**SES FOAM, LLC**
**2400 Spring Stuebner Road**
**Spring, Texas 77389**
**(713) 239-0252**
**www.sesfoam.com**

# EASYSEAL.5 SPRAY FOAM INSULATION

**CSI Section: 07 21 00 Thermal Insulation**

## 1.0 RECOGNITION

EasySeal.5 Spray Foam Insulation has been evaluated for use as spray foam insulation complying with IBC Section 2603; IRC Section R316; 2021, 2018, 2015, and 2012 IECC Sections C303, C402, R303, and R402. EasySeal.5 Spray Foam Insulation evaluated in this report complies with the following codes and regulations:

- 2021, 2018, 2015, and 2012 International Building Code® (IBC)
- 2021, 2018, 2015, and 2012 International Residential Code® (IRC)
- 2021, 2018, 2015, and 2012 International Energy Conservation Code® (IECC)
- 2020 Florida Building Code, Building (FBC, Building) – Supplement attached
- 2020 Florida Building Code, Residential (FBC, Residential) – Supplement attached

## 2.0 LIMITATIONS

Use of the EasySeal.5 Spray Foam Insulation recognized in this report is subject to the following limitations:

**2.1** The insulation shall be installed in accordance with the manufacturer's published installation instructions, this evaluation report, and the applicable code. If there are any conflicts between the manufacturer's published installation instructions and this report, the more restrictive governs.

**2.2** Except as indicated in Sections 3.3.3 and 3.3.6 of this report or by the applicable code, the insulations shall be separated from the interior of the building by a code-approved thermal barrier.

**2.3** As noted in Sections 3.3.3 and 3.3.6 of this report, the insulation shall not exceed the nominal density and thickness.

**2.4** During installation, the insulation and the surfaces to which it is applied shall be protected from exposure to weather.

**2.5** The contractors that will be installing the insulations shall be certified by SES Foam, LLC.

**2.6** Use of the insulation in areas of "very heavy" termite infestation shall be in accordance with the 2021, 2018, and 2015 IBC Section 2603.8, or 2012 IBC Section 2603.9, or IRC Section 318.4, as applicable.

**2.7** Labeling and job site certification of the insulation and coatings shall comply with IBC Section 2603.2; 2021, 2018 and 2015 IRC N1101.10 and N1101.10.1.1; and 2012 IRC Section N1101.12 and N1101.12.1; or IECC Sections C303.1.1 and C303.1.2, as applicable.

**2.8** The insulation produced at SES Foam, LLC, located in St. Louis, Missouri, and Spring, Texas.

## 3.0 PRODUCT USE

**3.1 General:** When installed in accordance with Section 3.3 of this report, EasySeal.5 Foam Insulation may be used in wall cavities, floor assemblies, or ceiling assemblies, and in the attic and crawl spaces as nonstructural thermal insulation material. The spray-applied foam plastic insulation is used in Type V-B construction under the IBC and dwellings under the IRC.

### 3.2 Design

**3.2.1 Air Permeability:** When tested in accordance with ASTM E2178 at a minimum thickness of 3.5 inches (89 mm), EasySeal.5 Spray Foam Insulation is classified as an air-impermeable insulation in accordance with Section 1202.3 of the 2021 and 2018 IBC, Section 1203.3 of the 2015 IBC, and Section R806.5 of the IRC.

**3.2.2 Thermal Resistance (R-Values):** EasySeal.5 Spray Foam Insulation has a thermal resistance (R-Value) at a mean temperature of 75°F (24°C) as shown in Table 1 of this report.

**TABLE 1**
**Thermal Resistance (R-Value) [1, 2]**
**(°F·ft²·h/BTU)**

| Thickness (inch) | R-Value |
|---|---|
| 1 | 3.7 |
| 2 | 7.5 |
| 3 | 11 |
| 3.5 | 13 |
| 4 | 15 |
| 5 | 19 |
| 5.5 | 21 |
| 6 | 23 |
| 7 | 27 |
| 7.5 | 29 |
| 8 | 30 |
| 9 | 34 |
| 10 | 38 |
| 11 | 42 |
| 12 | 46 |

For **SI:** 1 inch = 25.4 mm, 1°F·ft²·h/Btu = 0.176 110 K·m²/W.

[1] *R*-Values are calculated based on tested *K* values at 1-inch and 3.5-inch thicknesses.

[2] *R*-Values greater than 10 are rounded to the nearest whole number.

