

SECTION 07210 - BUILDING INSULATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Extruded polystyrene board thermal insulation.
 - 2. Sound attenuation insulation.
 - 3. Foam filled CMU cells.
 - 4. R-30 Kraft Backed Batt Insulation

1.2 DEFINITIONS

- A. Thermal Resistance (R-value): The temperature difference in degrees F between the two surfaces of a material of given thickness, required to make 1 Btu of energy flow through 1 square foot of the material in 1 hour.

1.3 SUBMITTALS

- A. Product Data: Submit for each product specified in this section.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Foamed Plastic Insulation: Minimize period between product delivery and actual installation. Protect against exposure to flame, sparks, or excessive heat. Minimize exposure to sunlight.
- B. Thermal insulation: Minimize period between product delivery and actual installation. Protect against exposure to flame, sparks, or excessive heat. Minimize exposure to sunlight. Store in a dry area.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Provide manufacturer's standard preformed insulation units, sized for proper fit in indicated applications.
- B. Extruded Polystyrene Board Thermal Insulation: Manufactured by extrusion process with integral high density skin:
 - 1. Type IV (ASTM C 578): 25.0 psi compressive strength.
 - 2. Edges: Provide boards with square edges.
 - 3. Thickness: 1.5 inches.
- C. Sound Attenuation Insulation: (At all interior wood partition walls)
 - 1. Unfaced blanket\batt: Type I (ASTM C 665), passing ASTM E 136 combustion test requirements.
 - 2. Thickness: 3.5 inches unless, otherwise indicated.
- D. Foam filled CMU: (NOTE: loose filled insulation will not be acceptable in exterior walls) (Min R value in 8" CMU = 14.21)
 - 1. Core-filled 500 by Tailored Chemical Products
 - 2. Thermco Foam Insulation
 - 3. Dow Corporation

- E. Roof/ceiling insulation to be Kraft backed R-30. Approved manufacturers are Owens Corning, Dow Corp., Johns Manville.

2.2 ACCESSORIES

- A. Provide accessories as necessary to properly install specified products.
 - 1. Adhesive: Insulation manufacturer's recommended adhesive, complying with fire performance requirements.

PART 3- EXECUTION

3.1 EXAMINATION

- A. Verify that conditions conform to requirements of contract documents.
- B. Verify that related work to be performed within indicated spaces before installation of insulation has been completed.
- C. Verify that substrates are in satisfactory condition to receive insulation.
 - 1. Masonry substrates: Verify that masonry materials have dried sufficiently and have attained optimum moisture content.
- D. Do not proceed until unsatisfactory conditions have been corrected. Commencement of installation indicates acceptance of conditions.

3.2 PREPARATION

- A. Clean substrates of any substances which might damage materials to be installed.
- B. Remove harmful projections capable of puncturing vapor retarder.

3.3 INSTALLATION

- A. Do not install insulation which is damaged, wet, soiled, or which has been covered at any time with ice or snow.
- B. Comply with insulation manufacturer's recommendations and installation sequence. Provide permanent placement and support of insulation.
- C. Install materials in a manner which will maximize continuity of thermal or sound attenuation envelope, as applicable. Use a single layer of insulation wherever possible to achieve indicated requirements, unless otherwise indicated.
- D. Insulation Boards:
 - 1. Extruded polystyrene insulation:
 - a. Under-slab installation: Do not install insulation before compaction of subgrade is verified. Provide installation capable of sustaining subsequent construction work without damage or displacement.
- E. Insulation Blankets/Batts:
 - 1. Unfaced Sound Attenuation Insulation, Stud Partitions: Friction-fit blanket insulation between partition framing members and extended from floor slab to ceiling. Stuff pieces of insulation into cracks between framing and into all miscellaneous voids and cavity spaces (e.g., perimeter of wall openings).
- F. Foam filled CMU cells

1. Install per manufacturer's written instructions.
 2. Seal holes after proper installation had been completed.
 3. Remove obstructions which might interfere with free flow of insulation to intended spaces, during installation. Completely fill all cells and voids. Leave no gaps or voids.
- G. Roof/Ceiling insulation – place on top of ceiling material sized to fit framing. Provide attachments as required and as recommended by manufacturer.

3.4 PROTECTION

- A. Protect installed materials from damage until permanent concealing work is completed.
- B. Where concealing work is not performed immediately after installation work of this section is completed, erect suitable temporary coverings or enclosures to prevent damage.

END OF SECTION 07210

SECTION 07460

SIDING

Display hidden notes to specifier. (Don't know how? [Click Here](#))

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Fiber cement lap siding, panels, single, trim, fascia, moulding and accessories.
- B. Factory-finished fiber cement lap siding, panels, single, trim, fascia, moulding and accessories.

1.2 RELATED SECTIONS

- A. Section 05400 - Light Gage Metal Framing: Wall framing and bracing.
- B. Section 06100 - Rough Carpentry: Wood framing and bracing.
- C. Section 06100 - Rough Carpentry: Sheathing.
- D. Section 07210 - Insulation: Exterior wall insulation.

1.3 REFERENCES

- A. ASTM D3359 - Standard Test Method for Measuring Adhesion by Tape Test, Tool and Tape.
- B. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- 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. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finish product specified, two samples, minimum size 4 by 6 inches (100 by 150 mm), representing actual product, color, and patterns.

