



THREE RIVERS
C O R P O R A T I O N

PROJECT MANUAL

Midland County ESA Additions & Renovations

**MIDLAND,
MICHIGAN**

August 22nd, 2023

MORE THAN CONSTRUCTION

3069 Vantage Point Drive, P.O. Box 1467, Midland, MI 48641-1467
Phone: 989.631.9726 Fax: 989.631.7402 Email: info@trccompany.com Web: www.trccompany.com

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MIDLAND COUNTY ESA-ADDITIONS & RENOVATIONS
Midland, Michigan

000115 LIST OF DRAWING SHEETS

ISSUED FOR BID 8-16-2023

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END OF SECTION 000115

General

Project Name	Midland County ESA
Project Description	Additions & Renovations
Project Address	3917 Jefferson Ave.
Project City, State Zip	Midland, MI 48640
Owner	Midland County ESA
Architect	WTA Architects
Estimator	Brett Fales
Email Address	bfales@trccompany.com
Estimate No.	01
ShareFile Email	_____@trccompany.com

Bid Information

Pre-Bid Date / Location	Tuesday August 29th, 9:30am, meet at entrance near the Gym				
Due Date	September 12, 2023	Due Time	12pm		
Delivery (Circle One)	Hand	Mail	Fax	Phone	Email

<u>Addendum Number</u>	<u>Date</u>	<u>Description</u>
------------------------	-------------	--------------------

Completion Date	_____			
Prevailing Wage	Yes	No		
Bid Bond	Yes	No		
Performance Bond	Yes	No		
Liquidated Damages	Yes	No	Amount	_____
Incentive Clause	Yes	No	Amount	_____
Allowances	Yes	No		
Alternates	Yes	No		
Unit Prices/Rates	Yes	No		

Insurance

TRC Insurance Check Limits	Y / N
Builders Risk Insurance	By Owner / By TRC
Special Insurance Requirements	

Permits

General Building	TRC
Soil Erosion & Sediment Control	Y / N

Testing

Y / N

Site

Temporary Fence	By Owner / By TRC
Temporary Road/Parking	By Owner / By TRC
Temporary Heat	By Owner / By TRC
Temporary Electric	By Owner / By TRC
Temporary Water	By Owner / By TRC



THREE RIVERS
C O R P O R A T I O N

INVITATION TO BID

PROJECT: Midland County ESA - Additions & Renovations

DUE DATE: September 12, 2023 at 12pm

PRE-BID MEETING: Tuesday August 29th, 9:30am, meet at entrance near the Gym

Please include in your bid all necessary materials, labor, equipment, tools, taxes, and fees required to complete your trade work per the plans and specifications. This may include, but is not limited to, cut and patch, tap fees, permits, dumpster, clean up and all incidentals.

Site Location: Midland County ESA
3917 Jefferson Ave.
Midland, MI 48640

Estimator: Brett Fales
Phone: (989) 631-9726
Fax: (989) 631-7402
Email: bfales@trccompany.com

Architect: WTA Architects

Bid Documents:

1. Bid documents will be distributed through Procore by Construction Manager and posted publicly to Builder's Exchange and CAM Network.
2. Contact Construction Manager, bfales@trccompany.com, to be added to bid list through Procore.

Bid Categories:

- | | |
|-----------------------------|------------------------------|
| 1 Testing Services | 15 Joint Sealants |
| 2 Construction Staking | 16 Glass-Glazing |
| 3 Earthwork | 17 Acoustical |
| 4 Asphalt | 18 Flooring |
| 5 Landscaping | 19 Painting |
| 6 Fencing | 20 High Performance Coatings |
| 7 Selective Demolition | 21 Visual Display Units |
| 8 Concrete | 22 Signage |
| 9 Masonry | 23 Lockers |
| 10 Masonry Restoration | 24 Casework |
| 11 Structural & Misc. Steel | 25 Fire Suppression |
| 12 General Trades | 26 Combined Mechanical |
| 13 Roofing | 27 Electrical |
| 14 Metal Wall Panels | |

Please inform us of your intent to bid this project by completing the below information and faxing back to (989) 631-7402 or emailing bfales@trccompany.com.

_____ YES, we will be bidding.

_____ NO, we will not be bidding.

Company Name: _____

Contact Name: _____

Contact Phone #: _____

Contact Email: _____

Bid Package(s): _____

MORE THAN CONSTRUCTION

Additions & Renovations - Book 1		
BP 01 - Concrete		1
BP 02 - Precast		2
BP 03 - Structural Steel		3
BP 04 - Waterproofing		4
BP 05 - Trash Chute		5
BP 06 - Caissons		6
BP 07 - Soldier Piles		7
		8
		9
		10
		11
		12
		13
		14
		15
		16
		17
		18
		19
		20
		21
		22
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		27
		28
		29
		30
		31
9/12/2023		

Midland County ESA - Book 2		
Acoustical		1
Store-Front Automatic Doors Tune-Up		2
Overhead Door & Dock Leveler Equipment		3
EIFS		4
Flooring - Combined Install		5
Flooring - Carpet, PVC, Rubber		6
DuraTuff / Sanitary Cove Base		7
Tile Flooring & Grout - Install		8
Tile - Material		9
Epoxy Resinous Flooring		10
Floor Polish & Joint Repair		11
Slurry Removal		12
Painting		13
Bathroom Accessories - Material		14
Fire Suppression		15
Plumbing		16
Plumbing Fixtures Bathrooms - Material		17
Refrigeration		18
EMS		19
HVAC		20
Air Curtains - Material		21
Electrical		22
Light Fixtures		23
Ceiling Cleaning		24
PVC Plank Flooring		25
		26
		27
		28
		29
		30
		31
9/12/2023		

DOCUMENT 002113 - INSTRUCTIONS TO BIDDERS

1.1 PROJECT INFORMATION

- A. Project Identification: Midland County ESA-Additions & Renovations
3917 Jefferson Avenue
Midland, MI 48640
- B. Owner: Midland County ESA
3917 Jefferson Avenue
Midland, MI 48640
- C. Architect: WTA Architects
100 S Jefferson Ave, Suite 601
Saginaw, MI 48607
Phone: (989) 752-8107
- D. Construction Manager Three Rivers Corporation
3069 Vantage Point Drive
Midland, MI 48641-1467
Phone: (989) 631-9726
Fax: (989) 631-7402
Senior Estimator: Brett Fales
Senior Project Manager: Thom Laney

1.2 BID DESCRIPTION

- A. Three Rivers Corporation is seeking bids for
1. Midland County ESA-Additions & Renovations
 2. Documents available by contacting Construction Manager for direct invite through Procore, and will be publicly posted to plan rooms i.e. Builder's Exchange & CAM.
 3. Construction Manager will receive bids until the bid time and date at the location given below.

BY MAIL, EMAIL, PROCORE, FAX

Bid Date: September 12, 2023 at 12:00 p.m. local time.

Address to: Brett Fales
bfales@trccompany.com
Three Rivers Corporation
3069 Vantage Point Dr.
Midland, MI 48642
Fax: 989-631-7402

B. SUBMISSION OF BIDS

One Copy of the bid will be sent to the following:

Bids will be accepted by **email, through Procore submission, fax, and hand delivery** to Construction Manager's office address below.

Attn: Brett Fales
bfales@trccompany.com
3069 Vantage Pt. Dr.
Midland, MI 48642
Fax: 989.631.7402

Project Name:

Bid Package #1 Category Name

Submitted by: Company Name

1. Bidders shall complete a single bid form for each bid category the bidder is submitting a bid for. Do not combine bids for multiple bid categories on one bid form.
2. If Bidder submits on more than one Bid Category, each bid must be in its own clearly marked envelope.
3. The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.
4. Bids may be submitted by fax, email, or through Procore. The Bidder shall assume full responsibility for delivery.
5. Bids will be opened privately.

1.3 PREBID MEETING

- A. Tuesday, August 29th, 2023 9:30AM

1.4 BIDDING DOCUMENTS

A. COPIES

1. Bidders may obtain complete sets of the Bidding Documents as detailed below
Contact bfales@trccompany.com to be added to official bid list and receive invite through Procore.
Documents will also be publicly posted to local plan rooms i.e. Builders Exchange & CAM.
2. Bidders shall review downloaded documents to ensure all documents were downloaded completely and correctly.
3. Bidders shall use complete sets of Bidding Documents in preparing Bids; The Bidder assumes full responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
4. The Bidding Documents are available on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

B. INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

MIDLAND COUNTY ESA-ADDITIONS & RENOVATIONS
Midland, Michigan

1. The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall at once report to the Construction Manager's errors, inconsistencies or ambiguities discovered.
2. Bidders requiring clarification or interpretation of the Bidding Documents shall make a written request which shall reach the Construction Manager at least five (5) days prior to the date for receipt of Bids.
3. Interpretations, corrections and changes of the Bidding Documents will be made by Addendum. Interpretations, corrections and changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon them.

C. SUBSTITUTIONS

1. The materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution.
2. No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Construction Manager at least ten days prior to the date for receipt of Bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the work of other contracts that incorporation of the proposed substitution would require, shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.
3. If the Architect approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.
4. No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.
5. Bidders may propose a substitution as a voluntary alternate.
6. Bids submitted with substitutions may ultimately be rejected after final evaluations of all bids are received regardless of price.

D. ADDENDA

1. Addenda may be issued at any time prior to the receipt of bids
2. Notice of addenda will be transmitted to all invited bidders and uploaded to the project bidding website
3. Each Bidder shall ascertain prior to submitting a Bid that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

1.5 BIDDER'S REPRESENTATIONS

A. The Bidder by making a Bid represents that:

1. The Bidder has read and understands the Bidding Documents and the Contract Documents, to the extent that such documentation relates to the Work for which the Bid is submitted, and for other portions of the Project, if any, being bid concurrently or presently under construction.
2. The Bid is made in compliance with the Bidding Documents.
3. The Bidder has visited the site, become familiar with local conditions under which the Work is to be performed and has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents. The Bidder has investigated all

required fees, permits, and regulatory requirements of authorities having jurisdiction and has properly included in the submitted bid the cost of such fees, permits, and requirements not otherwise indicated as provided by Owner

4. The Bid is based upon the materials, equipment and systems required by the Bidding Documents without exception.
5. Where bids are requested for bid categories the bid is for the complete bid category.

B. BIDDING PROCEDURES

1. Bids shall be submitted on the forms included with the Bidding Documents.
2. All blanks on the bid form shall be legibly executed in a non-erasable medium.
3. Sums shall be expressed in both words and figures. In case of discrepancy, the amount written in words shall govern.
4. Interlineations, alterations and erasures must be initialed by the signer of the Bid.
5. All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change."

