

SECTION 07240

EXTERIOR INSULATION AND FINISH SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Class PB Exterior Insulation and Finish System.
- B. Flexible Class PM Exterior Insulation and Finish System.
- C. Field-applied installation.
- D. Prefabricated panelized installation.

1.2 RELATED SECTIONS

- A. Section 03300 - Cast-In-Place Concrete.
- B. Section 04810 - Unit Masonry Assemblies.
- C. Section 05400 - Cold Formed Metal Framing.
- D. Section 06100 - Rough Carpentry: Sheathing.
- E. Section 07620 - Sheet Metal Flashing and Trim.
- F. Section 07900 - Joint Sealers.
- G. Section 09220 - Portland Cement Plaster.

1.3 REFERENCES

- A. ASTM C 79 - Standard Specification for Gypsum Sheathing Board.
- B. ASTM C 150 - Standard Specification for Portland Cement.
- C. ASTM C 578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
- D. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.
- E. ASTM C 1177 - Standard Specification for Glass Mat Gypsum Board Substrate for Use as Sheathing.
- F. ASTM D 968 - Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive.
- G. ASTM D 2247 - Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.

- H. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- I. ASTM E 108 - Standard Test Methods for Fire Tests of Roof Coverings.
- J. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
- K. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- L. ASTM G 23 - Standard Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials.
- M. EIMA 101.86 - Standard Test Method for Resistance of Exterior Insulation and Finish Systems, Class PB, to the Effects of Rapid Deformation (Impact); EIFS Industry Members Association.
- N. FS TT-C-555B - Coating, Textured (For Interior and Exterior Masonry Surfaces).
- O. MIL STD 810B - Environmental Test Methods and Engineering Guidelines; Fungus.

1.4 DEFINITIONS

- A. Field Applied Application: EIFS applied to substrate in final position on the structure.
- B. Prefabricated Panelized Application: Panels prefabricated away from final position on the structure and later installed on the structure. Panelized application consists of EIFS as applied to sheathing substrate that has been fastened to light gage steel framing panels.
- C. Backwrapping: Continuation of base coat/adhesive and fiberglass reinforcing fabric around edge of insulation board and onto substrate beneath insulation.
- D. Edgewrapping: Continuation of base coated fiberglass reinforcing fabric around edge of insulation board and onto rough opening wall framing or masonry.

- E. Expansion Joint: Sealant, back-up material, and primer manufactured by others, forming a movable juncture between adjacent materials.

1.5 SYSTEM DESCRIPTION

A. Exterior Insulation and Finish System Components:

1. Parex EIFS Standard System with Cementitious Base Coat, consisting of Expanded Polystyrene Insulation (EPS) Board, Adhesive, Cementitious Base Coat with embedded Reinforcing Fabric Mesh, Primer (Optional), and Finish Coat.
2. Parex EIFS Standard System with Full Synthetic Base Coat, consisting of Expanded Polystyrene Insulation (EPS) Board, Adhesive, Full Synthetic Base Coat with embedded Reinforcing Mesh, Primer (Optional), and Finish Coat.
3. Parex EIFS Premium System with Cementitious Base Coat, consisting of Expanded Polystyrene Insulation (EPS) Board, Adhesive, Cementitious Base Coat with embedded Reinforcing Fabric Mesh, Second Base Coat Layer, Primer, and Finish Coat.
4. Parex EIFS Premium System with Full Synthetic Base Coat, consisting of Expanded Polystyrene Insulation (EPS) Board, Adhesive, Full Synthetic Base Coat with embedded Reinforcing Mesh, Second Base Coat Layer, Primer, and Finish Coat.
5. Parex EIFS I-C Silver System, consisting of Expanded Polystyrene Insulation (EPS) Board, Adhesive, Polymer-Modified Base Coat with embedded Reinforcing Fabric Mesh, Second Base Coat, Primer, and Finish Coat.
6. Parex EIFS I-C Gold System, consisting of Extruded Polystyrene Insulation Board, Mechanical Fasteners, Polymer-Modified Base Coat with embedded Reinforcing Fabric Mesh, Second Base Coat Layer, Primer, and Finish Coat.

B. System Functional Criteria:

1. General Requirements:
 - a. Insulation board: Maximum thickness in accordance with applicable building code and manufacturer requirements; completely encapsulate insulation board edges at terminations, using mesh reinforced base coat, substrate material, or metal track.

