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ADDENDUM NO. 2

MIDLAND COUNTY ESA
MIDLAND, MICHIGAN

WTA Project No. 2022006.1
September 8th, 2023

The following clarifications, modifications and/or revisions to the above project shall be considered a part of the original drawings and specifications.

It shall be the responsibility of the contractor to notify their subcontractors and/or suppliers of the clarifications, modifications, and/or revisions included herein.

GENERAL

Item G1: Refer to Specification TABLE OF CONTENTS (attached):

a. New Specification Sections Added.

Item G2: Refer to Specification 07 41 13.6 (attached):

a. New Specification Section Added.
    a. Standing Seam Metal Roof

Item G3: Refer to Specification 095000 (attached):

a. New Specification Section Added.
    a. Acoustical Metal Panel Ceilings

Item G4: Refer to Specification 095113 (attached):

a. Revised Specification Section.

Item G5: Refer to Specification 101100 (attached):

a. Revised Specification Section.

Item G6: Refer to Specification 101400 (attached):

a. Revised Specification Section.

Item G7: Refer to Specification 109000 (attached):

a. New Specification Section Added.

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SPACE SOLVED.

a. Suspended Metal Channel Grid System

Item G8: Refer to Specification 142100 (attached):

a. New Specification Section Added.
    a. Elevator Modernization

ARCHITECTURAL

Item A1: Refer to Interior Elevation Drawings A8.01, A8.02, A8.03(attached):

a. Elevation 1/A8.01: Revised size of upper cabinet.
b. Revisions to Specialty Schedule.

Item A2: Refer to Drawing A8.03 (attached):

a. Ref. Elevation 3: Added notation and revised dimension for plastic laminate apron.
b. Ref. Elevation 17:
    1. Eliminated gap adjacent to tall storage.
    2. Added plastic laminate filler.
    3. Revised upper cabinet and apron Width.

Item A3: Refer to Drawing A3.00 (attached):

a. New Wall type WFT-9
b. B-3 Brick type added

Item A4: Refer to Room Finish Drawings A3.01, A3.02, A3.03, A3.04, A3,05 (attached).

a. RFT-9 was changed to RFT-3
b. Finish Plan Key Added for room tag clarification
c. Wally Type WFT-9 added to Toilet Rooms where applicable.
d. Added Flooring notes in Exercise room 142.
e.

Item A5: Refer to Reflected Ceiling Plan A9.11 (attached).

a. New ceiling in Gym – ACT-3.
b. Edit to ACT-2 hatch.

c.

Item A6: Refer to Project Information Sheet G0.01

a. Updated Wall Type Section Numbers

Item A7: Refer to Floor Plan Sheets A2.11, A2.12, A2.13, A2.14, A2.15 (attached)

a. Added Specialty and Equipment schedules to sheets.
b. Added Climbing Wall to Specialty Equipment Schedule & floorplan.
c. Revised Glass Markerboard SP-01B size and locations.
d. Revised wall type at new walls on sheet A2.12 & A2.15

Item A8: Refer to Demolition Reflected Ceiling Plan sheet AD2.12 (attached)

a. Added demolition of Gymnasium ceiling.

Item A9: Refer to Drawing A8.01 (attached):

c. Elevation 1: Revised size of upper cabinet.

Item A10: Refer to Drawing A8.03 (attached):

c. Ref. Elevation 3: Added notation and revised dimension for plastic laminate apron.
d. Ref. Elevation 17:
    4. Eliminated gap adjacent to tall storage.
    5. Added plastic laminate filler.
    6. Revised upper cabinet and apron Width.

Item A11: Refer to Drawing A3.11 (attached):

a. Added dimensions from floor on window elevations.
b. Revised keyed sill detail for windows W1B, W1C, W1D, W2B, W2C, W2D.
c. Ref. W5:
    a. Revised dimensions of mullion grid and door.
d. Ref. W6:
    a. Revised dimensions of mullion grid and door.
e. Ref. W7:
    a. Revised dimensions of mullion grid and door.

f. Ref. W8:
    a. Revised dimensions of mullion grid and door.
g. Ref. W15 and W16:
    a. Revised mullion width at corner window.
h. Ref. WB:
    a. Revised dimensions of mullion grid and door.
i. Ref. W19:
    a. Added hatch to show impact resistant film.
j. Ref. W21:
    a. Added door frame beneath window and added dimensions.
k. Added note to Frame Type General Notes

Item A12: Refer to Drawing A3.12 (attached):

a. Added 17/A3.12 bond beam drawing.

Item A13: Refer to Drawing A5.10 (attached):

a. Ref. EXTERIOR ELEVATION - EAST
    a. Added W8 window tag.

Item A14: Refer to Drawing A5.13 (attached):

a. Relocated Canopy Detail to A6.12.
b. Ref. 4/A5.13:
    i. Added grout hatch behind backer rod and sealant.

Item A15: Refer to Drawing A6.10 (attached):

a. Ref. 9/A6.10:
    a. Revised view name.
    b. Revised concrete hatch pattern.
    c. Added dimensions to lap.
b. Ref. 10/A6.10:
    a. Revised canopy detailing.
    b. Added dimensions to lap.
    c. Revised view name.
    d. Revised concrete hatch pattern.
    e. Revised stone hatch pattern.
c. Ref. 11/A6.10:

a. Added lap and dimensions @ roof.

Item A16: Refer to Drawing A6.11 (attached):

a. Halftoned existing construction on 5/A6.11, 6/A6.11, 7, /A6.11, 8/A6.11.
b. Added elevation markers to parapets drawings.
c. Ref. 8/A6.11:
    a. Removed unnecessary notes.
    b. Revised hatch pattern of compressible expansion joint.
    c. Revised name of view.
d. Ref. 7/A6.11:
    a. Revised notes.
e. Ref. 6/A6.11:
    a. Added slope arrow.

Item A17: Refer to Drawing A6.12 (attached):

a. Added drawings roof plan details: 8/A6.12, 9/A6.12.
b. Added enlarged detail: 7/A6.12.
c. Revised drawing 6/A6.12.

Item A18: Refer to Drawing A7.01 (attached):

a. Bond beams added per structural.
b. Revised callout referenced drawing.

Item A19: Refer to Drawing A7.02 (attached):

a. Bond beams added per structural.

Item A20: Refer to Drawing A7.03 (attached):

a. Bond beams added per structural.
a. Revised callout referenced drawing.

Item A21: Refer to Drawing A7.04 (attached):

a. Ref: 1/A.704:
    a. Revised hatch pattern on wall.
b. Ref: 2/A.704.
    a. Added dimensions and changed heights.
    b. Revised wall composition.
    c. Bond beams added per structural.

ELECTRICAL

Item E1: Reference Drawing SE1.01 (Re-Issued).
a. Show underground electrical and spare conduit for controls from the building to new sign with switch as disconnect.
b. Added Keynote 2.

Item E2: Reference Drawing E1.02 (Re-Issued).
a. Added Keynote 13 for fans in gym.

Item E3: Reference Drawing E2.01 (Re-Issued).
a. IT Suite Room 0003. Fixtures changed from "J3" to "J2".
b. Janitor Room 009. Switch changed from a key switch to dimmer.
c. Added Keynote 3, for downlight in staff lounge.

Item E4: Reference Drawing E2.02 (Re-Issued).
a. Added Keynote 8, for fans in gym.
b. Fixed wording on Keynote 6.
c. Janitor Closet Room 104G, switches changed from keyed to dimmer.
d. Added emergency light in hallway.
e. Changed fixture to J2 in Room TLT 110A.

Item E5: Reference Drawing E2.03 (Re-Issued).
a. Added keyed switches in corridor to control lights.
b. Added Keynote 7.
c. Added circuit to section of corridor downlight.

Item E6: Reference Drawing E2.04 (Re-Issued).
a. Added emergency lights in corridor.
b. Fixed controls and circuits in Room 319.
c. Added emergency lights in bathrooms.
d. Made north stairwell lights wireless.
e. Added Keynote 1 to switches in Room 300 and 300A.

Item E7: Reference Drawing E2.05 (Re-Issued).
a. Changed light fixture types in the Hive. See drawings.
b. Changed motion switch to normal in janitor's closet.
c. Fixed controls in Quiet Room 138B with power pack.

Item E8: Reference Drawing E2.06 (Re-Issued).
a. Added pull station at building exit in the stairwell.
b. Added underground electrical to LED sign.

Item E9: Reference Drawing E2.07 (Re-Issued).
a. Added Keynote 24 and 25.
b. Showing power for microwave, TV, and dishwasher in life skills.
c. Adjusted receptacle locations in classrooms to be above counter top.

Item E10: Reference Drawing E2.08 (Re-Issued).
a. Added Keynote 1 to receptacles in Superintendent's Office 212C and Admin Conference Room 210.
b. Added pull station in stairwell next to exit.
c. Added circuit to EWH-2 in Storage Room 215C.

