

PART 1 GENERAL**1.01 SUBMITTALS**

- A. Shop Drawings: Indicate wall and soffit joint patterns, joint details, and molding profiles.
- B. Product Data: Provide data on system materials, product characteristics, performance criteria, and system limitations.
- C. Selection Samples: Submit manufacturer's standard range of samples illustrating available coating colors and textures.
- D. Manufacturer's Installation Instructions: Indicate preparation required, installation techniques, and jointing requirements.

1.02 QUALITY ASSURANCE

- A. Maintain copy of specified installation standard and manufacturer's installation instructions at project site at all times during installation.
- B. EFS and EIFS Manufacturer Qualifications: Provide all products other than insulation from the same manufacturer with qualifications as follows:
 - 1. Member in good standing of EIMA (EIFS Industry Members Association).
 - 2. Manufacturer of EIFS products for not less than 20 years.
 - 3. Manufacturing facilities ISO 9001 certified.
- C. Insulation Manufacturer Qualifications: Approved by manufacturer of EIFS and approved and labeled under third party quality program.
- D. Installer Qualifications: Company specializing in EIFS work, with not less than 10 years of documented experience, and approved by the EIFS manufacturer.
Approved Manufacturers:
 - a. Sto Corporation
 - b. Dryvit
 - c. Parex

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to project site in manufacturer's original, unopened containers with labels intact. Inspect materials and notify manufacturer of any discrepancies.
- B. Storage: Protect adhesives and finish materials from freezing and temperatures in excess of 90 degrees F.
 - 1. Protect Portland cement based materials from moisture and humidity. Store under cover off the ground in a dry location.
 - 2. Protect insulation materials from exposure to sunlight.

1.04 FIELD CONDITIONS

- A. Do not prepare materials or apply EFS during inclement weather unless areas of installation are protected. Protect installed EFS areas from inclement weather until dry.
- B. Do not install coatings or sealants when ambient temperature is below 40 degrees F.
- C. Do not leave installed insulation board exposed to sunlight for extended periods of time.

1.05 WARRANTY

- A. Provide manufacturer's standard material warranty, covering a period of not less than 5 years.
- B. Provide separate warranty from installer covering labor for repairs or replacement for a period of not less than 5 years.

PART 2 PRODUCTS**2.01 EXTERIOR FINISH SYSTEM (EFS) and EXTERIOR INSULATING FINISH SYSTEM (EIFS)**

- A. Exterior Finish System: Reinforced finish coating on fiberglass reinforced water resistive sheathing or CMU substrate; provide a complete system that has been tested to show compliance with the following characteristics; include all components of specified system and substrate(s) in tested samples.
- B. Exterior Insulation and Finish System (For Decorative Trim Only): BARRIER type; reinforced finish coating on insulation board adhesive-applied direct to substrate; provide a complete system that has been tested to show compliance with the following characteristics; include all components of specified system and substrate in tested samples.
- C. Fire Characteristics:
 - 1. Flammability: Pass, when tested in accordance with NFPA 285.
 - 2. Ignitibility: No sustained flaming when tested in accordance with NFPA 268.
 - 3. Fire Resistance: Provide custom testing or engineering analysis acceptable to the authorities having jurisdiction that shows that the addition of the EIFS assembly to the fire-rated assembly will not reduce the fire-rated assembly rating; test in accordance with ASTM E119.
 - 4. Potential Heat of Foam Plastic Insulation Tested Independently of Assembly: No portion of the assembly having potential heat that exceeds that of the insulation sample tested for flammability (above), when tested in accordance with NFPA 259 with results expressed in Btu per square foot.
- D. Adhesion of Water-Resistive Coating to Substrate: For each combination of coating and substrate, minimum flatwise tensile bond strength of 15 psi, when tested in accordance with ASTM C 297/C 297M.
- E. Adhesion to Water-Resistive Coating: For each combination of insulation board and substrate, when tested in accordance with ASTM C 297/C 297M, maximum adhesive failure of 25 percent unless flatwise tensile bond strength exceeds 15 psi in all samples.
- F. Water Penetration Resistance: No water penetration beyond the plane of the base coat after 15 minutes, when tested in accordance with ASTM E 331 at 6.24 psf differential pressure with tracer dye in the water spray; include in tested sample at least two vertical joints and one horizontal joint of same type to be used in construction; disassemble sample if necessary to determine extent of water penetration.
- G. Drainage Efficiency: Average minimum efficiency of 90 percent, when tested in accordance with ASTM E 2273 for 75 minutes.
- H. Salt Spray Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating after 300 hours exposure in accordance with ASTM B 117, using at least three samples matching intended assembly, at least 4 by 6 inches in size.
- I. Freeze-Thaw Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating when viewed under 5x magnification after 10 cycles, when tested in accordance with ICC-ES AC 219 or 235.
- J. Freeze-Thaw Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating when viewed under 5x magnification after 60 cycles, when tested in accordance with EIMA 101.01.
- K. Weathering Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating when viewed under 5x magnification after 2000 hours of accelerated weathering conducted in accordance with ASTM G 153 Cycle 1 or ASTM G 155 Cycle 1, 5, or 9.
- L. Water Degradation Resistance: No cracking, checking, crazing, erosion, blistering, peeling,

delamination, or corrosion of finish coating after 14 days exposure, when tested in accordance with ASTM D 2247.

