SECTION 00 9113

ADDENDUM NUMBER 3

PARTICULARS

DATE: DECEMBER 5, 2024

PROJECT: MEDFORD WATER OPERATION CENTER

ARCHITECT'S PROJECT NUMBER: 22085

OWNER'S PROJECT NUMBER: CIPW-22-00280

OWNER: MEDFORD WATER

ARCHITECT: SODERSTROM ARCHITECTS

TO: PROSPECTIVE BIDDERS:

THIS ADDENDUM FORMS A PART OF THE CONTRACT DOCUMENTS AND MODIFIES THE ORIGINALPROCUREMENT DOCUMENTS DATED 11/7/2024, WITH AMENDMENTS AND ADDITIONS NOTED BELOW.

ACKNOWLEDGE RECEIPT OF THIS ADDENDUM IN THE SPACE PROVIDED IN THE BID FORM AND BELOW. FAILURE TO DO SO MAY DISQUALIFY THE BIDDER.

CHANGES TO THE PROJECT MANUAL - INTRODUCTORY REQUIREMENTS, PROCUREMENT REQUIREMENTS AND CONTRACTING REQUIREMENTS:

SECTION 00 0110 – TABLE OF CONTENTS

Add SECTION 10 2641 – BALLISTICS RESISTANT PANELS

Add SECTION 10 7500 - FLAGPOLES

Section reissued in entirety

BID SUBMITTAL COVER SHEET CHECKLIST

Add Lobbying Certification Form

Page reissued in entirety

BID FORM

Revise Item No 1 to indicate that sitework is "Including regrading and stockpiling of existing soil materials"

Revise Item No 4 to incorporate different material types and update quantities

Delete Unit Costs table

Section reissued in entirety

SECTION 01 3050 – DESIGN-BUILD REQUIREMENTS

Revise Paragraph 1.02 Design-Build Components of the Work, sub-paragraph A as follows:

Delete Line 1 Section 05 5213 – Pipe and Tube Railings

Add Line 7 Section 08 9200 - Louvered Equipment Enclosures

Add Line 9 Section 13 3419 - Metal Building Systems.

Section reissued in entirety

CHANGES TO THE PROJECT MANUAL - SPECIFICATIONS:

SECTION 05 5000 – Metal Fabrications

Add to Paragraph 1.01 Section Includes, sub-paragraph A new line 4 as follows:
4. Support structure, bracing, and gate frames for equipment screens

Add to Paragraph 1.02 Related Requirements, new sub-paragraph D as follows:
D. Section 08 9200 - Louvered Equipment Enclosures

Add to Paragraph 1.03 Reference Standards, new sub-paragraphs as follows:
A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2020
G. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2021.
H. ASTM B210/B210M - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes; 2019a.

Add to Paragraph 2.01 Materials - Steel, new sub-paragraph B as follows:
B. Steel Tubing: ASTM A501/A501M hot-formed structural tubing.

Add to Paragraph 2.02 Materials - Aluminum, new sub-paragraph B as follows:
B. Aluminum-Alloy Drawn Seamless Tubes: ASTM B210/B210M, 6063 alloy, T6 temper.

Add to Paragraph 2.04 Fabricated Items, new sub-paragraph E as follows:
E. Support Structures for Equipment Screens: As required to support louvers and as shown on drawings, steel or aluminum as required to support load. Factory finished with powder coating if steel, or anodized aluminum.

Add to Paragraph 2.06 Finishes - Steel, sub-paragraph A, new line 3 as follows:
3. Exceptions: Items noted to receive specialty factory finish

Add Paragraph 2.07 Finishes – Aluminum as follows:
2.07 FINISHES - ALUMINUM
A. Exterior Aluminum Surfaces: Class I natural anodized.
B. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.

Section reissued in entirety

SECTION 07 4123 – Insulated Metal Roof Panels

Revise Paragraph 1.08 Warranty, Subparagraph B as follows:
B. Finish Warranty: Provide ~~30-year~~ **20-year** manufacturer warranty against excessive

Add Paragraph 1.08 Warranty, Subparagraph C as follows:
C. Special Warranty: Provide 2-year warranty for weathertightness of roofing system, including agreement to repair or replace metal roof panels that fail to keep out water commencing on the Date of Substantial Completion. Complete forms in Owner's name and register with warrantor.

Section reissued in entirety

SECTION 07 4213.19 – Insulated Metal Wall Panels

Add Paragraph 1.08 Warranty, Subparagraph D as follows:

D. Thermal Warranty: Standard form in which manufacturer agrees to repair or replace panels that exhibit greater than 10 percent reduction from published R-value (RSI-value) at time of manufacture, as measured in compliance with ASTM C518 within specified warranty period.

1. Warranty Period: Thirty years from Date of Substantial Completion, or 30 years and three months from date of shipment from manufacturer's plant, whichever occurs first.

Section reissued in entirety.

SECTION 08 5653 – Security Windows

Revise Paragraph 2.03 Security Transaction Windows with Pass-Through Device, Subparagraph A, section 7, line d Item 1 as follows:

1) ~~Creative Industries, Inc.; SC-100: www.cibulletproof.com.~~ **Norcon TTU-1AX**

Section reissued in entirety.

SECTION 08 8000 – Glazing

Add Paragraph 2.04 Glazing Units, subparagraph B, section 1, line b as follows:

b. Type G-2 and BRG-1 may be used interchangeably, at contractor's option

Add Paragraph 2.04 Glazing Units, subparagraph B, section 6, line b as follows:

b. Accessgard Security Glazing - 3/8" clear

Add Paragraph 2.04 Glazing Units, subparagraph C, section 1, line a as follows:

a. Type BRG-1 and G-2 may be used interchangeably at contractor's option

Revise Paragraph 2.04 Glazing Units, subparagraph C, section 3 as follows:

3. Thickness: ~~1/2 inch~~ **As required to meet performance criteria**.

Section reissued in entirety.

SECTION 08 9200 – Louvered Equipment Enclosures

Add Paragraph 1.02 Related Requirements as follows:

1.02 RELATED REQUIREMENTS

A. Section 01 3050 - Design-Build Requirements

B. Section 05 5000 - Metal Fabrications: Superstructure support and bracing of equipment screens.

Add Paragraph 2.04 Extruded Horizontal Louvered Screens, subparagraph A, lines 2 and 3 as follows:

2. Posts and Rails: Rectangular tubes, size as required to support wind loads. Powder coated steel or Anodized Aluminum to match louver color, as required to support louvers.

a. Provide additional horizontal rails or bracing as required to support loads. Horizontal rails should be hidden from exterior side, as shown on drawings.

3. Gates: To match appearance of screen. Size per plans. 180 degree hinges.

Section reissued in entirety.

SECTION 10 2641 – Ballistics Resistant Panels

Add Section in entirety

SECTION 10 7500 – Flagpoles

Add Section in entirety

SECTION 13 3419 – Metal Building Systems

Add Paragraph 1.07 Warranty, subparagraph A, line 1 as follows:

1. Include coverage for exterior pre-finished surfaces to cover pre-finished color coat against chipping, cracking or crazing, blistering, peeling, chalking, or fading. Include coverage for weather tightness of building enclosure elements after installation.

(Note – this paragraph was inadvertently deleted during an earlier re-issuance of this section, and is being restored to its original condition)

Section reissued in entirety.

SECTION 23 1113 – Fuel Handling System

Revise Paragraph 2.04, A to include gasoline storage tank and stating a fuel polishing system is not required for generator day tanks.

Section reissued in entirety.

SECTION 31 2323 – Fill

Revise Paragraph 2.02 Accessories, subparagraph A as follows:

A. Geotextile Fabric: Non-biodegradable
   1. Non-woven: **MIRIFI 180N** or approved equal with laps per manufacturers specification.
   2. Woven: **ACF WSF200** or approved equal with laps per manufacturers specification.
   3. Filter: **MIRIFI 140N** or approved equal.
   4. Storm Facility Liner: **FIRESTONE 45mil EPDM** or approved equal with seams per manufacturer specification.

Section reissued in entirety.

SECTION 32 1216 – Hot Mix Asphalt Paving

Add Paragraph 2.04 Asphalt Paving Mixes and Mix Design, subparagraph A, section i and ii as follows:

i. HEAVY DUTY: Level 3, 1/2" dense graded

ii. STANDARD DUTY: Level 2, 1/2" dense graded

Add Paragraph 2.04 Asphalt Paving Mixes and Mix Design, subparagraph B, section i and ii as follows:

i. HEAVY DUTY: Level 3, 1/2" dense graded

ii. STANDARD DUTY: Level 2, 1/2" dense graded

Section reissued in entirety.

CHANGES TO DRAWINGS:

DRAWING C0.01

1. Revise Site Preparation Note #9

DRAWING C2.00

1. Revise Paving section at vehicle parking areas in NW and SE portions of site.
2. Revise Notes #1, 2, and 4

DRAWING C5.12

1. Add Detail 35/C5.12

DRAWING A.A0.01

1. Add Wall Type P13

DRAWING A.A2.14

1. Renumbered Door 148 to be 103b
2. Add card reader at Door 122b, on Hall 111 side, to match Elec drawings
3. Add Interior Elevation tags at various locations
4. Revise walls at Customer Service 113 and Conf 137 to be Type P13

DRAWING A.A4.01

1. Tags removed as necessary to clarify locations of FRP vs Stainless Steel

DRAWING A.A5.02

1. Detail 6 – revise tackboard to type TB-2

DRAWING A.A5.06

1. Detail 6 – Remove projector and add whiteboards
2. Details 3 and 8 – revised mirror keynote to 12-0005

DRAWING A.A8.01

1. Renumbered Door 148 to be 103b and added door schedule information
2. Correct references to Overhead door type OH-S to be OH-SV

DRAWING A.A8.10

1. Replace Detail 19 Cast-in-place bollard with Bolt-down bollard

DRAWING A.A8.20

1. Revise Details 9, 10, and 11
2. Revise Details 3, 5, and 6 to clarify water proofing

DRAWING A.A9.01

1. Revise Finish Note 8

DRAWING A.A9.02

1. Update visual displays
2. Add information about MTL-2
3. Revised Corner Guard abbreviation to be CR to match A.A9.01

DRAWING A.A9.11

1. Graphical corrections
2. Update finish schedule as noted

DRAWING A.A9.32

1. Details 5-11 – add bullet resistant panels to Customer Service desk

DRAWING A.S0.01

1. Removed material and post installed anchors / epoxy not specified in plans

DRAWING A.S1.01

1. Changed keynote 6 from 48” to 84” hairpin length.
2. Changed keynote 3 from (4) verts to (3) verts each face.

DRAWING A.S1.02

1. Changed keynote 6 from 48” to 84” hairpin length.
2. Changed keynote 3 from (4) verts to (3) verts each face.

DRAWING A.S2.01

1. Modified structural Angle fascia to be L4x3x1/4 and defined back span length per keynote 20 at corner overhangs.
2. Modified framing at 8’-0” overhang corners, fascia from L4x3x3/8 to L5x3x1/2.
3. Added C5x6.7 and moved HSS location.
4. Deleted L2-1/2x2-1/2x1/4
5. Modified keynote 19, deleted 4’-0” back span.
6. Added keynote 12 to all Angle head-outs instead of single keynote along the line.
7. Added keynote 21 along GL-5 for additional framing.
8. Modified all structural fascia’s not at corners to be L4x3x1/4
9. Extended structural fascia at GL-9 to WF-beam
10. Deleted keynote 16 along GL-J
11. Added keynote 22 along GL-C to clarify location of drag connection per 7/A.S7.01
12. Added detail callout 16/A.S7.01 to clarify location of connection

DRAWING A.S2.02

1. Modified structural Angle fascia to be L4x3x1/4 and defined back span length per keynote 20 at corner overhangs.
2. Modified framing at 8’-0” overhang corners, fascia from L4x3x3/8 to L5x3x1/2.
3. Added C5x6.7 and moved HSS location.
4. Deleted L2-1/2x2-1/2x1/4
5. Modified keynote 19, deleted 4’-0” back span.
6. Added keynote 12 to all Angle head-outs instead of single keynote along the line.
7. Modified all structural fascia’s not at corners to be L4x3x1/4
8. Deleted keynote 16 along GL-J
9. Added keynote 22 along GL-C to clarify location of drag connection per 7/A.S7.01
10. Added detail callout 16/A.S7.01 to clarify location of connection

DRAWING A.S3.01

1. Added column cap to detail 3 & 4.

DRAWING A.S4.10

1. Added extra tie bar at top of pedestal
2. Added missing weld callout for column to baseplate
3. Modified Detail-E: Added bolts shown to match quantity listed in table.
4. Modified Detail C, D, & F bolts shown to match references detail 8/A.S7.01

DRAWING A.S4.11

1. Modified Detail C, D, E, F & H bolts shown to match references detail 8/A.S7.01

DRAWING A.S5.01

1. Modified detail 13 to show opposite side of sunken slab and rebar detailing.

DRAWING A.S6.01

1. Detail 1: Added web stiffener and increased column cap size.
2. Detail 2: Modified web stiffener and added web stiffener to opposite side of WF beam.
3. Detail 3: Deleted non pertinent special note
4. Detail 5: Modified detail to show deck bearing and closure angle bearing requirements

DRAWING A.S7.01

1. Detail 2 & 3: Modified weld callout, added missing weld callout, mirrored structural fascia, delete deflection clip.
2. Detail 4, 11, 14: Modified bearing seat supporting joist girder to be web stiffener with bearing plate and deleted angle style bearing seat.
3. Detail 5: Deleted 3x3x1/4 Drag Angle.
4. Modified girder to column weld
5. Detail 6, BEAM TO WF COLUMN: modified weld callout and added missing weld callout for shear plate
6. Detail 7: Modified dimensions and deleted Wide Flange portion of detail.
7. Detail 8: Modified bolts rom 1" Ø to 7/8"Ø A325. Modified weld to be all around
8. Deleted detail 9
9. Detail 10 & 11: Modified girder truss support to be knife plate w/ bearing seat in lieu of angle style bearing seat. Added note to spec bolts size/grade.
10. Detail 13: Added steel L2-1/2xL2-1/2X1/4 angle at 4' o.c. for (1).

DRAWING A.S8.01

1. Modified "Exterior Light Gauge Studs Schedule" to split bottom and top track into separate table columns and specified top to be slotted track as indicated in details.

DRAWING A.S8.02

1. Modified "Exterior Light Gauge Studs Schedule" to split bottom and top track into separate table columns and specified top to be slotted track as indicated in details.

DRAWING D.A2.02

1. Added Keynote 10-0011 - Provide Bird Netting at Entire Roof Area

DRAWING F.A2.01

1. At Detail 2, Added Keynote 10-0011 - Provide Bird Netting at Entire Roof Area

DRAWING F.P3.01

1. Add Fuel Diesel Return (FOR) piping and sizes from FPS-1 / FPS-2 to AST-1/ AST-2 for details 1 and 2.

DRAWING F.P6.02

1. Add Sizes to piping for detail 5- Fuel Polishing

DRAWING S.G3.01

1. Revised Code Type to indicate building is non-sprinklered.

   Note: This drawing was noted as being updated and re-issued with Addendum #1. It was inadvertently left out of that package, and is being re-issued here with ADD #3 revision markings.

DRAWING S.A2.02

1. Added Keynote 10-0011 - Provide Bird Netting at Entire Roof Area

DRAWING S.S1.01

1. Added concrete stem wall and footing

DRAWING S.S4.01

1. Added detail 9/S.S4.01

DRAWING V.2.01

1. Remove Sheet Note 5

BIDDER QUESTIONS

Contractual Questions

Q-C1: Can Supplement 02 – Subcontractor List be submitted in the form of a spreadsheet/table rather than with an individual sheet for each subcontractor?

