

Date: April 1, 2016

**ADDENDUM NO. 1
to the
Iowa Department of Transportation
Proposal No. 16143
For Ottumwa Maintenance Facility Re-Roof
Letting Date: 04/13/2016**

Notice To Bidders:

This Addendum is issued to incorporate the following additions, deletions, corrections, and/or clarifications to the terms or specifications and shall hereby be considered a part of the final contract documents. This Addendum shall supersede, modify and/or change all statements to the contrary in the bid proposal and shall take precedence over previous terms or specifications.

Changes to the Drawings:

Sheet A-1: Replace sheet A-1 with Revised sheet A-1R dated 03-31-2016.

Changed Cover board location on roof details.

Changes to Specifications:

Section 01 2100: Add Section 01 2100, Allowances to Project Manual.

Added \$1,500 allowance for removing; raising curb/supports; and reinstalling AC unit for additional insulation.

Section 07 5423: Replace Section 07 5423 with revised Section 07 5423 dated 03-31-5006.

Added GenFlex EZ TPO to list of acceptable manufacturers; included 10 year warranty; and changed insulation to standard Polyisocyanurate Insulation.

Section 07 6200: Replace Section 07 6200 with Revised Section 07 6200 dated 03-31-2016.

Remove Existing gutters and downspouts and replace with new gutters and downspouts to match existing size, shape, and color.

Section 07 7123: Add section 07 7123, Manufactured Gutters and Downspouts to Project Manual.

Remove Existing gutters and downspouts and replace with new gutters and downspouts to match existing size, shape, and color.

All Bidders must sign and return this Addendum for the bid opportunity referenced above. Failure to do so may subject the Bidder to disqualification. If a bid response has already been submitted, this Addendum shall be signed and emailed or faxed to the Purchasing Section prior to the scheduled Letting Date.

Company Name *(please print)*

Date

Signature

Sincerely,

Jody McNaughton, Purchasing Agent (title)
Phone No. 515-239-1298 Fax No. 515-239-1538
Jody.mcnaughton@dot.iowa.gov

**SECTION 01 2100
ALLOWANCES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Contingency allowance.

1.02 CONTINGENCY ALLOWANCE

- A. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.03 ALLOWANCES SCHEDULE

- A. HVAC Allowance: For removing one Air Conditioner which requires additional curbing/ supports to clear the additional insulation thickness and reinstalling the air conditioner. This includes electrician and HVAC contractor costs as necessary to extend electrical wiring or coolant piping so Air Conditioner is operational. Include the stipulated sum of \$1,500.00 in the Bid Proposal for the HVAC Allowance.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 07 5423

THERMOPLASTIC-POLYOLEFIN ROOFING (TPO) (REVISED 3-31-2016)

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Thermoplastic membrane roofing system, including all components specified.
- B. Disposal of demolition debris and construction waste is the responsibility of Contractor. Perform disposal in manner complying with all applicable federal, state, and local regulations.
- C. Comply with the published recommendations and instructions of the roofing membrane manufacturer, at <http://manual.fsbp.com>.
- D. Commencement of work by Contractor shall constitute acknowledgement by Contractor that this specification can be satisfactorily executed, under the project conditions and with all necessary prerequisites for warranty acceptance by roofing membrane manufacturer. No modification of the Contract Sum will be made for failure to adequately examine the Contract Documents or the project conditions.

1.02 RELATED REQUIREMENTS

- A. Section 07 6200 - 33 12016: Formed metal flashing and trim items associated with roofing.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data:
 - 1. Provide membrane manufacturer's printed data sufficient to show that all components of roofing system, including insulation and fasteners, comply with the specified requirements and with the membrane manufacturer's requirements and recommendations for the system type specified; include data for each product used in conjunction with roofing membrane.
- C. Samples: Submit samples of each product to be used.
- D. Executed Warranty.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Roofing installer shall have the following:
 - 1. Current approval, license, or authorization as applicator by the manufacturer.
 - 2. At least five years experience in installing specified system.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in manufacturer's original containers, dry and undamaged, with seals and labels intact and legible.
- B. Store materials clear of ground and moisture with weather protective covering.
- C. Keep combustible materials away from ignition sources.