C. PRE-BID RFI's

1. Submit all Pre-Bid RFI's in writing to Brett Fales (bfales@trccompany.com)
2. All Pre-Bid RFI's must be submitted by the end of business on Friday, September 8th, 2023
3. Pre-Bid RFI responses will be compiled in the form of an addenda and be distributed to all bidders

D. BID SECURITY

1. None required

E. MODIFICATION OR WITHDRAWAL OF BID

1. A Bid may not be modified, withdrawn or canceled by the Bidder during the stipulated time period following the time and date designated for the receipt of Bids, and each Bidder so agrees in submitting a Bid.
2. Prior to the time and date designated for receipt of Bids, a Bid submitted may be modified or withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the signature of the Bidder. Written confirmation over the signature of the Bidder shall be received, and date- and time-stamped by the receiving party on or before the date and time set for receipt of Bids. A change shall be so worded as not to reveal the amount of the original Bid.
3. Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids provided that they are then fully in conformance with these Instructions to Bidders.

1.6 CONSIDERATION OF BIDS

A. OPENING OF BIDS

1. Bids will be opened privately, results will NOT be released

B. REJECTION OF BIDS

1. The Construction Manager shall have the right to reject any or all Bids. A Bid not accompanied by data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

C. ACCEPTANCE OF BID (AWARD)

MIDLAND COUNTY ESA-ADDITIONS & RENOVATIONS
Midland, Michigan

1. It is the intent of the Construction Manager to award a Contract to the lowest qualified Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Construction Manager shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Construction Manager's judgment, is in the Owner's own best interests.
2. The Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the low Bidder on the basis of the sum of the Base Bid and Alternates accepted.

1.7 POST-BID INFORMATION

A. CONTRACTOR'S QUALIFICATION STATEMENT

1. Bidders to whom award of a Contract is under consideration shall submit to the Construction Manager, upon request, a properly executed AIA Document A305, Contractor's Qualification Statement, or other form acceptable to the Construction Manager.

B. SUBMITTALS

1. The Bidder shall within five (5) days after notification of selection for the award of a Contract, submit in writing:
 - a. A designation of the Work to be performed with the Bidder's own forces
 - b. List of subcontractors proposed
 - c. Names of the manufacturers, products, and the suppliers of principal items or systems of materials and equipment proposed for the Work.
 - d. Proposed site supervision and home office project management staff directly involved with this project
 - e. Insurance Certificate for coverage and amounts specified
 - f. List of submittals and dates when they will be submitted.
 - g. Schedule of values in AIA G703 format
2. The Bidder will be required to establish to the satisfaction of the Construction Manager and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.
3. Prior to the execution of the Contract, the Construction Manager will notify the Bidder in writing if the Construction Manager, Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Construction Manager, Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, (1) withdraw the Bid or (2) submit an acceptable substitute person or entity with an adjustment in the Base Bid or Alternate Bid to cover the difference in cost occasioned by such substitution. The Construction Manager may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security, if any, will not be forfeited.
4. Persons and entities proposed by the Bidder and to whom the Construction Manager, Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Construction Manager.

C. POST-BID INTERVIEW

1. The bidder may be required to attend a post bid interview conducted by the Construction Manager and attended by the Owner and Architect to review the bidders submitted bid for

completeness according to the Scope of Work, compliance with specifications, planned means and methods, etc.

1.8 PERFORMANCE BOND AND PAYMENT BOND

A. BOND REQUIREMENTS

1. No bonds are required in base bid, however if the furnishing of such bonds is required by the Owner after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

1.9 FORM OF AGREEMENT BETWEEN CONSTRUCTION MANAGER AND CONTRACTOR

- A. Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A132, Standard Form of Agreement between Construction Manager and Contractor.
- B. The Construction Manager's Standard General Conditions, Supplemental Conditions and any other amendments, included herein, by reference govern all operations that are to be conducted in the performance of any contract entered into for the Work.
- C. Subsequent to the award and within ten (10) days after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver the Construction Manager an Agreement as indicated in the Contract Documents, in such number of copies as required

END OF DOCUMENT 002113

MIDLAND COUNTY ESA-ADDITIONS & RENOVATIONS
Midland, Michigan

DOCUMENT 004116 – BID FORM

PROJECT IDENTIFICATION: Midland County ESA-Additions & Renovations
3917 Jefferson Avenue
Midland, MI 48640

OWNER: Midland County ESA
3917 Jefferson Avenue
Midland, MI 48640

ARCHITECT: WTA Architects
100 S Jefferson Ave, Suite 601
Saginaw, MI 48607
Phone: (989) 752-8107

CONSTRUCTION MANAGER: Three Rivers Corporation
3069 Vantage Point Drive
Midland, MI 48642
Phone: (989) 631-9726
Fax: (989) 631-7402

TO: Brett Fales
Three Rivers Corporation
3069 Vantage Point Drive
Midland, MI 48641-1467
Phone: (989) 631-9726
Fax: (989) 631-7402
bfales@trccompany.com

BIDDER: _____

ADDRESS: _____

TELEPHONE # _____ FAX # _____

CATEGORY NUMBER & DESCRIPTION _____

ACKNOWLEDGEMENT OF ADDENDA

The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

Addendum No. _____, dated _____.

Addendum No. _____, dated _____.

Addendum No. _____, dated _____.

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Based upon the Request for Bids, this Bidder will furnish all labor, materials and equipment and will perform all operations necessary to complete the work required by the Bid Documents for the firm fixed price of:

BASE BID:

For the lump sum base bid of (\$_____)

Dollars.

WAGE RATES

List below wage rates for each trade that will perform work onsite. Do **NOT** include any OH&P in these figures.

	Trade	Straight Time	Time & One Half	Double Time
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____

ALTERNATES

1. Covered Fleet Parking. Provide cost to delete scope of work as depicted on Architectural Site Plan drawings. \$_____

VOLUNTARY ALTERNATES

Suggested voluntary alternate description and price. Attach additional sheet(s) if necessary.

_____ ADD / DEDUCT
(\$_____)

_____ ADD / DEDUCT
(\$_____)

_____ ADD / DEDUCT
(\$_____)

SUBCONTRACTORS

The bidder proposes the use of the following subcontractors for the portions of the Work indicated:

Work	Company
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>

INSURANCE REQUIREMENTS

Bidder to indicate by initialing below if they have reviewed the insurance requirements for this project and agree to provide such insurance if awarded:

Yes

No, explain

CLARIFICATIONS/EXCLUSIONS/QUALIFICATIONS

Provide list of clarifications, exclusions, and or qualifications included in your proposal below:

This can be anything related to work scopes provided by TRC, scheduling, lead times, vendor qualifications, sequencing, phasing, etc. Your input is appreciated.

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The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an agreement with CONSTRUCTION MANAGER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents. BIDDER accepts all of the terms and conditions of the Invitation to Bid and Instructions to Bidders, including without limitation those dealing with disposition of Bid security, if any. This Bid will remain subject to acceptance for sixty (60) days after the day of the Bid opening.

Respectfully submitted this ____ day of _____, _____

Submitted By:

(Name of bidding firm or corporation).

() An Individual () A Partnership () A Corporation () Other _____ (Check One)

Authorized Signature:

(Handwritten signature).

Signed By:

(Type or print name).

Title:

(Owner/Partner/President/Vice President).

Witnessed By:

(Handwritten signature).

By:

(Type or print name).

Title:

Street Address:

City, State, Zip:

Phone:

Federal ID No.:

(Affix Corporate Seal Here).

END OF DOCUMENT 004116

SECTION 007000 INSURANCE REQUIREMENTS

A current Certificate of Insurance is required for this project(s) meeting the following minimum coverage requirements and endorsing Additional Insured's as listed below:

Insurance Type	Minimum Coverage Required
Automobile Liability	\$1,000,000.00 combined single limit + Additionally insured automobile liability
Employer's Liability	\$500,000.00 each accident \$500,000.00 disease-each employee \$500,000.00 disease-policy limit
Excess Umbrella	\$1,000,000.00
General Liability	\$1,000,000.00 Each Occurrence \$2,000,000.00 General Aggregate + Additionally insured general liability
Workers Comp	Statutory Limits **N/A if sole proprietor(must submit legal doc)
Professional Liability	\$1,000,000.00 **Only necessary for engineering firms, etc.

Three Rivers Corporation and **Project Owner Name** (Owner(s)) need to be endorsed as **Additional Insured with regards to General Liability and Automobile Liability**, with Three Rivers Corporation as the Certificate Holder.

Your firm must maintain the required insurance coverage throughout the entire construction period as well as the required warranty period(s). **Contractors insurance carrier to forward this Certificate of Insurance to Nolan Gay @ Three Rivers Corporation before traveling to jobsite to start work.**

The certificate can be emailed to Nolan Gay at ngay@trccompany.com.

END OF SECTION 07000

SECTION 007319 - SAFETY REQUIREMENTS

PART 1 - GENERAL

A. GENERAL SAFETY REQUIREMENTS

1. The expectation of every Contractor and Employee is to provide and maintain an incident-free workplace. To meet these expectations, all contractors and personnel must comply with the most current version of the following:
 - a. Project Safety Rules and Procedures for Contractors prepared by Three Rivers Corporation (TRC) for the Midland ESA project.
 - b. State and Federal Government Safety Rules and Regulations.
2. Zero tolerance is a philosophy that holds Individuals, Supervision, and Companies accountable for deliberate or repeated unsafe behaviors. Individuals, Supervisors, and Companies who do not work safely shall not be allowed to work at the Midland ESA project site.
 - a. Every Contractor company shall have a written Zero Tolerance Policy which includes Disciplinary Action. Their policy must hold Employees, Supervision, and Subcontractors accountable for their actions.
3. All Contractor employees shall use the SAFE BEHAVIOR PROCESS. This process includes the use of:
 - a. It is encouraged and recommended (non-mandatory) to participate in the daily Pre-Task Analysis program. The pre-task analysis card is a tool that allows every individual to take a thorough look at the safety aspects associated with his/her assigned task; identifying and eliminating potential hazards before beginning work.
 - b. It is encouraged and recommended (non-mandatory) to participate in the daily Job Safety Analysis (JSA) program. Each First Line Supervisor fill out a JSA form at the start of each work day and review it with his/her crew prior to the start of any work for the day.
4. A safety tailgate meeting will be held prior to the start of each day at the contractor lunch trailer. Attendance is encouraged and recommended for all persons working on site. At the daily tailgate meeting, the following topics will be reviewed: weather concerns, scheduled construction activities for each company on site, barricaded and restricted areas, safety concerns and unplanned events.

B. SAFETY RULES AND PROCEDURES FOR CONTRACTORS

1. Contractors shall comply with site specific safety rules and procedures are detailed in the Safety Rules and Procedures for Contractors.

