

Closed Proprietary

**SECTION 072114****ENGINEERED INSULATION SYSTEM****PART 1 GENERAL****1.1 SUMMARY**

- A. Section includes:
1. Engineered Insulated ribbed foam panel system incorporating a drainage plane, wiring and utility chases, and molded-in attachment studs.

**1.2 SUBMITTALS**

- A. Product Data: Submit data on product characteristics, system performance criteria, limitations, adhesives, and attachment devices.
1. Stork Twin City Testing Project #30160 09-09553.
    - a. Pull off performance of adhesive bond to a concrete surface.
  2. Intertek Testing Project #101692671MID-006r.
    - a. Pull-out performance of fasteners in the InSoFast® stud.
    - b. Shear performance of fasteners in the InSoFast® stud.
  3. Tapcon® screw fastener data; pull-out and load data.
    - a. Pull-out.
    - b. Shear.
- B. Manufacturer's Installation Instructions: Submit special environmental conditions required for installation, and installation techniques.

**1.3 QUALITY ASSURANCE**

- A. ASTM International:
1. ASTM C518 Standard Test Method for Steady-State Thermal Transmission (for determining R-Value).
  2. ASTM C578 Standard Specification for Closed-Cell Polystyrene Rigid Thermal Insulation.
  3. ASTM D1761 Standard Test Method for Mechanical Fasteners.
    - a. Section 1 – Fastener Withdrawal Strength (Pull-out).
    - b. Section 13 – Lateral Screw Resistance (Shear).
  4. ASTM D4541 Standard Test Method for Pull-Off Strength of Adhesive Bond.
  5. ASTM E84 Standard Test Method for flame spread rating and a smoke developed index.
  6. ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials.
  7. ASTM E330 Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
  8. ASTM E2273 Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies

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- B. National Fire Protection Association:
  - 1. NFPA 286: Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.
- C. International Building Code:
  - 1. IBC Section 803.10 Stability.
- D. International Code Council:
  - 1. ICC – ES Acceptance Criteria for Quality Documentation (AC10).
- E. Insulation Installed in Concealed Locations Surface Burning Characteristics:
  - 1. Flame Spread Rating: 25 or less.
  - 2. Smoke Developed Index: 450 or less.
- F. Interior Wall insulation shall not be produced with, or contain, any of the United States EPA regulated CFC compounds listed in the Montreal Protocol of the United Nations Environmental Program.
- G. Underwriters Laboratories of Canada (ULC):
  - 1. CAN/ULC-S701, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Coverings.

## 1.4 ENVIRONMENTAL REQUIREMENTS

- A. Do not install adhesives when temperature or weather conditions are detrimental to successful installation. Refer to manufacturer's product information for recommended temperatures and conditions.

## 1.5 SEQUENCING

- A. Sequence Work to ensure **[fireproofing,] [firestopping,] [weather barrier]** materials are in place before beginning Work of this section.

## 1.6 COORDINATION

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Delete non-applicable articles below.

Use a COORDINATION article in the respective weather barrier or exterior cladding sections referencing to this Section.

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- A. Coordinate work with Division 04 for installation of exterior cladding as follows:
  - 1. Brick or Stone Veneer.
- B. Coordinate work with Division 07 for installation of weather barriers.
- C. Coordinate work with Division 07 for installation of exterior cladding as follows:
  - 1. Vinyl Siding.

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2. Cement Board Siding.
  3. Steel or Aluminum Siding.
- D. Coordinate work with Division 09 for installation of exterior cladding as follows:
1. Portland Cement Plaster (Stucco).

#### 1.7 DELIVERY, STORAGE & HANDLING

- A. Deliver panels to project in original packaging, clearly labeled with identification of manufacturer and product name visible.
- B. Store panels in original packaging on shipping pallets. Store loose panels on flat surface to prevent sagging or warping. Protect from weather, moisture, and soiling. Do not store in sealed containers.
- C. Handle panels carefully so that corners are not broken off or otherwise damaged.
- D. Ensure that ultra-violet protection is provided for material, should on-site storage extend beyond 30 days.

#### 1.8 WARRANTY

- A. InSoFast panels are warranted to be free from manufacturing defects arising from workmanship or defects in material which may cause the InSoFast panels to be unusable as an insulating material. This warranty is effective only if the InSoFast panels are installed in accordance with the Installation Manual, or any other installation instruction or guidelines published by InSoFast, LLC, and local building codes, and only if InSoFast, LLC has received written notice of defects within 30 days of the first discovery of a defect but in any event no later than within one (1) year of the date of shipment by InSoFast, LLC.
- B. EXCEPT AS EXPRESSLY SET FORTH ABOVE, INSOFAST, LLC MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, IN FACT OR IN LAW, INCLUDING, WITHOUT LIMITATION, THE WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. No person has any authority to bind InSoFast, LLC to any affirmation, representation, or warranty concerning InSoFast panels except as stated in this Manufacturer's Warranty. InSoFast, LLC's liability and the purchaser's sole and exclusive remedy from alleged defects in the materials or manufacturing of the InSoFast panels shall be limited to the replacement of an equivalent amount of product or a refund of the invoice charged up to the manufacturer's suggested retail price (as InSoFast, LLC may elect) if payment has been made. In no event shall InSoFast, LLC be liable for any consequential or incidental damages, losses, costs, or expenses of any person of any kind (including without limitation, loss of profits or injury to credit, reputation, or goodwill) directly or indirectly resulting from any alleged breach of warranty contained in this Manufacturer's Warranty.

