



# International Code Council

**ICC 1100-20XX**  
**Public Input Agenda**  
**based on input received**  
**on Initial Draft**

**For October, 2018**  
**Public Teleconference Meeting**

# ICC 1100-20XX Initial Draft Proposals

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## IS-FPI 01-17

### ICC 1100-20XX Section 101.1, 102.1, et al

Proponent: Kirk Grundahl

Grundahl 01 101

Revise as follows:

#### SECTION 101

##### GENERAL

**101.1 Purpose.** The purpose of this standard is to establish the minimum requirements and specifications to provide a reasonable level of safety, public health and general welfare for spray-applied polyurethane foam plastic thermal insulation for physical properties and performance requirements to in compliance with the intent of the applicable model-building codes. ~~for a variety of construction applications and basic installation requirements.~~

#### SECTION 102

##### SCOPE

**102.1 Scope.** This standard applies to single- and multiple-component spray-applied polyurethane foam plastic insulation intended for use in a variety of nonstructural building construction applications. This standard is limited to *spray-applied foam plastic* insulation that is sprayed in place where, during the application, the *spray-applied foam plastic* insulation is applied in a liquid or frothed state and permitted to free-rise and cure in situ.

This standard provides diversified test procedures for qualifying fire performance characteristics of spray-applied foam plastic insulation exceeding the maximum thickness tested in accordance with ASTM E84 or UL 723 and for qualifying alternative ignition barrier assemblies and alternative thermal barrier assemblies.

**102.2 Explanatory Information.** The text of this standard references notes and footnotes that provide explanatory information. These notes and footnotes, excluding those in tables and figures, shall not be considered as requirements of the standard.

**102.3 Risk under actual fire conditions.** This standard is used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled conditions, but does not by itself incorporate all factors required for fire-hazard or fire-risk assessment of the materials, products, or assemblies under actual fire conditions.

**102.4 Safety concerns.** This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.

**102.5 Fire Testing** Fire testing is inherently hazardous. Adequate safeguards for personnel and property shall be employed in conducting these tests.

**102.6 Standard development principles.** This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

## **SECTION 103**

### **CODE COMPLIANCE ALTERNATIVES**

**103.1 Code Compliance alternatives.** Nothing in this standard is intended to prevent the use of designs, products or technologies as alternatives to those prescribed by this standard, where equivalence is provided, and such equivalence is approved by the administrative authority adopting this standard. that comply with all applicable building and energy conservation code requirements and applicable requirements of this standard for the intended end use. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different sections of the building code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

**103.2 Alternative Methods of Code Compliance.** The provisions of this standard are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this standard, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this standard or the pertinent building code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety. Where the alternative material, design or method of construction is not approved, the building official shall respond in writing, stating the reasons why the alternative was not approved.

**103.3 Research Reports** Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall consist of valid research reports (e.g. ISO/IEC 17065 accredited certification body reports) from approved sources.

**Reason:** The goal of changes to section 101, 102 and 103 are to provide clarity and compatibility with current language used in ASTM/ANSI standards and model building codes. It is standard scope and alternative use language. The goal is to provide concepts, when this standard is used independently, so that the scope and alternative compliance language is readily available, clear, consistent and accurate. This will aid any building official (i.e. authority having jurisdiction) with respect to making interpretations of the intent of this standard via consistent and familiar language.

#### **Committee Action:**

#### **Committee Reason:**

**IS-FPI 02-17**  
**ICC 1100-20XX Section 104.1**

**Proponent:** Michael Beaton

Beaton 01 104.1

**Revise as follows:**

**Add the following sentence at the end of Section 104.1:**

Use of the most recent edition of the standard referenced in Chapter 4 is assumed unless the standard year is referenced in the applicable building code.

**Reason:** The editions of the standards are not identified in Chapter 4. Some standards are referenced in code and the applicable version should be used for the building code being used. For those standards not referenced in code, a statement should be made that the most recent version be used.

**Committee Action:**

**Committee Reason:**

## IS-FPI 03-17

### ICC 1100-20XX Section 202

**Proponent:** Michael Fischer

Fischer 01 202

**Revise as follows:**

THERMAL BARRIER: A material ~~applied over~~ which separates the spray-applied foam plastic insulation from the interior of the building and is designed to slow the temperature rise of the foam during a fire situation and delay its involvement in the fire.

**Reason:** As worded, the definition implies the Thermal Barrier must be in contact with the surface of the SPF. This is not a code requirement. Some coverings will be coatings on the surface of the SPF. However, the most common Thermal Barrier is 1/2" thick gypsum wallboard. Gypsum rarely is contacting the surface of the SPF. ICC-1100 should not imply that the Thermal Barrier needs to contact the SPF.

**Committee Action:**

**Committee Reason:**

## **IS-FPI 04-17**

### **ICC 1100-20XX Section 202**

**Proponent:** Michael Fischer

Fischer 02 202

**Revise as follows:**

ALTERNATIVE IGNITION BARRIER ASSEMBLY: An assembly consisting of either the exposed spray-applied foam plastic or the spray-applied foam plastic with a fire-protective covering, that has been tested in accordance with and complies with the conditions of acceptance of Section 302.5 or 302.6 ~~302.2.4~~ of this Standard.

