

CITY OF SOUTH PORTLAND, MAINE

**ADDENDUM 1
TO
SOUTH PORTLAND WASTEWATER TREATMENT PLANT
EXTERIOR ADDITION
(BID# 03-16)**

July 1, 2015

Prepared By:

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ADDENDUM NO. 1

SOUTH PORTLAND WASTEWATER TREATMENT PLANT EXTERIOR ADDTION BID# 03-16

The Contract Documents govern all aspects of the project. Informal discussions held during the Pre-Bid Conference, by telephone or email are informational only. All official changes to the Contract Documents are made only by addenda. The following changes and additional information are hereby made a part of the Contract Documents. A mandatory Pre-Bid Conference was held on June 11,. Bids will only be accepted by those Contractors that are in attendance at the Pre-Bid Conference which is documented on the sign-in sheet attached to the end of this Addendum.

GENERAL CLARIFICATIONS

The following clarifications are presented to address questions received at the Pre-Bid Conference and to respond to written questions from bidders.

1. The contractor is required to apply for and receive a building permit, electrical permit and plumbing permit from the City of South Portland for the work. The fees for the building and electrical permits will be waived. Fees for the plumbing permit are to be paid by the Contractor.
2. The contractor is required to self perform at least 50% of the work. As noted in the Supplemental Conditions, The Contractor shall not award work valued at more than fifty (50%) percent of the Contract Price to Subcontractor(s), without prior written approval of the Owner. The apparent low bidder may be required to demonstrate compliance with this requirement. The City may, at its sole discretion, disqualify bidders on this basis.
3. A revised Section 000310 Bid Form dated July 1, 2015 is attached and shall be submitted with the Contractor's Bid. The revised bid form includes a unit price item to furnish and install steel piles and a unit price for splices on over-length piles.
4. The Contractor is not required to obtain builders risk insurance for this project.

Questions from Bidders

1. *Is EMT allowed for tel/data stubs to accessible ceiling instead of IMC?*
Stub ups for tel/data outlets are to be EMT.
2. *What is the allowable wiring method for the fire alarm system plenum cable, FAMC or complete conduit and box raceway system with wire?*
All fire alarm wiring is to be run in EMT.
3. *Would an alternate glass be acceptable such as Solar Ban 60?*
Yes.

4. *Drawing 2-AE502, detail A6 and A11 indicate the use of “through wall and membrane flashing” at wall bottom. Are these Flexible flashings such as a “Perm-a-Barrier” product or a combination of metal Drip edge and Flex flashing?*

They are a combination of membrane flashing & metal flashing as indicated in the details. Reference also spec sections 042113 subparagraph 2.5, A. & B. and 076200 subparagraph 2.6, A. for more information.

5. *If wall bottom utilizes a metal Drip edge is Stainless steel acceptable?*

No, please provide specified metal through-wall flashing product. See response to question 4.

6. *Drawing 2-AE611, detail J9 indicates the use of a metal flashing from face of veneer to substrate at window heads. Would Stainless flashing be acceptable as an alternate to Freedom Gray? Stainless is much less expensive with much better availability.*

No. Please provide the specified product.

7. *Are details available for Window head flashing pans?*

Flashing pans are only indicated at the window sills. Pan flashing details are described in the window sill details and in specification Section 076200 subparagraph 2.6, A.

SPECIFICATIONS

1. Specifications Section 00310 Bid Form

DELETE specification section 00310 Bid Form dated June 1, 2015 in its entirety and REPLACE with section 00310 Bid Form Dated July 1, 2015.

2. Specifications Section 042113 Brick Masonry

DELETE specification section 042113 Brick Masonry dated June 1, 2015 in its entirety and REPLACE with section 042113 Brick Masonry dated July 1, 2015.

Revisions are noted with bold text and strikeouts.

3. Specifications Section 042113 Brick Masonry

REVISE specification section 042113 subparagraph 2.2, D. to read:

D. Face Brick: Provide Manganese Brown **Velour** Modular face brick by Endicott Clay Products Co., complying with ASTM C 216. Contact information: Paul Lachance at Morin Brick: (207) 784-9375.

4. Specifications Section 072100 Thermal Insulation

DELETE specification Section 072100 Thermal Insulation dated June 1, 2015 in its entirety and REPLACE with section 072100 Thermal Insulation dated July 1, 2015.

Revisions are noted with bold text and strikeouts.

5. Specifications Section 072726 Fluid Applied Membrane Air Barriers

DELETE Specification section 072726 Fluid Applied Membrane Air Barriers dated June 1, 2015 in its entirety and REPLACE with section 072726 Fluid Applied Membrane Air Barriers dated July 1, 2015.

Revisions are noted with bold text and strikeouts.

6. Specifications Section 076200 Sheet Metal Flashing and Trim

DELETE Specification section 076200 Sheet Metal Flashing and Trim dated June 1, 2015 in its entirety and REPLACE with section 076200 Sheet Metal Flashing and Trim dated July 1, 2015.

Revisions are noted with bold text and strikeouts.