Item E11: Reference Drawing E2.09 (Re-Issued).
a. Added receptacle and Keynote 1 in Office 319B.

Item E12: Reference Drawing E2.10 (Re-Issued).
a. Added Keynote 16.
b. Added power for dishwasher in the Hive.

Item E13: Reference Drawing E4.01 (Re-Issued).
a. Added missing fixtures to lighting schedules.
b. Removed fixtures B8, B8E, C8, C8E, and I3 from lighting schedule.

Item E14: Reference Drawing E4.04 (Re-Issued).
a. Added LED sign on panel LP3, Circuit 42.
b. Changed circuits 71, 73, and 74 in panel RP1B SUB from spare to new loads.
c. Changed circuit 5 on panel RP1C-A from spare to dishwasher with new load.
d. Changed circuit 5 on panel RP2A from spare to EWH-2 with new load.

Item E15: Reference Fire Alarm System (Not Re-Issued).

- Note that the new voice evacuation fire alarms system shall be a phased project based on the building construction and remodel phasing plan. Install new and/or cross tie main fire alarm control panels as required to maintain fire alarm coverage through construction. Include all costs associated with the phasing with bid.

END OF ADDENDUM NO. 2

WTA Architects

JORDAN JOHNSTON

Cc: Brett Fales, TRC
Thom Laney, TRC
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Megan Thomas, WTA

SECTION – 074113.6 STANDING-SEAM METAL ROOF PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Standing-seam metal roof panels.

B. Related Requirements:
   1. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.2 ACTION SUBMITTALS

A. Product Data: For standing-seam metal roof panels. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

B. Shop Drawings:

   1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
   2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches (1:10).

C. Samples for Initial Selection: For each type of metal panel indicated with factory-applied color finishes.

   1. Include similar Samples of trim and accessories involving color selection.

D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.

   1. Metal Panels: 12 inches (305 mm) long by actual panel width. Include clips, fasteners, closures, and other metal panel accessories.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For standing-seam metal roof panels, for tests performed by a qualified testing agency.

C. Field quality-control reports.

D. Sample Warranties: For special warranties.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal panels to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

B. UL-Certified, Portable Roll-Forming Equipment: UL-certified, portable roll-forming equipment capable of producing metal panels warranted by manufacturer to be the same as factory-formed products. Maintain UL certification of portable roll-forming equipment for duration of work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.

B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.

D. Retain strippable protective covering on metal panels during installation.

E. Copper Panels: Wear gloves when handling to prevent fingerprints and soiling of surface.

1.7 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

1.8 COORDINATION

A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.

B. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including rupturing, cracking, or puncturing.
b. Deterioration of metals and other materials beyond normal weathering.

2. Warranty Period: Two years from date of Substantial Completion.

B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Delta E units when tested according to ASTM D2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

C. Special Weathertightness Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that fail to remain weathertight, including leaks, within specified warranty period.

Verify available warranties and warranty periods for units and components made by manufacturers listed in Part 2 articles.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 STANDING-SEAM METAL ROOF PANELS

A. Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.

1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E1514.

2. Aluminum Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E1637.

Copy paragraphs below and re-edit for each product.

Insert drawing designation for each product required. Use these designations on Drawings to identify each product.

B. Vertical-Rib, Snap-Joint, Standing-Seam Metal Roof Panels <: Formed with vertical ribs at panel edges and intermediate stiffening ribs symmetrically spaced between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels, engaging opposite edge of adjacent panels, and snapping panels together.

1. Basis of Design: Pac-Clad, Snap-Clad metal roofing panels
2. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A653/A653M, G90 (Z275) coating designation, or aluminum-zinc alloy-coated steel sheet complying with ASTM A792/A792M, Class AZ50 (Class AZM150) coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A755/A755M.

a. Nominal Thickness: .032.
b. Exterior Finish: Two-coat fluoropolymer
c. Color: As selected by Architect from manufacturer's full range.

2.2 MISCELLANEOUS MATERIALS

A. Miscellaneous Metal Subframing and Furring: ASTM C645; cold-formed, metallic-coated steel sheet, ASTM A653/A653M, G90 (Z275) hot-dip galvanized coating designation or ASTM A792/A792M, Class AZ50 (Class AZM150) coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.

B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed

openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.

D. Panel Fasteners: Self-tapping screws designed to withstand design loads.

E. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
2. Joint Sealant: ASTM C920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

2.3 FABRICATION

A. Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

C. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.

D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.

a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal panel manufacturer for application, but not less than thickness of metal being secured.

2.4 FINISHES

A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

C. Steel Panels and Accessories:

1. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.

1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.
2. Examine solid roof sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal roof panel manufacturer.

a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C754 and metal panel manufacturer's written recommendations.

3.3 INSTALLATION OF STANDING-SEAM METAL ROOF PANELS

A. Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Shim or otherwise plumb substrates receiving metal panels.
2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
3. Install screw fasteners in predrilled holes.
4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Install flashing and trim as metal panel work proceeds.
6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
7. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
8. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.

B. Fasteners:

1. Steel Panels: Use stainless steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.
2. Aluminum Panels: Use aluminum or stainless steel fasteners for surfaces exposed to the exterior; use aluminum or galvanized-steel fasteners for surfaces exposed to the interior.
3. Copper Panels: Use copper, stainless steel, or hardware-bronze fasteners.
4. Stainless Steel Panels: Use stainless steel fasteners.

C. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.

D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.

E. Standing-Seam Metal Roof Panel Installation: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended in writing by manufacturer.

1. Install clips to supports with self-tapping fasteners.

2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
3. Snap Joint: Nest standing seams and fasten together by interlocking and completely engaging factory-applied sealant.
4. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.
5. Watertight Installation:

    a. Apply a continuous ribbon of sealant or tape to seal joints of metal panels, using sealant or tape as recommend in writing by manufacturer as needed to make panels watertight.
    b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
    c. At panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with sealant and fastened together by interlocking clamping plates.

3.4 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align metal panel units within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines as indicated and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.5 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect metal roof panel installation, including accessories. Report results in writing.

B. Remove and replace applications of metal roof panels where tests and inspections indicate that they do not comply with specified requirements.

C. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.

D. Prepare test and inspection reports.

3.6 CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

B. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074113.16

SECTION 095113 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes acoustical panels and exposed suspension systems for ceilings.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.
B. Maintenance data.

1.3 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of acoustical ceiling panel and supporting suspension system through one source from a single manufacturer.
B. Fire-Test-Response Characteristics:
   1. Surface-Burning Characteristics: Acoustical panels complying with ASTM E 1264 for Class A materials, when tested per ASTM E 84.
      a. Smoke-Developed Index: 450 or less.
C. Preinstallation Conference: Conduct conference at Project site.

1.4 WARRANTY

A. Manufacturer's standard form where manufacturer agrees to replace defective products within the specified period:
   1. Warranty Period: 30 years against visible sag, mold, mildew, and bacteria.

1.5 PROJECT CONDITIONS

A. Environmental Limitation: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

1.6 COORDINATION

A. Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment and partition assemblies.

1.7 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Acoustical Ceiling Panels: Full-size panels equal to 5.0 percent of quantity installed.
   2. Suspension System Components: Quantity of each exposed component equal to 2.0 percent of quantity installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
   1. Basis-of-Design products: Armstrong World Industries, Inc.,

Subject to compliance with requirements, provide products specified.
   a. Celotex Corporation
   b. CertainTeed Corp.
   c. Substitutions: See Section 012500 - Product Requirements.

2.2 GENERAL

A. Acoustical Panel Standard: Comply with ASTM E 1264.
B. Metal Suspension System Standard: Comply with ASTM C 635.
C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
D. Wire Hangers, Braces, and Ties: Zinc-coated carbon-steel wire; ASTM A 641/A 641M Class 1 zinc coating, soft temper.
   1. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch- (2.69-mm-) diameter wire.
E. Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical panel edge details and suspension systems indicated; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners. Where bullnose corners occur, provide preformed corners to match edge moldings.
F. Antimicrobial Fungicide Treatment: Provide acoustical panels with face and back surfaces coated with antimicrobial treatment consisting of manufacturer's standard formulation with fungicide added to inhibit growth of mold and mildew and showing no mold or mildew growth when tested according to ASTM D 3273 and evaluated according to ASTM D 3274 or ASTM G 21.

2.3 ACOUSTICAL PANELS,

A. Products: **ACT-1**:
   1. Basis-of-Design: USG Interiors, Inc.; Product: Radar Clima-Plus High-NRC.
   2. Color: White.
   3. LR: Not less than 0.84.
   4. NRC: Not less than 0.70.
   5. CAC: Not less than 35.
   6. Edge Detail: Square.
   7. Thickness: 3/4 inch.
   8. Size: 24 by 24.