- M. Mildew Resistance: No growth supported on finish coating during 28 day exposure period, when tested in accordance with ASTM D 3273.
- N. Abrasion Resistance Of Finish: No cracking, checking or loss of film integrity when tested in accordance with ASTM D 968 with 500 liters of sand.
- O. Impact Resistance: Construct EIFS system to provide the following impact resistance without exposure of broken reinforcing mesh, when tested in accordance with ASTM E 2486:
 - 1. Standard: 25 to 49 in-lb, for areas not indicated as requiring higher impact resistance.

2.02 MATERIALS

- A. Finish Coating Top Coat: Water-based, air curing, acrylic or polymer-based finish with integral color and texture.
 - 1. Texture: Fine.
 - 2. Color: As selected from manufacturer's range of standard colors.
- B. Base Coat: Fiber-reinforced, acrylic or polymer-based product compatible with insulation board and reinforcing mesh.
- C. Reinforcing Mesh: Balanced, open weave glass fiber fabric, treated for compatibility and improved bond with coating, weight, strength, and number of layers as required to meet required system impact rating.
- D. Insulation Board: Molded, expanded polystyrene board; ASTM C 578, Type I; with the following characteristics:
 - 1. Grooved Board: Back side of board adjacent to sheathing grooved with vertical channels designed to allow moisture to drain; at drainage points provide board configuration that permits drainage to the exterior.
 - 2. Board Size: 24 by 48 inches.
 - 3. Board Size Tolerance: plus/minus 1/16 inch from square and dimension.
 - 4. Board Thickness: As indicated on drawings.
 - 5. Thickness Tolerance: plus/minus 1/16 inch maximum.
 - 6. Board Edges: Square.
 - 7. Thermal Resistance (R factor per 1 in (25.4 mm)) at 75 degrees F: 3.60.
 - 8. Board Density: 0.9 lb/cu ft.
 - 9. Compressive Resistance: 10 psi.
 - 10. Flame Spread Index: 25 or less, when tested in accordance with ASTM E 84.
 - 11. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E 84.
 - 12. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/450, when tested in accordance with ASTM E 84.
- E. Water-Resistive Barrier: Fluid-applied coating forming air and water barrier membrane; applied to sheathing; furnished or approved by EIFS manufacturer.

2.03 ACCESSORY MATERIALS

- A. Insulation Adhesive: Type required by EIFS manufacturer for project substrate.
- B. Metal Flashings: As specified in Section 07620.
- C. Trim: EFS and EIFS manufacturer's standard PVC or galvanized steel trim accessories, as required for a complete project and including starter track, and drainage accessories.
- D. Sealant Materials: As recommended by EFS and EIFS manufacturer.

PART 3 EXECUTION

3.01 GENERAL

- A. Install in accordance with EFS and EIFS manufacturer's instructions and ASTM C 1397.
- B. Where different requirements appear in either document, comply with the most stringent.
- C. Neither of these documents supercedes the provisions of the Contract Documents that define the contractual relationships between the parties or the scope of work.

3.02 INSTALLATION - WATER-RESISTIVE BARRIER

- A. Apply barrier coating as recommended by coating manufacturer; prime substrate as required before application.
- B. Seal all substrate transitions and intersections with other materials to form continuous water-resistive barrier on exterior of sheathing, using method recommended by manufacturer.
- C. At door and window openings, seal water-resistive barrier to rough opening structure before installation of metal flashings, sills, or frames, using method recommended by manufacturer.
- D. At moving expansion joints, apply flashing tape across and recessed into joint with U-loop forming continuous barrier but allowing movement.
- E. Lap flashing tape at least 2 inches on each side of joint or transition.

3.03 INSTALLATION - INSULATION

- A. Install in accordance with manufacturer's instructions.
- B. Prior to installation of boards, install starter track and other trim level and plumb and securely fastened. Install only in full lengths, to minimize moisture intrusion; cut horizontal trim tight to vertical trim.
- C. Install back wrap reinforcing mesh at all openings and terminations that are not to be protected with trim.
- D. On wall surfaces, install boards horizontally. On horizontal surfaces, install boards on soffits and trim as indicated on drawings.
- E. Place boards in a method to maximize tight joints. Stagger vertical joints and interlock at corners. Butt edges and ends tight to adjacent board and to protrusions. Achieve a continuous flush insulation surface, with no gaps in excess of 1/16 inch.
- F. Rasp irregularities off surface of installed insulation board.
- G. Adhesive Attachment: Use method required by manufacturer to achieve drainage efficiency specified; do not close up drainage channels when placing insulation board.

3.04 INSTALLATION - FINISH

- A. Base Coat: Apply in thickness as necessary to fully embed reinforcing mesh, wrinkle free, including back-wrap at all terminations of the EFS and EIFS. Install reinforcing fabric as recommended by EIFS manufacturer.
 - 1. Lap reinforcing mesh edges and ends a minimum of 2-1/2 inches.
 - 2. Allow base coat to dry a minimum of 24 hours before next coating application.
- B. Install expansion joints at floor lines as recommended by EFS and EIFS manufacturer.
- C. Apply finish coat after base coat has dried not less than 24 hours and finish to a uniform texture and color.
- D. Finish Coat Thickness: 1/16 inch.
- E. Apply sealant at finish perimeter and expansion joints in accordance with Section 07900.

3.05 CLEANING

- A. Do not permit finish surface to become soiled or damaged.

- B. Remove excess and waste EFS and EIFS materials from project site.
- C. Clean surfaces and work areas of foreign materials resulting from operations.

END OF SECTION