Drawings

The following plan sheets have been revised and reissued

1. Sheet 2-CP002

DELETE Sheet 2-CP002 dated 06-01-15 and REPLACE with sheet 2-CP002 dated 07-01-15. Revisions include but may not be limited to the following:

- Add details related to permeable pavers parking spaces. A total of fourteen (14) parking spaces are required. Pavers will include edge/soldier course pavers set at the perimeter of the parking area and to delineating parking stalls. Soldier/edge course paves shall be "Granite Blend" color. Parking space pavers color shall be "Cumberland Blend" color and shall be installed in a herring bone pattern.
- Revisions to underground electrical and telecommunications conduit. The new utility poles along the south side of E Street Extension are to be installed by the utility company(s). The Contractor is responsible for coordinating this work with its schedule and is responsible the installation of all underground conduit as shown on the plans and galvanized steel risers and brackets at the new poles per CMP standards. The contractor is responsible for installing and maintaining temporary utility services to the building throughout construction.

2. Sheet 2-CP003

DELETE sheet 2-CP003 dated 06-01-15 and REPLACE with sheet 2-CP003 dated 07-01-15.

3. Sheet 2-M-001

DELETE sheet 2-M-001 dated 06-01-15 and REPLACE with sheet 2-M-001 dated 07-01-15.

4. Sheet 2-M-101

DELETE sheet 2-M-101 dated 06-01-15 and REPLACE with sheet 2-M-101 dated 07-01-15.

5. Sheet 2-M-501

DELETE sheet 2-M-501 dated 06-01-15 and REPLACE with sheet 2-M-501 dated 07-01-15.

6. Sheet 2-M-502

DELETE sheet 2-M-502 dated 06-01-15 and REPLACE with sheet 2-M-502 dated 07-01-15.

ATTACHMENT 1

Revised/Replaced Specifications Sections

- (d) Bidder has studied carefully all reports and drawings of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions, and accepts the determination set forth in Paragraph SC-4.02 of the Supplementary Conditions of the extent of the technical data contained in such reports and drawings upon which Bidder is entitled to rely.
- (e) Bidder has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests and studies (in addition to or to supplement those referred to in (c) above) which pertain to the subsurface or physical conditions at the site or otherwise may affect the cost, progress, performance or furnishing of the Work as Bidder considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of Paragraph 4.02 of the General Conditions; and no additional examinations, investigations, explorations, tests, reports or similar information or data are or will be required by Bidder for such purposes.
- (f) Bidder has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports or similar information or data in respect of said Underground Facilities are or will be required by Bidder in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of Paragraph 4.03 of the General Conditions.
- (g) Bidder has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.
- (h) Bidder has given Engineer written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by Engineer is acceptable to Bidder.
- (i) The Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.
- (j) Bidder understands that the Owner reserves the right to reject any or all bids at the Owners sole discretion.
- (k) Bidder understands that, if the contract is to be awarded, it will be awarded to the lowest responsive, responsible bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Project.

- (1) The bid security attached in the amount of five percent of the Total Bid is to become the property of the Owner in the event the contract and bond are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

4. Bidder will complete the Work described in the Contract Documents for the following price(s):

BID SCHEDULE
SOUTH PORTLAND WASTE WATER TREATMENT PLANT EXTERIOR ADDITION

The project consists of all work described and required within contractor documents for a complete project ready for Owner acceptance.

Pay Item Number 1: Construction Addition including all materials, work and requirements of contractor documents for a complete project ready for Owners final acceptance.

Total Pay Item Number 1, Lump Sum (in figures) _____

❖ Contractor shall submit with their bid a detailed schedule of values with associated costs.

Pay Item Number 2: Over excavation and disposal as a special and/or hazardous waste of unsuitable soils including refilling with ¾" crushed stone over geotextile. This materials may include ash, metal, glass, steel and slag. The existing plant is known to be built upon an old landfill.

Item	Estimated Quantity	Units	Unit Price	Total in Figures	Total in words
2. Over Excavation and Disposal Special Waste	150	Cubic Yards	\$		

Total Pay Item Number 2 (in figures) \$ _____

Note: Actual quantity for Pay Item Number 2 is estimated. The contractor shall be paid on a unit price basis for the actual quantity measured in-place and approved by the Owner.

Pay Item Number 3: Furnish and Install Steel piles.

Item	Estimated Quantity	Units	Unit Price	Total in Figures	Total in words
3A. Furnish and Install Piles	1770	Linear Feet	\$		
3B. Slice Over Length Piles	18	Each	\$		
Total Item 3 (Sum Item 3A and 3B)					

Total Pay Item Number 3 (in figures) \$ _____

Note: Actual quantity for Pay Item Number 3 is estimated. The contractor shall be paid on a unit price basis for the actual quantity measured in-place and approved by the Owner.

GRAND TOTAL: \$ _____ **\$** _____
 (Items 1 ,2 and 3) (in figures) (in words)

5. Bidder agrees that the Work will be substantially complete and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work on time.

