency remote heads where indicated.
- D. Diagnostics: Provide power status indicator light and accessible integral test switch to manually activate emergency operation.
- E. Provide low-voltage disconnect to prevent battery damage from deep discharge.
- F. Accessories:
  - 1. Where indicated, provide emergency remote heads that are compatible with the emergency lighting unit they are connected to and suitable for the installed location.

### **2.04 EXIT SIGNS**

- A. Description: Exit signs and similar signs for special purpose applications such as area of refuge/rescue assistance.
- B. Description: Internally illuminated exit signs with LEDs unless otherwise indicated; complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.
  - 1. Number of Faces: Single or double as indicated or as required for the installed location.
  - 2. Directional Arrows: As indicated or as required for the installed location.
- C. Self-Powered Exit Signs:
  - 1. Operation: Upon interruption of normal power source or brownout condition exceeding 20 percent voltage drop from nominal, solid-state control automatically switches connected lamps to integral battery power for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.
  - 2. Diagnostics: Provide power status indicator light and accessible integral test switch to manually activate emergency operation.
  - 3. Provide low-voltage disconnect to prevent battery damage from deep discharge.

### **2.05 BALLASTS AND DRIVERS**

- A. Manufacturers:
  - a. Optanium - IOP-2PSP32-SC@120V



- B. Ballasts - General Requirements:
  1. Provide ballasts containing no polychlorinated biphenyls (PCBs).
  2. Minimum Efficiency/Efficacy: Provide ballasts complying with all current applicable federal and state ballast efficiency/efficacy standards.
- C. Fluorescent Ballasts:
  1. All Fluorescent Ballasts: Unless otherwise indicated, provide high frequency electronic ballasts complying with ANSI C82.11 and listed and labeled as complying with UL 935.
    - a. Input Voltage: Suitable for operation at voltage of connected source, with variation tolerance of plus or minus 10 percent.
    - b. Total Harmonic Distortion: Not greater than 10 percent.
    - c. Power Factor: Not less than 0.95.
    - d. Ballast Factor: Normal ballast factor between 0.85 and 1.15, unless otherwise indicated.
    - e. Thermal Protection: Listed and labeled as UL Class P, with automatic reset for integral thermal protectors.
    - f. Sound Rating: Class A, suitable for average ambient noise level of 20 to 24 decibels.
    - g. Lamp Compatibility: Specifically designed for use with the specified lamp, with no visible flicker.
    - h. Lamp Operating Frequency: Greater than 20 kHz, except as specified below.
    - i. Lamp Current Crest Factor: Not greater than 1.7.
    - j. Provide automatic restart capability to restart replaced lamp(s) without requiring resetting of power.
    - k. Provide end of lamp life automatic shut down circuitry for T5 and smaller diameter lamp ballasts.
    - l. Surge Tolerance: Capable of withstanding characteristic surges according to IEEE C62.41.2, location category A.
    - m. Electromagnetic Interference/Radio Frequency Interference (EMI/RFI) Limits: Comply with FCC requirements of 47 CFR 15, for Class A, non-consumer application.
    - n. Provide high efficiency T8 lamp ballasts certified as NEMA premium.
    - o. Ballast Marking: Include wiring diagrams with lamp connections.
  2. Non-Dimming Fluorescent Ballasts:
    - a. Lamp Starting Method:
      - 1) T8 Lamp Ballasts: Programmed start unless otherwise indicated.

## **2.06 FLUORESCENT EMERGENCY POWER SUPPLY UNITS**

- A. Manufacturers:
  1. Iota Engineering, LLC; \_\_\_\_\_: [www.iotaengineering.com/#sle](http://www.iotaengineering.com/#sle).
  2. Lithonia Lighting; \_\_\_\_\_: [www.lithonia.com/#sle](http://www.lithonia.com/#sle).
  3. Philips Emergency Lighting/Bodine; \_\_\_\_\_: [www.bodine.com/#sle](http://www.bodine.com/#sle).
  4. Where a specific manufacturer or model is indicated elsewhere in the luminaire schedule or on the drawings, substitutions are not permitted unless explicitly indicated.
- B. Description: Self-contained fluorescent emergency power supply units suitable for use with indicated luminaires, complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.
- C. Compatibility:
  1. Ballasts: Compatible with electronic, standard magnetic, energy saving, and dimming AC ballasts, including those with end of lamp life shutdown circuits.
  2. Lamps: Compatible with low-mercury lamps.
- D. Operation: Upon interruption of normal power source, solid-state control automatically switches connected lamp(s) to the fluorescent emergency power supply for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal

power source.

- E. Emergency Illumination Output:
  - 1. Luminaires with F32T8 Lamps: Operate one lamp(s) at a minimum of 1350 lumens unless otherwise indicated.
- F. Diagnostics: Provide accessible and visible multi-chromatic combination test switch/indicator light to display charge, test, and diagnostic status and to manually activate emergency operation.
- G. Operating Temperature: From 32 degrees F to 122 degrees F unless otherwise indicated or required for the installed location.

## **2.07 LAMPS**

- A. Manufacturers:
  - a. Energy Advantage T8: F32T8 28W ADV841 EW ALTO
- B. Lamps - General Requirements:
  - 1. Unless explicitly excluded, provide new, compatible, operable lamps in each luminaire.
  - 2. Verify compatibility of specified lamps with luminaires to be installed. Where lamps are not specified, provide lamps per luminaire manufacturer's recommendations.
  - 3. Minimum Efficiency: Provide lamps complying with all current applicable federal and state lamp efficiency standards.
  - 4. Color Temperature Consistency: Unless otherwise indicated, for each type of lamp furnish products which are consistent in perceived color temperature. Replace lamps that are determined by the Engineer to be inconsistent in perceived color temperature.
- C. Linear Fluorescent Lamps: Wattage and bulb type as indicated, with base type as required for luminaire.
  - 1. Low Mercury Content: Provide lamps that pass the EPA Toxicity Characteristic Leaching Procedure (TCLP) test for characteristic hazardous waste.
  - 2. T8 Linear Fluorescent Lamps:
    - a. Correlated Color Temperature (CCT): 4 100 K unless otherwise indicated.
    - b. Color Rendering Index (CRI): Not less than 80.
    - c. Average Rated Life: Not less than 20,000 hours for an operating cycle of three hours per start.

