ICC-ES Evaluation Report

ESR-2717

Reissued July 2024

This report also contains:

- CBC Supplement

Subject to renewal July 2026

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DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION Section: 07 21 00—Thermal Insulation Section: 07 27 00—Air Barriers	REPORT HOLDER: ICP CONSTRUCTION INC. dba ICP BUILDING SOLUTIONS GROUP	EVALUATION SUBJECT: HANDIFOAM E84 CLASS 1(A), HANDIFOAM E84 HFO, AND HANDIFOAM FR HFO SPRAY FOAM SYSTEMS	

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2021, 2018, 2015, 2012 and 2009 *International Building Code® (IBC)*
- 2021, 2018, 2015, 2012 and 2009 *International Residential Code® (IRC)*
- 2021, 2018, 2015, 2012 and 2009 *International Energy Conservation Code® (IECC)*
- 2013 *Abu Dhabi International Building Code* (ADIBC)†
- Other Codes (see Section 8.0)

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

1.2 Evaluation to the following green standard:

- 2008 ICC 700 *National Green Building Standard™* (ICC 700-2008)

Attributes verified:

- See Section 3.4.

Properties evaluated:

- Physical properties
- Surface-burning characteristics
- Thermal resistance (*R*-values)
- Water vapor transmission
- Air permeability
- Attic and crawl space installation

2.0 USES

The HandiFoam E84 Class 1(A), HandiFoam E84 HFO and HandiFoam FR HFO Spray Foam Systems are used as nonstructural thermal insulating materials in Type V-B construction under the IBC and nonfire-resistance-rated construction under the IRC. The insulations are for use in wall cavities, floor/ceiling assemblies, attics and crawl spaces, and sill plates, band joists and headers when installed in accordance with this report. The insulations are air-impermeable insulations and may be used to seal the joints in site-fabricated

metallic air ducts under IRC Section M1601.4.1 when installed as described in Section 4.4; and may be used in any type of construction as an air barrier material when installed as described in Section 4.5. Use in attics and crawl spaces is described in Section 4.7.

3.0 DESCRIPTION

3.1 General:

The HandiFoam E84 Class 1(A), HandiFoam E84 HFO, and HandiFoam FR HFO Spray Foam Systems are two-component, closed-cell, low-pressure, semi-rigid, polyurethane plastic insulations. The two components, components A and B, are delivered in separate pressurized vessels and combined in the field, using a dispensing system specified by ICP Construction Inc. dba ICP Building Solutions Group. Component A, a polymeric isocyanate, mixes and reacts with Component B, a polymeric resin blend, producing a foam insulation with a nominal density of 2.1 lb/ft^3 (34 kg/m^3). The spray foam systems are available in nonrefillable sizes II-105, II-205, and II-605, and in refillable sizes System 8, System 17, System 27, System 60, and System 100. The components in the nonrefillable vessels have a shelf life of 12 months, and those in the refillable vessels have a shelf life of six (6) months, when stored unopened at temperatures between 50°F (10°C) and 120°F (49°C). The A and B components for the II-105 and II-205 are packaged together. The components of the nonrefillable II-605 and the refillable System 8, System 17, System 27, System 60, and System 100 are packaged separately.

3.2 Surface-burning Characteristics:

The HandiFoam E84 Class 1(A) Spray Foam insulation 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 at a maximum thickness of 2 inches (51 mm) and a nominal density of 2.1 lb/ft^3 (34 kg/m^3).

The HandiFoam E84 HFO Spray Foam insulation 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 at a maximum thickness of 3 inches (76.2 mm) and a nominal density of 2.1 lb/ft^3 (34 kg/m^3).

The HandiFoam FR HFO Spray Foam insulation 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 at a maximum thickness of $2^1/_2$ inches (64 mm) and a nominal density of 2.1 lb/ft^3 (34 kg/m^3).

3.3 Thermal Resistance (*R*-values):

HandiFoam E84 Class 1(A), HandiFoam E84 HFO, and HandiFoam FR HFO Spray Foam insulations have thermal resistance (*R*-values) at a mean temperature of 75°F (24°C) as shown in Tables 1, 2 and 3, respectively.

