
MANUFACTURER'S GUIDE SPECIFICATIONS

SECTION 07 27 23 RIGID FOAM BOARD INSULATING AIR AND WATER RESISTIVE BARRIER

COATINGS & WATERPROOFING

SECTION 07 27 23 FOAM PLASTIC INSULATION BOARD (FPIB) AIR AND WATER-RESISTIVE BARRIER

1 GENERAL

1.1 SECTION INCLUDES

- A. Product: a foam plastic insulation board (FPIB) consisting of closed cell polyisocyanurate foam core laminated with glass-backed reinforced aluminum foil facers. Sealant, flashing and membrane accessory products provided by same manufacturer as FPIB for installation of a continuous air and water resistive barrier.
- B. Materials and installation as indicated in Drawings to provide continuous insulation, continuous air barrier and water resistive barrier in above-grade walls.

1.2 RELATED SECTIONS

- A. Section 01 41 13 – Codes. [FPIB may trigger code requirement for NFPA 285 wall assembly test.]
- B. Section 01 83 16 – Exterior Enclosure Performance Requirements. [Continuous insulation, continuous air barrier, hygro-thermal performance, proper integration of FPIB with neighboring components.]
- C. Section 01 91 19 – Facility Shell Commissioning. [Address continuity of thermal and air barrier throughout the building enclosure, alignment of FPIB with fenestration thermal breaks, assure that FPIB does not interfere with wall weep/drainage systems and address any other issues involving proper incorporation of the FPIB into the building enclosure.]
- D. [Section] Cladding & Finish Attachment: If the FPIB is installed on the exterior side of the wall, exterior cladding shall be attached to structure through FPIB. If FPIB is installed on interior side of wall, interior finish shall be attached to structure through FPIB. Whether FPIB is installed on the exterior or interior, all penetrations made through the FPIB shall be sealed. This shall be accomplished by using fasteners with compression-seal washer plates, or by sealing the penetrations with rolled mastic, self-adhered flashing or STPE sealant. Evaluation of air and water leakage of the finished assembly is recommended in mockup construction. Sections affected include:
 - 1. Section 04 20 00 - Brick Veneer: through-wall flashing shall be attached to solid substrate
 - 2. Section 04 40 00 – Stone Veneer
 - 3. Section 07 42 00 – Wall Panels
 - 4. Section 07 46 00 – Siding
 - 5. Section 07 60 00 – Flashings and Sheet Metal
 - 6. Section 09 22 00 – Supports for Plaster and Gypsum Board
 - 7. Section 09 24 00 – Portland Cement Plastering
 - 8. Section 09 29 00 – Gypsum Board

- E. Wall substrate to which FPIB will be attached shall be sound, and able to support required fasteners securing FPIB and claddings. Sections affected include:
 - 1. Section 03 30 00 - Cast-In-Place Concrete
 - 2. Section 03 40 00 – Pre-Cast Concrete
 - 3. Section 04 20 00 – Concrete Masonry Unit
 - 4. Section 05 40 00 – Steel Studs
 - 5. Section 06 11 00 – Wood Framing
 - 6. Section 06 16 00 – Wood Sheathing
- F. Section 07 21 00 Insulation: - Fiberglass batt, mineral wool batt or spray polyurethane foam insulation applied in stud bays against FPIB.
- G. Section 07 25 00 - Weather Barriers. Installed over FPIB as follows:
 - 1. Open-joint “rainscreen” cladding: Install a UV-resistant blackout membrane over FPIB. Shall be 705 RS by Carlisle Coatings & Waterproofing Incorporated.
 - 2. Stucco, cultured stone and other adhered veneers: Provide code-compliant water resistive barrier between lath and FPIB.
 - 3. In adjacent construction: Tie weather barrier into termination of FPIB as indicated in drawings and instructions.
- H. Section 07 26 00 – Vapor Barriers. Sheet plastic installed on interior side of wall, or facer on stud cavity fiber insulation batts.
 - 1. FPIB is a vapor barrier. Installation of a plastic or foil vapor barrier is generally not recommended, as this can trap moisture between two vapor barriers.
 - 2. Determination shall be made by Design Professional to verify acceptable hydro-thermal performance of wall assembly
- I. Section 07 50 00 – Membrane Roofing. Provide an air and watertight seal bridging the FPIB on the wall to the roof system air barrier.
- J. Division 08 – Openings. Provide an air and watertight seal of fenestration to FPIB.
- K. Facility Services Subgroup – Divisions 20 through 28. These trades may be penetrating the FPIB with mechanical, electrical, telecommunications or other service. Penetrations through the FPIB shall be sealed air and water tight.
- L. Section [_____] Other