B. Products: **ACT-3**:
   1. Basis-of-Design: Armstrong, Inc.; Product: Tectum Lay-in
   2. Color: White
   3. LR: Not less than 0.75.
   4. Accessories: Hold Down Clips
   5. Edge Detail: Square.
   6. Thickness: 1 inch.

7. Size: 24 by 24.

2.4 METAL SUSPENSION SYSTEM

A. Wide-Face Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet, pre-painted, electrolytically zinc coated, and hot-dip galvanized according to ASTM A 653/A 653M, with prefinished 15/16-inch-wide metal caps on flanges.
   1. Structural Classification: Intermediate-duty system.
   2. End Condition of Cross Runners: Butt-edge type.
   3. Cap Material: Steel cold-rolled sheet.
   4. Cap Finish: Painted white.
B. Basis-of-Design Manufacturer: USG Interiors, Inc.
   1. Equal products as manufactured by Armstrong World Industries, Inc., CertainTeed Corporation, or Celotex Corporation are also acceptable.
   2. Substitutions: See Section 012500 - Product Requirements.
C. Schedule of Suspension System Types:
   1. Donn DX/DXL.
   2. Prelude DX/DXL.
   3. Substitutions: See Section 012500 - Product Requirements.
D. Provide manufacturer's standard wall molding for all ceiling types.
E. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with ASTM C 636 per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
B. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.
C. Suspend ceiling hangers from building's structural members, plumb and free from contact with insulation or other objects within ceiling plenum. Splay hangers only where required and, if permitted with fire-resistance-rated ceilings, to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers, use trapezes or equivalent devices. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
   1. Do not attach hangers to steel deck tabs or to steel roof deck. Attach hangers to structural members.
   2. Space hangers not more than 48-inches (1200 mm) o.c. along each member supported directly from hangers, unless otherwise indicated; provide hangers not more than 8-inches (200 mm) from ends of each member.
   3. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
D. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs.
E. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels. Screw attach moldings to substrate

at intervals not more than 16 inches (400 mm) o.c. and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet (3.2 mm in 3.6 m). Miter corners accurately and connect securely.

F. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

G. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

3.2 CLEANING

A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings and suspension system members. Comply with manufacturer's instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095113

SECTION 101100 - VISUAL DISPLAY UNITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Visual display board assemblies.
   2. Markerboards.
   3. Tackboards.
   4. Tackable Panels
   5. Display rails.
   6. Art Hanging System.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.
B. Shop Drawings: For visual display units.
   1. Include plans, elevations, sections, details, and attachment to other work.
   2. Show locations of panel joints.
C. Samples: (1) physical sample for each type of visual display unit indicated.
D. Product Schedule: For visual display units.

1.3 INFORMATIONAL SUBMITTALS

A. Product test reports.
B. Sample warranties.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 WARRANTY

A. Special Warranty for Porcelain-Enamel Face Sheets: Manufacturer agrees to repair or replace porcelain-enamel face sheets that fail in materials or workmanship within specified warranty period.
   1. Warranty Period: 50 years from date of Substantial Completion.
   2. Warranty Period: Life of the building.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
   1. Flame-Spread Index: 25 or less.
   2. Smoke-Developed Index: 50 or less.
B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 MANUFACTURER

A. Basis-of-Design Product: Subject to compliance with requirements, provide Claridge Products and Equipment, Inc; or a comparable product by one of the following:
   1. AARCO Products, Inc.
   2. Egan Visual Inc.
   3. Marsh Industries, Inc.
   4. Peter Pepper Products, Inc.
   5. Architect approved equal.

2.3 MARKERBOARDS – PORCELAIN (SP-01, SP-01A)

Basis of Design product: Claridge Series 1 Markerboard with LCS surface.

A. Porcelain-Enamel Magnetic Markerboard Panels: Balanced, high-pressure, factory-laminated markerboard assembly of three-ply construction, consisting of moisture-barrier backing, core material, and porcelain-enamel face sheet. Laminate panels under heat and pressure with manufacturer's standard, flexible waterproof adhesive.
   1. Face Sheet Thickness: 0.021 inch (0.53 mm) uncoated base metal thickness.
   2. Medium-Density Fiberboard Core: 7/16 inch (11 mm) thick; with manufacturer's standard moisture-barrier backing.
   3. Laminating Adhesive: Manufacturer's standard moisture-resistant thermoplastic type.
   4. Full length marker tray and map rail with 2 map hooks.
   5. 1-1/2” face frame, anodized aluminum, satin finish.
   6. LCS writing surface, color: 100 White.
   7. Maprail Claridge Cork selected from standard colors.
   8. Marker tray- Standard continuous

2.4 MARKERBOARDS –GLASS (SP-01B)

Basis of Design product: Claridge Glass Dry Erase Magnetic Markerboard

A. Glass Magnetic Markerboard Panels
   1. ¼” Low iron, ultra clear glass
   2. Magnetic, Scratch and Stain resistant
   3. Mounting Option: Invisi-mount
   4. Standard Briliant White Color

2.5 TACKBOARDS (TACKBOARD SP-02, SP-02A, SP-02B)

Basis of Design Product: Claridge Tackboard Series 1 with Fabricork surface

A. Vinyl- faced tackboard units: factory-laminated tackboard assembly consisting of moisture-barrier backing, core material, and vinyl fabric face sheet.
   1. 1-1/2” face frame, anodized aluminum, satin finish.
   2. Fabricork surface, color: To be selected by Architect from manufacturer’s standard colors.

2.6 ART HANGING SYSTEM (ART TRACK SP-03)

Basis of Design Product: AS Hanging Display Systems, “Casso Display Rail”.

A. Commercial grade art display system consisting of materials and components required to provide a complete system for hanging artwork or signage of various sizes and types using a non-roller design.
   1. Mounting: linear wall
   2. Configuration: As indicated on drawings.
   3. Rail: Extruded aluminum wall track in 6 foot sections.
   4. Finish: Satin Anodized Silver
   5. Include all accessories for a complete system such as rail end caps, tensioners, etc. as recommended by the manufacturer.
   6. Dimensions: Refer to Drawings for layout, sizes and quantities.

2.7 MATERIALS

A. Porcelain-Enamel Face Sheet: PEI-1002, with face sheet manufacturer's standard two- or three-coat process.
B. High-Pressure Plastic Laminate: NEMA LD 3.
C. Plastic-Impregnated Cork Sheet: Seamless, homogeneous, self-sealing sheet consisting of granulated cork, linseed oil, resin binders, and dry pigments that are mixed and calendared onto fabric backing; with washable vinyl finish and integral color throughout with surface-burning characteristics indicated.
D. Composite Wood Products: Products shall be made without urea formaldehyde.
E. Hardboard: ANSI A135.4, tempered.
F. Particleboard: ANSI A208.1, Grade M-1.
G. Medium-Density Fiberboard: ANSI A208.2, Grade 130.
H. Fiberboard: ASTM C 208 cellulosic fiber insulating board.
I. Extruded Aluminum: ASTM B 221 (ASTM B 221M), Alloy 6063.
J. Adhesives for Field Application: Mildew-resistant, nonstaining adhesive for use with specific type of panels, sheets, or assemblies; and for substrate application; as recommended in writing by visual display unit manufacturer.
   1. Adhesives shall have a VOC content of 50 g/L or less.

2.8 ALUMINUM FINISHES

A. Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install visual display surfaces in locations and at mounting heights indicated on Drawings, or if not indicated, at heights indicated below. Keep perimeter lines straight, level, and plumb. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories necessary for complete installation.
B. Factory-Fabricated Visual Display Board Assemblies: Attach concealed clips, hangers, and grounds to wall surfaces and to visual display board assemblies with fasteners at not more than 16 inches (400 mm) o.c. Secure tops and bottoms of boards to walls.

C. Clean visual display surfaces according to manufacturer's written instructions. Attach one cleaning label to visual display surface in each room. Cover and protect visual display surfaces.

END OF SECTION 101100

SECTION 10 1400 – SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Room and door signs.
B. Dimensional characters.

1.2 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
B. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate 2014.
C. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.

1.3 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide manufacturer's data on each type of sign.
C. Shop Drawings: For each sign type, provide dimensioned elevation including letter sizes and locations, graphics, colors and finishes, mounting methods, mounting heights, and material descriptions.
D. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, sign and letter sizes, fonts, and colors.
    1. When room numbers to appear on signs differ from those on drawings, include the drawing room number on schedule.
    2. When content of signs is indicated to be determined later, request such information from Owner through Architect at least 2 months prior to start of fabrication; upon request, submit preliminary schedule.
    3. Submit for approval by Owner through Architect prior to fabrication.
E. Samples:
    1. Room and Door Signs: Submit 3 samples of each type of sign construction, of size similar to that required for project, illustrating sign style, font, colors, and method of attachment.
    2. Dimensional Characters: Submit 3 samples, full size, of each dimensional character style, font, color, and method of attachment.
        a. For specified sizes 12 inches and under, provide samples matching specified size.
        b. For specified sizes over 12 inches, provide 12 inch high samples unless actual specified size requested by Architect.
    3. Plaques: Provide samples upon Architect's request.
F. Verification Samples: Submit samples showing colors specified.
    1. Where colors are not specified, submit two sets of color selection charts or chips.
G. Maintenance Data: Include data on regular cleaning.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Company experienced in installing the products specified in this section with minimum 5 years documented experience.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Package signs as required to prevent damage before installation.
B. Store tape adhesive at normal room temperature.