- b. Inclined surfaces: Minimum slope of 1 unit of rise to 2 units of run, with maximum run of 12 inches (300 mm), unless otherwise approved by manufacturer in writing prior to installation.
 - c. Flashing: Continuous and watertight, and as specified in Section 07620.
2. Substrate Systems:
- a. Design to withstand applicable design loads.
 - b. Maximum deflection of 1/240 of span under positive or negative design load, unless otherwise approved by manufacturer in writing prior to installation.
 - c. Installed flat to a tolerance of 1/4 inch in 4 feet (1:200).
3. Impact Resistance Classification, in accordance with EIMA 101.86:
- a. Standard: 25-49 inch-lbs (2.83-5.54 J).
 - b. Medium: 50-89 inch-lbs (5.65-10.1 J).
 - c. High: 90-150 inch-lbs (10.2-17 J).
 - d. Ultra-High: Over 150 inch-lbs (17.1 J).
4. Expansion Joints: Install continuous expansion joints as follows, whether or not specifically indicated on the drawings:
- a. At building expansion joints.
 - b. At substrate expansion joints.
 - c. At floor lines in wood frame construction.
 - d. At changes in substrate, except where substrates have continuous structural connection to each other.
 - e. Where prefabricated panels abut one another or other materials.
 - f. As shown on drawings, where significant structural movement occurs, such as at changes in roof line or changes in building shape or structural system.
 - g. Minimum width as provided under Section 07900, but not less than 1/2 inch (13 mm) where EIFS abuts other materials and not less than 3/4 inch (19 mm) where EIFS abuts EIFS.
5. Standard Details: Comply with manufacturer's published details, unless otherwise specifically indicated on the drawings.

C. Performance Requirements:

1. Fire Performance:
- a. Flame Spread: Maximum 5, per ASTM E 84.
 - b. Smoke Developed: Maximum 10, per ASTM E 84.

- c. Large Scale Vertical Fire Spread: No vertical or horizontal flame spread, prevented fire involvement of insulation core, per modified ASTM E 108, and UBC 26-4 for Standard System.
 - d. Radiant Exposure, per BOCA, National, and Standard Codes: Passes.
 - e. Fire Resistance: Standard fire-resistive assembly rating maintained, per ASTM E 119.
2. Environmental Durability:
- a. Accelerated Weathering: No deleterious effects after 2000 hours, per ASTM G 23.
 - b. Wind-Driven Rain: No penetration of water after 24 hours, per FS TT-C-555B.
 - c. Water Penetration: Pass EIMA Test 101.01, per ASTM E 331.
 - d. Moisture Resistance: No deleterious effects after 14 days, per ASTM D 2247.
 - e. Abrasion Resistance: No deleterious effects after 500 liters, per ASTM D 968.
 - f. Fungus Resistance: No growth after 28 days, per MIL STD 810B.

1.6 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Verification Samples: Submit verification samples of EIFS of adequate size to represent each color and texture to be utilized on project. Employ same tools and techniques for samples as required for actual application.
- C. Maintenance Instructions: Upon completion of EIFS installation, submit manufacturer's standard maintenance instructions.
- D. Reports and Certificates:
 - 1. Submit selected test reports by independent testing laboratory, verifying performance of EIFS.
 - 2. Submit current certificate of training for EIFS applicator.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Not less than five years of manufacturing EIFS in the United States.

2. Demonstrated experience in projects of same size and scope as this project.
- B. Single Source: Obtain all components of EIFS from one manufacturer or from authorized distributors of that manufacturer. Do not substitute components without written authorization from the specified manufacturer.
 - C. Applicator Qualifications:
 1. Trained by manufacturer of EIFS.
 2. Current training certificate from manufacturer.
 3. Demonstrated experience in installation of plaster and plaster-like materials.
 - D. Regulatory Requirements:
 1. Provide insulation board produced and labeled under a third party quality program, as required by applicable building code.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver EIFS materials to project site in manufacturer's original, unopened containers with labels intact. Inspect materials for damage and notify manufacturer of any discrepancies. Do not use unsatisfactory materials in project.
- B. Storage: Store EIFS materials in a cool, dry location, out of sunlight, protected from weather and other harmful environmental conditions, at a temperature above 40 degrees F (4 degrees C) and below 110 degrees F (43 degrees C), in accordance with manufacturer's instructions.

1.9 ENVIRONMENTAL CONDITIONS

- A. Ambient Air Temperature: Minimum 40 degrees F (4 degrees C) and rising, for minimum 24 hour period after installation.
- B. Minimum Substrate Temperature: 40 degrees F (4 degrees C).
- C. Inclement Weather: Do not install EIFS during inclement weather, unless area of installation is fully protected.

