

SECTION 07 21 00

INSULATION

PART 1: GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

- A. Section includes product specification of the following:
 - 1. Vapor barriers used under slab.
 - 2. Building wrap used primarily over wood exterior sheathing.
- B. Installation of insulation specified in other sections:
 - 1. Rough Carpentry – Section 06 10 00
 - 2. Carpentry – Section 06 10 53

1.03 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver material to the site in unopened packages, with identification labels intact.
- B. Store under water-resistant cover and protect from weather and direct sunlight.
- C. Remove damaged materials from site.

1.04 ENVIRONMENTAL REQUIREMENTS

- A. Do not install rigid insulation (on vertical surfaces with adhesive) when temperature is below 40° F., during rain or wet weather, or when surfaces are wet.

1.05 SCHEDULING

- A. Coordinate installation with other trades whose work may be affected or have effect.

PART 2: PRODUCTS

2.01 MATERIALS

- A. Vapor Barriers:
 - 1. Walls: Glass reinforced or laminated polyethylene sheet, minimum perm rating, 0.1 when tested in accordance with ASTM-E96, Procedure A.
 - a. Manufacturers/Products: Fortifiber "Moistop", Rufco SS-300, Glas-Krafat, inc.
 - b. Vapor Barrier Tape: Compatible polyethylene self adhesive tape recommended by vapor barrier manufacturer.
 - c. Adhesive: Manufacturers vapor-proofing mastic.

2. Under Floor Slabs: Meet requirements of ASTM E1745 Class A.
 - a. Materials: Meets Class A, 15 mil minimum thickness polyolefin geomembrane,
 - 1) Water vapor transmission rate per ASTM E96 of 0.008 grains/sf/hr WVTR or lower
 - 2) Maintain permeance rating of less than 0.01 perms per ASTM F 1249 after mandatory conditioning tests per ASTM E 154 Sections 8, 11, 12 and 13.
 - 3) Puncture resistance of 2200 grams when tested in accordance with ASTM D 1709.
 - 4) Tensile strengths of 75 lbf./in. when tested in accordance with ASTM D 882.
 - b. Only the following manufacturers/products are acceptable (no substitutions):
 - 1) Stego Industries / Stego Wrap Vapor Barrier (15 mil).
 - 2) Reef Industries / Vaporguard.
 - 3) Fortifiber Building Group / Moistop Ultra 15 mil.
3. Vapor Barrier Accessories:
 - b. Seam tape and vapor proofing mastic conforming to the following property and as recommended by vapor barrier manufacturer:
 - 1) Water Vapor Transmission Rate per ASTM E96 or ASTM F1249: 0.3 perms or lower.
 - c. Pipe boots constructed from vapor barrier material, pressure sensitive tape and/or mastic per manufacturer's instructions.

B. Building Wrap:

1. Tyvek Commercial "D" Wrap by E.I. duPont Company, Wilmington, DE or equal.
2. High Performance Spunbonded olefin, non-woven, non-perforated with the following performance characteristics:
 - a. Air Penetration: Type 1 when tested in accordance with ASTM E 1677.
 - b. Water Vapor Transmission: 30 perms, when tested in accordance with ASTM E96, Method B.
 - c. Water Penetration Resistance: 235 cm when tested in accordance with AATCC Test Method 127.
 - d. Basis Weight: 2.4 oz/yd², when tested in accordance with TAPPI Test Method T-410.
 - e. Air Infiltration Resistance: Air infiltration at >750 seconds, when tested in accordance with TAPPI Test Method T-460.
 - f. Tensile Strength: 33/41 lbs/in., when tested in accordance with ASTM D 822, Method A.
 - g. Tear Resistant (Trapezoid) 6/9 lbs when tested in accordance with ASTM D1117.
 - h. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E 84. Flame Spread: 15, Smoke Developed: 25.
 - i. UV Exposure: Up to 270 days/9 months without harming performance characteristics.
3. Seam Tape: 3" DuPont™ Tyvek® Tape.
4. Fasteners, adhesive and sealants as recommended by building wrap manufacturer.

PART 3: EXECUTION

3.01 INSTALLATION

- A. Refer to specific specification sections for installation.

END OF SECTION 07 21 00

SECTION 07 46 13

CEMENT BOARD SIDING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:

1. Fiber-cement board siding.
2. Building wrap over exterior sheathing.

B. Related Sections:

1. Division 06 Section "Rough Carpentry" for wood furring, grounds, nailers, and blocking.
2. Division 06 Section "Sheathing" for wall sheathing and weather-resistive barriers.
3. Division 06 Section "Exterior Finish Carpentry" for wood and wood-based sidings and for exterior trim.

