

R.G. KREUSLER PARK RESTROOM BUILDING
AND ENTRY DRIVE MODIFICATIONS - #14204
Specifications

SECTION 07210 – BUILDING INSULATION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Cavity wall insulation.
 - 2. Concealed building insulation.
 - 3. Fire safing insulation.
 - 4. Vapor retarders.

1.2 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Product test reports.

1.3 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84 for surface-burning characteristics, by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
- B. *Submit environmental data in accordance with Table 1 of ASTM E2129 for products provided under work of this section.*

PART 2 - PRODUCTS

2.1 INSULATING MATERIALS

- A. General: Provide insulating materials that comply with requirements and with referenced standards and, for preformed units, in sizes to fit applications indicated, selected from manufacturer's standard thicknesses, widths, and lengths.
- B. Extruded-Polystyrene Board Insulation: 1½" thick sheets of closed cell polystyrene foam . R-7 continuous insulation minimum. ASTM C 578, Type IV with maximum flame-spread and smoke-developed indices of 75 and 450, respectively.
- C. Sound Control Blanket Insulation (Walls): Shall be Type I Fiberglass Batts 3½" thick 2.5 pcf, friction fit, for interior stud walls. Flame spread, smoke, and fuel rating of less than 25. Type as recommended by manufacturer for maximum sound attenuation.
- D. Sound Control Blanket Insulation (Ceilings): Shall be Type I Fiberglass Batts 3" thick 2.5 pcf, friction fit, for interior stud walls. Flame spread, smoke, and fuel rating of less than 25. Type as recommended by manufacturer for maximum sound attenuation.

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- E. Slage Wool - Fiber Board Safing Insulation: Semi rigid boards design for use as fire stop at openings to comply with ASTM C 612, type 1A and 1B; nominal density of 4 LB/CV. FT. passing ASTM E 136 for combustion characteristics. Thermal resistivity of 4 deg F x h x sq. Ft. at 75 deg F.
- F. Mineral-fiber blanket insulation consisting of fibers manufactured from glass:
 - 1. Unfaced Mineral-Fiber Blanket Insulation: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indices of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics. R-33 minimum with R-5 rigid insulation air barrier at roof trusses. Install over trusses as per manufacturers recommendations.
 - 2. Faced Mineral-Fiber Blanket Insulation: ASTM C 665, Type III, Class A; Category 1, faced with foil-scrim-kraft, foil scrim, or foil-scrim-polyethylene vapor-retarder membrane on one face. R-33 minimum with R-5 rigid insulation air barrier at roof trusses. Install over trusses as per manufacturers recommendations.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install insulation to comply with insulation manufacturer's written instructions applicable to products and application indicated. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- B. Installation of General Building Insulation: Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
 - 1. Seal joints between closed-cell (nonbreathing) insulation units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant.
 - 2. Set vapor-retarder-faced units with vapor retarder to warm side of construction, unless otherwise indicated. Do not obstruct ventilation spaces, except for fire-stopping.
 - a. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to surrounding construction to ensure airtight installation.
 - 3. Install mineral-fiber blankets in cavities formed by framing members according to the following requirements:
 - a. Use blanket widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
 - b. Place blankets in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.

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4. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping stapling flanges to flanges of metal studs.
 5. Install board insulation on concrete substrates by adhesively attached, spindle-type insulation anchors as follows:
 - a. Fasten insulation anchors to concrete substrates with insulation anchor adhesive according to anchor manufacturer's written instructions.
 - b. Apply insulation standoffs to each spindle to create cavity width indicated between concrete substrate and insulation.
 - c. 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 below indicated thickness.
 - d. Where insulation will not be covered by other building materials, apply capped washers to tips of spindles.
 6. Stuff glass-fiber, loose-fill insulation into miscellaneous voids and cavity spaces where shown. Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft. (40 kg/cu. m).
- C. *Waste Management: Construction Waste Management as specified in Section 01351 and as follows:*
1. *Coordinate with manufacturer for take-back program. Set aside scrap to be returned to manufacturer for recycling into new product.*

END OF SECTION

SECTION 07411 - MANUFACTURED ROOF PANELS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes standing-seam, uninsulated roof panels.