**3.2.3 Surface Burning Characteristics:** At a maximum thickness of 4 inches (102 mm) and a nominal density of 0.5 pcf (16 kg/m$^3$), the EasySeal.5 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. Thicknesses are not limited for ceiling cavities and wall cavies when covered by a code complying prescriptive thermal barrier, such as minimum ½-inch (12.7 mm) thick gypsum board.

**3.3 Installation:**

**3.3.1 Installation General:** EasySeal.5 Spray Foam Insulation shall comply with Sections C402.1 or R402.1 of the IECC, as applicable.

The manufacturer's published installation instructions for EasySeal.5 Spray Foam Insulation and this report shall be available and strictly adhered to at all times on the job site during installation.

EasySeal.5 Spray Foam Insulation shall be spray-applied on the job site using a volumetric positive displacement pump in accordance with the manufacturer's published installation instructions. The applied insulation shall be sprayed in multiple passes having a maximum thickness of 10 inches (254 mm) per pass up to the maximum insulation thickness specified in this report. The maximum in-service temperature for all areas shall not exceed 180°F (82°C). The spray-applied foam plastic insulation shall not be used in electrical outlets or junction boxes or in continuous contact with rain or water. The spray-applied foam plastic insulation shall be sprayed onto a substrate that is protected and clean from any debris or weather-related conditions during application.

**3.3.2 Installation with a Prescriptive Thermal Barrier:** EasySeal.5 Spray Foam Insulation shall be separated from the interior by an approved thermal barrier of minimum ½-inch thick (12.7 mm) gypsum wallboard or an equivalent thermal barrier. When installed in accordance with this section, the spray foam may be any thickness when installed behind a prescriptive thermal barrier. The barrier shall comply with and be installed in accordance with IBC Section 2603.4 or IRC Section R316.4, as applicable.

**3.3.3 Installation with an Alternative Thermal Barrier Assembly:** EasySeal.5 Spray Foam Insulation may be installed without a thermal barrier as defined in Section 3.3.2 of this report when installed with a fire protective coating as described in Table 2 of this reort based on testing in accordance with NFPA 286 or UL1715, as applicable.

**3.3.4 Installation for Attics and Crawl Spaces:** When used in an attic or crawl space where entry is made only for service of utilities, EasySeal.5 Spray Foam Insulation shall be installed in accordance with this section. The insulation shall be separated from the interior of the building by an approved thermal barrier as described in Sections 3.3.2 and 3.3.3 of this report, as applicable.

**3.3.5 Installation with a Prescriptive Ignition Barrier:** Where entry is made only for the service of utilities, EasySeal.5 Spray Foam Insulation may be installed at a maximum thickness of 4 inches (102 mm) within attics or crawl spaces with an ignition barrier in accordance with IBC Section 2603.4.1.6, or IRC Sections R316.5.3 and R316.5.4, as applicable. The ignition barrier shall be installed in a manner such the foam plastic insulation is not exposed and is consistent with the requirements of the type of construction required by the applicable code.

**3.3.6 Installation with an Alternative Ignition Barrier Assembly:** When installation is in accordance with this section, the prescriptive ignition barrier specified by Section 2603.4.1.6 of the IBC or Sections R316.5.3 and R316.5.4 of the IRC, as applicable, may be omitted.

**3.3.6.1 General:** When EasySeal.5 Spray Foam Insulation is installed in attics and crawl spaces without a prescriptive ignition barrier, the following conditions apply:

- **a.** Entry is only to service utilities in the attic or crawl space and no storage is permitted.
- **b.** Attic or crawl space areas cannot be interconnected.
- **c.** Air from the attic or crawl space cannot be circulated to other parts of the building.
- **d.** In accordance with 2021 and 2018 IBC Section 1202.2, 2015 and 2012 IBC Section 1203.2 or IRC Section R806, as applicable, attic ventilation is provided, as applicable.
- **e.** In accordance with 2021 and 2018 IBC Section 1202.4, 2015 and 2012 IBC Section 1203.3, or IRC Section R408.1, as applicable, crawl-space ventilation is provided, as applicable.
- **f.** In accordance with IMC (International Mechanical Code®) Section 701, combustion air is provided.
- **g.** Application of EasySeal.5 shall be in accordance with Section 3.3.6.2 of this report.

**3.3.6.2 Attics and Crawl Spaces:** EasySeal.5 Spray Foam Insulation may be spray-applied in attics to the underside of roof sheathing, roof rafters, and vertical surfaces, and in crawl spaces to the underside of floors and vertical surfaces as described in Table 3 of this report.