1.03 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For siding and soffit including related accessories.
- C. Samples for Verification: For each type, color, texture, and pattern required.
1. 12-inch long-by-actual-width Sample of siding.
 2. 12-inch long-by-actual-width Sample of soffit.
 3. 12-inch long-by-actual-width Samples of trim and accessories.
- D. Product Certificates: For each type of siding and soffit from manufacturer.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for fiber-cement siding.
- F. Maintenance Data: For each type of siding and soffit and related accessories to include in maintenance manuals.
- G. Warranty: Sample of special warranty.

1.04 QUALITY ASSURANCE

- A. Labeling: Provide fiber-cement siding that is tested and labeled according to ASTM C 1186 by a qualified testing agency acceptable to authorities having jurisdiction.

- B. Source Limitations: Obtain [each type, color, texture, and pattern of] [siding] [and] [soffit], including related accessories, from single source from single manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Store materials in a dry, well-ventilated, weathertight place.

1.06 COORDINATION

- A. Coordinate installation with flashings and other adjoining construction to ensure proper sequencing.

1.07 WARRANTY

- A. Special Warranty: Standard form in which manufacturer agrees to repair or replace siding and soffit that fail(s) in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
 - a. Structural failures including cracking, deforming, and fading.
 2. Fading is defined as loss of color, after cleaning with product recommended by manufacturer, of more than 5 Hunter color-difference units as measured according to ASTM D 2244.
 3. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 FIBER-CEMENT SIDING

- A. General: ASTM C 1186, Type A, Grade II, fiber-cement board, noncombustible when tested according to ASTM E 136; with a flame-spread index of 25 or less when tested according to ASTM E 84.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 2. Basis-of-Design Product: Subject to compliance with requirements, provide product by one of the following:
 - a. Cemplank.
 - b. CertainTeed Corp.
 - c. GAF Materials Corporation.
 - d. James Hardie.
 - e. MaxiTile, Inc; a California corporation.
 - f. Nichiha Fiber Cement.
 3. Horizontal Pattern: Boards 7 1/4" to 7 1/2" wide in plain style.
 - a. Texture: Wood grain.
- B. Building Wrap:
1. Tyvek Commercial "D" Wrap by E.I. duPont Company, Wilmington, DE or equal.
 2. High Performance Spunbonded olefin, non-woven, non-perforated with the following performance characteristics:
 - a. Air Penetration: Type 1 when tested in accordance with ASTM E 1677.
 - b. Water Vapor Transmission: 30 perms, when tested in accordance with ASTM E96, Method B.
 - c. Water Penetration Resistance: 235 cm when tested in accordance with AATCC Test Method 127.
 - d. Basis Weight: 2.4 oz/yd², when tested in accordance with TAPPI Test Method T-410.

- e. Air Infiltration Resistance: Air infiltration at >750 seconds, when tested in accordance with TAPPI Test Method T-460.
 - f. Tensile Strength: 33/41 lbs/in., when tested in accordance with ASTM D 822, Method A.
 - g. Tear Resistant (Trapezoid) 6/9 lbs when tested in accordance with ASTM D1117.
 - h. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E 84. Flame Spread: 15, Smoke Developed: 25.
 - i. UV Exposure: Up to 270 days/9 months without harming performance characteristics.
3. Seam Tape: 3" DuPont™ Tyvek® Tape.
4. Fasteners, adhesive and sealants as recommended by building wrap manufacturer.

2.02 ACCESSORIES

- A. Siding Accessories, General: Provide starter strips, edge trim, outside and inside corner caps, and other items as recommended by siding manufacturer for building configuration.
- 1. Provide accessories made from same material as and matching color and texture of adjacent siding unless otherwise indicated.
- B. Flashing: Provide aluminum flashing complying with Division 07 Section "Sheet Metal Flashing and Trim" at window and door heads and where indicated.
- 1. Finish for Aluminum Flashing: Siliconized polyester coating, same color as siding.
- C. Fasteners:
- 1. For fastening to wood, use ribbed bugle-head screws of sufficient length to penetrate a minimum of 1 inch into substrate.
 - 2. For fastening to metal, use ribbed bugle-head screws of sufficient length to penetrate a minimum of 1/4 inch (6 mm), or three screw-threads, into substrate.
 - 3. For fastening fiber cement, use stainless-steel fasteners.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of siding and related accessories.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.