## **2.08 ACCESSORIES**

- A. Provide accessory plaster frames for luminaires recessed in plaster ceilings.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that field measurements are as shown on the drawings.
- B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate conductors in accordance with NFPA 70.
- C. Verify that suitable support frames are installed where required.
- D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.
- E. Verify that conditions are satisfactory for installation prior to starting work.

### **3.02 INSTALLATION**

- A. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of luminaires provided under this section.
- B. Install products according to manufacturer's instructions.
- C. Install luminaires securely, in a neat and workmanlike manner, as specified in NECA 1 (general workmanship), NECA 1 (general workmanship), and NECA 1 (general workmanship).

- D. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.
- E. Recessed Luminaires:
  - 1. Install trims tight to mounting surface with no visible light leakage.
- F. Wall-Mounted Luminaires: Unless otherwise indicated, specified mounting heights are to center of luminaire.
- G. Install accessories furnished with each luminaire.
- H. Bond products and metal accessories to branch circuit equipment grounding conductor.
- I. Emergency Lighting Units:
  - 1. Unless otherwise indicated, connect unit to unswitched power from same circuit feeding normal lighting in same room or area. Bypass local switches, contactors, or other lighting controls.
- J. Exit Signs:
  - 1. Unless otherwise indicated, connect unit to unswitched power from same circuit feeding normal lighting in same room or area. Bypass local switches, contactors, or other lighting controls.
- K. Fluorescent Emergency Power Supply Units:
  - 1. For field-installed units, install inside luminaire unless otherwise indicated. Where installation inside luminaire is not possible, install on top of luminaire.
- L. Install lamps in each luminaire.

### **3.03 ADJUSTING**

- A. Aim and position adjustable luminaires to achieve desired illumination as indicated or as directed by Engineer. Secure locking fittings in place.
- B. Aim and position adjustable emergency lighting unit lamps to achieve optimum illumination of egress path as required or as directed by Engineer or authority having jurisdiction.
- C. Exit Signs with Field-Selectable Directional Arrows: Set as indicated or as required to properly designate egress path as directed by Engineer or authority having jurisdiction.

**END OF SECTION**

## SECTION 31 10 00

### SITE CLEARING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Clearing and protection of vegetation.
- B. Removal of existing debris.

##### 1.02 RELATED REQUIREMENTS

- A. Section 02 41 00 - Demolition: Removal of built elements and utilities.
- B. Section 0241 13.13 - Pavement Removal.
- C. Section 32 92 18 - Lawn Restoration.

##### 1.03 QUALITY ASSURANCE

- A. Clearing Firm: Company specializing in the type of work required.
  - 1. Minimum of five years of documented experience.

#### PART 2 PRODUCTS

##### 2.01 MATERIALS

- A. Fill Material: As specified in Section 31 23 01.

#### PART 3 EXECUTION

##### 3.01 SITE CLEARING

- A. Minimize production of dust due to clearing operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

##### 3.02 EXISTING UTILITIES AND BUILT ELEMENTS

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Protect existing structures and other elements that are not to be removed.

##### 3.03 VEGETATION

- A. Scope: Remove trees, shrubs, brush, and stumps in areas noted on drawings.
- B. Do not begin clearing until vegetation to be relocated has been removed.
- C. Do not remove or damage vegetation beyond the following limits:
  - 1. 10 feet each side of surface walkways, surface parking, and utility lines less than 12 inches in diameter.
  - 2. 5 feet each side of new fencing.
  - 3. Exception: Specific trees and vegetation indicated on drawings to be removed.
- D. Install substantial, highly visible fences at least 3 feet high to prevent inadvertent damage to vegetation to remain:
  - 1. At vegetation removal limits.
  - 2. Around other vegetation to remain within vegetation removal limits.
  - 3. See Construction Manager's General Requirements for fence construction requirements.
- E. In areas where vegetation must be removed but no construction will occur other than pervious paving, remove vegetation with minimum disturbance of the subsoil.
- F. Vegetation Removed: Do not burn, bury, landfill, or leave on site, except as indicated.
  - 1. Existing Stumps: Treat as specified for other vegetation removed; remove stumps and roots to depth of 18 inches.
  - 2. Fill holes left by removal of stumps and roots, using suitable fill material, with top surface neat in appearance and smooth enough not to constitute a hazard to pedestrians. At areas of new paving above, fill area with same base material specified for paving.

- G. Dead Wood: Remove all dead trees (standing or down), limbs, and dry brush on entire site; treat as specified for vegetation removed.
- H. Restoration: If vegetation outside removal limits or within specified protective fences is damaged or destroyed due to subsequent construction operations, replace at no cost to Owner.

**3.04 DEBRIS**

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

**END OF SECTION**

**SECTION 31 23 01**  
**EXCAVATING, FILLING AND GRADING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. The work of excavating, filling, and grading includes, but is not necessarily limited to:
  - 1. Excavating for footings and foundations;
  - 2. Filling and backfilling to attain indicated grades;
  - 3. Trenching and trench backfilling;
  - 4. Rough and finish grading of the site;
- B. Furnishing and installing granular cushion under concrete slabs on grade.

**1.02 RELATED REQUIREMENTS**

- A. Section 02 41 13.13 - Pavement Removal.
- B. Section 31 25 00 - Soil Erosion and Sedimentation Control.
- C. Section 32 13 13 - Concrete Paving.
- D. Section 32 15 00 - Aggregate Surface.

**1.03 REFERENCES**

- A. Density Control Handbook, Michigan Department of Transportation.
- B. 2020 Michigan Department of Transportation Standard Specifications for Construction.

**1.04 QUALITY ASSURANCE/QUALITY CONTROL**

- A. Soil Density Testing
  - 1. Maximum Density of Granular Soils (loss by washing < 15%) and Aggregate
    - a. The maximum density will be determined by the One Point Michigan Cone Test, as described in the Michigan Department of Transportation Density Control Handbook.
  - 2. Maximum Density of Cohesive Soils (loss by washing > 15%)
    - a. The maximum density will be determined by the One Point T-99 Test, as described in the Michigan Department of Transportation Density Control Handbook.
  - 3. Density of In-Place Soils or Aggregate
    - a. The in-place density of soils or aggregate will be determined by the Density In-Place (Nuclear) Test, as described in the Michigan Department of Transportation Density Control Handbook.
    - b. Job Conditions
- B. Dust Control
  - 1. Dust caused by the Contractor's operations during performance of the work or resulting from the condition in which the Contractor leaves the site, shall be controlled by the Contractor. The Contractor shall use all means necessary to control dust on and near the work zone and all offsite borrow areas.
  - 2. All surfaces shall be thoroughly moistened as required to prevent dust from being a nuisance to the public, neighbors, and concurrent performance of other work on the site.
- C. Protection
  - 1. The Contractor shall use all means necessary to protect all materials before, during, and after installation and to protect all objects designated to remain.
  - 2. In the event of damage, the Contractor shall immediately make all repairs and replacements necessary to the approval of the Design Professional and at no additional cost to the Owner.
- D. Safety
  - 1. The Contractor is responsible for conducting operations in a safe and orderly manner and in conformance with MIOSHA P.A. 154.
- E. Permits
  - 1. Unless otherwise provided, the Contractor is responsible to obtain and comply with permits required under Parts 31 and 91 of Michigan PA 451 of 1994 (Natural Resources and Environmental Protection Act) and any local ordinances.