1.6 FIELD CONDITIONS

A. Do not install tape adhesive when ambient temperature is lower than recommended by manufacturer.
B. Maintain this minimum temperature during and after installation of signs.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Room and Door Signs:
   1. ASI Signage Innovation: www.asisignage.com.
   2. Inpro Corporation: www.inprocorp.com.
   3. Foresight Supersign: www.foresightsupersign.net.
   4. The Supersine Company: www.supersine.com.
   5. Summit Advertising, Inc...
   6. Takeform
   7. Substitutions: See Section 01 2500 - Substitution Requirements.
B. Dimensional characters:
   1. A.R.K. Ramos: www.arkramos.com.
   2. Gemini Inc.: www.geminisignproducts.com.
   3. Substitutions: See Section 01 2500 - Substitution Requirements.

2.2 ROOM AND DOOR SIGNS

A. Sign Type: Flat signs with die-raised panel media as specified. Tactile characters and Braille shall be integral to sign face; separate adhesively-fixed characters are not permitted. Frameless.
   1. Accessibility Compliance: Signs are required to comply with ADA Standards and ICC A117.1 and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most comprehensive and specific requirements.
   2. Provide "tactile" signage, with letters raised minimum 1/32 inch and Grade II braille.
   3. The signage shall have a thin, ligature-resistant .22” profile. Edges eased for soft touch and feel.
B. Materials:
   1. Sign Material: Face material shall be 1/16" thickness transparent non-glare, optically corrected, polycarbonate sheet with reverse screen printed colored border and stripe, leaving center see-through areas for inserts..
   2. Backing Plate: As indicated in drawings.
C. Sign Properties:
   1. Sign Sizes and Shapes: As indicated.
   2. Character and Graphic Layouts: As indicated.
   3. Character Styles (Fonts): As indicated.

4. Character Sizes: As indicated.
5. Pictograms and Graphics: As indicated.

D. Colors and Finish:
1. First Background Colors: As indicated.
2. Character Colors: As indicated.
3. Pictograms and Graphics Colors: As indicated.

E. drop down Miscellaneous:
1. Changeable Message Inserts: Manufacturer's standard "window" section for replaceable text inserts; provide where indicated.
a. Window shall have a transparent cover to protect changeable messages.
b. Windows shall accommodate printed paper and engraved inserts.
c. Unless otherwise indicated, window opening shall have corner radiuses of 1/4 inch.

F. Mounting:
1. Walls Tape adhesive.
2. Glass: Tape adhesive with matching plate of same material as sign, on opposite side of glass to conceal mounting materials.
3. Bracket-Mounted 2-Sided Signs - Walls and Ceilings: Aluminum wall bracket, powder coated, color selected from manufacturer's standard colors, attached with screws in predrilled mounting holes.
4. Installation options shall include recessed, tamper-free fasteners, or silicone adhesive and mounting tape; both may be supplemented with pick-free caulk around the sign perimeter.

G. Locations - General:
1. Provide a sign for every doorway, whether it has a door or not, not including corridors, lobbies, and similar open areas.

H. Sign Layouts - General: Unless otherwise indicated provide the following:
1. Classrooms and Offices: Identify with room numbers to be determined later, not the numbers indicated on drawings; in addition, provide changeable message inserts. Include braille.
2. Conference and Meeting Rooms: Identify with room numbers to be determined later, not the numbers indicated on drawings. Include braille.
3. Storage and Janitor's Closet Rooms: Identify with room names and numbers to be determined later, not those indicated on drawings. Include braille.
4. Mechanical, Electrical, and Other Service Rooms: Identify with room names and numbers to be determined later, not those indicated on drawings. Include braille.
5. Rest Rooms: Identify with pictograms, the names "MEN" or "BOYS'" and "WOMEN" or "GIRLS", and braille.
6. Stairways: Identify with pictograms and the name "STAIR", and braille.
7. Elevators: Identify with pictograms and the name "ELEVATOR", and braille.
a. Emergency Text and Pictograms: Comply with requirements of authorities having jurisdiction indicating that in case of fire, elevators are out of service and stairway exits should be used instead.

2.3 DIMENSIONAL CHARACTERS

A. Metal Characters:
1. Cast Characters: Form individual characters by casting.
a. Fabricate characters with smooth surfaces and precisely formed profiles, lines, and edges; without pits and other imperfections. Cast lugs into back of characters and tap for threaded mounting studs.
b. Material:
1) Aluminum: In alloy and temper as recommended by

dimensional character manufacturer.
c. Character Styles (Fonts): As indicated.
d. Character Sizes: As indicated.
e. Finish: Clear anodized.
f. Mounting: Manufacturer's standard non-corrosive concealed studs (pin mounting). Provide fasteners as applicable for substrates indicated.
1) Projected Mounting: Mount dimensional characters 1 inch off substrate; from face of substrate to back of dimensional character.
2) At exterior locations, provide stainless steel fasteners and hardware.

2. Cut Characters: Cut characters from solid plate of thickness and metal indicated.
a. Precisely cut characters with smooth square edges.
b. Characters shall be flat and free of warps, distortions, or other surface imperfections.
c. Material:
1) Aluminum Plate: ASTM B209 in alloy and temper as recommended by dimensional character manufacturer.
(a) Thickness: 3/8 inch.
d. Character Styles (Fonts): As indicated.
e. Character Sizes: As indicated.
f. Finish: Clear anodized.
g. Mounting: Manufacturer's standard non-corrosive concealed studs (pin mounting). Provide fasteners as applicable for substrates indicated.
1) Projected Mounting: Mount dimensional characters 1 inch off the substrate; from face of substrate to back of dimensional character.
2) At exterior locations, provide stainless steel fasteners and hardware.

3. Fabricated Characters: Cut characters from metal sheet and thickness indicated.
a. Precisely form characters with welded returns; welds shall be ground smooth and continuous.
b. Characters shall be flat with sharp defined corners; free of warps, distortions or other surface imperfections.
c. Material:
1) Aluminum Sheet: ASTM B209 in alloy and temper as recommended by dimensional character manufacturer.
(a) Character Face Thickness: 0.09 inch, minimum.
(b) Character Return Thickness: 0.063 inch, minimum.
d. Character Styles (Fonts): As indicated.
e. Character Sizes: As indicated.
f. Character Return/Depths: As indicated.
g. Finish: Clear anodized.
h. Mounting: Manufacturer's standard non-corrosive concealed studs (pin mounting). Provide fasteners as applicable for substrates indicated.
1) Projected Mounting: Mount dimensional characters 1 inch off the substrate; from face of substrate to back of dimensional character.
2) At exterior locations, provide stainless steel fasteners and hardware.

2.4 ACCESSORIES

A. Tape Adhesive: Double sided tape, permanent adhesive.
1. Acrylic, foam carrier, pressure-sensitive tapes with release liner for permanent bonding.
a. Products:
1) 3M; VHB Tapes: www.3M.com.
(a) Provide specific VHB tape as recommended by tape

manufacturer for applicable substrates.

2) Substitutions: See Section 012500 - Product Requirements.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

3.2 INSTALLATION

A. General:
   1. Install in accordance with manufacturer's instructions.
   2. Install neatly, with horizontal edges level.
B. Room and Door Signs:
   1. Mounting Locations: Unless otherwise indicated, mount signs as follows:
      a. Locate signs and mount at heights indicated on drawings and in accordance with ADA Standards and ICC A117.1.
C. Dimensional Characters:
   1. Mount dimensional characters at heights and locations indicated; with characters equally spaced unless otherwise indicated.
D. Plaques:
   1. Mount plaques at heights and locations indicated.

3.3 CLEANING AND PROTECTION

A. Clean signage as recommended by signage manufacturer.
B. Protect from damage until Date of Substantial Completion; repair or replace damaged items.

END OF SECTION 101400

SECTION 109000 – SUSPENDED METAL CHANNEL GRID SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
   1. Suspended metal channel grid system.

1.2 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other Work.

1.3 QUALITY ASSURANCE

A. Source Limitations: Obtain all metal channels and accessories through one source from a single manufacturer.
B. Work shall meet the requirements of the following:
   1. Federal, State, and Local codes.
C. Provide all labor, supervision, engineering, and fabrication required for installation of the suspended metal channel grid system in accordance with the Contract Drawings and specified herein.