Answer: Yes, this approach is acceptable.

Q-C2: It is noted that all signed addenda need to be included with the bid submittal. Does this include the addendum in it's entirety, or just the signature page?

Answer: Only the signature page for each Addendum needs to be included with the bid package.

Technical Document Questions

Q1: Please confirm there are no Oxygen and Acetylene lines to be run to the welding area (reference V.M6.01 detail 7).

Answer: No Oxygen and Acetylene lines to be run to the welding area

Q2: Please clarify and provide specifications for the welding stations as shown on page V.M6.01, detail 7. Further, please clarify who is providing the welding booths (these are not shown on the equipment schedule on V.EQ2.11).

Answer: Owner is providing welding booths/stations

Q3: Please clarify the size of the mirrors in Exercise 146. Keynote 12-006 on A.A5.06 states these are 2X3.

Answer: Keynote has been updated to indicate correct size

Q4: Please confirm the General Contractor is only responsible for Fiber Optic installation from the north east corner of the property at the fiber optic riser (keynote circle 9 on C4.00) to each terminal location within the property boundaries as shown on the plans.

Answer: General Contractor is NOT responsible for Fiber Optic installation.

Q5: A.A1.02 & A.A1.03, Mechanical and Trash Enclosure Screen Assemblies: Posts are specified as 4X4 HSS (Keynote 05-0009). Please specify materials to be used for top rail and mid or bottom rails (if there are to be any).

Answer: See revised Sections 08 9200 and 05 5000.

Q6: A.A1.02 & A.A1.03, Mechanical and Trash Enclosure Screen Assemblies: Please specify the materials to be used for gate posts and gate fabrication.

Answer: See revised Sections 08 9200 and 05 5000.

Q7: Specification 08 9200 Louvered Equipment Enclosures: Please clarify whether these structures are design-build. They are not included on the list of Design Build Components Of The Work (01 3050, 1.02 DESIGN-BUILD COMPONENETS OF THE WORK).

Answer: These structures will be design-build. They have been added to list of design-build components. See revised Section 01 3050

Q8: At the Fueling Station, please confirm the structure to be installed to house the electrical panels, control panels, emergency shut off switch, etc. is to be a Tuff Shed (reference F.P3.00, 1). If so, please provide a specification for the product to be used. Note, this is not a code compliant structure for the intended use.

Answer: These items will be relocated to the southwest corner of the Vehicle Storage Building, by future update.

Q9: Ref. 07 4213.19 section 2.08.C: Is there any horizontal wall insulated metal panel present?

Answer: No horizontal panels. There is a horizontal reveal running at a constant height around the building to be accommodated via a panel joint reveal. See revise Section 07 4213.19

Q10: Are there any gasket reveals present on the insulated metal panel walls?

Answer: No

Q11: Please clarify the locations of Bullet Resistant Glass BRG-1 and G-2

Answer: Bullet resistant locations have been added to A.A8.04 Interior Glazing elevations. BRG-1 and G-2 may be used interchangeably at contractor's option. Please note that Bullet Resistant panels have been added to adjacent wall locations – see Changes to Drawings and added Section 10 2641.

Q12: The product specified as G-2 is laminated and not tempered. Please confirm this is correct

Answer: Correct. BRG-1 and G-2 may be used interchangeably at contractor's option.

Q13: Can we supply standard profile unequal rabbet frames in lieu of non-standard equal rabbet frames? (Attached drawings)

Answer: Standard profile unequal rabbet frames are acceptable

Q14: Can we supply standard profile unequal rabbet relites, sidelites and transom frames in lieu of non-standard equal rabbet profiles? (Attached drawings)

Answer: Standard profile unequal rabbet frames are acceptable

Q15: Opening #106B is calling out an STC-54 door, the highest STC rating a typical wood door supplier can make is STC-47. Please verify STC-54 is necessary.

Answer: Wood doors can be STC-47 max. See Revised A.A8.01

Q16: If STC-54 is required we can only meet this specification with a complete STC-54 assembly. This assembly would come with a hollow metal frame, wood door and seals. These are very expensive and may require special hardware due to the wood door thickness. (Krieger Specialty Products)

Answer: STC-54 not required per response to Q15 above.

Q17: Please confirm bird netting is only required at the Vehicle and Decant Buildings and not the open storage building, fuel canopy, and Admin building warehouse, loading dock, and meter shop.

Answer: Bird Netting is required at Storage, Fuel, and Decant, not Admin Whse or Vehicle Storage. See revised D.A2.02, S.A2.02, F.A2.01, V.A2.01

Q18: Please confirm the phrase “vehicle storage bays” refers to the entire area within gridlines 2 to 7 and A to B (the area identified as CONDITIONED TRUCK PARKING #208).

Answer: Sheet Note 5 has been removed. Bird Netting is not required at this building. See Revised V.A2.01

Q19: On the PEMB structures, please specify the material and finish for the wall girts and roof purlins.

Answer: Girts and purlins to be shop primed.

Q20: May the PEMB framing members be hot dipped galvanized in lieu of being painted with zinc rich primer?

Answer: Yes, galvanized is acceptable in place of SSPC-20. Use one or the other for all components.

Q21: Please confirm PEMB “framing members” is referencing the primary framing members and not secondary materials (purlins, girts, gussets, etc).

Answer: Framing members referrers to primary and secondary members. Girts and purlins, etc should be primed as well

Q22: 01 3050 DESIGN-BUILD REQUIREMENTS: Please confirm the scopes listed in 1.02, A, should not include Pipe and Tube Railings and the Flagpole, seeing there are no specifications provided for these.

Answer: Flagpole has been added - see new Section 10 7500. Pipe and Tube has been removed from the list. See revised 01 3050.

Q23: Please confirm the structural steel shop drawings required in 05 5000 do not require an engineers stamp since the structural steel design appears to have already been completed and stamped by ZCS?

Answer: Shop drawings structural steel scope provided by ZCS will not require stamp by registered engineer. The PEMB submittal or any other design-build structural components will be required to be stamped by registered engineer.

Q24: Are we to use spec section 076100 (alternate roof spec) for base bid roofing on the storage building and fuel island?

Answer: Yes, use this section, without the insulation, for roof at Storage, Fuel, and Decant

Q25: The Live Load of the roof is listed as 20 psf. Is this load reducible per the Building Code?

Answer: OSSC Snow Load governs Admin Building, Live Load reduction will have no effect on design for Admin building. Any Live Load reduction for PEMBs is responsibility of stamping engineer for PEMB.

Q26: Main Frame Sidesway was not listed. Is the standard H/60 acceptable?

Answer: H/100 is required for Risk Category 4 structures.

Q27: Building Collateral loads for the roof purlins and rafters is not provided for the PEMB. What is required?

Answer: For PEMB a minimum collateral load of 5 psf is to be included in addition to roof structure/deck

Q28: The PV area weight is not listed. What weight does the PEMB need to account for on the Storage and Vehicle buildings?

Answer: PEMB to be designed with additional DL = 5 psf for future solar array.

Q29: The insulated roof panel specifications are calling for a 30 year finish warranty. The wall panels call for a 20 year warranty. The standard warranty for the Quadcore wall panels is 30 year and the Kingseam standard is 20 years. Are the requested warranty durations correct as listed?

Answer: 20 year warranty referenced for the wall panels is for finish and is manf. standard. Manf. standard 30-year thermal warranty has been added to Section 07 4213.19. The roof panel has been updated to reflect a 20-year finish warranty, and manf standard 2-year workmanship warrant – see revised Section 07 4213.

Q30: The rendering on the Fuel station cover page shows soffit panel but no soffit panel is called out on the drawings. Is it required and if so what type of panel is required?

Answer: This was answered in Q5 of ADD #2

Q31: Sheet D.A2.01 on the Decant Building shows a portal frame on line B only. Sheet D.S1.01 shows portal frames on both line A & B. Portal frames will be required on both lines A & B per the foundation plan due to the building being Risk Category IV.

Answer: Portal frames may be located as required for the building to function structurally and to maintain required clearances as shown.

Q32: The Vehicle Building portal frames shown on sheet V.A2.01 do not match sheet V.S1.01. Which sheet do we follow?

Answer: Portal frames may be located as required for the building to function structurally and to maintain required door clearances as shown

Q33: The specified manufacturer for the voice-activated speaker/microphone units (08 5653, 2.03, d.1) is no longer in business. Please provide specification for an alternate item for the voice-activated speaker/microphone unit.

Answer: Use Norcon TTU-1AX as basis of design. See Revised 08 5653.

Q34: C3.10: Please confirm conduits for power will be installed/stubbed across Aqua Drive and to the general location of the power vault by the road contractor.

Answer: Correct – (1) 4” conduit will be extended to the south side of Aqua Drive at the location shown on plan. (3) 2” conduit will be extended to the south side of Aqua at the NE corner of the site. No vaults/risers are expected to be installed by road contractor.

Q35: C1.00: The soils report says the site is underlain with sandstone approximately 2'6" from the existing grade. Does this reference grade prior to removal of 12" of soil or after?

Answer: Correct – the soils report was prepared before 12" of material was removed.

Q36: C1.00: Areas with keynote 4, "Future Landscape Areas. Do No Clear Or Grub", include graded sidewalks, grassy convenance channels, walk paths, lighting, area drains, sanitary sewer manhole, etc. Please confirm these area, while requiring excavation for site improvements, do not require clear and grub.

Answer: All sidewalks, walking paths, gravel access drives, conveyance channels, utilities, lights, etc. must be excavated as necessary to meet section/detail requirements shown in plan set. Clearing and grubbing will only be required if organic materials are visible at mobilization. If no organic materials are encountered, there is no need to remove 2" of material from any portion of the site.

Q37: Vehicle Building: Are the main and secondary frames of the PEMB to be finish painted?

Answer: Shop primed only

Q38: Note 19 on sheet C2.10 calls out a monument sign per the Architectural sheets. No monument sign detail or specification found in the Architectural sheets.

Answer: No monument sign has been included with this bid package. Stub any utilities indicated by other drawings to the location and cap.

Q39: There are several bollard details throughout the different plan sets which differ one from the other (C5.10, 15; C5.20, standard bollard detail 12; S.A2.01, 3; F.S1.01, 4 (which in the plan and elevation views appears to be a hoop style bollard); V.A8.21, 12; V.S3.01, 16). Additionally, there is a note with detail 12 on C5.20 stating "Final approval of quantity and location of bollards at discretion of MWC." For bidding purposes, please clarify which bollard detail should be used and the quantity of bollards to be included in GC's bids (our count found approximately 200 in the plan sets).

Answer: Bolt down bollards (Revised detail 19/A.A8.10, 12/V.A8.21) should be used for all bollards shown on Architectural drawings (bollards within 5 ft of a building). Cast-in-place bollards (15/C5.10) to be used for all site bollards.

Q40: Sheet S.A2.01 calls for 4' high concrete wall at Gridline 2. Sheet S.S1.01 does not call out a concrete wall or detail a concrete wall. What is the thickness of the wall? Does the wall require a footing? Please provide detail.

Answer: Yes, see updated S.S1.01 and S.S4.01 plans for wall and foundation requirements.

Q41: Ref. 13 3419 section 2.03.G: is the SSPC-Paint 20 requirement intended to apply to cold form secondary (e.g. girts, purlins, and sheeting angles)?

Answer: Yes, this applies to secondary framing as well

Q42: Is standard gray shop primer acceptable in lieu of SSPC-Paint 20?

Answer: As many of these buildings will be exposed to the elements, SSPC-20 is required

Q43: Is G90 galvanized coil finish acceptable for cold form secondary (e.g. girts, purlins, sheeting angles) in lieu of SSPC-Paint 20 requirement?

Answer: Yes, galvanized is acceptable in place of SSPC-20. Use one or the other for all components

Q44: Storage Building: Are tapered columns allowed?

Answer: Yes, tapered columns are allowed

Q45: Storage Building: Is any metal soffit present?

Answer: No, no metal soffit at this building

Q46: Decant Building: Are tapered columns allowed?

Answer: Yes, tapered columns are allowed

Q47: Bid set plans indicate a 4” x 6” downspout (see V.A2.01, D.A2.01, S.A2.01, etc.) but industry standard for a roll-formed downspout is 4”x 5”. Is 4” x 5” downspout acceptable in lieu of 4” x 6”?

Answer: A 4x5 downspout is acceptable

Q48: On Pg A.A.102 please provide size and location for the HSS tubing support at the Mechanical Screen Wall.

Answer: See Revised 08 9200 and 05500

Q49: Please provide product information on the louvered Metal Screening Fence.

Answer: See Section 08 9200.

Q50: MTL-3 is listed at detail 1/A.A5.04 but is not shown on the Interior Finish Summary A.A9.02. Please provide.

Answer: Information for a Stainless Steel counter at MTL-3 has been provided

Q51: Please provide the following missing codes from the Door and Frame Schedule on A.A8.01- MHI, OH-S.

Answer: OH-S is an incorrect reference to door type OH-SV. This has been corrected in the schedule. See Revised A.A8.01

Q52: Panel at 7/A.A4.01 is labeled as both Stainless Steel panel and FRP-1. Please advise.

Answer: Details have been updated to indicate which portion of wall is FRP and which is Stainless Steel. See revised A.A4.01

Q53: P-X is labeled on the Room Finish Schedule on A.A9.01 but is not labeled on the Interior Finish Summary on A.A9.02. Please also see detail 10/A.A5.04 Please clarify.

Answer: P-X represents paint of color to be determined. Assume standard interior paint type as required for surface.

Q54: ADD#1 is missing S.AG3.01, and includes D.A1.01 but doesn't reference it

Answer: S.AG3.01 was inadvertently omitted from ADD #1. It has been issued with ADD #3, with revision numbers updated accordingly. D.A1.01 was updated with a corrected table of contents as part of ADD #1.

Q55: ADD#2 includes drawings F.P0.02 and V.A0.02 but doesn't reference them in the narrative

Answer: F.P0.02 included revisions to Fuel Handling Equipment FLGV-1 and FORP – 1&2. Drawing V.A0.02 does not exist as part if the drawing set. Drawing V.A0.01 was referenced in the ADD #2 narrative, and was included with the addendum.

Q56: Door 112A - Missing Door Type Material

Answer: This should be a wood door. Door schedule has been updated - see revised A.A8.01

Q57: Door 148 - Missing Hardware Group

Answer: Door has been renamed to 103b to better correspond with location, and given hardware information. See revised A.A8.01

Q58: As of addendum 2, 13 3419 paragraph 1.07.C. no longer lists weathertightness as a warranty requirement. Please confirm that weathertightness warranties are no longer a part of the scope.

Answer: This section was inadvertently deleted. It has been restored.

Q59: In the specifications it states that Cook Solution Group is the owner's security contractor. Will they be providing and installing all of what's shown in section 28 1000 - Access Control and Intrusion Detection, part 1, 1.01, A? Or are you needing a quote for all of those items?

Answer: General Contractor to use Owner's security vendor, Cook Solutions, to select and install products as covered by Section 28 1000. Materials may be purchased either by General Contractor or Cook Solutions, but fall under the scope of this contract. Daniel Greenburg, (844) 305-2665, daniel.greenberg@cooksolutionsgroup.com, is Owner's contact at Cook Solutions.

Q60: With regards to the asphalt paving. The plans indicate the wearing course to be a Level 4 for both Heavy Duty and the Light Duty Sections and the base courses are called out to be Level 3 in both pavement sections. These higher levels are not typical for parking lot construction. The specifications are indicating that a Level 2 Mix is required for both the wearing and base courses. Please clarify the proper asphalt mix. In addition the plans indicate utilizing 2 different binders for the respective courses and the specifications call out a different binder all together than the plans. The binder listed in the specifications is more of a colder weather binder. Please clarify the intended asphalt binder.

