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Code Compliance Research Report CCRR-1029

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DIVISION: 07 00 00 Thermal and Moisture Protection
Section: 07 21 00 – Thermal Insulation

REPORT HOLDER:

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REPORT SUBJECT:

InSoFast® UX 2.0 & InSoFast® EX 2.5 Panels

1.0 SCOPE OF EVALUATION

This Research Report addresses compliance with the following Codes:

- 2015 and 2012 *International Building Code (IBC)*
- 2015 and 2012 *International Residential Code (IRC)*
- 2014 and 2011 *Oregon Residential Specialty Code (ORSC)*, Section R703.1.1

InSoFast® UX 2.0 & InSoFast® EX 2.5 panels have been evaluated for the following properties:

- Surface Burning Characteristics
- Physical Properties
- Wind Load Resistance
- Drainage performance

See Table 1 for applicable Code sections related to these properties.

2.0 USES

InSoFast® UX 2.0 and InSoFast® EX 2.5 panels are used as nonstructural insulation in both interior and exterior applications. The panels have been evaluated for use in non-fire-resistance-rated construction in buildings constructed in accordance with the IRC and buildings of Type V construction under the IBC.

3.0 DESCRIPTION

3.1 Materials:

3.1.1 InSoFast® UX 2.0 Panels: InSoFast® UX 2.0 panels are 4 feet x 2 feet (1220mm x 610mm) with a 2 inch (51.0mm) thickness. The panels are interlocking and incorporate a series of drainage channels on the back side, horizontal wiring/utility chases, and vertical wiring/utility chases (see Figure 1).

The EPS is formed with a nominal density of 1.25 pcf (20 kg/m³), and complies with ASTM C578, Type VIII, and CAN/ULC S701 Type 2 requirements. The panel has molded-in attachment studs, spaced at 16 inches (406mm) on center, that are used for fastening to substrates and attaching finished wall coverings. The studs are exposed and flush with the panel on the internal and external planes.

3.1.2 InSoFast® EX 2.5 Panels: InSoFast® EX 2.5 panels are 4 feet x 2 feet (1220mm x 610mm) with a 2.5 inch (63.4mm) thickness. The panels are interlocking and incorporate a series of drainage channels on the back side, horizontal wiring/utility chases, and vertical wiring/utility chases. The EPS is formed with a nominal density of 1.25 pcf (20 kg/m³), and complies with ASTM C578, Type VIII, and CAN/ULC S701 Type 2 requirements. The panel has molded-in attachment studs, spaced at 16 inches (406mm) on center, that are used for fastening to substrates and attaching finished wall coverings. The studs are exposed and flush with the panel on the back side, and covered by 1/2 inch (12.7mm) of EPS on the outer side.

3.2 Performance Characteristics:

3.2.1 Surface Burning Characteristics: The foam plastic insulation, at the thickness and density recognized in Sections 3.1.1 and 3.1.2, has a flame-spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84.

4.0 INSTALLATION

4.1 General:

The panels must be installed in accordance with the manufacturer's published installation instructions, the applicable Code, and this Research Report. The manufacturer's published installation instructions and this Research Report must be strictly adhered to, and a copy of the instructions must be available on the jobsite during installation. All electrical, mechanical, and plumbing work must be in accordance with the applicable Code and is subject to approval by the Code Official. The panels may not be used structurally to resist transverse, vertical, or in plane loads.

4.2 Application:

4.2.1 Interior Walls: Both the UX 2.0 and EX 2.5 panels may be used for interior installations. The insulation panels must be attached, through the molded-in attachment studs, to an existing structural wall complying with the applicable Code using either (1) No. 9 by 3-1/2 inch (88.9mm) long coarse thread Type W screws, spaced as required for application of single-ply gypsum in Section 8 of ASTM C840; or (2) a combination of adhesive and mechanical fasteners (No. 9 by 3-1/2 inch (88.9mm) coarse thread Type W screws), following the guidelines of Section 10 in ASTM C840, *System III: Application of Gypsum Board by Adhesive Nail-on to Wood Framing Members*. Gypsum board must be attached to the panels using the same options noted above except No. 6 by 1-5/8 inch (41.3mm) coarse thread Type W screws are used (see Figure 2) and must penetrate a minimum of 1/2 inch (12.7mm) into the face of the panel studs. When used, the adhesive used to attach the panels to the structural wall and to attach gypsum board to the panels must be specified by InSoFast LLC and must be acceptable to the Code Official.