C. SAFETY ACTIVITY PLAN

1. All Contractors shall prepare and submit to the TRC Site Superintendent a written "Safety Activity Plan (SAP)" prior to the start of construction. It shall include:
 - a. Description of complete scope of work, equipment to be used, powered and hand tools to be used, etc.
 - b. Listing of potential hazards of the work and work environment.
 - c. Specifically address the power lines on the east side of the project

- d. Plans of how the potential hazards will be controlled to perform the work in compliance with all rules and regulations and minimize the risk of unplanned events or injuries. Plans must also identify safety accountability for any unique job site hazards. Mitigation plans should address but are not limited to the following hazards:
 - 1) Heat stress, dehydration, over exposure to sun
 - 2) Adverse weather such as thunderstorms, ice and snow accumulation, and high winds
 - 3) Slips, trips, and falls.
 - 4) Falls from elevation
 - 5) Ergonomic injuries / back injuries
 - 6) Struck by and caught between injuries
 - 7) Hand injuries / cuts and punctures
 - 8) Electrical shock / electrocution
 - 9) Fires / burns
 - 10) Falling objects
 - 11) Excavation cave-ins
- e. The Contractors and Subcontractors shall specify in useful detail how the following goals will be met:
 - 1) OSHA Recordable Rate = 0
 - 2) Injury Frequency Rate = 0
 - 3) D.A.W.C. Frequency Rate = 0
- f. Written evacuation and assembly plan. All Contractors shall have a system in place to account for the whereabouts of all persons directly employed by the Contractor or its Subcontractors, including Suppliers, during drills, emergencies, or at other times. The Contractor shall demonstrate the validity of its system or procedure if required.
- g. Written elevated work, fall prevention, and fall protection program. Shall include access, egress, anchorage points, rescue plan, etc. How to protect workers when they are doing elevated work such as: from a ladder, scaffold, aerial lift, man basket, etc.
- h. If there is steel erection, a written Steel Erection Plan shall include but not limited to the following:
 - 1) How the Contractor will plan their steel erection (i.e., site layout, rigging, hoisting, and assembly including placement of columns, connections of beams, etc.).
 - 2) Fall protection as well as protection from falling objects.
 - 3) The training of their respective employees.
 - 4) Who is the named "Competent Person" for the work.
 - 5) An overall discussion of how the work will be done safely.
 - 6) Where a "Site Specific Erection Plan" is required by OSHA 1926.752(e), that plan shall be submitted in writing as part of the Safety Activity Plan.
 - 7) 100% tie-off required
- i. List of emergency contacts with phone numbers.
- j. Contractor Safety Orientation and Safety Training documentation
- k. Weekly safety meetings with documentation of: safety topic, attendees, location, and time.
- l. Contractor Personal Protective Equipment (PPE) policy specific to this project.

- 1) Minimum PPE includes: hard hat, safety glasses with side shields, gloves, shirt covering the shoulders, long pants, steel toe shoes, and high visibility vest or shirt
- m. How and when to safely use temporary barricades, temporary fence, and Life Critical Guards.
- n. How to work safely around and maintain minimum clearance distances of mechanized equipment components or loads to overhead power lines per State and Federal regulations. Where minimum clearance distances cannot be maintained, the use of a vehicle spotter is mandatory whenever the equipment or vehicle is in motion.
- o. Housekeeping and clean-up policies.
- p. Contractor first aid and medical response policy to injured / ill workers. Contractors and sub-contractors shall furnish first aid kits and portable eye wash stations for emergency use by its employees. These shall be kept in use until the end of the job.
- q. Contractor shall have a first aid trained individual on site who is current in certification.
- r. Contractor drug and alcohol abuse policy and prohibition of such abuse by its workers and sub-contractors whenever present on the work site.
- s. Stopping work and notifying the TRC Site Superintendent and Owner's Rep of unsafe conditions.
- t. Contractor supervisor shall ensure that the Safety Activity Plan is reviewed with its workers before beginning work activities on the project.
- u. Failure to achieve the established goals or disregard of established safety rules and procedures may result in application of appropriate sanctions.

D. OBSERVATION PROGRAM

1. Contractor shall monitor through observation and review the safety compliance of its workers and sub-contractors to safety rules and procedures established in the project Safety Manual and with State and Federal Safety and Health regulations.

E. INJURIES / INCIDENTS REPORTING

1. It is the Contractor's responsibility to investigate all injuries and incidents and submit a final report to the TRC Site Superintendent and Owner's Representative.
2. A preliminary written report on all injuries/incidents shall be submitted by the Contractor to the TRC Site Superintendent and Owner's Representative within 24 hours of the incident. Determination of the cause and follow-up preventive actions will be stressed. Root Cause Investigation Techniques shall be performed on serious incidents. Root Cause is required on all Recordable injuries.
3. Contractor injury/incident reports will be rejected if not complete and meaningful. Determination of the cause of the injury/incident and follow-up prevention actions are required and shall be submitted to the TRC Site Superintendent and Owner's Representative within five (5) working days of the investigation.

PART 2 - PRODUCTS

- A. Not used

PART 3 - EXECUTION

A. Not used

END OF SECTION 007319

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work by Owner.
4. Work under separate contracts.
5. Access to site.
6. Coordination with occupants.
7. Work restrictions.

1.2 PROJECT INFORMATION

- A. Safety: The safety of the General Public, Visitors and Construction Personnel involved in the project is of the utmost importance. Contractors shall fully comply with all Federal, State, Local requirements. In addition contractors shall comply with guidelines established in the project Safety Rules and Procedures for Contractors
- B. Project Web Site: A project Web site administered by the General Contractor will be used for purposes of managing communication and documents during the construction stage.

1.3 GENERAL CONTRACTOR

- A. Three Rivers Corporation has been selected by The Owner to act as the General Contractor for this project and is responsible for coordination between the all trade contractors, owner contractors, if any, and other contractors and consultants. Trade Contractors shall fully cooperate with coordination activities.
- B. Coordination activities of the General Contractor include, but are not limited to, the following:
1. Provide overall coordination of the Work.
 2. Coordinate shared access to workspaces.
 3. Provide overall coordination of temporary facilities and controls.
 4. Coordinate, schedule, and approve interruptions of permanent and temporary utilities, including those necessary to make connections for temporary services.
 5. Coordinate construction and operations of the Work with work performed by each Contract.
 6. Coordinate sequencing and scheduling of the Work. Include the following:
 - a. Initial Coordination Meeting: At earliest possible date, arrange and conduct a meeting with contractors for sequencing and coordinating the Work; negotiate reasonable adjustments to schedules.
 - b. Prepare a combined contractor's construction schedule for entire Project. Base schedule on preliminary construction schedule. Secure time commitments for

performing critical construction activities from trade contractors. Submit schedules for approval.

- 1) Distribute copies of approved schedules to contractors.
7. Provide photographic documentation.
8. Coordinate sequence of activities to accommodate tests and inspections, and coordinate schedule of tests and inspections.
9. Provide information necessary to adjust, move, or relocate existing utility structures affected by construction.
10. Coordinate progress cleaning of common areas and coordinate progress cleaning of areas or pieces of equipment where more than one contractor has worked.
11. Coordinate protection of the Work by contractors.
12. Coordinate completion of interrelated punch list items.
13. Coordinate preparation of Project record documents if information from more than one contractor is to be integrated with information from other contractors to form one combined record.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and consists of the following:

New additions consisting of classroom & secured entrance space, renovations to existing building including exterior & interior improvements, as well as adding new fire suppression system to building and updating most all plumbing, mechanical and electrical.

- B. Type of Contract

1. Project will be constructed under coordinated, concurrent multiple contracts. See Section 011200 "Multiple Contract Summary" for a description of work included under each of the multiple contracts

1.5 WORK BY OWNER

- A. General: Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

1.6 WORK UNDER SEPARATE CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.
- B. Concurrent Work: Owner will award separate contract(s) for construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract. Review 011200 SF - Multiple Contract Summary for more information

1.7 ACCESS TO SITE

- A. General: Contractor shall have limited use of Project site for construction operations as indicated by the Contract limits and as indicated by requirements of this Section.

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- B. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Other contractors, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. All Deliveries must be coordinated with the Project Superintendent at least 48 hours prior to delivery or it will be turned away.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
 - c. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.

1.8 MOBILIZATIONS

- A. Due to the limited amount of staging space available onsite it may be necessary for the contractor to remove all or a portion of his material and or equipment from the site while other work is being performed.

1.9 STAGING

- A. The General Contractor will provide a small staging area for the use by the contractors for the staging of tools and materials. The availability of the staging area is up the General Contractor's and Owner's discretion. Stores of materials that will not be used up within 3 days will not be allowed onsite unless previously agreed to by the owner and general contractor.

1.10 PARKING

- A. Due to the limited parking for the hospital staff and visitors the contractor parking for this project will be limited to a designated on-site contractor parking location to be identified at a later date. Trades will be allowed to park in front of the project in the morning and evenings for the purpose of loading and unloading tools from their vehicles and then the vehicles must move. No other parking accommodations will be made. Violators will be ticketed and towed. If anyone repeatedly does not comply with the requirement will be removed from the project.

1.11 COORDINATION WITH NEIGHBORING OCCUPANTS

- A. Existing adjacent buildings will be occupied during entire construction period. Cooperate with adjacent building owners during construction operations to minimize conflicts and facilitate usage. Perform the Work so as not to interfere with adjacent buildings day-to-day operations. Maintain existing exits unless otherwise indicated.
- B. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

1.12 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
 - 2. Work requiring street closures shall be coordinated with the General Contractor, Owner, Emergency Services, MDOT, and the local municipality. Advance notice shall be provided as required by the proper authorities, but in no case shall notice be less than 5 working days.
- B. On-Site Work Hours: Limit work on the project site to normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated. Written permission from the General Contractor's site superintendent shall be granted prior to work performed outside of these hours.
- C. Existing Utility Interruptions: Do not interrupt utilities serving adjacent properties or facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 - 1. Notify General Contractor not less than two days in advance of proposed utility interruptions.
 - 2. Obtain General Contractor's and Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to adjacent properties and Owner occupancy with Owner.
 - 1. Notify General Contractor not less than two days in advance of proposed disruptive operations.
 - 2. Obtain General Contractor's and Owner's written permission before proceeding with disruptive operations.
- E. Nonsmoking Project: Smoking is not permitted anywhere on the Project
- F. Conduct of personnel on the project site
 - 1. Type of Dress
 - a. Comply with OSHA regulations at all times. Must wear shirts and long pants.
 - b. Wearing apparel that portrays obscene or vulgar language and/or art work is prohibited.
 - 2. Alcoholic Beverages and other controlled substances
 - a. Alcoholic beverages and other controlled substances will not be permitted on the Project site.
 - b. Persons under the influence of alcoholic beverages and/or any other controlled substances are prohibited from the Project.
 - c. Persons in possession of drug paraphernalia of any sort are prohibited from the Project.
 - 3. Obscenity
 - a. The General Contractor reserves the right to require dismissal from the Project of any person using obscene language or gestures.
 - 4. Tobacco Use
 - a. No one may smoke or use any tobacco product on the Project Site.
 - 5. Portable Radios and Other Sound-Producing Devices:

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- a. The General Contractor reserves the right to prohibit portable radios or other sound-producing devices
 - b. Hold the volume of portable radios or other sound-producing devices to such a level so that individuals not related to the construction are not disturbed.
 - c. Do not broadcast obscenity.
- 6. Food & Drink
 - a. Food and Drink are restricted to designated lunch and break room areas of the project

END OF SECTION 011000

SECTION 011200 – MULTIPLE CONTRACT SUMMARY (BID DIVISION DESCRIPTIONS)

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes a summary of each contract, including responsibilities for coordination and temporary facilities and controls.
- B. Specific requirements for Work of each contract are also indicated in individual Specification Sections and on Drawings.
- C. Related Requirements:
 - 1. Section 011000 "Summary" for the Work covered by the Contract Documents, restrictions on use of Project site, phased construction, if any, and coordination with occupants, and work restrictions.
 - 2. Section 013100 "Project Management and Coordination" for general coordination requirements.