3.4 Air Permeability:

HandiFoam E84 Class 1(A) and HandiFoam E84 HFO Spray Foam insulations, at a minimum thickness of 1 inch (25.4 mm), are considered an air-impermeable insulation in accordance with 2021 and 2018 IBC Section 1202.3 (2015 IBC Section 1203.3) and 2021 and 2018, 2015 and 2012 IRC Section R806.5 (2009 IRC Section R806.4), based on testing in accordance with ASTM E283.

HandiFoam FR HFO Spray Foam insulation, at a minimum thickness of $^3/_4$-inch (19.1 mm), is considered an air-impermeable insulation in accordance with 2021 and 2018 IBC Section 1202.3 (2015 IBC Section 1203.3) and 2021 and 2018, 2015 and 2012 IRC Section R806.5 (2009 IRC Section R806.4), based on testing in accordance with ASTM E283.

The attributes of the insulations have been verified as conforming to the provisions of ICC 700-2008 Section 703.2.1.1.1(c) as air impermeable insulations. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

3.5 Vapor Permeance:

HandiFoam E84 HFO has a vapor permeance of greater than 1 perm (5.7 X 10^{-11} kg/Pa·s·m^2) and less than 10 perms [5.7 X10^{-10} kg/Pa·s·m^2)), when applied at a minimum thickness of 1 inch (2.54 mm) and may be used where a Class III vapor retarder is required by the applicable code.

HandiFoam FR HFO has a vapor permeance of less than 1 perm [5.7 X10^{-11} kg/Pa·s·m^2)), when applied at a minimum thickness of 2 inches (51 mm) and may be used where a Class II vapor retarder is required by the applicable code.

3.6 Intumescent Coating:

3.6.1 No Burn Plus XD:

No-Burn® Plus XD, manufactured by No-Burn, Inc., is a latex-based intumescent coating supplied in 5-gallon (19 L) pails. The coating material has a shelf life of 36 months when stored in factory-sealed containers at temperatures between 40°F (4.4°C) and 90°F (32°C).

3.6.2 DC 315 Coating:

DC 315 coating (ESR-3702), manufactured by International Fireproof Technology Inc., is a water-based intumescent coating supplied in 5-gallon (19 L) pails and 55-gallon (208 L) drums. The coating has a shelf life of one (1) year when stored in factory-sealed containers at temperatures between 50°F (10°C) and 80°F (27°C).

3.6.3 FIRESHELL® F10E Coating:

FIRESHELL® F10E coating (ESR-3997), manufactured by ICP Construction Inc. dba ICP Building Solutions Group, is a proprietary single-component, water-based, liquid-applied intumescent coating. The coating is supplied in 5-gallon (19 L) pails and 55-gallon (208 L) drums and has a shelf-life of one (1) year when stored in factory-sealed containers at temperatures between 45°F (7.2°C) and 95°F (35°C).

4.0 INSTALLATION

4.1 General:

The HandiFoam E84 Class 1(A), HandiFoam E84 HFO and HandiFoam FR HFO spray-applied insulations must be installed in accordance with the manufacturer's published installation instructions, the applicable code, and this report. The manufacturer's published installation instructions, which are provided with every system, must be available on the jobsite at all times during installation.

4.2 Application:

The insulations are applied in single or multiple passes having a minimum thickness of $^1/_2$ inch (12.7 mm) and a maximum thickness of 2 inches (51 mm) per pass, and must not exceed a total thickness of 2 inches (51 mm) in wall, floor, or ceiling cavities. Each insulation pass must be allowed to fully expand and cure for a minimum of 15 minutes prior to the application of an additional pass. he maximum service temperature must not exceed that specified in the manufacturer's installation instructions. The foam plastic insulation must not be used in electric outlet or junction boxes, or in contact with rain or water. The substrate must be free of moisture, frost or ice, loose scales, rust, oil, and grease. The insulation must be protected from the weather during and after application.

4.3 Thermal Barrier:

4.3.1 Application with a Prescriptive Thermal Barrier: HandiFoam E84 Class 1(A), HandiFoam E84 HFO and HandiFoam FR HFO Spray Foam insulations must be separated from the interior of the building by an approved thermal barrier of $^1/_2$-inch (12.7 mm) gypsum wallboard, or an equivalent thermal barrier complying with and installed in accordance with IBC Section 2603.4 or IRC Section R316.4, as applicable, except where installation is as described in Sections 4.3.2, 4.4, 4.5 and 4.6. Within an attic or crawl space, installation must be in accordance with Section 4.7.