1.4 DELIVERY, STORAGE, AND HANDLING

A. All material is to be delivered to the work site in original factory packaging to avoid damage to the finish.
B. Upon delivery to the work site, all components shall be protected from the elements by a shelter or other covering.

1.5 WARRANTY

A. Manufacturer’s warranty shall be valid for one year against any defects that may arise from the installation or manufacture of the suspended metal grid system components.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. All channel members and components shall be as manufactured by Unistrut Corporation.

2.2 MATERIALS

A. All channel members shall be fabricated from structural grade steel conforming to one of the following ASTM specifications:
   1. A 1011 SS GR 33, A 653 GR 33.
B. All fitting shall be fabricated from steel conforming to one of the following ASTM specifications:
   1. A 575, A 576, A 36, or A635.

2.3 PRODUCT

A. Metal Channel Grid:
   1. Product Number: P1001.
      a. Description: Double-sided channel measuring 1-5/8" wide x 3-1/4" tall x 20' long with a weight of 3.8 pounds/foot, allowable moment of 14,390 inch-pounds, .105 inches thick.
B. Wall brackets: Provide 1-5/8" Double Channel Bracket, part no. UC2542 EG.
C. Miscellaneous hardware and fittings as required to complete system per manufacturer's standard.

2.4 FINISHES

A. Suspended metal channel grid system components shall be finished in accordance with one of the following standards:
   1. Manufacturer's standard rust inhibiting epoxy enamel paint applied by electro-deposition, after cleaning and phosphating, and thoroughly baked.
   2. Finish painting of installed grid is to be field painted by the painting contractor.

PART 3 - EXECUTION

3.1 EXAMINATION

A. The installer shall inspect the work area prior to installation. If work area conditions are unsatisfactory, installation shall not proceed until satisfactory corrections are completed.

3.2 INSTALLATION

A. Grid system is to be suspended from the steel joists with the threaded rod. Suspend only from the joist panel points.
B. Set suspended metal channel grid system components into final position true to line, level and plumb, in accordance with approved shop drawings.
C. Anchor material firmly in place where shown on the drawings. Tighten all connections to their recommended torques.

3.3 ADJUSTING, CLEANING, AND PROTECTION

A. Upon completion of this section of work, remove all protective wraps and debris. Repair any damage due to installation of this section of work.
B. During installation, it shall be the responsibility of the installer to protect this work from damage.
C. Upon completion of this scope of work, it shall be the responsibility of the general contractor to protect this work from damage during the remainder of the construction on the project and until substantial completion.

END OF SECTION 109000

Section 14210 – ELEVATOR MODERNIZATION

PART 1 - GENERAL

1.1 REPAIRS, MODIFICATIONS, MODERNIZATION

This specification is intended to cover repairs, modifications, and/or modernization of one (1) hydraulic passenger elevator as described hereinafter, in a first class workmanship-like manner, by the Elevator Contractor. Necessary field-measured general arrangement shop drawings covering the Scope of Work are to be provided by the Elevator Contractor. The shop drawings shall include, but not limited to, all hall and car fixtures, cab replacement including color selections and ceiling selections, limit switches, door operators and associated equipment, all landing door equipment, roller guide assemblies, controllers, pump unit, jack unit assembly, all specified hoistway equipment, and all other specified equipment to be replaced. All shop drawings shall be submitted within ten (10) working days of Owner's Notice to Proceed date. No work shall commence before the above referenced shop drawings are approved by the Elevator Consultant.

All work shall be performed during regular time hours of the elevator trade. Once the elevator modernization commences, the elevator contractor shall not pull off their manpower for any reasons except for holidays and weekends until the total project is completed. One (1) set of specifications shall be located in the machine room at all times during modernization.

In general, this modernization is increasing the car speed to 100 FPM, replacing the existing pump unit, jack assembly, controllers with solid state non-proprietary micro-processor controller with a soft start motor starter. The systems shall be complete, and the elevator contractor shall provide all labor, equipment, and operations contained in these specifications.

Any deviations from the specifications will cause the bid to be non-responsive and void. The elevator contractor shall open all boxes of material when they are received to ensure that all material is what was ordered, is correct and complies with specifications.

Should the elevator contractor bid voluntary alternates or qualify their bid relative to the "scope of work", the bid shall be considered non-responsive and invalid.

All systems specified herein, fixtures, and equipment, are non-proprietary and can be purchased from various elevator suppliers within the industry.

The sequence of elevator shut down for modernization shall be one elevator at a time. The elevator contractor shall submit with their bid, a modernization completion schedule starting with receiving their award of contract and showing a starting date of actual modernization and ending date for completion following the submitted schedule.

In preparing the above requested schedule, figure ten (10) calendar days for the approval of shop drawings, architectural literature, and drawings. Submit this information at one time.

1.2 - REFERENCE STANDARDS

1. ASTM A36 - Structural Steel.

2. ASTM A167 - Stainless and Heat-Resisting Chromium - Nickel Steel Plate, Sheet and Strip.

3. ASTM A176 - Stainless Steel and Welded Austenite Stainless Steel Tubing for General Service.

4. ASTM A366 - Sheet Steel, Carbon, Cold-Rolled, Commercial Quality.

5. ASTM A446 - Steel Sheet, Zinc Coated (Galvanized) by the Hot-Dip Process, Structural Quality.

6. ANSI - American National Standards Institute, Inc.

7. AWS D1.1 - Structural Welding Code.

1.3 - QUALITY ASSURANCE

1. Elevators shall be designed, manufactured and installed in compliance with requirements of the latest editions in force at the time of contract of this section, Contract Documents and the following agencies:

   a. ANSI A17.1-2010 - Safety Code for Elevators and Escalators.

   b. ANSI A17.2-2012- Inspectors' Manual for Elevators and Escalators.

   c. NFPA 70 - National Electric Code (latest edition)

   d. NFPA 13 – National Sprinkler Code (latest edition)

   e. Public Law 101-336 Americans with Disabilities Act

   f. UL - Underwriters' Laboratories Labeling Requirements (latest editions).

   g. Regulations and Handicap Accommodations for the State of Michigan.

   h. Michigan Building Code, including State amendments, 2012 Edition.

   i. All Applicable Governing Codes.

2. Contractor shall submit with bid, a written certificate stating that a fully workable elevator system will be installed in full compliance with code requirements and Contract Documents. Certificate shall also state that, after Contract is signed, extra material and labor for modifications, changes or additions which may be necessary to provide the required elevator system as specified shall be provided at no additional cost to Owner.

1.4 -WORK PROVIDED BY THE ELEVATOR CONTRACTOR

To complete this installation, the following additional items shall be furnished and installed by the Elevator Contractor in accordance with governing codes.

1. All required GFCI outlets on the car top as well as required additional lighting.

2. Guarding and protecting the hoistway during construction. Barricades will be required at any time work is being performed on the hoistway doors, allowing access to the hoistway. Barricades are to be provided by the Elevator Contractor. They are to remain erected through the course of the modernization of the elevators involved. The barricade shall have a hinged access door and shall be locked when in the closed position. The barricades are to have one-half inch (½") flooring, as well as a top enclosure. The barricades shall be a minimum of 8' 0" high. The exterior of the barricades shall be painted a tan color for acceptable appearance. Hoistway barricades to be erected, maintained, and removed by the Elevator Contractor. Portable barricades shall be utilized as required by the elevator contractor.

3. Pit ladders are to be extended or replaced so that the top rung is 60" above the lowest floor level.

4. Any cutting, including cutouts to accommodate surface or flush mounted hall signal fixtures, status panels, patching and painting of same, shall be provided by the Elevator Contractor.

5. A new lockable maintenance cabinet shall be provided for the P1 machine room in which to store the printed circuit boards and manuals. Suitable cabinets would be similar to Grainger model 1W703.

6. As part of this contract the elevator modernization company shall provide one (1) complete set of printed circuit boards used in the controller, dispatcher, and car top reader. The circuit boards are to be used in case of a failure during the modernization phase and shall be replaced if used with new boards. At the end of the project any missing or defective boards shall be replaced with new boards of the latest design and with the latest upgrades. These printed circuit boards shall remain on site as part of the elevator system, and shall be considered property of Consumers Energy.

7. Remove the existing well hole casing if installed. Redrill the existing well hole to proper size to accept the new jack assembly and PVC liner. The new well hole shall be properly cased to meet existing elevator code requirements. The well hole drilling waste shall be properly removed from the jobsite following any Consumers Energy procedures.

8. Provide the properly sized hoist beam at the top of the hoistway as required for the new equipment and drilling equipment

1.4.1 WORK PROVIDED BY OTHERS

1. Additional pit lighting shall be provided as required by code requirements to meet or exceed the 10 ft. candles of light at all points in the elevator pit.

2. New/additional GFCI outlets in the elevator pit, and relocate the pit light switch from behind the pit ladder.

3. Repainting the elevator entrance landing frames.

4. Installing protective pans under the piping that runs over the machine room cage

5. Provide a self-locking self-closing machine room door and an enclosed fire rated machine room per elevator and building code requirements.