**Reason:** This is an editing error. Section 302.2.4 does not exist in this draft.

**Committee Action:**

**Committee Reason:**

DRAFT

# IS-FPI 05-17

## ICC 1100-20XX Section 202

**Proponent:** Steve Williams, Icynene-Lapolla

Williams 01 202

**Revise as follows:**

ALTERNATIVE IGNITION BARRIER ASSEMBLY: An assembly consisting of either the exposed *spray-applied foam plastic* or the *spray-applied foam plastic* with a fire-protective covering, that has been tested in accordance with and complies with the conditions of acceptance of either Section 302.5, or 302.6 ~~302.2.4~~ of this Standard or as permitted in Section 2603.9 Special Approval, of the International Building Code or Section R316.6 Specific Approval. of the International Residential Code.

**Reason:** This modification removes a referenced section that was in error as it does not exist in this draft. It also adds the sections of the IBC and IRC that allow methods other than those referenced in this standard to achieve alternative ignition barrier assemblies. This added language is consistent with other proposed revisions to sections 302.5 and 302.6.

**Committee Action:**

**Committee Reason:**

# IS-FPI 06-17

## ICC 1100-20XX Section 202

**Proponent:** Steve Williams, Icynene-Lapolla

Williams 02 202

**Revise as follows:**

THERMAL BARRIER: A material ~~applied over spray-applied~~ which separates the foam plastic insulation from the interior of the building and is designed to slow the temperature rise of the foam during a fire situation and delay its involvement in the fire.

**Reason:** It is outside the scope of Section 102 Scope, of this standard and the code proposal reasoning statement of FS 155 to create a new definition of what a Thermal Barrier is. This modification to the definition is consistent with language in IBC Section 2603.4 and IRC Section 316.4 for a thermal barrier.

**Committee Action:**

**Committee Reason:**

DRAFT



## IS-FPI 07-17 ICC 1100-20XX Section 202

**Proponent:** Steve Williams, Icynene-Lapolla

Williams 03 202

**Revise as follows:**

ALTERNATIVE THERMAL BARRIER ASSEMBLY: An assembly consisting of either the exposed spray-applied foam plastic or the spray-applied foam plastic with a fire-protective covering, that complies with the Special Approval section of the International Building Code or the Specific Approval section of the International Residential Code. Referenced test procedures include, but not limited to: NFPA 286, UL 1715, FM 4880 or UL 1040.

**Reason:** This modification adds language that is consistent with the existing Special Approval and Specific Approval sections and allows for end use configuration testing.

**Committee Action:**

**Committee Reason:**

## IS-FPI 08-17

### ICC 1100-20XX Section 202

**Proponent:** Steve Williams, Icynene-Lapolla

Williams 04 202

**Revise as follows:**

IGNITION BARRIER: ~~A protective covering applied over *foam plastic insulation* in attics and crawlspaces to increase the time it takes for the foam plastic to become involved in a fire. A material installed in such a manner that the *foam plastic insulation* is not exposed to an attic or crawl space interior and will protect the *foam plastic insulation* against ignition.~~

**Reason:** It is outside the scope of Section 102 Scope, of this standard and the code proposal reasoning statement of FS 155 to create a new definition of what an Ignition Barrier is. This replacement definition is consistent with language in IBC Section 2603.4.1.6 and IRC Section 316.5.3 for an ignition barrier.

**Committee Action:**

**Committee Reason:**

# IS-FPI 09-17

## ICC 1100-20XX Section 202

**Proponent:** Paul Warren

Warren 01 202

**Revise as follows:**

**ALTERNATIVE THERMAL BARRIER ASSEMBLY:** An assembly consisting of either the exposed *spray-applied foam plastic* or the *spray-applied foam plastic* with a fire-protective *covering*, that complies with the ~~Special Approval section of the International Building Code or the Specific Approval section of the International Residential Code. Referenced test procedures include NFPA 286, UL 1715, FM 4880 or UL 1040. Section 2603.9 of the International Building Code or Section R316.6 of the International Residential Code, as applicable.~~

**Reason:** Using the actual code sections brings clarity to the document. Eliminate referenced tests in this section as it is only a portion of the language found in the respective section(s) in the IBC/IRC and may cause confusion as to why only a portion of the language is represented here.

**Committee Action:**

**Committee Reason:**

## IS-FPI 10-17

### ICC 1100-20XX Section 301.1

**Proponent:** Michael Beaton

Beaton 02 301.1

**Revise as follows:**

**Exception:** *Spray-applied foam plastic* insulation used in *roofing applications* shall comply with the requirements in Section 302.9.

Exception: Spray-applied foam plastic insulation used in roofing applications shall comply with the requirements in either ASTM C1029, Type III or IV, or ASTM D7425, as applicable Section 302.9.

**Reason:** Section 302.9 identifies the applicable requirements. This section is redundant and runs the risk of creating a misunderstanding of what is applicable.

**Committee Action:**

**Committee Reason:**

**IS-FPI 11-17**  
**ICC 1100-20XX Section 301.1**

**Proponent:** Paul Warren

Warren 02 301.1

**Revise as follows:**

**Exception:** Spray-applied foam plastic insulation used in roofing applications shall comply with the requirements in Table 3 or either ASTM C1029, Type III or IV, or ASTM D7425, as applicable.