1.10 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Submit manufacturer's standard limited warranty upon completion of EIFS installation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Provide materials manufactured by Parex, Inc.; P.O. Box 189, Redan, GA 30074. ASD. Telephone 800-LE-PAREX or 770-482-7229. Fax 770-482-6878.
- B. Substitutions are not permitted.
- C. Submit substitution requests in accordance with Section 01600 - Product Requirements.

2.2 EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)

- A. Provide Parex EIFS Standard System.
 - 1. Base Coat: Base Coat 301 (Cementitious).
 - 2. Base Coat: Base Coat 302 (Full Synthetic).
 - 3. Mesh Reinforcement: As required to meet the following EIMA Impact Classification:
 - a. Locations not otherwise indicated: Standard.
 - b. Location: _____: Medium.
 - c. Location: _____: High.
 - d. Location: _____: Ultra-High.
 - 4. Tracks: Square Edge Track 361, and Drip Edge Track 362, as required for project conditions.
 - 5. Tape: Seal Tape 360.
- B. Provide Parex EIFS Premium System.
 - 1. Base Coat: Base Coat 301 (Cementitious).
 - 2. Base Coat: Base Coat 302 (Full Synthetic).
 - 3. Mesh Reinforcement: As required to meet the following EIMA Impact Classification:
 - a. Locations not otherwise indicated: Standard.
 - b. Location: _____: Medium.
 - c. Location: _____: High.
 - d. Location: _____: Ultra-High.
 - 4. Tracks: Square Edge Track 361, and Drip Edge Track 362, as required for project conditions.
 - 5. Tape: Seal Tape 360.
- C. Provide Parex EIFS I-C Silver System.

1. Base Coat: I-C Base Coat 306.
 2. Base Coat: I-C One Base Coat 308.
 3. Mesh Reinforcement: As required to meet the following EIMA Impact Classification:
 - a. Locations not otherwise indicated: Medium.
 - b. Location: _____: High.
 4. Tracks: Square Edge Track 361, and Drip Edge Track 362, as required for project conditions.
 5. Tape: Seal Tape 360.
- D. Provide Parex EIFS I-C Gold System.
1. Base Coat: I-C Base Coat 306.
 2. Base Coat: I-C One Base Coat 308.
 3. Mesh Reinforcement: As required to meet the following EIMA Impact Classification:
 - a. Locations not otherwise indicated: Medium.
 - b. Location: _____: High.
 4. Tracks: Square Edge Track 361, and Drip Edge Track 362, as required for project conditions.
 5. Tape: Seal Tape 360.
- E. Parex System Finish:
1. Type: DPR Synthetic Finishes 300 Series.
 2. Type: DPR Siliconized Finishes 300 S Series.
 3. Type: Synthetic Finishes 500 Series.
 4. Type: Cerastone 630.
 5. Type: _____.
 6. Texture: _____.
 7. Color: _____.

2.3 MATERIALS

A. Adhesives:

1. Adhesive 301: 100% acrylic polymer based, requiring the addition of Portland cement; used as an adhesive to laminate EPS Insulation Board to appropriate substrates.
2. Adhesive 301 Dry: Copolymer based, factory blend of cement and proprietary ingredients; used as an adhesive to laminate EPS Insulation Board to appropriate substrates.
3. Synthetic Adhesive 302: 100% acrylic polymer based; ready to use, applied without the addition of cement; used as an adhesive to laminate EPS Insulation Board to appropriate substrates.
4. Sheathing Adhesive 303: 100% acrylic polymer based; ready to use, applied without the addition of cement;

used as an adhesive to laminate EPS Insulation Board to appropriate substrates.

B. Mechanical Fasteners:

1. Windload ULP Plate Wind-Lock screws, as manufactured by the Windlock Corporation, sized to penetrate into framing members.
2. Windload ULP Plate Wind-Lock masonry anchors, as manufactured by the Windlock Corporation.

C. Insulation Board:

1. Expanded polystyrene (EPS) conforming to ASTM C 578, Type I, and conforming to EIMA Guide Specifications.
2. Manufactured and labeled under a third party quality program as required by applicable building code, by a manufacturer approved by Parex.
3. Size: Maximum of 2 feet by 4 feet (600 by 1200 mm).
4. Thickness: As indicated on drawings, but not less than 3/4 inch (19 mm).
5. Thickness: As indicated on drawings, but not less than 1 inch (25 mm), except 3/4 inch (19 mm) at reveals not wider than 3 inches (75 mm).