## **PART 2 PRODUCTS**

### **2.01 FILL MATERIAL - GENERAL**

- A. All fill material shall be subject to the approval of the Design Professional.
- B. For approval of fill material, notify the Design Professional at least four working days in advance of intention to import material, designate the proposed borrow area, and permit the Design Professional to sample as necessary from the borrow area for the purpose of making acceptance tests to prove the quality of the material.

### **2.02 FILL, TRENCH AND STRUCTURAL BACKFILL MATERIAL**

- A. Fill material, unless specified otherwise, shall be soil or soil-rock mixture which is free from organic matter and other deleterious substance. It shall contain no rocks or lumps over six inches in greatest dimension and not more than fifteen percent of the rocks or lumps shall be larger than 2 1/2 inches in greatest dimension.
- B. Fill material obtained from offsite sources shall meet the requirements of the preceding paragraph and additionally shall be predominantly granular with a maximum particle size of two inches and a plasticity index of twelve or less.
- C. Fill material placed within two feet horizontally of the base of building foundations and/or slabs shall have a plasticity index of 15 or less.

### **2.03 SAND**

- A. Sand shall meet the requirements of Granular Material Class III, as specified in the 2020 Michigan Department of Transportation Standard Specifications for Construction.

### **2.04 GRANULAR CUSHION**

- A. Granular cushion under slabs shall be clean mineral aggregate with particle size grading within the following limits:
  - 1. Passing the one inch mesh: 100%.
  - 2. Passing the number four sieve: Not more than 5%.
  - 3. Passing the number 200 sieve: Not more than 1%.

### **2.05 SAND FOR BACKFILL**

- A. Sand shall meet the requirements of Granular Material Class III, as specified in the 2020 Michigan Department of Transportation Standard Specifications for Construction.

### **2.06 STONE FOR PIPE BEDDING**

- A. Stone shall meet the requirements of Series 6A aggregate, as specified in the 2020 Michigan Department of Transportation Standard Specifications for Construction.

### **2.07 OTHER MATERIALS**

- A. All other materials not specifically described but required for a complete and proper installation, shall be as selected by the Contractor subject to the approval of the Design Professional.

## **PART 3 EXECUTION**

### **3.01 GENERAL**

- A. Prior to all work of this section, the Contractor shall become thoroughly familiar with the site, the site conditions, and all portions of the work falling within this Section. The Contractor shall not allow or cause any of the work performed or installed to be covered up or enclosed by work of this Section prior to all required inspections, tests, and approvals. Should any of the work be so enclosed or covered up before it has been approved, the Contractor shall uncover all such work at no additional cost to the Owner. After the work has been completely tested, inspected, and approved, the Contractor shall make all repairs and replacements necessary to restore the work to the condition in which it was found at the time of uncovering, all at no additional cost to the Owner.
- B. The Contractor shall excavate ahead of the proposed utility installation to expose any existing buried utilities. If existing utility grades conflict with the proposed utility grade, the proposed utility grade may be adjusted by the Design Professional if necessary, to miss the existing utility grade at no additional expense to the contract.

**3.02 EXCAVATING**

- A. Where depressions result from, or have resulted from, the removal of surface or subsurface obstructions, the Contractor shall open the depression and remove all debris and soft material as directed by the Design Professional.
- B. The Contractor shall excavate to the grades shown on the drawings. Where excavation grades are not shown on the drawings, excavation shall be completed as required to accommodate the installation.
- C. All over-excavated areas shall be backfilled and compacted, and at no additional cost to the Owner.

**3.03 PREPARATION OF SUBGRADE**

- A. After the site has been cleared, stripped, and excavated to within six inches of the specified depths for recompaction; the exposed surface shall be scarified to a minimum depth of six inches, thoroughly moisture-conditioned, and compacted to the requirements specified for fill below.
- B. All ruts, hummocks, and other uneven surfaces shall be removed by surface grading prior to placement of fill.

**3.04 EXCESS WATER CONTROL**

- A. Fill material shall not be placed, spread or rolled during unfavorable weather conditions. Operations shall not resume until moisture content and fill density are satisfactory to the Design Professional. Berms or channels shall be provided to prevent flooding of subgrade. All water collecting in depressions shall be promptly removed.
- B. Where soil has been softened or eroded by flooding or placement during unfavorable weather, all damaged areas shall be removed and compacted as specified for fill and compaction below.
- C. The Contractor shall provide suitable means and equipment to maintain excavations and other parts of the work free from water.
- D. Dewatering means shall provide dry excavations and the preservation of the final lines and grades of bottoms of excavations.

**3.05 FILL AND COMPACTION**

- A. After subgrade compaction has been approved by the Design Professional, the Contractor shall place approved fill material in layers not exceeding ten inches in uncompacted thickness.
- B. The fill material shall be watered or aerated as necessary, and thoroughly mix to obtain a moisture content which will permit proper compaction.
- C. Each soil layer shall be compacted to at least the specified minimum degree. The filling and compaction process shall be repeated until plan grade is attained.
- D. Compaction Requirements:
  - 1. Unless otherwise specified on the drawings or in other sections of the specifications, fill and backfill shall be placed in eight inch lifts and each lift shall be compacted to not less than the following percentages of the maximum density.

BACKFILL/FILL TYPE	PCT. OF MAXIMUM DENSITY REQUIRED
Granular backfill/fill within the influence of pavements, structures or utilities	95%
Granular backfill/fill not within the influence of pavements, structures or utilities	90%
Cohesive backfill/fill not within the influence of pavements, structures or utilities	90%

- 2. For the purpose of the preceding table; within the influence of pavements, structures, or utilities is considered as being within the one on one influence of the bearing plane of the item.
- 3. Compaction by jetting will not be permitted unless specifically authorized by the Design Professional.