4.3.2 Application without a Prescriptive Thermal Barrier: HandiFoam E84 Class 1(A) and HandiFoam E84 HFO Spray Foam insulations may be installed without the thermal barrier prescribed in IBC Section 2603.4 and IRC Section R316.4 in assemblies conforming to one of those described in Table 3. When an intumescent coating is used, the coating must be applied over the insulation in accordance with the coating manufacturer's instructions and this report. The surface to be coated must be dry, clean, and free of dirt and loose debris or other substances that could interfere with the adhesion of the coating.

4.4 Joint Sealant on Metallic Air Ducts:

The insulations, installed at a maximum thickness of 2 inches (51 mm) and a maximum width of 6 inches (152 mm), may be used to seal the joints of nonfactory-made (non-listed) air ducts, in accordance with Section M1601.4.1 of the IRC. See Figure 1.

4.5 Applications as Air Barrier Material:

HandiFoam E84 Class 1(A) and HandiFoam E84 HFO Spray Foam insulations may be used in any type of construction as an air barrier material for wall/floor and roof/wall intersections in the exterior building envelope when installed at a maximum of 2 inches (51 mm) thick and 6 inches (152 mm) wide, and an unlimited length. See Figures 2 and 3.

In wall/floor intersections, the foam plastic may be applied over a fire-resistant joint without affecting the fire-resistance rating, provided the foam plastic is limited to maximum dimensions of 2 inches (51 mm) by 2 inches (51 mm) (length is unlimited).

4.6 Use on Sill Plates, Band Joists and Headers:

HandiFoam E84 Class 1(A), HandiFoam E84 HFO, and HandiFoam FR HFO Spray Foam insulations with a maximum thickness of 2 inches (51 mm) may be applied to sill plates, band joists and headers without a thermal barrier or ignition barrier, in Type V construction in accordance with IBC Section 2603.4.1.13 and IRC Section R316.5.11.

4.7 Attics and Crawl Spaces:

4.7.1 Application with a Prescriptive Ignition Barrier: When the foam plastic insulations are installed within attics or crawl spaces, where entry is made only to service utilities, an ignition barrier must be installed in accordance with IBC Section 2603.4.1.6 or IRC Sections R316.5.3 and R316.5.4, as applicable. The ignition barrier must be consistent with the requirements for the type of construction required by the applicable code and must be installed so that the foam plastic insulation is not exposed. The attic or crawl space area must be separated from the interior, habitable space of the building by an approved thermal barrier as described in Section 4.3.1. The insulations may be installed in unvented attics as described in this section in accordance with 2021 and 2018 IBC Section 1202.3 (2015 IBC Section 1203.3) and 2021, 2018, 2015 and 2012 IRC Section R806.5 (2009 IRC Section R806.4).

4.7.2 Application without a Prescriptive Ignition Barrier:

4.7.2.1 General: HandiFoam E84 Class 1(A) and HandiFoam E84 HFO Spray Foam insulations may be installed in attics and crawl spaces as described in this section without the ignition barriers described in IBC Section 2603.4.1.6 and IRC Sections R316.5.3 and R316.5.4, subject to the following conditions:

a. Entry to the attic or crawl space is only to service utilities and no storage is permitted.
b. There are no interconnected attic or crawl space areas.
c. Air in the attic or crawl space is not circulated to other parts of the building.
d. Under-floor (crawl space) ventilation is provided in accordance with 2021 and 2018 IBC Section 1202.4 [2015 IBC Section 1203.4 (2012 and 2009 IBC Section 1203.3)] or 2021 IRC Section R408.2 (2018, 2015, 2012 and 2009 IRC Section R408.1), as applicable.
e. Attic ventilation is provided in accordance with 2021 and 2018 IBC Section 1202.2 (IBC Section 1203.2) or IRC Section R806, as applicable.
f. Combustion air is provided in accordance with IMC (*International Mechanical Code*®) Section 701.
g. If hot work is to be performed, all necessary procedures, precautions and limitations must be observed in accordance with OSHA 1926 Subpart J Standard 1926.352 requirements for hot work (welding / cutting) performed in the vicinity of combustible materials.
h. An installation certificate with the following information must be posted at each entrance:
    - Product name and installation thickness.
    - Manufacturer name, address and contact information.
    - Installation contractor name, address and contact information.
    - Attestation that the product(s) have been installed in accordance with the manufacturer's installation instructions and the requirements of the evaluation report.
    - A notice that the installation certificate is not to be removed or altered.
    - A list of limitations for the space including the following:
        - Entry to the space is only to service utilities, and no storage is permitted.
        - FIRE SAFETY WARNING: If hot work is to be performed, all necessary procedures, precautions and limitations must be observed in accordance with OSHA 1926 Subpart J Standard 1926.352 requirements for hot work (welding / cutting) performed in the vicinity of combustible materials.