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.
 - 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 and HardiPanel vertical siding for 50 years.
 - 2. HardieSoffit panels for 25 years.
 - 3. Artisan lap siding for 30 years.
 - 4. HardieShingle siding for 30 years.
 - 5. HardieTrim boards 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 Hardie's published installation instructions, James Hardie's ColorPlus finish with ColorPlus Technology, for a period of 15 years from the date of purchase: will not peel; will not crack; and will not chip. Finish warranty includes 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., which is located at: 26300 La Alameda Suite 400 ; Mission Viejo, CA 92691; Toll Free Tel: 866-274-3464; Tel: 949-367-4980; Email: [request info \(info@jameshardie.com\)](mailto:info@jameshardie.com); Web: www.jameshardiecommercial.com
- B. Substitutions: Not permitted.

- C. Requests for approval of equal substitutions will be considered in accordance with provisions of Section 01600.

2.2 SIDING

- A. Code Compliance Requirement for Materials:
 - 1. National Evaluation Report No. NER 405 (BOCA, ICBO, SBCCI, IBC, IRC).
 - 2. City of Los Angeles, Research Report No. 24862.
 - 3. Metro Dade County, Florida Acceptance No. 07-0418, 04.
 - 4. US Department of Housing and Urban Development Materials Release 1263d.
 - 5. California DSA PA-019.
 - 6. City of New York M EA 223-93-M.
 - 7. Florida State Product Approval FL889.
 - 8. Non-asbestos fiber-cement siding where required to be non-combustible shall be tested in accordance with ASTM E136.

- B. Lap Siding: Artisan Lap Siding as manufactured by James Hardie Building Products, Inc.
 - 1. Type: Smooth 5-1/4 inches (133 mm) with 4 inches (102 mm) exposure.
 - 2. Type: Smooth 7-1/4 inches (184 mm) with 6 inches (152 mm) exposure.
 - 3. Type: Smooth 8-1/4 inches (210 mm) with 7 inches (178 mm) exposure.
 - 4. Type: Texture 5-1/4 inches (133 mm) with 4 inches (102 mm) exposure.
 - 5. Type: Texture 7-1/4 inches (184 mm) with 6 inches (152 mm) exposure.
 - 6. Type: Texture 8-1/4 inches (210 mm) with 7 inches (178 mm) exposure.

- C. Lap Siding: HardiePlank Lap as manufactured by James Hardie Building Products, Inc.
 - 1. Type: Smooth 5-1/4 inches (133 mm) with 4 inches (102 mm) exposure.
 - 2. Type: Smooth 6-1/4 inches (159 mm) with 5 inches (127 mm) exposure.
 - 3. Type: Smooth 7-1/4 inches (184 mm) with 6 inches (152 mm) exposure.
 - 4. Type: Smooth 8-1/4 inches (210 mm) with 7 inches (178 mm) exposure.
 - 5. Type: Smooth 9-1/4 inches (235 mm) with 8 inches (203 mm) exposure.
 - 6. Type: Smooth 12 inches (305 mm) with 10-3/4 inches (273 mm) exposure.
 - 7. Type: Select Cedarmill 5-1/4 inches (133 mm) with 4 inches (102 mm) exposure.
 - 8. Type: Select Cedarmill 6-1/4 inches (159 mm) with 5 inches (127 mm) exposure.
 - 9. Type: Select Cedarmill 7-1/4 inches (184 mm) with 6 inches (152 mm) exposure.
 - 10. Type: Select Cedarmill 8-1/4 inches (210 mm) with 7 inches (178 mm) exposure.
 - 11. Type: Select Cedarmill 9-1/4 inches (235 mm) with 8 inches (203 mm) exposure.
 - 12. Type: Select Cedarmill 12 inches (305 mm) with 10-3/4 inches (273 mm) exposure.
 - 13. Type: Beaded Smooth 8-1/4 inches (210 mm) with 7 inches (178 mm) exposure.
 - 14. Type: Beaded Cedarmill 8-1/4 inches (210 mm) with 7 inches (178 mm) exposure.
 - 15. Type: Colonial Smooth 8 inches (203 mm) with 6-3/4 inches (171 mm) exposure.
 - 16. Type: Colonial Roughsawn 8 inches (203 mm) with 6-3/4 inches (171 mm) exposure.
 - 17. Type: Rustic Cedar 8-1/4 inches (210 mm) with 7 inches (178 mm) exposure.
 - 18. Type: Rustic Cedar 9-1/4 inches (235 mm) with 8 inches (203 mm) exposure.