**3.06 GRADING**

- A. Except as otherwise directed by the Design Professional, the Contractor shall perform all rough and finish grading required to attain the elevations shown on the drawings.



- B. Tolerances for grading shall be as follows:
  - 1. Rough grade:
    - a. Building, roads, and parking areas: Plus or minus 0.1 foot
    - b. Landscaped areas: Plus or minus 0.25 feet
  - 2. Finish grade:
    - a. Granular cushion under concrete slabs: Plus or minus 0.05 foot
    - b. Parking areas: Plus or minus 0.03 foot
    - c. Landscaped areas: Plus or minus 0.10 foot
- C. After grading is completed and has been accepted by the Design Professional, the Contractor shall permit no further excavating, filling, or grading.
- D. The Contractor shall use all means necessary to prevent erosion of freshly graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.

### **3.07 EXCAVATION FOR FOOTINGS**

- A. Earth surfaces upon which footings will be placed shall be compacted in accordance with the compaction requirements established in this section of these specifications.
- B. The Contractor shall verify that all compaction is complete and approved prior to excavating for footings.
- C. The Contractor shall excavate to the required lines and grades. The bottom of trenches shall be cut level and all loose soil shall be removed. Where soft spots are encountered, unsuitable materials shall be removed and replaced with flowable fill at no additional cost to the Owner.

### **3.08 PLACING GRANULAR CUSHION**

- A. The Contractor shall carefully place the specified granular cushion in areas to receive concrete slabs on grade, uniformly attaining the thickness indicated on the drawings, and providing all required transition planes.

### **3.09 TRENCHING**

- A. The Contractor shall perform all trenching required for the installation of items where the trenching is not specifically described in other sections of these specifications.
- B. All trenches shall be open construction with sufficient width to provide free working space at both sides of the trench and around the installed item as required for pipelaying, backfilling, and compacting.
- C. Trenching shall be completed as required to provide the elevations shown on the drawings. Where elevations are not shown on the drawings, trench to sufficient depth to give a minimum of 18 inches of fill above the top of the pipe, measured from the adjacent finished grade.
- D. Where trench excavation is inadvertently carried below proper elevations, the over-excavated area shall be backfilled with material approved by the Design Professional, and then compacted to provide a firm and unyielding subgrade and/or foundation to the approval of the Design Professional and at no additional cost to the Owner.
- E. The Contractor shall properly support all trenches in accordance with all applicable rules and regulations.
- F. The Contractor shall brace, sheet, and support trench walls in such a manner that they will be safe and that the ground alongside the excavation will not slide or settle, and that all existing improvements of every kind, whether on public or private property, will be fully protected from damage.
- G. In the event of damage to such improvements, the Contractor shall immediately make all repairs and replacements necessary to the approval of the Design Professional and at no additional cost to the Owner.
- H. Bracing, sheeting, and shoring shall be constructed so as to not place stress on any portion of the completed work until the general construction thereof has proceeded far enough to provide sufficient strength. The Contractor shall exercise care in the drawing and removal of sheeting, shoring, bracing, and timbering to prevent collapse and caving of the excavation faces being supported.
- I. Trenched material shall be stockpiled in a manner to prevent water running into the excavations. Surface drainage shall not be obstructed. A means shall be provided whereby storm and waste-waters are diverted into existing gutters, other surface drains, or temporary drains.

### **3.10 FOUNDATION FOR PIPES**

- A. Trench bottoms shall be graded to provide a smooth, firm, and stable foundation free from rock points throughout the length of the pipe.
- B. A minimum of four inches of sand or stone bedding shall be placed in the bottom of the trench.
- C. In areas where soft, unstable materials are encountered at the surface where the bedding is to be placed, the unstable material shall be removed and replaced with material approved by the Design Professional. The area shall be undercut to a sufficient depth to develop a firm foundation for the item being installed. Over excavation and replacement of material shall be the responsibility of the Contractor and shall be at no additional cost to the Owner.
- D. At each joint in pipe, the bottom of the trench shall be recessed as required to relieve the bell of the pipe of all load and to ensure continuous bearing of the pipe barrel on the firm foundation.
- E. The pipe subgrade shall be shaped to fit the bottom of the trench to the pipe shape.

### **3.11 BEDDING FOR PIPES**

- A. The specified bedding shall be placed in the trench, simultaneously on each side of the pipe for the full width of the trench, to a depth of at least 12 inches over the outside diameter of the pipe barrel.
- B. The bedding material shall be compacted after placing along both sides of the pipe.
- C. Firm bedding support on the underside of the pipe and fittings shall be provided for the full length of the pipe.

### **3.12 BACKFILL FOR PIPES**

- A. After the pipe has been thoroughly bedded and covered, suitable excavated material shall be placed in uniform lifts of not more than ten inches in uncompacted thickness, and then compacted as specified in this section. The spreading and compacting procedure shall be repeated until the adjacent grade level is attained. Backfill material shall be sand when in the influence of structures, pavement, or utilities.

### **3.13 MISCELLANEOUS PIPE REPAIR**

- A. When an existing sewer pipe, drain pipe, field tile, or other existing pipe is damaged as a result of construction activities and is not designated for removal or abandonment on the plans or by the Design Professional, it shall be repaired by the Contractor.
- B. The section of damaged pipe shall be removed to existing joints or to sawed joints where the existing pipe is sound and undamaged. A length of new pipe of the same size as the original pipe shall be furnished and installed to replace the section of pipe removed. The new pipe may be any one of the following materials:
  - 1. Same material, class or thicknesses, as the original pipe.
  - 2. PVC Schedule 40, for pipes 8 inches or less in diameter.
  - 3. PVC SDR 26, for pipes 8 inches or greater in diameter.
  - 4. Other pipe material approved by the Design Professional.
- C. Each end of the new section of pipe shall be connected to the remaining sections of existing pipe using a rubber gasketed sleeve, suitable for the pipe materials and sizes being joined, to provide a watertight connection. The repaired section of pipe shall be firmly bedded in sand or stone and compacted accordingly.

**END OF SECTION**



**SECTION 31 25 00**  
**SOIL EROSION AND SEDIMENTATION CONTROL**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Temporary and permanent measures for soil erosion and sedimentation prevention and control.

