

## SECTION 07 21 00

# ENVERGE™ ALUMINUM FOIL CLAD FOAM-PLASTIC BOARD CONTINUOUS THERMAL INSULATION ELEVATE™ ROOFING, WALL, AND LINING SYSTEMS

*This specification is provided as a courtesy on an as-is basis and is not intended to substitute for specific design services provided by an architect, engineer, building envelope consultant, or other design professional. It is in the building owner's interest to consult with these professionals prior to executing the specified project. The building owner will ultimately assume the entire risk as to results, quality and performance of the insulation system specified.*

*EDITOR NOTE: Text underlined and/or red in color must be addressed to complete a final specification document. It is the sole responsibility of the editor to exercise appropriate care and sound professional judgment in the execution of this task.*

## PART 1 GENERAL

The project, Project Name located in City, ST, includes the provision of a complete Elevate roofing, wall, and lining systems Enverge continuous insulation and membrane barrier solution.

### 1.01 SUMMARY

- A. Provide continuous insulation, air barrier, and water barrier in the following exterior wall assemblies:
  - 1. MCM panels on steel stud or concrete masonry unit back-up walls
  - 2. Brick cavity wall on steel stud or concrete masonry unit back-up walls
  - 3. Cement plaster exterior finish on steel stud or concrete masonry unit back-up
  - 4. Vapor barrier materials and installation (This may be included in this specification, however, specification of vapor barrier to be determined by hygrothermal analysis.)
- B. Section Includes:
  - 1. Aluminum Foil Clad Foam-Plastic Board Insulation

### 1.02 RELATED SECTIONS [retain as present or needed]

- A. Section 04 20 00 Unit Masonry
- B. Section 04 42 00 Exterior Stone Cladding
- C. Section 07 25 00 Weather Barriers
- D. Section 07 27 00 Air Barriers
- E. Section 07 24 19 Water-Drainage Exterior Insulation and Finish System (EIFS)
- F. Section 07 42 13 Metal Composite Material Wall Panels
- G. Section 07 84 46 Fire-Resistive Joint Systems for insulation installed as part of a perimeter fire-resistive joint system.
- H. Section 09 26 13 Gypsum Veneer Plastering

### 1.03 REFERENCES

- A. Referenced Standards: These standards form part of this specification only to the extent they are referenced as specification requirements.
  - 1. Test method for breaking Load and Flexural Properties of Block-Type Thermal Insulation ASTM C203
  - 2. Test Method for compressive Properties of Rigid Cellular Plastics ASTM D1621
  - 3. Test Method for Apparent Density of Rigid Cellular Plastics ASTM D1622

4. Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging ASTM D2126
5. Test Method for Water Vapor Transmission of Materials ASTM E96/E96M
6. National Fire Protection Association (NFPA) 285: Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components Using the Intermediate-Scale, Multistory Test Apparatus

#### **1.04 SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. LEED Submittals:
  1. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of pre-consumer recycled content. Include statement indicating cost for each product having recycled content.
- C. Submit Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each product verifying qualities of insulation components meet or exceed specified requirements.
- D. Submit Field Inspection and Field-Testing Reports in accordance with Field Quality Control requirements.
- E. Manufacturers printed installation instructions for each type of material to be used.
- F. Submit Safety Data Sheets (SDS) for each type of insulation to be used.
- G. Samples: Submit the following material samples:
  1. 12" square insulation panels of each type and thickness of insulation specified
  2. Insulation fasteners
  3. Joint tape minimum of 12" long
  4. Flashing tape minimum of 12" long and of width specified
  5. Thru-wall flashing minimum of 12" long and of width specified
- H. Research/Evaluation Reports: For foam-plastic insulation, from ICC-ES

#### **1.05 QUALITY ASSURANCE**

- A. Source Limitations: Provide each type of building insulation and related accessories from one single manufacturer.
- B. Installer Qualifications:
  1. Contractor shall provide evidence of having completed 3 projects of similar size and scope in the past 3 years.
  2. Contractor shall provide evidence of certification by the rigid insulation manufacturer as having been properly trained in the proper installation of the submitted products.
- C. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- D. Assembly Fire Propagation Characteristics: Provide results of tests performed on wall assemblies tested by manufacturer in accordance with NFPA 285.
- E. Pre-Installation Meeting: Prior to start of insulation installation review and document insulation installation methods and procedures including:
  1. Participants
  2. Substrate conditions
  3. Manufacturer's installation guidelines
  4. Construction schedule
  5. Governing regulatory requirements and requirements for insurance
  6. Review field quality control procedures

## 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- B. Protect foam-plastic board insulation as follows:
  - 1. Do not expose to sunlight except to necessary extent for period of installation and concealment.
  - 2. Protect against ignition at all times. Do not deliver foam-plastic board materials to Project Site before installation time.
  - 3. Quickly complete installation and concealment of foam-plastic board insulation in each area of construction.