- D. Vertical Siding: HardiePanel siding as manufactured by James Hardie Building Products, Inc.
1. Type: Smooth Vertical siding panel 4 feet by 8 feet (1219 mm by 2438 mm).
 2. Type: Smooth Vertical siding panel 4 feet by 9 feet (1219 mm by 2743 mm).
 3. Type: Smooth Vertical siding panel 4 feet by 10 feet (1219 mm by 3048 mm).
 4. Type: Cedarmill Vertical siding panel 4 feet by 8 feet (1219 mm by 2438 mm).
 5. Type: Cedarmill Vertical siding panel 4 feet by 9 feet (1219 mm by 2743 mm).
 6. Type: Cedarmill Vertical siding panel 4 feet by 10 feet (1219 mm by 3048 mm).
 7. Type: Stucco Vertical siding panel 4 feet by 8 feet (1219 mm by 2438 mm).
 8. Type: Stucco Vertical siding panel 4 feet by 9 feet (1219 mm by 2743 mm).
 9. Type: Stucco Vertical siding panel 4 feet by 10 feet (1219 mm by 3048 mm).
 10. Type: Sierra 8 inches (203 mm) Vertical siding panel 4 feet by 8 feet (1219 mm by 2438 mm).
 11. Type: Sierra 8 inches (203 mm) Vertical siding panel 4 feet by 9 feet (1219 mm by 2743 mm).
 12. Type: Sierra 8 inches (203 mm) Vertical siding panel 4 feet by 10 feet (1219 mm by 3048 mm).
- E. Shingle Siding: HardieShingle siding as manufactured by James Hardie Building Products, Inc.
1. Type: HardiShingle Individual Shingles 6 inches (152 mm) wide by 18 inches (457 mm) high with 8 inches (203 mm) exposure.
 2. Type: HardiShingle Individual Shingles 8 inches (203 mm) wide by 18 inches (457 mm) high with 8 inches (203 mm) exposure.
 3. Type: HardiShingle Individual Shingles 12 inches (305 mm) wide by 18 inches (457 mm) high with 8 inches (203 mm) exposure.
 4. Type: HardieShingle Straight-Edge Notched Panel 48 inches (1219 mm) wide by 16 inches (406mm) high with 7 inches (178 mm) exposure.
 5. Type: HardieShingle Staggered-Edge Notched Panel 48 inches (1219 mm) wide by 16 inches (406mm) high with 7 inches (178 mm) exposure.
 6. Type: HardieShingle Half Round Notched Panel 48 inches (1219 mm) wide by 19 inches (483mm) high with 7 inches (178 mm) exposure.
- F. Trim:
1. HardieTrim boards as manufactured by James Hardie Building Products, Inc.
 2. Artisan Accent trim as manufactured by James Hardie Building Products, Inc.

2.3 FASTENERS

- A. Wood Framing Fasteners:
1. Wood Framing: 4d common corrosion resistant nails.
 2. Wood Framing: 6d common corrosion resistant nails.
 3. Wood Framing: 8d box ring common corrosion resistant nails.
 4. Wood Framing: 0.089 inch (2.2 mm) shank by 0.221 inch (5.6 mm) head by 2 inches (51 mm) corrosion resistant siding nails.
 5. Wood Framing: 0.093 inch (2.4 mm) shank by 0.222 inch (5.6 mm) head by 2 inches (51 mm) corrosion resistant siding nails.
 6. Wood Framing: 0.093 inch (2.4 mm) shank by 0.222 inch (5.6 mm) head by 2-1/2 inches (64 mm) corrosion resistant siding nails.
 7. Wood Framing: 0.091 inch (2.3 mm) shank by 0.221 inch (5.6 mm) head by 1-1/2 inches (38 mm) corrosion resistant siding nails.
 8. Wood Framing: 0.091 inch (2.3 mm) shank by 0.225 inch (5.7 mm) head by 1-1/2 inches (38 mm) corrosion resistant siding nails.
 9. Wood Framing: 0.121 inch (3 mm) shank by 0.371 inch (9.4 mm) head by 1-1/4 inches (32 mm) corrosion resistant roofing nails.

10. Wood Framing: No. 11 gauge 1-1/4 inches (32 mm) corrosion resistant roofing nails.
 11. Wood Framing: No. 11 gauge 1-1/2 inches (38 mm) corrosion resistant roofing nails.
 12. Wood Framing: No. 11 gauge 1-3/4 inches (44 mm) corrosion resistant roofing nails.
- B. Metal Framing:
1. Metal Framing: 1-1/4 inches (32 mm) No. 8-18 by 0.375 inch (9.5 mm) head self-drilling, corrosion resistant S-12 ribbed buglehead screws.
 2. Metal Framing: 1-5/8 inches (41 mm) No. 8-18 by 0.323 inch (8.2 mm) head self-drilling, corrosion resistant S-12 ribbed buglehead screws.
 3. Metal Framing: 1 inch (25 mm) No. 8-18 by 0.323 inch (8.2 mm) head self-drilling, corrosion resistant ribbed buglehead screws.
 4. Metal Framing: 1 inch (25 mm) No. 8-18 by 0.311 inch (7.9 mm) head self-drilling, corrosion resistant S-12 ribbed buglehead screws.
 5. Metal Framing: 1.5 inch (38mm) [AGS-100] .100 inches by 25 inches (2540 mm by 635 mm) ET&F Pin or equivalent pneumatic fastener.
- C. Concrete Walls:
1. Concrete Walls: Aerico Stud Nail, ET&F ASM No.-144-125, 0.14 inch (3.6 mm) shank by 0.30 inch (7.6 mm) head by 2 inches (51 mm) long corrosion resistant nails.