1.2 PERFORMANCE REQUIREMENTS

- A. Air Infiltration: Permanent resistance to air leakage through assembly of not more than 0.09 cfm/sq. ft. of fixed roof area per ASTM E 1680 at static-air-pressure difference of 4.0 lbf/sq. ft..
- B. Water Penetration: No water penetration of assembly per ASTM E 1646 at a minimum differential pressure of 20 percent of inward acting, wind-load design pressure of not less than 6.24 lb/sq. ft. and not more than 12.0 lb/sq. ft. .
- C. Wind-Uplift Resistance: UL 580, Class 90.
- D. Structural Performance: Capable of safely supporting design loads indicated under in-service conditions based on testing manufacturer's standard units according to ASTM E 1592 by a qualified independent testing and inspecting agency.
 - 1. Design Loads: All roofing panels and system shall be signed and sealed by a State of Florida registered Structural Engineer for a Ultimate Wind Speed VULT = 170 (Normal Wind Speed VASD = 132, Exposure D – Risk Category II, as per 5th Edition Florida Building Code 2014, Section 1609.
 - 2. Maximum Deflection: 1/180 of span.

1.3 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Shop Drawings: Include plans, sections, details of installation, and attachments to other Work.
 - 1. Verify location of structural members and openings in substrates by field measurements before fabrication and indicate measurements on Shop Drawings.
 - 2. Include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Samples: For each exposed finish and for each color and texture required.
- D. Product test reports.

1.4 QUALITY ASSURANCE

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- A. Fire-Test-Response Characteristics: Where indicated, provide products identical to those tested for fire resistance per ASTM E 119 by a testing agency acceptable to authorities having jurisdiction.
1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another testing and inspecting agency.
 2. Identify products with appropriate markings of applicable testing and inspecting agency.

1.5 WARRANTY

- A. Special Weathertight Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace roof panels that fail to remain weathertight with a "No Dollar Limit" (Level 4) in 20 years from date of Substantial Completion.
- B. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair finish or replace roof panels that show evidence of finish deterioration within 20 years from date of Substantial Completion. Deterioration of finish includes, but is not limited to, color fade, chalking, cracking, peeling, and loss of film integrity.

PART 2 - PRODUCTS

2.1 UNINSULATED ROOF PANELS

- A. Standing-Seam Assembly: Factory-formed, standing-seam roof panel assembly designed for concealed mechanical attachment of panels to roof deck.
1. Clips: Minimum 0.0625-inch thick, stainless-steel panel clips designed to meet negative-load requirements.
 2. Cleats: Mechanically seamed cleats formed from minimum 0.0250-inch thick, stainless-steel or nylon-coated aluminum sheets.
- B. Aluminum Roof Panels: Uninsulated, fabricated from aluminum sheet, ASTM B 209 for alclad alloy 3003 or 3004, with temper as required to suit forming operations.
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Englert, Inc. – "Series, 2500" (Provide 90 deg mechanical seams) or approved equal.
 2. Surface: Smooth.
 3. Thickness: 0.040 inch.
 - a. Organic Coating: Organic Coating: Kynar 500 Fluoropolymer, two-coat, thermocured system with fluoropolymer coat containing not less than 70 percent polyvinylidene fluoride resin by weight.
 - b. Color: As selected from manufacturer's full range.
 - c. Furnish appropriate air-drying spray finish in matching color for touchup.

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2.2 UNDERLAYMENT MATERIALS

- A. Self-Adhering, Polymer-Modified, Bituminous Sheet Underlayment: ASTM D 1970, minimum of 40 mils thick. Provide primer when recommended by underlayment manufacturer.
- B. Products: 'Englert' Metalman HT, Self-Adhering underlayment Membrane.

2.3 MISCELLANEOUS MATERIALS

- A. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads.
 - 1. Exterior Fasteners: Aluminum.
 - 2. Exposed Fasteners: With heads matching color of panel by means of plastic caps or factory-applied coating.
 - a. Provide metal-backed neoprene washers under heads of exposed fasteners bearing on weather side of panels.
 - b. Locate and space exposed fasteners in true vertical and horizontal alignment. Obtain controlled uniform compression for positive seal without rupture of neoprene washer.
- B. Accessories: Components required for complete roof panel assembly including trim, copings, fasciae, mullions, sills, corner units, ridge closures, clips, seam covers, battens, flashings, gutters, sealants, gaskets, fillers, closure strips, and similar items. Match materials and finishes of panels.
 - 1. Closure Strips: Closed-cell, self-extinguishing, expanded, cellular, rubber or crosslinked, polyolefin-foam flexible closure strips. Cut or premold to match configuration of panels. Provide closure strips necessary to ensure weathertight construction.
 - 2. Sealing Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound with release paper backing; permanently elastic, nonsag, nontoxic, and nonstaining.
 - 3. Elastomeric Joint Sealant: ASTM C 920, of base polymer, type, grade, class, and use classifications required to seal joints in panel roofing and remain weathertight and recommended by panel manufacturer.
- C. Bituminous Coating: SSPC-Paint 12, cold-applied asphalt mastic compounded for 15-mil dry film thickness per coat that is inert, noncorrosive, and free of asbestos fibers, sulfur components, and other deleterious impurities.