6. The following documents are attached to and made a condition of this Bid:

- (a) This Bid Form in its Entirety.
- (b) Required Bid Security.
- (c) Required Experience and Qualifications Statement (Section 00405) with supporting data including a letter of bonding capacity.

7. Communications concerning this Bid shall be addressed to:

Phone: _____ Fax: _____
Email: _____

8. The terms used in this Bid which are defined in the General Conditions of the Construction Contract included as part of the Contract Documents have the meanings assigned to them in the General Conditions.

RESPECTFULLY SUBMITTED on _____, 20__

If Bidder is

An Individual

By _____ (SEAL)
(Individual's Name)

doing business as _____

Business address: _____

Phone No.: _____

A Partnership

By _____ (SEAL)
(Firm Name)

(General Partner)

Business address: _____

Phone No.: _____

A Corporation

By _____ (SEAL)
(Corporation Name)

(State of Incorporation)

By _____ (SEAL)
(Name of Person Authorized to Sign)

By _____
(Title)

(Corporate Seal)

Attest _____
(Secretary)

Business address: _____

Phone No.: _____

A Joint Venture

By _____ (SEAL)
(Name)

(Address)

By _____ (SEAL)
(Name)

By _____
(Address)

(Each joint venturer must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above).

END OF SECTION

SECTION 072100
THERMAL INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

- 1. Extruded polystyrene foam-plastic board.
- 2. Glass-fiber blanket.

B. Related Requirements:

- 1. **Division 4 Section “Unit Masonry” for cavity wall insulation.**
- 2. Division 7 Section “Air Barriers” for weather barriers.
- 3. Division 7 Section “EPDM Single-Ply Membrane Roofing System” for insulation specified as part of roofing construction.
- 4. Divisions 22 and 23 Sections for duct insulation, equipment insulation, and pipe insulation.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Low-emitting product certification.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For each product, for tests performed by a qualified testing agency.
- B. Evaluation Reports: For foam-plastic insulation, from ICC-ES.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

- B. Protect foam-plastic board insulation as follows:
 - 1. Do not expose to sunlight except to necessary extent for period of installation and concealment.
 - 2. Protect against ignition at all times. Do not deliver foam-plastic board materials to Project site until just before installation time.
 - 3. Quickly complete installation and concealment of foam-plastic board insulation in each area of construction.

PART 2 - PRODUCTS

2.1 EXTRUDED POLYSTYRENE FOAM-PLASTIC BOARD

- A. Extruded polystyrene boards in this article are also called "XPS boards." Roman numeral designators in ASTM C 578 are assigned in a fixed random sequence, and their numeric order does not reflect increasing strength or other characteristics.
- B. Extruded Polystyrene Board, Type IV: ASTM C 578, Type IV, 25-psi minimum compressive strength; unfaced; maximum flame-spread and smoke-developed indexes of 25 and 450, respectively, per ASTM E 84.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Dow Chemical Company (The).
 - b. Owens Corning.
 - 2. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
- C. Insulation Accessories
 - 1. Adhesive: ChemRex, Inc. Contech Brands PL300 Foam Board Adhesive.
 - 2. Firestone ISOGARD HD Cover Board

2.2 GLASS-FIBER BLANKET

- A. Sustainability Requirements: Provide glass-fiber blanket insulation as follows:
 - 1. Free of Formaldehyde: Insulation manufactured with 100 percent acrylic binders and no formaldehyde.
 - 2. Low Emitting: Insulation tested according to ASTM D 5116 and shown to emit less than 0.05-ppm formaldehyde.
 - 3. Low Emitting: Complies with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services')

"Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

- B. Glass-Fiber Blanket, Unfaced: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. CertainTeed Corporation.
 - b. Johns Manville; a Berkshire Hathaway company.
 - c. Owens Corning.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation attachment.

3.2 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

3.3 INSTALLATION OF SLAB INSULATION

- A. On vertical slab edge and foundation surfaces, set insulation units using manufacturer's recommended adhesive according to manufacturer's written instructions.
 - 1. If not otherwise indicated, extend insulation a minimum of 24 inches below exterior grade line.
- B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.

1. Extend insulation below entire slab on grade.
2. Layer cover board on top of insulation layer.

3.4 INSTALLATION OF FOUNDATION WALL INSULATION

- A. Butt panels together for tight fit.
- B. Anchor Installation: Install board insulation on concrete substrates by adhesively attached, spindle-type insulation anchors as follows:
 1. Fasten insulation anchors to concrete substrates with insulation anchor adhesive according to anchor manufacturer's written instructions. Space anchors according to insulation manufacturer's written instructions for insulation type, thickness, and application.
 2. Apply insulation standoffs to each spindle to create cavity width indicated on Drawings between concrete substrate and insulation.
 3. After adhesive has dried, install board insulation by pressing insulation into position over spindles and securing it tightly in place with insulation-retaining washers, taking care not to compress insulation.
 4. Where insulation will not be covered by other building materials, apply capped washers to tips of spindles.
- C. Adhesive Installation: Install with adhesive or press into tacky waterproofing or dampproofing according to manufacturer's written instructions.