List of Bid Division Categories

- 1) Testing Services
- 2) Construction Staking
- 3) Earthwork
- 4) Asphalt
- 5) Landscaping
- 6) Fencing
- 7) Selective Demolition
- 8) Concrete
- 9) Masonry
- 10) Masonry Restoration
- 11) Structural & Misc. Steel
- 12) General Trades
- 13) Roofing
- 14) Metal Wall Panels
- 15) Joint Sealants
- 16) Glass-Glazing
- 17) Acoustical
- 18) Flooring
- 19) Painting
- 20) High Performance Coatings
- 21) Visual Display Units
- 22) Signage
- 23) Lockers
- 24) Casework
- 25) Fire Suppression
- 26) Combined Mechanical
- 27) Electrical

1.2 DEFINITIONS

- A. Trade Contractor: A contractor that has been awarded a Bid Category. May also be referred to as contractor in the specifications, the terms Trade Contractor and Contractor are to be considered synonymous.
- B. Bid Category: A scope of work for a portion of a project

1.3 Construction Manager

- A. Three Rivers Corporation has been selected by The Owner to act as the Construction Manager for this project and is responsible for coordination between the all trade contractors, owner contractors, if any, and other contractors and consultants. Trade Contractors shall fully cooperate with coordination activities. May also be referred to as Construction Manager in the specifications, the terms General Contractor and Construction Manager are considered to be synonymous.

1.4 GENERAL REQUIREMENTS OF CONTRACTS

- A. Safety: The safety of the general public, Visitors and Construction Personnel involved in the project is of the utmost importance. Contractors shall fully comply with all Federal, State, Local requirements. In addition contractors shall comply with guidelines established in the project Safety Rules and Procedures for Contractors
- B. Extent of Contract:
 - 1. The Scope of Work within a Bid Division represents a construction segment that is not necessarily restricted to a single construction trade, Include work of all trades required to fully and successfully complete all of the Work required in the Bid Division.
 - 2. The Scope of Work within a Bid Division represents construction work that is not necessarily restricted to a single discipline, Use complete sets of bidding documents including civil, architectural, structural, mechanical, electrical, and others as required.
 - 3. Unless otherwise indicated, the work described in this Section for each contract shall be complete systems and assemblies, including products, components, accessories, and installation required by the Contract Documents to provide a complete and functional system.
 - 4. Trenches and other excavation for the work of each contract shall be the work of each contract for its own work.
 - 5. Blocking, backing panels, sleeves, and metal fabrication supports for the work of each contract shall be the work of each contract for its own work unless otherwise specifically noted in the General Trades Bid Category.
 - 6. Furnishing of access panels required for the work of each contract but not shown on the documents shall be the work of each contract for its own work. Installation of access panels shall be the work of each contract for its own work.
 - 7. Roof-mounted equipment curbs for the work of each contract shall be the work of each contract for its own work.
 - 8. Cutting and Patching: Provided under each contract for its own work .
 - 9. Through-penetration firestopping for the work of each contract shall be provided by each contract for its own work.
 - 10. Includes, but is not limited to:
 - 11. Compliance with the Three Rivers Corporation Safety & Health Guidelines. A copy is available upon request.
 - 12. Compliance with all federal and state OSHA guidelines.
 - 13. Compliance with all federal, state, and local codes and authorities having jurisdiction.

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14. Multiple mobilizations as required
 15. Daily cleanup of site as related to the work being performed.
 16. Work in this bid must be based on the entire set of bid documents.
 17. Unless noted otherwise, this bid must include complete systems and assemblies, including all components and installation needed for a complete and functional system or assembly
 18. Shop drawings and submittals must be submitted within two weeks of award.
 19. Coordinate with other trades
 20. Cooperation with all testing consultants, if applicable
 21. Coordinate and perform work per sequence of construction as directed by the Three Rivers Corporation supervisor.
 22. Cooperation with the milestone schedule, refer to specification section 00 3113 Preliminary Project Schedule.
- C. Substitutions: Each contractor shall cooperate with other contractors involved to coordinate approved substitutions with remainder of the work.
- D. Temporary Facilities and Controls: In addition to specific responsibilities for temporary facilities and controls indicated in this Section and in Section 015000 "Temporary Facilities and Controls," each contractor is responsible for the following:
1. Installation, operation, maintenance, and removal of each temporary facility necessary for its own normal construction activity, and costs and use charges associated with each facility, except as otherwise provided for in this Section.
 2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
 3. Its own field office, complete with necessary furniture, utilities, and telephone service.
 4. Its own storage and fabrication sheds.
 5. Its own storage units for materialist is providing for its own work. No materials may be stored long term in buildings under construction.
 6. Unloading of its own materials. Three Rivers will not receive or unload any materials for contractors.
 7. Temporary enclosures for its own construction activities.
 8. Staging and scaffolding for its own construction activities.
 9. General hoisting facilities for its own construction activities unless specifically noted elsewhere
 10. Waste disposal facilities of its own hazardous, dangerous, unsanitary, or other harmful waste materials. Waste disposal facilities for normal construction debris will be provided by the General Contractor.
 11. Progress cleaning of work areas affected by its operations on a daily basis.
 12. Secure lockup of its own tools, materials, and equipment.
 13. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.
 14. Layout and field dimensioning for its own construction activities.

1.5 BID CATEGORIES

01 TESTING SERVICES

Furnish labor and material to provide quality control materials testing services for all new work installed onsite, typical but not limited to soils density testing, asphalt testing, concrete testing, and structural steel inspections.

02 CONSTRUCTION STAKING

Furnish labor and material to provide construction staking for all new work onsite. Including but not limited to establishing building corners, parking lot & drive layout, site concrete walk layouts, covered fleet parking layout, site utilities offsets including retention pond, and site fencing.

03 EARTHWORK

Furnish labor, material & equipment for all site removals, excavation, backfill, install off all exterior storm water, domestic water, fire suppression water, and sanitary. Prep for all building foundations & pad, asphalt sub base.

Includes, but is not limited to:

1. Removal of all asphalt, concrete, curbs, fencing, spoils, etc. to install your scope of work.
2. Excavate, prep pad, and backfill for all building foundations as well as covered fleet parking structure.
3. Provide all sub base and rough grading for new asphalt areas
4. Install all exterior site utilities including domestic water, fire water, sanitary, and storm as required.
5. Include all SESC permits, measures, and maintenance
6. Provide all traffic control for your work including for utility tie in's at Jefferson Ave, include temporary stone patch prior to asphalt paving patch.
7. Earthwork contractor to provide all scope for 6" main tie in and 3" lead shown on south side of this page M2.02. Include all wall coring as required for this scope. Mechanical Contractor to provide all excavation & backfill for install of new sanitary leads shown on M2.02 North side of page.

Not Included

1. Topsoil – furnished, placed, and rough graded by others.
2. Landscaping, Seeding, or fine grading of topsoil
3. Asphalt
4. Concrete
5. Utilities at inside of building footprint.
6. Milling or pulverizing of asphalt
7. Utility Tap Fees

04 ASPHALT

Furnish labor, material & equipment for all pulverizing of asphalt, trucking of spoils, all grading of existing asphalt areas, fine grading of new asphalt area, all asphalt paving, patching, striping, and signage.

Includes, but is not limited to:

1. All pulverizing of existing asphalt lot and drives, including trucking any excess material, and all grading for this area.
2. Fine grading for all new asphalt areas
3. Provide all sub base and rough grading for new asphalt areas
4. Provide all traffic control for your work, traffic control for Jefferson Rd. utility tie in will be provided by Earthwork package.
5. Include all site striping and signage

Not Included

1. Traffic control at Jefferson Rd. utility tie in.

05 LANDSCAPING

Furnish labor, material & equipment for all site restoration and plantings.

Includes, but is not limited to:

1. Furnish & install all plantings, edging and beds as shown on drawings.
2. Fine grade & hydroseed all areas disturbed from construction activities
3. Provide all slope restoration as required including mats and seeding for retention pond

Not Included

1. Topsoil & rough grading by Earthwork

06 FENCING

Furnish labor, material & equipment for all final site fencing installation

Includes, but is not limited to:

1. Include costs for 1,250 LF of 6' high temporary chain link fence construction panels w/ sand bags, furnish & install for duration of project. Include (1) 25' wide swing access gate.
2. Furnish and install all final fencing as shown on drawings.
3. Provide all slope restoration as required including mats and seeding for retention pond

Not Included

1. Removal of existing fencing
2. Relocation of temp fencing panels once installed

07 SELECTIVE DEMOLITION

Furnish labor, material & equipment for all interior selective architectural demolition. Including walls, floors, ceilings, etc.

Includes, but is not limited to:

1. Include multiple mobilizations as required
2. Contractor to have lead and asbestosis awareness training and certifications
3. Include saw cutting and removal of floor slabs for new underground plumbing and foundation installation.
4. Include all costs for removal and disposal of materials removed from building in your scope
5. Include removal of all interior doors & frames, flooring, partition walls, drywall, hard tile, misc. toilet accessories, casework, toilet partitions, drywall ceilings, suspended ceiling tile & grid, operable partitions, etc.
6. Include shoring as necessary for demo work.

Not Included

1. Interior masonry wall demo (brick or block)
2. Mechanical or electrical demolition
3. Exterior site or building demo
4. Removal of existing windows or aluminum framing & glazing.

08 CONCRETE

Furnish labor, material & equipment for all concrete onsite, including but not limited to, all site concrete, walks, curbs, driveways, footings, foundations, floor slabs, equipment pads, and floor infills.