3.03 INSTALLATION

- A. General: Comply with siding manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
- 1. Do not install damaged components.
 - 2. Center nails in elongated nailing slots without binding siding to allow for thermal movement.

B. Install fiber-cement siding and related accessories.

1. Install fasteners no more than 24 inches o.c.

C. Install joint sealants as specified in Division 07 Section "Joint Sealants" and to produce a weathertight installation.

3.04 ADJUSTING AND CLEANING

A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.

B. Clean finished surfaces according to manufacturer's written instructions and maintain in a clean condition during construction.

END OF SECTION 07 46 13

SECTION 07 61 13

SHEET METAL ROOFING

PART 1: GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

- A. Section includes:
 - 1. Standing Seam Sheet Metal roofing system and membrane underlayment.
 - 2. Sheet metal gutters and downspouts.
 - 3. Flush Seam Metal wall panel system and soffit system.
 - 4. Flashings, clips, fasteners, closure and sealants as required.
 - 5. Snow retention system for standing seam sheet metal roofing.
- B. Related work specified elsewhere:
 - 1. Wood blocking, nailers - Section 06 10 53.
 - 2. Steel decking - Section 05 30 00.
 - 3. Division 7 - Section "Roofing".
 - 4. Caulking and Sealants - Section 07 92 00.

1.03 QUALITY ASSURANCE

- A. Manufacturer's Qualification: Ten years' minimum experience in factory fabrication of snap-on batten seam roofs.
- B. Fabricator/installer shall be acceptable to metal panel manufacturer.
- C. When possible, field measurements should be taken prior to completion of shop manufacturing and finishing.
- D. Roof system required to be designed/installed to UL 90 wind-uplift tests.

1.04 REFERENCES

- A. American Society for Testing and Materials:
 - 1. A446-83: Specification for Sheet Steel, Zinc-Coated (Galvanized) by the Hot-Dip Process.
 - 2. B117: Method of Salt Spray (Fog) Testing
 - 3. D714: Test Method for Evaluating Degree of Blistering Paints
- B. Federal Test Method Standard (FSC 8010)
 - 1. 141A/6160: Conducting Exterior Exposure Tests of Paint on Metal.

1.05 SUBMITTALS

A. Submit in accordance with Section 01330.

1. Shop Drawings:

- a. Submit shop drawings indicating thickness and dimensions of parts, fastenings, and anchoring methods, details and locations of joints, transitions and other provisions necessary for thermal expansion and contraction.
- b. Indicate roof terminations, clearly showing flashings and change of direction caps.
- c. Clearly indicate locations of field applied sealant.
- d. Show locations and types of hold-down clips and fasteners.
- e. Provide plan showing layout of entire roof.

2. Samples:

- a. Submit two samples, 12" long x full width panel for standing seam and flush seam panels, showing proposed metal gauge, profile and required finish.
- b. Submit standard color samples on metal for Architect's selection.

1.06 DELIVERY, STORAGE AND HANDLING

A. Protect products and accessories from damage and discoloration during transit and at project site. Store sheets and components in dry storage area to prevent condensation.

1.07 WARRANTY

A. Furnish manufacturer's standard 20-year warranty stating architectural fluorocarbon finish will be:

1. Free of fading or color change in excess of 6 NBS units as measured per ASTM D 2244-68.
2. Will not chalk in excess of numerical rating of 7 when measured in accordance with standard procedures specified in ASTM D 659-74.
3. Will not peel, crack, chip or delaminate.

B. Furnish written warranty signed by applicator for two-year period from date of substantial completion of building covering repairs required to maintain roof and flashing in watertight condition.

C. Submit per Section 01740.

PART 2: PRODUCTS

2.01 MANUFACTURER

A. Products as manufactured by Firestone Building Products/UNACLAD is specified. Peterson Aluminum, Berridge Manufacturing and AEP-SPAN are acceptable subject to conformance to details and color match.