**TABLE 3. PHYSICAL PROPERTIES OF SPRAY-APPLIED FOAM PLASTIC FOR ROOFING APPLICATION (nominal core density 2.5 – 3.5 pcf)**

<u>Tests Required</u>	<u>Value</u>
<u>Core Density:</u> <u>ASTM D1622</u>	<u>As reported</u>
<u>Tensile Strength:</u> <u>ASTM D1623</u>	<u>40 lbf/in2, minimum</u>
<u>Dimensional Stability:</u> <u>ASTM D2126</u>	<u>15% maximum total change</u>
<u>Surface Burning Characteristics:</u> <u>IBC—ASTM E84 or UL 723</u>	<u>75 flame-spread index or less</u>
<u>Compressive Strength:</u> <u>ASTM D1621</u>	<u>40 lbf/in2, minimum</u>
<u>Thermal Resistance at 75°F (24°C) mean temperature. One of the test methods listed below shall be used:</u> <u>ASTM C177</u> <u>ASTM C518</u> <u>ASTM C1363</u>	<u>As reported</u>

**302.9.2 Physical Properties.** Spray-applied foam plastic insulation used in roofing applications shall comply with the physical property requirements in Table 3 or of ASTM C1029, Type III or IV, or ASTM D7425, as applicable.

**Reason:** To maintain consistency with respect to the physical property requirements of roofing applications. AC 377 currently has Table 1-“PHYSICAL PROPERTIES OF SPRAY-APPLIED POLYURETHANE FOAM PLASTIC (SPF) INSULATION BY APPLICATION” of which roofing applications are addressed. Section 3.1.1 of AC377 states: “Exception: Spray-applied foam plastic insulation used in roofing applications shall comply with the requirements in Table 1 or ASTM C1029, Type III or IV, or, under the 2015 IRC, ASTM D7425. AC 377 also includes recognition of roofing applications in the scope as per Section 1.2: “This criteria applies to single- and multiple-component, spray- and bead-applied polyurethane foam plastics for use in accordance with the applicable code. Unless otherwise noted, the term “spray-applied” refers to both spray-applied and bead-applied polyurethane foam plastic insulation, used in nonstructural, air sealing and roofing applications. This criteria is limited to jobsite installations of spray-applied polyurethane foam plastics wherein during its application, the foam plastic is applied in a liquid or frothed state and permitted to free-rise and cure in situ. This criteria provides acceptable diversified test procedures for qualifying fire performance characteristics of spray-applied foam plastic insulation exceeding the maximum thickness tested in accordance with ASTM E84 or UL 723 and for qualifying nonprescriptive, alternate thermal barriers and ignition barriers as well as assemblies without prescriptive thermal barriers or ignition barriers.”

The roofing applications table in AC377 has coexisted with the language found in the building codes for many years and numerous approvals are based on fulfilling the requirements found in Table 1 of AC377. The requirements of Table 1 in AC377 were developed with roofing applications in mind whereas for example ASTM C1029 has no reference to roofing applications in the scope as per Section 1.1: “This specification covers the types and physical properties of spray applied rigid cellular polyurethane intended for use as thermal insulation. The operating temperatures of the surfaces to which the insulation is applied shall not be lower than -22°F (-30°C) or greater than +225°F (+107°C). For specific applications, the actual temperature limits shall be as agreed upon between the manufacturer and the purchaser.”

Some property requirements in ASTM C1029 are irrelevant to roofing applications and I recommend maintaining the roofing application physical properties as found in Table 1 of AC377 in this document as they were developed strictly with roofing applications in mind and continue to be relevant.

**Committee Action:**

**Committee Reason:**

# IS-FPI 12-17

## ICC 1100-20XX Section 301.2

**Proponent:** Michael Beaton

Beaton 03 301.2

**Revise as follows:**

Section 301.2, revise fifth paragraph as follows: All samples shall be conditioned as set forth in Table 1 or Table 2, as applicable. Samples shall be sprayed to dimensions sufficient to accommodate the test equipment and the required thickness. Samples shall be conditioned in the as-sprayed configuration, then cut to the required dimensions at the conclusion of the conditioning period. Samples sprayed in multiple “lifts” shall be identified.

**Reason:** The industry does not follow one consistent way to prepare the materials for conditioning and testing. As a test lab we have found significant differences in results depending on how the materials were prepared. Multiple lifts will increase the thermal resistance of the sample so the test report needs to identify how the samples were sprayed.

**Committee Action:**

**Committee Reason:**

## **IS-FPI 13-17**

### **ICC 1100-20XX Section 302.1**

**Proponent:** Michael Beaton

Beaton 04 302.1

**Revise as follows:**

302.1 GENERAL. Testing performed in accordance with any of the tests listed in Section 302 shall be performed on spray-applied foam plastic insulation at the maximum thickness and density intended for use. Section 302.2 through 302.8 applies to low-density and medium-density spray-applied foam plastic insulation; Section 302.39 applies to roofing applications.

**Reason:** Revised language clarifies the intended use.

**Committee Action:**

**Committee Reason:**



# IS-FPI 14-17

## ICC 1100-20XX Section 302.3

**Proponent:** Michael Fischer

Fischer 03 302.3

**Revise as follows:**

**302.3 Use with a Thermal Barrier.** When the spray-applied foam plastic insulation is intended to be installed with a thermal barrier separating the insulation from the interior of a building, there is no limitation on the thickness when the spray-applied foam plastic has a flame-spread index no greater than ~~25~~ 75 and smoke-developed index no greater than 450 when tested in accordance with ASTM E84 or UL 723 at a thickness of 4 inches (102 mm) and the maximum density intended for use. The thermal barrier shall comply with the requirements of IBC Section 2603.4 or IRC Section R316.4, as applicable.