Answer: See revised paving plan and 32 1216 specification

Q61: Plan Note 4 on Sheet C2.00 calls out installing a 2’ wide concrete island similar to detail 1/C5.10. Detail 1 is for Curb and Gutter. Please clarify the similar portions of the detail or provide a detail for the Concrete Island.

Answer: See new detail 35/C5.12

Q62: Plan Sheet C0.01 note 9 under Site Preparation Notes calls for a Non-Woven Mirafi 180N subgrade fabric. Plan sheet C2.0 is calling for a Woven Geotextile to be placed as subgrade fabric. The project specifications list both woven and non-woven products. Please clarify the proper Subgrade Geotextile Fabric for use in traffic areas.

Answer: See revised 31 2323 specification.

APPROVAL OF ADDITIONAL PRODUCTS/SYSTEMS:

ALL CONTRACT DOCUMENT SPECIFICATION REQUIREMENTS APPLY IN TOTAL TO ALL ADDITIONAL MANUFACTURERS AND PRODUCTS LISTED BELOW

08 6200 – Unit Skylights

R&S 4'x8' unit skylight, triple glazed with thermally broken aluminum frame, R&S fall protection and curb – added as an approved manufacturer/system

08 8000 – Glazing

3/8" Clear ACCESSGARD Security Glazing – added as an approved manufacturer/ system

1 -1/8" UL 752 Level 3 SP311 Bullet Resistant Glass – added as an approved manufacturer/ system

Bidders are reminded that all questions related to the Bid Documents or the project must be submitted in writing in accordance with Section 22 of the Information for Bidders. Received questions will only be answered by Addenda. After the stated December 4, 2024 deadline, no individual questions will be answered and bidders will be responsible for making their own interpretation of the bid documents.

ACKNOWLEDGEMENT: All Bidders shall acknowledge receipt and acceptance of this Addendum on the Bid Form. Bids submitted without acknowledgment may be considered informal.

BOARD OF WATER COMMISSIONERS

CITY OF MEDFORD, OREGON

By: _____

Brad Taylor, General Manager

Receipt acknowledged and conditions agreed to this _____ day of _____, 2024.

Bidder: _____

By: _____

(Signature)

_____

(Print Name)

END OF SECTION

BID FORM					
NO.	DESCRIPTION	UNIT	QTY	UNIT PRICE	EXTENDED BID PRICE
1.	Construction of all buildings, structures, and associated sitework **(including regrading and stockpiling of existing soil materials)** and off-site improvements (Items 1-5 in the Project Description in Section 00 0102 Project Information of the Project Manual) – Line Item No. 5 will be calculated separately below and should not be included in this number	Lump Sum	1		
2.	Communications Tower and associated foundation (Item 6 in the Project Description in Section 00 0102 Project Information of the Project Manual)	Lump Sum	1		
3.	Solar Panels – *150 kW array*	Lump Sum	1		
4.	**Imported Site Fill – Quantities provided here for bid purposes only. Final payment will be by using truck load weight tickets convert to volume in Cubic Yards (CY) based on information in submittal per specifications. Cost of placement to be included in Unit Price**				
	4a **¾" minus Structural Fill (or equivalent as listed in Geotechnical Report)**	**CY**	**15,000**		
	4b **Pit run / 4" minus subgrade rock (or equivalent as listed in Geotechnical Report)**	**CY**	**20,000**		
	4c **Imported earth fill (landscape areas to top of subgrade)**	**CY**	**10,000**		
	4d **Imported topsoil (landscape areas topsoil)**	**CY**	**5,000**		
5.	Base Bid – IMP Roof Assembly	Lump Sum	1		
	Alt #1 – Standing Seam Roof Assembly	Lump Sum	1		
	The lesser of the two lines in Item 5 will be used to determine the final Bid Price				

Dollars $.

Total Amount in Words

Total Amount in Figures

Bid Submittal
Cover Sheet Checklist
for the
Medford Water Operation Center Project
December 2024

Bid Opening:

DATE: December 19th, 2024

TIME: 2:00 p.m., Local Time

PLACE: Medford Water Commission
200 S. Ivy St., Room 177 Medford, OR

Bid Submitted by: _____

Provide documents in the order they are listed below:

- ☐ **Form of Bid; Including Prequalification Approval Notification**
- ☐ **Bid Bond**
- ☐ **First-Tier Subcontractors Disclosure Form**
- ☐ **Non-Discrimination & Resident Bidder Certification**
- ☐ **American Iron and Steel Certification**
- ☐ **Subcontractor List**
- ☐ **Debarment and Suspension Certification**
- ☐ **Addenda; Enter Number of Included Addenda Here (___)**
- ☐ **Lobbying Certification Form**

SECTION 00 0110

TABLE OF CONTENTS

END OF SECTION

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SECTION 01 3050 - DESIGN-BUILD REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Certain work components of this project have not been designed or detailed by the Architect or the Architect's Consultants, and the components must be designed, engineered, and built by the Contractor.

B. Design-Build Components are defined as either or both of the following:

1. Complete and operational systems that perform their intended use.
2. Structural elements which will be subject to lateral or vertical Loads.

C. The Contractor shall coordinate and assume (or assign to Subcontractor) complete responsibility for design, engineering, submittals, fabrication, transportation, and installation of this Work.

D. Prior to starting Work, the Contractor shall submit all Design-Build documents to the governing Building Department or Authority having jurisdiction for review and approval. Each Design-Build item may require a separate permit and fee, which shall be paid by the Contractor when so required.

E. Design-build components of the work include, but are not limited to, those identified in this Section. Verify extent of required submittals listed with local jurisdiction. Refer to sections for specific requirements for Design-Build.

1.02 DESIGN-BUILD COMPONENTS OF THE WORK

A. Requiring Building Department review and approval as deferred submittals:

1. ~~Section 05 5213 - Pipe And Tube Railings.~~
2. Section 05 2100 - Steel Joist Framing.
3. Section 07 8400 - Firestopping.
4. Section 07 7300 - Fall Protection Devices.
5. Section 08 4313 - Aluminum-Framed Storefronts.
6. Section 08 4413 - Glazed Aluminum Curtain Walls.
7. Section 08 9200 - Louvered Equipment Enclosures
8. Section 10 7500 - Flagpoles: Foundation.
9. Seciton 13 3419 - Metal Building Systems.
10. Division 22 - Plumbing: Equipment anchorage and bracing.
11. Division 23 - Heating, Ventilating, and Air Conditioning (HVAC): Equipment anchorage and bracing.
12. Division 26 - Electrical: Equipment anchorage and bracing.

B. Requiring Building Department review and approval as separate permits:

1. Section 13 3419 - Metal Building Systems.
2. Division 21 - Fire Sprinkler Systems.
3. Division 28 - Fire Detection and Alarm Systems.

1.03 SUBMITTALS

A. Comply with Building Department requirements.

B. Include design criteria, design assumptions, structural calculations, fabrication and construction details, required clearances, and interface requirements.

C. Affix Design Professional's license seal of the projects location state on all required submittals.

1.04 QUALITY ASSURANCE

A. Designer Qualifications: Where delegated engineering design is to be performed under the construction contract provide the direct supervision of a Professional Engineer experienced in design of this type of work and licensed in the state where the construction work is to be done.

1.05 OWNER'S RESPONSIBILITIES

A. The Owner will not pay for progress delays, additional work, additional products, restocking, or reworking required by sub-contractor’s or Contractor's failure to coordinate Design-Build work with other project work.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 05 5000 - METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shop fabricated steel and aluminum items, including:

1. Bollards.
2. Foot scrapers.
3. Channel frames for overhead door and wall openings.
4. Support structure, bracing, and gate frames for equipment screens
5. Other miscellaneous steel fabrications.

B. Downspout boots.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Placement of metal fabrications in concrete.

B. Section 05 5213 - Pipe and Tube Railings.

C. Section 07 7123 - Manufactured Gutters and Downspouts: Downspout boots.

D. Section 08 9200 - Louvered Equipment Enclosures

E. Section 09 9113 - Exterior Painting: Paint finish.

F. Section 09 9123 - Interior Painting: Paint finish.

G. Section 32 3300 - Site Furnishings: Steel pipe bollards to match other site furnishings.

1.03 REFERENCE STANDARDS

A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2020.

B. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.

C. ASTM A48/A48M - Standard Specification for Gray Iron Castings; 2022.

D. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2022.

E. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

F. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2018.

G. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2021.

H. ASTM B210/B210M - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes; 2019a.

I. ASTM B211/B211M - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire; 2019.

J. ASTM B26/B26M - Standard Specification for Aluminum-Alloy Sand Castings; 2018, with Editorial Revision.

K. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

L. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength; 2023.

M. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2020.

N. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020, with Errata (2023).

O. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel AC172; 2019.

P. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 2004.

Q. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic); 2019.

R. SSPC-SP 2 - Hand Tool Cleaning; 2018.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.

1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.
2. Design data: Submit drawings and supporting calculations, signed and sealed by a qualified professional structural engineer.
    a. Include the following, as applicable:
        1) Design criteria.
        2) Engineering analysis depicting stresses and deflections.
        3) Member sizes and gauges.
        4) Details of connections.
        5) Support reactions.
        6) Bracing requirements.

C. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.

D. AIS Certificate: Certify that products comply with American Iron and Steel (AIS) provision for the Consolidated Appropriations Act of 2017 (Section 746 Division A of Title VII), and subsequent statutes, mandating domestic preference.

1.05 QUALITY ASSURANCE

A. Design work under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State in which the Project is located.

B. Fabricator Qualifications: A qualified steel fabricator that is accredited by IAS AC172.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

A. Steel Sections: ASTM A36/A36M.

B. Steel Tubing: ASTM A501/A501M hot-formed structural tubing.

C. Plates: ASTM A283/A283M.

D. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.

E. Mechanical Fasteners: Same material as or compatible with materials being fastened; type consistent with design and specified quality level.

F. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, plain.

G. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

H. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

I. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.02 MATERIALS - ALUMINUM

A. Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper.

B. Aluminum-Alloy Drawn Seamless Tubes: ASTM B210/B210M, 6063 alloy, T6 temper.

C. Aluminum-Alloy Bars: ASTM B211/B211M, 6061 alloy, T6 temper.

D. Aluminum-Alloy Sand Castings: ASTM B26/B26M.

E. Bolts, Nuts, and Washers: Stainless steel.

2.03 FABRICATION

A. Fit and shop assemble items in largest practical sections, for delivery to site.

B. Fabricate items with joints tightly fitted and secured.

C. Continuously seal joined members by intermittent welds and plastic filler.

D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

F. Furnish components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.04 FABRICATED ITEMS

A. Bollards: Steel pipe, concrete filled, with welded flat steel cap, 6 inch diameter as detailed; galvanized finish.

1. Field finish with industrial coating as specified in Section 09 9113.

B. Steel Angles: For concrete stops at deck edges as detailed.

C. Frames for Overhead Door Openings and Wall Openings: Channel sections; prime paint finish.

D. Foot Scrapers, Mud and Foot Grilles, and Pans: As detailed; aluminum, mill finish.

E. Support Structures for Equipment Screens: As required to support louvers and as shown on drawings, steel or aluminum as required to support load. Factory finished with powder coating if steel, or annodized aluminum.

2.05 DOWNSPOUT BOOTS

A. Downspout Boots: Smooth interior without boxed corners or choke points; include integral lug slots and on-body cleanout and cover with neoprene gaskets.

1. Configuration: As required or as indicated on drawings.
2. Material: Cast iron; ASTM A48/A48M; casting thickness 3/8 inch (9.5 mm), minimum.
3. Finish: Manufacturer's standard factory applied powder coat finish.
4. Color: To be selected by Architect from manufacturer's standard range.
5. Accessories: Manufacturer's standard stainless steel fasteners, stainless steel building wall anchors, and rubber coupling.
6. Manufacturers:
   a. Downspoutboots.com, a division of J.R. Hoe & Sons: www.downspoutboots.com/#sle.
   b. Substitutions: See Section 01 6000 - Product Requirements.

2.06 FINISHES - STEEL

A. Prime paint steel items.
   1. Exceptions: Galvanize items to be embedded in concrete and items to be embedded in masonry.
   2. Exceptions: Do not prime surfaces in direct contact with concrete, where field welding is required, and items to be covered with sprayed fireproofing.
   3. Exceptions: Items noted to recieve specialty factory finish.
B. Prime Painting: Two coats.
C. Galvanizing of Structural Steel Members: Galvanize exterior items after fabrication to ASTM A123/A123M requirements. Provide minimum 1.7 oz/sq ft galvanized coating.
D. Galvanizing of Non-structural Items: Galvanize exterio items after fabrication to ASTM A123/A123M requirements.

2.07 FINISHES - ALUMINUM

A. Exterior Aluminum Surfaces: Class I natural anodized.
B. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.

2.08 FABRICATION TOLERANCES

A. Squareness: 1/8 inch maximum difference in diagonal measurements.
B. Maximum Offset Between Faces: 1/16 inch.
C. Maximum Misalignment of Adjacent Members: 1/16 inch.
D. Maximum Bow: 1/8 inch in 48 inches.
E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.
B. Furnish setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

3.03 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Field weld components as indicated on drawings.

D. Perform field welding in accordance with AWS D1.1/D1.1M.

E. Obtain approval prior to site cutting or making adjustments not scheduled.

F. After erection, prime welds, abrasionsand surfaces not shop primed or galvanized , except surfaces to be in contact with concrete.

3.04 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch.

C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

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SECTION 07 4123 - INSULATED METAL ROOF PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Insulated metal roof panel system of preformed steel panels.

B. Metal soffit panels.

1.02 RELATED REQUIREMENTS

A. Section 05 3100 - Steel Decking: Steel decking supporting insulated metal roof panels.

B. Section 07 2500 - Weather Barriers: Flexible self-adhered membrane flashings.

C. Section 07 4213 - Metal Wall Panels: Preformed wall panels.

D. Section 07 6200 - Sheet Metal Flashing and Trim: Sheet metal flashing and trim not part of roof panel system, gutters, and downspouts.

E. Section 07 9200 - Joint Sealants: Sealing joints between metal roof panel system and adjacent construction.

1.03 REFERENCE STANDARDS

A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

B. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2023.

C. ASTM C1363 - Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus; 2019.

D. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference; 2005 (Reapproved 2017).

E. ASTM E1646 - Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference; 1995 (Reapproved 2018).

F. ASTM E1680 - Standard Test Method for Rate of Air Leakage through Exterior Metal Roof Panel Systems; 2016 (Reapproved 2022).

G. UL 580 - Standard for Tests for Uplift Resistance of Roof Assemblies; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Conduct a preinstallation meeting at least one week prior to the start of the work of this section; require attendance by affected installers, Owner, Architect, Manufacturer’s Technical Representative, and Contractors of related trades.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Storage and handling requirements and recommendations.
2. Installation methods.
3. Specimen warranty.

C. Shop Drawings: Include layouts of roof panels, details of edge and penetration conditions, spacing and type of connections, flashings, underlayments, and special conditions.
   1. Show work to be field-fabricated or field-assembled.
   2. Show shape and method of attachment of all trim.
   3. Identify location and type of fasteners and sealants.
   4. Identify installation sequence.
   5. Provide roof plan drawings and building sections which show panels in relationship to required locations for structural support. Include panel details and details showing attachment to structural support.

D. Test Reports: Indicate compliance of metal roofing system to specified requirements.

E. Warranty: Submit specified manufacturer's warranty and ensure that forms have been completed in Owner's name and are registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of experience and approved by manufacturer.