Includes, but is not limited to:

1. Include complete systems for all concrete work shown including but not limited to insulation along foundation walls and below slabs, saw cutting of control joints, installation of expansion joints, vapor barriers, epoxy, dowels, reinforcement, bracing, etc.
2. Include all fine grading of all concrete areas as required.
3. Include all layout for your scope of work, control points will be provided by TRC.
4. Installation of all bollards and steel embeds provided by others.
5. Grouting of all baseplates at steel columns
6. Infill of all interior floor slab areas from new underground plumbing or foundations
7. Review all civil, mechanical, and electrical drawings for all pads and equipment supports
8. Install all locker bases at interior locations

Not Included

1. Excavation & backfill for all concrete
2. Gate posts/sign posts installation
3. Bollards, steel embeds

09 MASONRY

Furnish labor, material & equipment for all masonry onsite, including but not limited to, all below grade masonry foundations, above grade masonry backup walls, above grade masonry veneer, and selective masonry demolition.

Includes, but is not limited to:

1. Include complete systems for all masonry work shown including but not limited to insulation along masonry walls, control joints, ties, anchors, flashings, grouting, reinforcement,
2. Include all interior selective masonry demolition as it pertains to creating new openings, enlarging existing openings, shoring for existing masonry walls, creating new beam pockets, grouting new beam pockets, toothing of all modified openings. Review all architectural demo and structural drawings for all openings/areas affected.
3. Include installation of all lintels & steel support beams in masonry walls, steel provided by others.

Not Included

1. Supply of lintels or steel support beams
2. Welding of any steel to baseplates, or install of any steel to steel areas.
3. Masonry restoration work on existing building, see separate bid package

10 MASONRY RESTORATION

Furnish labor, material & equipment for all masonry restoration onsite for existing building façade.

Includes, but is not limited to:

1. Refer to exterior elevations and sheet A5.12 for detailed photos and scope description for restoration.
2. Refer to roof plan for restoration & sealants for existing stone parapet cap on existing building.

3. Include installation of all lintels & steel support beams in masonry walls, steel provided by others.
4. Include all demolition & shoring for your scope of work.
5. Include cleaning of existing façade in your scope of work
6. Include all sealants work for masonry at existing building façade
7. Include all allowances for scope of work quantities per notes on sheet A5.12
8. Provide all exploratory and selective demo as shown on drawings for your restoration scope of work
9. Provide all salvaging, cleaning, and staging of brick for reinstallation for your scope of work.

Not Included

1. Supply of lintels or steel support beams
2. Welding of any steel to baseplates, or install of any steel to steel areas.
3. New building addition masonry scope of work
4. Sealants work on new building addition or anywhere at existing building interior.
5. Window or exterior door removal or replacement.

11 STRUCTURAL & MISC STEEL

Furnish labor, material & equipment for all fabrication, erection & installation of all structural steel and misc. steel.

Includes, but is not limited to:

1. Refer to Sheet A5.12 for lintels to be included for supply to Masonry Restoration package.
2. Furnish and install all new structural steel for new building addition, entrance addition & canopies
3. Fabricate & deliver to site all bollards and steel embeds, bearing plates, etc. to be installed by other trades.
4. Include any welding for any lintels/lintel beams to bearing plates etc.
5. Include all joist reinforcement as shown on drawings.
6. Include install of all new structural steel within existing building
7. Review all architectural drawings for misc. steel items to be fabricated & installed or fabricated & supplied to other trades.
8. Furnish & install al misc. steel for casework counter/bench supports, see casework details Sheet A8.04 for reference.

Not Included

1. Installation of lintels or embeds
2. Shoring at existing building

12 GENERAL TRADES

Furnish labor, material & equipment for all items listed below for General Trades package

Includes, but is not limited to:

1. Include an allowance of \$50,000 including all labor, material & equipment and contractor profit for temporary floor protection, temporary enclosures at new building, dust control and construction partitions. Construction Manager will track against this allowance throughout project.
2. Furnish & install all hollow metal frames, metal doors, prefinished wood doors, and hardware.

3. Furnish & install all toilet accessories, patient lift systems, toilet partitions & partition doors, adult changing stations, cubicle curtains & track, fire protection specialties, and climbing wall systems.
4. Furnish and install all wood blocking and backing in stud framed walls
5. Furnish and install all wood roof blocking and backing on both new and existing roof.
6. Furnish and install all plywood for bench/counter backing, refer to Sheet A8.04 for casework details reference.
7. Furnish and install all plywood and weather barrier behind canopy fascia & soffit
8. Include all Unistrut as required for install of patient lift systems
9. Furnish and install all wood trims for cased openings
10. Receive and set in place owner appliances, see Equipment Schedule on A8.01 thru A8.03, connections by appropriate trades. TV installs by Electrical. Include all blocking backing as required for these items.

Not Included

1. Aluminum framed openings and hardware
2. Signage, Lockers, Casework, Roller Window Shades, Visual Displays
3. Staining or painting

13 ROOFING

Furnish labor, material & equipment for all roofing of new building additions & re-roof of existing building.

Includes, but is not limited to:

1. Complete removal & disposal of existing roofing, maintain temporary weather protection as necessary
2. Include all new roof flashings, edge metals, insulation, tapered insulation, membranes, boots, etc for complete roof system
3. Furnish and install all walk pads and access hatches w/ railings
4. Include all scuppers & downspouts as required

Not Included

1. Metal wall panels (Fascia/Soffit)
2. Roof blocking or backing
3. Masonry restoration/replacement
4. Steel access stairs

14 METAL WALL PANELS

Furnish labor, material & equipment for all metal wall panels & soffits

Includes, but is not limited to:

1. Include all necessary hat track nailers as required.
2. Furnish & install all metal wall panels & metal soffits at new entrance locations & canopies.
3. Furnish & install standing seam roofing for exterior covered fleet parking structure.

Not Included

1. Roofing, edge metal, scuppers & gutters
2. Plywood backing
3. Wood or metal stud framing

15 JOINT SEALANTS

Furnish labor, material & equipment for all joints sealants work at new building addition interior & exterior as well as interior of existing building.

Includes, but is not limited to:

1. Include all interior & exterior joint sealant work at new building additions.
2. Include all interior joint sealants work at existing building renovation areas interiors.
3. Interior caulking to include all door frames and ceiling tile edge trim to wall.

Not Included

1. Masonry restoration or sealants related to restoration of existing building exterior

16 GLASS-GLAZING

Furnish labor, material & equipment for all glass and glazing work including aluminum framing, insulated glazing, lite kits, films, aluminum opening hardware

Includes, but is not limited to:

1. Furnish and install all aluminum door opening framing, doors, hardware, and glazing.
2. Furnish and install all glazing for metal door lites, side lites, and borrowed lites
3. Include removal and disposal of all exterior windows, aluminum doors and frames, and interior aluminum openings being replaced like for like.
4. Include all sun shades per manufacturer's system.
5. Include all window and glass films as required
6. Responsible for temporary enclosures as required for like for like opening replacements.
7. Furnish & install all frameless mirrors

Not Included

1. Hollow metal opening hardware
2. Temporary enclosures

17 ACOUSTICAL

Furnish labor, material & equipment for all metal stud framing, drywall, acoustical panels, acoustical insulation, fireproofing, and suspended ceiling systems

Includes, but is not limited to:

1. Include fire caulking for all your own scope of work.
2. Include all interior and exterior metal stud framing
3. Include all drywall for ceilings and walls as required, finished for paint.
4. Include all interior wall acoustical insulation as required
5. Include all acoustic panels as shown on drawings
6. Include spray on fireproofing for Makerspace Room 005 ceiling for deck above, refer to Life Safety Sheet G0.03 for reference.
7. Include all cement backer board as required
8. Include all FRP paneling & trims as required
9. Include all suspension systems for ceilings both drywall, tile, and acoustical panels
10. Including patching and repair of all existing drywall walls to be painted.

Not Included

1. Wood blocking and backing, interior & exterior
2. Temporary enclosures

18 FLOORING

Furnish labor, material & equipment for carpet, resilient flooring and hard tile as shown on drawings.

Includes, but is not limited to:

1. Furnish and install all waterproofing and mud beds as required for shower areas
2. Furnish and install all hard tile floors/walls and base
3. Furnish and install all flooring per patterns shown on finish plans
4. Furnish all resilient base in areas as required for epoxy and/or polished concrete areas
5. Include all floor prep as required for flooring installs, including leveling and or skim coats as required. Existing floors will have adhesive removed prior to flooring contractor's prep and install.
6. Furnish and install artificial turf/grass at Enclosed Outdoor Playground 185.
7. Include all stairs and landings as required

Not Included

1. Polished concrete
2. Epoxy floor coatings

19 PAINTING

Furnish labor, material & equipment for all interior & exterior painting of new and existing buildings, covered fleet parking, dumpster enclosures as shown on drawings.

Includes, but is not limited to:

1. Paint all CMU and drywall walls
2. Paint all drywall ceilings as required
3. Utilize epoxy paint as required at wet wall locations and as indicated on the drawings.
4. Paint all hollow metal doors and frames as required.
5. Paint all steel & misc. metals as shown on drawings including exterior lintels in masonry walls
6. Include costs as required for all accent walls and decorative paint patterns
7. Including field staining and finishing of cased openings

Not Included

1. Priming of structural & misc. steel
2. Spray on fireproofing
3. Aluminum openings
4. Exterior drive or parking lot striping or signage
5. Caulking of door frames/ceiling edge trim

20 HIGH PERFORMANCE COATINGS

Furnish and install all epoxy floor areas and polished concrete areas. Include epoxy base where required.

Includes, but is not limited to:

1. Include all prep for all existing floors including patching/leveling as needed, adhesives will be removed prior to prep/epoxy & install.
2. Include sealants/infill for all control joints within your scope of work areas.
3. Furnish & install all epoxy floors and base as shown
4. Furnish & install all polished concrete floors as shown
5. Include multiple mobilizations as required.

6. Provide your own power for your own equipment, water source will be provided onsite as needed.

Not Included

1. Adhesive removal at existing floors
2. Resilient vinyl bases

21 VISUAL DISPLAY UNITS

Furnish and install all visual display units as shown on drawings including all markerboards, tackboards, and glass marker boards.

Includes, but is not limited to:

1. Furnish and install all visual display units as shown on drawings
2. Furnish and install all hanging art displays
3. Include multiple mobilizations as required.
4. Include all fasteners as required for all surfaces whether CMU or stud wall

Not Included

1. Blocking or backing

22 SIGNAGE

Furnish labor and material for all interior signage as shown on drawings.