1.06 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Comply with all warranty procedures required by manufacturer, including notifications, scheduling, and inspections.
- C. Warranty: Manufacturer's Limited Warranty covering membrane, roof insulation, and other indicated components of the system, for 10 year term.
 - 1. Limit of Liability: No dollar limitation.
 - 2. Scope of Coverage: Repair leaks in the roofing system caused by:
 - a. Ordinary wear and tear of the elements.
 - b. Manufacturing defect in Manufacturer's brand materials.
 - c. Defective workmanship used to install these materials.
 - d. Damage due to winds up to 55 mph.

3. Not Covered:
 - a. Damage due to winds in excess of 55 mph.
 - b. Damage due hurricanes or tornadoes.
 - c. Hail.
 - d. Intentional damage.
 - e. Unintentional damage due to normal rooftop inspections, maintenance, or service.
- D. Metal Roof Edging: Manufacturer's full-system warranty for roof edge system, covering blow-off from winds up to 150 mph.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer - Roofing System: Firestone Building Products LLC, Carmel, IN: www.firestonebpco.com.
 1. Roofing systems manufactured by others are acceptable provided the roofing system is completely equivalent in materials and warranty conditions and the manufacturer meets the following qualifications:
 - a. Specializing in manufacturing the roofing system to be provided.
 - b. Minimum ten years of experience manufacturing the roofing system to be provided.
 - c. Able to provide a no dollar limit, single source roof system warranty that is backed by corporate assets in excess of one billion dollars.
 - d. ISO 9002 certified.
 - e. Roofing systems manufactured by the companies listed below are acceptable provided they are completely equivalent in materials and warranty conditions:
 - 1) Carlisle; Sure-Weld TPO: www.carlisesyntec.com.
 - 2) Versico; Versiweld TPO: www.versico.com.
 - 3) Genflex; EZ TPO Membrane: www.genflex.com.

2.02 ROOFING SYSTEM DESCRIPTION

- A. Roofing System: Thermoplastic polyolefin (TPO) single-ply membrane.
 1. Membrane Attachment: Mechanically fastened.
 2. Warranty: Full system warranty; Membrane Manufacturer's 10 year Red Shield Limited Warranty covering membrane, roof insulation, and membrane accessories.
 3. Comply with applicable local building code requirements.
- B. Roofing System Components: Listed in order from the top of the roof down:
 1. Membrane: Thickness as specified.
 2. Insulation Cover Board: Wood fiber board, 0.5 inch thick; mechanically fastened.
 3. Insulation:
 - a. Maximum Board Thickness: 3 inches; use as many layers as necessary; stagger joints in adjacent layers.
 - b. Total R-value of 30, average
 - c. Top Layer: Polyisocyanurate foam board, non-composite; mechanically fastened.
 - d. Intermediate Layer(s), If Any: Polyisocyanurate foam board, non-composite; loose-laid, no attachment.
 - e. Bottom Layer: Polyisocyanurate foam board, non-composite; mechanically fastened.
 - f. Crickets: Tapered insulation of same type as specified for top layer; slope as indicated.

2.03 MEMBRANE MATERIALS

- A. Membrane: Flexible, heat weldable sheet composed of thermoplastic polyolefin polymer and ethylene propylene rubber; complying with ASTM D6878/D6878M, with polyester weft inserted reinforcement and the following additional characteristics:
 1. Thickness: 0.060 inch plus/minus 10 percent, with coating thickness over reinforcement of 0.024 inch plus/minus 10 percent.
 2. Sheet Width: Provide the widest available sheets to minimize field seaming.