**1.02 SYSTEM DESCRIPTION**

- A. Methods of control are identified on Drawings by numbers corresponding to the Michigan unified keying system for soil erosion and sedimentation control.
- B. The notation 't' or 'p' following the number indicates whether the control measure is temporary or permanent.
- C. Additional control measures shall be employed as required by site conditions and applicable governing agencies having project jurisdiction.

**1.03 QUALITY ASSURANCE**

- A. Perform and maintain Work in accordance with the Soil Erosion and Sedimentation Control Act 347 of 1972, any amendments to, and corresponding rules of the Michigan Water Resources Commission.

**1.04 REGULATORY REQUIREMENTS**

- A. Contractor shall obtain all permits and pay all fees for plan review and inspection as required by applicable governing agencies having project jurisdiction.
- B. Detailed soil erosion control plan is required for all projects that are within 500 feet of any water course, or are one (1) acre or more in area.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Permanent Measures: In accordance with applicable Section for specified material.
- B. Temporary Measures: In accordance with Standards and Specifications for Soil Erosion and Sediment Control published by the Association of Soil Conservation Districts.

**PART 3 EXECUTION**

**3.01 EXAMINATION AND PREPARATION**

- A. Identify required lines, levels, contours and datum.
- B. Identify and flag known utility locations. Notify utility company to remove or relocate utilities as required.
- C. Maintain and protect existing utilities to remain.

**3.02 PROTECTION OF ADJACENT WORK**

- A. Protect adjacent structures and property which may be damaged by execution of Work.
- B. Protect existing trees, shrubs, landscaping and lawn areas designated to remain.

**3.03 INSTALLATION AND MAINTENANCE**

- A. Construct soil erosion and sedimentation control measures in accordance with approved plans and requirements of applicable governing public agency.
- B. Schedule planned control measures with construction operations to limit the area of any disturbed land to the shortest possible period of exposure.
- C. Conduct all earth changes so as to effectively reduce accelerated soil erosion and resulting sedimentation.
- D. Remove all sediment from runoff water before it leaves the site.
- E. Inspect, maintain and repair temporary control measures until permanent control measures are implemented.
- F. Maintain permanent control measures until final acceptance by Owner.

**3.04 SOIL EROSION AND SEDIMENTATION CONTROL MEASURES**

A. Permanent and minimum temporary control measures as scheduled on Drawings.

**END OF SECTION**

**SECTION 32 13 13**  
**CONCRETE PAVING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Concrete sidewalks, with and without integral curbs, and miscellaneous concrete paving.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 30 00 - Cast-in-Place Concrete.
- B. Section 31 23 01 - Excavation, Filling and Grading.

**1.03 REFERENCE STANDARDS**

- A. ACI PRI-211.1 - Selecting Proportions for Normal-Density and High-Density Concrete – Guide; 2022.
- B. ACI PRI-304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).
- C. ACI 305 - Guide to Hot Weather Concreting; 2020.
- D. ACI 306 - Guide to Cold Weather Concreting; 2016.
- E. ACI SPEC 301 - Specifications for Concrete Construction; 2020.
- F. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2022.
- G. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2022.
- H. ASTM C33/C33M- Standard Specification for Concrete Aggregates; 2018.
- I. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2021.
- J. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2023.
- K. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
- L. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2016.
- M. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a (Reapproved 2016).
- N. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2019.
- O. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2019, with Editorial Revision (2022).

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements, for submittal procedures.
- B. Product Data: Provide data on joint filler, admixtures, curing compound, and detectable warning plate.
- C. Mix Design Data: Indicate pavement thickness, designed concrete strength, reinforcement, and proposed materials and quantities.
- D. Obtain cementitious materials from same source throughout.

**PART 2 PRODUCTS**

**2.01 FORM MATERIALS**

- A. Form Materials: Conform to ACI SPEC-301.

**2.02 REINFORCEMENT**

- A. Reinforcing Steel: ASTM A615/A615M Grade 80 (80,000 psi); deformed billet steel bars; unfinished finish.
- B. Steel Welded Wire Reinforcement: Plain type, ASTM A1064/A1064M; in flat sheets; unfinished.

**2.03 CONCRETE MATERIALS**

- A. Cement: ASTM C150/C150M Normal - Type I Portland cement, gray color.

- B. Fine and Coarse Mix Aggregates: ASTM C33/C33M.
- C. Water: Clean, and not detrimental to concrete.
- D. Air-Entraining Admixtures: ASTM C260/C260M.
- E. Chemical Admixtures: ASTM C494/C494M, Type A - Water Reducing, Type C - Accelerating, and Type G - Water Reducing, High Range and Retarding.
  1. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

#### **2.04 ACCESSORIES**

- A. Curing Compound: ASTM C309, Type 1, Class A.; Water emulsion, resin base type, white pigmented, equivalent to "1200-WHITE" manufactured by W.R. Meadows, Inc.
- B. Surface Retarder: medium viscosity, liquid type, color as selected from manufacturer's standard range. Provide product equivalent to "RHEOFINISH 288FD" manufactured by Degussa.
- C. Joint Sealer: Single component, self-leveling, polyurethane sealant.
  1. Material: ASTM C920, Type S, Grade P, Class 25, use T, NT, M, O G, I.
  2. Color: Limestone.
  3. Application Temperature: 40 to 100 degrees F.
  4. Product: "SIKAFLEX-1c SL" manufactured by Sika Corporation: [www.sikaconstruction.com](http://www.sikaconstruction.com).
  5. Substitutions: Products manufactured by others that meet or exceed this specification may be considered if the request is submitted within the parameters outlined in the bidding documents.

#### **2.05 CONCRETE MIX DESIGN**

- A. Proportioning Normal Weight Concrete: Comply with ACI PRC-211.1 recommendations.
- B. Admixtures: Add acceptable admixtures as recommended in ACI PRC-211.1 and at rates recommended by manufacturer.
- C. Concrete Properties:
  1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,500 psi.
  2. Water-Cement Ratio: Maximum 45 percent by weight.
  3. Total Air Content: 6 percent, determined in accordance with ASTM C173/C73M.
  4. Maximum Slump: 3 inches.
  5. Maximum Aggregate Size: 3/4 inch.

#### **2.06 MIXING**

- A. Transit Mixers: Comply with ASTM C94/C94M.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.
- B. Verify gradients and elevations of base are correct.

#### **3.02 SUBBASE**

- A. Prepare subbase in accordance with State of Michigan Highways standards.