Includes, but is not limited to:

1. Include multiple mobilizations as required
2. Include all fasteners and adhesives for install
3. Include all interior signage per signage plans

Not Included

1. Blocking or backing

23 LOCKERS

Furnish labor and material for all lockers as shown on drawings

Includes, but is not limited to:

1. Include multiple mobilizations as required
2. Include all fasteners and adhesives for install
3. Include all lockers shown per plans

Not Included

1. Blocking or backing
2. Concrete locker bases

24 CASEWORK

Furnish labor, material and equipment to fabricate and install all casework and countertops as shown on drawings.

Includes, but is not limited to:

1. Include multiple mobilizations as required
2. Include all fasteners and adhesives for install
3. Include all knee wall framing for custom reception desks, desks, counters, etc.
4. Include all decorative panel systems and trims (DPS-1) as shown on drawings.

Not Included

1. Blocking or backing
2. Metal stud framing
3. Acoustical panels
4. Wood trims and staining

25 FIRE SUPPRESSION

Furnish labor, material and equipment to design and install new wet sprinkler system for both existing building and new addition.

Includes, but is not limited to:

1. Refer to Life Safety Plans for full building layout, fire protection plans on M3.07 DO NOT show entire floor plan.
2. Include multiple mobilizations as required
3. Include all engineering and drawings as required for permits from local AHJ.
4. Design system so system can be active for occupancy per phased construction, while other areas are still being installed.
5. Include all coring of walls/floors as required for your scope of work.
6. Per standard NFPA requirements
7. FP contractors work starts inside at flanged outlet

Not Included

1. Exterior water line work
2. Alarm wiring
3. Removal/Reinstall of existing ceilings

26 COMBINED MECHANICAL

Furnish labor, material and equipment for a complete mechanical package including all plumbing, hvac, and mechanical work.

Includes, but is not limited to:

1. Include multiple mobilizations as required
2. Include all demolition and removals for your scope of work as required
3. Include all coring of walls and floors as required for your scope of work.
4. Include all mechanical insulation for your scope of work
5. Include all controls
6. Provide rough in's and install all owner provided appliances, refer to Equipment schedule on sheets A8.01 thru A8.03
7. Provide all excavation & removal of spoils for underground piping within building footprint at both new addition and existing building.
8. Provide all excavation & backfill for install of new sanitary leads shown on M2.02. Include all wall coring as required for this scope. Earthwork contractor to provide all scope for 6" main tie in and 3" lead shown on south side of this page.
9. Include all plumbing & piping for sanitary, vent, water, gas, and mechanical piping and fixtures.
10. Furnish and install all duct smoke detectors.
11. Electrical to provide all wiring, conduit and connections to Variable Air Boxes (VB's on drawings, or sometimes VAV's), refer to Mechanical drawings and VB schedule on M4.02 for reference. Temperature Controls WILL NOT provide 120 VAC as stated on M4.02.

Mechanical to provide factory provided transformers on VB's. Mechanical to provide all 24V wiring from transformer to VB's, and any other additional low voltage wiring.

Not Included

1. Saw cutting, removal and replacement of floor slabs for new underground
2. Wiring of duct smoke detectors

27 ELECTRICAL

Furnish labor and material for all electrical and fire alarm as shown on drawings.

Includes, but is not limited to:

1. Include multiple mobilizations as required
2. Include all demolition for your scope of work
3. Include all fire alarm as shown on drawings. Will need to wire door hardware for Outdoor Enclosed Playground door, refer to Sheet A1.10 for hardware notes. Further info coming.
4. Include pathways and back boxes for all low voltage systems shown (data/IT, intercom, access controls), including cable trays.
5. Install all owner provide TV's
6. Provide all lighting and controls
7. Include all exterior electrical and lighting as shown
8. Provide power to all mechanical equipment and owner provided appliances
12. Electrical to provide all wiring, conduit and connections to Variable Air Boxes (VB's on drawings, or sometimes VAV's) , refer to Mechanical drawings and VB schedule on M4.02 for reference. Temperature Controls WILL NOT provide 120 VAC as stated on M4.02. Mechanical to provide factory provided transformers on VB's. Mechanical to provide all 24V wiring from transformer to VB's, and any other additional low voltage wiring.

Not Included

1. Blocking or backing
2. HVAC Controls

END OF SECTION 011200

SECTION 012200 - UNIT PRICES

GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.
- B. Related Requirements:
 - 1. Section 012600 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

1.3 DEFINITIONS

- A. Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PRODUCTS (Not Used)

EXECUTION

1.5 SCHEDULE OF UNIT PRICES

- A. Unit rate for additional asphalt paving (base & wearing course) in dollars per SF.

END OF SECTION 012200

SECTION 012300 - ALTERNATES

GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.
- B. Related Requirements:
 - 1. Section 04116 "BID FORM" for requested alternates.

1.3 DEFINITIONS

- A. Alternate is an amount incorporated in the Agreement, applicable during the duration of the Work as a price agreement for a specific change in the work, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification. If the owner accepts this alternate cost the value of the alternate will be either added or subtracted from the contract value as agreed upon.

1.4 PROCEDURES

- A. Alternates should include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: See individual Specification Sections for work that requires establishment of alternate pricing.
- C. Owner reserves the right to accept or reject Contractor's alternate pricing.

1.5 SCHEDULE OF ALTERNATES

- A. COVERED FLEET PARKING
 - 1. Provide deduct cost to remove covered fleet parking from scope of work as shown on Architectural Site Plan drawings A1.11

END OF SECTION 012300

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

GENERAL

SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications of contracts between The Owner and Contractors.

MINOR CHANGES IN THE WORK

- B. Architect will issue through General Contractor supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions" or form with similar format.

PROPOSAL REQUESTS

- C. Owner-Initiated Proposal Requests: General Contractor will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by General Contractor are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and material directly attributable to the change.
 - d. Include an statement that indicates the effect of the change on the schedule.
- D. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to General Contractor.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Include costs of labor and supervision directly attributable to the change.

5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
- E. Each contractor's proposal for changes shall include
1. Complete itemization of:
 - a. Description and qualities of materials.
 - b. Unit cost and total cost of materials
 - c. Hours of labor
 - d. Hourly rates (including fringe benefits) and total labor costs for all classifications.
 - e. Equipment rental or pro rata charges.
 - f. Contractor's overhead and profit on labor, material and equipment rental.
 - g. Liability insurance, travel allowances, subsistence allowance, Social Security and Unemployment Insurances when applicable may be added, but without Contractor's overhead and profit fee.
 2. On a change involving additions and deductions, the values for labor and materials added and deducted shall be balanced against each other, and overhead and profit shall be applied to the net results only if the balance is an addition.
 3. On changes that involve a net credit to the Owner, no allowances shall be made for overhead and profit.
 4. Overhead and profit:
 - a. Among the items considered as overhead are the following:
 - 1) Services of Contractor, his general office and the services of his superintendent.
 - 2) All field office expense.
 - 3) Use of all tools and equipment other than mentioned above.
 - 4) Making of shop drawings.
 - 5) Services of draftsmen, engineers, layout men.
 - b. Contractor is allowed a fee of ten percent (10%) for overhead and profit for services performed by its own forces, and a fee of five percent (5%) for work performed by subcontractors at each tier.

CHANGE ORDER PROCEDURES

- F. On Owner's approval of a Work Changes Proposal Request, General Contractor will issue a Change Order for signatures of Owner and Contractor on AIA Document G701 or form with similar format.

CONSTRUCTION CHANGE DIRECTIVE

- G. Construction Change Directive: General Contractor may issue a Construction Change Directive on AIA Document G714 or form with similar format. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

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- H. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 - 1. Documentation shall be prepared by the contractor and signed by the General Contractor Superintendent daily. Documentation items include material receipts, time sheets, daily reports and any other documents necessary to accurately document costs incurred
 - 2. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PRODUCTS (Not Used)

EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment between General Contractor, Owner and Contractors.

1.2 SCHEDULE OF VALUES

- A. Submit the schedule of values to the General Contractor at earliest possible date, but no later than five days after notice of award.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
 - 1. Arrange schedule of values consistent with format of AIA Document G703.
 - 2. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of 5 percent of the Contract Sum.
 - 3. Total shall equal the Contract Sum.
 - 4. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed. Payment for stored materials is dependent upon Owner allowing payment for stored materials
 - 5. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 - 6. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
 - 7. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.

1.3 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and/or General Contractor.
 - 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between General Contractor and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 or form with similar format as form for Applications for Payment. Submit forms for approval with initial submittal of schedule of values.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. General Contractor will return incomplete applications without action.
 - 1. Entries shall match data on the schedule of values Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 - 2. Include amounts of Change Orders issued before last day of construction period covered by application.
- E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site. Payment for stored materials is dependent upon Owner allowing payment for stored materials.
 - 1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, if contractor provides a bond, for stored materials.
 - 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 - 3. Provide photos of stored materials showing
 - a. Segregated storage of materials that can be easily viewed and inspected
 - b. Material stored properly and neatly
 - c. Material labeled showing the project and owner name
 - 4. Provide summary documentation for stored materials indicating the following:
 - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
 - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
 - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- F. Transmittal: Submit one signed and notarized original copies of each Application for Payment to General Contractor by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
- G. Waivers of Lien: With each Application for Payment, submit waivers of liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.

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1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or proceeded by unconditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit executed waivers of lien on forms, acceptable to Owner.
- H. Sworn Statement: With each Application for Payment include a sworn statement listing of all companies who have provided improvements, materials or labor toward the construction project and an accounting of all monies due to those parties.
- I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Coordination drawings.
 - 3. Requests for Information (RFIs).
 - 4. Project Web site.
 - 5. Project meetings.
- B. Each contractor shall participate in coordination requirements.

1.2 DEFINITIONS

- A. RFI: Request from Owner, General Contractor, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.3 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations, included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.

- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work.

1.4 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 - 1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
 - 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. RFI Forms: AIA Document G716 ,Form bound in Project Manual or Software-generated form with substantially the same content as indicated above.
- C. Architect's and General Contractor's Action: Architect and General Contractor will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect or General Contractor after 1:00 p.m. will be considered as received the following working day.
 - 1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
 - 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
 - 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify and Construction Manager in writing within 7 days of receipt of the RFI response.

1.5 PROJECT WEB SITE

- A. Use General Contractor's Project Web site for purposes of managing project communication and documentation until Final Completion. Project Web site shall include the following functions:
 - 1. Meeting minutes.
 - 2. Contract modifications forms .
 - 3. RFI, forms and logs.
 - 4. Task and issue management.
 - 5. Submittals, forms and logs.
 - 6. Payment application forms.
 - 7. Drawing and specification documents.

- B. Contractor, subcontractors, and other parties granted access by The General Contractor to Project Web site shall agree to not share their user ID and password with any other company.

1.6 PROJECT MEETINGS

- A. General: General Contractor will schedule and conduct meetings and conferences at Project site unless otherwise indicated.