3. Puncture Resistance: 265 lbf, minimum, when tested in accordance FTM 101C Method 2031.
 4. Solar Reflectance: 0.79, minimum, when tested in accordance with ASTM C1549.
 5. Color: White.
- B. Membrane Fasteners: Type and size as required by roof membrane manufacturer for roofing system and warranty to be provided; use only fasteners furnished by roof membrane manufacturer.
 - C. Curb and Parapet Flashing: Same material as membrane, with encapsulated edge which eliminates need for seam sealing the flashing-to-roof splice; precut to 18 inches wide.
 - D. Formable Flashing: Non-reinforced, flexible, heat weldable sheet, composed of thermoplastic polyolefin polymer and ethylene propylene rubber.
 1. Thickness: 0.060 inch plus/minus 10 percent.
 2. Tensile Strength: 1550 psi, minimum, when tested in accordance with ASTM D638 after heat aging.
 3. Elongation at Break: 650 percent, minimum, when tested in accordance with ASTM D638 after heat aging.
 4. Tearing Strength: 12 lbf, minimum, when tested in accordance with ASTM D1004 after heat aging.
 5. Color: White.
 - E. Tape Flashing: 5-1/2 inch nominal wide TPO membrane laminated to cured rubber polymer seaming tape, overall thickness 0.065 inch nominal; per manufacturer's recommendations.
 - F. Pourable Sealer: Two-part polyurethane, two-color for reliable mixing.
 - G. Seam Plates: Steel with barbs and Galvalume coating; corrosion-resistance complying with FM 4470.
 - H. Termination Bars: Aluminum bars with integral caulk ledge; 1.3 inches wide by 0.10 inch thick; Firestone Termination Bar by Firestone.
 - I. Cut Edge Sealant: Synthetic rubber-based, for use where membrane reinforcement is exposed.
 - J. General Purpose Sealant: EPDM-based, one part, white general purpose sealant.
 - K. Molded Flashing Accessories: Unreinforced TPO membrane pre-molded to suit a variety of flashing details, including pipe boots, inside corners, outside corners, etc.

2.04 ROOF INSULATION AND COVER BOARDS

- A. Polyisocyanurate Board Insulation: Closed cell polyisocyanurate foam, complying with ASTM C1289, Type II, Class 1, with the following additional characteristics:
 1. Thickness: As indicated elsewhere.
 2. Size: 48 inches by 96 inches, nominal.
 3. R-value (LTTR):
 - a. 2.0 inch Thickness: 12.1 [2014 value: 11.4], minimum per layer.
 4. Compressive Strength: 20 psi when tested in accordance with ASTM C1289.
 5. Ozone Depletion Potential: Zero; made without CFC or HCFC blowing agents.
 6. Recycled Content: 19 percent post-consumer and 15 percent post-industrial, average.
- B. Wood Fiber Cover Board: Cellulosic fiber insulating board complying with ASTM C208 Grade 2, surfaced with non-asphaltic coating to reduce asphalt absorption, and with the following additional characteristics:
 1. Size: 48 inches by 96 inches, nominal.
 2. Thickness: As indicated elsewhere.
 3. Spanning Capability: Recommended by manufacturer for following minimum flute spans:
 - a. 0.5 inch Thickness: 1.6 inches, minimum.
 4. Recycled Content: 50 percent post-consumer, minimum.
 5. Acceptable Product: Fiber top Wood Fiber Insulation by Firestone.

- C. Insulation Fasteners: Type and size as required by roof membrane manufacturer for roofing system and warranty to be provided; use only fasteners furnished by roof membrane manufacturer.