**303.1.1 General Requirements:** Installation of spray-applied foam plastic insulation shall not exceed the thickness and density as tested in accordance with Section 302.2, except where stated otherwise in this standard. When separated from the interior of the building by a prescriptive thermal barrier, the spray-applied foam plastic insulation when tested under Section 302.2 at 4-inch (102 mm) thickness with flame spread index no greater than ~~25~~ 75 and smoke developed index no greater than 450 shall be limited to maximum density tested, but shall have no maximum thickness limitation.

**Reason:** This change aligns the flame spread index with the requirements of the IBC and IRC.

**Committee Action:**

**Committee Reason:**

## **IS-FPI 15-17**

### **ICC 1100-20XX Section 302.4**

**Proponent:** Michael Fischer

Fischer 04 302.4

**Revise as follows:**

**302.4 Alternative Thermal Barrier Assembly – Room Corner Fire Tests.** When the spray-applied foam plastic insulation is intended to be installed without the use of a prescriptive thermal barrier separating the insulation from the interior of a building, the requirements of this section shall apply.

**Reason:** This change makes the statement more clear.

**Committee Action:**

**Committee Reason:**

DRAFT

# IS-FPI 16-17

## ICC 1100-20XX Section 303.1.1

**Proponent:** Paul Warren

Warren 03 303.1.1

### Revise as follows:

**Use with a Thermal Barrier.** When the spray-applied foam plastic insulation is intended to be installed with a thermal barrier separating the insulation from the interior of a building, there is no limitation on the thickness when the spray-applied foam plastic has a flame-spread index no greater than ~~25~~ 75 and smoke-developed index no greater than 450 when tested in accordance with ASTM E84 or UL 723 at a thickness of 4 inches (102 mm) and the maximum density intended for use. The thermal barrier shall comply with the requirements of IBC Section 2603.4 or IRC Section R316.4, as applicable.

**Reason:** To maintain consistency with the intent of the model codes. The intent of the model codes are to permit foam plastic insulations that have a flame spread of 75 or less and a smoke development of 450 or less. Using ASTM E84 as a reference, Section 1.7 of the Scope states: "This standard is used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled conditions, but does not by itself incorporate all factors required for fire-hazard or fire-risk assessment of the materials, products, or assemblies under actual fire conditions." Requiring a maximum flame spread of 25 as opposed to 75 implies the evaluation of fire risk has been based on flame spread which contradicts the intent of Section 1.7 of E84.

### Committee Action:

### Committee Reason:

# IS-FPI 17-17

## ICC 1100-20XX Section 302.4.2

**Proponent:** Michael Beaton

Beaton 05 302.4.2

### Revise as follows:

1. Delete Section 302.4.2 in its entirety:

~~302.4.2 UL 1715. When the spray-applied foam plastic insulation is tested in accordance with UL 1715 the requirements of Sections 302.4.2.1 and 302.4.2.2 shall apply.~~

~~302.4.2.1 Smoke Determination. Determination of excessive smoke levels shall be as follows and shall consider the following:~~

~~1. Visual documentation—Smoke determination shall be recorded in accordance with the visual records procedures within UL 1715; digital video and photographic documentation is permitted. Video and still photographs shall be in color and time stamped. Where a high level of smoke is generated during the test, the spray-applied foam plastic insulation will be considered to fail the test~~

~~2. Test specimen.—For each test, when the test is for wall systems only, a new section of uncoated and unpainted 5/8-inch-thick (15.9 mm) gypsum wallboard, 2 feet by 2 feet (610 mm by 610 mm), shall be installed in the ceiling at the wall corner intersection directly above the crib~~

~~302.4.2.2 Reports of test results. The test report shall provide the details described below.~~

~~1. Description—The description of the room test setup, with details of the test room construction and materials tested~~

~~2. Observations—The test observations, commencing with crib ignition and ending with a final description of panels after all combustion ceases~~

~~3. Thermocouple readings—Temperature readings from all thermocouples~~

~~4. Condition of acceptance—A statement of passing or failing based upon observation of test conditions and smoke levels generated during the test~~

~~5. Photographic records—A photographic record of the test.~~

(Sorry, I was not able to import the actual tables into this form.)

2. Revise the following paragraph of Section 304.2.3, as follows:

Where the spray-applied foam plastic assembly is tested in accordance with NFPA 286 or UL 1715, the assembly is suitable for use in all ceiling heights.

3. Delete Section 302.4.3.1 in its entirety:

~~302.4.3.1 FM 4880 or UL 1040. Where the spray-applied foam plastic assembly is tested in accordance with FM 4880 or UL 1040 the assembly is limited to use in areas with a minimum clear ceiling height of 20 feet (6096 mm).~~

4. Revise Section 302.5.2 as follows:

302.5.2 Test Method B. When Test Method B is used, tests shall be conducted in accordance with NFPA 286 with the conditions of acceptance specified in Section 803.1.2.1 of the International Building Code; ~~or UL 1715 with conditions of acceptance as specified in Section 302.4.2.4.~~ The reported thickness shall be in accordance with Figures 2 and 3. Placement of the burner ~~or wood crib~~ shall be in accordance with the standard being used for testing, with except the measured distance between the burner or crib and the interior surface of the assembly shall be as described in Figure 1.