3.5 INSTALLATION OF EXTERIOR WALL INSULATION

- A. **Foam-Plastic Board Insulation at Metal Composite Wall Panels: Extend insulation in thickness indicated to cover entire wall.**
 1. **Erect insulation horizontally and hold in place with Z-shaped furring channels and with fasteners & plastic washers spaced at 1'-0" vertically & horizontally.**

3.6 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

- A. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 3. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.

B. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:

1. Glass-Fiber Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft..

3.7 PROTECTION

A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 072100

SECTION 072726

FLUID-APPLIED MEMBRANE AIR BARRIERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:

1. Fluid-applied membrane air barrier, vapor retarding.

- B. Related Sections include the following:

1. Division 04 Section "Unit Masonry" for embedded flashings.
2. Division 06 Section "Sheathing" for wall sheathings and additional requirements for wall sheathing joint-and-penetration treatments.
3. Division 07 Section "Thermal Insulation" for foam-plastic board insulation.
4. Division 07 Section "Sheet Metal Flashing and Trim" for sheet metal flashings.
5. Division 07 Section "Joint Sealants" for additional requirements for joint-sealant materials and installation.

1.3 DEFINITIONS

- A. Air Barrier Assembly: The collection of air barrier materials and auxiliary materials applied to an opaque wall, including joints and junctions to abutting construction, to control air movement through the wall.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Air barrier shall be capable of performing as a continuous vapor-impermeable air barrier and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. Air barrier assemblies shall be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.
- B. Air Barrier Assembly Air Leakage: Not to exceed 0.0008 cfm x sq. ft. of surface area at 1.57 lbf/sq. ft. (0.004 L/s x sq. m of surface area at 75 Pa); ASTM E 2357.

1.5 SUBMITTALS

- A. Product Data: Include manufacturer's written instructions for evaluating, preparing, and treating substrate; technical data; and tested physical and performance properties of air barrier.
- B. Product Certificates: For air barriers, certifying compatibility of air barrier and accessory materials with Project materials that connect to or that come in contact with the barrier; signed by product manufacturer.
- C. Qualification Data: For Applicator.
- D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for air barriers.

1.6 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm experienced in applying air barrier materials similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance and that is an ABAA-licensed contractor, employs certified and registered installers, and complies with ABAA's Quality Assurance Program.
- B. Delete paragraph and subparagraphs below if not required. If retaining, indicate location, size, and other details of mockups on Drawings or by inserts. Revise wording if only one mockup is required. Retain below with or without "Preconstruction Testing" Article and coordinate requirements.
- C. Mockups: Before beginning installation of air barrier, build mockups of exterior wall assembly [shown on Drawings][, 150 sq. ft. (14 sq. m)] <Insert dimensions>, incorporating backup wall construction, external cladding, window, door frame and sill, insulation, and flashing to demonstrate surface preparation, crack and joint treatment, and sealing of gaps, terminations, and penetrations of air barrier membrane.
 - 1. Coordinate construction of mockup to permit inspection by Owner's testing agency of air barrier before external insulation and cladding is installed.
 - 2. Include junction with roofing membrane, building corner condition, and foundation wall intersection.
 - 3. If Architect determines mockups do not comply with requirements, reconstruct mockups and apply air barrier until mockups are approved.
 - 4. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- D.
- E. Preinstallation Conference: Conduct conference at Project site.
 - 1. Include installers of other construction connecting to air barrier, including roofing, waterproofing, architectural precast concrete, masonry, sealants, windows, glazed curtain walls, and door frames.

2. Review air barrier requirements including surface preparation, substrate condition and pretreatment, minimum substrate curing period, forecasted weather conditions, special details and sheet flashings, mockups, installation procedures, sequence of installation, testing and inspecting procedures, and protection and repairs.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store liquid materials in their original undamaged packages in a clean, dry, protected location and within temperature range required by air barrier manufacturer.
- B. Remove and replace liquid materials that cannot be applied within their stated shelf life.
- C. Store rolls according to manufacturer's written instructions.
- D. Protect stored materials from direct sunlight.

1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Apply air barrier within the range of ambient and substrate temperatures recommended by air barrier manufacturer. Protect substrates from environmental conditions that affect performance of air barrier. Do not apply air barrier to a damp or wet substrate or during snow, rain, fog, or mist.

PART 2 - PRODUCTS

2.1 FLUID-APPLIED MEMBRANE AIR BARRIER

- A. Fluid-Applied, Vapor Impermeable Membrane Air Barrier: Two-component, self-curing synthetic-rubber-based membrane, free of solvents, isocyanates and bitumen, suitable for spray application to wet film and dry film thickness of 60 mils (1.5 mm).
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Grace Construction Products; "Perm-A-Barrier Liquid", or a comparable product by one of the following:
 - a. Synthetic Membrane:
 - 1) Henry Company
 - 2) Rubber Polymer Corporation
 2. Physical and Performance Properties:
 - a. Membrane Air Permeance: Not to exceed 0.0002 cfm x sq. ft. of surface area under a pressure differential of 0.3 inches of water (1.57 lb/sq. ft.)(0.001 L/sq. m of surface area at 75-Pa); ASTM E 2178.
 - b. Air Barrier Assembly Air Permeance: Not to exceed 0.0008 cfm x sq. ft. under a pressure differential of 0.3 inches of water (1.57 lb. / sq. ft.)(0.004 L/sq. m of surface area at 75-Pa); ASTM E 2357.

