
SECTION 07 24 00
EXTERIOR INSULATION AND FINISH SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Repairs to wall area, corners, aesthetic joints and expansion joints as required by existing conditions and determined in the field.
- B. Cleaning of existing EIF system to receive new coating/paint finish following repairs.

1.2 RELATED REQUIREMENTS

- A. Section 07 92 00 - Joint Sealants: Sealing joints between EIFS and adjacent construction and penetrations through EIFS.

1.3 REFERENCE STANDARDS

- A. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus 2019.
- B. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation 2022.
- C. ASTM C1397 - Standard Practice for Application of Class PB Exterior Insulation and Finish Systems (EIFS) and EIFS with Drainage 2013 (Reapproved 2019).
- D. ASTM D968 - Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive 2022.
- E. ASTM D2247 - Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity 2015 (Reapproved 2020).
- F. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber 2021.
- G. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference 2000 (Reapproved 2023).
- H. ASTM E2486/E2486M - Standard Test Method for Impact Resistance of Class PB and PI Exterior Insulation and Finish Systems (EIFS) 2022.
- I. ASTM G153 - Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials 2013 (Reapproved 2021).
- J. ASTM G155 - Standard Practice for Operating Xenon Arc Lamp Apparatus for Exposure of Materials 2021.
- K. ICC-ES AC219 - Acceptance Criteria for Exterior Insulation and Finish Systems 2009, with Editorial Revision (2014).
- L. ICC-ES AC235 - Acceptance Criteria for EIFS Clad Drainage Wall Assemblies 2009, with Editorial Revision (2012).
- M. NFPA 259 - Standard Test Method for Potential Heat of Building Materials 2023.
- N. NFPA 268 - Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Energy Source 2022.
- O. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components 2023.

1.4 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

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- 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.

1.5 QUALITY ASSURANCE

- A. Maintain copy of specified installation standard and manufacturer's installation instructions at project site during installation.
- B. EIFS Manufacturer Qualifications: Provide EIFS 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 5 years.
- C. Insulation Manufacturer Qualifications: Approved by manufacturer of EIFS and approved and labeled under third party quality program as required by applicable building code.
- D. Installer Qualifications: Company specializing in the type of work specified and with at least five years of documented experience.

1.6 MOCK-UP

- A. Construct mock-up of typical EIFS repair.
- B. Locate mock-up at approved location convenient for comparison to finished work.
- C. Mock-up may remain as part of the Work.

1.7 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: Store materials as directed by manufacturer's written instructions.
 - 1. Protect adhesives and finish materials from freezing, temperatures below 40 degrees F and temperatures in excess of 90 degrees F.
 - 2. Protect Portland cement based materials from moisture and humidity. Store under cover off the ground in a dry location.
 - 3. Protect insulation materials from exposure to sunlight.

1.8 FIELD CONDITIONS

- A. Do not prepare materials or apply EIFS under conditions other than those described in the manufacturer's written instructions.
- B. Do not prepare materials or apply EIFS during inclement weather unless areas of installation are protected. Protect installed EIFS areas from inclement weather until dry.
- C. Do not install coatings or sealants when ambient temperature is below 40 degrees F.
- D. Do not leave installed insulation board exposed to sunlight for extended periods of time.

1.9 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Provide manufacturer's standard material warranty, covering a period of not less than 5 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

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- A. Exterior Insulation and Finish Systems Manufacturers:
1. BASF Wall Systems: www.senergy.basf.com/#sle.
 2. Dryvit Systems, Inc: www.dryvit.com/#sle.
 3. Parex USA, Inc: www.parex.com/#sle.
 4. Sto Corp: www.stocorp.com/#sle.