1. Standing Seam Sheet Metal Roofing Panel System: Una-Clad UC-1 Standing Seam Roof Panels.
 - a. Panels: Prefinished 24 gauge hot-dipped galvanized steel conforming to AISA-G90 extra smooth minimum spangle.
 - 1) Standing Seam Height: 1½” to 2”.
 - 2) Seam Spacing: 13” to 16½” depending on manufacturer.
 - b. Clip/Fastener Assemblies:
 - 1) Standard Clip: 24-gauge steel with gusseted base to enhance bending resistance.
 - 2) Nailable Substrate Fasteners: #10-12 x 1” long A-point fastener, pancake head Phillips drive screws for plywood; non-corrosive base material.
 - c. Finish: with Fluorocarbon Coating:
 - 1) Full-strength 70% Kynar 500™ coating baked-on for 15 minutes at 450 degrees F to a dry film thickness of 1.0 mil.
 - 2) 30% reflective gloss (ASTM D 523).
 - 3) 0.3 mil baked-on epoxy primer.
 - 4) Color: See Material Finish/Color Schedule, on Architectural Drawings.
 - d. Accessories:
 - 1) Provide manufacturer’s standard accessories and other items essential to completeness of batten seam roof installation including anchor clips, trim, ridge and hip caps, closures, flashings and fascia.
 - 2) Form flashings from same gauge and finish as roof panels.
2. Flush Seam Metal Panel System (Metal Wall Panels and Metal Soffit Panels): Una-Clad UC-500 Flush Seam Panels.
 - a. Panels: Prefinished 24 gauge hot-dipped galvanized steel conforming to AISA-G90 extra smooth minimum spangle.
 - 1) Panel Width: 12”
 - b. Fasteners: Concealed, non-corrosive, 5/8” self-tapping sheet metal screws for securing to metal substrate.
 - c. Finish: with Fluorocarbon Coating:
 - 1) Full-strength 70% Kynar 500™ coating baked-on for 15 minutes at 450 degrees F to a dry film thickness of 1.0 mil.

- 2) 30% reflective gloss (ASTM D 523).
- 3) 0.3 mil baked-on epoxy primer.
- 4) Color: See Material Finish/Color Schedule, on Architectural Drawings.

2.02 ACCESSORIES

- A. Sealant: Color coordinated primerless silicone or high grade, non-drying butyl as recommended by manufacturer.
- B. Membrane Underlayment: Bituthene "Ice and Water Shield" by W.R. Grace Company or equal. Install under all sheet metal.
- C. Slip Sheet: No. 6 red rosin paper.
- D. Snow Retention System: Standing seam mount color bar rail system as manufactured by SnoBlox-SnoJax.
 1. Provide all necessary hardware, clamps, end caps and ice stoppers at each standing seam panel.
 2. Kynar color to match roofing panels.

2.03 FABRICATION

- A. Panels: Provide factory-formed panels in full lengths where possible.
- B. Battens: Provide full-length snap-on battens, where possible.
- C. Hanging Gutters: Join sections with riveted and soldered joints or with lapped joints sealed with sealant. Provide for thermal expansion. Attach gutters at eave or fascia to firmly anchored gutter brackets spaced not more than 36 inches apart. Provide end closures and seal watertight with sealant. Slope to downspouts.
- D. Downspouts: Join sections with 1-1/2 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. in between.
 2. Provide elbows at base of downspout to direct water away from building or connect downspouts to underground drainage system indicated.
- E. Engineer panels to use concealed anchors that permit expansion and contraction. Exposed fasteners in roofing panels will not be permitted.
- F. Fabricate cleats of same or compatible material, inter-lockable with sheet.
- G. Form sections true to shape, accurate in size, square, and free from distribution or manufacturing defects.

2.04 ROOF DRAINAGE SHEET METAL FABRICATIONS

- A. Hanging Gutters: Fabricate to cross section indicated, complete with end pieces, outlet tubes, and other accessories as required. Fabricate in minimum 96-inch long sections. Furnish flat-stock gutter spacers and gutter brackets fabricated from same metal as gutters, of size recommended by SMACNA but not less than twice the gutter thickness. Fabricate expansion joints, expansion-joint covers, and gutter accessories from same metal as gutters
 1. Expansion Joints: Contractor option for type.
 2. Accessories: Continuous removable leaf screen with sheet metal frame and hardware cloth screen.

3. Materials: Same as exposed sheet metal.
- B. Downspouts: Fabricate open-face downspouts complete with mitered elbows. Furnish with metal hangers, from same material as downspouts, and anchors. Size as recommended by SMACNA or as detailed.
1. Materials: Same as gutters or scuppers.

PART 3: EXECUTION

3.01 EXAMINATION

- A. Examine surfaces to be covered by sheet metal. Report any improper defective surfaces to Contractor, Construction Manager, or Architect in writing. Beginning of Sheet Metal Work over surfaces: Presumed as acceptance of surfaces as satisfactory by Sheet Metal Contractor.