## PART 2 PRODUCTS

### 2.01 INSULATION

- A. Acceptable Manufacturer – Continuous Insulation: Elevate roofing, wall, and lining systems.  
[www.holcimelevate.com](http://www.holcimelevate.com).
- 1. Foil-Faced, Polyisocyanurate Board Insulation: ASTM C1289, Type I, Class 1, with maximum flame-spread and smoke-developed indexes of  $\leq 25$  and  $\leq 450$ , respectively, per ASTM E84.
  - a. Minimum Compressive Strength  $\geq 25$  psi when tested per ASTM D1621
  - b. Minimum Tensile Strength  $\geq 1000$  when tested per ASTM C209
  - c. Minimum Flexural Strength  $\geq 40$  psi when tested per ASTM C203
  - d. Water Vapor Transmission  $\leq 0.03$  perms per inch when tested per ASTM E96
  - e. Water Absorption Maximum  $\leq 1\%$  by volume when tested per ASTM C209
  - f. Dimensional Stability, Maximum  $\leq 0.05\%$  length and width, and  $\leq 3.5\%$  thickness when tested per ASTM D2126
  - g. Recycled Content: Pre-consumer recycled content not less than 3.4%
- B. Acceptable Products: Subject to compliance with requirements, provide the following:
  - 1. Enverge CI Foil Exterior Wall Insulation manufactured by Elevate roofing, wall, and lining systems.
- C. Adhesive for Bonding Insulation: Polyurethane construction adhesive with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates and as recommended by insulation manufacturer. Acceptable products include:
  - 1. LN 950 as manufactured by Liquid Nails Adhesive.
  - 2. Architect's approved equal.

### 2.02 INSULATION FASTENERS

- A. For mechanical attachment over wood or steel framing provide the following as applicable:
  - 1. Rodenhouse Grip-Lok® Auto Feed fastening system fasteners of length long enough to penetrate framing a minimum of 1 inch.
  - 2. Rodenhouse Thermal Grip® ci washers with Grip Deck fasteners of length long enough to penetrate framing a minimum of 1 inch.
  - 3. Wind-Lock ci-Lock plastic washer with coated fasteners of length long enough to penetrate framing a minimum of 1 inch
- B. For mechanical attachment over masonry and concrete back-up provide the following:
  - 1. Rodenhouse Inc. Plasti-Grip® PMF fasteners
- C. Adhesive:
  - 1. Polyurethane construction adhesive
    - a. Liquid Nails LN 950

- D. Insulation Board Joint Tape: Aluminum foil tape approved by insulation board manufacturer.
  - 1. Acceptable products include:
    - a. 4" wide Shurtape AF 100 manufactured by Shurtape Technologies, LLC
    - b. 4" and 6" wide Shurtape AF 975 manufactured by Shurtape Technologies, LLC
    - c. 4" and 6" wide Alumibond EB - AB 040-50 manufactured by Eternabond
- E. Flashing Membrane **[Retain Components as Needed]**
  - 1. EPDM Compatible System
    - a. Enverge 40 mil EPDM FlashGard™ Thru-Wall Flashing in 12", 16", 18", 20", 24", and 36" widths as applicable as manufactured by Elevate roofing, wall, and lining systems
    - b. Enverge 40 mil EPDM FlashGard Thru-Wall Self Adhered Flashing in 18", 24", and 36" widths as applicable as manufactured by Elevate roofing, wall, and lining systems
    - c. Enverge 50 mil EPDM FlashGard Thru-Wall Reinforced Flashing in 12" and 18" widths as applicable as manufactured by Elevate roofing, wall, and lining systems
    - d. Enverge 60 mil EPDM FlashGard Preformed; end dams, inside corners, outside corners as manufactured by Elevate roofing, wall, and lining systems
    - e. Bonding Adhesive as manufactured by Elevate roofing, wall, and lining systems
    - f. Splice Wash as manufactured by Elevate roofing, wall, and lining systems
    - g. 7877 Spray Adhesive/Primer as manufactured by Elevate roofing, wall, and lining systems
    - h. 1.5" Butyl tape
    - i. Termination bar
    - j. Coated drive pin
    - k. AP Fastener
    - l. Water Block Seal S-20
  - 2. Elastomeric Bitumen Compatible System
    - a. Enverge Thru-Wall Flashing Self Adhered in 18" as manufactured by Elevate roofing, wall, and lining systems
    - b. 6" Enverge Foil Flashing SA (Self Adhered) Tape as manufactured by Elevate roofing, wall, and lining systems
    - c. Enverge SB (Solvent Based) Primer as manufactured by Elevate roofing, wall, and lining systems
    - d. Enverge WB (Water Based) Primer as manufactured by Elevate roofing, wall, and lining systems
    - e. Enverge LVOC Primer as manufactured by Elevate roofing, wall, and lining systems
    - f. Enverge Corner Guard as manufactured by Elevate roofing, wall, and lining systems
  - 3. Sealant: Product with demonstrated capability to bond insulation anchors securely to substrates indicated without damaging insulation, fasteners, and substrates and a demonstrated compatibility with adjacent wall components and flashings. Acceptable products include:
    - a. EPDM Compatible System: Lap Sealant HS as manufactured by Elevate roofing, wall, and lining systems
    - b. Elastomeric Compatible System: Elastomeric Sealer as manufactured by Elevate roofing, wall, and lining systems