D. Insulation Board:

1. Expanded polystyrene (EPS) conforming to ASTM C 578, Type IV.
2. Manufactured and labeled under a third party quality program as required by applicable building code, by a manufacturer approved by Parex.
3. Size: 2 feet by 8 feet (600 by 2400 mm) or 4 feet by 8 feet (1200 by 2400 mm).
4. Thickness: As indicated on drawings, but not less than 1 inch (25 mm).

E. Base Coat:

1. Base Coat 301: 100% acrylic polymer base, requiring the addition of Portland cement.
2. Base Coat 301 Dry: Copolymer based, factory blend of cement and proprietary ingredients, requiring the addition of water only.
3. Full Synthetic Base Coat 302: 100% acrylic polymer base; ready to use, applied without the addition of cement.

F. Base Coat:

1. I-C Base Coat 306: Self-gaging, flexible polymer modified base coat consisting of two factory packaged components: I-C Liquid and I-C Dry, to be mixed on site with no addition of cement.

2. I-C One Base Coat 308: Self-gaging, copolymer based, factory blend of cement proprietary ingredients.
- G. Reinforcing Mesh:
1. Standard Non-Woven Mesh 353: Weight 6 oz/sq yd (203 g/sq m); standard non-woven mesh 353 protected against alkali with a 40 g/sq yd (48 g/sq m) coating. Standard reinforcement of Parex EIFS, or for use with High Impact 14 Mesh, or Ultra High Impact 20 Mesh.
 2. Long Detail Mesh 355: Weight 4.5 oz/sq yd (153 g/sq m). Reinforcing mesh used for wall with frequent details, or for use with High Impact 14 Mesh, or Ultra High Impact 20 Mesh.
 3. Short Detail Mesh 356: Reinforcing mesh used for backwrapping and details, and for lapping joints of Intermediate Impact 10 Mesh 358.10.
 4. Self Adhesive Detail Mesh 352: Reinforcing mesh used for complex details.
 5. Intermediate Impact 10 Mesh 358.10: Weight 10 oz/sq yd (339 g/sq m). Reinforcing mesh used with Parex EIFS Standard or Premium System to achieve EIMA medium impact strength, or with Parex I-C Silver or I-C Gold System to achieve EIMA high impact strength.
 6. High Impact 14 Mesh 358.14: Weight 14 oz/sq yd (475 g/sq m). Reinforcing mesh used with Parex EIFS Standard or Premium System; to achieve EIMA high impact strength.
 7. Ultra High Impact 20 Mesh 358.20: Weight 20 oz/sq yd (678 g/sq m). Reinforcing mesh used with Parex EIFS Standard or Premium System; to achieve ultra-high impact strength.
 8. Corner Mesh 357: Reinforcing mesh used as a corner reinforcement; required with Ultra-High Impact 20 Mesh.
- H. Primers:
1. Primer 310: 100% acrylic based coating to prepare surfaces for Parex finishes.
 2. Sanded Primer 313: 100% acrylic based coating to prepare surface for Parex Cerastone finish.
- I. Finish Coat:
1. Factory blended, 100% acrylic polymer based synthetic finish, integrally colored.
 2. Finish type, texture, and color: As selected by Architect.
 3. Finish type, texture, and color: As indicated in schedule.

- 4. Finish type, texture, and color: _____.
- J. Portland Cement: ASTM C 150, Type I or I-II, fresh and free of lumps.
- K. Water: Cool, clean, potable, and free of foreign matter; for adjusting workability.
- L. Accessories:
 - 1. Tape: Seal tape 360, self-adhering pre-compressed expanding tape for forming a weather seal.
 - 2. Tracks: PVC plastic accessories, used for termination of EIFS in lieu of backwrapping; to provide straight termination and joint lines and facilitate sealant maintenance.
 - a. Square Edge Track 361.
 - b. Drip Edge Track 362.