3.02 INSTALLATION

- A. Membrane Underlayment: Install strictly according to manufacturer's printed instructions, immediately following installation of plywood sheathing or blocking. Do not allow insulation or sheathing to remain uncovered overnight. Insure that finished application is watertight.
- B. Slip Sheet: Install over membrane underlayment, immediately prior to installation of sheet metal. Lap edges 4" minimum.
- C. Sheet Metal Roofing:
1. Comply with manufacturer's instructions for assembly, installation and erection in order to achieve weather-tight installation. Install in accordance with approved shop drawings.
 2. Install sheet metal with lines, rises and angles sharp and true, and plane surfaces free from objectionable wave, warp, or buckle. Fold back exposed edges of sheet metal to form ½" wide hem on side concealed from view.
 3. Anchor component parts securely in place allowing for expansion and contraction resulting from thermal and structural movement. Provide expansion joints in sheet metal work at necessary intervals.
 4. Standing Seam System:
 - a. Install panels and seam covers in accordance with manufacturer's instructions and recommendations.
 - b. Anchor securely in place using clips and fasteners spaced in accordance with manufacturer's recommendations for design wind load criteria.
 - c. Fully seat adjacent panel to achieve continuous engagement of snap-on seam covers.
 - d. Make end cuts and install end caps, sealant and flashing to achieve weather-tight installation.
 5. Dissimilar Metals:
 - a. Where sheet metal is in contact with dissimilar metals, execute juncture to facilitate drainage and minimize possibility of galvanic action.
 - b. At point of contact with dissimilar metal, coat metal with protective paint or tape which can be placed between metals.

6. Field apply sealant to penetrations, transitions, and other locations necessary (not batten seam) for airtight, waterproof installation.

3.03 ADJUSTING, CLEANING AND PROTECTION

- A. Remove and replace panels damaged beyond repair.
- B. Repair panels with minor damage.
- C. Clean exposed panel surfaces promptly after installation in accordance with recommendations of panel and coating manufacturer.
- D. Removal and cleaning of ferrous or non-ferrous shavings is essential.
- E. Protect work as required to ensure roofing will be with damage at time of final completion.

END OF SECTION 07 61 13

SECTION 07 92 00

SEALANTS AND CAULKING

PART 1: GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

- A. Exterior colored sealants:
 - 1. Joints in masonry.
 - 2. Joints around hollow metal.
 - 3. Miscellaneous joints where “sealant” or “caulk/caulking” is indicated on drawings.

1.03 REFERENCES

- A. ASTM C 920 – Specification for Elastomeric Joint Sealants.
- B. ASTM C 1193 – Standard Guide for Use of Joint Sealants.

1.04 SUBMITTALS

- A. Submit in accordance with Section 01 33 00.
- 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 including joint design, surface preparation, and application instructions.
 - 4. Submit manufacturer’s test reports indicating test results of adhesion and/or compatibility testing of samples of substrates which either come in contact with or are in close proximity to sealants.
- C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer’s full range of available colors or samples of custom color matches for Architect’s acceptance.
- D. Samples of Warranty.
- E. Manufacturer’s approval of installer.

1.05 QUALITY ASSURANCE

- A. Applicator Qualifications
 - 1. Company specializing in performing work of this section with minimum three years documented experience, minimum three successfully completed projects of similar scope and complexity, and approved by manufacturer.
 - 2. Designate one individual as project foreman who shall be on site at all times during installation.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Accept materials on site in manufacturers unopened original packaging. Inspect for damage.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.
 - 1. Store materials in a clean, dry area indoors in accordance with manufacturer's instructions.
 - 2. Store sealants within temperature range in accordance with manufacturer's instructions.
 - 3. Keep containers sealed until ready for use.
 - 4. Do not use materials after manufacturer's use-before date.

1.07 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. Do not apply sealants to surfaces that are wet, damp, or contain frost.
 - 2. Do not apply sealants when air or surface temperature is below 40 degrees F.
 - 3. Use caution when applying sealants when air or surface temperature is above 120 degrees F.

1.08 WARRANTY

- A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.

PART 2: PRODUCTS

2.01 EXTERIOR SEALANTS

- A. Silicone Sealant: Single Component, Nonsag, Neutral-Curing Silicone joint sealant conforming to ASTM C 920, Type S, Grade NS, Class 100/50. Maximum VOC: 98 g/L.
 - 1. Manufacturers/product:
 - a. Dow Corning, 790.
 - b. GE/Momentive Performance Materials, SilPruf LM SCS 2700.
 - c. Pecora, 890 or 890 FTS
 - d. Temco Spectrem 1 or Spectrem 4
 - 2. Colors: Custom colors to match material or finish sealant occurs in.