The Contractor shall provide a representative who is familiar with Project and authorized to conclude matters relating to the Work at each meeting requiring Contractor participation. Attendance at meetings where the Contractor's participation is needed is a material condition of this contract. Failure of the contractor to attend a meeting does not excuse compliance with decisions and plans made at the meeting and may be cause for back charges to the Contractor due to additional coordination efforts on the part of the General Contractor.

- B. Preconstruction Conference: General Contractor will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect.
 - 1. Attendees: Authorized representatives of General Contractor, Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
- C. Pre-installation Conferences: The General Contractor will conduct a pre-installation conference at Project site before each construction activity that requires coordination with other construction.
 - 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Owner, and Architect of scheduled meeting dates.
 - 2. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Coordination Meetings: General Contractor will conduct Project coordination meetings at weekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and pre-installation conferences.
 - 1. Attendees: In addition to representatives of Owner, General Contractor, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
- E. Safety Meetings: requirements for safety meeting are detailed in the project Safety Rules and Procedures for Contractors handbook. At a minimum the following meetings are to be held
 - 1. Weekly Safety Meeting: weekly safety meeting held by the General Contractor that all supervision for contractors on site must attend
 - 2. Tool Box Safety: Each contractor shall conduct a tool box safety meeting with all of its personnel on site. Topics are at the discretion of the contractor. Contractors shall provide the General Contractor a copy of meeting notes and sign-in sheets.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 014000 - QUALITY REQUIREMENTS

1.1 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements.

1.2 QUALITY ASSURANCE

- A. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required using materials indicated for the completed Work.
 - 1. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 2. Maintain mockups as a standard for judging the completed Work.
 - 3. Demolish and remove mockups when directed unless otherwise indicated.
- B. Integrated Exterior Mockups: Construct according to approved Shop Drawings or as indicated on Drawings.

1.3 QUALITY CONTROL

- A. Owner Responsibilities: Where indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility.
- C. Manufacturer's field services. Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in pre-installation conferences.
- D. Retesting/ Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - 1. Safe access to the Work, including lifts, scaffoldings, etc
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.

- 4. Facilities for storage and field curing of test samples.
- G. Test and inspection log.
- H. Repair and Protection: Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Section 012100 "Allowances" for products selected under an allowance, if applicable.
 - 2. Section 012300 "Alternates" for products selected under an alternate.
 - 3. Section 012500 "Substitution Procedures" for requests for substitutions.
 - 4. Section 015000 "Temporary Facilities and Controls" For on-site storage restrictions

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor through General Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in Section 013300 "Submittal Procedures."
 - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
 - 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:

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1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.

5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 3. Products:
 - a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered per 012500 Substitutions Procedures.
 - b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
 4. Manufacturers:
 - a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered per 012500 Substitutions Procedures.
 - b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
 5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.

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- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 3. Evidence that proposed product provides specified warranty.
 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Coordination of Owner-installed products.
 - 6. Progress cleaning.
 - 7. Starting and adjusting.
 - 8. Protection of installed construction.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for limits on use of Project site.
 - 2. Section 011200 "Multiple Contract Summary" for scope of work
 - 3. Section 013300 "Submittal Procedures" for submitting surveys.
 - 4. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For land surveyor.
- B. Certificates: If required submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.
- C. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.5 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
 - 1. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 2. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning work investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

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1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
1. Description of the Work.
 2. List of detrimental conditions, including substrates.
 3. List of unacceptable installation tolerances.
 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility and/or Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 013100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

- A. General: The Contractor is responsible to provide all layout and control work as may be required for its work. The Contractor shall provide workers competent in the layout and control work necessary. The Contractor shall provide the equipment and materials necessary for establishing the necessary control and layout. If required by specifications or the bid category scope of work layout shall be performed by a licensed surveyor
- B. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify General Contractor promptly.
- C. General: Engage a qualified person, land surveyor or professional engineer as specified to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 2. Establish limits on use of Project site.
 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 4. Inform installers of lines and levels to which they must comply.
 5. Check the location, level and plumb, of every major element as the Work progresses.
 6. Notify Architect and Construction Manager when deviations from required lines and levels exceed allowable tolerances.
 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- D. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- E. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- F. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect and Construction Manager.

3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, and control points.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect or Construction Manager. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect and Construction Manager before proceeding.
 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.

4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Unless specifically noted as provided by others provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 2. Allow for building movement, including thermal expansion and contraction.
 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 - 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply

final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 OWNER-INSTALLED PRODUCTS

- A. Site Access: Provide access to Project site for Owner's construction personnel.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.
1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
 2. Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.8 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully. Comply with housekeeping requirements in Section 015000 "Temporary Facilities and Controls".
- B. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- C. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- D. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- E. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 017419 "Construction Waste Management and Disposal."
- F. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

- G. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- H. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.9 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.10 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Salvaging nonhazardous construction waste.
 - 2. Recycling nonhazardous construction waste.
 - 3. Disposing of nonhazardous construction waste.
- B. Related Requirements, if applicable:
 - 1. Not applicable

1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, demolition, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Disposal: Removal off-site of construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to the General Contractor, Owner, local codes, or authorities having jurisdiction.
- C. Recycle: Recovery of construction waste for subsequent processing in preparation for reuse.
- D. Salvage: Recovery of construction waste and subsequent sale or reuse in another facility.
- E. Salvage and Reuse: Recovery of construction waste and subsequent incorporation into the Work.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials. Including, but not limited to, the following:
 - 1. Construction Waste:
 - a. Asphalt paving
 - b. Concrete

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- c. Concrete reinforcing steel
- d. Masonry and CMU
- e. Lumber
- f. Wood joists
- g. Plywood and oriented strand board
- h. Wood paneling
- i. Wood trim
- j. Structural and miscellaneous steel
- k. Rough hardware
- l. Roofing
- m. Insulation
- n. Doors and frames
- o. Door hardware
- p. Windows
- q. Glazing
- r. Metal studs
- s. Miscellaneous Metals
- t. Gypsum board
- u. Acoustical tile and panels
- v. Insulation
- w. Carpet
- x. Carpet pad
- y. Demountable partitions
- z. Equipment
- aa. Cabinets
- bb. Plumbing fixtures
- cc. Piping
- dd. Supports and hangers
- ee. Valves
- ff. Sprinklers
- gg. Mechanical equipment
- hh. Refrigerants
- ii. Electrical conduit
- jj. Copper wiring
- kk. Lighting fixtures
- ll. Lamps
- mm. Ballasts
- nn. Electrical devices
- oo. Switchgear and panelboards
- pp. Transformers
- qq. Masonry and CMU
- rr. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
 - 1) Paper
 - 2) Cardboard
 - 3) Boxes
 - 4) Plastic sheet and film
 - 5) Polystyrene packaging
 - 6) Wood crates
 - 7) Plastic pails

1.5 ACTION SUBMITTALS

- A. Acknowledgement of the General Contractor's Waste Management Plan: Submit acknowledgement form of plan within 7 days of receipt of the subcontract, the notice of commencement, or notice to proceed. No subcontractor shall commence work prior to submitting the Waste Management Plan Acknowledgement form.

1.6 INFORMATIONAL SUBMITTALS

- A. General: General Contractor reserves the right to handle waste transfer services directly through a contracted waste transfer service. All waste reports will be generated by the waste transfer service. Subcontractors shall comply by the Construction Waste Management Plan
- B. Records of Donations: No material is to be donated without prior approval from the General Contractor. If material is to be donated, indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt. No material is to be donated without the weight of the material recorded and submitted to the General Contractor.
- C. Records of Sales: No material is to be salvaged or sold without prior approval from the General Contractor. Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt. No material is to be salvaged or sold without the weight of the material recorded and submitted to the General Contractor.
- D. Recycling and Processing Facility Records: No material is to be recycled or taken to a processing facility without prior approval from the General Contractor. Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices. No material is to be recycled or taken to a processing facility without the weight of the material recorded and submitted to the General Contractor.
- E. Landfill and Incinerator Disposal Records: No material is to be incinerated or taken to a landfill without prior approval from the General Contractor. Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices. No material is to be incinerated or taken to a landfill without the weight of the material recorded and submitted to the General Contractor.
- F. Qualification Data: For refrigerant recovery technician, if applicable.
- G. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered. Provide documentation to the General Contractor.

1.7 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

- C. Waste Management Conference: All contractors and subcontractors shall attend a pre-construction conference at the project site prior to commencing their work to review methods and procedures related to waste management including, but not limited to, the following:
1. Review and discuss waste management plan including responsibilities of waste management coordinator.
 2. Review requirements for documenting quantities of each type of waste and its disposition.
 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 5. Review waste management requirements for each trade.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
1. Comply with operation, termination, and removal requirements in Section 015000 "Temporary Facilities and Controls."
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan
- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
1. Distribute waste management plan to everyone concerned with the contract documents and subcontracts.
 2. Distribute waste management plan to entities prior to first beginning work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 2. Comply with Section 015000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.
- E. Waste Management in Historic Zones or Areas: Hauling equipment and other materials shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, by 12 inches or more.

3.2 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Reuse in the Work: Salvage items for reuse and handle as follows:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
 - 3. Store items in a secure area until installation.
 - 4. Protect items from damage during transport and storage.
 - 5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
- B. Salvaged Items for Sale: Not permitted on project site.
- C. Salvaged Items for Owner's Use: Salvage items for Owner's use and handle as follows:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
 - 3. Store items in a secure area until delivery to Owner.
 - 4. Transport items to Owner's storage area as designated by Owner.
 - 5. Protect items from damage during transport and storage.
- D. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.
- E. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.
- F. Plumbing Fixtures: Separate by type and size.
- G. Lighting Fixtures: Separate lamps by type and protect from breakage.
- H. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Receivers and Processors: List below is provided for information only; available recycling receivers and processors include, but are not limited to, the following:
 - 1. Refer to Construction Waste Management Plan for applicable waste haulers and processing facility locations.
- C. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Owner.
- D. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

- E. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
 - 1. General Contractor shall provide appropriately marked containers or bins for controlling recyclable waste until removed from project site. Include list of acceptable and unacceptable materials at each container and bin.
 - a. Inspect containers and bins for contamination and remove contaminated materials if found.
 - 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 - 4. Store components off the ground and protect from the weather.
 - 5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.