2.05 METAL ACCESSORIES

- A. Metal Roof Edging and Fascia: Continuous metal edge member serving as termination of roof membrane and retainer for metal fascia; watertight with no exposed fasteners; mounted to roof edge nailer.
 - 1. Wind Performance:
 - a. Membrane Pull-Off Resistance: 100 lbs/ft, minimum, when tested in accordance with ANSI/SPRI/FM 4435/ES-1 Test Method RE-1, current edition.
 - b. Fascia Pull-Off Resistance: At least the minimum required when tested in accordance with ANSI/SPRI/FM 4435/ES-1 Test Method RE-2, current edition.
 - c. Provide product listed in current Factory Mutual Research Corporation Approval Guide with at least FM 1-270 rating.
 - 2. Fascia Face Height: 13 inches.
 - 3. Edge Member Height Above Nailers: 1-1/4 inches.
 - 4. Fascia Material and Finish: 0.040 inch thick formed aluminum, natural mill finish; matching concealed joint splice plates; factory-installed protective plastic film.
 - 5. Length: 144 inches.
 - 6. Functional Characteristics: Fascia retainer and cleat support fascia while allowing for free thermal cycling.
 - 7. Aluminum Bar: Continuous 6063-T6 alloy aluminum extrusion with pre-punched slotted holes; miters welded; injection molded EPDM splices to allow thermal expansion.
 - 8. Anchor Bar Cleat: 20 gage, 0.036 inch G90 coated commercial type galvanized steel with pre-punched holes.
 - 9. Fasteners: Factory-provided corrosion resistant fasteners, with drivers; no exposed fasteners permitted.
 - 10. Special Shaped Components: Provide factory-fabricated pieces necessary for complete installation, including miters, scuppers, and end caps; minimum 14 inch long legs on corner pieces.
 - 11. Accessories: Provide matching gutter, downspout, extenders, and other special fabrications as shown on the drawings.

2.06 ACCESSORY MATERIALS

- A. Wood Nailers: PS 20 dimension lumber, Structural Grade No. 2 or better Southern Pine, Douglas Fir; or PS 1, APA Exterior Grade plywood; pressure preservative treated.
 - 1. Width: 5-1/2 inches, nominal minimum, or as wide as the nailing flange of the roof accessory to be attached to it.
 - 2. Thickness: Same as thickness of roof insulation.
- B. Cant Strips and Tapered Edge Strips: 45 degree face slope and minimum 5 inch face dimension; provide at all angle changes between vertical and horizontal planes that exceed 45 degrees.
 - 1. Install using hot asphalt (Type IV), roofing mastic, or mechanically fastened using fasteners and plates approved by roofing manufacturer.

PART 3 INSTALLATION

3.01 GENERAL

- A. Install roofing, insulation, flashings, and accessories in accordance with roofing manufacturer's published instructions and recommendations for the specified roofing system. Where manufacturer provides no instructions or recommendations, follow good roofing practices and industry standards. Comply with federal, state, and local regulations.
- B. Obtain all relevant instructions and maintain copies at project site for duration of installation period.

- C. Do not start work until Pre-Installation Notice has been submitted to manufacturer as notification that this project requires a manufacturer's warranty.
- D. Perform work using competent and properly equipped personnel.
- E. Temporary closures, which ensure that moisture does not damage any completed section of the new roofing system, are the responsibility of the applicator. Completion of flashings, terminations, and temporary closures shall be completed as required to provide a watertight condition.
- F. Install roofing membrane only when surfaces are clean, dry, smooth and free of snow or ice; do not apply roofing membrane during inclement weather or when ambient conditions will not allow proper application; consult manufacturer for recommended procedures during cold weather. Do not work with sealants and adhesives when material temperature is outside the range of 60 to 80 degrees F.
- G. Protect adjacent construction, property, vehicles, and persons from damage related to roofing work; repair or restore damage caused by roofing work.
 - 1. Protect from spills and overspray from bitumen, adhesives, sealants and coatings.
 - 2. Particularly protect metal, glass, plastic, and painted surfaces from bitumen, adhesives, and sealants within the range of wind-borne overspray.
 - 3. Protect finished areas of the roofing system from roofing related work traffic and traffic by other trades.
- H. Until ready for use, keep materials in their original containers as labeled by the manufacturer.
- I. Consult membrane manufacturer's instructions, container labels, and Material Safety Data Sheets (MSDS) for specific safety instructions. Keep all adhesives, sealants, primers and cleaning materials away from all sources of ignition.

3.02 EXAMINATION

- A. Examine roof deck to determine that it is sufficiently rigid to support installers and their mechanical equipment and that deflection will not strain or rupture roof components or deform deck.
- B. Verify that surfaces and site conditions are ready to receive work. Correct defects in the substrate before commencing with roofing work.
- C. Examine roof substrate to verify that it is properly sloped to drains.
- D. Verify that the specifications and drawing details are workable and not in conflict with the roofing manufacturer's recommendations and instructions; start of work constitutes acceptance of project conditions and requirements.