2.2 **EXTERIOR INSULATION AND FINISH SYSTEM**

- A. Exterior Insulation and Finish System: 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.
- B. 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. 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.
- C. Water Penetration Resistance: No water penetration beyond the plane of the base coat/insulation board interface after 15 minutes, when tested in accordance with ASTM E331 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.
- D. Salt Spray Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating after 300 hours exposure in accordance with ASTM B117, using at least three samples matching intended assembly, at least 4 by 6 inches in size.
- E. 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 AC219 or ICC-ES AC235.
- F. 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 G153 Cycle 1 or ASTM G155 Cycles 1, 5, or 9.
- G. 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 D2247.
- H. Mildew Resistance: No growth supported on finish coating during 28 day exposure period, when tested in accordance with ASTM D3273.
- I. Abrasion Resistance Of Finish: No cracking, checking or loss of film integrity when tested in accordance with ASTM D968 with 113.5 gallons of sand.
- J. Impact Resistance: Construct system to provide the following impact resistance without exposure of broken reinforcing mesh, when tested in accordance with ASTM E2486/E2486M:
1. Standard: 25 to 49 in-lb, for repairs 10'-0" and higher above finish grade.
 2. Medium: 50 to 89 in-lb, for repairs from 6'-0" above finish grade to 10'-0" above finish grade.
 3. High: 90 to 150 in-lb, for repairs from finish grade to 6'-0" above finish grade.

2.3 **MATERIALS**

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- A. Finish Coating Top Coat: Water-based, air curing, acrylic or polymer-based finish with integral color and texture.
 - 1. Texture: Match existing, field verify.
 - 2. Color: As selected by Architect from manufacturer's standard range to match existing.
 - B. Base Coat: Fiber-reinforced, acrylic or polymer-based product compatible with insulation board and reinforcing mesh, Class PB.
 - 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. Expanded Polystyrene (EPS) Board Insulation: Complies with ASTM C578.
 - 1. Board Thickness: To match existing.
 - 2. Board Edges: Square.

2.4 ACCESSORY MATERIALS

- A. Insulation Adhesive: Type required by EIFS manufacturer for project substrate.
- B. Sealant Materials: Compatible with EIFS materials and as recommended by EIFS manufacturer.

2.5 CLEANING MATERIALS

- A. General Purpose Cleaners: To be verified by the selected EIFS manufacturer use one of the following:
 - 1. ABR Products, Inc. - Building Wash 3.
 - 2. Prosoco - Enviro Klean® EIFS Clean 'N Prep.
 - 3. Shore Corporation - 2600 EIFScrub.
- B. Mildew and Algae Cleaner: To be verified by the selected EIFS manufacturer use one of the following:
 - 1. Prosoco - ReVive.
 - 2. Or Equal as approved by EIFS manufacturer. Provide approval letter from manufacturer that cleaner is acceptable.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that areas to be repaired are free of oil, dirt, other surface contaminants, efflorescence, loose materials, or protrusions that could interfere with EIFS installation and is of a type and construction that is acceptable to EIFS manufacturer. Do not begin work until substrate and adjacent materials are complete and thoroughly dry.

3.2 PREPARATION

- A. Apply primer to substrate as recommended by EIFS manufacturer for project conditions.

3.3 INSTALLATION - GENERAL

- A. Install in accordance with EIFS manufacturer's instructions and ASTM C1397.
 - 1. Where different requirements appear in either document, comply with the most stringent.
 - 2. Neither of these documents supercedes provisions of Contract Documents that defines contractual relationships between parties or scope of this work.
 - 3. Repair procedures indicated below are a general decription and may vary depending upon which EIFS manufacturer is selected ad their respective repair requirements, recommendations and procedures. Finished repaired areas shall provide a like new finish and be ready for new

paint/coating finish.

3.4 REPAIR PROCEDURE - SMALL PUNCTURE HOLES AND SMALL CRACKS

- A. Provide materials and procedures for repair of small puncture holes and small cracks as recommended by the selected EIFS manufacturer.

3.5 REPAIR PROCEDURE - FIELD

- A. Mask off an area slightly larger than the damaged area. Using a sharp utility knife, hand or circular saw with a carborundum blade, cut into the EIFS down to the substrate, outside of damaged area. Remove the damaged EIFS exposing a neat uniform size area slightly larger than the damage area.
- B. Examine the piece removed to determine if there is any damaged to the sheathing.
- C. If any damage to the substrate is present, repair prior to EIFS application. Notiy Architect if damage is present.
- D. Grind off finish a minimum 3 in (76 mm) to expose the existing base coat layer. CAUTION: Care should be taken not to damage the reinforcing mesh with the grinder. The edges of the finish should be sharp, clean and non-tapered beyond the cut out area.
- E. Using the appropriate fasteners and/or adhesive install insulation. Ensure overall tightness at the cut line and sliver if necessary.
- F. Apply new base coat (cementious/noncementious) and mesh overlapping onto existing exposed base coat layer approximately 2 1/2 in (64 mm). Ensure that the newly applied base coat is flat and is seated approximately 1/16 in (1.6 mm) below the surface of the existing finish. Allow to fully dry (minimum. 24 hours).