2.4 FABRICATION

- A. General: Fabricate and finish panels and accessories at the factory to greatest extent possible.
- B. Panel Joints:
 - 1. Fabricate to form weathertight seals.
 - 2. Fabricate for installation in a manner that prevents metal-to-metal contact and minimizes noise from movements within panel assembly.

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PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Coordinate metal panel roofing with rain drainage work; flashing; trim; and construction of decks, walls, and other adjoining work to provide leakproof, secure, and noncorrosive installation.
- B. Panel Installation: Anchor securely in place with provisions for thermal and structural movement.
1. Field cutting exterior panels by torch is not permitted.
 2. Install panels with concealed fasteners, prefinished to match panel finishes.
 3. Install panels over solid substrate.
 - a. Install felt on roof deck and self-adhering underlayment membrane over felt, under metal panels. Use adhesive for temporary anchorage, where possible, to minimize use of mechanical fasteners under metal panels.
 - b. Install felt from lower edge up, with at least 3-inch side laps and 4-inch end laps.
 4. Coat back side of metal panels with bituminous coating where it will contact wood, ferrous metal, or cementitious construction.
- C. Accessories: Install components required for complete roof panel assembly.
1. Separate dissimilar metals by painting each metal surface in area of contact with a bituminous coating, by applying rubberized-asphalt underlayment to each metal surface, or by other permanent separation as recommended by manufacturers of dissimilar metals.
- D. Joint Sealers: Install gaskets, joint fillers, and sealants as required for weatherproof performance of panel assemblies.
1. Install weatherseal under ridge cap. Flash and seal panels at eave and rake with rubber, neoprene, or other closures to exclude weather.
 2. Seal panel end laps with double beads of tape or sealant, full width of panel. Seal side joints where recommended by panel manufacturer.
 3. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."
- E. Standing-Seam Roof Panel Assembly: Fasten panels to supports with concealed clip.
1. Install clips at each support with self-drilling/self-tapping fasteners.
 2. At end laps of panels, install sealant tape between panels.
 3. Install factory-sealed cleats at standing-seam joints. Apply snap-on batten to panels to provide weathertight joint.
 4. Seaming: Complete seaming of panel joints by operating portable power-driven equipment of type recommended by panel manufacturer to provide weathertight joint.
- F. Cleaning: Remove temporary protective coverings and strippable films, if any, as soon as each panel is installed. After completing panel installation, clean finished surfaces as recommended by panel manufacturer and maintain in clean condition during construction.

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SECTION 07460 - SIDING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Fiber cement lap siding, trim, moulding and accessories.
- B. Pre-finished fiber cement lap siding, trim, moulding and accessories.

1.2 RELATED SECTIONS

- A. Section 05400 – Light Gage Metal Framing: Wall framing and bracing.
- B. Section 09912 – Painting.

1.3 SUBMITTALS

- A. Submit under provisions of Front End Specifications.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings: Provide detailed drawings of atypical non-standard applications of cementitious siding materials which are outside the scope of the standard details and specifications provided by the manufacturer.
- D. Verification Samples: For each finish product specified, two samples, minimum size 4 by 6 inches, representing actual product, color, and patterns.

1.4 PERFORMANCE REQUIREMENTS

- 1) Design Loads: Ultimate Wind Speed VULT = 170 (Normal Wind Speed VASD = 132, Exposure D – Risk Category II, as per 5th Edition Florida Building Code 2014, Section 1609.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Minimum of 2 years experience with installation of similar products.
- B. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.