**3.3.6.3 Unvented Attics:** EasySeal.5 Spray Foam Insulation may be installed in unvented attic assemblies and unvented enclosed rafter assemblies in accordance with Section 1202.3 of the 2021 and 2018 IBC, and Section 1203.3 of the 2015 IBC, or Section R806.5 of the 2018, 2015, and 2012 IRC, as applicable. A vapor retarder shall be installed as required in Section 1202.3(4) of the 2021 and 2018 IBC and Section 1203.3 (4) of the 2015 IBC in Climate Zones 5, 6, 7, and 8.

**4.0 PRODUCT DESCRIPTION**

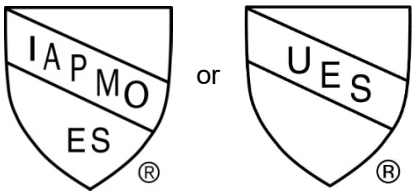
EasySeal.5 Spray Foam Insulation is a spray-applied, polyurethane foam plastic and complies as low-density insulation in accordance with Section 3.1.1 and Table 1 of

AC377. The insulation is a two-component spray foam plastic with a nominal in-place density of 0.5 pcf (16 kg/m$^3$).

The spray-applied insulation is mixed in the field by combining a polymeric isocyanate (A component) and a resin blend (B component). The liquid components shall be stored in 55-gallon (208 L) drums at temperatures between 50°F and 70°F (10°C and 21°C). When Component A and Component B are stored in factory-sealed containers at the recommended temperatures, the maximum shelf life is six months.

## 5.0 IDENTIFICATION

EasySeal.5 Spray Foam Insulation containers are identified by the manufacturer's name (SES Foam, LLC) address and telephone number, product name, use instructions, density flame-spread and smoke-development indices, date of manufacture, the name or logo of the inspection agency and evaluation report number (ER-492). The spacer identification may also include the IAPMO Uniform Evaluation Service Mark of Conformity, either of which may also be used as shown below:




**IAPMO UES ER-492**

## 6.0 SUBSTANTIATING DATA

**6.1** Manufacturer's descriptive literature and installation instructions. Test reports are from laboratories in compliance with ISO/IEC 17025.

**6.2** Data in accordance with the Acceptance Criteria for Spray-applied Foam Plastic Insulation, AC377, dated February 2020.

**6.3** Report of Flammability Testing in accordance with NFPA 286.

**6.4** Report of Air Permeance based on ASTM E2178.

**6.5** Report of room fire testing in accordance with UL 1715.

**6.6** Data in accordance with IAPMO/ANSI ES1000-2020, Standard for Building Code Compliance of Spray-Applied Polyurethane Foam.

**6.7** Data in accordance with 2019 ICC 1100 Standard for Spray-applied Polyurethane Foam Plastic Insulation.

## 7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on EasySeal.5 Spray Foam Plastic Insulation to assess their conformance to the codes shown in Section 1.0 of this report and documents the product's certification. The product is manufactured at the location noted in Section 2.8 of this report under a quality control program with periodic inspection under the supervision of IAPMO UES.

**For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org**

**TABLE 2 - ALTERNATIVE THERMAL BARRIER ASSEMBLIES**

| FIRE-PROTECTIVE COATING/COVERING[1] | | | MAXIMUM SPF THICKNESS (inch) | |
|---|---|---|---|---|
| TYPE | MINIMUM THICKNESS | THEORETICAL APPLICATION RATE (COATINGS ONLY) | WALLS AND VERTICAL SURFACES | CEILING AND OVERHEAD SURFACES |
| DC315[2] | 14 mils WFT (9 mils DFT) | 0.87 gal/100 ft$^2$ | 10 | 12 |
| Plus ThB[3] | 14 mils WFT (9 mils DFT) | 0.87 gal/100 ft$^2$ | 10 | 14 |

For **SI:** 1 inch = 25.4 mm, 1 gallon = 3.785 L, 1 ft$^2$ = 0.0929 m$^2$

[1] Fire-protective coatings and coverings shall be applied over all exposed SPF surfaces in accordance with the coating/covering manufacturer's instructions and this report.

[2] International Fireproof Technology, Inc, recognized in IAPMO UES ER-499 and tested to the requirements of NFPA 286.

[3] No-Burn, Inc, recognized in IAPMO UES ER-305 and tested to the requirements of UL 1715.