5. Revise Chapter 4 as follows:

~~FM 4880 American National Standard for Evaluating Insulated Wall or Wall and Roof/Ceiling Assemblies Plastic Interior Finish Materials Plastic Exterior Building Panels Wall/Ceiling Coating Systems Interior or Exterior Finish Systems~~

~~UL 1040 Fire Test of Insulated Wall Construction~~

~~UL 1256 Fire Tests of Roof Deck Construction~~

~~UL 1715 Fire Tests of Interior Finish Material~~

**Reason:** Delete use of UL 1715 as an acceptable method. There are no guidelines to measure “high” levels of smoke as required in 302.4.2.1, item 1. As a result, the requirement is unenforceable. FM 4880 does not measure smoke and therefore should be deleted from the standard as an alternative to NFPA 286. UL 1256 is not referenced in the document so should be deleted from Chapter 4.

**Committee Action:**

**Committee Reason:**

**IS-FPI 18-17**  
**ICC 1100-20XX Section 302.4.3**

**Proponent:** Michael Fischer

Fischer 05 302.4.3

**Revise as follows:**

Section 302.4.3 should end in a period not a comma.

**Reason:** This is an editorial change only.

**Committee Action:**

**Committee Reason:**

DRAFT

# IS-FPI 19-17

## ICC 1100-20XX Section 302.5

**Proponent:** Steve Williams, Icynene-Lapolla

Williams 05 302.5

**Revise as follows:**

### **302.5 Testing for Alternative Ignition Barrier Assembly for Use in Attics- General.**

When the *spray-applied foam plastic* insulation is intended to be installed as a component of an *alternative ignition barrier assembly* (i.e. without the use of a code prescribed *ignition barrier* separating the insulation from the interior of the attic or crawl space), the assembly shall be qualified by one or more of the following methods:

1. Room corner fire tests in Section 302.5 or 302.6
2. As permitted in Section 2603.9 Special Approval, of the International Building Code or Section R316.6 Specific Approval, of the International Residential Code, as applicable. ~~the requirements of Section 302.5 or 302.6, respectively, shall be complied with.~~ All testing shall be conducted with the foam plastic installed at the maximum density and maximum thickness intended for use over the substrates, as described in the test standard or as specified in the end-use configuration.

When the *spray-applied foam plastic* insulation is intended to be installed as a component of an *alternative ignition barrier assembly* (i.e. without a code-prescribed *ignition barrier*), the assembly shall be qualified by testing as set forth in either Section 302.5.1 (Test Method A), ~~or~~ 302.5.2 (Test Method B)- of this Standard or as permitted in Section 2603.9 Special Approval. of the International Building Code or Section R316.6 Specific Approval. of the International Residential Code. Assemblies tested in accordance with Section 302.5.1 or 302.5.2 are acceptable for installation on *all construction planes*. The requirements of this section apply to both an exposed *spray-applied foam plastic* insulation or to a *spray-applied foam plastic* insulation system using a *covering*.

**Reason:** ICC-11 00 is more restrictive than the building code. As written, alternatives to prescribed ignition barriers are strictly limited to only the test methods described in Section 302.5.1 (Test Method A), or Section 302.5.2 (Test Method B) and as a result eliminates the testing that the vast majority of manufacturers have completed and have approvals on based on IBC 2603.9 and IRC R316.6. ICC-11 00 should be drafted in such a way as to allow for innovation to continue and to allow for alternative testing just as the IRC and IBC do currently. By strictly limiting alternative ignition barrier testing to only the methods listed in the current ICC-11 00 draft, the standard is in conflict with its own Section 103.1 which states that "Nothing in this standard is intended to prevent the use of designs, products or technologies as alternatives to those prescribed by this standard, where equivalence is provided, and such equivalence is approved by the administrative authority adopting this standard." This is also in direct conflict with the spirit and intent of the building codes. This proposed modification mirrors the language and format already used in ICC-1100 to approve alternative thermal barriers and adds it to the ignition barrier section.

**Committee Action:**

**Committee Reason:**

DRAFT



# IS-FPI 20-17

## ICC 1100-20XX Section 302.5

Proponent: Paul Warren

Warren 04 302.5

Revise as follows:

### 302.5 Testing for Alternative Ignition Barrier Assembly for Use in Attics – General.

When the *spray-applied foam plastic* insulation is intended to be installed as a component of an *alternative ignition barrier assembly* (i.e. without the use of a code-prescribed *ignition barrier* separating the insulation from the interior of the attic or crawl space), the assembly shall be qualified by one or more of the following methods: the requirements of Section 302.5 or 302.6, respectively, shall be complied with. All testing shall be conducted with the foam plastic installed at the maximum density and maximum thickness intended for use over the substrates, as described in the test standard or as specified in the end-use configuration.

1. Room corner fire tests in Section 302.5 or 302.6
2. End Use Configuration testing as permitted in Section 2603.9 of the International Building Code or Section R316.6 of the International Residential Code.

When the *spray-applied foam plastic* insulation is intended to be installed as a component of an *alternative ignition barrier assembly* (i.e. without a code-prescribed *ignition barrier*), the assembly shall be qualified by testing as set forth in either Section 302.5.1 (Test Method A) or 302.5.2 (Test Method B), respectively, shall be complied with. of this standard or as permitted in Section 2603.9 of the International Building Code or Section R316.6 of the International Residential Code. Assemblies tested in accordance with the methods referenced in this section ~~Section 302.5.1 or 302.5.2~~ are acceptable for installation on *all construction planes*. The requirements of this section apply to both an exposed *spray-applied foam plastic* insulation or to a *spray-applied foam plastic* insulation system using a *covering*.