1.07 DELIVERY, STORAGE, AND HANDLING

A. See Section 01 7419 - Construction Waste Management and Disposal for packaging waste requirements.

B. Provide strippable plastic protection on prefinished roofing panels for removal after installation.

C. Store roofing panels on project site as recommended by manufacturer to minimize damage to panels prior to installation.
   1. Stack panel bundles in maximum two high quantity.
   2. Elevate one end of bungle to allow moisture run-off, cover, and allow for air circulation.

1.08 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Finish Warranty: Provide ~~[30-year]~~20-year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking. Complete forms in Owner's name and register with warrantor.

C. Special Warranty: Provide 2-year warranty for weathertightness of roofing system, including agreement to repair or replace metal roof panels that fail to keep out water commencing on the Date of Substantial Completion. Complete forms in Owner's name and register with warrantor.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Insulated Metal Roof Panel Manufacturers:
   1. Kingspan Insulated Panels; KingSeam Insulated Roof Panel: www.kingspan.com/#sle.
   2. Substitutions: Not permitted.

2.02 PERFORMANCE REQUIREMENTS

A. Metal Roof Panels: Provide complete roofing assemblies, including roof panels, clips, fasteners, connectors, and miscellaneous accessories, tested for compliance with the following minimum standards:

1. Structural Design Criteria: Provide panel assemblies designed to safely support design loads at support spacing indicated, with deflection not to exceed L/ 240 of span length(L) when tested in accordance with ASTM E1592.
2. Overall: Complete weathertight system tested and approved in accordance with ASTM E1592.
3. Wind Uplift: Class 90 wind uplift resistance of UL 580.
4. Air Infiltration: Maximum 0.06 cfm/sq ft at air pressure differential of 6.24 lbf/sq ft, when tested according to ASTM E1680.
5. Water Penetration: No water penetration when tested in accordance with procedures and recommended test pressures of ASTM E1646; perform test immediately following air infiltration test.
6. Thermal Movement: Design system to accommodate without deformation anticipated thermal movement over ambient temperature range of 100 degrees F.
7. Thermal Resistance: Provide throughout system, R-value of 42.6 at 6 inch thick, minimum, when tested in accordance with ASTM C1363.

2.03 INSULATED METAL ROOF PANELS

A. General: Provide complete engineered system complying with specified requirements and capable of remaining weathertight while withstanding anticipated movement of substrate and thermally induced movement of roofing system.

B. Insulated Metal Panels: Factory-formed panels with factory-applied finish.

1. Type: Double-skin, factory assembled with foamed-in-place polyurethane insulation.
2. Steel Panels:
   a. Aluminum-zinc alloy-coated SS (structural steel) sheet complying with ASTM A792/A792M; minimum AZ50 coating.
   b. Steel Thickness: Minimum 24 gauge, 0.024 inch.
3. Profile: Standing seam, with minimum 1-inch seam height; concealed fastener system for integral standing seam-shaped lap seam.
4. Texture: Smooth.
5. Length: 10 feet minimum; maximum possible length to minimize lapped joints.
6. Width: Maximum panel coverage of 40 inches.

2.04 METAL SOFFIT PANELS:

A. Profile: Flat panel style, with venting provided.

1. Panel Width: 12 inches.
2. Panel Length: Full depth of soffit.

B. Material: Precoated steel sheet, 22-gauge, 0.0299-inch minimum thickness.

C. Color: As selected by Architect from manufacturer's premium metallic line.

D. Products:

1. Taylor Metal Products; Lifetime Soffit: www.taylormetal.com.
2. Substitutions: See Section 01 6000 - Product Requirements.

2.05 ATTACHMENT SYSTEM

A. Concealed System: Provide manufacturer's standard stainless steel or nylon-coated aluminum concealed anchor clips designed for specific roofing system and engineered to meet performance requirements, including anticipated thermal movement.

2.06 FABRICATION

A. Panels: Provide factory fabricated panels and accessory items, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.

B. Joints: Provide captive gaskets, sealants, or separator strips at panel joints to ensure weathertight seals, eliminate metal-to-metal contact, and minimize noise from panel movements.

2.07 FINISHES

A. Fluoropolymer Coil Coating System: Polyvinylidene fluoride (PVDF) multi-coat superior performing organic coatings system complying with AAMA 2605, including at least 70 percent PVDF resin, and at least 80 percent of coil coated metal surfaces having minimum total dry film thickness (DFT) of 0.9 mil, 0.0009 inch; color and gloss as selected by Architect from manufacturer's premium metallic finishes.

2.08 ACCESSORIES

A. Miscellaneous Sheet Metal Items: Provide flashings, trim, closure strips, preformed crickets, caps, and similar sheet metal items of the same material, thickness, and finish as used for the roofing panels. Items completely concealed after installation may optionally be made of stainless steel.

B. Rib and Ridge Closures: Provide prefabricated, close-fitting components of steel with corrosion resistant finish or combination steel and closed-cell foam.

C. Fasteners:

1. Self drilling fasteners shall be corrosion resistant plated steel, designed to resist maximum negative pull-off loads and hold the face sheet mechanically to the structural support.
2. Panel attachment clip shall be one piece and fully concealed within the panel sidejoint. Top clip shall be a minimum 20 gauge stainless steel with an integral thermal break.

D. Sealants:

1. Exposed Sealant: Elastomeric; silicone, polyurethane, or silyl-terminated polyether/polyurethane.
2. Concealed Sealant: Non-curing butyl sealant or tape sealant.
3. Seam Sealant: Factory-applied, non-skinning, non-drying type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation of preformed metal roof panels until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Verify alignment of the structure and supports prior to installation of the insulated metal roof panels.

1. Correct deviations from structural tolerances prior to installation of the panels.

3.02 PREPARATION

A. Coordinate roofing work with provisions for roof drainage, flashing, trim, penetrations, and other adjoining work to ensure that completed roof will be free of leaks.

B. Remove protective film from surface of roof panels immediately prior to installation; strip film carefully to avoid damage to prefinished surfaces.

C. Separate dissimilar metals by applying a bituminous coating, self-adhering rubberized asphalt sheet, or other permanent method approved by metal roof panel manufacturer.

D. At locations where metal will be in contact with wood or other absorbent material subject to wetting, seal joints with sealing compound and apply one coat of heavy-bodied bituminous paint.

3.03 INSTALLATION

A. Overall: Install roofing system in accordance with approved shop drawings and metal roof panel manufacturer's instructions and recommendations, as applicable to specific project conditions; securely anchor components of roofing system in place allowing for thermal and structural movement.

1. Install roofing system with concealed clips and fasteners, except as otherwise recommended by manufacturer for specific circumstances.
2. Minimize field cutting of panels. Where field cutting is required, use methods that will not distort panel profiles. Use of torches for field cutting is prohibited.
    a. Cut panels, where indicated on shop drawings, using a power circular saw with fine tooth carbide tip blades or a band saw prior to installation.
    b. Ventilate area where polyurethane dust is generated. Personnel should wear respiratory and eye protection devices.

B. Accessories: Install necessary components that are required for complete roofing assembly, including flashings, trim, moldings, closure strips, preformed crickets, caps, rib closures, ridge closures, and similar roof accessory items.

1. Place trim to determine the location of the closure strips, sealant and ridge closure trims.
2. Apply butyl tape above and below the foam closure strip and seat the closure strip firmly in the tape to ensure a continuous seal. If any voids exist add butyl caulking and reseat the closure.
3. Place a continuous layer of butyl tape on top of the metal ridge closure trims for the length of the building.
4. Fasten the exterior ridge trim to the metal ridge closure trims per manufacturer’s recommendations.

C. Roof Panels: Install metal roof panels in accordance with manufacturer's installation instructions, minimizing transverse joints except at junction with penetrations.

1. Secure units to support and/or steel support with manufacturer's recommended fastener.
    a. Place panel fasteners through predrilled top and base clip, concealed within the panel side joint.
    b. Insulate concealed fastener heads from exterior environments to prevent condensation from occuring on the fastener shaft.
2. Install sealant or sealant tape at end laps and side joints as recommended by metal roof panel manufacturer.
3. Install sealant around interior perimeter of roof assembly for vapor seal.

4. Crimp hidden clip assembly as each panel is installed, prior to placement of next panel

D. Sealant Installation for Exposed Joints at Roof Panels:

1. Clean and prime surfaces to receive exterior exposed sealants in accordance with sealant manufacturer's recommendations.
2. Follow sealant manufacturer's recommendations for joint width-to-depth ratio, application temperature range, size and type of backer rod, and compatibility of materials for adhesion.
3. Avoid direct contact between butyl and silicone sealants.

3.04 TOLERANCES

A. Supporting Steel: Structural supports for panels by others. Install support members within the following tolerances:

1. Plus or minus 1/8 inch cumulative within 120 inches in any direction along plane of framing.

3.05 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements for additional requirements.

B. Testing Agency: Engage independent testing and inspection agency acceptable to Architect to perform field tests and inspections and prepare findings.

3.06 CLEANING

A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.

B. Following metal roof panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.

3.07 PROTECTION

A. Do not permit storage of materials or roof traffic on installed roof panels. Provide temporary walkways or planks as necessary to avoid damage to completed work. Protect roofing until completion of project.

B. Touch-up, repair, or replace damaged roof panels or accessories before Date of Substantial Completion.

END OF SECTION

SECTION 07 4213.19 - INSULATED METAL WALL PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Factory-assembled, insulated metal panels for walls, with trim, and accessory components.

1.02 RELATED REQUIREMENTS

A. Section 05 4000 - Cold-Formed Metal Framing: Metal framing members supporting insulated metal wall panels.

B. Section 07 2500 - Weather Barriers: Flexible self-adhered membrane flashings.

C. Section 07 6200 - Sheet Metal Flashing and Trim.

D. Section 07 9200 - Joint Sealants: Sealing joints between metal wall panel system and adjacent construction.

1.03 REFERENCE STANDARDS

A. AAMA 501.2 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems; 2015.

B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

C. ASTM A755/A755M - Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products; 2018.

D. ASTM A924/A924M - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process; 2022a.

E. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2021.

F. ASTM C591 - Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation; 2022.

G. ASTM D1621 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics; 2016 (Reapproved 2023).

H. ASTM D1622 - Standard Test Method for Apparent Density of Rigid Cellular Plastics; 2020.

I. ASTM D2244 - Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates; 2023.

J. ASTM D4214 - Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films; 2023.

K. ASTM E72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction; 2022.

L. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023d.

M. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014 (Reapproved 2021).

N. FM 4882 - Approval Standard for Class 1 Interior Wall and Ceiling Materials of Systems for Smoke Sensitive Occupancies; 2016.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Conduct a preinstallation meeting at least one week prior to the start of the work of this section; require attendance by affected installers, Owner, Architect, Manufacturer’s Technical Representative, and Contractors of related trades.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide manufacturer documentation on tested structural, thermal, and fire resistance capabilities of assembled panel.

C. Shop Drawings: Indicate panel profiles, layout, exterior sheet gauge, interior sheet gauge, joints, dimensions, spans, sealant locations, construction details, methods of anchorage, and sequence of installation.

1. Coordination Drawings: Provide elevation drawings and building sections which show panels in relationship to required locations for structural support, panel orientation, and panel type locations.

D. Verification Samples: For each finish product specified, submit at least two samples, 3 inch square minimum, and representing actual product in color and texture.

E. Manufacturer's Instructions: Indicate special handling criteria, installation sequence, and cleaning procedures.

F. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of type specified in this section and authorized by panel manufacturer.

1. The work shall be supervised by a person having a minimum of five years experience installing insulated metal standing seam roof panels on similar type and size projects

B. Coordinate structural support requirements in relation to insulated roof and wall panel system, installation of any separate air/water barriers, treatment of fenestration, and other requirements specific to the project.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.

B. Store prefinished material above ground with weather protection to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

C. Prevent contact with materials that could cause discoloration or staining.

1.08 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Limited Warranty: Standard form in which manufacturer agrees to repair or replace items that fail in materials or workmanship within specified warranty period. Include structural performance, including bond integrity, deflection, and buckling.

1. Warranty Period: Two years from Date of Substantial Completion, or two years and three months from date of shipment from manufacturer's plant, whichever occurs first.

C. Finish Warranty: Standard form in which manufacturer agrees to repair or replace metal panels that evidence deterioration of fluoropolymer finish. Deterioration includes flaking or peeling from approved primed metal substrate, chalk over 8 when tested in accordance with ASTM D4214, Method A, and color fading over 5 delta units on panels when tested in accordance with ASTM D2244.

1. Warranty Period: Twenty years from Date of Substantial Completion, or twenty years and three months from date of shipment from manufacturer's plant, whichever occurs first.

D. **Thermal Warranty: Standard form in which manufacturer agrees to repair or replace panels that exhibit greater than 10 percent reduction from published R-value (RSI-value) at time of manufacture, as measured in compliance with ASTM C518 within specified warranty period.**

1. **Warranty Period: Thirty years from Date of Substantial Completion, or 30 years and three months from date of shipment from manufacturer's plant, whichever occurs first.**

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Kingspan Insulated Panels; Designwall 4000 and Designwall 2000R: www.kingspan.com/#sle.

1. Type A, B, and D - Panels: QuadCore Designwall 4000.
2. Type C - Panels: QuadCore B Designwall 2000R.

B. Substitutions: Not permitted.

2.02 PANEL SYSTEM

A. Metal Panel System: Factory-assembled metal panel system, with trim, related flashings and accessory components.

1. Provide positive drainage to exterior for moisture entering or condensation occurring within panel system.
2. Accommodate tolerances of building structural framing.

2.03 PERFORMANCE REQUIREMENTS

A. Thermal Performance: Provide thermal resistance through entire system for panels as follows:

1. Type A - Panels: Designwall 4000; R-value of 32 degrees F hr sq ft/Btu.
2. Type B - Panels: Designwall 4000; R-value of 16 degrees F hr sq ft/Btu.
3. Type C - Panels: Designwall 2000R; R-value of 20 degrees F hr sq ft/Btu.
4. Type D - Panels: Designwall 4000; R-value of 24 degrees F hr sq ft/Btu.

B. Structural Performance: Design and size to withstand dead loads and wind loads caused by positive and negative wind pressure acting normal to plane of panel.

1. Verify structural performance in accordance with ASTM E72 and ASTM E330/E330M, using test pressure 1.5 times design wind pressure, with 10 seconds duration of maximum load.

C. Fire Test Performance:

1. Factory Mutual Rating for Building Panels with Insulated Cores: Tested and successfully passed acceptance criteria of FM 4880 for Class 1 fire rating.
2. Factory Mutual Rating for Interior Walls of Smoke-Sensitive Occupancies: Tested and successfully passed acceptance criteria of FM 4882 for Class 1 fire rating.

D. Movement: Accommodate movement caused by following items without damage to system, components, or deterioration of seals:

1. Normal movement between system components.
2. Seasonal temperature cycling.

2.04 PANELS AND TRIM

A. Wall Panels: Factory-assembled, foamed-in-place, insulated metal panels with exterior and interior sheet metal skins; panels interlock at edges, fitted with continuous gaskets.

1. *Panel Width: 36 inches.*
2. Panel Orientation: As indicated on drawings.
3. Exterior Panel Face Profile, Texture, and Thickness:
   a. Type A: Flat face, non-embossed, 4 inches thick.
   b. Type B: Flat face, non-embossed, 2 inches thick.
   c. Type C: Ribbed face, 4 inches thick.
   d. Type D: Flat face, non-embossed, 3 inches thick.
4. Interior Panel Face Profile: Flat.
5. Exterior Sheet: Prefinished galvanized steel, 22 gauge, 0.0299 inch minimum base metal thickness.
6. Interior Sheet: Prefinished galvanized steel, 24 gauge, 0.0239 inch minimum base metal thickness.
7. Exterior Face of Panel Paint Finish: Two-coat, polyvinylidene fluoride (PVDF) 1.0 mil, 0.001 inch system; 0.2 mil, 0.0002 inch primer with 0.8 mil, 0.0008 inch Kynar 500 (70 percent) METALLIC color coat.