**TABLE 3 - ALTERNATIVE IGNITION BARRIER ASSEMBLIES**

| FIRE-PROTECTIVE COATING/COVERING[1] | | | MAXIMUM SPF THICKNESS (inch) | |
|---|---|---|---|---|
| TYPE | MINIMUM THICKNESS | THEORETICAL APPLICATION RATE (COATINGS ONLY) | WALLS AND VERTICAL SURFACES | CEILING AND OVERHEAD SURFACES |
| DC315[2] | 4 mils WFT (3 mils DFT) | 0.25 gal/100 ft$^2$ | 10 | 12 |
| Flame Seal IB[3] | 4 mils WFT (3 mils DFT) | 0.25 gal/100 ft$^2$ | 12 | 18 |

For **SI:** 1 inch = 25.4 mm, 1 gallon = 3.785 L, 1 ft$^2$ = 0.0929 m$^2$

[1] Fire-protective coatings and coverings shall be applied over all exposed SPF surfaces in accordance with the coating/covering manufacturer's instructions and this report.

[2] International Fireproof Technology, Inc, recognized in IAPMO UES ER-499.

[3] Flame Seal, LLC, recognized in IAPMO UES ER-600.

# FLORIDA SUPPLEMENT

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## EASYSEAL.5 SPRAY FOAM INSULATION

**CSI Section: 07 21 00 Thermal Insulation**

### 1.0 RECOGNITION

EasySeal.5 Spray Foam Insulation evaluated in IAPMO UES Evaluation Report ER-492 is a satisfactory alternative for use in buildings built under the following codes and regulations, including locations in the High-velocity Hurricane Zone:

- 2020 Florida Building Code, Building (FBC, Building)
- 2020 Florida Building Code, Residential (FBC, Residential)

### 2.0 LIMITATIONS

Use of the EasySeal.5 Spray Foam Insulation recognized in this report is subject to the following limitations:

**2.1** The clearance between the foam insulation installed above grade and exposed earth shall be in accordance with Section 2603.8 of the FBC, Building or Section R318.8 of the FBC, Residential, as applicable.

**2.2** Verification shall be provided that a quality assurance agency audits the manufacturer's quality assurance program and audits the production quality of products, in accordance with Section (5)(d) of Florida Rule 61G20-3.008. The quality assurance agency shall be approved by the Commission (or the building official when the report holder does not possess an approval by the Commission).

**2.3** This supplement expires concurrently with ER-492.

# ENERGY STAR SEAL AND INSULATE SUPPLEMENT

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## EASYSEAL.5 SPRAY FOAM INSULATION

**CSI Section: 07 21 00 Thermal Insulation**

### 1.0 PURPOSE

EasySeal.5 Spray Foam Insulation has been certified for use as thermal *insulation* under the Seal and Insulate with ENERGY STAR® Program. The *insulation* has been evaluated for thermal resistance, surface burning characteristics (flame spread, and smoke-development), and complies with the following codes and regulations:

- EPA Definitions and Testing Requirements for Residential Insulation Version 1.0
- 2021 International Building Code® (IBC)
- 2021 International Residential Code® (IRC)
- 2021 International Energy Conservation Code® (IECC)

### 2.0 DEFINTIONS

### 2.1 General Definitions

**Insulation**: Any material mainly used to slow down heat flow. It may be mineral or organic, fibrous, cellular, or reflective (aluminum foil). It may be in rigid, semi-rigid, flexible, or loose-fill form.

**Residential Buildings:** Single family homes (attached or unattached), multifamily buildings with 4 units or fewer, or multifamily buildings (e.g., condominiums and apartments) with 3 stories or less in height above grade.

### 2.2 Insulation Product Definitions

**Spray or Pour Foam Insulation:** A thermal insulating material that is sprayed or poured (as a gel or foamy liquid) into place and expands or sets into a cellular foam and cures at the point of installation through a chemical reaction. Foamed materials include, but are not limited to, polyurethane, polyisocyanurate, phenolic, and cementitious insulation.

**Board Insulation:** Semi-rigid or rigid insulation preformed into rectangular units having a degree of suppleness particularly related to their geometrical dimensions. Typical materials include, but are not limited to, fiberglass, expanded polystyrene (EPS), extruded polystyrene (XPS), polyisocyanurate, and polyurethane. The product may or may not be faced.

### 2.3 Insulation Performance Definitions

**R-value:** The inverse of the time rate of heat flow through a body from one of its bounding surfaces to the other surface for a unit temperature difference between the two surfaces, under steady state conditions, per unit area. For the purposes of this program, Imperial units will only be accepted [i.e., (h·ft2 ·°F)/Btu].

**Smoke-Development Index:** The characteristic of a material to emit smoke when exposed to flame or fire compared to red oak and inorganic cement.

**Flame-Spread Index:** The characteristic of a material to resist the spreading of flames when exposed to flame or fire compared to red oak and inorganic cement.