In attics, HandiFoam E84 Class 1(A) and HandiFoam E84 HFO Spray Foams may be spray-applied to the underside of the roof sheathing and/or rafters surfaces provided the assembly conforms to one of the assemblies in Table 4. In crawl spaces, the insulations may be spray-applied to the underside of wood floors and/or floor joists provided the assembly conforms to one of the assemblies described in Table 4. When an intumescent coating is used, surfaces must be dry, clean, and free of dirt, loose debris and any other substances that could interfere with adhesion of the coating. The intumescent coating must be applied to all surfaces in accordance with the respective coating manufacturer's installation instructions. The coatings must be applied when ambient and substrate temperatures are within a range of 50°F (10°C) to 90°F (32°C).

4.7.2.2 Use on Attic Floors: The HandiFoam E84 Class 1(A) Spray Foam may be installed at a maximum thickness of 2 inches (51 mm) between joists in attic floors. The foam plastic insulation must be covered with a minimum 6.4-mil-thick dry film (10 mil of wet film) of No Burn Plus XD intumescent coating applied over the

insulation in accordance with the manufacturer's installation instructions and this report. The coating is applied using an airless sprayer, brush, or roller at a rate of 1 gallon per 160 square feet (0.26 L/m^2) per coat, to obtain the required minimum thickness. The intumescent coating must be applied in accordance with the manufacturer's installation instructions and this report. The insulation must be separated from the interior of the building by an approved thermal barrier.

5.0 CONDITIONS OF USE:

The HandiFoam E84 Class 1(A), HandiFoam E84 HFO, and HandiFoam FR HFO Spray Foam Systems described in this report comply with, or are a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 The insulations must be installed in accordance with the manufacturer's published installation instructions, this report, and the applicable building code. In the event of a conflict between the installation instructions and this report, this report governs.

5.2 The foam plastic insulations must be applied by installers certified by ICP Construction Inc. dba ICP Building Solutions Group.

5.3 The spray-applied foam plastic must not exceed the thicknesses listed in Sections 3.2 and 4.0.

5.4 The foam plastic insulations must be separated from the interior of the building by an approved thermal barrier, as described in Section 4.3 except as described in Sections 4.3.2, 4.4, 4.5, 4.6 and 4.7.

5.5 The foam plastic insulations must be protected from the weather during and after application.

5.6 HandiFoam E84 Class 1(A), HandiFoam E84 HFO, and HandiFoam FR HFO Spray Foam insulations have been evaluated only for use in Type V-B construction under the IBC and nonfire-resistance-rated construction under the IRC.

5.7 Use of the insulations in areas where the probability of termite infestation is "very heavy" must be in accordance with 2021, 2018, 2015 and 2009 IBC Section 2603.8 (2012 IBC Section 2603.9) or IRC Section R318.4, as applicable.

5.8 Jobsite certification and labeling of the insulations must comply with 2021, 2018 and 2015 IRC Sections N1101.10.1 and N1101.10.1.1 (2012 IRC Sections N1101.12.1 and N1101.12.1.1 or 2009 IRC Sections N1101.4 and N1101.4.1) and 2021, 2018, 2015 and 2012 IECC Sections C303.1.1, C303.1.2, R303.1.1 and R303.1.2 (2009 IECC Sections 303.1.1 and 303.1.2), as applicable.

5.9 When installed in accordance with Section 4.7.2 of this report, the associated installation certificate(s) containing the required information referenced in Section 4.7.2 must be installed at each entrance to the crawlspace or attic, as applicable. The certificate(s) must be red in color and constructed of durable materials, such as metal, plastic, or laminated paper.