2.4 FINISHES

- A. Factory Primer: Provide factory applied universal primer.
1. Primer: PrimePlus by James Hardie.
 2. Topcoat: Refer to Section 09900 and Exterior Finish Schedule.
- B. Factory Finish: Refer to Exterior Finish Schedule.
1. Product: ColorPlus Technology by James Hardie.
 2. Definition: Factory applied finish; defined as a finish applied in the same facility and company that manufactures the siding substrate.
 3. Process:
 - a. Factory applied finish by fiber cement manufacturer in a controlled environment within the fiber cement manufacturer's own facility utilizing a multi-coat, heat cured finish within one manufacturing process.
 - b. Each finish color must have documented color match to delta E of 0.5 or better between product lines, manufacturing lots or production runs as measured by photospectrometer and verified by third party.
 4. Protection: Factory applied finish protection such as plastic laminate that is removed once siding is installed
 5. Accessories: Complete finishing system includes pre-packaged touch-up kit provided by fiber cement manufacturer. Provide quantities as recommended by manufacturer.
- C. Factory Finish Color for Trim, Soffit and Siding Colors:
1. Alpine Frost JH50-10
 2. Arctic White JH10-20
 3. Autumn Tan JH20-20
 4. Boothbay Blue JH70-20
 5. Chestnut Brown JH80-30
 6. Cobble Stone JH40-10
 7. Countrylane Red JH90-20
 8. Evening Blue JH70-30
 9. Frosted Green JH60-20

10. Harris Cream JH80-10
11. Heathered Moss JH50-20
12. Iron Gray JH90-30
13. Khaki Brown JH20-30
14. Light Mist JH70-10
15. Monterey Taupe JH40-20
16. Mountain Sage JH50-30
17. Navajo Beige JH30-10
18. Parkside Pine JH60-30
19. Sail Cloth JH20-10
20. Sandstone Beige JH30-20
21. Soft Green JH60-10
22. Timber Bark JH40-30
23. Traditional Red JH90-10
24. Tuscan Gold JH80-20
25. Woodland Cream JH10-30
26. Woodstock Brown JH30-30

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. Nominal 2 inch by 4 inch (51 mm by 102 mm) wood framing selected for minimal shrinkage and complying with local building codes, including 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.
- D. Minimum 20 gauge 3-5/8 inch (92 mm) C-Stud 16 inches maximum on center or 16 gauge 3-5/8 inches (92 mm) C-Stud 24 inches (610 mm) maximum on center metal framing complying with local building codes, including the use of water-resistive barriers and/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.

3.3 INSTALLATION - HARDIEPLANK SIDING AND ARTISAN LAP SIDING

- A. Install materials in strict accordance with manufacturer's installation instructions.

- B. Starting: Install a minimum 1/4 inch (6 mm) thick lath starter strip at the bottom course of the wall. Apply planks horizontally with minimum 1-1/4 inches (32 mm) 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. Locate splices at least one stud cavity away from window and door openings.
- G. Use off-stud metal joiner in strict accordance with manufacturer's installation instructions.
- H. Wind Resistance: Where a specified level of wind resistance is required Hardieplank lap siding is installed to framing members and secured with fasteners described in Table No. 2 in National Evaluation Service Report No. NER-405.
- I. Face nail to sheathing.
- J. Locate splices at least 12 inches (305 mm) away from window and door openings.
- K. Wind Resistance: Where a specified level of wind resistance is required Hardieplank lap siding is installed to framing members and secured with fasteners described in Table No. 2 in National Evaluation Service Report No. NER-405.

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 (9.5 mm) from panel edges and 2 inches (51 mm) 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.
- G. Factory Finish Touch Up: Apply touch up paint to cut edges in accordance with manufacturer's printed instructions.
 - 1. Touch-up nicks, scrapes, and nail heads in pre-finished siding using the manufacturer's touch-up kit pen.
 - 2. Touch-up of nails shall be performed after application, but before plastic protection wrap is removed to prevent spotting of touch-up finish.
 - 3. Use touch-up paint sparingly. If large areas require touch-up, replace the damaged area with new pre-finished siding. Match touch up color to siding color through use of manufacturer's branded touch-up kits.

3.5 INSTALLATION - HARDIE SHINGLESIDE CLADDING

- A. Install materials in strict accordance with manufacturer's installation instructions.

- B. Substrate: Install a minimum 7/16 inch (11 mm) thick OSB wall sheathing or equivalent braced walls complying with applicable building codes.
- C. Starting: Install a minimum 1/4 inch (6 mm) thick lath starter strip at the bottom course of the wall.
- D. Maintain clearance between siding and adjacent finished grade.
- E. Apply starter course of 10 inches (254 mm) shingles or 9-1/2 inches (241 mm) lap siding overlapping the starter strip.
- F. Apply subsequent courses horizontally with a minimum 10 inch overlap at the top and a minimum 2 inch (51 mm) side lap. The bottom edge of the first two courses overlaps the starter strip.
- G. Fasten between 1/2 inch (13 mm) and 1 inch (25 mm) in from the side edge and between 8-1/2 inches (216 mm) and 9 inches (229 mm) up from the shingle bottom edge.
- H. Allow minimum vertical clearance between the edge of siding and any other material in strict accordance with the manufacturer's installation instructions.
- I. Ensure vertical joints of overlapping shingle course do not align.
- J. Wind Resistance: Where a specified level of wind resistance is required, Hardie Shingle siding is installed to substrate and secured with a minimum two fasteners described in Table No. 6, 7 and 8 in National Evaluation Service Report No. NER-405.

3.6 INSTALLATION - HARDIETRIM BOARDS

- 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 (19 mm) or full thickness of sheathing. Additional fasteners may be required to ensure adequate security.
- C. Place fasteners no closer than 3/4 inch (19 mm) and no further than 2 inches (51 mm) from side edge of trim board and no closer than 1 inch (25 mm) from end. Fasten maximum 16 inches (406 mm) 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 (19 mm) 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. Outside Corner Board: For 1 inch (25 mm) and 1-1/2 inches (38 mm) trim only. Pre-build corners by fastening trim together with 16 ga. corrosion resistant finish nail 1/2 inch (13 mm) from edge spaced 16 inches (406 mm) apart, weather cut each end spaced minimum 12 inches (305 mm) apart.
- H. Allow 1/8 inch gap between trim and siding.
- I. Seal gap with high quality, paint-able caulk.