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**PART 2 PRODUCTS****2.1 MANUFACTURER**

- A. Manufacturer: Subject to compliance with requirements specified herein, the following manufacturer and product is identified:
1. InSoFast, LLC.  
P.O. Box 1225.  
Mitchell, SD 57301  
Tel: 651-653-3677 / 888-501-7899

**2.2 PANEL DESCRIPTION**

- A. Foam Panels: Below grade fire-retardant closed-cell ribbed foam board. Type III vapor retarder preventing mold growth. R-value = 4.45 per inch.
- B. Attachment Studs: 100 percent recycled co-polymer polypropylene fully flush with panels.
- C. Edges: Tongue and Groove.
- D. Chaseways: Wiring chases running vertically at 16 inches on center and horizontally at 24 inches on center for each panel. Design as required by Electrical code.
- E. Gluing Surface: Ribbed surface to allow compliant wall adhesion.
- F. Attachment Points: Three recessed attachment points located 6 inches o.c. along the stud for mechanically fastened projects.

**2.3 PANEL CONSTRUCTION**

- A. Molded closed-cell ribbed EPS foam with fire retardant and embedded fully insulated studs positioned at 16 inches o.c.
1. Size: 48 inches wide x 24 inches high.
  2. Thickness: 2 inches.

**2.4 ACCESSORIES**

- A. Adhesive: Type recommended by system manufacturer for application.
- B. Fasteners: Type recommended by system manufacturer for application.
1. Concrete Screws: Tapcon® or equal.

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**PART 3 EXECUTION**

## 3.1 EXAMINATION

- A. Verify substrate, and adjacent materials are dry and ready to receive insulation **[and adhesive]**.
- B. Verify substrate surface is flat, free of **[fins,] [irregularities,] [materials or substances affecting adhesive bond]**.

## 3.2 SITE VERIFICATION OF CONDITIONS

- A. Examine wall surface for compliance with requirements for installation tolerances and other conditions. Dryer climates may require misting of walls with potable water.
- B. Examine floor for levelness. If floor is not level make necessary adjustments to insure panels are installed level across the floor surface.

## 3.3 PREPARATION

- A. Ensure that all wall and floor surfaces are free from soiling that could affect the adhesive bond when using the adhesive bonding method.
- B. Remove any excess concrete flashing that would be out of installation tolerances.

## 3.4 INSTALLATION

- A. Begin installation of InSoFast panels at a corner.
- B. Attach panel to substrate choosing the appropriate attachment method of adhesive bonding, mechanical attachment, or a combination of both.
  - 1. Adhesive Bonding Method:
    - a. Apply adhesive to ribbed bonding surfaces on back side of stud.
    - b. Recommended Adhesives:
      - 1) PL Premium Construction Adhesive.
      - 2) Other adhesives suitable for bonding EPS foam, polypropylene plastic, and the surface in which the panels are to be bonded.
      - 3) EIFS Basecoat:
        - a) Use a grout bag or a trowel to apply the Base Coat to InSoFast's® ribbed polypropylene stud apply a 1 x 1 inch bead of mortar to each stud.
  - 2. Mechanical Attachment Method:
    - a. Utilize, as required, recessed attachment points on surface of studs to avoid protruding fastener heads.
    - b. Follow fastener specifications, instructions for installation for proper spacing and size of fasteners.
- C. Install panels in a running bond utilizing the tongue and groove connection.

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- D. Cut panels to fit around openings. Panels can be cut with long blade utility knife, reciprocating saw, saber saw, hand saw, or circular saw. Use additional adhesive directly on foam at corners and any cut around openings.
- E. If additional attachment at corners or around openings is needed for drywall attachment, adhere metal corner bead or galvanized sheet metal angle to foam. This sub-corner reinforcing will aid in attachment of drywall and corner trim boards for interior and exterior cladding or other covering.
- F. Electrical boxes and conduit.
  - 1. Existing electrical boxes, conduit, plumbing, and other protrusions.
    - a. Press panel against box or conduit.
    - b. Using the impression left on the backside of the panel, cut out foam to create a chase.
  - 2. Installation of new wiring and boxes.
    - a. New wiring can be pulled through factory-formed chases when using flexible or armored wiring or cabling.
    - b. Boxes are cut into panel using long-blade utility knife or hot knife and fastened to substrate.
  - 3. All electrical boxes should be sealed to prevent moisture from penetrating boxes when utilizing the draining plane. Electrical boxes shall be sealed with expanding foam sealant above the box.
- G. Periodically check panels for proper vertical and horizontal alignment.

## 3.5 CLEANUP

- A. Remove and recycle or dispose of scraps of panels, packaging, and other materials associated with this installation.

**END OF SECTION**