B. Trim, Closure Pieces, Expansion Joints, Caps, Flashings, Fascias, Infills, External Corners, and Internal Corners: Same material, thickness, and finish as exterior face of insulated metal panel; brake formed to required profiles; fabricated in longest practicable lengths.

2.05 PANEL MATERIALS

A. Precoated Galvanized Steel Sheet: ASTM A755/A755M steel coil material with Grade 33, G90 galvanized steel in accordance with ASTM A653/A653M and ASTM A924/A924M.

1. Color of Exposed Exterior Surfaces: Two premium metallic colors.
   a. Type A, C, and D Panels: Bright Silver.
   b. Type B Panels: Pewter.

2.06 FOAMED-IN-PLACE INSULATION

A. QuadCore hybrid polyisocyanurate foamed-in-place core, ASTM C591 Type IV, CFC and HCFC free, Halogenated Flame Retardant (HFR) free, compliant with Montreal Protocol and Clean Air Act, with the following minimum physical properties:

1. Thermal Resistance of Insulated Panel: Nominal R-value of 8.0 per inch thickness when tested in accordance with ASTM C518 at 75 degree F mean temperature; nominal R-value of 9.0 per inch thickness when tested at 35 degrees F.
2. Compressive Strength: 24 psi, when tested in accordance with ASTM D1621.
3. Density: 2.2 to 2.8 lb/cu ft, when tested in accordance with ASTM D1622.
4. Surface Burning Characteristics: Flame spread index of 25 or less, smoke developed index of 90 or less, when tested in accordance with ASTM E84.
5. Manufacturer: Kingspan Insulated Panels; QuadCore.
   a. Substitutions: Not permitted.

2.07 FRAMING MATERIALS

A. Panel Support Framing: See Section 05 4000 for requirements.

2.08 ACCESSORIES

A. Fasteners: Manufacturer's standard corrosion-resistant type to suit application; hot-dip galvanized steel with soft neoprene washers. Where exposed fasteners are required, provide cap color to match exterior panel.

B. Clips: Manufacturer’s standard stainless steel clips.

1. Clip shall be one piece and fully concealed within the panel sidejoint. Top clip shall be a minimum 20 gauge stainless steel with an integral thermal break.

C. ~~Vertical Joint Gasket (for Horizontal Panel Applications): Manufacturer's standard Extruded Fire-Retardant TPE rubber gasket shall with a finned profile.~~

1. ~~Vertical joint gasket shall give the appearance of a recessed and tooled caulk joint and be capable of accommodating joint width variations from 3/8 to 3/4 inch due to normal construction tolerances,~~
2. ~~Color: Custom, non-metallic, to match panel color.~~

D. Concealed Sealants: Noncuring butyl sealant or tape sealant; type as recommended by panel manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that structural substrate is ready to receive panel system.

1. Correct deviations from structural tolerances prior to installation of the panels.

B. Examine individual panels upon removing from the bundle. Edges should be visually examined and any slight overfill of insulation should be carefully removed.

3.02 INSTALLATION

A. Install panel system on walls in accordance with manufacturer's instructions.

B. Install panels plumb, level, and true-to-line with dimensions and layout indicated on approved shop drawings.

C. Protect panel surfaces from contacting cementitious materials and dissimilar metals.

D. Permanently fasten panel system to structural supports; aligned, level, and plumb, within specified tolerances.

E. Locate panel joints over supports.

F. Use concealed fasteners unless otherwise indicated by Architect.

1. Place panel fasteners through pre-punched holes in attachment clips, concealed within the joint of the panel. Secure units to the structural supports. Space clips as recommended by manufacturer or otherwise indicated on the approved shop drawings.

G. Seal and place gaskets to prevent weather penetration, and maintain neat appearance.

H. Butyl Weather Sealant:

1. Apply non-skinning butyl sealant as shown on shop drawings and manufacturer's installation instructions as necessary to establish the vapor barrier for the panels.
2. Use non-skinning butyl tube sealant only for tight metal-to-metal contact.
3. Do not use non-skinning butyl tube sealant to bridge gaps.
4. Direct contact between butyl and silicone sealants is not permitted.

I. Install trim and trim fasteners as indicated on approved shop drawings.

J. Field drill weep holes where appropriate in horizontal trim; minimum 1/4-inch diameter at 24 inches on center.

3.03 TOLERANCES

A. Supporting Steel: Structural supports for panels by others. Install support members within the following tolerances:

1. Plus or minus 1/8 inch within 60 inches in any direction along plane of framing.
2. Plus or minus 1/4 inch cumulative within 240 inches in any direction along plane of framing.
3. Plus or minus 1/2 inch from framing plane on any elevation.
4. Plumb or level within 1/8 inch at changes of transverse for preformed corner panel applications.

3.04 REPAIR

A. Touch-up, repair, or replace metal panels and trim that have been damaged.

3.05 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements for additional requirements.

B. Testing Agency: Engage independent testing and inspection agency acceptable to Architect to perform field tests and inspections and prepare findings.

C. Field Water Test: Test a 2-bay area metal wall panel assembly selected by Architect, including accessories and trim, for water penetration in accordance with AAMA 501.2.

D. Verify bearing support is located behind vertical joints of horizontal panel systems.

3.06 CLEANING

A. See Section 01 7000 - Execution and Closeout Requirements for additional requirements.

B. Remove protective film from metal panels immediately after installation.

C. Clean and wash prefinished surfaces of metal panels with mild soap and water; rinse with clean water.

D. Clear metal panel weep holes and drainage channels of obstructions, dirt, and sealant.

END OF SECTION

SECTION 08 5653 - SECURITY WINDOWS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Security transaction windows with pass-through device.

1.02 REFERENCE STANDARDS

A. SSPC-Paint 33 - Coal Tar Mastic Coating, Cold-Applied; 2023.

B. UL 752 - Standard for Bullet-Resisting Equipment; Current Edition, Including All Revisions.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's published data showing materials, construction details, dimensions of components, and finishes.

C. Shop Drawings: Drawings prepared specifically for this project, showing plans, elevations, sections, details of construction, anchorage to other work, hardware, and glazing.

1. For new work show required opening dimensions and allowance for field deviation.
2. For field glazed windows, include detailed instructions for glazing installation.

D. Certification: Submit certification of UL compliance.

E. Coordination Drawings: For each window opening, show locations and details of items necessary to anchor windows that must be installed by others, in sufficient detail that installer of those items can do so correctly without reference to the actual window itself.

1.04 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Provide manufacturer's warranty agreeing to repair or replace windows and window components that fail within 10 years after Date of Substantial Completion due to, but not limited to, the following:

1. Failure of glazing due to delamination, increased haze, yellowing, or loss of light transmission.

PART 2 PRODUCTS

2.01 MANUFACTURERS

2.02 ASSEMBLIES

A. Security and Detention Windows:

1. Dimensions, profiles, features, and performance specified and indicated on drawings are required; do not deviate unless specifically approved by Architect under substitution procedures; see Section 01 6000.
2. Design to fit openings indicated on drawings; design to accommodate deviation of actual construction from dimensions indicated on drawings.
3. Fabricate frames and sash with corners mitered or coped full depth with concealed welded joints.
4. Design anchorages to provide performance equivalent to that required for window unit; provide anchorages at least equivalent to those by which the tested units were anchored to the test frame.

5. Separate dissimilar metals to prevent corrosion by galvanic action by painting contact surfaces with primer or with sealant or tape recommended by manufacturer for the purpose.
6. Weld components before finishing and in concealed locations, to greatest extent possible; minimize distortion and discoloration of finish; remove residue of welding; grind exposed welds smooth and finish to match.
7. Label units to indicate which side is which, such as inside/outside or secure/non-secure; use labels that are removable after installation but durable enough not to be lost during delivery, storage, handling, and installation.

2.03 SECURITY TRANSACTION WINDOWS WITH PASS-THROUGH DEVICE

A. Security Transaction Windows with Pass-Though Device:

1. Location: Built within interior wall, as indicated on drawings.
2. Type of Use: Walk-up.
3. Ballistic Resistance: Tested to meet UL 752, Level 3.
4. Window Type: Fixed.
   a. Overall Window Frame Size: As indicated on drawings.
   b. Frame Material: Stainless steel.
5. Glazing: Single (monolithic), clear, and ballistic resistant.
6. Pass-Through Device: Deal tray built into transaction counter as indicated on drawings.
   a. Operation: Standard paper pass thru.
   b. Tray Shape: Curved, no corners; not required to be anti-ricochet.
   c. Material: Stainless steel, 18 gauge.
7. Communication: Amplified talk-through portal.
   a. Voice-activated speaker/microphone units located both sides of a glass partition; electric operated, aluminum construction.
   b. Control Side: On/off switch; gooseneck microphone; volume controls.
   c. Location: Through-glass.
   d. Products:
      1) ~~Creative Industries, Inc.; SC-100: www.cibulletproof.com.~~
      2) Norcon TTU-1AX
      3) Substitutions: See Section 01 6000 - Product Requirements.

2.04 ASSEMBLY COMPONENTS

A. Frame Anchors: Mild steel plates, shapes, or bars, concealed in completed construction; provide anchorage devices as necessary to securely fasten windows to adjacent construction; use security fasteners for exposed anchors.

1. Provide minimum of two anchors per side of window plus one additional anchor for each 18 inches or fraction thereof more than 36 inches in height or width.

B. Glazing Seals: Factory installed; molded EPDM or neoprene compressible gaskets and compression strips.

C. Deal Trays: Formed stainless steel, recessed into counter or sill for mounting under glazing frame.

1. Style: Plain curved recess welded into counter or sill.
2. Clear Opening Height: 1-1/2 inches.
3. Tray Dimensions: 12 by 10 inches, wide by deep.
4. Products:
   a. Creative Industries, Inc.; Deal Tray 1210-S: www.cibulletproof.com.
   b. Substitutions: See Section 01 6000 - Product Requirements.

D. Bituminous Paint: Cold-applied asbestos-free asphalt mastic, complying with SSPC-Paint 33; 30 mils, 0.030 inch minimum thickness per coat.

2.05 FINISHES

A. Polished Stainless Steel Finish:

1. Polished as specified, without tool or die marks, stretch lines, or scratches, with grain running in long dimension of each piece.
2. Passivated, rinsed, and chemically clean.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that window openings are ready for installation of windows.

B. Notify Architect if conditions are not suitable for installation of windows; do not proceed until conditions are satisfactory.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions and drawing details.

B. Install windows in correct orientation (inside/outside or secure/non-secure).

C. Anchor windows securely in manner so as to achieve performance specified.

D. Separate metal members from concrete and masonry using bituminous paint.

E. Set sill members and sill flashing in continuous bead of sealant.

3.03 CLEANING

A. Clean exposed surfaces promptly after installation without damaging finishes.

B. Remove and replace defective work.

END OF SECTION

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SECTION 08 8000 - GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Insulating glass units.

B. Glazing for doors and interior relites.

C. Plastic films.

D. Glazing compounds.

1.02 RELATED REQUIREMENTS

A. Section 07 2500 - Weather Barriers.

B. Section 08 1113 - Hollow Metal Doors and Frames: Glazed lites in doors and borrowed lites.

C. Section 10 2800 - Toilet, Bath, and Laundry Accessories: Mirrors.

1.03 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Current Edition.

B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015 (Reaffirmed 2020).

C. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2019).

D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.

E. ASTM C1036 - Standard Specification for Flat Glass; 2021.

F. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2018.

G. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass; 2019.

H. ASTM C1376 - Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass; 2021a.

I. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.

J. ASTM E413 - Classification for Rating Sound Insulation; 2022.

K. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2016.

L. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2019.

M. GANA (GM) - GANA Glazing Manual; 2022.

N. GANA (LGRM) - Laminated Glazing Reference Manual; 2019.

O. IGMA TM-3000 - North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial & Residential Use; 1990 (Reaffirmed 2016).

P. NFRC 100 - Procedure for Determining Fenestration Product U-factors; 2023.

Q. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence; 2023.

R. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems; 2023.

S. UL 752 - Standard for Bullet-Resisting Equipment; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by each of the affected installers.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data on Insulating Glass Unit and Glazing Unit Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.

C. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.

D. Samples: Submit two samples 6 by 6 inch in size of glass units.

E. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. See Section 01 6000 - Product Requirements, for additional provisions.

1.06 QUALITY ASSURANCE

A. Perform Work in accordance with GANA (GM), GANA (LGRM), and IGMA TM-3000 for glazing installation methods.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum 10 years years of documented experience.

1. Provide certified glass products through ANSI accredited certifications that include plant audits and independent laboratory performance testing.
    a. Insulating Glass Certification Council (IGCC).
    b. Safety Glazing Certification Council (SGCC).

C. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years experience.

1. Provide company, field supervisors, and installers that hold active ANSI accredited certifications in appropriate categories for work specified.
    a. North American Contractor Certification (NACC) for glazing contractors.
    b. Equivalent independent third-party ANSI accredited certification.

D. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

1.07 MOCK-UPS

A. Provide on-site glazing mock-up with the specified glazing components.

B. Locate where directed.

C. Mock-ups may remain as part of the Work.

1.08 FIELD CONDITIONS

A. Do not install glazing when ambient temperature is less than 40 degrees F.

B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.09 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Insulating Glass Units: Provide a five (5) year manufacturer warranty to include coverage for seal failure, interpane dusting or misting, including providing products to replace failed units.

C. Laminated Glass: Provide a five (5) year manufacturer warranty to include coverage for delamination, including providing products to replace failed units.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

A. Provide type and thickness of exterior glazing assemblies to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of glass.

1. Comply with ASTM E1300 for design load resistance of glass type, thickness, dimensions, and maximum lateral deflection of supported glass.
2. Provide glass edge support system sufficiently stiff to limit the lateral deflection of supported glass edges to less than 1/175 of their lengths under specified design load.
3. Glass thicknesses listed are minimum.

B. Weather-Resistive Barrier Seals: Provide completed assemblies that maintain continuity of building enclosure water-resistive barrier, vapor retarder, and/or air barrier.

1. In conjunction with weather barrier related materials described in other sections, as follows:
   a. Water-Resistive Barriers: See Section 07 2500.

C. Thermal and Optical Performance: Provide exterior glazing products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data as determined with the following procedures and/or test methods:

1. Center of Glass U-Value: Comply with NFRC 100 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
2. Center of Glass Solar Heat Gain Coefficient (SHGC): Comply with NFRC 200 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
3. Solar Optical Properties: Comply with NFRC 300 test method.

2.02 GLASS MATERIALS

A. Float Glass: Provide float glass based glazing unless otherwise indicated.

1. Kind HS - Heat-Strengthened Type: Complies with ASTM C1048.
2. Kind FT - Fully Tempered Type: Complies with ASTM C1048.
3. Impact Resistant Safety Glass: Complies with ANSI Z97.1 - Class B, or 16 CFR 1201 - Category II criteria.
4. Tinted Type: ASTM C1036, Class 2 - Tinted, Quality - Q3, with color and performance characteristics as indicated.
5. Patterned Glass Type: ASTM C1036, Type II - Patterned Flat Glass, Quality - Q5, Form 3 - Patterned glass, with color and performance characteristics as indicated.

B. Laminated Glass: Float glass laminated in accordance with ASTM C1172.

1. Laminated Safety Glass: Complies with ANSI Z97.1 - Class B or 16 CFR 1201 - Category I impact test requirements.
2. Polyvinyl Butyral (PVB) Interlayer: 0.030 inch thick, minimum.