- J. Shim frieze board as required to align with corner trim.
- K. Install HardieTrim fascia over structural subfascia.
- L. Overlay siding with HardieTrim moulding at windows, doors and inside corners.
- M. Fasten through overlapping boards. Do not nail between lap joints.
- N. 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.
- O. Shim frieze board as required to align with corner trim.
- P. Install HardieTrim fascia over structural subfascia.

3.7 FINISHING

- A. Finish unprimed siding with a minimum one coat high quality, alkali resistant primer and one coat of either, 100 percent acrylic or latex or oil based, exterior grade topcoats or two coats high quality alkali resistant 100 percent acrylic or latex, exterior grade topcoat within 90 days of installation. Follow paint manufacturer's written product recommendation and written application instructions.
- B. 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.

3.8 PROTECTION

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

END OF SECTION

SECTION 07460 -SIDING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Fiber cement lap siding, panels, single, trim, fascia, moulding and accessories.
- B. Factory-finished fiber cement lap siding, panels, single, trim, fascia, moulding and accessories.

1.2 RELATED SECTIONS

- A. Section 05400 - Light Gage Metal Framing: Wall framing and bracing.
- B. Section 06100 - Rough Carpentry: Wood framing and bracing.
- C. Section 06100 - Rough Carpentry: Sheathing.
- D. Section 07210 - Insulation: Exterior wall insulation.

1.3 REFERENCES

- A. ASTM D3359 - Standard Test Method for Measuring Adhesion by Tape Test, Tool and Tape.
- B. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- 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. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finish product specified, two samples, minimum size 4 by 6 inches (100 by 150 mm), representing actual product, color, and patterns.

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.
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 and HardiPanel vertical siding for 50 years.
 2. HardieSoffit panels for 25 years.
 3. Artisan lap siding for 30 years.
 4. HardieShingle siding for 30 years.
 5. HardieTrim boards 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 Hardie's published installation instructions, James Hardie's ColorPlus finish with ColorPlus Technology, for a period of 15 years from the date of purchase: will not peel; will not crack; and will not chip. Finish warranty includes 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., which is located at: 26300 La Alameda Suite 400 ; Mission Viejo, CA 92691; Toll Free Tel: 866-274-3464; Tel: 949-367-4980; Email: [request info \(info@jameshardie.com\)](mailto:info@jameshardie.com); Web: www.jameshardiecommercial.com
- B. Substitutions: Certainteed, Nicheha or approved equal.
- C. Requests for approval of equal substitutions will be considered in accordance with provisions of Section 01600.

2.2 SIDING

- A. Code Compliance Requirement for Materials:
 1. National Evaluation Report No. NER 405 (BOCA, ICBO, SBCCI, IBC, IRC).

2. City of Los Angeles, Research Report No. 24862.
 3. Metro Dade County, Florida Acceptance No. 07-0418, 04.
 4. US Department of Housing and Urban Development Materials Release 1263d.
 5. California DSA PA-019.
 6. City of New York M EA 223-93-M.
 7. Florida State Product Approval FL889.
 8. Non-asbestos fiber-cement siding where required to be non-combustible shall be tested in accordance with ASTM E136.
- B. Lap Siding: HardiePlank Lap as manufactured by James Hardie Building Products, Inc.
1. Type: Select Cedarmill 7-1/4 inches (184 mm) with 6 inches (152 mm) exposure.
- C. Trim:
1. HardieTrim boards as manufactured by James Hardie Building Products, Inc.
 2. Artisan Accent trim as manufactured by James Hardie Building Products, Inc.

2.3 FASTENERS

- A. Wood Framing Fasteners:
1. Wood Framing: 4d common corrosion resistant nails.
 2. Wood Framing: 6d common corrosion resistant nails.
 3. Wood Framing: 8d box ring common corrosion resistant nails.
 4. Wood Framing: 0.089 inch (2.2 mm) shank by 0.221 inch (5.6 mm) head by 2 inches (51 mm) corrosion resistant siding nails.
 5. Wood Framing: 0.093 inch (2.4 mm) shank by 0.222 inch (5.6 mm) head by 2 inches (51 mm) corrosion resistant siding nails.
 6. Wood Framing: 0.093 inch (2.4 mm) shank by 0.222 inch (5.6 mm) head by 2-1/2 inches (64 mm) corrosion resistant siding nails.
 7. Wood Framing: 0.091 inch (2.3 mm) shank by 0.221 inch (5.6 mm) head by 1-1/2 inches (38 mm) corrosion resistant siding nails.
 8. Wood Framing: 0.091 inch (2.3 mm) shank by 0.225 inch (5.7 mm) head by 1-1/2 inches (38 mm) corrosion resistant siding nails.
 9. Wood Framing: 0.121 inch (3 mm) shank by 0.371 inch (9.4 mm) head by 1-1/4 inches (32 mm) corrosion resistant roofing nails.
 10. Wood Framing: No. 11 gauge 1-1/4 inches (32 mm) corrosion resistant roofing nails.
 11. Wood Framing: No. 11 gauge 1-1/2 inches (38 mm) corrosion resistant roofing nails.
 12. Wood Framing: No. 11 gauge 1-3/4 inches (44 mm) corrosion resistant roofing nails.