6. Provide a 120v, 15 amp fuse car lighting circuit in the machine room space.

7. Provide a new elevator disconnect in the elevator machine room cage.

8. Provide a fire extinguisher in the elevator machine room cage.

9. Provide adequate HVAC in the new machine room space to keep the machine room space between 65° and 95° F and relative humidity below 95%.

1.5 - GUARANTEE

The Elevator Contractor shall guarantee the materials and workmanship of the apparatus furnished and installed under these specifications, and will rectify any defects due to ordinary wear and tear which may develop within one (1) year from date of completion of each elevator.

1.6 – MAINTENANCE/WARRANTY

A quality maintenance warranty service consisting of regularly scheduled examinations, adjustments and lubrication of the elevator equipment shall be provided by the Elevator Contractor for a period of twelve (12) months after all elevators have been accepted and turned over for the customer's use. This service shall not be subcontracted, but shall be performed by the Elevator Contractor. The cost of this service shall be included in the price of the modernization.

Each elevator contractor shall submit with their respective bids a copy of their elevator maintenance program designed for the elevators in this project using the guidelines found in the last paragraph of this section. A written inspection or service ticket shall be provided to the owner at the time of service completion showing a detailed description of the work performed. Task codes are not acceptable.

If the selected Elevator Modernization Contractor is not the contractor that is presently servicing the elevators, the existing maintenance service shall be cancelled, and the modernization contractor will maintain all elevators in that group throughout the modernization time, as well as the twelve (12) months of new installation maintenance service.

After each elevator is inspected by the State of Michigan, the elevator consultant, and accepted by the owner it shall be put into passenger service. The maintenance of each such elevator shall be performed by the modernization company while the other elevators are being completed. At the end of project when all elevators are complete, inspected, and accepted by all parties the twelve (12) month warranty service period will start. Any part or assembly that has been reconditioned or refurbished as included in the specifications shall be included in the warranty period.

All work shall be performed by competent employees during regular working hours of regular working days and shall include all costs related to emergency 24-hour trouble call-back service. This service shall not cover adjustments, repairs or replacement of parts due to negligence, misuse, abuse or accidents caused by persons other than the Elevator Contractor.

Only genuine parts and supplies as used in the manufacture and installation of the original or new equipment shall be provided.

Preventative Maintenance Hours

1. Gearless Traction Elevators – Four (4) hours per month per elevator
2. Geared Traction Elevators – Two (2) hours per month per elevator
3. Hydraulic Elevators – Two (2) hours per month per elevator

Response Times

1. All non-emergency callbacks shall be answered within a maximum time of two (2) hours.
2. Entrapment calls shall be answered within a maximum time of one (1) hour.
3. Emergency calls shall be answered within a maximum time of one (1) hour.

Extent of Coverage

1. The modernization contractor shall use technically qualified personnel directly employed and supervised by the contractor. The following equipment and associated equipment shall be inspected, properly adjusted, lubricated, and, if conditions warrant, repaired or replaced. The modernization contractor shall also regularly and systematically examine, and replace/repair, if needed, the following equipment and/or components for the units modernized under this specification:
    a. Machines-all seals, worm gear, all bearings, drive sheaves, brakes, brake drums, brake coils, brake contacts, brake linings, motor armatures, commutators, motor fields, carbon brushes, brush rigging, and all related parts
    b. Controller, selectors, dispatching equipment-all relays, micro-processors, solid state devices, resistors, capacitors, transformers, contacts, leads, overloads, computer devices, timers, hoistway switches, switches, tapes, magnets, and associated equipment
    c. Governor-governor sheave, bearings, shaft assemblies, contacts, springs, levers, and jaws
    d. Hoistway and car door contacts, can and landing door rollers, hangers, tracks, bottom door gibbs, car door operator and associated equipment, door clutches, and pick up rollers
    e. Car and counterweight roller guide assemblies, car and counterweight buffers and switches, governor tail sheave assemblies including all sheaves, shafts, bearings, and guides, any selector tape fastenings and springs, all compensation devices including fastenings, guides
    f. Car mounted safety devices including all jaws, switches, springs, governor cable fastenings, arms, levers, cable hitches
    g. Hoist and governor cables, fastenings, cable clamps, shackles. This includes necessary required shortening and proper cable tension equalization, replacement of the hoist and/or governor cables
    h. Deflector and hoistway sheaves, bearings, fastenings, and shafts
    i. All car and landing operating fixtures, coverplates, lamps, readouts, buttons, button assemblies, switches, chimes, gongs, elevator communication, and any associated wiring or equipment
    j. Hoistway, car and machine room wiring, conductor cables within the jurisdiction of the elevator trade.
    k. All used and/or oily wiping cloths or materials shall be kept in a self-closing metal fire-resistive container in the machine room. This material shall be removed periodically to minimize a potential fire hazard
    l. All periodic testing, on site records, and reporting as required by the State of Michigan Elevator Code and A17.1-2010 Elevator and Escalator Safety Code

1.7 - PERMITS AND INSPECTIONS

The Elevator Contractor shall furnish all licenses and permits and shall arrange for and make all inspections and tests as required by government authorities and any special tests as described hereafter in the specifications.

1.8 - CODE

The elevator equipment shall be furnished and installed in accordance with ANSI/ASME A17.1 Safety Code for Elevators and Escalators, and all applicable state and local codes, rules and regulations enforced at time of bidding this project within the locality of the building structure.

1.9 - ELEVATOR CONTRACTORS

Kone Elevator Company
Otis Elevator Company
ThyssenKrupp Elevator Company
Elevator Service, Inc.

PART 2 – PRODUCTS

A. CONTROL EQUIPMENT
Motion Control Engineering - Motion 2000 Hydraulic Control
Virginia Control MH Hydraulic Elevator Control

B. CAR AND LANDING DOOR EQUIPMENT
1. Door Operators
New MOVFR, G.A.L. AC-VVVF controls with a PMSM motor shall be provided as a component of the new door operator, and new hardware shall be provided as specified herein. Doors on the car and at the hoistway entrances shall be power operated by means of a quality operator mounted on top of the car. The motor shall have positive control over door movement for smooth operation. Each car door shall be provided with a safety device to cause instant reopening should contact be made with an obstruction during the closing cycle. Each hoistway door unit shall be provided with a silent hanger-mounted spirator auxiliary door closing device.

Door operation shall be automatic at each landing with door opening being initiated as the car arrives at the landing and closing taking place after expiration of a time interval. A car door electric contact shall prevent starting the elevator away from the landing unless the car door is in the closed position. Door opening speed shall not be less than two and one half (2.5) feet per second. Solid state motor control shall be used.

Door close shall be arranged to start after a minimum time, consistent with Handicapped Requirements, from notification that a car is answering a hall call. Door close speed shall meet applicable code requirements. Car door hanger rollers shall be neoprene for silent operation. Car doors shall be equipped with car door restrictor devices.

Doors shall be arranged to remain open for a time period sufficient to meet Handicapped Requirements.

The time interval for which the elevator doors remain open when a car stops at a landing shall be independently adjustable for response to car calls and response to hall calls.

An approved positive interlock shall be provided for each hoistway entrance which shall prevent operation of the elevator unless all doors for that elevator are closed and shall maintain the doors in their closed position while the elevator is away from the landing. Emergency access to the hoistway as required by governing codes shall be provided. All doors at all floors shall be equipped with emergency unlocking devices.

2. Landing Door Equipment
New GAL landing door tracks, hangers, rollers, interlocks, and door release assemblies shall be provided for each landing door opening.

Unlocking devices shall be provided at all floors.

3. Infrared Door Protection Equipment
A Janus Panachrome Door Protection 3D edges, multi-beam infrared light ray detector shall be provided in the elevator car entrance which, when interrupted, shall cause the closing doors to stop and reopen. Nudging operation shall not be provided except during fire service operation.

The doors shall be prevented from closing from their full open position if a person or object comes within the zone of detection. If a person or object enters the zone as the doors are closing, the doors shall reverse and reopen. The doors shall re-close after a minimal time interval. A passenger entering or leaving the cars shall not cause the doors to stop and reverse unless the doors reach a predetermined proximity to the passenger.

After a stop is made, the doors shall remain open for a time interval to permit passenger transfer, after which the doors shall close automatically. This interval shall be less for a car call stop than for a hall call stop or a coincident car/hall call stop.

4. Hoistway Entrances
All door frames shall be retained and repainted at all floors, except new 4” tactile marking plates shall be installed on both landing entrance frames jambs. The tactile markings shall be white-faced with black background.

New satin finished stainless steel landing door panels shall be provide for each landing entrance. Two new bottom door guide assemblies shall be provided for each door panel.

The existing landing sills shall be thoroughly cleaned of all corrosion.