2.03 INSULATING GLASS UNITS

A. Insulating Glass Units: Types as indicated.

1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
2. Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or magnetic sputter vapor deposition (soft-coat) type coatings on flat glass; coated vision glass, Kind CV; coated overhead glass, Kind CO; or coated spandrel glass, Kind CS.
3. Spacer Color: Black.
4. Edge Seal:
   a. Dual-Sealed System: Provide polyisobutylene sealant as primary seal applied between spacer and glass panes, and silicone, polysulfide, or polyurethane sealant as secondary seal applied around perimeter.
5. Color: Black.
6. Purge interpane space with dry air, hermetically sealed.

B. Type IG-1 - Insulating Glass Units: Vision glass, double glazed.

1. Basis of Design: Vitro Architectural Glass; Solarban 70: www.vitroglazings.com.
2. Applications: Exterior glazing unless otherwise indicated.
3. Space between lites filled with argon.
4. Outboard Lite: Fully tempered float glass, 1/4 inch thick, minimum.
   a. Tint: Optigray.
   b. Coating: Low-E (passive type), on #2 surface.
5. Inboard Lite: Fully tempered float glass, 1/4 inch thick, minimum.
   a. Tint: Clear.
6. Total Thickness: 1 inch.
7. Thermal Transmittance (U-Value), Winter - Center of Glass: 0.24, nominal.
8. Visible Light Transmittance (VLT): 46 percent, nominal.
9. Solar Heat Gain Coefficient (SHGC): 0.23, nominal.

C. Type IG-2 - Insulating Glass Units: Safety glazing.

1. Applications:
   a. Glazing lites in exterior doors.
   b. Glazed sidelights and panels next to doors.
   c. Other locations required by applicable federal, state, and local codes and regulations.
2. Space between lites filled with argon.
3. Glass Type: Same as other vision glazing except use Impact Resistant Safety Glass float glass for both outboard and inboard lites.
4. Total Thickness: 1 inch.

2.04 GLAZING UNITS

A. Type G-1 - Monolithic Interior Vision Glazing:

1. Applications: Interior glazing unless otherwise indicated.
2. Glass Type: Fully tempered float glass.
3. Tint: Clear.
4. Thickness: 1/4 inch, nominal.

B. Type G-2 - Monolithic Safety Glazing: Non-fire-rated.

1. Applications:
   a. Locations indicated on drawings.

b. Type G-2 and BRG-1 may be used interchangably, at contractor's option
2. Glass Type: Fully tempered glass as specified.
3. Tint: Clear.
4. Thickness: 1/4 inch, nominal.
5. Glazing Method: Dry glazing method, gasket glazing.
6. Manufacturers:
   a. Basis of Design: LTI Smart Glass, Inc. School Guard 4.
   b. Accessgard Security Glazing - 3/8" clear
   c. Substitutions: See Section 01 6000 - Product Requirements.

C. Type BRG-1 - Security Glazing: Laminated glass, 3-Ply.

1. Applications: Locations as indicated on drawings.
   a. Type BRG-1 and G-2 may be used interchangably at contractor's option
2. Tint: Clear.
3. Thickness: ~~1/2 inch~~As required to meet performance criteria.
4. Outer Lite: Annealed glass.
5. Interlayer: Polyvinyl butyral (PVB), thickness as required to meet performance criteria.
6. Middle Lite: Annealed glass.
7. Interlayer, Inboard Side : Polyvinyl butyral (PVB), thickness as required to meet performance criteria.
8. Inside Lite: Annealed glass.
9. Performance Criteria:
   a. Bullet Resistance: Pass UL 752 tests in compliance with ballistic criteria level and weapon description indicated; Level 3 - .44 magnum lead semi-wadcutter gas checked.

D. Sound Control Glazing: Laminated double insulating glass.

1. Applications: Locations as indicated on drawings.
2. Tint: Clear.
3. Sound Transmission Class (STC) Rating: Provide at least STC 34 rating, complying with ASTM E90 and ASTM E413.
4. Overall Thickness: As required to meet STC rating as indicated.
5. Laminated Double Insulating Glass:
   a. Outer Layer, Outboard Side: Annealed glass.
      1) Thickness: 3/16 inch.
   b. Interlayer: Polyvinyl butyral (PVB), thickness as required to meet performance criteria.
   c. Outer Layer, Inboard Side: Annealed glass.
      1) Thickness: 3/16 inch.
   d. Air Space: 1/2 inch, filled with air.
   e. Inner Layer, Outboard Side: Annealed glass.
      1) Thickness: 1/4 inch.
   f. Interlayer: Polyvinyl butyral (PVB), thickness as required to meet performance criteria.
   g. Inner Layer, Inboard Side: Annealed glass.
      1) Thickness: 1/4 inch.

2.05 PLASTIC FILMS

A. Decorative Plastic Film: Polyester type.

1. Application: Locations as indicated on drawings.
2. Series Type: Frost.
3. Color: Acid Etch.

4. Width: 60 inch.
5. Manufacturers:
    a. Avery Dennison; SC900 Super Cast Series Decorative Window Film: www.averydennison.com/#sle.
    b. Substitutions: See Section 01 6000 - Product Requirements.

2.06 ACCESSORIES

A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch by width of glazing rabbet space minus 1/16 inch by height to suit glazing method and pane weight and area.

B. Glazing Tape, Back Bedding Mastic Type: Preformed, butyl-based, 100 percent solids compound with integral resilient spacer rod applicable to application indicated; 5 to 30 cured Shore A durometer hardness; coiled on release paper; black color.

C. Glazing Splines: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option II; color black.

PART 3 EXECUTION

3.01 VERIFICATION OF CONDITIONS

A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.

B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.

C. Verify that sealing between joints of glass framing members has been completed effectively.

D. Proceed with glazing system installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Clean contact surfaces with appropriate solvent and wipe dry within maximum of 24 hours before glazing. Remove coatings that are not tightly bonded to substrates.

B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

C. Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.

3.03 INSTALLATION, GENERAL

A. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.

B. Do not exceed edge pressures around perimeter of glass lites as stipulated by glass manufacturer.

C. Set glass lites of system with uniform pattern, draw, bow, and similar characteristics.

D. Set glass lites in proper orientation so that coatings face exterior or interior as indicated.

E. Prevent glass from contact with any contaminating substances that may be the result of construction operations such as, and not limited to the following; weld splatter, fire-safing, plastering, mortar droppings, and paint.

3.04 INSTALLATION - DRY GLAZING METHOD (GASKET GLAZING)

A. Application - Exterior and/or Interior Glazed: Set glazing infills from either the exterior or the interior of the building.

B. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.

C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.

D. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

3.05 INSTALLATION - PLASTIC FILM

A. Install plastic film with adhesive, applied in accordance with film manufacturer's instructions.

B. Place without air bubbles, creases or visible distortion.

C. Install film tight to perimeter of glass and carefully trim film with razor sharp knife. Provide 1/16 inch to 1/8 inch gap at perimeter of glazed panel unless otherwise required. Do not score the glass.

3.06 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements for additional requirements.

B. Glass and Glazing product manufacturers to provide field surveillance of the installation of their products.

C. Monitor and report installation procedures and unacceptable conditions.

3.07 CLEANING

A. See Section 01 7419 - Construction Waste Management and Disposal, for additional requirements.

B. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.

C. Remove nonpermanent labels immediately after glazing installation is complete.

D. Clean glass and adjacent surfaces after sealants are fully cured.

E. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

3.08 PROTECTION

A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.

B. Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

END OF SECTION

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SECTION 08 9200 - LOUVERED EQUIPMENT ENCLOSURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Louvered aluminum screens.

1.02 RELATED REQUIREMENTS

A. Section 01 3050 - Design-Build Requirements

B. Section 05 5000 - Metal Fabrications: Superstructure support and bracing of equipment screens.

1.03 REFERENCE STANDARDS

A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2020.

B. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

C. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

D. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

E. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Storage and handling requirements and recommendations.
2. Installation methods.

C. Shop Drawings: Include plans, sections, and details of connections and bracing.

1. Include structural calculations indicating compliance with wind loading requirements.

D. Selection Samples: Two complete sets of color chips representing manufacturer's full range of available colors and textures for each product.

E. AIS Certificate: Certify that products comply with American Iron and Steel (AIS) provision for the Consolidated Appropriations Act of 2017 (Section 746 Division A of Title VII), and subsequent statutes, mandating domestic preference.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Comply with manufacturer's instructions for handling of screen products.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Louvered Equipment Enclosures:

1. American Warming and Ventilating; _____: www.awv.com/#sle.
2. CityScapes Inc: www.cityscapesinc.com/#sle.

3. Patriot Custom Metals DBA PalmSHIELD: www.palmshieldlouvers.com/#sle.
4. Ultra Aluminum Manufacturing, Inc: www.ultrafence.com/#sle.
5. Substitutions: See Section 01 6000 - Product Requirements.

2.02 APPLICATIONS

A. Screens for concealing equipment.

2.03 PERFORMANCE REQUIREMENTS

A. Wind Resistance: Design louvered enclosures, including superstructure support system, to withstand positive and negative wind loading in accordance with applicable building code.

2.04 EXTRUDED HORIZONTAL LOUVERED SCREENS

A. Overall Screen Configuration: Dimensions, details, and layout as indicated on drawings.

B. Construction: Individual extruded aluminum louvers in inverted overlapping configuration, with blade supports attached to and supported by customized support structure.

1. Louver Blades: Alloy 6063-T5 or T6 temper, or equivalent in accordance with ASTM B221 (ASTM B221M), 0.081 inch thick, 4 inch deep, spaced at 5 inch on center, and configured to totally block sightlines from grade.
2. Posts and Rails: Rectangular tubes, size as required to support wind loads. Powder coated steel or Annodized Aluminum to match louver color, as required to suport louvers.
   a. Provide additional horizontal rails or bracking as required to support loads. Horizontal rails should be hidden from exterior side, as shown on drawings.
3. Gates: To match appearance of screen. Size per plans. 180 degree hinges.

C. Aluminum Finish: Factory finish louvers and accessories using system indicated below.

1. Color: As selected from manufacturer's standard colors.

2.05 ALUMINUM FINISHES

A. Class I Color Anodized Finish: AAMA 611 AA-M12C22A42, integrally colored anodic coating not less than 0.7 mils thick.

B. High Performance Organic Coatings: AAMA 2604, multiple-coat, powder-coated system.

C. High Performance Organic Coatings: AAMA 2604, multiple-coat, thermally-cured fluoropolymer system.

2.06 ACCESSORIES

A. Miscellaneous Trim: ASTM B209/B209M aluminum sheet, alloy 3005-H25 temper, or equivalent, formed to shapes indicated and finished to match other components.

B. Fasteners: Self-tapping stainless steel screws, as approved by manufacturer of equipment screens.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. Install equipment screens in accordance with manufacturer's printed instructions and as indicated on shop drawings.

B. Form tight joints and fit exposed connections accurately.

C. Provide necessary fastenings and anchors required for a complete installation, and install units plumb, level, and in proper alignment with adjacent work.

3.04 PROTECTION

A. Protect installed products until completion of project.

B. Protect metal surfaces from corrosion or galvanic action by application of a heavy coating of bituminous paint on surfaces that will be in contact with concrete, masonry or dissimilar metals.

C. Touch-up, repair, or replace damaged products before Date of Substantial Completion.

END OF SECTION

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SECTION 10 2641 - BALLISTICS RESISTANT PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Laminated fiberglass ballistics-resistant panels.

1.02 RELATED REQUIREMENTS

A. Section 06 4100 - Architectural Wood Casework: Casework to receive ballistics-resistant panels.

B. Section 09 2116 - Gypsum Board Assemblies: Metal framing to receive ballistics-resistant panels.

1.03 REFERENCE STANDARDS

A. ISO 9001 - Quality Management Systems — Requirements; 2015, with Amendment (2024).

B. UL 752 - Standard for Bullet-Resisting Equipment; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's current data sheets on each product to be used.

C. Shop Drawings: Details of installation of ballistics-resistant panels, including plan views, elevations, sections, and details of the proposed installation with attachment methods.

D. Certificates: Submit printed data to indicate compliance with following requirements.

1. UL Listing verification and UL 752 Current Test Results as provided by Underwriters Laboratories.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with at least three years of documented experience.

1. ISO 9001 certification.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging bearing the brand name, manufacturer's identification, and required UL and NIJ certification labels until ready for installation.

B. Handle material with care to prevent damage. Stack panels flat, store inside under cover off the ground in a dry location, and protect from other construction activities.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Laminated Glass Fiber Ballistics-Resistant Panels:

1. ArmorCore by Waco Composites: www.armorcore.com/#sle.
2. Armortex: www.armortex.com/#sle.
3. Insulgard Security Products: www.insulgard.com/#sle.
4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 LAMINATED FIBER BALLISTICS-RESISTANT PANELS

A. General:

1. Laminated fiber ballistics-resistant panels to be non-ricochet type. When struck by a bullet or projectile, the panels to delaminate in such a way that absorbs the energy, stops the projectile, and prevents ricochet or spalling.
2. Ballistics Resistance of Joints: Equal to that of the panel.

B. Performance Requirements:

1. Ballistics Resistance Rating: Listed and labeled as tested in accordance with UL 752 Level 3 (super-power handgun) threat rating.

C. Laminated Fiber Panels:

1. Material: Multiple layers of fiberglass woven roving bonded together with resin and compressed into flat rigid sheets.
2. Panel Size: Maximum size to limit number of seams.
3. Panel Thickness: Minimum thickness required for selected UL 752 threat level.
4. Attachment Method: Mechanical fasteners.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of Conditions: Verify that substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation of this work.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. Install panels in accordance with manufacturer's instructions and shop drawings and in proper relationship with adjacent construction.

1. Maintain ballistics-resistive rating at panel junctures with concrete floor and roof slabs, bullet-resistive door and window frames, and required penetrations.

B. Reinforce panel joints with a minimum 4 inch wide back-up layer of ballistics-resistant material, centered on panel joints.

C. Secure panels using screws or bolts.

3.04 PROTECTION

A. Protect installed panels from subsequent construction operations.

B. Touch-up, repair or replace damaged panels before Date of Substantial Completion.

END OF SECTION

SECTION 10 7500 - FLAGPOLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aluminum Flagpoles.

B. Electric operation.

1.02 RELATED REQUIREMENTS

A. Section 01 3050 - Design-Build Requirements

B. Section 26 0583 - Wiring Connections: Electrical characteristics and wiring connections.

1.03 REFERENCE STANDARDS

A. ASTM B241/B241M - Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube; 2022.

B. NAAMM FP 1001 - Guide Specifications for Design Loads of Metal Flagpoles; 2007.

C. NEMA MG 1 - Motors and Generators; 2021.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on pole, accessories, and configurations.

C. Shop Drawings: Indicate detailed dimensions, base details, anchor requirements, and imposed loads.

D. Maintenance Data: Provide lubrication and periodic maintenance requirement schedules.

1.05 QUALITY ASSURANCE

A. Designer Qualifications: Design flagpole foundation under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed the State in which the Project is located.

B. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Spiral wrap flagpole with protective covering and pack in protective shipping tubes or containers.

B. Protect flagpole and accessories from damage or moisture.

PART 2 PRODUCTS

2.01 FLAGPOLES

A. Flagpoles: Designed in accordance with NAAMM FP 1001

1. Material: Aluminum.
2. Design: Straight shaft.
3. Mounting: Ground mounted type.
4. Nominal Height: 30 ft; measured from nominal ground elevation.
5. Halyard: Internal type, electric operation.