#### **3.03 PREPARATION**

- A. Moisten base to minimize absorption of water from fresh concrete.
- B. Coat surfaces of manhole frames with oil to prevent bond with concrete pavement.

#### **3.04 FORMING**

- A. Place and secure forms to correct location, dimension, profile, and gradient.
- B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.
- C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

#### **3.05 REINFORCEMENT**

- A. Place reinforcement as indicated.

### **3.06 COLD AND HOT WEATHER CONCRETING**

- A. Follow recommendations of ACI PRC-305R when concreting during hot weather.
- B. Follow recommendations of ACI PRC-306R when concreting during cold weather.
- C. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

### **3.07 PLACING CONCRETE**

- A. Place concrete in accordance with ACI PRC-304R.
- B. Do not place concrete when base surface is wet.
- C. Ensure reinforcement, inserts, embedded parts, formed joints are not disturbed during concrete placement.
- D. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.
- E. Place concrete to pattern indicated.

### **3.08 JOINTS**

- A. Align curb and sidewalk joints.
- B. Place 1/2 inch wide expansion joints at 20 foot intervals and to separate paving from vertical surfaces and other components and in pattern indicated.
  - 1. Form joints with joint filler extending from bottom of pavement to within 1/2 inch of finished surface.
  - 2. Secure to resist movement by wet concrete.
- C. Install joint sealant when joints are at mid-range of anticipated movement.
  - 1. Use backer rod or bond breaker tape to prevent bond at base of joint.
- D. Provide rotary machine tooled & scored joints utilizing a blade similar to an "XL 6 V25" by SOFF CUT INTERNATIONAL, Inc. or one reviewed by the Design Professional. Joints shall occur at intervals equal to width of sidewalk or slab unless indicated otherwise on Drawings.
- E. Provide scored joints: As shown on Drawings.

### **3.09 FINISHING**

- A. Area Paving: Light broom, texture perpendicular to pavement direction.
- B. Sidewalk Paving: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius.
- C. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

### **3.10 TOLERANCES**

- A. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.
- B. Maximum Variation from True Position: 1/4 inch.

### **3.11 FIELD QUALITY CONTROL**

- A. An independent testing agency will perform field quality control tests, as specified in Construction Manager's General Requirements.
  - 1. Provide free access to concrete operations at project site and cooperate with appointed firm.
  - 2. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
  - 3. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.
- B. Compressive Strength Tests: ASTM C39/C39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cu yd or less of each class of concrete placed.
  - 1. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
  - 2. Perform one slump test for each set of test cylinders taken.
- C. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.



### **3.12 PROTECTION**

- A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.
- B. Do not permit pedestrian traffic over pavement for 7 days minimum after finishing.

**END OF SECTION**

**SECTION 32 15 00**  
**AGGREGATE SURFACE**

**PART 1 GENERAL**

**1.01 WORK INCLUDED**

- A. This specification describes the requirements for constructing an aggregate surface for parking areas.

**1.02 RELATED REQUIREMENTS**

- A. Section 31 23 01 - Excavating, Filling and Grading.

**1.03 REFERENCES**

- A. Density Control Handbook, Michigan Department of Transportation.  
B. 2020 Michigan Department of Transportation Standard Specifications for Construction.

**1.04 QUALITY ASSURANCE/QUALITY CONTROL**

- A. Density
1. Maximum Density of Granular Soils (loss by washing < 15%) and Aggregate
    - a. The maximum density will be determined by the One Point Michigan Cone Test, as described in the Michigan Department of Transportation Density Control Handbook.
  2. Maximum Density of Cohesive Soils (loss by washing > 15%)
    - a. The maximum density will be determined by the One Point T-99 Test, as described in the Michigan Department of Transportation Density Control Handbook.
  3. Density of In-Place Soils or Aggregate
    - a. The in-place density of soils or aggregate will be determined by the Density In-Place (Nuclear) Test, as described in the Michigan Department of Transportation Density Control Handbook.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Aggregate shall meet the requirements of Series 22A aggregate (100% crushed limestone), as described in the 2020 Michigan Department of Transportation Standard Specifications for Construction, unless otherwise noted on the plans, proposal or specifications.

**PART 3 EXECUTION**

**3.01 SUBGRADE PREPARATION**

- A. Aggregate shall not be placed until the subgrade is properly prepared. The subgrade shall be graded to the required elevations and shape for placement of the specified aggregate thickness. The subgrade shall be compacted to at least 95 percent of its maximum unit weight. Soft or yielding spots shall be excavated and replaced with sound material.

**3.02 PLACEMENT**

- A. Aggregate shall be placed in a manner that provides a uniform cross section of the specified thickness and the required surface grades. The edges of the area of aggregate surface shall straight and uniform.  
B. Aggregate shall be placed in lifts not exceeding eight inches (loose measure) and compacted to at least 95 percent of its maximum unit weight.

**END OF SECTION**



**SECTION 32 31 13**  
**CHAIN LINK FENCES AND GATES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Furnish and install complete fencing system for general perimeter fencing.
- B. Furnish and install posts and accessories.
- C. Excavation for post footings
- D. Concrete footing for posts
- E. Furnish and install fence fabric, posts, rails as required.
- F. Furnish and install manual gates and related hardware.
- G. Vinyl coated fencing.
- H. Furnish double swing gates.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 30 00 - Cast-in-Place Concrete: Concrete anchorage for posts.

**1.03 REFERENCE STANDARDS**

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2023.
- B. ASTM A392 - Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric 2011a (Reapproved 2022).
- C. ASTM F567 - Standard Practice for Installation of Chain-Link Fence 2023.
- D. ASTM F668 – Standard Specification for Polyvinyl Chloride (PVC), Polyolefin and Other Polymer-Coated Steel Chain Link Fence Fabric; 2017 (Reapproved 2022).
- E. ASTM F1043 - Standard Specification for Strength and Protective Coatings of Metal Industrial Chain Link Fence Framework 2018 (Reapproved 2022).
- F. ASTM F1083 - Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures 2018 (Reapproved 2022).
- G. CLFMI CLF-SFR0111 - Security Fence Recommendations; 2014.
- H. CLFMI WLG2445 - Wind Load Guide for the Selection of Line Post Spacing; 2023.