1.3 REFERENCED STANDARDS

- A. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 90.1-2010 “Energy Standard for Buildings Except Low-Rise Residential Buildings”
- B. ASTM C209 Standard Test Methods for Cellulosic Fiber Insulating Board
- C. ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- D. ASTM C920 Standard Specification for Elastomeric Joint Sealants
- E. ASTM C1289 Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board

- F. ASTM D412 Standard Test Methods for Vulcanized Rubber and thermoplastic Elastomers - Tension
- G. ASTM D882 Standard Test Method for Tensile Properties of Thin Plastic Sheeting
- H. ASTM D1037 Standard Test Method for Evaluating Properties of Wood-Based Fiber and Particle Panel Materials
- I. ASTM D1622 Standard Test Method for Apparent Density of Rigid Cellular Plastics
- J. ASTM D1876 Standard Test Method for Peel Resistance of Adhesive
- K. ASTM D4073 Standard Test Method for Tensile-Tear Strength of Bituminous Roofing Membranes
- L. ASTM D2126 Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging
- M. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
- N. ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials
- O. ASTM E154 Standard Test Methods for Water Vapor Retarders used in Contact with Earth under Concrete Slabs, on Walls or as Ground Cover
- P. ASTM E330 Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference
- Q. ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
- R. ASTM E783 Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors
- S. ASTM D1037 Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials
- T. ASTM D2856 Standard Test Method for Open Cell Content of Rigid Cellular Plastics by the Air Pycnometer
- U. ASTM D3330 Standard Test Method for Peel Adhesion of Pressure-Sensitive Tape
- V. ASTM E1105 Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform or Cyclic Static Air Pressure Difference
- W. ASTM E2178 Standard Test Method for Air Permeance of Building Materials

- X. ASTM E2357 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
- Y. ASTM G53 Practice for Operating Light- and Water-Exposure Apparatus (Fluorescent UV-Condensation Type) for Exposure of Nonmetallic Materials
- Z. NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components

1.4 ABBREVIATIONS

- A. ASTM: “American Standard Test Method”
- B. CFM: “cubic feet per minute”
- C. EPDM: “ethylene-propylene diene monomer”
- D. FPIB: “foam plastic insulation board”
- E. HFO: “hydrofluoroolefin”
- F. NFPA: “National Fire Protection Association”
- G. OTC: “Ozone Transport Commission”
- H. SBS: “styrene butadiene styrene”
- I. STPE: “silane terminated polyether”
- J. VOC: “volatile organic content”

1.5 PERFORMANCE REQUIREMENTS

- A. Assembly: Shall consist of FPIB fastened securely in place with all joints, penetrations and terminations sealed. Assembly built with minimum 1 inch thickness FPIB shall meet the following properties:
 - 1. Maximum air infiltration and exfiltration after load cycling 0.2 L/s*m² @ 75 Pa [0.04 CFM/ft² @ 1.57 PSF], ASTM E 2357
 - 2. No water leakage through assembly after 2h @ -6.24 PSF, ASTM E 331
 - 3. No visible damage or loosening of components after static and gust wind loading, ASTM E 330
 - 4. NFPA 285 Pass. Verify Project wall assemblies pass per FPIB manufacturer’s testing or engineering evaluation.
- B. Material Properties - FPIB
 - 1. Closed cell polyisocyanurate foam core with foil facers both sides meeting ASTM C 1289 Type I, Class 1, Grade 2 (20 psi) or Grade 3 (25psi)
 - 2. Board Hardness: 40lb_f or more, ASTM D1037 Section 17
 - 3. R-Value: 6.3 °F*ft²*h/ Btu per inch or more. Measured at 75 degrees F

mean temperature, as per ASTM C 518 according to requirements of ASTM C 1289.