### 3.0 PRODUCT USE

**3.1 General:** EasySeal.5 Spray Foam Insulation is a *Spray Foam Insulation for use* in *residential buildings.*

**3.2 Thermal Resistance:** *R-Values* are provided in Table 1 of this report. These R-Values are taken from testing in accordance with ASTM C518 at a mean temperature of 75ºF with a temperature differential of 50°F +/- 10°F.

**TABLE 1**
**Thermal Resistance (R-Value) [1, 2]**
**(°F·ft²·h/BTU)**

| Thickness (inch) | R-Value |
|---|---|
| 1 | 3.7 |
| 2 | 7.5 |
| 3 | 11 |
| 3.5 | 13 |
| 4 | 15 |
| 5 | 19 |
| 5.5 | 21 |
| 6 | 23 |
| 7 | 27 |
| 7.5 | 29 |
| 8 | 30 |
| 9 | 34 |
| 10 | 38 |
| 11 | 42 |
| 12 | 46 |

For **SI:** 1 inch = 25.4 mm, 1°F·ft²·h/Btu = 0.176 110 K·m²/W.
[1] *R*-Values are calculated based on tested *K* values at 1-inch and 3.5-inch thicknesses.
[2] *R*-Values greater than 10 are rounded to the nearest whole number.

**3.3 Surface Burning Characteristics**: The surface burning characteristics of flame-spread index and smoke-development index are taken from testing in accordance with ASTM E84. At a maximum thickness of 4 inches (102 mm) and a nominal density of 0.5 pcf (8.0 kg/m$^3$), the EasySeal.5 Spray Foam Insulation yields a flame spread index of 25 or less and smoke-developed index of 450 or less in compliance with IBC Section 2603.3 and IRC Section R316.3.

**3.4 Installation:**

**3.4.1 Installation General:** Installation shall be in accordance with Section 3.3 of ER-492 and the manufacturer's published installation instructions EasySeal.5 Spray Foam Insulation is mixed and applied on site exclusively by installers approved by SES Foam, LLC.

**3.4.2 Personal Protective Equipment (PPE) and Ventilation**. Part I – General, Section **F. Safety**, of the installation instructions, provides the following information on personal protective equipment and ventilation requirements:

"1. Personal protective equipment (PPE):
a. Skin: Wear gloves, coveralls, apron and boots as necessary to prevent contact of liquid components or partially-cured SPF with skin. When handling liquids, gloves should be made of nitrile, neoprene, butyl or PVC.
b. Eyes: Protect eyes while handling liquid components or spraying with safety glasses with a side shield, safety goggles, or a face shield. During spray application, eye protection may be provided by a full-face or hood respirator.
c. Respiration: Firms engaged in the application of SES Foam systems must have a written respiratory protection program for employees engaged in handling or applying.

SES Foam Materials. Depending on the situation, respiratory protection may include dust masks, air-purifying respirators (APR), powered air-purifying respirators (PAPR), or supplied-air respirators (SAR).

2. **VENTILATION:** Provide ventilation and other engineering controls to exhaust vapors from work areas and to protect building occupants and other trades."

**3.4.3 Occupancy Time After Installation.** Part III – Execution, Section **G. Re-entry** of the installation instructions, provides the following guidance on Re-entry:

G. Re-entry: "SES Foam recommends 24 hours subsequent to application of our spray-applied polyurethane foam insulation (with active ventilation) before homeowners can return. In the case of new construction, the product is cured within an hour of being sprayed and other trades are allowed in the home as soon as the SPF contractor has cleaned up and left the site. We assume this gives about six hours behind spraying.

Engineering controls.

If the application area is contained and is properly ventilated or there is a sealed partition (Engineering Control) enclosing the work area, such as a floor or wall or plastic sheathing, there is no need to vacate adjacent spaces (i.e. floors above/below the work area and/or adjacent units). As long as emissions generated from the work area are safely evacuated to the exterior of the structure and there is no air communication between the adject area and the work area."

**3.4.4 Installation Drawings**

Installation Drawings follow at the end of this supplement.

**4.0 PRODUCT DESCRIPTION**

EasySeal.5 Spray Foam Insulation is a Spray applied foam plastic insulation.

**5.0 IDENTIFICATION**

EasySeal.5 Spray Foam Insulation products are identified with the following:

a. Manufacturer's name (SES Foam, LLC)
b. address and telephone number,
c. the product trade name (EasySeal.5 Spray Foam Insulation)
d. use instructions
e. density, flame-spread and smoke-development indices
f. date of manufacture or batch/run number
g. thermal resistance values
h. the evaluation report number (ER-492)

The IAPMO UES Mark of Conformity may also be used as shown below:

**IAPMO UES ER-492**

## 6.0 SUBSTANTIATING DATA

**6.1** Manufacturer's descriptive literature and installation instructions.

**6.2** Reports of testing in accordance with the ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation, AC377, dated February 2020, including Appendix X.