- c. Water Vapor Permeance: 0.08 perms(4.6 ng/Pa x s x sq. m); ASTM E 96 Method B.
- d. Pull Adhesion to CMU: 35 lb/sq. in. (0.24 N/sq. mm); ASTM D 4541.
- e. Pull Adhesion to Glass-Faced Gypsum Sheathing: 20 lb/sq. in (0.13 N/sq. mm).
- f. VOC Content: Less than 75 g/L.
- g. Elongation: Minimum 500%; ASTM D 412.
- h. Tensile Strength: Minimum 70 psi; ASTM D 412.
- i. Solids Content: 100%.

2.2 AUXILIARY MATERIALS

- A. General: Auxiliary materials recommended by air barrier manufacturer for intended use and compatible with air barrier membrane. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
- B. Membrane Flashing: 0.8 mm (32 mils), self-adhesive rubberized asphalt integrally bonded to 0.2 mm (8 mil) of cross-laminated, high-density polyethylene film to provide a minimum 1.0 mm (40 mil) thick membrane. Membrane shall be interleaved with disposable silicone-coated release paper until installed.
 - 1. Basis-of-Design Product: Grace Construction Products; "Perm-A-Barrier Wall Flashing."
- C. Substrate Patching Membrane: Manufacturer's standard trowel-grade substrate filler.
- D. Butyl Isolation Membrane: Vapor-retarding, 30- to 40-mil- (0.76- to 1.0-mm-) thick, self-adhering; polyethylene-film-reinforced top surface laminated to layer of butyl adhesive with release liner backing. Use at locations requiring isolation from incompatible materials.
 - 1. Basis-of-Design Product: Grace Construction Products; "Grace Ultra."
- E. Sprayed Polyurethane Foam Sealant: 1- or 2-component, foamed-in-place, polyurethane foam sealant, 1.5 to 2.0 lb/cu. ft (24 to 32 kg/cu. m) density; flame spread index of 25 or less according to ASTM E 162; with primer and noncorrosive substrate cleaner recommended by foam sealant manufacturer.
- F. Termination Sealer basis of design product: Bituthene® Liquid Membrane.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance.
 - 1. Verify that substrates are sound and free of oil, grease, dirt, excess mortar, or other contaminants.

2. Verify that concrete has cured and aged for minimum time period recommended by air barrier manufacturer.
3. Verify that concrete is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
4. Verify that masonry joints are flush and completely filled with mortar.
5. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

- A. Clean, prepare, treat, and seal substrate according to manufacturer's written instructions. Provide clean, dust-free, and dry substrate for air barrier application.
- B. Mask off adjoining surfaces not covered by air barrier to prevent spillage and overspray affecting other construction.
- C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.
- D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids in concrete with substrate patching membrane.
- E. Remove excess mortar from masonry ties, shelf angles, and other obstructions.
- F. At changes in substrate plane, apply sealant or termination sealer beads at sharp corners and edges to form a smooth transition from one plane to another.
- G. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless-steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.

3.3 JOINT TREATMENT

- A. Concrete and Masonry: Prepare, treat, rout, and fill joints and cracks in substrate according to ASTM C 1193 and air barrier manufacturer's written instructions. Remove dust and dirt from joints and cracks complying with ASTM D 4258 before coating surfaces.
- B. Gypsum Sheathing: Treat joints & fasteners as follows:
 1. Fasteners: Apply latex acrylic sealant over all fasteners.
 2. Joints up to ¼": apply latex acrylic sealant.
 3. Joints up to ¼" to ½": apply latex acrylic sealant & tape with sheathing manufacturer's recommended tape.

3.4 TRANSITION STRIP INSTALLATION

- A. Install strips, transition strips, and auxiliary materials according to air barrier manufacturer's written instructions to form a seal with adjacent construction and maintain a continuous air barrier.

1. Coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.
 2. Install strip under roofing membrane or on base flashing so that a minimum of 3 inches (75 mm) of coverage is achieved over both substrates.
- B. Connect and seal exterior wall air barrier membrane continuously to roofing membrane air barrier, concrete below-grade structures, floor-to floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials.
- C. At end of each working day, seal top edge of strips and transition strips to substrate with termination sealer.
- D. Apply joint sealants forming part of air barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- E. Wall Openings: Apply membrane flashing so that a minimum of 3 inches (75 mm) of coverage is achieved over both substrates. Maintain 3 inches (75 mm) of full contact over firm bearing to perimeter frames with not less than 1 inch (25 mm) of full contact.
- F. Fill gaps in perimeter frame surfaces of windows, curtain walls, storefronts, and doors, and miscellaneous penetrations of air barrier membrane with foam sealant.
- G. Seal strips and transition strips around masonry reinforcing or ties and penetrations with termination sealer.
- H. Seal top of through-wall flashings to air barrier with an additional 6-inch- (150-mm-) wide, strip.
- I. Seal exposed edges of strips at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination sealer.
- J. Repair punctures, voids, and deficient lapped seams in strips and transition strips. Slit and flatten fishmouths and blisters. Patch with transition strips extending 6 inches (150 mm) beyond repaired areas in strip direction.