**Reason:** The alternate allowed testing for ignition barriers should be consistent with what is allowed for thermal barriers – namely 2603.9 or R316.6. By strictly limiting alternative ignition barrier testing to only the methods listed in the current ICC-1100 draft, the standard is in conflict with its own Section 103.1 which states that: “Nothing in this standard is intended to prevent the use of designs, products or technologies as alternatives to those prescribed by this standard, where equivalence is provided, and such equivalence is approved by the administrative authority adopting this standard.” This is also in direct conflict with what is allowed in the building codes. This proposed modification creates consistency between the language and format in ICC-1100 to approve alternative thermal barriers and the section to approve alternate ignition barriers.

**Committee Action:**

**Committee Reason:**

# IS-FPI 21-17

## ICC 1100-20XX Section 302.5

**Proponent:** Jason Trevino, Priest

Priest 01 302.5

**Revise as follows:**

### **302.5 Testing for Alternative Ignition Barrier Assembly for Use in Attics – General.**

When the *spray-applied foam plastic* insulation is intended to be installed as a component of an *alternative ignition barrier assembly* (i.e. without the use of a code-prescribed *ignition barrier* separating the insulation from the interior of the attic or crawl space), the assembly shall be qualified by one or more of the following methods: the requirements of Section 302.5 or 302.6, respectively, shall be complied with. All testing shall be conducted with the foam plastic installed at the maximum density and maximum thickness intended for use over the substrates, as described in the test standard or as specified in the end-use configuration.

1. Room corner fire tests in Section 302.5 or 302.6
2. End Use Configuration testing as permitted in Section 2603.9 of the International Building Code or Section R316.6 of the International Residential Code.

When the *spray-applied foam plastic* insulation is intended to be installed as a component of an *alternative ignition barrier assembly* (i.e. without a code-prescribed *ignition barrier*), the assembly shall be qualified by testing as set forth in either Section 302.5.1 (Test Method A) ~~or 302.5.2 (Test Method B), respectively, shall be complied with.~~ of this standard or as permitted in Section 2603.9 of the International Building Code or Section R316.6 of the International Residential Code. Assemblies tested in accordance with the methods referenced in this section ~~Section 302.5.1 or 302.5.2~~ are acceptable for installation on *all construction planes*. The requirements of this section apply to both an exposed *spray-applied foam plastic* insulation or to a *spray-applied foam plastic* insulation system using a *covering*.

**Reason:** The alternate allowed testing for ignition barriers should be consistent with what is allowed for thermal barriers – namely 2603.9 or R316.6. By strictly limiting alternative ignition barrier testing to only the methods listed in the current ICC-1100 draft, the standard is in conflict with its own Section 103.1 which states that: “Nothing in this standard is intended to prevent the use of designs, products or technologies as alternatives to those prescribed by this standard, where equivalence is provided, and such equivalence is approved by the administrative authority adopting this standard.” This is also in direct conflict with what is allowed in the building codes. This proposed modification creates consistency between the language and format in ICC-1100 to approve alternative thermal barriers and the section to approve alternate ignition barriers.

**Committee Action:**

**Committee Reason:**

DRAFT

# IS-FPI 22-17

## ICC 1100-20XX Section 302.5

Proponent: Kirk Grundahl

Grundahl 02 302.5

Revise as follows:

### 302.5 Testing for Alternative Ignition Barrier Assembly for Use in Attics – General.

When the *spray-applied foam plastic* insulation is intended to be installed as a component of an *alternative ignition barrier assembly* (i.e. without the use of a code-prescribed *ignition barrier* separating the insulation from the interior of the attic or crawl space), the assembly shall be qualified by one or more of the following methods:

1. Room corner fire tests in Section 302.5 or 302.6
2. As permitted in Section 2603.9 of the International Building Code or Section R316.6 of the International Residential Code, as applicable.

~~the requirements of Section 302.5 or 302.6, respectively, shall be complied with. All testing shall be conducted with the foam plastic installed at the maximum density and maximum thickness intended for use, over the substrates, as described in the test standard.~~

~~When the *spray-applied foam plastic* insulation is intended to be installed as a component of an *alternative ignition barrier assembly* (i.e. without a code-prescribed *ignition barrier*), the assembly shall be qualified by testing as set forth in either Section 302.5.1 (Test Method A) or 302.5.2 (Test Method B). Assemblies tested in accordance with Section 302.5.1 or 302.5.2 are acceptable for installation on *all construction planes*. The requirements of this section apply to both an exposed *spray-applied foam plastic* insulation or to a *spray-applied foam plastic* insulation system using a *covering*.~~

**Reason:** The proposed Draft of ICC-1100 is in conflict with the building code. The general provisions of the IBC, section 2603.4 and the IRC section R316.5.3 allow the user to test end use configurations to gain approval in accordance with IBC section 2603.9 or IRC R316.6 respectively. As written, proposed ICC 1100, section 302.5 limits ignition barrier testing to only the test methods described in Section 302.5.1.2 (Test Method A), or Section 302.5.1.3 (Test Method B) and as a result eliminates the testing that the vast majority of manufacturers have completed and have approvals on based on IBC 2603.9 and IRC R316.6. ICC-1100, section 302.5 is modified above to correct this conflict. The strikeout in the second paragraph is just deleting text that does not add to the standard since it duplicates what is already stated in the first paragraph. This proposed modification is similar to the language used in ICC-1100 section 302.4 to approve alternative thermal barriers.