3.4 RECYCLING DEMOLITION WASTE

- A. Asphalt Paving: Grind asphalt to maximum 1-1/2-inch size.
 - 1. Crush asphaltic concrete paving and screen to comply with requirements in Section 312000 "Earth Moving" for use as general fill if applicable.
- B. Asphalt Paving: Break up and transport paving to asphalt-recycling facility.
- C. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
 - 1. Pulverize concrete to maximum 1-1/2-inch size.
 - 2. Crush concrete and screen to comply with requirements in Section 312000 "Earth Moving" for use as satisfactory soil for fill or subbase, if applicable.
- D. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
- E. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.
- F. Metals: Separate metals by type.
 - 1. Structural Steel: Stack members according to size, type of member, and length.
 - 2. Remove and place bolts, nuts, washers, and other rough hardware into metal recycling container.
- G. Asphalt Shingle Roofing: Separate organic and glass-fiber asphalt shingles and felts. Remove and dispose of nails, staples, and metal accessories and place into metal recycling dumpster.
- H. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and place fasteners into metal recycling container.

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- I. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.
- J. Metal Suspension System: Separate metal members including trim, and other metals from acoustical panels and tile and sort with other metals.
- K. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.
 - 1. Store clean, dry carpet and pad in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
- L. Carpet Tile: Remove debris, trash, and adhesive.
 - 1. Stack tile on pallet and store clean, dry carpet in a closed container or trailer.
- M. Piping: Place metal piping into metal recycling container.
- N. Conduit: Place metal conduit into metal recycling container.

3.5 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
 - 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and place into the provided cardboard recycling container.
 - 2. Polystyrene Packaging: Separate and bag materials.
 - 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 - 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Wood Materials:
 - 1. Clean Cut-Offs of Lumber: Place into wood recycling container or stockpile.
 - 2. Clean Sawdust: Place sawdust into wood recycling container or stockpile.
- C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

3.6 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and dispose of into general trash container.
- B. Burning: Do not burn waste materials.

END OF SECTION 017419

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
- B. Related Requirements:
 - 1. Section 017300 "Execution" for progress cleaning of Project site.
 - 2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 3. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
 - 4. Section 017900 "Demonstration and Training" for requirements for instructing Owner's personnel.

1.3 ACTION SUBMITTALS

- A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- B. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Occupancy: Obtain and submit Certificate of Occupancy from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 - 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by General Contractor. Label with manufacturer's name and model number where applicable.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain General Contractor's signature for receipt of submittals.
 - 5. Submit test/adjust/balance records.
 - 6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 3. Complete startup and testing of systems and equipment.
 - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 - 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
 - 6. Advise Owner of changeover in heat and other utilities.
 - 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 - 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 9. Complete final cleaning requirements, including touchup painting.
 - 10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect and General Contractor will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
 - 1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
 - 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 - 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect and General Contractor will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Use CSI Form 14.1A or similar format.
 - a. MS Excel electronic file. Architect, through General Contractor, will return annotated file.

1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
 - 4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
 - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.

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- a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory.
 - 2. Operation manuals for systems, subsystems, and equipment.
 - 3. Product maintenance manuals.
 - 4. Systems and equipment maintenance manuals.
- B. Related Requirements:
 - 1. Section 011200 "Multiple Contract Summary" for coordinating operation and maintenance manuals covering the Work of multiple contracts.
 - 2. Section 013300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Architect will comment on whether content of operations and maintenance submittals are acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:
 - 1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.

- a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
 - b. Enable inserted reviewer comments on draft submittals.
2. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.
 1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within **15** days of receipt of Architect's comments and prior to commencing demonstration and training.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Include a section in the directory for each of the following:
 1. List of documents.
 2. List of systems.
 3. List of equipment.
 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 REQUIREMENTS FOR OPERATION AND MAINTENANCE MANUALS

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 - 1. Title page.
 - 2. Table of contents.
 - 3. Manual contents.
- B. Title Page: Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.
 - 3. Name and address of Owner.
 - 4. Date of submittal.
 - 5. Name and contact information for Contractor.
 - 6. Name and contact information for Construction Manager.
 - 7. Name and contact information for Architect.
 - 8. Name and contact information for Commissioning Authority.
 - 9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
 - 10. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
 - 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
 - 1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 - 2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.
- F. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.
 - 1. Binders: Heavy-duty, three-ring, vinyl-covered, binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on

spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

- a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
 4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
 5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 2. Performance and design criteria if Contractor has delegated design responsibility.
 3. Operating standards.
 4. Operating procedures.
 5. Operating logs.
 6. Wiring diagrams.
 7. Control diagrams.
 8. Piped system diagrams.
 9. Precautions against improper use.
 10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
 1. Product name and model number. Use designations for products indicated on Contract Documents.
 2. Manufacturer's name.
 3. Equipment identification with serial number of each component.
 4. Equipment function.
 5. Operating characteristics.
 6. Limiting conditions.

7. Performance curves.
 8. Engineering data and tests.
 9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
 2. Equipment or system break-in procedures.
 3. Routine and normal operating instructions.
 4. Regulation and control procedures.
 5. Instructions on stopping.
 6. Normal shutdown instructions.
 7. Seasonal and weekend operating instructions.
 8. Required sequences for electric or electronic systems.
 9. Special operating instructions and procedures.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUALS

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Product Information: Include the following, as applicable:
1. Product name and model number.
 2. Manufacturer's name.
 3. Color, pattern, and texture.
 4. Material and chemical composition.
 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
1. Inspection procedures.
 2. Types of cleaning agents to be used and methods of cleaning.
 3. List of cleaning agents and methods of cleaning detrimental to product.
 4. Schedule for routine cleaning and maintenance.
 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - 1. Standard maintenance instructions and bulletins.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - 1. Test and inspection instructions.
 - 2. Troubleshooting guide.
 - 3. Precautions against improper maintenance.
 - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - 5. Aligning, adjusting, and checking instructions.
 - 6. Demonstration and training video recording, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
 - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

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- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to operation and maintenance manuals.
- B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
 - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 - 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
 - 1. Do not use original project record documents as part of operation and maintenance manuals.
 - 2. Comply with requirements of newly prepared record Drawings in Section 017839 "Project Record Documents."
- F. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.
- B. Related Requirements:
 - 1. Section 011200 "Multiple Contract Summary" for coordinating project record documents covering the Work of multiple contracts.
 - 2. Section 017700 "Closeout Procedures" for general closeout procedures.
 - 3. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit three set(s) of marked-up record prints.
 - 2. Number of Copies: Submit copies of record Drawings as follows:
 - a. Submittal:
 - 1) Submit three paper-copy set(s) of marked-up record prints whether or not changes and additional information were recorded.
 - 2) Submit PDF electronic files of scanned record prints and one of file prints.
 - 3) Submit record digital data files and one set(s) of plots.
 - 4) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding archive photographic documentation.
 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by RFI, Change Order or Construction Change Directive.
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings and Shop Drawings completely and accurately.
 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect and General Contractor. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Same digital data software program, version, and operating system as the original Contract Drawings.
 2. Format: DWG, Version 2010, Microsoft Windows operating system.
 3. Format: Annotated PDF electronic file with comment function enabled.

4. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 5. Refer instances of uncertainty to Architect through General Contractor for resolution.
 6. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
 - a. See Section 013300 "Submittal Procedures" for requirements related to use of Architect's digital data files.
 - b. Architect will provide data file layer information. Record markups in separate layers.
- C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets.
 2. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect and General Contractor.
 - e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
- B. Format: Submit record Specifications as annotated PDF electronic file.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as PDF electronic file.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's and General Contractor's reference during normal working hours.

END OF SECTION 017839

SECTION 017900 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Demonstration of operation of systems, subsystems, and equipment.
 - 2. Training in operation and maintenance of systems, subsystems, and equipment.
 - 3. Demonstration and training video recordings.

1.3 INFORMATIONAL SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of live instructional module.
- B. Attendance Record: For each training module, submit list of participants and length of instruction time.

1.4 CLOSEOUT SUBMITTALS

- A. Demonstration and Training Video Recordings: Submit three copies within seven days of end of each training module.
 - 1. Identification: On each copy, provide an applied label with the following information:
 - a. Name of Project.
 - b. Name and address of videographer.
 - c. Name of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.
 - f. Date of video recording.
 - 2. Transcript: Prepared in PDF electronic format. Include a cover sheet with same label information as the corresponding video recording and a table of contents with links to corresponding training components. Include name of Project and date of video recording on each page.

3. At completion of training, submit complete training manual(s) for Owner's use.

1.5 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.
- C. Videographer Qualifications: A professional videographer who is experienced photographing demonstration and training events similar to those required.
- D. Preconstruction Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
 1. Inspect and discuss locations and other facilities required for instruction.
 2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
 3. Review required content of instruction.
 4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.6 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:

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1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Operations manuals.
 - c. Maintenance manuals.
 - d. Project record documents.
 - e. Identification systems.
 - f. Warranties and bonds.
 - g. Maintenance service agreements and similar continuing commitments.
3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.
 - c. Shutdown instructions for each type of emergency.
 - d. Operating instructions for conditions outside of normal operating limits.
 - e. Sequences for electric or electronic systems.
 - f. Special operating instructions and procedures.
4. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.
 - l. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
5. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
6. Troubleshooting: Include the following:

- a. Diagnostic instructions.
 - b. Test and inspection procedures.
7. Maintenance: Include the following:
- a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning
 - e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.
8. Repairs: Include the following:
- a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."
- B. Set up instructional equipment at instruction location.

3.2 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Owner will furnish Contractor with names and positions of participants.
- C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training with Owner, through General Contractor, with at least seven days' advance notice.
- D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.

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- E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of an oral, written or demonstration performance-based test.
- F. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

3.3 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. General: If required by the equipment or system specification engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
 - 1. At beginning of each training module, record each chart containing learning objective and lesson outline.
- B. Video: Provide minimum 640 x 480 video resolution converted to format file type acceptable to Owner, on electronic media.
 - 1. Electronic Media: Read-only format compact disc acceptable to Owner, with commercial-grade graphic label.
 - 2. File Hierarchy: Organize folder structure and file locations according to project manual table of contents. Provide complete screen-based menu.
 - 3. File Names: Utilize file names based upon name of equipment generally described in video segment, as identified in Project specifications.
 - 4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the Equipment Demonstration and Training DVD that describes the following for each Contractor involved on the Project, arranged according to Project table of contents:
 - a. Name of Contractor/Installer.
 - b. Business address.
 - c. Business phone number.
 - d. Point of contact.
 - e. E-mail address.
- C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.
 - 1. Film training session(s) in segments not to exceed 15 minutes.
 - a. Produce segments to present a single significant piece of equipment per segment.
 - b. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.
 - c. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming and pause training session. Begin training session again upon commencement of new filming segment.
- D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.
 - 1. Furnish additional portable lighting as required.

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- E. Narration: Describe scenes on video recording by audio narration by microphone while video recording is recorded. Include description of items being viewed.
- F. Transcript: Provide a transcript of the narration. Display images and running time captured from videotape opposite the corresponding narration segment.
- G. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

END OF SECTION 017900