3.5 AIR BARRIER MEMBRANE INSTALLATION

- A. Apply air barrier membrane to form a seal with strips and transition strips and to achieve a continuous air barrier according to air barrier manufacturer's written instructions.
- B. Apply air barrier membrane within manufacturer's recommended application temperature ranges.
- C. Apply a continuous unbroken air barrier to substrates according to the following minimum thickness. Apply membrane in full contact around protrusions such as masonry ties.
 1. Vapor-Retarding Membrane Air Barrier: 60-mil (1.5-mm) dry film thickness.

- D. Apply according to air barrier manufacturer's written instructions.
- E. Do not cover air barrier until it has been inspected.
- F. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air barrier components.

3.6 FIELD QUALITY CONTROL

- A. Inspections: Air barrier materials and installation are subject to inspection for compliance with requirements. Inspections may include the following:
 - 1. Continuity of air barrier system has been achieved throughout the building envelope with no gaps or holes.
 - 2. Continuous structural support of air barrier system has been provided.
 - 3. Masonry and concrete surfaces are smooth, clean and free of cavities, protrusions, and mortar droppings.
 - 4. Site conditions for application temperature and dryness of substrates have been maintained.
 - 5. Maximum exposure time of materials to UV deterioration has not been exceeded.
 - 6. Laps in strips and transition strips have complied with minimum requirements and have been shingled in the correct direction (or termination sealer has been applied on exposed edges), with no fishmouths.
 - 7. Termination sealer has been applied on cut edges.
 - 8. Strips and transition strips have been firmly adhered to substrate.
 - 9. Compatible materials have been used.
 - 10. Transitions at changes in direction and structural support at gaps have been provided.
 - 11. Connections between assemblies (membrane and sealants) have complied with requirements for cleanliness, preparation and priming of surfaces, structural support, integrity, and continuity of seal.
 - 12. All penetrations have been sealed.
- B. Remove and replace deficient air barrier components.

3.7 CLEANING AND PROTECTION

- A. Protect air barrier system from damage during application and remainder of construction period, according to manufacturer's written instructions.
 - 1. Protect air barrier from exposure to UV light and harmful weather exposure as required by manufacturer. Remove and replace air barrier exposed for more than 60 days.
 - 2. Protect air barrier from contact with creosote, uncured coal-tar products, TPO, EPDM, flexible PVC membranes, and sealants not approved by air barrier manufacturer.
- B. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended by manufacturer of affected construction.
- C. Remove masking materials after installation.

END OF SECTION 072726

SECTION 076200

SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

- 1. Metal flashing and counterflashing.

B. Related Requirements:

- 1. Section 061053 "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking
- 2. Section 074213.23 "Metal Composite Wall Panels" **for installation of and additional requirements for** sheet metal flashing and trim integral with metal wall panels.
- 3. Section 075323 "EPDM Roofing" for fascia system and for flashing and roofing accessories installed integral with roofing membrane as part of roofing-system work.
- 4. Division 23 for mechanical equipment curbs and cap flashings associated with mechanical equipment

1.3 COORDINATION

- A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.
- B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

- 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.

- B. Shop Drawings of each item specified showing layout, profiles, methods of joining, and anchorage details.

- C. Samples for Initial Selection: For each type of sheet metal and accessory indicated with factory-applied finishes.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For fabricator.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For sheet metal flashing and trim, and its accessories, to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
- B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. Sheet Metal Standard for Flashing and Trim: Comply with SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

D. Wind Design Standard: Manufacture and install flashings tested according to and capable of resisting the following design pressure:

1. **As indicated for roofing system pressures and structural loading criteria indicated on the structural drawings.**

2.2 SHEET METALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

- B. Sheet Metal for Flashing and Trim: Zinc-Tin Alloy-Coated Copper Sheet: ASTM B 370, cold-rolled copper sheet, H00 temper, of minimum uncoated weight (thickness) of 16 oz (0.55 mm thick); coated on both sides with a zinc-tin alloy (50 percent zinc, 50 percent tin).

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

- a. Revere Copper Products, Inc.; FreedomGray.

- C. Aluminum Sheet for Fascia Flashing, Trim & Metal Fabrications **indicated** of material indicated as aluminum: ASTM B 209 (ASTM B 209M), alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required; with smooth, flat surface.