3.03 PREPARATION

- A. Take appropriate measures to ensure that fumes from adhesive solvents are not drawn into the building through air intakes.
- B. Prior to proceeding, prepare roof surface so that it is clean, dry, and smooth, and free of sharp edges, fins, roughened surfaces, loose or foreign materials, oil, grease and other materials that may damage the membrane.
- C. Fill all surface voids in the immediate substrate that are greater than 1/4 inch wide with fill material acceptable insulation to membrane manufacturer.
- D. Seal, grout, or tape deck joints, where needed, to prevent bitumen seepage into building.
- E. Wood Nailers: Provide wood nailers at all perimeters and other locations where indicated on the drawings, of total height matching the total thickness of insulation being used.
 - 1. Install with 1/8 inch gap between each length and at each change of direction.
 - 2. Mechanically fasten to deck to resist force of 200 lbf per linear foot.

3.04 INSULATION AND COVER BOARD INSTALLATION

- A. Install insulation in configuration and with attachment method(s) specified in PART 2, under Roofing System.

- B. Install only as much insulation as can be covered with the completed roofing system before the end of the day's work or before the onset of inclement weather.
- C. Lay roof insulation in courses parallel to roof edges.
- D. Neatly and tightly fit insulation to all penetrations, projections, and nailers, with gaps not greater than 1/4 inch. Fill gaps greater than 1/4 inch with acceptable insulation. Do not leave the roofing membrane unsupported over a space greater than 1/4 inch.
- E. Mechanical Fastening: Using specified fasteners and insulation plates engage fasteners through insulation into deck to depth and in pattern required by membrane manufacturer.

3.05 SINGLE-PLY MEMBRANE INSTALLATION

- A. Beginning at low point of roof, place membrane without stretching over substrate and allow to relax at least 30 minutes before attachment or splicing; in colder weather allow for longer relax time.
- B. Lay out the membrane pieces so that field and flashing splices are installed to shed water.
- C. Install membrane without wrinkles and without gaps or fishmouths in seams; bond and test seams and laps in accordance with membrane manufacturer's instructions and details.
- D. Install membrane mechanically attached to the substrate using seam battens, fasteners, and edge securement as specified and as required by membrane manufacturers.
- E. Battens in the Seam: Install batten strips continuously within the side seams, covered by membrane lap.
 - 1. Lay out fasteners as recommended by membrane manufacturer.
 - 2. Fasten batten strips with membrane manufacturer's fasteners, properly engaged in the deck with head flush with the batten strip surface.
- F. Mechanical Attachment: Install fasteners in the seams, covered by membrane.
 - 1. Lay out fasteners in compliance with FM Class specified in PART 2, as recommended by membrane manufacturer, and as indicated, whichever is most stringent.
 - 2. Properly engage fasteners in the deck with head flush with the countersunk portion of seam plate.
- G. Edge Securement: Secure membrane at all locations where membrane terminates or goes through an angle change greater than 2 in 12 inches using mechanically fastened reinforced perimeter fastening strips, plates, or metal edging as indicated or as recommended by roofing manufacturer.
 - 1. Exceptions: Round pipe penetrations less than 18 inches in diameter and square penetrations less than 4 inches square.
 - 2. Metal edging is not merely decorative; ensure anchorage of membrane as intended by roofing manufacturer.

3.06 FLASHING AND ACCESSORIES INSTALLATION

- A. Install flashings, including laps, splices, joints, bonding, adhesion, and attachment, as required by membrane manufacturer's recommendations and details.
- B. Metal Accessories: Install metal edgings, gravel stops, and copings in locations indicated on the drawings, with horizontal leg of edge member over membrane and flashing over metal onto membrane.
 - 1. Follow roofing manufacturer's instructions.
 - 2. Remove protective plastic surface film immediately before installation.
 - 3. Install water block sealant under the membrane anchorage leg.
 - 4. Flash with manufacturer's recommended flashing sheet unless otherwise indicated.
 - 5. Where single application of flashing will not completely cover the metal flange, install additional piece of flashing to cover the metal edge.
 - 6. If the roof edge includes a gravel stop and sealant is not applied between the laps in the metal edging, install an additional piece of self-adhesive flashing membrane over the metal

lap to the top of the gravel stop; apply seam edge treatment at the intersections of the two flashing sections.