Refer to Table 2 for the maximum allowable lateral and withdrawal capacities of the fasteners in molded-in attachment studs. The maximum spacing of the screws must be designed to support the gravity loads of the wall covering.

The insulation panels must be separated from the building interior by a thermal barrier complying with IBC Section 2603.4 or IRC Section R316.4. In attics and crawl spaces, the InSoFast® panels may be covered with one of the coverings listed in IBC Section 2603.4.1.6 or IRC Sections R316.5.3 and R316.5.4, provided entry into the attic or crawl space is limited to service of utilities, and no storage is permitted. Utilities include, but are not limited to, mechanical equipment, electrical wiring, fans, plumbing, gas, or electric water heaters, and gas or electric furnaces.

4.2.2 Exterior Walls:

The InSoFast® EX 2.5 panels are used for exterior installations. The insulation panels are attached to an existing structural wall complying with IBC Chapter 16 or IRC Chapter 6. When installed over framed walls, the sheathing must comply with IBC Section 2304 or IRC Section R604. A water resistive barrier complying with IBC Section 1404.2

or IRC Section R703.2 must be installed behind the InSoFast® panels. The exterior wall covering must comply with IBC Chapter 14 or IRC Section R703.2, or be recognized in a current Research Report (see Figure 3). Protection against termites must be provided in accordance with IBC Section 2603.9 or IRC Section R318.4.

The panels must be separated from the building interior with a thermal barrier complying with IBC Section 2603.4 or IRC Section R316.4.

The panels must be fastened through the molded-in attachment studs using No. 9 by 3-1/2 inch (88.9mm) long coarse thread Type W screws, spaced a maximum of 12 inches (610mm) on center vertically through each attachment stud. The wall covering must be attached to the molded-in attachment studs using minimum No. 6 by 1-5/8 inch (41.3mm) long coarse thread Type W screws, spaced a maximum of 6 inches (152mm) on center vertically to each attachment stud, or per the wall covering manufacturer's instructions, whichever is more restrictive.

Refer to Table 2 for the maximum allowable lateral and withdrawal capacities of the fasteners in molded-in attachment studs. The maximum spacing of the screws must be designed to support the gravity loads of the wall covering and to resist the negative wind pressures.

The allowable wind resistance recognized for the construction described above is limited to the following, whichever is more restrictive:

- 46 psf in the negative direction (pull-off);
- The wind resistance allowed by the Code for the underlying construction;
- The maximum positive or negative wind resistance allowed by the Code for the wall covering;
- The maximum positive or negative wind resistance allowed for proprietary wall coverings recognized in a current Research Report.

5.0 CONDITIONS OF USE

The InSoFast® UX 2.0 and InSoFast® EX 2.5 panels described in this Research Report comply with, or are suitable alternatives to, what is specified in those Codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Installation must comply with this Research Report, the manufacturer's published installation instructions, and the applicable Code. In the event of a conflict between the manufacturer's instructions and this report, this report governs.

5.2 Installation is limited to Type V-B construction under the IBC and non-fire-resistance-rated construction in dwellings under the IRC.

5.3 The panels must be separated from the interior of the building by an approved thermal barrier in accordance with IBC Section 2603.4 or IBC Section R316.4.

5.4 When required in construction of walls, a vapor retarder must be installed in accordance with IBC Section 1405.3 or IRC Section R702.7.

5.5 Concealed electrical, mechanical, or plumbing components must be installed and inspected to verify compliance with the applicable Code, prior to the installation of finished wall covering.

5.6 In areas where probability of termite infestation is "very heavy", the insulation must meet the requirements of IBC section 2603.9 and IRC section 318.4.

5.7 The panels are manufactured under a quality control program with inspections by Intertek Testing Services NA, Inc. (AA-647).

6.0 SUPPORTING EVIDENCE

6.1 Reports of tests in accordance with ASTM C578, ASTM E330, ASTM D1761, ASTM E84, ASTM E2273, CAN/ULC S701, and NFPA 286.