5.10 When used in unvented attics in accordance with Section 4.7.2 of this report, installation with a vapor diffusion port in accordance with 2021 IBC Section 1202.3, Item 5.2 or 2021 and 2018 IRC Section R806.5, Item 5.2 is outside the scope of this report.

5.11 HandiFoam E84 Class 1(A) and HandiFoam E84 HFO Spray Foam insulations must not be used as a component of a fire-resistant joint system but may be applied over the top of a fire-resistant joint system, as described in Section 4.5.

5.12 A vapor retarder must be installed in accordance with the applicable code.

5.13 The HandiFoam E84 Class 1(A), HandiFoam E84 HFO, and HandiFoam FR HFO Spray Foam Systems components are produced in under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation (AC377), dated June 2023.

6.2 Reports of test in accordance with Appendix X for HandiFoam E84 class 1(A) and HandiFoam E84 HFO.

6.3 Reports on air leakage tests in accordance with ASTM E283.

6.4 Report of room corner test in accordance with NFPA 286 for application without a prescriptive thermal barrier for HandiFoam E84 Class 1(A) and HandiFoam E84 HFO.

6.5 Report of room corner test in accordance with NFPA 286 HandiFoam E84 Class 1(A) and HandiFoam E84 HFO.

6.6 Engineering analysis addressing use as an air barrier material and duct joint sealant HandiFoam E84 Class 1(A) and HandiFoam E84 HFO.

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-2717) along with the name, registered trademark, or registered logo of the report holder (ICP Construction Inc. dba ICP Building Solutions Group) must be included in the product label.

7.2 In addition, each container of the HandiFoam E84 Class 1(A), HandiFoam E84 HFO, and HandiFoam FR HFO Spray Foam Systems are identified with the ICP Construction Inc. dba ICP Building Solutions Group, address, the product name, the component type (A or B), the date of manufacture and the shelf life of the component. The labeling includes the installed density, flame-spread, and smoke-developed indices. The combined packaging of the II-105, II-205 and II-605 products is identified with the manufacturer's name and address, the product name, date of manufacture, shelf life, installed density, flame-spread and smoke-developed indices, and the evaluation report number (ESR-2717).

The ICP Construction Inc. dba ICP Building Solutions Group FIRESHELL® F10E coating, described in Section 3.6.3, is identified with the manufacturer's name, the product trade name, use instructions and evaluation report number (ESR-3997).

The No-Burn®, Inc. No-Burn® XD Plus intumescent coating described in Section 3.6.1 is identified with the manufacturer's name, the product trade name and use instructions.

The International Fireproof Technology Inc. DC 315 intumescent coating described in Section 3.6.2 is identified with the manufacturer's name and address; the product trade name; the date of manufacture, the shelf life or expiration date; the manufacturer's instructions for application, and ICC-ES evaluation report number ESR-3702.

7.3 The report holder's contact information is the following:

ICP CONSTRUCTION INC.
dba ICP BUILDING SOLUTIONS GROUP
2775 BARBER ROAD
NORTON, OHIO 44203
(330) 753-4585
www.icpgroup.com

8.0 OTHER CODES

In addition to the codes referenced in Section 1.0, the products described in this report were evaluated for compliance with the requirements of the following codes:

- 2006 *International Building Code*® (2006 IBC)
- 2006 *International Residential Code*® (2006 IRC)
- 2006 *International Energy Conservation Code*® (2006 IECC)

The products comply with the above-mentioned codes as described in Sections 2.0 through 7.0 of this report, with the revisions noted below:

- **Application with a Prescriptive Thermal Barrier:**

See Section 4.3, except the approved thermal barrier must be installed in accordance with 2006 IRC Section R314.4.

- **Application with a Prescriptive Ignition Barrier:**

See Section 4.7.1, except attics must be vented in accordance with 2006 IBC Section 1203.2 or 2006 IRC Section R806, and crawl space ventilation must be in accordance with 2006 IBC Section 1203.3 or 2006 IRC Section R408, as applicable. Additionally, an ignition barrier must be installed in accordance with 2006 IRC Section R314.5.3 or Section R314.5.4, as applicable.