**1.04 SUBMITTALS**

- A. See Construction Manager's General Requirements for submittal procedures.
- B. Product Data: Provide data on fabric, posts, accessories, fittings, hardware, and gates.
- C. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, and schedule of components showing typical fabric pattern, fence and gate construction.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

**1.06 WARRANTY**

- A. The Contractor and any Sub-contractors hereunder guarantee their respective work against defective materials or workmanship for a period of two (2) years from the date of Substantial Completion and an acceptance by the Owner.
- B. All coated fencing products shall be warranted for 25 years against color fading.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. General Perimeter Fencing:
  - 1. Chain Link Fabric: The chain link fabric shall be 2" mesh, 9 gauge. Top and bottom selvage shall have knuckle finish. Fabric shall be free from barbs, icicles or other projections resulting from the

- galvanizing process, and any fabric not free thereof will be rejected even though erected. Bottom of fence fabric shall be 3/4" plus or minus 1/4" above grade. Fabric shall conform to:
- a. Standard Specifications for Zinc Coated Steel Chain Link Fence Fabric Galvanized After Weaving, Class I, ASTM Designation A392.
  2. Line Posts: Line posts shall not be splice welded in such a manner that the weld appears above the grade line. Posts shall have an outside diameter of 2-1/2" and weight of not less than (2.281) lbs. per lineal foot. The chain link fabric shall be tied to the line posts with No. 9 gauge annealed aluminum tie wire.
  3. Terminal: Terminal posts shall not be splice welded in such a manner that the weld appears above the grade line. End, corner and gate posts shall have an outside diameter of 3" and weight of not less than 3.117 lbs. per lineal foot.
    - 1) Standard Specifications for Black and Hot-Dipped Zinc Coated (Galvanized) Welded and Seamless Pipe for Ordinary Uses, ASTM Designation A120.
  4. Terminal and Gate Post Fittings: Terminal and gate post fittings including tension bands, brace connections and top rail connections shall be No. 11 gauge. Hot-dipped iron or pot metal fittings will be accepted as equals or substitutes. Top rail, brace and truss bands shall not be less than one inch (1") wide, secured by five-sixteenths inch (5/16") diameter carriage bolts and nuts.
  5. Top Rail: Top rail shall meet the same specifications of quality as line and terminal posts. The top rail shall have an outside diameter of one and five-eighths inches (1-5/8") and weigh two and twenty-seven one-hundredths (2.27) lbs. per lineal foot. An outside sleeve-type coupling measuring not less than 6" in length shall be provided at each interval of twenty feet (20'). The chain link fabric shall be tied to the top rail at intervals of twenty-four inches (24") with No. 9 gauge annealed aluminum tie wire. Rail(s) shall be securely fastened by means of suitable malleable iron or pressed steel connections.
  6. Braces and Terminal Gate and Gate Posts: Terminal and gate posts shall be strengthened and reinforced by braces meeting the same specifications of quality as line and terminal posts. Braces shall be installed midway between top rail and grade and extend from each terminal post to the first adjacent line posts. Braces shall be securely fastened to posts by heavy pressed steel connections and also be trussed from line posts back to terminal post with a three-eighths inch (3/8") round truss rod complete with tightened unit.
  7. Bottom Tension Wire: Bottom tension wire shall be No. 6 gauge galvanized steel coil tension wire, high carbon or hard drawn, ASTM Designation A-116, Class II, Galvanized or Aluminum Coated, fastened to the chain link fabric at intervals of twenty-four inches (24") with No. 11 gauge galvanized steel hog rings.
  8. Post Spacings and Settings: Line and terminal posts shall be set in concrete foundation not less than twelve inches (12") in diameter and not less than forty-two inches (42") in depth. Concrete shall attain a compressive strength of not less than three thousand five hundred (3,500) lbs. per square inch at the twenty-eighth (28th) day after pouring. Spacing of posts in the line of fence shall be uniform and no more than ten feet (10') apart.
  9. Gates: Gates shall be constructed and hung as detailed on drawings. Frames shall be constructed of pipe conforming to Standard Specifications for Black and Hot-Dipped Zinc-Coated (galvanized) Welded and Seamless Steel Pipe for Ordinary Uses, ASTM Designation A120, Single-leaf gates six feet or less in width shall have an outside diameter of 1.9" weighing 2.60 lbs. per lineal foot. Gate frames shall be welded, or alternately, shall utilize corner fittings of heavy malleable iron or pressed steel securely riveted to the frame. Fabric matching the fence fabric shall be installed in the frame by means of tension bars and hoot bolts. Frames having corner fittings shall be equipped with adjustable truss rods having a diameter of three-eighths inches (3/8"). Hinges shall be of adequate strength to support the gate and have large bearing surfaces for clamping in position. Under no conditions of use or abuse shall the hinges twist or turn under action of the gate. Gates shall be capable of being opened and closed quickly and easily by one (1) person. Gates shall be equipped with a positive latching devise that will accommodate padlocking. A plunger rod, catch and semi-automatic outer catch shall be installed on drive gates so as to secure gates in an open position. Hinges, latches and catches shall be one of the manufacturer's standard designs as selected and approved by the Design Professional.
  10. Gate Posts: Gate posts shall not be splice welded in such a manner that the weld appears above the grade line. Gate posts shall have an outside diameter of 3" and weight of not less (5.79) lbs. per lineal foot.

11. Fence Coating:
  - a. All fence components shall adhere to the specifications above.
  - b. The chain link fencing and all accessories, including posts, fittings and rails, shall be factory-finished with a Polyolefin elastomer coating, not less than 10 mil thickness (chain link fabric shall have a minimum 6 mil coating), thermally fused to the zinc coated steel products.
  - c. Color: Black.
12. Accessories:
  - a. Tension Wire: 6 gage thick steel, single strand.
  - b. Caps: Cast steel galvanized; sized to post diameter, set screw retainer.
  - c. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel.
  - d. Hardware for Double Swinging Gates: 180 degree hinges, 2 for gates up to 60 inches high, 3 for taller gates; drop bolt on inactive leaf engaging socket stop set in concrete, active leaf latched to inactive leaf preventing raising of drop bolt, padlock hasp; keepers to hold gate in fully open position.

B. Concrete: Type specified in Section 03 30 00.

## 2.02 ACCESSORIES

- A. Caps: Cast steel galvanized; sized to post diameter, set screw retainer.
- B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel.

## 2.03 FINISHES

- A. Components (Other than Fabric): Galvanized in accordance with ASTM A123/A123M, at 1.7 oz/sq ft.
- B. Hardware: Hot-dip galvanized to weight required by ASTM A153/A153M.
- C. Accessories: Same finish as framing.