2.02 INTERIOR SEALANTS

- A. Polyurethane Sealant: Multi-component, high-performance polyurethane sealant conforming to ASTM C 920, Type M, Grade NS, Class 25. Maximum VOC: 25 g/L.
 - 1. Manufacturers/product:
 - a. Pecora, Dynatrol II

- b. SIKA, SIKAFLEX 2-C
- c. Sonneborn, Sonolastic NP2
- d. Tremco, Dymeric 240/240FC

2. Colors: Custom colors to match material or finish sealant occurs in.

2.03 ACCESSORIES

- A. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- B. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- C. Joint Backing: Round foam rod compatible with sealant; oversized 25 to 50 percent larger than joint width; recommended by sealant manufacturer to suit application.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.
- E. Masking Tape: Non-staining, non-absorbent tape product compatible with joint sealants and adjacent joint surfaces.

PART 3: EXECUTION

3.01 EXAMINATION

- A. Inspect joints for compliance with requirements for joint configuration, installation tolerance, and other conditions affecting joint sealant performance. Correct unsatisfactory conditions before proceeding.

3.02 PREPARATION

- A. Prepare joints in accordance with ASTM C 1193 and manufacturer's instructions.
- B. Clean out joints immediately before installing joint sealants (within 1 to 2 hours of sealant application), in accordance with joint sealant manufacturer's recommendations and the following requirements:
 - 1. Remove from joint substrates foreign material which could interfere with adhesion of joint sealant, including paints other than permanent protective coating tested and approved for sealant adhesion and compatibility by sealant manufacturer, oil, grease, waterproofing, water repellants, water dirt, and frost.
 - 2. Clean porous joint substrates using approved methods such as brushing, grinding, blast cleaning, mechanical abrading, and acid washing as appropriate, 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 cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean metal and other nonporous substrates by using chemical cleaners or other means that neither are harmful to substrates nor leave residues capable of interfering with adhesion of joint sealants.
- C. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealant manufacturer. Apply primer to comply with joint sealant manufacturer's recommendations. Confine primers to area of joint sealer bond; do not allow spillage or migration onto adjoining surfaces. Allow primer to dry before applying sealant.
- D. Masking Tape: Use masking tape where required to prevent contamination of adjacent surfaces; remove tape immediately after tooling and before sealants begin to cure without disturbing seal.

3.04 SEALANT INSTALLATION

- A. Comply with joint sealant manufacturer's printed installation instructions.
- B. Installation of Sealant Backings:
 - 1. Install joint filler to provide support of sealant during application and at position required to produce the cross-sectional shape and depth of installed sealant relative to joint width that allows optimum sealant movement capability.
 - a. Do not leave gaps between ends of joint fillers.
 - b. Do not stretch, twist, puncture, or tear joint fillers.
 - c. Remove fillers which have become wet prior to sealant application and replace with dry materials.
 - 2. Install bond breaker tape when joint depth is too shallow to allow backer rod.
- C. Installation of Sealant:
 - 1. Install sealants by proven techniques that result in direct contact with and full wetting of joint substrates by joint sealant, completely filling recesses provided and providing uniform cross-sectional shapes and depths relative to joint widths. Sealant depth to be ½ the width of the joint and 1/3 the width at the center, creating an hourglass shape. Maximum depth of caulk at center to be 3/8". Air pockets or voids are not acceptable.
 - 2. Immediately after sealant application and prior to the skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or which are not approved by sealant manufacturer.

3.05 PROTECTION AND CLEANING

- A. Protect joint sealers, during and after curing, from contamination or damage. Cut out and remove damaged or deteriorated sealers and replace with new materials.
- B. Clean excess sealants or sealant smears adjacent to joints as work progresses.

3.06 FIELD QUALITY CONTROL

- A. Perform adhesion tests on exterior sealant in accordance with manufacturer's instructions and ASTM C1193, Method A, Field-Applied Sealant Joint Hand-Pull Tab.
 - 1. Perform 5 tests for first 1,000 linear feet of applied exterior sealant and 1 test for each 1,000 feet of seal thereafter. If there is less than 1,000 feet, perform 1 test per floor per building elevation minimum.
 - 2. For sealant applied between dissimilar materials, test both sides of joint.
- B. Sealants failing adhesion test shall be removed, substrates cleaned, sealants re-installed, and re-testing performed.
- C. Maintain test log and submit report to Architect indicating tests, locations, dates, results, and remedial actions.

END OF SECTION 07 92 00