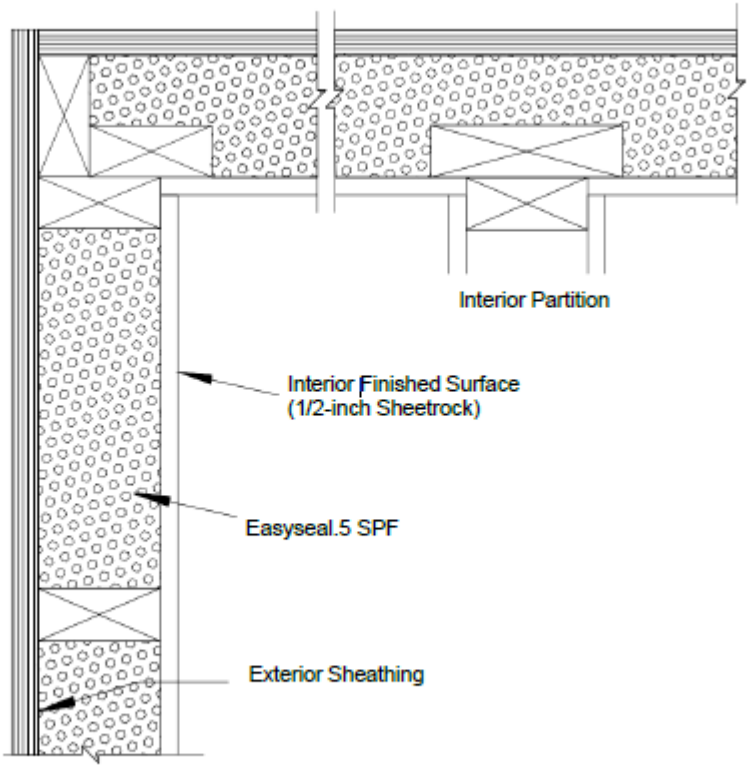
**6.3** Reports of Thermal Transmission testing in accordance with ASTM C518.

**6.4** Reports of testing for Surface Burning Characteristics in accordance with ASTM E84.

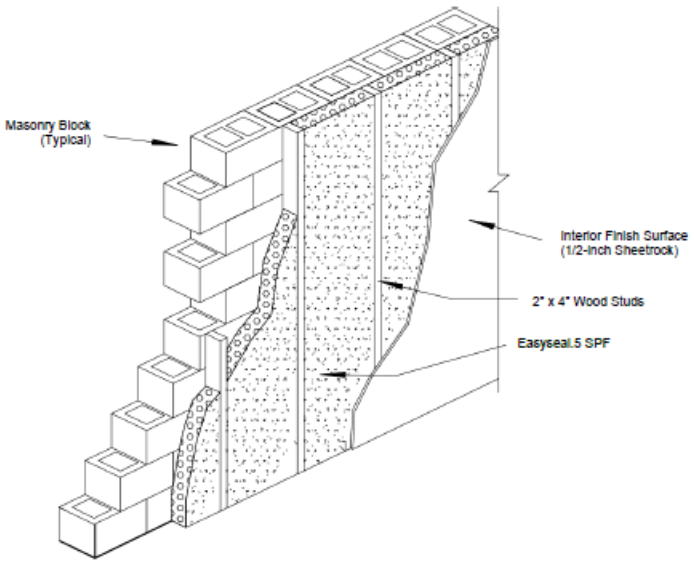
**6.5** Test results were from a laboratory accredited to the applicable procedure as required by the Conditions and Criteria for Recognition of Insulation Certification Bodies for the ENERGY STAR Program.