2.02 POLE MATERIALS

A. Aluminum: ASTM B241/B241M , 6063 alloy , T6 temper.

2.03 ACCESSORIES

A. Lighting - See Electrical Site Lighting Plan

B. Halyard: 5/16 inch diameter nylon, braided, white.

2.04 OPERATORS

A. Electric Winch: Integral type, as follows:

B. Motor: NEMA MG 1

C. Disconnect Switch: Factory mount disconnect switch in control panel.

2.05 FINISHING

A. Aluminum: Mill finish.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that electric power is available and of the correct characteristics.

3.02 INSTALLATION

A. Install flagpole , base assembly, and fittings in accordance with manufacturer's instructions.

B. Electrically ground flagpole installation.

C. Install foundation plate and centering wedges for flagpoles base set in concrete base and fasten.

D. Coordinate installation of conduit and boxes from disconnect to control unit and control unit to motor operating device.

3.03 TOLERANCES

A. Maximum Variation From Plumb: 1 inch.

3.04 ADJUSTING

A. Adjust operating devices so that halyard and flag function smoothly.

END OF SECTION

SECTION 13 3419 - METAL BUILDING SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Manufacturer-engineered, shop-fabricated structural steel building frame.

1.02 RELATED REQUIREMENTS

A. Section 07 4213.19 - Insulated Metal Wall Panels: Exterior wall panels.

B. Section *07 6110 - Sheet Metal Roofing* .

C. Section 07 6200 - Sheet Metal Flashing and Trim.

D. Section 09 9123 - Interior Paiting: Field finishing of interior steel building frame and components.

E. Section 09 9113 - Exterior Painting: Field finishing of steel building frame and components.

1.03 REFERENCE STANDARDS

A. AISC 360 - Specification for Structural Steel Buildings; 2022.

B. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.

C. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.

D. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2021.

E. ASTM A529/A529M - Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality; 2019.

F. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2020.

G. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength; 2023.

H. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2020.

I. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020, with Errata (2023).

J. IAS AC472 - Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems; 2018, with Editorial Revision (2019).

K. MBMA (MBSM) - Metal Building Systems Manual; 2019.

L. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic); 2019.

M. UL 580 - Standard for Tests for Uplift Resistance of Roof Assemblies; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on profiles, component dimensions, fasteners.

C. Shop Drawings: Indicate assembly dimensions, locations of structural members, connections, attachments, cambers, and loads; wall and roof system dimensions, panel layout, general construction details, anchors and methods of anchorage, and installation; framing anchor bolt settings, sizes, locations from datum, and foundation loads; indicate welded connections with AWS A2.4 welding symbols; indicate net weld lengths; provide professional seal and signature.

D. Manufacturer's Instructions: Indicate preparation requirements, anchor bolt placement.

E. Erection Drawings: Indicate members by label, assembly sequence, and temporary erection bracing.

F. Project Record Documents: Record actual locations of concealed components and utilities.

G. AIS Certificate: Certify that products comply with American Iron and Steel (AIS) provision for the Consolidated Appropriations Act of 2017 (Section 746 Division A of Title VII), and subsequent statutes, mandating domestic preference.

1.06 QUALITY ASSURANCE

A. Designer Qualifications: Design structural components, develop shop drawings, and perform shop and site work under direct supervision of a Professional Structural Engineer experienced in design of this type of work.

1. Design Engineer Qualifications: Licensed in the State in which the Project is located.
2. Comply with applicable code for submission of design calculations and reviewed shop and erection drawings as required for acquiring permits.
3. Coordinate with Architect's building design intent and account for loads from any adjoining structures.
4. Cooperate with regulatory agency or authorities having jurisdiction (AHJ), and provide data as requested.

B. Perform work in accordance with AISC 360 and MBMA (MBSM).

C. Perform welding in accordance with AWS D1.1/D1.1M.

D. Manufacturer Qualifications: Company specializing in the manufacture of products similar to those required for this project.

1. Not less than three years of documented experience.
2. Accredited by IAS in accordance with IAS AC472.

E. Erector Qualifications: Company specializing in performing the work of this section with minimum ten years documented experience.

F. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M and no more than 12 months before start of scheduled welding work.

1.07 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Correct defective Work within a five year period after Date of Substantial Completion.

C. Provide ten year manufacturer warranty for pre-engineered building systems and components.

1. Include coverage for exterior pre-finished surfaces to cover pre-finished color coat against chipping, cracking or crazing, blistering, peeling, chalking, or fading. Include coverage for weather tightness of building enclosure elements after installation.

PART 2 PRODUCTS

2.01 ASSEMBLIES

A. Single span rigid frame.

B. Primary Framing: Rigid frame of rafter beams and columns, canopy beams and intermediate columns, and wind bracing limited within the extents of wall and roof panel areas. Portal moment frames are acceptable for lateral resistance. Diagonal brace frames are not acceptable for lateral resistance.

C. Secondary Framing: Purlins, Girts, and Clips, and other items detailed.

D. Wall System: Insulated metal panels of vertical profile, with sub-girt framing/anchorage assembly, and accessory components.

E. Roof System: Insulated metal panels *at enclosed buildings, standing seam metal roof panels at un-enclosed buildings,* oriented parallel to slope, with sub-girt framing/anchorage assembly, and accessory components.

F. Roof Slope: Per plans.

2.02 PERFORMANCE REQUIREMENTS

A. Design structural members to withstand dead load, applicable snow load, and design loads due to pressure and suction of wind calculated in accordance with applicable code.

B. Design structural members to withstand Class 60 wind uplift in accordance with UL 580.

C. Exterior wall and roof system shall withstand imposed loads with maximum allowable deflection of 1/180 of span.

D. Provide drainage to exterior for water entering or condensation occurring within wall or roof system.

E. Permit movement of components without buckling, failure of joint seals, undue stress on fasteners or other detrimental effects, when subject to temperature range of 100 degrees F.

F. Size and fabricate wall and roof systems free of distortion or defects detrimental to appearance or performance.

2.03 MATERIALS - FRAMING

A. Structural Steel Members: ASTM A36/A36M.

B. Structural Tubing: ASTM A501/A501M hot-formed.

C. Plate or Bar Stock: ASTM A529/A529M, Grade 50.

D. Anchor Bolts: ASTM A307, Grade A, with hot dip type for protective coatings.

E. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1; galvanized to ASTM A153/A153M.

F. Welding Materials: Perform in accordance with AWS D1.1/D1.1M.

G. Primer: SSPC-Paint 20 zinc rich.

H. Grout: ASTM C1107/C1107M; Non-shrink; premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.

1. Minimum Compressive Strength at 48 Hours: 2,000 pounds per square inch.
2. Minimum Compressive Strength at 28 Days: 7,000 pounds per square inch.

2.04 FABRICATION - FRAMING

A. Fabricate members in accordance with AISC 360 for plate, bar, tube, or rolled structural shapes.

B. Anchor Bolts: Formed with bent shank, assembled with template for casting into concrete.

C. Provide wall opening framing for doors, windows, and other accessory components.

2.05 FABRICATION - WALL AND ROOF PANELS

A. Wall panels per Section 07 4213.19 - Insulated Metal Wall Panels.

B. Roof panels per Section 07 4123 - Insulated Metal Roof Panels.

2.06 FINISHES

A. Framing Members: Clean, prepare, and prime to SSPC Manual requirements. Do not prime surfaces to be field welded.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that foundation, floor slab, mechanical and electrical utilities, and placed anchors are in correct position

3.02 ERECTION - FRAMING

A. Erect framing in accordance with AISC 360.

B. Provide for erection and wind loads. Provide temporary bracing to maintain structure plumb and in alignment until completion of erection and installation of permanent bracing. Locate braced bays as indicated.

C. Set column base plates with non-shrink grout to achieve full plate bearing.

D. Do not field cut or alter structural members without approval.

E. After erection, prime welds, abrasions, and surfaces not shop primed.

3.03 ERECTION - WALL AND ROOF PANELS

A. Install in accordance with manufacturer's instructions.

B. Exercise care when cutting prefinished material to ensure cuttings do not remain on finish surface.

C. Fasten cladding system to structural supports, aligned level and plumb.

D. Locate end laps over supports. End laps minimum 2 inches. Place side laps over bearing.

E. Provide expansion joints where indicated.

F. Use exposed fasteners.

G. Install sealant and gaskets, providing weather tight installation.

3.04 TOLERANCES

A. Framing Members: 1/4 inch from level; 1/8 inch from plumb.

B. Siding and Roofing: 1/8 inch from true position.

END OF SECTION

SECTION 23 1113 - FUEL HANDLING SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

A. Work Included:

1. Fuel Valves
2. Fuel Dispenser
3. Fuel Polishing System

B. Provide complete functional integration of facility fuel handling system as described herein and in coordination with fuel management system (FMS) by Division 23.

C. Provide labor for installation of fuel management system (FMS), including but not limited to: Raceway, control wiring and programming as required for FMS to interface with fuel system controls. Provide control wiring per FMS shop drawings and in compliance with the locally adopted version of the National Electric Code and Division 26, Electrical material and installation requirements.

D. Contractor to coordinate and provide all interconnecting piping, conduits, fittings, etc., between suppliers equipment and devices for complete and operating system.

1.02 RELATED SECTIONS

A. Contents of Division 23, Fuel Handing System Basic Requirements and Division 01, General Requirements apply to this Section.

B. In addition, reference the following:

1. Division 26, Electrical requirements for fuel handling equipment.

1.03 REFERENCES AND STANDARDS

A. References and Standards as required by Section 23 00 00, Fuel Handing System Basic Requirements and Division 01, General Requirements.

1.04 SUBMITTALS

A. Submittals as required by Section 23 00 00, Fuel Handing System Basic Requirements and Division 01, General Requirements.

B. Submit a complete, project-specific submittal package containing complete bill of materials, sequence of operations, electrical wiring diagrams, catalog data and proof of product liability insurance. Partial submittals not accepted. Drawings and product information are to be project specific. Catalog cuts or "standard drawings" not acceptable.

C. Product Data: Submit manufacturer's technical product data and installation instructions for fuel system materials and products.

1. Provide submittals for fuel pumps, safety devices and any other products required to provide complete working system together with their listed regulatory compliance.
2. List regulatory compliance of submitted products to applicable construction standards.
3. Submit copies of product warranties applicable to products specified in this Section.

4. Provide submittals for electrical products required to provide complete working system together with their listed regulatory compliance. Products provided will be suitable for installation in hazardous locations as defined by NFPA 70, National Electrical Code. Provide electrical enclosures with NEMA ratings appropriate for their installed use.
5. Show in shop drawings how fuel handling system controls interface with fuel management system including but not limited to: pump control, annunciation of alarm conditions, etc. Include sequence of operation for fuel handling system as part of overall submittal.

D. Record Drawings: At project closeout, submit Record Drawings of installed fuel systems products.

E. Maintenance Data: Submit maintenance data and parts list for fuel systems materials and products. Include this data, product data, shop drawings and Record Drawings in maintenance manual.

F. Substitutions: Where items of equipment and/or materials are specifically identified by a manufacturer's name or model number, such specified items may be used in the base bid. If the contractor wishes to utilize equipment other than that specifically named in the base bid, they must submit a request in writing, together with the full description and technical data on the equipment proposed as listed in Division 01, General Requirements for substitutions. If such equipment is accepted as an alternate, bidders will be notified to allow them to include the accepted equipment. It is further understood that the substitution(s) are to include modifications or extra cost(s), regardless of the trade(s) involved, or changed necessary due to the alternate equipment. Submittal or shop drawings, if other than the base named equipment, must show detailed changes required by other trades involved. Contractor is responsible for additional costs involved. Under no circumstances is the Engineer responsible for the installation, operation, or performance of substitute materials or equipment, even though accepted; this is the sole responsibility of the contractor. In addition to specific warranty in the heating, ventilating, air conditioning, plumbing, or electrical Specifications, the manufacturers of equipment to be supplied under any substitution warrant the same against costs, including labor and material, arising out of defects in material and/or workmanship, for a period coextensive with the guarantee period provided in the Contract Documents.

G. The calculation of capacities, quantities, dimensions, and other attributes are based on the pertinent data of the Base Name Manufacturers. If submitted alternate manufacturer is accepted as an alternate, it is the contractor's responsibility to investigate in detail the products of these other manufacturers. The contractor is solely responsible for changes in design, location, dimension, function, and installation involved in selection of other than the Base Named Manufacturer. The contractor is responsible for, and bears costs for, changes including required work of other trades, or the Owner and including the Engineer's redesign or evaluation of submittal costs caused directly or indirectly by the use of equipment other than that listed on the Drawings or called for in the Specifications.

1.05 QUALITY ASSURANCE

A. Quality assurance as required by Section 23 00 00, Fuel Handing System Basic Requirements and Division 01, General Requirements.

B. In addition, meet the following:

1. Qualifications: Firms with a minimum of five years' experience and regularly engaged in manufacture and/or installation of fuel handling systems and products of types, materials, and sizes required.
2. Provide complete fuel handling and dispensing systems including accessories. Original Equipment Manufacturer shall have employees who manufacture, design, start up and service fuel handling systems of this nature throughout the United States. Proof of manufacturing and starting up of the specified system(s) within the last five years must be supplied. This is to assure the highest standards of product quality and system integration capabilities for the customer.
3. Contractor Qualifications
    a. Contractor must be properly licensed by the State of Oregon (DEQ) to install fuel handling systems.
    b. Hazardous Substance Certification issued by the State of Oregon.
4. Comply with the current edition of the following regulatory requirements as well as all References and Standard specified in Section 23 00 00, Fuel Handling System Basic Requirements:
    a. NFPA Compliance: Install fuel systems in accordance with:
        1) NFPA 30, Flammable and Combustible Liquids Code.
    b. UL Compliance:
        1) UL 79, Power Operated Pumps for Petroleum Product dispensing Systems.
        2) UL 842, Standard for Safety for Valves for Flammable Fluids.
        3) UL 508, Standard for Safety of Industrial Control Equipment.
    c. UFC Compliance (Oregon Administrative Rules 837, Division 40):
        1) Article 79, "Flammable and Combustible Liquids."
    d. UFC Compliance (Washington Administrative Code 51-44):
        1) Article 79, "Flammable and Combustible Liquids."
    e. IMC Compliance: Fabricate and install fuel systems in accordance with IMC, Chapter 13 "Fuel Piping and Storage."
    f. FM Global Compliance:
        1) Provide fuel system products that are listed by FM Global as acceptable.
5. Factory Testing:
    a. Prior to shipment, manufacturer tests "packaged" assemblies.
    b. Electrical components functionally tested with instruments and controls. Settings of instruments and controls verified for conformance to these Specifications. A certificate of factory testing, together with a copy of the wiring diagram to be placed in the control cabinet prior to shipment. Affix UL-508 label to the inside of the control panel.
6. Installation, Startup, Training and Service:
    a. Installation in strict accordance with manufacturer's instructions. Contractor is to provide documentation of acceptance testing of fuel tanks after installation and before the fuel tanks are backfilled.

b. The contractor provides the services of the manufacturer's technician to monitor the installation, start-up, test and calibrate the fuel handling equipment including, but not limited to, the leak detection system as well. The manufacturer's technician also provides training. The fuel handling system as a whole is functionally tested. Instrument settings verified for conformance to these Specifications.
c. Provide Four hours of factory certified service for the startup and certification of the fuel handling system and fuel management system (FMS). Provide a letter from the fuel oil handling system manufacturer and FMS manufacturer to the consulting engineer and Owner stating that the system received its factory startup and that components are in working order.
d. Training session for the fuel oil handling system to include its integration with the FMS. Provide training on same day as FMS training, unless otherwise directed by Owner.