4. Flame spread index: 25 or less, ASTM E 84
5. Smoke generated index: 250 or less, ASTM E 84
6. Air permeance: Maximum 0.02 L/s*m² @ 75 Pa [0.004 CFM/ft² @ 1.57 PSF], ASTM E 2178
7. Water vapor permeance: 0.1 Perm or less, ASTM E 96 Water Method
8. Dimensional stability: Maximum 2% change after 7 days, ASTM D 2126
9. Water absorption: Maximum 0.05% volume, ASTM C 209
10. Available board sizes: 4-foot width by 8-foot length standard. Also available in 4-foot width by 4, 9, 9.5, 10, 12 and 16-foot lengths.
11. Available board thicknesses: 1.0-inch (R-6.3), 1.5-inch (R-9.5), 1.6-inch (R-10.1), 2.0-inch (R-13.0), 2.5-inch (R-16.0), 3.0-inch (R-19.0), 3.5-inch (R-22.0), 4.0-inch (R-25.2)

C. Material Properties – Rolled Mastic

1. Minimum 4-inch width
2. Minimum adhesive thickness: 0.015 inch (15 mils)
3. Permitted Outdoor Exposure: Minimum 180 days
4. Adhesive: Non-asphalt, modified butyl.
5. Facer: Aluminum foil, minimum 0.002 inch (2 mils) thickness
6. Peak service temperature: Minimum 180 degrees F
7. Application temperature: 25 degrees and higher with contact adhesive
8. Rolled mastic and contact adhesive shall be provided by same manufacturer
9. Flame spread index 25 or less, smoke generation Index: 450 or less, ASTM E 84
10. Water vapor permeance: Maximum 0.1 Perm, ASTM E 96 water method
11. UV resistance: Unaffected after 2,000 h in QUV, ASTM G 53

D. Material Properties – Self-Adhered Flashing

1. Minimum adhesive thickness: 0.028 inch (28 mils)
2. Facer: aluminum foil, minimum 0.002 inch (2 mils) thickness or HDPE/foil composite minimum 0.005 inch (5 mils) thickness.
3. Permitted outdoor exposure: Minimum 180 days
4. Adhesive: Non-asphalt modified butyl or SBS modified asphalt
5. Peak service temperature: Minimum 180 degrees F
6. Application temperature: 25 degrees and higher
7. Self-adhered flashing and contact adhesive shall be provided by same manufacturer
8. Flame spread index 25 or less, smoke generation index 450 or less, ASTM E84
9. Water vapor permeance: Maximum 0.1 Perm, ASTM E96 water method
10. UV resistance: Unaffected after 2,000 h in QUV, ASTM G 53
11. Available widths: 4-inch, 6-inch, 9-inch and 12-inch

E. Material Properties – Contact Adhesives

1. Solvent Based: Synthetic rubber dispersed in solvent, 46-percent solids, minus 4 degrees F flash point, VOC 450 g/L max
2. OTC Complaint: Synthetic rubber dispersed in OTC compliant solvent, 46-percent solids, minus 4 degrees F flash point, VOC 250 g/L max
3. Water-Based: latex polymers dispersed in water. 46-percent solids, VOC 100 g/L max