1. Exposed Coil-Coated Finish:

- a. Two-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

2. Color: As Selected by Architect. **Color is to match metal composite wall panel where aluminum sheet is installed within the metal composite wall panel system, Fascia flashing at metal composite wall panel is to match the metal composite wall panel color, and to match window frames installed in brick masonry wall construction, where aluminum sheet is installed in brick masonry wall construction.**

3. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of 0.5 mil (0.013 mm).

2.3 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal unless otherwise indicated.

Fasteners: Series 300 stainless steel.

- B. Elastomeric Sealant: Generic type recommended by sheet metal manufacturer and fabricator of components being sealed and complying with requirements for joint sealants as specified in Division 7 Section "Joint Sealants."
- A. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work, matching or compatible with material being installed; noncorrosive; size and thickness required for performance.

2.4 FABRICATION, GENERAL

- A. Sheet Metal Fabrication Standard: Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA's, 5th Edition, "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.
- B. Sealant Joints: Where movable, non-expansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to cited sheet metal standard.
- C. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
- D. Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- E. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
- F. Do not use graphite pencils to mark metal surfaces.
- G. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with butyl-polyethylene laminate flexible flashing or other permanent separation as recommended by manufacturer.
 - 1. Elastomeric Flexible Membrane Flashing Sheet: ASTM D 2000, 2BC415 to 3BC620, minimum 50- to 65-mil- (1.3- to 1.6-mm-) thick, cured sheet neoprene with manufacturer's recommended contact adhesives and lap sealant with termination bars and fasteners.
 - a. Vapor-retarding, 40-mil- (1-mm) thick, self-adhering; polyethylene-film-reinforced top surface laminated to layer of butyl adhesive with release liner backing.
 - b. Primer for Membrane Flashing: Product recommended by manufacturer of flexible flashing for substrate.
- H. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of sheet metal exposed to public view.
- I. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer.
 - 1. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.

2.5 ROOF-DRAINAGE SHEET METAL FABRICATIONS

- A. Downspouts: Fabricate rectangular downspouts to dimensions indicated, complete with mitered elbows. Furnish with metal hangers from same material as downspouts and anchors.
 - 1. Fabricated Hanger Style: Fig 1-35A & according to SMACNA's "Architectural Sheet Metal Manual."
 - 2. Fabricate from the following materials:
 - a. Aluminum sheet: 0.024 inch thick.
- B. Through Fascia Scuppers with Conductor Head: Fabricate in accordance with SMACNA's "Architectural Sheet Metal Manual", reference Fig 1-28 with overflow outlet. Fabricate from the following materials:
 - 1. Aluminum: 0.032 inch
- C. Parapet Scuppers with Conductor Heads: Fabricate in accordance with SMACNA's "Architectural Sheet Metal Manual", reference Fig 1-26A with overflow outlet. Fabricate from the following materials:
 - 1. Aluminum: 0.032 inch

2.6 WALL SHEET METAL FABRICATIONS

- A. Metal Through-Wall Flashing ~~and Counterflashing~~ Metal Pan Flashing: Fabricate continuous flashings in minimum 96-inch- long, but not exceeding 12-foot- long, sections, under copings, at shelf angles, at wall base, and where indicated. Fabricate discontinuous lintel & similar flashings to extend 8 inches beyond each side of wall openings. Form with 2-inch high end dams where flashing is discontinuous. Fabricate pan flashing at window sills to the length of window rough openings & form with end dams with height 1/4" less than top of window stool. Fabricate from the following materials:
 - 1. **Zinc-Tin Alloy-Coated Copper sheet at through-wall flashing in brick masonry construction.**
 - 2. **.024" Aluminum sheet at pan flashing in brick masonry construction.**
 - 3. **.024" Aluminum sheet at through-wall flashing & pan flashing in metal composite wall panel construction.**

2.7 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

- A. **Fascia Flashing & Counterflashing:** Shop fabricate interior and exterior corners. Fabricate from the following materials:
 - 1. **Zinc-Tin Alloy-Coated Copper sheet at counterflashing in brick masonry construction.**
 - 2. **.024" Aluminum sheet at fascia flashing in brick masonry construction.**
 - 3. **.024" Aluminum sheet at fascia flashing and counterflashing in metal composite wall panel construction.**
- B. Flashing Receivers: Fabricate from the following materials:

1. Same material as flashing.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.
 1. Verify compliance with requirements for installation tolerances of substrates.
 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
 3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 UNDERLAYMENT INSTALLATION

- A. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free. Prime substrate if recommended by underlayment manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures. Apply in shingle fashion to shed water, with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps and edges with roller. Cover underlayment within 14 days.

3.3 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
 1. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
 2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
 3. Space cleats not more than 12 inches apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
 4. Install exposed sheet metal flashing and trim with limited oil canning, and free of buckling and tool marks.
 5. Torch cutting of sheet metal flashing and trim is not permitted.
 6. Do not use graphite pencils to mark metal surfaces.