The elevator hoistway wall and/or the hoistway side of the hoistway doors shall have floor markings not less than 4″ high to identify each floor landing.

C. Machine Room Equipment

1. Power Unit
The existing hydraulic pump unit shall be replaced with a new submerged hydraulic pump unit designed for the existing application. The new pump unit shall contain a positive displacement screw pump, direct coupled motor and pump, anti-vibration pump and motor mounting, and a properly sized Maxton valve.

The approved manufacturer for the new power unit is Canton Elevator or Quality Elevator.

New properly sized piping, Victaulic fittings with oil rated seals, and ball type shutoff valves shall be provided between the new power unit and the hydraulic cylinder. The new piping and valves shall be properly supported.

New hydraulic oil of the proper viscosity and quantity shall be provided. The existing hydraulic fluid shall be removed from the power unit, piping, and cylinder, and discarded in compliance with Consumers Energy's policies and procedures.

2. Hydraulic Elevator Controller
A new non-proprietary hydraulic elevator controller shall be provided for the application. The controller shall be provided with all the necessary standard features for the application and all code requirements.

New automatic self-leveling that shall bring the elevator car level with the floor landings + or - 1/8" regardless of load or direction of travel.

A new soft start motor starter of proper size for the application shall be provided.

The controller manufacturer standard wall mounted NEMA 1 control cabinet shall be provided. The location of the controller mounting is to be determined.

The approved controller manufacturers are Motion Control Engineering and Virginia Controls.

D. HOISTWAY EQUIPMENT
1. Hydraulic Cylinder Assembly
A new in-ground hydraulic cylinder shall be provided.

The existing in-ground hydraulic cylinder shall be removed from the pit and replaced with a new code compliant hydraulic cylinder assembly including a new code compliant casing, PVC liner, buffer supports, and buffers designed for the application.

The new well hole shall be redrilled around the existing casing, if present, or the existing cylinder. The new well hole shall be of sufficient size to accept the new casing, PVC, and hydraulic cylinder assembly. The new well hole shall be drilled straight, plumb, and sufficient size to allow for proper installation of the new hydraulic cylinder assembly, including any PVC sleeves. The removal of any type of well hole casing shall, if present, shall be the responsibility of the elevator contractor. The well hole casing shall have a water tight plug or welded plate at the bottom to prevent the intrusion of liquid and to provide a dry environment inside the casing. The well hole casing shall be properly sealed to prevent any liquid from the pit seeping into the casing. The removal of any well hole drilling waste or spoils shall be the responsibility of the elevator contractor. The removal

of any well hole drilling waste shall be done under the guidelines of Consumers Energy.

Should the elevator contractor encounter obstructions such as, but not exclusively, rocks, boulders, quick sand, water, pilings, building members, etc. the contractor shall stop drilling, notify, and have the owner's representative witness the obstruction. Upon the approval of the owner, the elevator contractor shall continue drilling through the obstruction at the usual rates for such work. These rates must be included in the elevator contractor's bid as a separate item.

2. Hydraulic Piping

New code compliant hydraulic piping shall be provided between the new pump unit and the new hydraulic cylinder assembly. New pit and machine room shutoff valves shall be provided per code requirements. A new blow out proof muffler shall be provided. The piping connections shall be of the grooved type using proper oil seals designed for oil. The piping shall be properly supported and isolated to minimize sound transmission and vibration. The oil delivery line shall be properly labeled.

3. Car Buffers

The new buffer and buffer stands shall be installed in the elevator pit and suitably anchored and supported on properly sized buffer stands and pit channels as required. The new buffers shall be properly tagged with Code compliant tags. The new car buffer assemblies shall be provided with the new hydraulic cylinder.

4. New Hoistway Operating Devices

A new car top encoder shall be provided to provide precise car positioning information. New Terminal Limit Switches shall be provided to slow down and stop the car automatically at the terminal landings, and to automatically cut off the power should the car travel beyond the terminal landings.

5. Pit Stop Switches

New emergency stop switches shall be provided in the elevator pit and shall be accessible from the pit access door near the top of the pit ladder to comply with elevator safety code. An additional pit switch shall be installed in the elevator pit below the required stop switch.

6. Guide Rails - Reuse/Refurbish

The existing car guide rails shall be reused. Should there be any gouges in the face of the guide rails, the gouges shall be ground down, filled if required, and filed for smooth roller guide operation. Rail support channels, as well as buffer channels, shall be cleaned and painted in the pit area. Rails should be painted up to the point where the bottom roller guides are located at the furthest travel of compressed buffers.

10. Inspection Operation

A new elevator code compliant car top operating fixture shall be furnished and installed for each elevator. Additional car top lighting shall be installed to provide the proper amount of car top lighting.

New surface mounted hoistway access switches shall be installed at the terminal landings of each elevator per code requirements.

11. Traveling Cables-New

Traveling cables shall be suspended from beneath the elevators on the front-to-back centerline of the car. New traveling cables shall be provided as previously specified.

12. Car Toe Guard

The toe guard shall be a minimum of 60" long and be of a design to deflect air away from the front of the down traveling car. The toe guard shall be suitably braced to eliminate vibration. Clean face of toe guard and paint with black enamel.

13. Car Balance

The car shall be balanced to provide the following minimum static and dynamic standard. With no load in the car the maximum pressure on any roller guide wheel (front to back and postwise) shall not exceed 30 pounds when the car is locked anywhere within its travel. The car balance shall be checked and shall be balanced to suit by the addition or deletion of car balance weights.

14. Fascia Plates - Reuse

Fascia plates, fabricated from #14 gauge steel, shall be fastened to the header and the sill above.

15.Toe Guard – New/Reuse

A toe guard, fabricated from #14 gauge steel, shall be furnished at the lowest landing beveled to the wall.

16. Dust Cover-Reuse

A dust cover, fabricated from #14 gauge steel, shall be furnished at the highest landing.

17. Headers - Reuse

Headers of sufficient size and thickness to provide support for the frame and hangers shall be securely fastened to the strut angles and shall include integral hanger tracks.

18. STRUTS – RE-USE

Strut angles shall be of sufficient size to support the entrance and shall be securely fastened to the building structure.

19 – Hanger Covers – Reuse

Hanger covers shall be cleaned and painted high gloss black enamel, on both sides, using latex base paint.

E. CAR OPERATING FIXTURES

1. The existing car operating panels shall be replaced. The acceptable manufacturer is Innovation Industries Bruiser Series with PB-52 buttons.

   A new vandal resistant car operating panel shall be provided on the front side of the elevator cab. The finish of the car operating cover plate shall be satin finished stainless steel. All exposed fasteners shall be tamper proof.

   A new ADA compliant telephone shall be incorporated in the car operating panel. Only the perforated speaker grill and the activation button shall be visible on the surface of the car operating cover plate.

   A new car segmented position indicator shall be incorporated in the car operating panel and positioned at the top of the panel. The readout shall be red numerals and direction arrows. The tamper proof buttons shall be illuminated with red LED lamps.

   The new car operating panel shall incorporate all required ADA devices and key switches, Fire Emergency locked panel, and audible floor passing chime. All key operated switches shall be exposed.

   Approved manufacturer is Innovation Industries.

2. New Handicapped Markings
   Raised tactile markings shall be furnished for car buttons and car controls in compliance with the latest revision of the ANSI/ASME A17.1 Handicapped Requirements. Face of tactile markings shall be white with black background. Marking units shall be recessed in COP faceplate, and shall be flush with faceplate. LED's corresponding to registered car and hall buttons, position indicators, and status panel signal devices shall illuminate red.

3. New Car Position Indicator
   A new 2" digital readout car position indicator shall be installed at the top of the new car operating panels in the elevator. The new car position indicators shall be the segmented type unit with red illumination.

4. Floor Passing Chime (To Indicate Passing or Stopping)
   An adjustable audible signal shall sound in the car to tell a passenger that the car is either stopping or passing a floor served by the elevator.

5. Emergency Car Lighting
   An emergency power unit employing a 6-volt or 12-volt sealed rechargeable battery and totally static circuits shall be provided that shall illuminate the elevator car and provide current to the alarm bell in the event of normal power failure. The equipment shall comply with the requirements of the latest revision of the ANSI/ASME A17.1 Code.

6. Telephone Communication
   New hands-free ADA Compliant telephone devices shall be provided in each new elevator car operating panel. The new telephone devices shall be connected to the building telephone system that is monitored according to current Elevator Safety Code requirements. The devices shall be completely concealed except for the operating button and perforated speaker plate openings.

F. LANDING OPERATING FIXTURES

1. Hall Buttons

New surface mounted hall button fixtures shall be provided for each elevator landing. The new hall button fixtures shall have vandal resistant buttons with red LED indicators. Car position indicators with arrows shall be provided at the top of each hall button fixture. The new hall buttons fixture shall include the “In Case of Fire” ink etched pictogram. The main floor hall button fixture shall have communications indicator and key switch. The new hall button fixtures shall be satin finished stainless steel. The hall button fixtures shall be of sufficient length to allow the buttons to be mounted at correct ADA height. Innovation Industries I-Line fixtures shall be provided with PB-52 buttons and satin finished stainless steel.