4. Aerosol: Synthetic rubber based in aerosol cans or tanks, VOC 100 g/L max
- F. Material Properties –STPE Sealant
1. Basis shall be 1-part, moisture-curing STPE.
 2. Minimum volume solids content: 95%
 3. Shall conform to ASTM C 920, Type 1, Grade NS, Class 25 or 50
 4. Minimum 500% elongation, ASTM D412
- G. Material Properties – Liquid Flashing
1. Basis shall be 1-part, moisture-curing STPE
 2. Minimum volume solids content: 80%
 3. Minimum 235% elongation, ASTM D412
- H. Material Properties – Self-Adhered Through-Wall Flashing
1. Minimum adhesive thickness: 0.030 inch (30 mils)
 2. Facer: 0.008 inch (8 mils) smooth-surface cross-laminated HDPE
 3. Permitted outdoor exposure: Minimum 30 days
 4. Adhesive: SBS modified asphalt
 5. Maximum service temperature: 150 degrees F or higher
 6. Available widths: 12-inch, 18-inch, 24-inch and 36-inch
- I. Material Properties – EPDM Through-Wall Flashing
1. Non-reinforced EPDM with talc factory-removed
 2. Thickness: 0.045 inch (45 mils)
 3. Available widths: 12-inch, 18-inch, 24-inch and 36-inch
- J. Material Properties – Termination Bar
1. 6036-T6 extruded aluminum
 2. 1” width, serrated back and sealant ledge on top
- K. Material Properties – Blackout Membrane
1. Poly engineered fabric, 0.028-inch thickness (28 mils)
 2. Black color with brand imprint
 3. UV Resistance: No effects after 2,000h Weatherometer, 5,040 kJ/m²*nm
 4. Tensile Strength: Minimum 40 lb/in, ASTM D882
 5. Tear Resistance: Minimum 45 lb ASTM D4073
 6. Air Permeance: Maximum 0.02 L/s*m² @ 75 Pa [0.004 CFM/ft² @ 1.57 PSF], ASTM E 2178
 7. Water Vapor Permeance: Minimum 50 Perms ASTM E96 desiccant method
 8. Permitted outdoor exposure: Minimum 1 year
 9. Permitted open area in exterior cladding: maximum 2-inch width joint, maximum 40% exposed area
- L. Material Properties – Blackout Membrane Tape
1. Shall have a black poly facer and non-asphalt butyl adhesive
 2. Minimum adhesive thickness 0.025” (25 mils)
 3. Minimum 2.5 lb/in or substrate failure on blackout membrane, ASTM

- M. Material Properties – Spray Polyurethane Foam Insulation
 - 1. Closed cell content >90%, ASTM D2856
 - 2. Foam density 2.0 lb. per ft³, ASTM D1622
 - 3. R-Value 6.9 at 1-inch, R-21 at 3-inch ASTM C518
 - 4. Flame Spread ≤25 and Smoke Developed ≤450, ASTM E84

- N. Description and Material Properties - FPIB Fasteners
 - 1. Standard Washer: 2-inch diameter solid plastic cap washer. Dome profile washer flattens to FPIB while orifice compresses around screw shank as screw is tightened. Forms an air and watertight seal to FPIB and around screw head without using sealant or tape.
 - 2. Brick Tie Washer: 2-inch diameter solid plastic cap washer with center sized to fit barrel type veneer anchor. Dome profile washer flattens to FPIB while orifice compresses around barrel as anchor is tightened. Forms an air and watertight seal to FPIB and around screw head without using sealant or tape.
 - 3. Plastic Masonry Fastener: 2-3/8" inch diameter plastic cap and 2-3/4-inch, 3-1/2-inch, 4-1/2-inch or 5-3/8-inch length anchor. Forms an air and watertight seal to FPIB and around screw head without using sealant or tape.
 - 4. Stucco Washer: Galvanized or stainless steel. 1-inch diameter with punched holes for stucco key-in. Dome profile washer flattens to FPIB and lath while orifice compresses around screw shank as screw is tightened. Forms an air and watertight seal to FPIB and around screw head without using sealant or tape.
 - 5. Metal Screw: Ceramic-coated steel, bugle head, self-drilling. Available in #6 diameter 1-5/8-inch and 2-inch lengths, #8 diameter 2-1/2-inch and 3-inch lengths, #10 diameter 3-1/2-inch 4-inch 4-1/2-inch 5-1/2-inch and 6-inch lengths
 - 6. Wood Screw: Ceramic-coated steel, bugle head, sharp-point. Available in #7 diameter 1-5/8-inch and 2-inch lengths, #8 diameter 2-1/2-inch and 3-inch lengths, #10 diameter 3-1/2-inch 4-inch 5-inch and 6-inch lengths
 - 7. Girt System: Metal or composite channels with pre-punched holes or slots and fasteners. Installed over FPIB. Girt fasteners shall penetrate FPIB and attach to strong substrate. Girts and fastening shall be engineered to support weight of itself and the exterior cladding
 - 8. Z Furring: Galvanized or stainless solid Z's or thermally broken design. Fastened to wall substrate. FPIB installed between Z furring. Z's and fastening shall be engineered to support weight of itself and the exterior cladding.
 - 9. Over-FPIB Furring: Wood strips, composite strips, metal hats, metal channels or metal Zs as allowed in Building Code for cladding attachment. Installed over FPIB. Furring fasteners shall penetrate FPIB and attach to strong substrate. Furring and fastening shall be engineered to support weight of itself and the exterior cladding.
 - 10. Pre-FPIB Veneer Anchors: Veneer anchors fastened or embedded in wall substrate before FPIB. Installed at required spacing to support exterior cladding.