3.6 REPAIR PROCEDURE - CORNER

- A. Using a sharp utility knife, hand or circular saw with a carborundum blade, cut approximately 3 in (76 mm) along each side of the corner down to the substrate. With a margin trowel or similar tool, carefully remove the sections.
- B. Examine the piece removed to determine if there is any damaged to the sheathing.
- C. If any damage to the substrate is present, repair prior to EIFS application. Notiy Architect if damage is present.
- D. Grind off excessive finish coat minimum in (76 mm) on each side of the cut out section to expose the existing base coat layer. Do not cut into reinforcing mesh with grinder. The edges of the finish should be sharp, clean and non-tapered from the finish down to the base coat layer.
- E. Install new insulation board to the substrate tight against existing insulation with the appropriate adhesive or fasteners. Sliver all gaps to ensure there is no space between insulation boards. Do not use base coat to fill gaps between insulation board joints.
- F. Mask off the existing finish coat. Apply a layer of reinforcing corner mesh embedded in base coat over newly installed insulation section overlapping minimum 2 1/2 in (64 mm) onto existing base coat.
- G. Install a continuous piece of reinforcing mesh (Standard or Standard Plus™) wrapping around the corner and extended past opposite side exposed insulation and lap onto existing base coat and mesh minimum 2 1/2 in (64 mm). Ensure that the base coat between the old and the new is flat and seated approximately 1/16 in (1.6 mm) below the surface of the existing finish coat. Allowing a 1/16 in (1.6 mm) recess is necessary so the finish coat, when applied, will become overall flush with the existing finish coat. Allow to fully dry.
- H. Mask off the existing finish. Apply new finish and blend new texture into existing texture.

3.7 REPAIR PROCEDURE - AESTHETIC REVEALS

- A. Clean the area to remove all dust, dirt, algae or other surface contamination as well as any loose material.
- B. Install a small closed cell backer rod or bond breaker tape along the base of the groove, to provide the proper sealant joint geometry and to avoid 3-sided adhesion. Small intermittent dabs of sealant may be used to maintain position until the sealant is applied.
- C. Apply the sealant primer as recommended by sealant manufacturer to each surface and allow it to dry.
- D. Install and properly tool the sealant in accordance with the sealant manufacturer's instructions. A minimum 1/4 in (6.4 mm) contact area to the EIFS surface along each side of the groove is recommended.
- E. Protect the joint from weather until sealant has achieved adequate cure.

3.8 INSTALLATION - INSULATION

- A. Install in accordance with manufacturer's instructions.
- B. Where areas of damage to insulation have occurred, remove existing damaged insulation to existing substrate. Replace removed insulation with new insulation to match existing in type and thickness.
- C. Install back wrap reinforcing mesh at all openings and terminations that are not to be protected with trim.
- D. 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.
- E. Fill gaps greater than 1/16 inch with strips or shims cut from the same insulation material.
- F. Rasp irregularities off surface of installed insulation board.
- G. Mechanical Fastening: Space fasteners as recommended by EIFS manufacturer.
- H. Adhesive Attachment: Use method recommended by EIFS manufacturer.

3.9 INSTALLATION - CLASS PB FINISH

- A. Base Coat: Apply in thickness as necessary to fully embed reinforcing mesh, wrinkle free, including back-wrap at terminations of 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. At areas subject to abuse, install second layer of reinforcing mesh embedded in second coat of base coating, tightly butting ends and edges of mesh.
- C. Apply finish coat after base coat has dried not less than 24 hours, embed finish aggregate, and finish to a uniform texture and color.
- D. Finish Coat Thickness: As recommended by manufacturer.
- E. Seal control and expansion joints within the field of exterior finish and insulation system, using procedures recommended by sealant and finish system manufacturers.
- F. Apply sealant at finish perimeter and expansion joints in accordance with Section 07 92 00 - Joint Sealants.

3.10 CLEANING

- A. Clean EIFS surfaces and work areas of foreign materials resulting from EIFS operations.

3.11 PROTECTION

- A. Protect completed work from damage and soiling by subsequent work.

END OF SECTION 07 24 00