2.4 FINISHES

- A. Factory Finish:
1. Product: ColorPlus Technology by James Hardie.
 2. Definition: Factory applied finish; defined as a finish applied in the same facility and company that manufactures the siding substrate.
 3. Process:
 - a. Factory applied finish by fiber cement manufacturer in a controlled environment within the fiber cement manufacturer's own facility utilizing a multi-coat, heat cured finish within one manufacturing process.
 - b. Each finish color must have documented color match to delta E of 0.5 or better between product lines, manufacturing lots or production runs as measured by photospectrometer and verified by third party.

4. Protection: Factory applied finish protection such as plastic laminate that is removed once siding is installed
 5. Accessories: Complete finishing system includes pre-packaged touch-up kit provided by fiber cement manufacturer. Provide quantities as recommended by manufacturer.
- B. Factory Finish Color for Trim, Soffit and Siding Colors: (Color selection to be made after bid)
1. Alpine Frost JH50-10
 2. Arctic White JH10-20
 3. Autumn Tan JH20-20
 4. Boothbay Blue JH70-20
 5. Chestnut Brown JH80-30
 6. Cobble Stone JH40-10
 7. Countrylane Red JH90-20
 8. Evening Blue JH70-30
 9. Frosted Green JH60-20
 10. Harris Cream JH80-10
 11. Heathered Moss JH50-20
 12. Iron Gray JH90-30
 13. Khaki Brown JH20-30
 14. Light Mist JH70-10
 15. Monterey Taupe JH40-20
 16. Mountain Sage JH50-30
 17. Navajo Beige JH30-10
 18. Parkside Pine JH60-30
 19. Sail Cloth JH20-10
 20. Sandstone Beige JH30-20
 21. Soft Green JH60-10
 22. Timber Bark JH40-30
 23. Traditional Red JH90-10
 24. Tuscan Gold JH80-20
 25. Woodland Cream JH10-30
 26. Woodstock Brown JH30-30

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. Nominal 2 inch by 4 inch (51 mm by 102 mm) wood framing selected for minimal shrinkage and complying with local building codes, including 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.
- D. Minimum 20 gauge 3-5/8 inch (92 mm) C-Stud 16 inches maximum on center or 16 gauge 3-5/8 inches (92 mm) C-Stud 24 inches (610 mm) maximum on center metal framing complying with local building codes, including the use of water-resistive barriers and/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.

3.3 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 (9.5 mm) from panel edges and 2 inches (51 mm) 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.
- G. Factory Finish Touch Up: Apply touch up paint to cut edges in accordance with manufacturer's printed instructions.
 1. Touch-up nicks, scrapes, and nail heads in pre-finished siding using the manufacturer's touch-up kit pen.
 2. Touch-up of nails shall be performed after application, but before plastic protection wrap is removed to prevent spotting of touch-up finish.
 3. Use touch-up paint sparingly. If large areas require touch-up, replace the damaged area with new pre-finished siding. Match touch up color to siding color through use of manufacturer's branded touch-up kits.

3.4 INSTALLATION - HARDIE SHINGLESIDE CLADDING

- A. Install materials in strict accordance with manufacturer's installation instructions.
- B. Substrate: Install a minimum 7/16 inch (11 mm) thick OSB wall sheathing or equivalent braced walls complying with applicable building codes.
- C. Starting: Install a minimum 1/4 inch (6 mm) thick lath starter strip at the bottom course of the wall.
- D. Maintain clearance between siding and adjacent finished grade.
- E. Apply starter course of 10 inches (254 mm) shingles or 9-1/2 inches (241 mm) lap siding overlapping the starter strip.
- F. Apply subsequent courses horizontally with a minimum 10 inch overlap at the top and a minimum 2 inch (51 mm) side lap. The bottom edge of the first two courses overlaps the starter strip.

- G. Fasten between 1/2 inch (13 mm) and 1 inch (25 mm) in from the side edge and between 8-1/2 inches (216 mm) and 9 inches (229 mm) up from the shingle bottom edge.
- H. Allow minimum vertical clearance between the edge of siding and any other material in strict accordance with the manufacturer's installation instructions.
- I. Ensure vertical joints of overlapping shingle course do not align.
- J. Wind Resistance: Where a specified level of wind resistance is required, Hardie Shingle siding is installed to substrate and secured with a minimum two fasteners described in Table No. 6, 7 and 8 in National Evaluation Service Report No. NER-405.

3.5 FINISHING

- A. Finish unprimed siding with a minimum one coat high quality, alkali resistant primer and one coat of either, 100 percent acrylic or latex or oil based, exterior grade topcoats or two coats high quality alkali resistant 100 percent acrylic or latex, exterior grade topcoat within 90 days of installation. Follow paint manufacturer's written product recommendation and written application instructions.
- B. 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.

3.6 PROTECTION

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

END OF SECTION

SECTION 07600 - FLASHING AND SHEET METAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General Conditions, Amendments to General Conditions, and Supplementary Conditions and Sections in Division I of the Specifications apply to work of this section.