1.5 SUBMITTALS

- A. Manufacturer's 15-year sample warranty covering FPIB R-Value, water intrusion and 180 day UV resistance.

- B. Manufacturer's literature, including physical properties, installation instructions and detail drawings.
- C. NFPA 285 Engineering Evaluation for Project wall assemblies.
- D. Manufacturer's literature for FPIB accessories including rolled mastic, self-adhered flashing, STPE sealant, liquid flashing, self-adhered through wall flashing, EPDM through-wall flashing, FPIB fasteners and spray polyurethane foam insulation.
- E. Drawings and Engineering Reports specifying cladding attachment techniques through FPIB.
- F. Confirmation in writing of compatibility of FPIB with adhesives, tapes, membranes, coatings and other chemicals which are expected to come into contact with the insulation on the Project.
- G. Sample of FPB, minimum 4 inch X 4 inch size
- H. Samples of self-adhered flashing, liquid flashing, STPE sealant, rolled mastic, self-adhered through-wall flashing, EDPM through-wall flashing and blackout membrane minimum 2 inch X 3 inch size.
- I. One of each type FPIB fastener and washer used on Project

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Shall be experienced in applying the same or similar materials and shall be specifically approved in writing by FPIB manufacturer.
- B. Product and Accessories shall comply with all state and local regulations controlling use of volatile organic compounds (VOCs)
- C. Comply with the provisions of the Owner's building envelope commissioning program in accordance with [Section 01 91 15]
- D. Pre-Installation Meeting: Convene [one] [_____] week prior to commencing Work of this Section, in accordance with [Section 01 31 19 - Project Meetings].
- E. [Note to specifier: Mockup testing is recommended but not required. Retain paragraphs F, G and H if mockups will be built and tested.]
- F. Field-Constructed Mock-Ups: Prior to installation on Project, apply insulation and accessories on mock-up to verify details under shop drawing submittals, to demonstrate tie-ins with adjoining construction and other termination conditions and to become familiar with properties of materials in application. [NOTE TO SPECIFIER: incorporate sub paragraph 1 or 2 into Paragraph E]
 - 1. Apply in field-constructed mockups of assemblies as specified in [Section 01 43 39 – Mockups]
 - 2. Construct typical exterior wall panel, 8 feet long by 8 feet wide, incorporating back-up wall, water resistive barrier, insulation, cladding, window and doorframe and sill and flashing, [building corner condition,] [junction with roof system] [foundation wall]

[and] [typical penetrations and gaps]; illustrating interface of materials and seals

- G. Test mock-up for air leakage in accordance with ASTM E 783. Measured air leakage rate shall not exceed 0.2 L/s*m² at 75 Pa (0.04 CFM/ft² at 1.57 PSF)
- H. Test mock-up for water leakage in accordance with ASTM E 1105. There shall be no observed water leakage to the interior after 15 minutes at -6.24 PSF.
- I. Perform visual inspection of Work before it is covered up. Take photographs and notes to document progress and quality.
- J. Cooperate and coordinate with the Owner's inspection and testing agency. Do not cover any Work until it has been inspected, tested and approved.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Protect FPIB from physical damage.
- B. Store FPIB pallets indoors, or store insulation pallets outdoors elevated above ground 4 inches minimum and covered with breathable UV-resistant tarpaulin.
- C. Store FPIB fasteners, blackout membrane, EPDM through-wall flashing and termination bar in area protected from precipitation.
- D. Store rolled mastic, self-adhered flashing, self-adhered through-wall flashing, liquid flashing, STPE sealant and contact adhesives in an area maintained between 50 and 90 degrees F and protected from precipitation and direct sunlight.
- E. Refer to Spray Polyurethane Foam Insulation manufacturer's literature for delivery, storage handling.
- F. Handle FPIB carefully, so corners are not damaged or broken off.