6.2 Report of tests in accordance with IBC Section 803.12 [2012 - 803.10], "Stability".

6.3 Quality documentation.

6.4 Intertek Listing Report "[InSoFast® - UX 2.0 and EX 2.5 EPS Panels](#)".

7.0 IDENTIFICATION

The InSoFast® UX 2.0 and InSoFast® EX 2.5 panels are identified by a marking bearing the report holder's name (InSoFast) and contact information, the Intertek Mark, and the Code Compliance Research Report number (CCRR-1029).

8.0 OTHER CODES

This section is not applicable.

9.0 CODE COMPLIANCE RESEARCH REPORT USE

9.1 Approval of building products and/or materials can only be granted by a building official having legal authority in the specific jurisdiction where approval is sought.

9.2 Code Compliance Research Reports shall not be used in any manner that implies an endorsement of the product by Intertek.

9.3 Reference to the <https://bpdirectory.intertek.com> is recommended to ascertain the current version and status of this report.

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TABLE 1 – PROPERTIES EVALUATED

PROPERTY	IBC SECTION	IRC SECTION	ORSC Section
Surface Burning Characteristics	803, 2603	R302.9	NA
Stability	803.10	Not Applicable	NA
Wind Resistance	1609	R301.2.1	NA
Foam Plastic Insulation	2603	R316	NA
Water-resistive barrier	1404.2	R703.2	NA
Drainage Efficiency	NA	NA	R703.1.1 Exception 1

TABLE 2 – CAPACITIES OF FASTENERS IN ATTACHMENT STUDS

APPLICATION	FASTENER TYPE	ALLOWABLE LOAD CAPACITY (lbf)	
		Withdrawal	Lateral
Attaching Wall Covering	No. 6 by 1-5/8 inch coarse type W screw	65	94
Attaching Panel to Structural Wall	No. 9 by 3-1/2 inch long Type W screw	96	37