**Committee Action:**

**Committee Reason:**

**IS-FPI 23-17**  
**ICC 1100-20XX Section 302.5.1.2.2**

**Proponent:** Paul Warren

Warren 05 302.5.1.2.2

**Revise as follows:**

In my experience with coating spread rates the common value stated and used are square feet per gallon and not gallons per 100 square feet.

**Reason:** To use a commonly used convention in the field.

**Committee Action:**

**Committee Reason:**

DRAFT

## **IS-FPI 24-17**

### **ICC 1100-20XX Section 302.5.1.2.4**

**Proponent:** Michael Fischer

Fischer 06 302.5.1.2.4

**Revise as follows:**

Attic Installation Limitations

6. Combustion air is provided in accordance with Section ~~1701~~ 701 of the International Residential Code, where applicable.

**Reason:** The reference to Section 701 of the IRC pertaining to Combustion air should be Section 1701.

**Committee Action:**

**Committee Reason:**

# IS-FPI 25-17

## ICC 1100-20XX Section 302.5.1.2.4

**Proponent:** Paul Warren

Warren 06 302.5.1.2.4

**Revise as follows:**

### 302.5.1.2.4

8. The attic must have attic access complying with IRC Section R807 or IBC Section 1209.2, horizontally placed in the attic floor, opening outward toward the living space.

**Reason:** All exposed spray polyurethane foams applied to the underside of roof decks creating an unvented attic assembly per Section R806.5 of the IRC or Section 1203.3 of the IBC should require attic access complying with Section R807 of the IRC or Section 1209.2 of the IBC, horizontally placed in the attic floor, opening outward toward the living space.

Having been involved with the testing and approvals for end-use configurations complying with Section R316.6 of the IRC and Section 2306.9 of the IBC for two manufacturers we repeatedly observed a significant pressure increase in these unvented attics as seen by the substantial force in which the hatch would drop down during the test. Due to the fact that an approved AC377 Appendix X exposed foam was the basis that determined the pass/fail criteria in this testing we observed the exact same phenomenon, i.e., the hatch opening downward with significant force for those approved Appendix X exposed foams as well as the non-Appendix X exposed foams we were testing.

Intuitively this makes perfect sense even if one has not observed the testing in that the relationship between temperature and pressure within a sealed container is well understood, i.e. as the temperature increases so too does the pressure. Therefore, one of two things can happen: 1.) the walls of the container are strong enough to contain the pressure or 2.) they are not, in which case a failure will occur. The extent of that failure is unknown at this time with the data we have and could range from insignificant to major events such as the entire roof blowing off and collapsing into the structure. A component of the end-use configuration testing was to collect data observed in the testing with the same volume as the NFPA 286 room configuration and create a model utilizing industry standard fire modelling software to gain insight into the fire dynamics of room volumes much larger than the NFPA 286 room configuration. We wanted to run a test at a larger volume to validate the model and a 3X's NFPA 286 volume was chosen to test. The modelled values displayed significant correlation to the actual data we collected in the test. One parameter we were unable to physically test was an assembly without the hatch as it had been deemed too dangerous, however, with the strong correlation observed in the modelling, in all cases the model predicted pressure increases that exceeded the structural limits of code approved attics and this coincided with visual observations on all end-use testing. This is currently the reason that every manufacturer who has gained approval for the end-use configuration has the attic hatch requirement.

Unfortunately, when Appendix X was developed this phenomenon was not addressed and the configuration as tested now would never point to what would be clearly concerning observations

consistently seen in the unvented attic configurations we tested. This is due entirely to the fact that the Appendix X configuration is a fully ventilated space.

The vast majority of foam applications in attics are unvented attic assemblies. The number of manufacturers who have approvals based on the end-use configuration makes this the most tested unvented attic assembly in the industry. Visual and modelled observations point to a concern that relates to safety resulting from a potential structural failure and developing a standard with the intent of code adoption should reflect the most conservative approach until such a time as there is a mechanism in place to prove otherwise.

**Committee Action:**

**Committee Reason:**

DRAFT



# IS-FPI 26-17

## ICC 1100-20XX Section 302.5.1.2.4

**Proponent:** Paul Warren

Warren 07 302.5.1.2.4

**Revise as follows:**

### 302.5.1.2.4

9. Unless otherwise approved items penetrating the roof deck or walls, such as skylight wells or vents, the annular space must be sealed and penetrations extending through the attic space that are combustible shall be covered with a minimum of 3-1/2 inches of the proposed foam.

**Reason:** All combustible through penetrations in unvented attics where exposed foam is used should be protected with the foam being used.

Oxygen depletion regardless of how regarded is the physical phenomena attributed to a very short lived fire we have seen numerous times in end-use configuration testing using exposed foams. This significantly limits the damage as opposed to a fire which is substantially longer in duration with a source of significant oxygen. In an unvented attic combustible through penetrations are at risk due to higher temperatures to structural distortion or a breach that would allow additional air (Oxygen) to enter the unvented attic thereby extending the life of the fire significantly. Post end-use attic testing repeatedly showed a very thin char layer on the exposed foam and any associated materials below the foam maintained its pre-fire condition, all due to the short lived nature of the fire. By protecting these combustible through penetrations with the proposed foam it eliminates the possibility of a potential breach in the combustible through penetration and needlessly lengthening the duration of the fire.