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3. Refinish mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store siding on edge or lay flat on a smooth level surface. Protect edges and corners from chipping. Store sheets under cover and keep dry prior to installing.
- C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 WARRANTY

- A. Product Warranty: Limited product warranty against manufacturing defects.
 1. HardiePlank lap, vertical siding for 50 years.
 2. HardieTrim for 10 years.
- B. Finish Warranty: Limited product warranty against manufacturing finish defects.
 1. When used for its intended purpose, properly installed and maintained according to Manufacturers published installation instructions, Manufacturers standard color finish, for a period of 15 years from the date of purchase: will not peel; will not crack; and will not chip. Finish warranty covers the cost of labor and material.
- C. Workmanship Warranty: Application limited warranty for 2 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: James Hardie Building Products, Inc; or approved equal.
- B. Requests for approval of equal substitutions will be considered in accordance with provisions of Front End Specifications.

2.2 SIDING

- A. Code Compliance Requirement for Materials:
 1. Florida Product Approval
 2. Metro Dade County, Florida Acceptance

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3. Non-asbestos fiber-cement siding where required to be non-combustible shall be tested in accordance with ASTM E136.
- B. Lap Siding: Hardieplank as manufactured by James Hardie Building Products, Inc.
 1. Type: Smooth 6-1/4 inches with 5 inches exposure.
- C. Trim: Hardietrim and Moulding as manufactured by James Hardie Building Products, Inc.

2.3 FASTENERS

- A. Metal Framing:
 1. Metal framing: 1 inch No. 8-18 by 0.311 inch head self-drilling, corrosion resistant S-12 ribbed buglehead screws.
 2. Concrete Walls: Erica Stud Nail, ET&F ASM No.-144-125, 0.14 inch shank by 0.30 inch head by 2 inches corrosion resistant nail.

2.4 FINISHES

- A. Factory Primer: Provide factory applied universal primer.
 1. Primer: PrimePlus by James Hardie.
 2. Topcoat: Refer to Section 09912 and Exterior Finish Schedule.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If framing preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Include the use of water-resistive barriers or vapor barriers where required. Minimum 1-1/2 inches (38 mm) face and straight, true, of uniform dimensions and properly aligned.
 1. Install water-resistive barriers and claddings to dry surfaces.
 2. Repair any punctures or tears in the water-resistive barrier prior to the installation of the siding.
 3. Protect siding from other trades.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

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3.3 INSTALLATION - HARDIEPLANK SIDING

- A. Install materials in strict accordance with manufacturer's installation instructions.
- B. Starting: Install a minimum 1/4 inch thick lath starter strip at the bottom course of the wall. Apply planks horizontally with minimum 1-1/4 inches wide laps at the top. The bottom edge of the first plank overlaps the starter strip.
- C. Allow minimum vertical clearance between the edge of siding and any other material in strict accordance with the manufacturer's installation instructions.
- D. Align vertical joints of the planks over framing members.
- E. Maintain clearance between siding and adjacent finished grade.
- F. Wind Resistance: All siding and systems shall be signed and sealed for a wind velocity of 140 MPH, exposure B - importance factor of 1.1, as per Florida Building Code 2004-2006 and 2007 Amendments, Section 1609.
- G. Locate splices at least 12 inches away from window and door openings.

3.4 INSTALLATION - HARDIEPANEL SIDING

- A. Install materials in strict accordance with manufacturer's installation instructions.
- B. Block framing between studs where Hardiepanel siding horizontal joints occur.
- C. Place fasteners no closer than 3/8 inch from panel edges and 2 inches from panel corners.
- D. Allow minimum vertical clearance between the edge of siding and any other material in strict accordance with the manufacturer's installation instructions.
- E. Maintain clearance between siding and adjacent finished grade.
- F. Specific framing and fastener requirements refer to Tables 2 and 3 in National Evaluation Service Report No. NER-405.

3.5 INSTALLATION - HARDIETRIM AND MOULDING

- A. Install materials in strict accordance with manufacturer's installation instructions. Install flashing around all wall openings.
- B. Fasten through trim into structural framing or code complying sheathing. Fasteners must penetrate minimum 3/4 inch or full thickness of sheathing. Additional fasteners may be required to ensure adequate security.