2. Car Traveling Lanterns

New car vandal resistant traveling lantern assemblies shall be installed in each elevator car entrance opening. The chime shall sound to announce the impending arrival of the selected elevator car. The visual indication shall be red for “DOWN” and white for “UP”.

3. Combination Hall Lanterns and Position Indicators

New hall lantern and car position surface mounted indicator fixtures shall be installed at the main or first floor. The service elevator fixtures shall be satin finished stainless steel.

The new fixtures shall have red segmented readouts. Acceptable fixtures are the Innovation Industries I-Line surface mounted fixtures.

G. SERVICE ELEVATOR CABS/CAR SLINGS/PLATFORMS

A new steel shell cab and cab interior shall be provided.

A new cab interior as provided by G&R Elevator shall be provided. The cab shall be the G&R Elevator cab interior model GR501 using 5WL stainless steel cab wall with black laminate reveals. The ceiling shall be the G&R Elevator SS416 stainless steel ceiling with round LED downlights. The handrails shall be provided on all three cab walls and shall be the G&R Elevator style SS4FF. The handrails shall be installed at proper handicap height. Six (6”) wide stainless steel bumper rails shall be provided at the bottom of each cab wall, and installed above the cab floor at a distance to be determined. The lower bumper rails shall be the G&R style SS4FF.

A new single speed fan with an expanded metal grating shall be installed in the elevator cab canopy.

New stainless steel satin finished car doors shall be provided for the service elevator car entrance. New heavy duty bottom door guides shall be provided for each car door panel. New nickel silver car sill shall be provided for the car entrance opening. A new car top escape hatch and switch shall be provided for each elevator.

The cab flooring material shall be determined.

The existing steel car sling and platform shall be replaced. The new car sling and platform shall be designed for hydraulic use. Wood is not permitted in any part of the platform. The car sling and platform assembly shall consist of channel stiles, crosshead, gussets, braces, cutouts for sills, and one code compliant toe guard.

New Elsco roller guide assemblies designed for the application shall be provided for the new car sling.

New car top guard railings shall be furnished and installed on the elevator to comply with elevator safety code requirements.

H. WIRING

All car, hoistway and machine room elevator wiring shall be new, with all electrical interconnections complying with governing codes. Insulated wiring shall have flame retardant and moisture-proof outer covering, and shall be run in conduit, tubing or electrical wireways. Traveling cables shall be flexible and suitably suspended to relieve strain on individual conductors. Traveling cables shall contain computer grade cable, at least two twisted shielded pairs, and two video grade cables. Existing conduits and ducts may be reused if in compliance with Code. Not less than 10% spare conductors shall be provided. Wires shall be stranded copper. The field hoistway wiring schedule shall be fastened to the inside of one of the controller doors to indicate wiring terminals, etc.

I. ADA COMPLIANCE

All elevator equipment provided and installed shall meet all required ASME A17.1-2010, ANSI A117.1, the American National Standard for
Accessible and Usable Building and Facilities, Public Law 101-336 Americans with Disabilities Act, State of Michigan Handicap Regulations and Accommodations, ANSI Buildings and Facilities/Providing Accessibility
And Usability for the Physically Handicapped People, Michigan Building code, and any other Federal, State, or local ADA requirement as it relates to elevator modernization.

PART 3 - EXECUTION

3.1 - SCOPE OF WORK : ONE (1) ELECTRIC TRACTION ELEVATOR

Modernize, Furnish and Install : One (1) Hydraulic Service Elevator
State Serial No. 9782 Class A Loading

Type of Machine : Refer to specifications

Machine Location : Adjacent

Capacity : 4500#

Car Speed : Increase to 100FPM

Operation (Approved Systems) : MCE Motion 2000 Hydraulic Control
Virginia Control MH Hydraulic Control

Motor Control : Hydraulic Soft Start

Rise : Existing

Number of Stops and Openings : Two (2) Front Openings, Two (2) Rear

Maintenance : Twelve (12) Months.

Power Supply : 480 Volts, 3 Phase, 60 Hertz

Hoistway Size : Existing

Lighting Supply : New, by others

Car Enclosure : Refer to specifications

Clear Car Inside : Existing

Height under Car Top : Existing

Height under Suspended Ceiling : Existing.

Type of Doors for Car and Hoistway Entrances : Two speed side slide

Hoistway Entrance and Car Opening Size : 4’0” x 7’0”

Car Operating Panel : Refer to specifications

Fixtures : See specifications

Existing Pit Depth : 4’3”

Emergency Power Operation : Refer to specifications

3.2 - SUBMIT THE FOLLOWING MATERIAL FOR EACH CONTROL SYSTEM BEING PROVIDED

A - Two (2) copies of As Built wiring diagrams including ledgers, field wiring schedules, switch timing schedules, circuit board identification, replacement parts schedule, circuit diagrams, and description of software, etc.

B - Two (2) copies of As Built installation layout drawings which shows State approval signatures, etc. Letter from motor shop confirming the work they did in accordance with specifications relative to motor repair.

C - Two (2) sets of maintenance manuals and instructions as well as all results of State required tests.

D - Two (2) sets of Parts Books and Parts lists applicable to each type of elevator being provided.

E - Three (3) sets of keys for all types of locks provided.

F - Supporting Data. The Elevator Contractor shall provide all archive copies of any software and copies of all testing and adjusting data relating to design and all final field adjustments. These tools and data are considered part of the elevator and will become the property of the Owner upon acceptance of the elevator by the Owner or the Owner's Representative.

G - A standard as built field wiring schedule shall be mounted on the inside cover of the controllers to show exactly the field wiring, identifying wires and studs.

H.- All manuals as noted above shall also be provided on media as requested by Consumers Energy.

3.3 - TAMPERPROOF SCREWS
All exposed faceplate screws shall be stainless steel and tamperproof.

3.4 - FIELD PAINTING
All hoistway equipment including exterior of cabs, cartops and platforms shall be thoroughly cleaned and painted where required.

All conduits and piping in the machine room shall be thoroughly cleaned.

Touch-up any scratches, etc., on machines or controllers with paint to match the factory painted surfaces of same. Field paint pit buffer stands and pit buffer channels. Field paint rails from bottom of pit up to the point where the bottom guide shoes contact the surface of the rails when the car is on compressed buffers. Also paint the counterweight rails up to the point where the counterweight guide shoes contact the rails when the car is in the overhead. Galvanized surfaces need not be painted.

3.5 - MATERIALS

A. Stainless Steel:
   1. Type 304, containing 18% chromium and 8% nickel.
   2. No. 4, standard polish finish on exposed surfaces.

B. Plastic Laminate:

   1. High pressure laminated plastic surfacing in compliance with NEMA Standard LD 3, Type 1, 0.050 inch, General Purpose
   2. Finishes, colors and patterns selected by Architect/Engineer
   3. Install with adhesives and methods in accordance with manufacturer's directions.

3.6 - FIELD QUALITY CONTROL

A. Upon completion of the elevator installation and before permitting use of elevator, perform acceptance tests as required and recommended by Code and governing regulations or agencies. Perform other tests, if any, as required by governing regulations or agencies.

B. Advise Consultant, and governing authorities in advance of dates and times tests are to be performed on the elevator.

3.7 - ADJUSTING
Make necessary adjustments of operating devices and equipment to ensure elevator performs smoothly and accurately and satisfies the design requirements in these specifications.

3.8 - CLEANING

A. Before final acceptance, remove protection from finished surfaces and clean and polish surfaces in accordance with manufacturer's recommendations for type of material and finish provided.

B. At completion of elevator work, remove tools, equipment, and surplus materials from site. Thoroughly clean equipment, equipment rooms and hoistway. Remove trash and debris.

3.9- SEISMIC CONDITIONS
Furnish and install all necessary material as required for seismic requirements where applicable.

4.0 - PROTECTION
At time of Substantial Completion of elevator work, or portion thereof, provide suitable protective coverings, barriers, devices, signs, or other such methods or procedures to protect elevator work from damage or deterioration. Maintain protective measures throughout remainder of construction period.

4.1 - DEMONSTRATION
Instruct Owner's personnel in proper use, operations, and daily operation of elevators. Should remote monitoring be provided, instruct Owner's personnel for proper use. Review emergency provisions and procedures to be followed at time of failure in operation and other building emergencies. Train Owner's personnel in normal procedures to be followed in checking for sources of operational failures or malfunctions. Training shall not exceed four (4) hours.

4.2- ACCEPTANCE TESTS
Perform all tests as required by the State of Michigan Elevator Division for State acceptance. Should any repairs be required to complete such tests, the repairs shall be performed at no additional cost to the Owner.

END OF SECTION 14210

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