- **Application without a Prescriptive Ignition Barrier:**

See Section 4.7.2, except attics must be vented in accordance with 2006 IBC Section 1203.2 or 2006 IRC Section R806 and crawl space ventilation must be in accordance with 2006 IBC Section 1203.3 or 2006 IRC Section R408, as applicable.

- **Protection against Termites:**

See Section 5.7, except use of the insulation in areas where the probability of termite infestation is "very heavy" must be in accordance with 2006 IRC Section R320.5.

- **Jobsite Certification and Labeling:**

See Section 5.8, except jobsite certification and labeling must comply with Sections 102.1.1 and 102.1.11, as applicable, of the 2006 IECC.

TABLE 1—HANDIFOAM E84 CLASS 1(A) THERMAL RESISTANCE (*R*-VALUES[1])

THICKNESS (inches)	*R*-VALUE (°F·ft²·h/Btu)
1	6[1]
2	12[1]

For **SI:** 1 inch = 25.4 mm: 1 °F·ft²·h/Btu = 0.176 °K·m²/W.

[1]*R*-values are based on tested *k*-values at 2-inch thickness.

TABLE 2—HANDIFOAM E84 HFO THERMAL RESISTANCE (*R*-VALUES[1])

THICKNESS (inches)	*R*-VALUE (°F·ft²·h/Btu)
1	6.1
2	13
3	20

For **SI:** 1 inch = 25.4 mm: 1 °F·ft²·h/Btu = 0.176 °K·m²/W.

[1]*R*-values are based on tested *k*-values at 3-inch thickness.

TABLE 3—HANDIFOAM FR HFO THERMAL RESISTANCE (*R*-VALUES[1])

THICKNESS (inches)	*R*-VALUE (°F·ft²·h/Btu)
1	6.4
2	12

For **SI:** 1 inch = 25.4 mm: 1 °F·ft²·h/Btu = 0.176 °K·m²/W.

[1]*R*-values are based on tested *k*-values at 2-inch thickness.

TABLE 4—USE OF INSULATION WITHOUT A PRESCRIPTIVE THERMAL BARRIER[1]

INSULATION TYPE	MAXIMUM THICKNESS (in.) (Wall Cavities)	MAXIMUM THICKNESS (in) (Ceilings)	INTUMESCENT COATING[2] MINIMUM THICKNESS AND TYPE (applied to all foam surfaces)	MINIMUM APPLICATION RATE OF FIRE-PROTECTIVE COATING	TESTS SUBMITTED
HandiFoam E84 Class 1(A)	2	2	DC315 20 wet mils / 13 dry mils	1.25 gal / 100 ft²	NFPA 286
HandiFoam E84 HFO	3	3	DC315 18 wet mils / 12 dry mils	1.13 gal / 100 ft²	NFPA 286
	3	3	F10E 7 wet mils/ 4 dry mils	0.44 gal / 100 ft²	NFPA 286

For **SI:** 1 inch = 25.4 mm; 1 mil = 0.0254 mm; 1 gallon = 3.38 L; 1 ft² = 0.093 m²; NA = not applicable.

[1]See Section 4.7.2.
[2]See Section 3.6.1, 3.6.2 and 3.6.3

TABLE 5—USE OF INSULATION IN ATTICS AND CRAWL SPACES WITHOUT A PRESCRIPTIVE IGNITION BARRIER[1]

INSULATION TYPE	MAXIMUM THICKNESS (in) (Wall Cavities)	MAXIMUM THICKNESS (in) (Ceilings, roof sheathing and/or rafters)	INTUMESCENT COATING MINIMUM THICKNESS AND TYPE (applied to all foam surfaces)	MINIMUM APPLICATION RATE OF FIRE-PROTECTIVE COATING	TESTS SUBMITTED
HandiFoam E84 Class 1(A)	2	2	No Burn Plus XD 10 wet mils/ 6.4 dry mils	1 gal / 160 ft²	Appendix X
HandiFoam E84 HFO	3	3	F10EF10E 7 wet mils / 4 dry mils	0.44 gal / 100 ft²	Appendix X

For **SI:** 1 inch = 25.4 mm; 1 mil = 0.0254 mm; 1 gallon = 3.38 L; 1 ft² = 0.093 m²; NA = not applicable.