1.2 DESCRIPTION

- A. Extent of each type of flashing and sheet metal work is indicated on drawings and by provisions of this Section.
- B. Types of work specified in this Section include the following:
 - 1. Metal counter flashing and base flashing.
 - 2. Exposed metal trim.
 - 3. Miscellaneous sheet metal accessories.
- C. Related Work:
 - 1. Section 07900 - Joint Sealants

1.3 SUBMITTALS

- A. Comply with pertinent provisions of Section 01620.
- B. Product Data; Sheet Metal, Accessories: Submit manufacturer's product data, installation instructions and general recommendations for each specified sheet material and fabricated product.
- C. Samples; Flashing, Sheet Metal, Accessories: Submit 8" square samples of specified sheet materials to be exposed as finished surfaces.
 - 1. Submit 12" long, completely finished units of specified factory-fabricated products exposed as finished work.
- D. Shop Drawings; Flashing, Sheet Metal, Accessories: Submit shop drawings showing layout, joining, profiles, and anchorages of fabricated work, including major counter flashing, trim/fascia units, etc.; layouts at 1/4" scale, detail at 3" scale.

1.4 QUALITY ASSURANCE

- A. Comply with industry standards and recommendations of SMACNA Architectural Sheet Metal Manual except as specifically indicated otherwise.

1.5 JOB CONDITIONS

- A. Coordinate work of this Section with interfacing and adjoining work for proper sequencing of each installation. Insure best possible weather resistance and durability of work and protection of materials and finishes.
- B. Surfaces to which flashing and sheet metal are applied shall be even, smooth, sound, thoroughly clean and dry and free from all defects that might affect the application. Report any unsatisfactory surfaces to the General Contractor.

- C. Do not proceed with installation of sheet metal work until curb and substrate construction, blocking, roofing, regrets, and other construction that will receive the work are completed. Proceeding with application of sheet metal work will be evidence of substrate acceptance by Installer.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Comply with pertinent provisions of Section 01620.
- B. Materials furnished by this Section, which are to be built-in by other trades, shall be delivered to the Site in time to avoid delays in construction schedule.

PART 2 - PRODUCTS

2.1 FLASHING AND SHEET METAL MATERIALS

- A. .032 Aluminum

2.2 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Fasteners: Same metal as flashing/sheet metal or other noncorrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.
- B. Bituminous Coating: SSPC-Paint 12, solvent type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.
- C. Mastic Sealant: Polyisobutylene; nonhardening nonskinning, noncorrosive metal seam cementing compound, recommended by metal manufacturer for exterior/interior non-moving joints including riveted joints.
- D. Adhesives: Type recommended by flashing sheet manufacturer for waterproof weather-resistant seaming and adhesive application of flashing sheet.
- E. Metal Accessories: Provide sheet metal clips, straps, anchoring devices and similar accessory units as required for installation work, matching or comparable with material being installed. They shall be noncorrosive, in sizes and gauges required for proper performance.

PART 3 - EXECUTION

3.1 INSTALLATION REQUIREMENTS

- A. General: Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations, and with SMACNA "Architectural Sheet Metal Manual". Anchor units of work securely in place by methods indicated. Provide 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, which will be permanently watertight and weatherproof.
- B. Underlayment: Where aluminum is to be installed directly on cementitious or wood substrates, apply a coating or other permanent separation as recommended by manufacturer/fabricator to concealed aluminum surfaces.

3.2 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces, removing substances, which might cause corrosion of metal or deterioration of finishes.

- B. Protection: Installer shall advise Contractor of required procedures for surveillance and protection of flashing and sheet metal work during construction, to ensure that work be without damage or deterioration, other than natural weathering, at time of substantial completion.

END OF SECTION 07600

SECTION 07900 - JOINT SEALANTS

PART 1- GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. The sealing of exterior and interior joints.

1.2 SUBMITTALS

- A. Product Data: Manufacturer's data on each joint sealer, with instructions for substrate preparation and installation.
- B. Samples for Color Selection: Cured samples of actual products showing manufacturer's full range of colors.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original containers or bundles with labels showing manufacturer, product name or designation, color, shelf life, and installation instructions.

1.4 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install sealers if any of the following conditions exist:
 - 1. Air or substrate temperature exceeds the range recommended by sealer manufacturer or is below 40 degrees F (4.4 degrees C).
 - 2. Substrate is wet, damp, or covered with snow, ice, or frost.
- B. Dimensional Limitations: Do not install sealers if joint dimensions are less than or greater than that recommended by sealer manufacturer; notify the architect and get sealer manufacturer's recommendations for alternative procedures.

PART 2 - PRODUCTS

2.1 MATERIALS - GENERAL

- A. General: Provide only products which are recommended and approved by their manufacturer for the specific use to which they are put and which comply with all requirements of the contract documents.
 - 1. For each generic product, use only materials from one manufacturer.
 - 2. Provide only materials which are compatible with each other and with joint substrates.
 - 3. Colors of exposed sealers: As selected by the Architect from manufacturer's standard colors.

2.2 ELASTOMERIC SEALANTS

- A. Elastomeric Sealants - General: Chemically curing elastomeric sealants of types indicated, complying with ASTM C 920, including specific Type, Grade, Class, and Uses indicated, as well as all other requirements specified.
 - 1. Exterior, Non-Traffic Areas: Type S, Grade NS, Class 25, Use NT. Provide one of the following Polyurethane or Silicone Sealants or an approved substitution:
 - a. Polyurethane:
 - (1) Bostik/Chem-Calk 900.
 - (2) Pecora Corp./Dynatrol I.