1.9 PROJECT CONDITIONS

- A. Install FPIB and accessories within approved ambient and substrate temperature range and conditions stated in manufacturer's literature.
- B. Do not apply FPIB or accessories over incompatible materials.
- C. Observe safety and environmental measures indicated in manufacturer's MSDS, and mandated by federal, state and local regulations

2 PRODUCTS

- 2.1 PRODUCT: Provide foil faced polyiso foam plastic insulation boards (FPIB) [] inch thickness [select R-value and thickness from 1.04 B] dimensions [select one: 4 ft X 8 ft, 4 ft X 9 ft, 4 ft X 12 ft or [other custom size]]
 - A. R2+ SHEATHE as manufactured by Carlisle Coatings & Waterproofing, Incorporated. 900 Hensley Lane, Wylie, TX 75098. Phone 1-800-527-7092. Website <http://www.carlisle-ccw.com>

B. [Other equivalent product as approved by Design Professional]

2.2 FPIB ACCESSORIES: Provide from same manufacturer as FPIB

- A. Rolled Mastic:
 - 1. Foil-Grip 1402 by Carlisle Coatings & Waterproofing Incorporated
 - 2. Others as approved by FPIB manufacturer
- B. Self-Adhered Flashing:
 - 1. Asphalt: 705 FR-A or 705 FR-A XLT by Carlisle Coatings & Waterproofing Incorporated
 - 2. Butyl: Aluma-Grip 701 by Carlisle Coatings & Waterproofing Incorporated
 - 3. Others as approved by FPIB manufacturer
- C. Contact Adhesive:
 - 1. Solvent-based: CCW-702 by Carlisle Coatings & Waterproofing
 - 2. OTC Compliant: 702LV by Carlisle Coatings & Waterproofing
 - 3. Water-Based: 702WB by Carlisle Coatings & Waterproofing
 - 4. Aerosol: Cav-Grip in 40# cylinders or Travel-Tack in portable cans by Carlisle Coatings & Waterproofing
 - 5. Others as approved by FPIB manufacturer
- D. Spray Polyurethane Foam Insulation
 - 1. Standard: Sealtite PRO Closed Cell by Carlisle Spray Foam Insulation
 - 2. HFO blowing agent: Sealtite PRO One Zero by Carlisle Spray Foam Insulation
 - 3. Others as approved by FPIB manufacturer
- E. Liquid Flashing, applied at minimum 40 mils wet thickness
 - 1. Barrithane VP by Carlisle Coatings & Waterproofing
 - 2. Barribond HP by Carlisle Coatings & Waterproofing
 - 3. Others as approved by FPIB manufacturer
- F. Self-Adhered Through-Wall Flashing
 - 1. 705 TWF or 705 TWF XLT by Carlisle Coatings & Waterproofing
 - 2. Others as approved by FPIB manufacturer
- G. EPDM Through-Wall Flashing
 - 1. Pre-Kleened EPDM TWF by Carlisle Coatings & Waterproofing
 - 2. Others as approved by FPIB manufacturer
- H. Blackout Membrane
 - 1. CCW-705RS by Carlisle Coatings & Waterproofing
 - 2. Others as approved by FPIB manufacturer
- I. STPE Sealant:
 - 1. Barribond HP by Carlisle Coatings & Waterproofing
 - 2. Others as approved by FPIB manufacturer

2.3 ACCESSORIES BY OTHERS: Provide as approved by FPIB manufacturer

- A. Foam Sealant
 - 1. FOMO Handifoam Fireblock
 - 2. TVM Fire Block Foam
 - 3. DuPont Great Stuff PRO Gaps and Cracks Insulating Foam
 - 4. Others as approved by FPIB manufacturer
- B. FPIB Fastener: Use the following or equal as approved by FPIB manufacturer
 - 1. Standard Washer: Thermal-GRIP CI Prong Washer by Trufast
 - 2. Brick Tie Washer: Therma-GRIP Brick Tie Washer by Trufast
 - 3. Plastic Masonry Fastener: Plasti-GRIP PMF Anchor by Trufast
 - 4. Stucco Washer: Grip-Plate Lath and Paster Washer by TruFast
 - 5. Metal Screw: Grip-Deck Self-Drilling Screws by Trufast
 - 6. Wood Screw: Grip-Deck HiLo Screws by Trufast
 - 7. Girt System: Knight CI or Knight HCI by Knight Wall Systems

3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions affecting installation of FPIB for compliance with requirements. Verify that surfaces and conditions are suitable prior to commencing Work of this section. Do not proceed with installation until unsatisfactory conditions have been corrected
- B. Concrete wall surfaces shall be of sound condition and shall have sharp protrusions knocked off or ground flush
- C. Concrete masonry unit wall surfaces shall be free of mortar droppings.
- D. Damaged or improperly fastened exterior sheathing shall be remedied to comply with Building Code and sheathing manufacturer's requirements.
- E. Wood or metal wall studs shall be of sound condition, properly spaced, plumb and laterally braced according to structure and code requirements.
- F. Wood substrates shall be dry to touch. Moisture content shall be less than 20 percent.