[1]See Section 4.7.2.1
[2]See Section 3.6.1, 3.6.2 and 3.6.3

FIGURE 1—DUCT JOINT SEALING

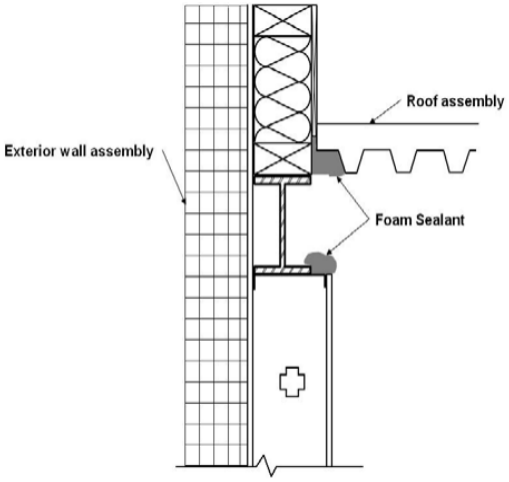

FIGURE 2—ROOF WALL JUNCTURE

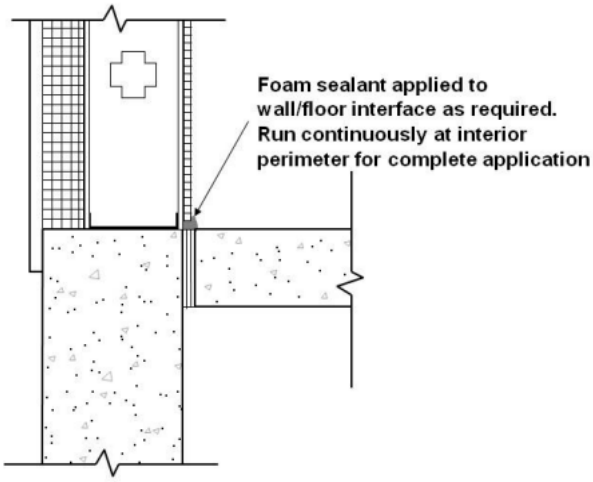

FIGURE 3—WALL FLOOR JUNCTURE

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 21 00—Thermal Insulation
Section: 07 27 00—Air Barriers

REPORT HOLDER:

ICP CONSTRUCTION INC. dba ICP BUILDING SOLUTIONS GROUP

EVALUATION SUBJECT:

HANDIFOAM E84 CLASS 1(A), HANDIFOAM E84 HFO AND HANDIFOAM FR HFO SPRAY FOAM SYSTEMS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the HandiFoam E84 Class 1(A), HandiFoam E84 HFO and HandiFoam FR HFO Spray Foam Systems, described in ICC-ES evaluation report ESR-2717, has also been evaluated for the codes noted below.

Applicable code edition:

- 2022 *California Building Code* (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD): California Department of Health Care Access and Information (HCAI) and Division of the State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2022 *California Residential Code* (CRC)
- 2022 *California Energy Code* (CEC)

2.0 CONCLUSIONS

2.1 CBC and CRC:

The HandiFoam E84 Class 1(A) and HandiFoam E84 HFO Spray Foam Systems, described in Sections 2.0 through 7.0 of the evaluation report ESR-2717, complies with the 2022 CBC and CRC, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) or 2021 *International Residential Code*® (IRC) and provisions noted in the evaluation report.

2.1.1 OSHPD: The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

2.1.2 DSA: The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

2.2 CEC:

The HandiFoam E84 Class 1(A), HandiFoam E84 HFO and HandiFoam FR HFO Spray Foam Systems, described in Sections 2.0 through 7.0 of the evaluation report ESR-2717, complies with the 2022 CEC, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) or 2021 *International Residential Code*® (IRC) and provisions noted in the evaluation report.

2.2.1 Conditions of Use:

In accordance with Section 110.8 of the 2022 California Energy Code, verification of certification by the Department of Consumer Affairs, Bureau of Household Goods and Services, must be provided to the code official, demonstrating that the insulation conductive thermal performance is approved pursuant to the California Code of Regulations, Title 24, Part 12, Chapters 12-13, Article 3, “Standards for Insulating Material.” Certification can be verified with the DCA Bureau of Household Goods and Services using the following link to the bureau’s Directory of Certified Insulation Materials: https://bhgs.dca.ca.gov/consumers/ti_directory.pdf

This supplement expires concurrently with the evaluation report, reissued July 2024.