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- C. Place fasteners no closer than 3/4 inch and no further than 2 inches from side edge of trim board and no closer than 1 inch from end. Fasten maximum 16 inches on center.
- D. Maintain clearance between trim and adjacent finished grade.
- E. Trim inside corner with single board.
- F. Outside Corner Board: For 3/4 inch trim only. Install single board of outside corner board then align second corner board to outside edge of first corner board. Do not fasten Hardietrim board to Hardietrim board.
- G. Allow 1/8 inch gap between trim and siding.
- H. Seal gap with high quality, paint-able caulk.
- I. Shim frieze board as required to align with corner trim.
- J. Overlay siding with Hardietrim moulding at windows, doors and inside corners.
- K. Fasten through overlapping boards. Do not nail between lap joints.
- L. Overlay siding with single board of outside corner board then align second corner board to outside edge of first corner board. Do not fasten Hardietrim boards to Hardietrim boards.

3.6 FINISHING

- A. Finish factory primed siding with a minimum of one coat of high quality 100 percent acrylic or latex or oil based exterior grade paint within 180 days of installation. Follow paint manufacturer's written product recommendation and written application instructions.

3.7 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

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SECTION 07620 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes sheet metal flashing and trim for the following:

1. Exposed trim, roof edge, and fasciae.
2. Metal flashing.
3. Sheet metal accessories.

1.2 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other Work.
- C. Samples: For each exposed finish.

PART 2 - PRODUCTS

2.1 METALS

- A. Aluminum: Alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated and with not less than the strength and durability of alloy and temper indicated.
1. Factory-Painted Aluminum Sheet: ASTM B 209 (ASTM B 209M) ASTM B 209, alloy 3003-H14, with a minimum thickness of 0.040 inch for primary legs of extrusions that are anodized.
 2. Extruded Aluminum: ASTM B 22, alloy 6063-T52, with a minimum thickness of 0.040 inch for primary legs of extrusions that are anodized.

2.2 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Fasteners: Same metal as sheet metal flashing or other non-corrosive metal as recommended by sheet metal manufacturer. Match finish of exposed heads with material being fastened.
- C. Asphalt Mastic: SSPC-Paint 12, solvent-type, nominally free of sulfur and containing no asbestos fibers, compounded for 15-mil dry film thickness per coat.
- D. Mastic Sealant: Polyisobutylene; non-hardening, non-skinning, non-drying, non-migrating sealant.
- E. Elastomeric Sealant: As recommended by sheet metal manufacturer and fabricator of components being sealed and complying with requirements specified in Division 7 Section "Joint Sealants."
- F. Epoxy Seam Sealer: Two-part, non-corrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior and interior nonmoving joints, including riveted joints.

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- G. Adhesives: Type recommended by flashing sheet metal manufacturer for waterproof and weather-resistant seaming and adhesive application of flashing sheet metal.
- H. Paper Slip Sheet: 5-lb/square (0.244 kg/sq. m) 5-lb/square red rosin, sized building paper, FS UU-B-790, Type I, Style 1b.
- I. Polyethylene Underlayment: ASTM D 4397, minimum 6-mil thick black polyethylene film, resistant to decay when tested according to ASTM E 154.
- J. Metal Accessories: Sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work, matching or compatible with material being installed; non-corrosive; size and thickness required for performance.
- K. Roofing Cement: ASTM D 4586, Type I, asbestos free, asphalt based.

2.3 FABRICATION, GENERAL

- A. Sheet Metal Fabrication Standard: Fabricate units to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, material, metal thickness, and other characteristics of item indicated.
- B. Fabricate units that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- C. Form exposed sheet metal without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.
- D. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- E. Seams: Fabricate nonmoving seams in aluminum with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
- F. Expansion Provisions: Space movement joints at maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).
- G. Sealed Joints: Form non-expansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
- H. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphalt mastic or other permanent separation as recommended by manufacturer.
- I. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of sheet metal exposed to public view.
- J. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, non-corrosive metal recommended by sheet metal manufacturer.

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1. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but not less than thickness of metal being secured.
- K. Aluminum Extrusion Units: Fabricate with formed or extruded-aluminum joint covers for installation behind main members where possible. Fabricate mitered and welded corner units.
- 2.4 ALUMINUM FINISHES
- A. High-Performance Organic Coating Finish: Fluoropolymer two-coat system with fluoropolymer coat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 605.2.
1. Color and Gloss: Match existing - as selected from manufacturer's full range, submit to Architect and Owner for approval prior to ordering.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General:
1. Unless otherwise indicated, install sheet metal flashing and trim to comply with performance requirements, manufacturer's installation instructions, and SMACNA's "Architectural Sheet Metal Manual."
 2. Anchor units of Work securely in place, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install Work with laps, joints, and seams that will be permanently watertight and weatherproof.
- B. Install exposed units that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
- C. Install units to fit substrates and to result in waterproof and weather-resistant performance.
- D. Expansion Provisions: Accommodate thermal expansion of exposed sheet metal. Space movement joints at maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).
- F. Sealed Joints: Form non-expansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards. Fill joint with sealant and form metal to completely conceal sealant.
1. Use joint adhesive for nonmoving joints specified not to be soldered.
- G. Seams: Install flat-lock seams at nonmoving seams. Tin edges to be seamed, form seams, and solder.