2.4 RELATED MATERIALS

- A. Sheathing:
 - 1. Gypsum Sheathing: As specified in Section 05400.
 - 2. Gypsum Sheathing: As specified in Section 06100.
 - 3. Gypsum Sheathing: ASTM C 79.
 - 4. Fiber-Faced Gypsum Sheathing: ASTM C 1177.
 - 5. Plywood: As specified in Section 06100.
 - 6. Plywood: Not less than 7/16 inch (11 mm) thick, minimum 4-ply APA-Engineered Wood Association Exposure 1; or Exterior Grade C-D or better.
 - a. Install with C side in contact with EIFS adhesive.
 - b. Comply with APA-Engineered Wood Association spacing recommendations for edge and end joints.
 - 7. Protect sheathing from weather before, during, and after installation of EIFS.
- B. Flashing: As specified in Section 07620.
- C. Joint Sealers: As specified in Section 07900.
- D. Joint Sealers: ASTM C 920, Grade NS, and as listed in EIFS manufacturer's current bulletin for compatible sealants.
 - 1. Expansion joints between panels of panelized EIFS: Ultra-low modulus sealant designed for minimum 100% elongation and minimum 50% compression and as selected by Architect.
 - 2. Perimeter seals around openings and penetrations: Low modulus sealant designed for minimum 50%

elongation and minimum 25% compression, and as selected by Architect.

3. Minimum joint widths:
 - a. Expansion joints within EIFS: 3/4 inch (19 mm).
 - b. Perimeter seals: 1/2 inch (13 mm).
4. Backer rod: Closed-cell polyethylene foam.
5. Application limitations:
 - a. Apply sealant to tracks, base coat, or primed base coat of EIFS.
 - b. Joint design, surface preparation, and sealant primer as recommended by sealant manufacturer and as required by project conditions.
6. Color: As selected by Architect.
7. Color: To match EIFS.
8. Color: As scheduled.
9. Color: _____.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrate to verify that it is a type acceptable to EIFS manufacturer.
- B. Verify soundness and integrity of surface, flatness, tightness of connections, and other criteria established by EIFS manufacturer.
- C. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protection: Protect surrounding material surfaces and areas during installation of EIFS. Protect EIFS from weather and other damage immediately after installation and until installation of sealants and flashing.
- B. Coordination:
 1. Coordinate installation of EIFS with work of other sections.
 2. Schedule work of this section for continuous EIFS installation, free of cold joints, scaffolding lines, texture variations, and other non-conforming conditions.

3.3 INSTALLATION

- A. General:
 - 1. Comply with printed installation instructions of EIFS manufacturer, except where they are exceeded by provisions of the drawings and specifications.
 - 2. Promptly flash or seal system terminations and cover tops of walls as installation proceeds, to prevent water infiltration; use temporary covers as required.
 - 3. Conform with requirements of construction documents and EIFS manufacturer's written instructions and drawing details.
- B. Install tracks, back-wrap mesh, or edge-wrap mesh at system terminations.
- C. Apply adhesive to backs of insulation boards with a notched trowel.
- D. Attach insulation board to substrate with correctly sized mechanical fasteners at spacing recommended by manufacturer.
 - 1. Verify that screws penetrate framing members.
- E. Install insulation board without gaps in a running bond pattern and interlocked at corners. Rasp irregularities off insulation board.
- F. Install insulation board without gaps in a running bond pattern and interlocked at corners. Thoroughly rasp the entire face of the insulation board.
- G. Apply base coat and fully embed mesh in base coat; include diagonal mesh patches at corners of openings and reinforcing mesh patches at joints of track sections.
- H. After first layer of base coat is dry, apply a second layer of base coat to provide a dry base coat total thickness of between 3/32 inch (2.4 mm) and 1/8 inch (3.2 mm).
- I. Apply multiple layers of base coat and mesh where required for specified impact resistance classification.
- J. Where multiple layers of mesh are used for increased impact resistance, base coat embedding the first layer of mesh need not dry before adding second layer of base coat and mesh.
- K. Apply base coat and bed mesh into wet base coat; mesh will be visible. When first layer of base coat is dry to the touch, apply a second layer of base coat to achieve a

total dry base coat thickness of between 1/8 inch (3.2 mm) and 5/32 inch (4 mm).

- L. Apply primer to base coat after base coat dries.
 - 1. Primer may be omitted if it is not required by the manufacturer's primer and base coat product data sheets for the specified finish coat.
- M. Apply finish coat to match specified finish type, texture, and color.

3.4 ADJUSTING AND CLEANING

- A. Clean EIFS surfaces of foreign materials and remove splattered EIFS materials from adjacent surfaces without damaging substrates.
- B. Remove excess and waste EIFS materials from project site.

3.5 PROTECTION

- A. Protect installed EIFS from damage due to other construction operations, and remove protections at substantial completion of project.

END OF SECTION