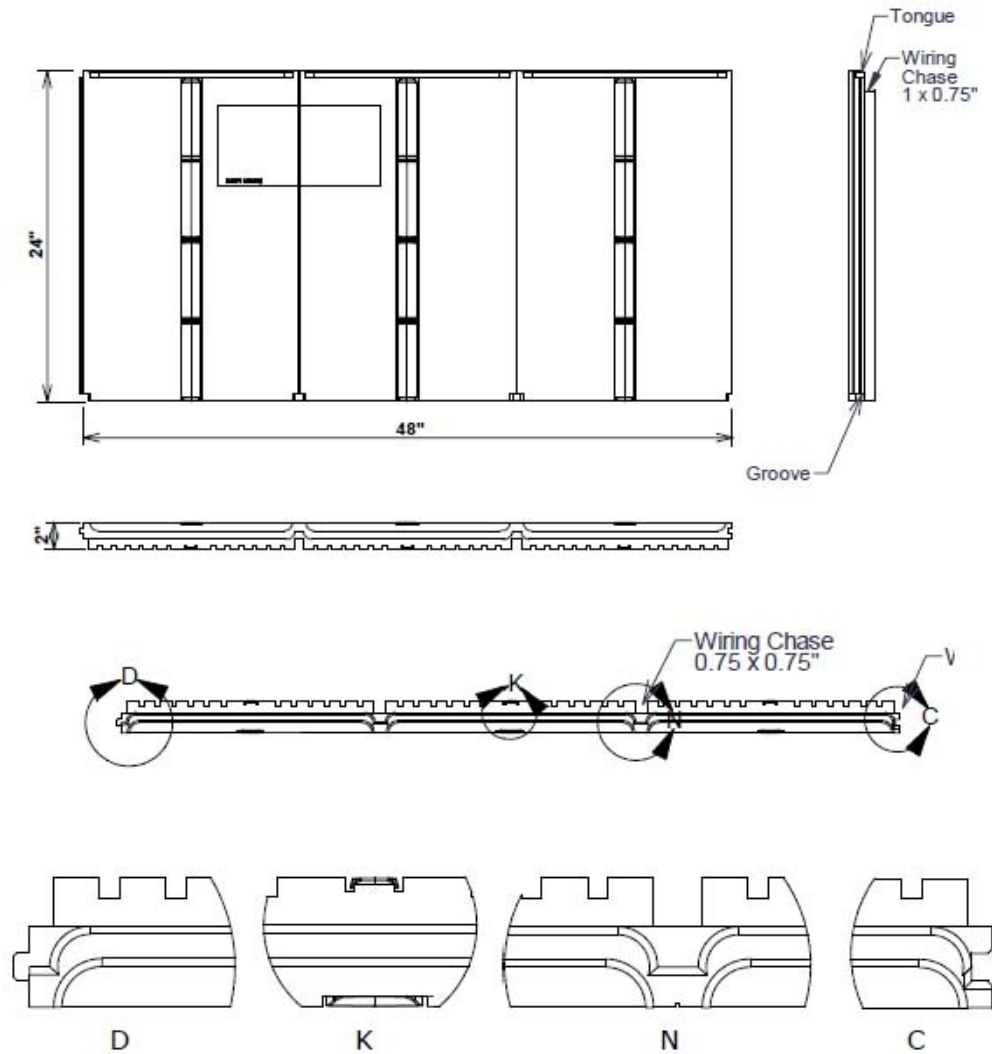


FIGURE 1 – InSoFast® Panel Details



FIGURE 2 – Typical Interior Installation



FIGURE 3 – Typical Exterior Installation

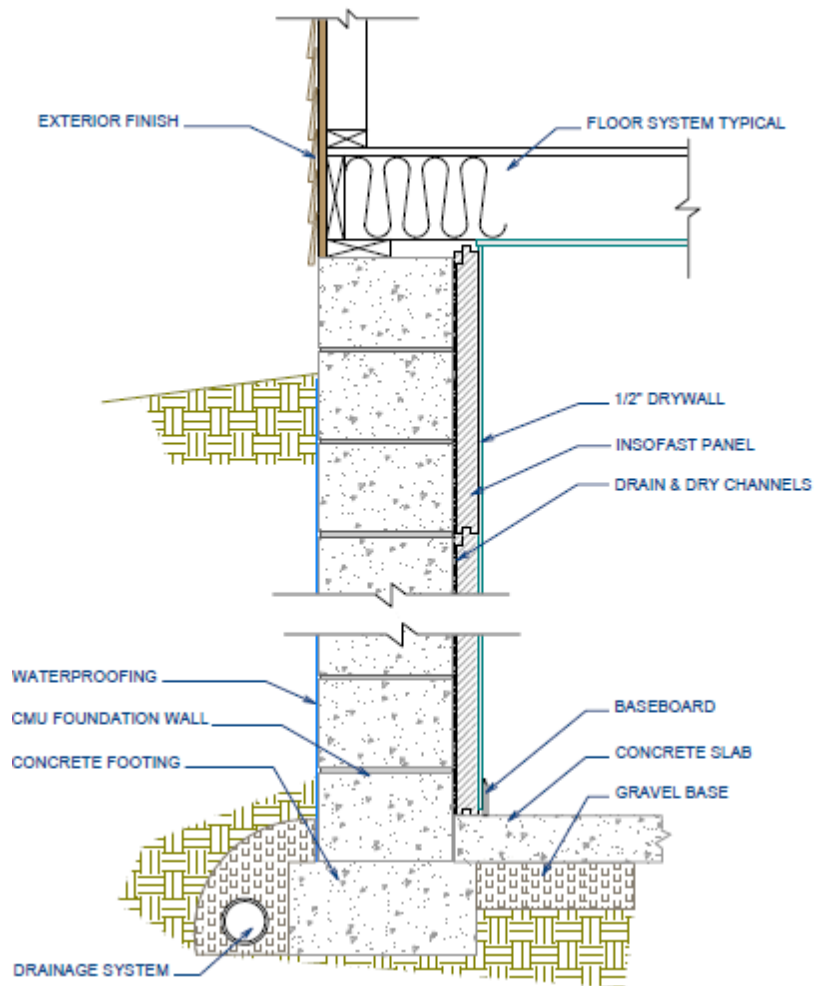


FIGURE 4 – Typical Basement Interior Installation