3.2 FPIB INSTALLATION

- A. Place FPIB boards with long side horizontal or long side vertical. Installer may use aerosol contact adhesive to assist with placement.
- B. Abut neighboring FPIB pieces tightly together. Do not form 4-corner intersections. Offset board joints in neighboring rows 12 inches minimum.
- C. Cut and fit FPIB around obstructions to allow snug fit onto wall surface or studs.
- D. Fasten FPIB securely to strong substrate using fasteners designed for substrate. Fasteners shall penetrate substrate as follows:
 - 1. Metal studs: minimum 4 threads
 - 2. Wood studs: minimum 1 inch
 - 3. Plywood or OSB sheathing: minimum 1 inch
 - 4. Concrete: minimum 1-½ inch
 - 5. Masonry: minimum 1-½ inch

- E. Fasteners may attach just the FPIB or they can simultaneously attach the cladding and the FPIB.
- F. Fasten FPIB in the field minimum 16 inches on center, with rows of fasteners spaced maximum 24 inches.
- G. Fasten FPIB joints, with fastener bridging across two boards, minimum 16 inches on center.
- H. Secure all 3-board FPIB “T” intersections as follows: Use two fasteners with standard washers, or plastic masonry fasteners for mass wall. Drive one fastener into the “T” with head or washer intersecting all three FPIBs. Drive the other fastener maximum 4 inches from the T into the board joint, so that the washer or cap intersects two boards.
- I. FPIB terminations: Head of wall, base of wall, openings, and system termination. Fasten 12 inches on center at terminations. Drive fasteners at least 3/8 inch but no more than 2 inches from edge of boards.
- J. Seal fasteners penetrating the FPIB which do not have an air and water tight washer with STPE sealant, rolled mastic or self-adhered flashing.
- D. Fill all gaps, cracks and holes through FPIB as follows:
 - 1. Improperly-driven or non-sealed fasteners: STPE sealant
 - 2. Small holes ½ inch max diameter: STPE sealant
 - 3. Larger holes 4 inch max diameter: foam sealant
 - 4. Holes or damage exceeding 4 inches across: patch with new FPIB
- E. Prepare all surfaces accepting rolled mastic and self-adhered flashing with contact adhesive. Observe coverage rate, application technique and drying time in FPIB manufacturer’s literature.
- F. Cover FPIB joints between neighboring pieces with rolled mastic, minimum 4 inch width or a 2 inch width by 40 mils thickness ribbon of STPE sealant.
- G. Cover FPIB inside corners and outside corners with self-adhered flashing, minimum 3 inch bearing onto each side of the joint or with liquid flashing bearing minimum 2 inch bearing onto each side of the joint.
- H. Apply self-adhered flashing at wall transitions and terminations. Provide 3 inch bearing onto dissimilar substrates.
- I. Apply self-adhered flashing or liquid flashing around pipe, duct and beam penetrations through FPIB.
- J. Rough openings for fenestration: Terminations of FPIB shall be covered with lumber or sheet metal. Fill all gaps with STPE sealant. Wrap opening with self-adhered flashing or liquid flashing. Flashing shall bear onto FPIB surface 3 inches minimum and shall return into opening according to Project window details.
- K. In opening and corner details, self-adhered flashing shall extend at least 2 inches onto FPIB facer or onto sound substrate. Do not terminate self-adhered flashing on foam core edge of FPIB.

- L. Firmly press in place all rolled mastic and self-adhered flashing details using a roofing seam roller or similar tool. Hand pressure alone is not sufficient.
- M. Seal all self-adhered flashing terminations with a tooled ribbon of STPE sealant.