7. When the roof slope is greater than 1:12, apply seam edge treatment along the back edge of the flashing.
- C. Flashing at Walls, Curbs, and Other Vertical and Sloped Surfaces: Install weathertight flashing at all walls, curbs, parapets, curbs, skylights, and other vertical and sloped surfaces that the roofing membrane abuts to; extend flashing at least 8 inches high above membrane surface.
 1. Use the longest practical flashing pieces.
 2. Evaluate the substrate and overlay and adjust installation procedure in accordance with membrane manufacturer's recommendations.
 3. Complete the splice between flashing and the main roof sheet with specified splice adhesive before adhering flashing to the vertical surface.
 4. Provide termination directly to the vertical substrate as shown on roof drawings.
 - D. Flashing at Penetrations: Flash all penetrations passing through the membrane; make flashing seals directly to the penetration.
 1. Pipes, Round Supports, and Similar Items: Flash with specified pre-molded pipe flashings wherever practical; otherwise use specified self-curing elastomeric flashing.

3.07 FIELD QUALITY CONTROL

- A. Inspection by Manufacturer: Provide final inspection of the roofing system by a Technical Representative employed by roofing system manufacturer specifically to inspect installation for warranty purposes (i.e. not a sales person).
- B. Perform all corrections necessary for issuance of warranty.

3.08 CLEANING

- A. Clean all contaminants generated by roofing work from building and surrounding areas, including bitumen, adhesives, sealants, and coatings.
- B. Repair or replace building components and finished surfaces damaged or defaced due to the work of this section; comply with recommendations of manufacturers of components and surfaces.
- C. Remove leftover materials, trash, debris, equipment from project site and surrounding areas.

3.09 PROTECTION

- A. Where construction traffic must continue over finished roof membrane, provide durable protection and replace or repair damaged roofing to original condition.

END OF SECTION

SECTION 07 6200
SHEET METAL FLASHING AND TRIM (REVISED 3-31-2016)

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fabricated sheet metal items, including flashings, counterflashings, gutters, and downspouts.

1.02 RELATED REQUIREMENTS

- A. Section 07 5423: Roofing system.
- B. Section 07 7123 - Manufactured Gutters and Downspouts.

1.03 REFERENCE STANDARDS

- A. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels; 2013.
- B. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels; 2013.
- C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.
- E. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2012)e1.
- F. SMACNA (ASMM) - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors' National Association; 2012.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

1.05 QUALITY ASSURANCE

- A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.
- B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with 3 years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

- A. Pre-Finished Aluminum: ASTM B209 (ASTM B209M); 20 gage (0.032 inch) thick; plain finish shop pre-coated with modified silicone coating.
 - 1. Modified Silicone Polyester Coating: Pigmented Organic Coating System, AAMA 2603; baked enamel finish system.
 - 2. Color: As selected by Architect from manufacturer's standard colors.

2.02 ACCESSORIES

- A. Fasteners: Galvanized steel.
- B. Sealant to be Concealed in Completed Work: Non-curing butyl sealant.

- C. Sealant to be Exposed in Completed Work: ASTM C920; elastomeric sealant, 100 percent silicone with minimum movement capability of plus/minus 25 percent and recommended by manufacturer for substrates to be sealed; clear.

2.03 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Form pieces in longest possible lengths.
- C. Hem exposed edges on underside 1/2 inch; miter and seam corners.
- D. Form material with flat lock seams, except where otherwise indicated. At moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- E. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.
- F. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.