1.06 WARRANTY

A. Warranty of materials and workmanship as required by Section 23 00 00, Fuel Handling System Basic Requirements and Division 01, General Requirements.

PART 2 - PRODUCTS

2.01 MANUFACTURERS - SEE THE FUEL HANDLING EQUIPMENT SCHEDULE ON THE PLUMBING DRAWINGS FOR ADDITIONAL SPECIFICATIONS.

A. Fuel Valves: See Fuel Handing Equipment Schedule on Pluming Drawings.
B. Fuel Dispenser:
   1. Gasboy
   2. Gilbarco
   3. Or approved equivalent.
C. Fuel Polishing System:
   1. Fuel Tec
   2. Or approved equivalent.

2.02 FUEL VALVES

A. General Requirements: Valve products provided for use with fuel-oil systems UL 842 listed. Additional valve standards and valve construction standards are listed specific to type of valve specified.
B. Fuel Safety Valves: Metal body valve with threaded connections, construct for fuel-oil, Grade No. 2 or lighter oil applications. Valve is rated for inlet pressures from 0 to 60-PSIG. Valve will limit inlet pressure on burner pumps to maximum 3-PSIG.

2.03 FUEL DISPENSERS

A. Fuel dispensers shall be listed for alternate fuels (E-15 minimum) with single or twin hoses/product dispensing (See Drawings).
B. Galvanized steel frame with a minimum 13 Ga. weather tight enclosure/jacketing, stainless steel or baked enamel painted.
C. High resolution, 1-inch back-lighted liquid crystal displays.

D. Pulse output, signal operating of remote tank mounted pumps. Intertie to fuel control system (see equipment layout drawings and specifications).

E. Components:

1. Totalizer: Battery-backed electronic totalizer and optional electromechanical totalizer. Readable from the back without opening the cabinet. Reads up to 999999.9.
2. Pressure regulator valve: To prevent product from leaking from the air elimination vent in aboveground tank suction pump installations.
3. Filters: Ten-micron filter to help ensure product purity and helps protect critical components from contamination.
4. Hose: 3/4-inch or 1-inch hardwall hose to match model.
5. Automatic Nozzles: Restrict flow when tank is full, 3/4-inch or 1-inch to match hose-dispensing flow rate.
6. Internal Hose Retractor: Helps keep hoses out of the fueling lane.
7. High Hose Retractor: Eases hose handling with enclosed spring return. Keeps hose up and out of the way to reduce wear and run-over damage.
8. Voltage and Frequency - Standard: 115VAC/60 Hz. Coordinate with Division 26, Electrical.
9. Inlet Connection - Standard and High: 1-1/2-inches NPT. Super High and Ultra High: 2-inches NPT.
10. 24-month minimum warranty.

2.04 FUEL POLISHING SYSTEM

A. Design: One diesel **and one gasoline** storage tank system. **A fuel polishing system is not required for the generator day tanks.**

1. Complete factory-assembled automatic particulate filtration, water separation and removal system to maintain the purity of No. 2 fuel oil held in extended storage. The system shall circulate the oil from the storage tank, through the system, removing water and particulate matter, then returning the clean dry fuel back to the storage tank.
2. The System shall exceed diesel engine manufacturer’s cleanliness target of ISO 18/16/13. Water removal to less than 100 PPM
3. The system shall separate free and emulsified water from diesel fuel with a military type micro-glass coalescer/filter and hydrophobic water separator within a stainless steel top loading housing. Water absorbing filter media is not required.
4. System shall have a touch screen HMI and PLC controller that schedules system operation with alarms and sensors that automatically indicate filter conditions, presents of water in trap, and fluid leak. System includes Modbus networking kit.
5. Industrial electric control panel shall be Underwriters Laboratory 508A and CE Listed
6. System shall be installed with supply and return piping that is exclusive to the system and independent of any other piping to or from the storage tank(s). System supply piping shall extend to contact the storage tank bottom and be designed to maintain contact with the storage tank bottom to extract even small droplets of water.

B. The filtration system shall consist of but not limited to the following components:

1. Welded rain tight aluminum equipment enclosure. 36-inch by 48-inch by 14-inch.
2. Five stage filtration and water removal.
   a. First stage pre-filters three micron dual spin-on.
   b. Second, third, and forth stage filter/coalescer within a stainless steel housing:

1) Treated cellulose
2) Micro-glass
3) Hydrophilic cloth wrap

3. Fuel circulation pump bronze 8 GPM with pressure relief 115/230V 1PH 50/60Hz.
4. Stainless steel separated water trap one gallon capacity with pressurized drain.
5. Valves: Supply and return valves shall be 1-inch ball valves, drain 1/2-inch ball valve.
6. Sensors:
   a. Vacuum sensor transmits condition of first stage filter to HMI/PLC
   b. Pressure sensor transmits condition of filter/coalesce to HMI/PLC
   c. Water sensor transmits high & low water levels in water trap
7. Electrical:
   a. Industrial Control Panel Underwriters Laboratory UL-508A and CE listed
   b. Power required: 115/230 1PH 50/60 Hz 20A
   c. Enclosure NEMA 4X
   d. Voltage: high 115/230, low 24DC
8. Controller: HMI/PLC touch screen
   a. Programmable: date, time, tank selection, run time
   b. Compatibility: MODBUS, ETHERNET, GSM/GPRS
   c. Display:
      1) Low water in trap
      2) Vacuum at primary filter (filter change instructions)
      3) Pressure at final filter (filter change instructions)
      4) High water in trap (drain separated water)
      5) System on
      6) Tank selected for filtration
      7) Day selected for filtration
      8) Run time selected for filtration
      9) Time of day
   d. Alarms:
      1) High water in trap
      2) High vacuum (service primary filter)
      3) High pressure (service final filters)
      4) Fluid in system sump
      5) No fluid flow

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION REQUIREMENTS

A. Inspection: Examine areas and conditions under which fuel systems materials and products are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected.

B. Equipment Connections: Connect fuel piping to fuel pump as indicated, and in accordance with applicable codes.

3.02 FUEL VALVES

A. Reference 3.1, General Installation Requirements.

B. Install per manufacturer's instructions and recommendations.

C. Prepare valves for shipping as follows:

1. Protect internal parts against rust and corrosion.
2. Protect threads, flange faces and weld ends.

D. Use the following precautions during storage:

1. Maintain valve end protection.
2. Store valves indoors and maintain at higher than ambient dew-point temperature. If outdoor storage is necessary, store valves off the ground in watertight enclosures.

E. Do not attempt to repair defective valves; replace with new valves.

3.03 LEAK DETECTION SYSTEM FOR PIPING SUMP

A. Reference 3.01, General Installation Requirements.

B. Install per manufacturer's written instructions and recommendations, applicable codes and local ordinances.

C. Provide power wiring and devices for a working system. Provide low voltage wiring and devices for a working system. Coordinate with Division 26, Electrical.

3.04 FUEL DISPENSERS

A. Reference 3.01, General Installation Requirements.

B. Install per manufacturer's instructions and recommendations.

C. Provide power wiring and devices for a working system. Provide low voltage wiring and devices for a working system. Coordinate with Division 26, Electrical.

3.05 FUEL POLISHING SYSTEM

A. Install per manufacturer's instructions and recommendations.

END OF SECTION

SECTION 31 2323 - FILL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Filling, backfilling, and compacting for footings, slabs-on-grade, paving, site structures, and utilities within the building.

B. Backfilling and compacting for utilities outside the building to utility main connections.

C. Filling holes, pits, and excavations generated as a result of removal (demolition) operations.

1.02 RELATED REQUIREMENTS

A. Section 01 5713 - Temporary Erosion and Sediment Control: Slope protection and erosion control.

B. Section 31 2200 - Grading: Site grading.

C. Section 31 2316 - Excavation: Removal and handling of soil to be re-used.

D. Section 31 2316.13 - Trenching: Excavating for utility trenches outside the building to utility main connections.

E. Section 33 4100 - Subdrainage: Filter aggregate and filter fabric for foundation drainage systems.

1.03 REFERENCE STANDARDS

A. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18 in.) Drop; 2010.

B. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2014.

C. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)); 2012.

D. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)); 2012.

E. ASTM D 2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth); 2005.

F. Reference: Project Geotechnical Report.

1.04 DEFINITIONS

A. Finish Grade Elevations: As indicated on drawings.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Soil Samples: 10 pounds sample of each type of fill; submit in air-tight containers to testing laboratory.

C. Materials Sources: Submit name of imported materials source.

D. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used, including manufactured fill.

E. Compaction Density Test Reports.

1.06 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need.

B. When fill materials need to be stored on site, locate stockpiles where shown on plan.
   1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
   2. Prevent contamination.
   3. Protect stockpiles from erosion and deterioration of materials.

C. Verify that survey bench marks and intended elevations for the Work are as indicated.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. All materials shall be in accordance with Project Geotechnical Report.

2.02 ACCESSORIES

A. Geotextile Fabric: Non-biodegradable
   1. Non-woven: **MIRIFI 180N** or approved equal with laps per manufacturers specification.
   2. Woven: **ACF WSF200** or approved equal with laps per manufacturers specification.
   3. Filter: **MIRIFI 140N** or approved equal.
   4. Storm Facility Liner: **FIRESTONE 45mil EPDM** or approved equal with seams per manufacturer specification.

2.03 SOURCE QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for testing and analysis of soil material.

B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

D. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.01 EXAMINATION

A. Identify required lines, levels, contours, and datum locations.

B. See Section 31 2200 for additional requirements.

C. Verify subdrainage, dampproofing, or waterproofing installation has been inspected.

D. Verify structural ability of unsupported walls to support imposed loads by the fill.

E. Verify areas to be filled are not compromised with surface or ground water.

3.02 PREPARATION

A. Scarify and proof roll subgrade surface to a depth of 6 inches to identify soft spots.

B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with structural fill.

C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.03 FILLING

A. Fill to contours and elevations indicated using unfrozen materials.

B. Fill up to subgrade elevations unless otherwise indicated.

C. Employ a placement method that does not disturb or damage other work.

D. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

E. Maintain optimum moisture content of fill materials to attain required compaction density.

F. Granular Fill: Place and compact materials in equal continuous layers in accordance with the Project Geotechnical Report.

G. Slope grade away from building minimum 2 inches in 10 feet, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

H. Correct areas that are over-excavated.
   1. Load-bearing foundation surfaces: Use structural fill, flush to required elevation, compacted to 100 percent of maximum dry density.
   2. Other areas: Use structural fill, flush to required elevation, compacted to minimum 95 percent of maximum dry density.

I. Compaction densities shall be in accordance with the Project Geotechnical Report.

J. Reshape and re-compact fills subjected to vehicular traffic.

K. Maintain temporary means and methods, as required, to remove all water while fill is being placed as required, or until directed by the Engineer. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

3.04 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.

B. Perform compaction density testing on compacted fill in accordance with ASTM D2922 or ASTM D3017.

C. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D698 ("standard Proctor"), ASTM D1557 ("modified Proctor"), or AASHTO T 180.

D. If tests indicate work does not meet specified requirements, remove work, replace and retest.

E. Frequency of Tests: In conformance with current Oregon APWA/ODOT Standard Specifications for Construction.

F. Proof roll compacted fill at surfaces that will be under slabs-on-grade and paving.

3.05 CLEANING

A. See Section 01 7419 - Construction Waste Management and Disposal, for additional requirements.

B. Leave unused materials in a neat, compact stockpile.

C. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

END OF SECTION

SECTION 32 1216 - HOT MIX ASPHALT PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Single course asphalt concrete paving.

1.02 RELATED REQUIREMENTS

A. Section 31 2200 - Grading: Preparation of site for paving and base.

B. Section 31 2323 - Fill: Compacted subgrade for paving.

C. Section 32 1123 - Aggregate Base Courses: Aggregate base course.

D. Section 32 1313 - Concrete Paving: Concrete curbs.

E. Section 32 1713 - Parking Bumpers: Concrete bumpers.

F. Section 32 1723.13 - Painted Pavement Markings: Pavement markings.

1.03 REFERENCE STANDARDS

A. Reference: Project Geotechnical Report.

B. Most current manual of the ODOT/APWA Oregon Standard Specifications for Construction.

1.04 QUALITY ASSURANCE

A. Perform Work in accordance with State of Oregon Highways standard.

B. Mixing Plant: Complying with State of Oregon Highways standard.

C. Obtain materials from same source throughout.

1.05 REGULATORY REQUIREMENTS

A. Conform to applicable code for paving work on public property. Coordinate all work within Public Right-of-Way with City inspector

1.06 FIELD CONDITIONS

A. Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2 PRODUCTS

2.01 MATERIALS

A. Asphalt Cement shall conform with Oregon Standard Specifications for Construction - Section 00744.11.

B. Aggregate Materials shall conform with Oregon Standard Specifications for Construction - Section 00744.10.

C. Mix Type and Broadband Limits shall conform with Oregon Standard Specifications for Construction - Section 00744.12.

D. Job Mix Formula (JMF) Requirements: Job mix formula requirements shall conform with Oregon Standard Specifications for Construction - Section 00744.13.

E. Tolerances and Limits: Tolerance and limits shall conform with Oregon Standard Specifications for Construction - Section 00744.14.

F. HMAC Acceptance: HMAC acceptance shall conform with Oregon Standard Specifications for Construction - Section 00744.16.

G. Asphalt Cement: PG 64-22.

H. Aggregate for Base Course: In accordance with State of Oregon Highways standards.

2.02 EQUIPMENT

A. Compactors: Compactors shall conform with Oregon Standard Specifications for Construction - Section 00744.24.

2.03 LABOR

A. Quality Control Personnel: Provide quality control personnel in accordance with Oregon Standard Specifications for Construction - Section 00744.30.

2.04 ASPHALT PAVING MIXES AND MIX DESIGN

A. Base Course: State of Oregon Highways standards

i. **HEAVY DUTY: Level 3, 1/2" dense graded**

ii. STANDARD DUTY: Level 2, 1/2" dense graded

B. Wearing Course: State of Oregon Highways standards

i. **HEAVY DUTY: Level 3, 1/2" dense graded**

ii. STANDARD DUTY: Level 2, 1/2" dense graded

C. Submit proposed mix design for review prior to beginning of work.

2.05 SOURCE QUALITY CONTROL

A. Test mix design and samples in accordance with ODOT/APWA Oregon Standard Specifications for Construction..

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that compacted subgrade is dry and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

3.02 AGGREGATE BASE COURSE

A. Place and compact aggregate base course.

3.03 PREPARATION - TACK COAT

A. Apply tack coat in accordance with manufacturer's instructions.

B. Apply tack coat on asphalt or concrete surfaces over subgrade surface at uniform rate of 1/3 gal/sq yd.

C. Apply tack coat to contact surfaces of curbs, gutters and other vertical edges.

D. Coat surfaces of manhole frames with oil to prevent bond with asphalt pavement. Do not tack coat these surfaces.

3.04 PLACING ASPHALT PAVEMENT - SINGLE COURSE

A. Install Work in accordance with State of Oregon Highways standards.

B. Place to 3 inch compacted thickness.

C. Install gutter drainage grilles and frames in correct position and elevation.

D. Compact pavement by rolling to specified density. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.

E. Perform rolling with consecutive passes to achieve even and smooth finish without roller marks.

3.05 TOLERANCES

A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.

B. Compacted Thickness: Within 1/4 inch of specified or indicated thickness.

C. Variation from True Elevation: Within 1/4 inch.

3.06 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for quality control.

B. Provide field inspection and testing. Take samples and perform tests in accordance with ODOT/APWA Oregon Standard Specifications for Construction.

3.07 PROTECTION

A. Immediately after placement, protect pavement from mechanical injury for 5 days or until surface temperature is less than 140 degrees F.

END OF SECTION