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- H. Seams: Install flat-lock seams at nonmoving seams in aluminum. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
- I. Separations: Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.
 - 1. Underlayment: Where installing stainless steel or aluminum directly on cementitious or wood substrates, install slip sheet of red-rosin paper and course of polyethylene underlayment.
 - 2. Bed flanges of Work in thick coat of roofing cement where required for waterproof performance.
- J. Counterflashings: Coordinate installation of counterflashings with installation of assemblies to be protected by counterflashing. Install counterflashings in reglets or receivers. Secure in a waterproof manner by means of snap-in installation and sealant, lead wedges and sealant, interlocking folded seam, or blind rivets and sealant. Lap counterflashing joints a minimum of 2 inches and bed with sealant.
- K. Roof-Penetration Flashing: Coordinate roof-penetration flashing installation with roofing and installation of items penetrating roof. Install flashing as follows:
 - 1. Turn lead flashing down inside vent piping, being careful not to block vent piping with flashing.
 - 2. Seal and clamp flashing to pipes penetrating roof, other than lead flashing on vent piping.
- L. Immediately after installation, clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.

END OF SECTION 07620

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SECTION 07920 – JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes sealants for the following:
1. Exterior joints in vertical surfaces and nontraffic horizontal surfaces.
 2. Exterior joints in horizontal traffic surfaces.
 3. Interior joints in vertical surfaces and horizontal nontraffic surfaces.
 4. Interior joints in horizontal traffic surfaces.

1.2 SUBMITTALS

- A. Product Data: For each joint sealant product indicated.
- B. Samples: For each joint sealant product indicated.

1.3 QUALITY ASSURANCE

- A. Comply with governing code and regulations. Provide products of acceptable manufacturers that have been in satisfactory use in similar service for three years. Use experienced waterproofing installers. Deliver, handle and store materials according to manufacturers written instructions.

1.4 WARRANTY

- A. Special Installer's Warranty: Written warranty in which Installer agrees to repair or replace elastomeric joint sealants that do not meet requirements specified in this Section or fail in adhesion within specified warranty period two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with requirements specified in this Section within 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified.
 2. Products: Subject to compliance with requirements, provide one of the products specified.

2.2 MATERIALS, GENERAL

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- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. Colors of Exposed Joint Sealants: Match color of adjacent materials.

2.3 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealants, General: ASTM C 920.
 - 1. Continuous-Immersion Sealants: For immersion in water, products tested according to ASTM C 1247, including initial six-week immersion period and one additional immersion four-week immersion period(s), without failing in adhesion or cohesion when tested with substrates indicated.
- B. Mildew-Resistant Silicone Sealant:
 - 1. Products:
 - a. Pecora Corporation; 898 Silicone Sanitary Sealant.
 - b. Tremco; Tremsil 600 White.
 - 2. Type and Grade: S (single component) and NS (nonsag).
- C. Multicomponent Pourable Urethane Sealant:
 - 1. Products:
 - a. Mameco International; Vulkem 245.
 - b. Sonneborn Building Products Div., ChemRex Inc.; SL 2.
 - c. Tremco; THC-900.
- D. Single-Component Nonsag Urethane Sealant:
 - 1. For joints subject to traffic and not subject to traffic, provide the following:
 - a. Products:
 - 1. Mameco International; Vulkem 116.
 - 2. Sika Corporation; Sikaflex - 1a.
 - 3. Sonneborn Building Products Div., ChemRex Inc.; NP 1.
 - b. Type and Grade: S (single component) and NS (nonsag).
 - c. Class: 25.
 - 2. Exposure: Use T (traffic) and NT (nontraffic).
 - 3. Substrates: Uses M, A, and, as applicable to joint substrates indicated, O.
 - 4. For joints not subject to traffic, provide the following:

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- a. Products:
 - 1. Mameco International; Vulkem 921.
 - 2. Pecora Corporation; Dynatrol I.
 - 3. Tremco; DyMonic.
- b. Type and Grade: S (single component) and NS (nonsag).
- c. Class: 25.
- d. Exposure: Use NT (nontraffic).