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. Do not construct fence until gravel paving is complete.
- B. Install framework, fabric, accessories and gates in accordance with ASTM F567.
- C. Posts shall be set to the lines shown on the drawings, with holes drilled such that posts will be centered in the concrete bases.
  1. Holes shall be filled with concrete to 3" below grade.
  2. Concrete shall cure a minimum of 72 hours prior to installation of woven wire fabric.
  3. All posts shall be set plumb and in accordance with the following table (unless specified otherwise):
    - a. Line Post - General Fence:

Fabric Height	Post Depth	Foundation Diameter	Foundation Depth	Maximum Spacing
Up to 6'-0"	36"	12" min.	42"	10'-0"
6'-1"-12'-0"	48"	12" min.	42"	10'-0"

4. Line posts can also be pneumatically driven into the ground using the following chart:

Fabric Height	Pipe Length Below Grade	Total Post Length	NOTE: When using the pneumatically driven method, the terminal, gate and brace posts must still be installed in concrete.
8'	6'	14'	
6'	5'	11'	

- D. Set posts centered in footing, vertical in position, plumb and in line.
- E. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail one bay from end and gate posts.
- F. Provide top rail through line post tops and splice with 6 inch long rail sleeves.
- G. Place fabric on outside of posts and rails.
- H. Install center brace rail on corner gate leaves.
- I. Do not stretch fabric until concrete foundation has cured 28 days.

- J. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.
- K. Position bottom of fabric 2 inches above finished grade.
- L. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.
- M. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.
- N. Install bottom tension wire stretched taut between terminal posts.
- O. Do not attach the hinged side of gate to building wall; provide gate posts.
- P. Install gate with fabric to match fence. Install hardware.
- Q. Provide concrete center drop to footing depth and drop rod retainers at center of double gate openings.
- R. Ground fence as required.

### **3.02 TOLERANCES**

- A. Maximum Variation From Plumb: 1/4 inch.
- B. Maximum Offset From True Position: 1 inch.

### **3.03 FIELD QUALITY CONTROL**

- A. Layout: Verify that fence installation markings are accurate to design, paying attention to gate locations, underground utilities, and property lines.

### **3.04 CLEAN-UP**

- A. Remove from the site all equipment, materials, and debris resulting from construction work including this section. Leave work area neat and clean and in a condition acceptable to the Architect. All work shall be complete, ready for use, at the time of final acceptance.
- B. Clean fence with mild household detergent and clean water rinse well.

**END OF SECTION**

**SECTION 32 92 18**  
**LAWN RESTORATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Preparation of soil within disturbed lawn area, seed and fertilizer.
- B. Maintenance.

**1.02 QUALITY ASSURANCE**

- A. Hydroseeding: Company specializing in landscaping and lawn maintenance.

**1.03 MAINTENANCE SERVICE**

- A. Maintain Seeded areas immediately after placement until grass is well established and exhibits a vigorous growing condition.

**PART 2 PRODUCTS**

**2.01 GRASS MATERIALS**

- A. Seed Mixture:
  - 1. 30% Merritt Kentucky Bluegrass
  - 2. 30% Newport Kentucky Bluegrass
  - 3. 30% Pennlawn Fescue
  - 4. 10% Perennial Ryegrass

**2.02 SOIL AND SOIL ENHANCEMENT MATERIALS**

- A. Topsoil: Fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, free of subsoil, clay or impurities, plants, weeds and roots.
- B. Fertilizer (Areas receiving hydroseeding): Fifty percent of the elements derived from organic sources, of proportions necessary to eliminate any topsoil deficiencies.

**2.03 MULCH MATERIALS**

- A. Straw, hay, wood chips, wood excelsior fiber or other material is suitable. All mulch must be substantially free of noxious weed seeds and objectionable foreign material. Rotten or partially-decayed straw or hay is not acceptable. Short-stemmed straw is not acceptable for crimping purposes but should work well for tacking.
- B. Straw or hay used for mulch shall be in an air-dry condition. As a guide, any straw or hay having 10% or less of moisture will be considered air-dry. Generally, baled hay or straw coming from sheds, barns, under tarps or even interiors of stacks will be air-dry unless exposed to rain prior to shipping.

**2.04 EQUIPMENT**

- A. Equipment used in mulching operations should be specifically designed for applying or crimping mulch. Equipment of inadequate capacity, jerrybuilt, or poor design, badly worn or malfunctioning is not acceptable.
- B. Straw or hay mulch shall be applied with a mulch blower. The mulch blower is equipped with a nozzle for directional application of the mulch.
- C. A mulch tiller is used for crimping mulch. An agricultural disc is not a mulch tiller. A mulch tiller has flat, notched disks, whereas a farm disk has curved smooth disks and is designed to turn over soil. An agricultural disk should not be used for crimping mulch because it will bury the mulch rather than pressing it into the soil.

**PART 3 EXECUTION**

**3.01 PLACING TOPSOIL**

- A. Scarify seed bed areas to depth of 4 to 6 inches.
- B. Remove all stones, weeds, brush, roots and other debris greater than one (1) inch in size.
- C. Spread 2 inches of approved topsoil in areas where lawn restoration is required and disc into subsoil thoroughly. Uniformly spread additional 2 inches of topsoil over seed bed area and rake smooth.



- D. Fine grade topsoil to eliminate rough, low or soft areas, and to ensure positive drainage. Bring finish grade flush with edge of surface paving, walks and curbs.
- E. Lightly compact placed topsoil.

**3.02 SEEDING**

- A. Apply seed at a rate of 5 lbs. per 1000 square feet evenly in two intersecting directions. Lightly rake and roll seed area.
- B. Immediately following seeding, apply agricultural mulch to a thickness of 1-1/2 inches and machine-crimp into soil.
- C. Apply water with a fine spray immediately after each area has been mulched.

**3.03 HYDROSEEDING**

- A. Hydroseed with a slurry mix at a rate of 1000 gallons per acre.
- B. Each 1000 gallons of slurry mix shall contain 1500 lbs. of approved cellulose fiber, 500 lbs. of an approved 12/12/12 commercial fertilizer and 220 lbs. of the specified seed mixture.
- C. Slurry mix shall be applied with a pump, rated and operated at not less than 100 gpm and not less than 100 psi. Pump shall be equipped with mechanical agitator for uniform suspension and distribution of seed, fertilizer and cellulose fibers in water.

**END OF SECTION**