## **PART 3 INSTALLATION**

### **3.01 PREPARATION**

- A. Clean substrates of substances that are harmful to insulation including removing projections capable of puncturing foil facer, or that interfere with insulation attachment.

### **3.02 INSTALLATION, GENERAL**

- A. Install insulation with the long edge horizontal and either side to the exterior.

- B. Install in as large of pieces as possible to minimize joints.
- C. Offset successive courses of insulation by a minimum of one stud space in framed installations or 16 inches in solid back-up installations.
- D. Abut wall insulation tightly together both horizontally and vertically, and at all openings.
- E. Comply with insulation manufacturer's written installation instructions.
- F. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- G. Extend insulation to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- H. Provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths.
- I. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.
  - 1. Stagger successive layers a minimum of 16" both vertically and horizontally so joints in successive layers do not align.

**[Retain following as present]**

### **3.03 INSTALLATION ON MASONRY BACK-UP**

- A. Adhesive Installation:
  - 1. Install pads of adhesive spaced approximately 24 inches o.c. both ways on inside face, and as recommended by adhesive manufacturer.
  - 2. Fit courses of insulation between wall ties and other obstructions, with edges butted tightly in both directions. Press units firmly against inside substrates.
  - 3. Or in accordance with adhesive manufacturers guidelines, whichever is more stringent.
- B. Mechanical Fastener Installation:
  - 1. Fasten insulation to mock-up using manufacturer's acceptable integral plastic washers and fasteners as applicable for type of back-up and insulation thickness.
  - 2. Fit courses of insulation between wall ties and other obstructions, with edges butted tightly in both directions. Press units firmly against inside substrates.
  - 3. Supplement adhesive attachment of insulation by securing boards with plastic masonry fasteners at 24" o.c. both horizontal and vertical.

### **3.04 INSTALLATION OF INSULATION FOR FRAMED CONSTRUCTION**

- A. Comply with manufacturer's written instructions.
- B. Fasten insulation to framing using manufacturer's acceptable screws and washers as applicable for type of framing.
  - 1. Install field fasteners at 16" o.c. vertically and 16" o.c. horizontally in the field of the board.
  - 2. Install edge fasteners at 12" o.c. around perimeter of each board and at window and door openings.

### **3.05 AIR BARRIER INSTALLATION**

- A. Use manufacturer's acceptable 4" wide aluminum foil tape to seal all:
  - 1. board-to-board joints
  - 2. fastener heads
- B. Install 6" wide aluminum foil tape to seal all:
  - 1. end joints
  - 2. thru-wall penetrations such as windows, doors, or pipe penetrations
  - 3. joints between exterior wall insulation and adjacent air barrier materials

### **3.06 VAPOR RETARDER SYSTEM**

- A. Use manufacturer's acceptable 4" wide aluminum foil tape to seal
  - 1. all board-to-board joints
  - 2. all fastener heads
- B. Use manufacturer's acceptable 6" wide aluminum foil tape to seal all:
  - 1. end joints
  - 2. thru-wall penetrations such as windows, doors, or pipe penetrations

3. joints between exterior wall insulation and adjacent vapor retarder materials

### **3.07 FOR WATER BARRIER INSTALLATIONS**

- A. Use manufacturer's acceptable, compatible membrane flashing to seal all:
  1. joints between continuous insulation and adjacent materials.
  2. Interruptions of the water barrier such as at base of wall, over windowsills, window and door heads, shelf angles and duct penetrations.
  3. joints between the water barrier and roofing materials.
- B. Use manufacturer's acceptable 4" wide aluminum foil tape in a shiplap configuration to seal all:
  1. board-to-board joints
  2. fastener heads
- C. Use manufacturer's acceptable 6" wide aluminum foil tape in a shiplap configuration to seal all:
  1. end joints
  2. thru-wall penetrations such as window and door jambs, pipe, and duct penetrations

### **3.08 PROTECTION**

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.
- B. Do not leave continuous insulation uncovered and exposed to UV for longer than an aggregate of 60 days between storage and uncovered installation.

### **3.09 PROJECT CLEAN UP**

- A. Removal all packaging and properly recycle.
- B. Remove all scrap materials and properly dispose of offsite

**END OF SECTION**