2.4 LATEX JOINT SEALANTS

- A. Latex Sealant: ASTM C 834.
 - 1. Products:
 - a. Pecora Corporation; AC-20.
 - b. Sonneborn Building Products Div., ChemRex, Inc.; Sonolac.
 - c. Tremco; Tremflex 834.

2.6 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
 - 1. Products:
 - a. Pecora Corporation; AC-20 FTR Acoustical and Insulation Sealant.
 - b. USG Corp., United States Gypsum Co.; SHEETROCK Acoustical Sealant.
- B. Acoustical Sealant for Concealed Joints: Nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission.
 - 1. Products:
 - a. Pecora Corporation; BA-98.
 - b. Tremco; Tremco Acoustical Sealant.

2.7 PREFORMED JOINT SEALANTS

- A. Preformed Silicone-Sealant System: Precured low-modulus silicone extrusion, in sizes to fit joint widths indicated, combined with a neutral-curing silicone sealant for bonding extrusions to substrates.
 - 1. Products:
 - a. Dow Corning; 123 Silicone Seal.

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b. Pecora Corporation; Sil-Span.

2.8 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
 - 1. Type: C (closed-cell material with a surface skin).
- C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg. F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.
- D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.9 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants.
 - 1. Remove foreign material from joint substrates that could interfere with adhesion of joint sealant.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.

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3. Remove laitance and form-release agents from concrete.
 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues could interfere with adhesion of joint sealants.
- B. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.
- D. Sealant Installation: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- E. Acoustical Sealant Installation: Comply with recommendations in ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.
- F. Install sealant backings to support sealants during application and at position required to produce optimum sealant movement capability.
1. Do not leave gaps between ends of sealant backings.
 2. Do not stretch, twist, puncture, or tear sealant backings.
 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- G. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.
- H. Place sealants so they directly contact and fully wet joint substrates.
1. Completely fill recesses provided for each joint configuration.
 2. Produce uniform, cross-sectional shapes and depths that allow optimum sealant movement capability.
- I. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint.
1. Remove excess sealants from surfaces adjacent to joint.
 2. Use tooling agents that are approved by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 3. Joint Configuration: Concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
- J. Installation of Preformed Silicone-Sealant System:
1. Apply masking tape to each side of joint, outside of area to be covered by sealant system.

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2. Complete installation of horizontal joints before installing vertical joints. Lap vertical joints over horizontal joints. At end of joints, cut silicone extrusion with a razor knife.
- K. Clean excess sealants or sealant smears adjacent to joints as installation progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.2 JOINT SEALANT SCHEDULE

- A. Exterior joints in the following vertical surfaces and nontraffic horizontal surfaces:
1. Control and Expansion Joints in Cast-in-Place Concrete: Multi-Part Pourable Urethane Sealant.
 2. Control and Expansion Joints in Unit Masonry: One-Part Urethane Sealant.
 3. Joints between Metal Panels: One-Part Acid Curing Silicone Sealant.
 4. Perimeter Joints between Materials Listed above and Frames of Doors and Windows: Acrylic-Emulsion Sealant.
 5. Interior Joints in vertical surfaces of ceramic tile in toilet rooms: One-Part Mildew-Resistant Silicone Sealant.
- B. Exterior joints in the following horizontal traffic surfaces: Control, Expansion, and Isolation Joints in Cast-in-Place Concrete Slabs: Preformed Silicone-Sealant System.
- C. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
1. Control and Expansion Joints on Exposed Interior Surfaces of Exterior Walls: One-Part Sealant Urethane Sealant.
 2. Perimeter Joints of Exterior Openings Where Indicated: One-Part Sealant Urethane Sealant.
 3. Perimeter Joints between Interior Wall Surfaces and Frames of Interior Doors, Windows, and Elevator Entrances: Acrylic-Emulsion Sealant.
 4. Joints between plumbing fixtures and Adjoining Walls, Floors and Counters: One-Part Mildew-Resistant Silicone Sealant.
- D. Interior joints in the following horizontal traffic surfaces: Control and Expansion Joints in Cast-in-Place Concrete Slabs: Multi-Part Pourable Urethane Sealant.

END OF SECTION