2.04 GUTTER AND DOWNSPOUT FABRICATION

- A. Gutters: SMACNA (ASMM), Rectangular profile, seamless.
- B. Downspouts: Rectangular profile.
- C. Gutters and Downspouts: Size for rainfall intensity determined by a storm occurrence of 1 in 10 years in accordance with SMACNA (ASMM).
- D. Gutters and Downspouts: Size to match existing .
- E. Accessories: Profiled to suit gutters and downspouts.
 - 1. Anchorage Devices: In accordance with SMACNA requirements.
 - 2. Gutter Supports: Brackets.
 - 3. Downspout Supports: Brackets.
- F. Seal metal joints.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.
- B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 PREPARATION

- A. Install starter and edge strips, and cleats before starting installation.
- B. Install surface mounted reglets true to lines and levels. Seal top of reglets with sealant.
- C. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

3.03 INSTALLATION

- A. Insert flashings into reglets to form tight fit. Secure in place with lead wedges. Pack remaining spaces with lead wool. Seal flashings into reglets with sealant.
- B. Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted.
- C. Apply plastic cement compound between metal flashings and felt flashings.
- D. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- E. Seal metal joints watertight.

3.04 FIELD QUALITY CONTROL

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

- B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

3.05 SCHEDULE

- A. New Fascia and Drip Edge:
- B. Gutters and Downspouts:
- C. Roofing Penetration Flashings, for Pipes, Structural Steel, and Equipment Supports:

END OF SECTION

SECTION 07 7123
MANUFACTURED GUTTERS AND DOWNSPOUTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pre-finished aluminum gutters and downspouts.

1.02 RELATED REQUIREMENTS

- A. Section 07 6200 - 33 12016.

1.03 REFERENCE STANDARDS

- A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2012.
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- C. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.
- D. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.
- E. ASTM D2665 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings; 2014.
- F. SMACNA (ASMM) - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors' National Association; 2012.

1.04 DESIGN REQUIREMENTS

- A. Conform to SMACNA (ASMM) for sizing components for rainfall intensity determined by a storm occurrence of 1 in 5 years.
- B. Conform to applicable code for size and method of rain water discharge.
- C. Maintain one copy of each document on site.

1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate locations, configurations, jointing methods, fastening methods, locations, and installation details.
- C. Product Data: Provide data on prefabricated components.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Stack material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope to drain.
- B. Prevent contact with materials that could cause discoloration, staining, or damage.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Gutters and Downspouts:
 - 1. ATAS International, Inc: www.atas.com.
 - 2. Cheney Flashing Company: www.cheneyflashing.com.
 - 3. SAF Perimeter Systems, a division of Southern Aluminum Finishing Company, Inc.: www.saf.com/persys.
 - 4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 MATERIALS

- A. Pre-Finished Aluminum Sheet: ASTM B209 (ASTM B209M); 0.032 inch thick, seamless.
 - 1. Finish: Plain, shop pre-coated with modified silicone coating.
 - 2. Color: To match existing..
- B. Primer: Zinc molybdate type.

- C. Protective Backing Paint: Zinc molybdate alkyd.

2.03 COMPONENTS

- A. Gutters: SMACNA rectangular style profile, seamless.
- B. Downspouts: SMACNA Rectangular profile.
- C. Anchors and Supports: Profiled to suit gutters and downspouts.
 - 1. Anchoring Devices: In accordance with SMACNA requirements.
 - 2. Gutter Supports: Brackets.
 - 3. Downspout Supports: Brackets.

2.04 FABRICATION

- A. Form gutters and downspouts of profiles and size to match existing.
- B. Fabricate with required connection pieces.
- C. Form sections square, true, and accurate in size, in maximum possible lengths, free of distortion or defects detrimental to appearance or performance. Allow for expansion at joints.
- D. Hem exposed edges of metal.
- E. Fabricate gutter and downspout accessories; seal watertight.

2.05 FACTORY FINISHING

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

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that surfaces are ready to receive work.

3.02 PREPARATION

- A. Paint concealed metal surfaces and surfaces in contact with dissimilar metals with protective backing paint to a minimum dry film thickness of 15 mil.

3.03 INSTALLATION

- A. Install gutters, downspouts, and accessories in accordance with manufacturer's instructions.
- B. Slope gutters 1/8" inch per foot, 1 percent minimum.

END OF SECTION