- B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.
 - 1. Coat concealed side of uncoated-aluminum and stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.
 - 2. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.
- C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at maximum of 10 feet with no joints within 24 inches of corner or intersection.
 - 1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
 - 2. Use lapped expansion joints only where indicated on Drawings.
- D. Fasteners: Use fastener sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
- E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
- F. Seal joints as required for watertight construction.
 - 1. Use sealant-filled joints unless otherwise indicated. Embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.
 - 2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

3.4 ROOF-DRAINAGE SYSTEM INSTALLATION

- A. General: Install sheet metal roof-drainage items to produce complete roof-drainage system according to cited sheet metal standard unless otherwise indicated. Coordinate installation of roof perimeter flashing with installation of roof-drainage system.
- B. Downspouts: Join sections with 1-1/2-inch telescoping joints.
 - 1. Provide hangers with fasteners designed to hold downspouts securely to walls. Locate hangers at top and bottom and at approximately 60 inches o.c.
 - 2. Provide elbows at base of downspout to direct water away from building.
 - 3. Provide splashblock beneath downspout discharge.

- C. Parapet Scuppers: Continuously support scupper, set to correct elevation, and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.
 - 1. Anchor scupper closure trim flange to exterior wall and seal with elastomeric sealant to scupper.
 - 2. Loosely lock front edge of scupper with conductor head.
 - 3. Seal with elastomeric sealant exterior wall scupper flanges into back of conductor head.
- D. Conductor Heads: Anchor securely to wall.

3.5 ROOF FLASHING INSTALLATION

- A. General: Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and cited sheet metal standard. Provide concealed fasteners where possible, and set units true to line, levels, and slopes. Install work with laps, joints, and seams that are permanently watertight and weather resistant.
- B. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches over base flashing. Lap counterflashing joints minimum of 4 inches.
- C. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric sealant and clamp flashing to pipes that penetrate roof.

3.6 WALL FLASHING INSTALLATION

- A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to cited sheet metal standard unless otherwise indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows & doors.

3.7 MISCELLANEOUS FLASHING INSTALLATION

- A. Equipment Support Flashing: Coordinate installation of equipment support flashing with installation of roofing and equipment. Weld or seal flashing with elastomeric sealant to equipment support member.

3.8 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
- B. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

3.9 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder.
- C. Clean off excess sealants.
- D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended by sheet metal flashing and trim manufacturer. Maintain sheet metal flashing and trim in clean condition during construction.
- E. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 076200

ATTACHMENT 2

Pre-Bid Meeting Attendance/Plan Holders



PRE-BID MEETING ATTENDANCE AND PLANHOLDERS

Project: 11246 City of South Portland Wastewater Treatment Plant Administrative Addition
Pre-Bid Attendees and Planholders

Mandatory Pre-Bid Meeting Date/Time: Thursday June 11, 2015 9:00 a.m.

Company/Contact	Contact/Phone/Email	Pre-Bid Attendee	Plan Holder
Blaine Casey Building Contractor, Inc. 757 Riverside Drive Augusta, ME 04330	Jeff Becker, Estimator jbecker@blanecasey.com 622-5600 620-9134 (Fax)	Yes	Yes
Johnson and Jordan 18 Mussey Road Scarborough, ME 04074	John Land jland@johnsonandjordan.com 883-8345 883-8619 (Fax) 615-2567 (Cell)	Yes	Yes
Penta Corporation 1253 Whittier Highway PO Box 390 Moultonborough, NH 03254	Tom Rousseau pentacorp@roadrunner.com 603-476-5525 603-476-5106 (fax)	Yes	Yes
Woods Excavating PO Box 1282 Westbrook, ME 04092	Chris Woods chris@woodsexcavatingllc.com 839-4604	Yes	No
T Buck 249 Merrow Road Auburn, ME 04210	Mark McPhears mark@tbuck.net 783-6223	Yes	Yes
Hardypond Construction 7 Tee Drive Portland, ME 04103	Daphne Millay daphne@hardypond.com 318-7517	Yes	YES
Efficiency Electric 356 Windham Center Road Windham, ME 04062	Jeff Camell efficiencyelectricinc.@myfairpoint.net	Yes	Yes

PRE-BID MEETING ATTENDANCE AND PLANHOLDERS

Project: 11246 City of South Portland Wastewater Treatment Plant Administrative Addition
Pre-Bid Attendees and Planholders

Mandatory Pre-Bid Meeting Date/Time: Thursday June 11, 2015 9:00 a.m.

Company/Contact	Contact/Phone/Email	Pre-Bid Attendee	Plan Holder
Great Falls Construction 20 Mechanic Street Gorham, ME 04038	Valerie Paquin-Gould vpaquingould@greatfallsinc.com	Yes	Yes
Doten's Construction 1755 Freeport Road Freeport, ME 04032	Tyler Coffin doten@dotens.com 207-865-4412	Yes	No
Isqft Planroom 4500 Lake Forest Drive Suite 502 Cincinnati, OH 45242	Eric Fritz	No	Yes
Dodge Data and Analytics C/o Dataflow 71 Fuller Road #1 Albany, NY 12205	860-503-9788	No	Yes