**6.6** Easyseal.5 SPF Installation Instructions 082521

**6.7** All tests were conducted on insulation samples that were determined to be representative of the product line based on having identical chemical and physical properties. All R-Values are based on Test and conducted at representative thicknesses.




| | | | |
|---|---|---|---|
| Easyseal.5 SPF | ABOVE GRADE WALL INSULATION | ES 05-1 | 082621 |

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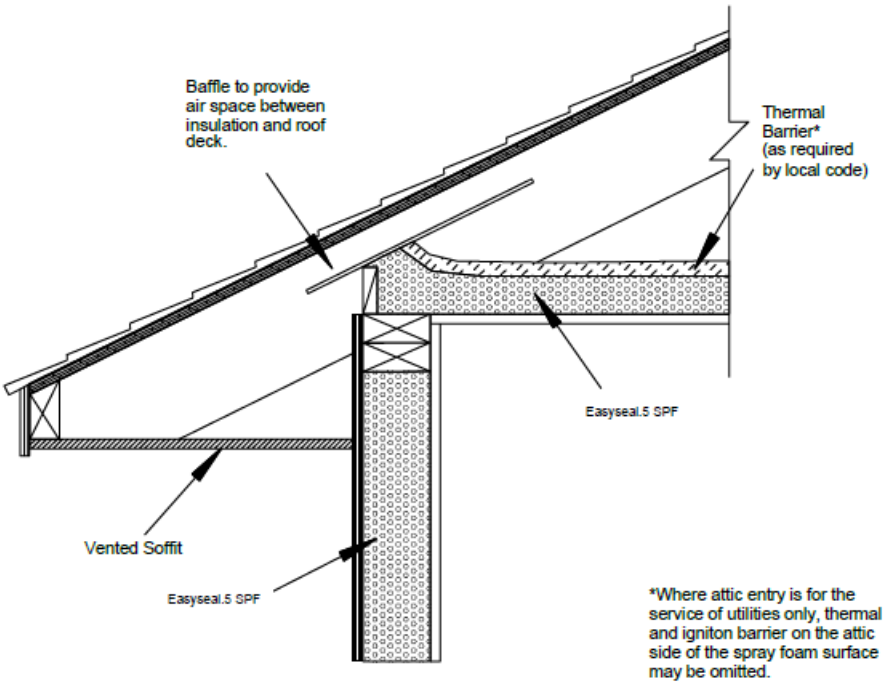
|---|---|---|---|
| Easyseal.5 SPF | BELOW GRADE WALL INSULATION (Insulation on Interior Side of Wall) | ES 05-2 | 082621 |

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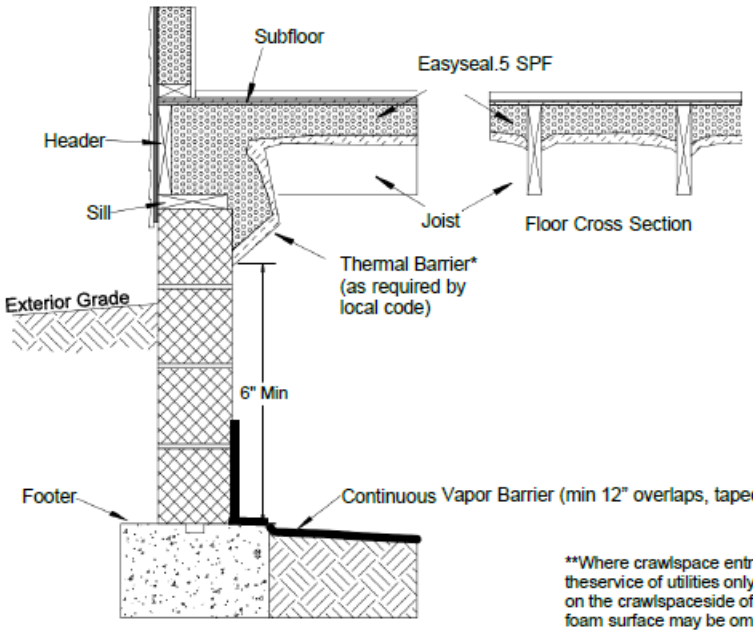
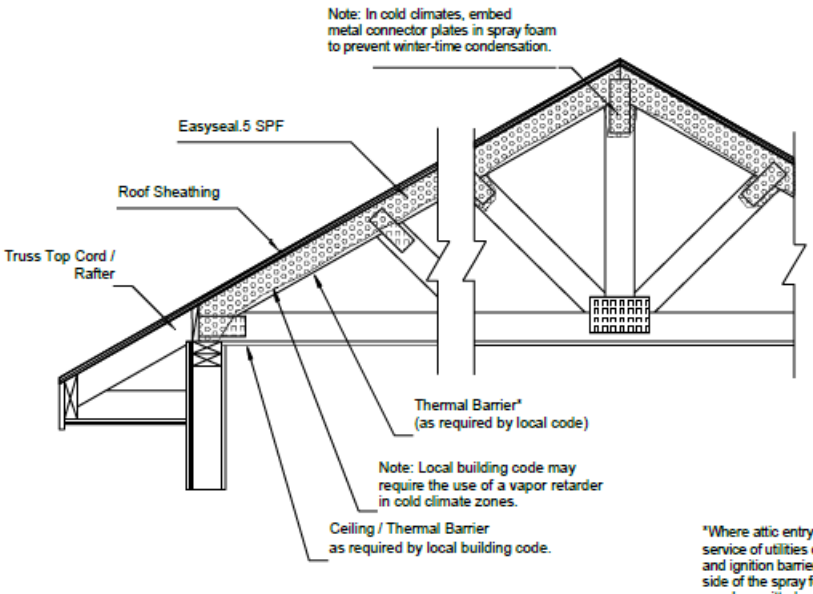
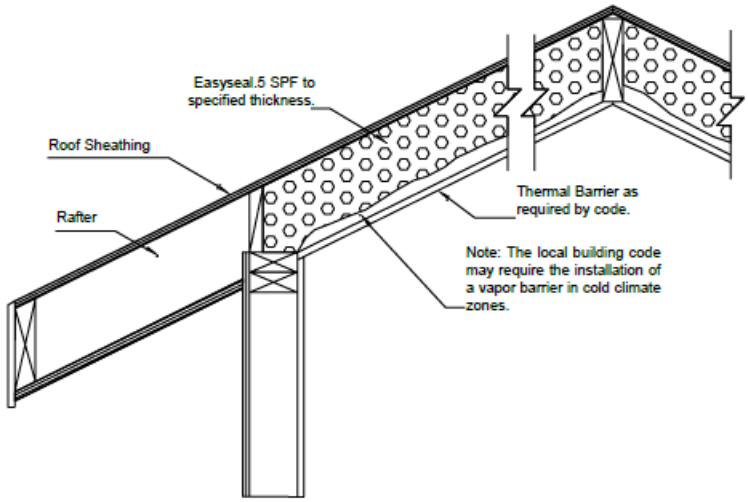
|---|---|---|---|
| Easyseal.5 SPF | VENTED ATTIC: FLOOR / SOFFIT | ES 05-3 | 082621 |