3.3 REPAIR AND PROTECTION

- A. Protect FPIB from mechanical damage and exposure to open flame during installation and exposure.
- B. Repair damage to FPIB as recommended by manufacturer before covering.
- C. FPIB is not approved for permanent exposure. Cover exterior with code- approved cladding. Cover interior with code- approved thermal barrier.
- D. Cover exterior-applied FPIB with cladding as soon as schedule permits. Maximum permitted exposure time to weather:
 - 1. 60 days without joints sealed, openings and details flashed
 - 2. 180 days with joints sealed, openings and details flashed

3.4 FPIB INSTALLATION PROVISIONS FOR COMMON CLADDINGS: Consult the respective cladding Section for complete instructions. These provisions specify cladding fastening techniques which also count as FPIB system fastening in the field and terminations. Joints and T's still require FPIB fasteners as specified in article 3.2. Provisions also cover requirements for sealing and protecting the FPIB system.

- A. Brick Veneer.
 - 1. Option 1: Attach or embed veneer anchors to wall. Anchors shall be of sufficient length to protrude past FPIB to install wire ties. Impale anchors through FPIB, or wedge FPIB boards between rows of anchors. FPIB shall be firmly seated to wall. Seal around all anchor penetrations with STPE sealant. Wire ties shall have vertical legs which press tightly against FPIB when threaded into anchor slots/holes.
 - 2. Option 2: Attach FPIB to substrate using barrel-type veneer anchors fitted with brick tie washers. Drive anchors through FPIB into strong substrate, flattening washer to secure FPIB.
 - 3. Install through-wall flashing "TWF" at all discontinuities in the cavity. Shall go minimum 8 inches up wall and flash to daylight. Self-adhered type shall terminate on drip edge, with TWF edge held back minimum ½" from exterior. TWF termination on wall: Run TWF through FPIB and bear minimum 3 inches onto strong substrate prepared with contact adhesive, or secure termination over FPIB with termination bar fastened through FPIB to strong substrate. Seal self-adhered TWF termination with STPE sealant and EPDM TWF with EPDM sealant.
- B. Adhered Veneers: Stucco, Thin Brick, Cultured Stone
 - 1. Shall be secured with lath fastened through FPIB to strong substrate
 - 2. Install a code approved water resistive barrier between lath and FPIB.
 - 3. Fasten lath using fasteners fitted with stucco washers.

- C. Open Joint Rain Screen.
 - 1. Fasten girt system or furring through FPIB into strong substrate. Seal all penetrations made through FPIB with STPE sealant
 - 2. Z Furring: Fasten to strong substrate. Fit FPIB boards between rows of Z's. Size Zs for snug fit over FPIB. Fasten the loose side of board with FPIB fasteners. Seal Zs to FPIB by covering Z flange with minimum 6-inch width self adhered flashing or minimum 4 inch width liquid flashing. Rails or cladding shall be fastened to Zs through the flashing.
 - 3. Fasten blackout membrane over FPIB using FPIB fasteners and cladding attachment fasteners. Installer can use aerosol contact adhesive to aid blackout membrane placement
 - 4. Lap neighboring sheets of blackout membrane 6 inches minimum
 - 5. Seal seams and terminations of blackout membrane with STPE sealant or blackout membrane tape.
 - 6. Fasten cladding into girt, Z, or furring as intended for cladding support.
- D. Siding or Paneling
 - 1. Fasten girt system or furring through FPIB into strong substrate. Seal all penetrations made through FPIB with STPE sealant
 - 2. Z Furring: Fasten to strong substrate. Fit FPIB boards between rows of Z's. Size Zs for snug fit over FPIB. Fasten the loose side of board with FPIB fasteners. Seal Zs to FPIB by covering Z flange with minimum 6-inch width self-adhered flashing or minimum 4 inch width liquid flashing. Rails or cladding shall be fastened to Zs through the flashing.
 - 3. Fasten cladding into girt, Z, or furring as intended for cladding support.

3.5 Spray Foam FPIB System:

- A. Use spray foam tested that has tested and passed NFPA 285 with FPIB
- B. FPIB shall be securely fastened before spray foam installation
- C. Install spray foam into stud bays, at the thickness specified in NPFA 285 wall assembly and corresponding with specified R-Value
- D. Consult spray foam insulation Section for complete requirements

END OF SECTION