- (3) Sonneborn-ChemRex, Inc./Sonolast NPI.
 - (4) Tremco, Inc./Dymonic.
 - b. Silicone:
 - (1) Bostik/Chem-calk 2200.
 - (2) Pecora Corp./895 Silicone.
 - (3) Sonneborn-ChemRex, Inc./Sonolastic Omniseal.
 - (4) Tremco, Inc./Spectrum 2.
- 2. Exterior, Traffic Areas: Type S, Grade P, Class 25, Use T. Provide one of the following silicone sealants or an approved substitution:
 - a. Silicone:
 - (1) Bostik/Chem-calk 950.
 - (2) Pecora Corp./NR-201 Urexpan.
 - (3) Sonneborn-ChemRex, Inc./Sonolastic SLI.
- 3. Interior, Non-Traffic Areas: Type S, Grade NS, Class 12.5 or 25, Use NT. Provide one of the following polyurethane or silicone sealants or an approved substitution:
 - a. Polyurethane:
 - (1) Bostik/Chem-calk 915.
 - (2) Pecora Corp./Dynatrol I.
 - (3) Sonneborn-ChemRex, Inc./Sonolast NPI.
 - (4) Tremco, Inc./Dymonic.
 - b. Silicone:
 - (1) Bostik/Chem-calk 2200.
 - (2) Pecora Corp./895 Silicone.
 - (3) Sonneborn-ChemRex, Inc./Sonolastic Omniseal.
 - (4) Tremco, Inc./Spectrum 2.
- 4. Interior, Traffic Areas: Type S, Grade P, Class 25, Use T. Provide one of the following silicone sealants or an approved substitution:
 - a. Silicone:
 - (1) Bostik/Chem-calk 950.
 - (2) Pecora Corp./NR-201 Urexpan.
 - (3) Sonneborn-ChemRex, Inc./Sonolastic SLI.

2.2 LATEX SEALANTS

- A. Latex Sealant - General: One-part, nonsag, mildew-resistant, paintable latex sealant complying with ASTM C 834.
 - 1. Exterior: Do not use for exterior applications.
 - 2. Interior: Use only on non-working joints. Provide one of the following or an approved substitution:
 - a. Pecora Corp./AC-20.
 - b. Sonneborn-ChemRex, Inc./Sonolac.
 - c. Tremco, Inc./Acrylic Latex 834.

2.3 SEALANT BACKERS

- A. Backers - General: Nonstaining; recommended or approved by sealant manufacturer for specific use.
- B. Backer Rods: Flexible, nonabsorbent, compressible polyurethane foam, either open-cell or non-gassing closed-cell, unless otherwise restricted by sealant manufacturer; preformed to appropriate size and shape.
- C. Bond-Breaker Tape: Self-adhesive, polyethylene or other plastic tape, unless otherwise restricted by sealant manufacturer; suitable for preventing sealant adhesion.

2.4 MISCELLANEOUS MATERIALS

- A. Primers: As recommended by sealer manufacturer.
- B. Cleaners: As recommended by sealer manufacturer and not damaging to substrates.
- C. Masking Tape: Nonabsorbent, nonstaining.
- D. Tooling Agents: Approved by sealant manufacturer; nonstaining to sealant and substrate.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints for characteristics that may affect sealer performance, including configuration and dimensions.
- B. Do not begin joint sealer work until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Cleaning: Just before starting sealer installation, clean out joints in accord with recommendations of sealer manufacturers and as follows:
 - 1. Remove all material that could impair adhesion, including dust, dirt, coatings, paint, oil, and grease. Exception: Materials tested to show acceptable adhesion and compatibility.
 - 2. Dry out damp and wet substrates thoroughly.
 - 3. Remove loose particles by vacuuming or by blowing with oil-free compressed air.
 - 4. Concrete: Remove laitance and form-release coatings.
 - 5. Clean substrates with methods recommended by sealant manufacturer which will not damage the substrate.
 - 6. Use methods which will not leave residues that will impair adhesion.
- B. Priming: Prime substrates as recommended by sealer manufacturer.
- C. Masking Tape: Use masking tape to keep primers and sealers off of adjacent surfaces which would be damaged by contact or by cleanup. Remove tape as soon as practical.
- D. Install fillers where needed to provide proper joint depth or support for sealant backers.

3.3 INSTALLATION

- A. Comply with sealer manufacturers' installation instructions and recommendations, except where more restrictive requirements are specified.
- B. Gunnable and Pourable Sealants: Comply with recommendations of ASTM C 1193.
- C. Backers:
 - 1. Install backers at depth required to result in shape and depth of installed sealant which allows the most joint movement without failure.
 - a. Make backers continuous, without gaps, tears, or punctures.
 - b. Do not stretch or twist backers.
 - 2. If backers become wet or damp before installation of sealant, dry out thoroughly before proceeding.

3. Use bond-breaker tape where indicated and wherever it is necessary to keep sealant from adhering to back or third side of joint.
 - D. Sealants: Use methods recommended by manufacturer; completely fill the joint; make full contact with bond surfaces; tool nonsag sealants to smooth surface eliminating air pockets.
 1. Use concave joint shape shown in Figure 5A in ASTM C 1193, where not otherwise indicated.
- 3.4 PROTECTION AND CLEANING
- A. Clean surfaces adjacent to joints as work progresses and before sealants set using methods and materials approved by manufacturers of sealers and of surfaces to be cleaned.
 - B. Protect joint sealers from contamination and damage.
 - C. Remove and replace damaged sealers.

END OF SECTION 07900