| Easyseal.5 SPF | CRAWLSPACE: VENTED (Dry Environments) | ES 05-4 | 082621 |
|---|---|---|---|




| Easyseal.5 SPF | UNVENTED ATTIC / INSULATED ROOF DECK | ES 05-5 | 082621 |
|---|---|---|---|




| Easyseal.5 SPF | CATHEDRAL CEILING | ES 05-6 | 082621 |
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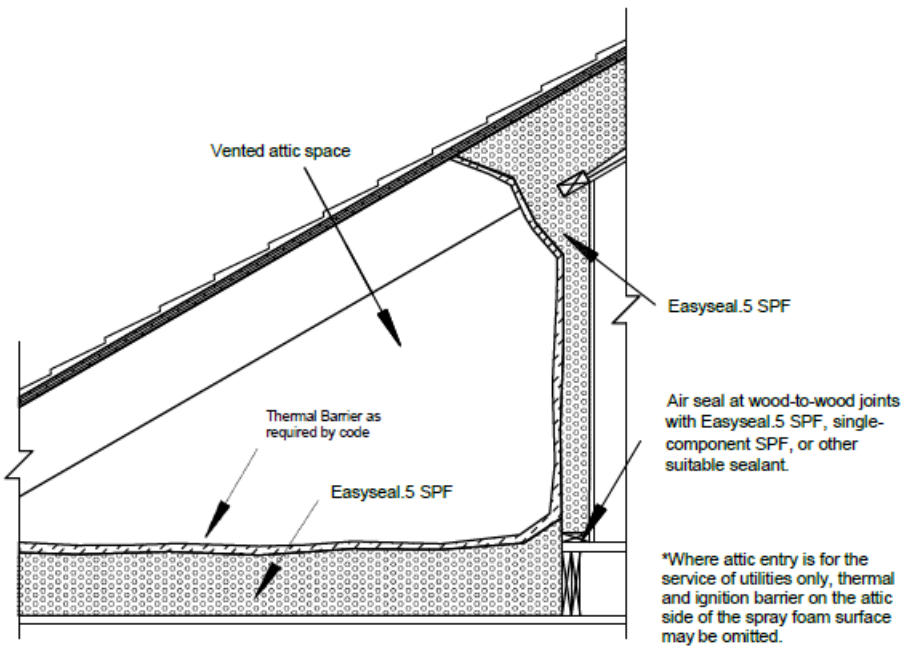


| Easyseal.5 SPF | ATTIC KNEE WALL | ES 05-7 | 082621 |
|---|---|---|---|