**Committee Action:**

**Committee Reason:**

## **IS-FPI 27-17**

### **ICC 1100-20XX Section 302.5.2.2**

**Proponent:** Michael Beaton

Beaton 06 302.5.2.2

**Revise as follows:**

Sections 302.5.2.2 and 3.2.5.2.3 need to be renumbered as 302.5.3 and 302.5.4.

**Reason:** The referenced sections are stand-alone requirements not tied to compliance with Method B and therefore should not be subsections of Method B (302.5.2).

**Committee Action:**

**Committee Reason:**

DRAFT

# IS-FPI 28-17

## ICC 1100-20XX Section 302.6

**Proponent:** Steve Williams, Icynene-Lapolla

Williams 06 302.6

**Revise as follows:**

### **302.6 Testing for Alternative Ignition Barrier Assembly for Use in Crawl Spaces - General.**

When the spray-applied foam plastic insulation is intended to be installed as a component of an *alternative ignition barrier assembly* (i.e. without a code-prescribed ignition barrier), the assembly shall be qualified by testing as specified in either Section 302.6.1 (Test Method A), Section 302.6.1.2 (Test Method B) - of this Standard or as permitted in Section 2603.9 Special Approval, of the International Building Code or Section R316.6 Specific Approval, of the International Residential Code. The requirements of this section apply to both an exposed *spray-applied foam plastic* insulation or to a *spray-applied foam plastic* insulation system using a covering.

**Reason:** ICC-1100 is more restrictive than the building code. As written, alternatives to prescribed ignition barriers are strictly limited to only the test methods described in Section 302.6.1 (Test Method A), or Section 302.6.1.2 (Test Method B) and as a result eliminates the testing that the vast majority of manufacturers have completed and have approvals on based on IBC 2603.9 and IRC R316.6. ICC-11 00 should be drafted in such a way as to allow for innovation to continue and to allow for alternative testing just as the IRC and IBC do currently. By strictly limiting alternative ignition barrier testing to only the methods listed in the current ICC-11 00 draft, the standard is in conflict with its own Section 103.1 which states that: "Nothing in this standard is intended to prevent the use of designs, products or technologies as alternatives to those prescribed by this standard, where equivalence is provided, and such equivalence is approved by the administrative authority adopting this standard." This is also in direct conflict with the spirit and intent of the building codes. This proposed modification mirrors the language and format already used in ICC-11 00 to approve alternative thermal barriers and adds it to the ignition barrier section.

**Committee Action:**

**Committee Reason:**

## **IS-FPI 29-17**

### **ICC 1100-20XX Section 302.6.1**

**Proponent:** Michael Beaton

Beaton 07 302.6.1

**Revise as follows:**

Revise Section 302.6.1 as follows: 302.6.1 Test Method AC [delete A and replace with C]  
Revise Section 302.6.2 as follows: 3026.2. Test Method BC [delete B and replace with D]

**Reason:** It is very confusing to have two Method As and two Method Bs. Suggestion is to revise the methods described for crawl spaces as C and D.

**Committee Action:**

**Committee Reason:**

## IS-FPI 30-17

### ICC 1100-20XX Section 302.7.3

**Proponent:** Michael Beaton

Beaton 08 302.7.3

**Revise as follows:**

**302.7.3 Ignition Properties.** ~~When required, the ignition properties for the spray-applied foam plastic shall be determined by testing performed in accordance with NFPA 268.~~  
Ignition properties of wall assemblies incorporated spray-applied foam plastic shall be determined by testing performed in accordance with NFPA 268.

**Reason:** NFPA 268 is an assembly test. Therefore one is testing the ignition properties of the wall assembly, not just the foam plastic.

**Committee Action:**

**Committee Reason:**

# IS-FPI 31-17

## ICC 1100-20XX Section 104.1, 302.5.1.2

**Proponent:** Michael Beaton

Beaton 09 302.5.1.2

### **Revise as follows:**

Section 104.1: Add the following at the end of the section: This standard references sections of the 2018 International Codes; section numbers from earlier versions are noted in parentheses where different.

Section 302.5.1.2., item 4, revise as follows: 4. Attic ventilation is provided when required by 2018 and 2015 Section 1203.2 of the International Building Code or Section R806 of the International Residential Code, except when air impermeable insulation is permitted in unvented attics in accordance with the Section 1203.3 of the International Building Code or Section R806.5 of the International Residential Code.

Section 302.9.4, revise as follows: Roof Classification: Spray-applied foam plastic insulation used in roofing applications shall comply with Sections 1507.14 and 2603.6 of the International Building Code or Sections R902 and R905.14 of the International Residential Code, as applicable. Fire Classification of roof coverings with spray-applied foam plastic insulation shall be based on testing in accordance with ASTM E108 or UL 790 and Section 1505 of the IBC.

Section 303.2.2, revise title as follows: **303.2.2 Unvented Attic Requirements under the 2018 and 2015 International Building Code and 2018, 2015, 2009, and 2006 International Residential Code:**

**Reason:** Since the standard will be adopted by the 2018 codes, the standard should reference the 2018 code sections, wherever possible. The noted sections all relate to reference to the 2018 code.

### **Committee Action:**

**Committee Reason:**

# IS-FPI 32-17

## ICC 1100-20XX Section 302.9.3.1

**Proponent:** Michael Beaton

Beaton 10 302.9.3.1

**Revise as follows:**

**302.9.3.1 Flame-spread Index.** The insulation shall exhibit a maximum flame-spread index of 75 when tested in accordance with ASTM E84 or UL 723 at the maximum thickness and density intended for use, but no greater than 4 inches (102 mm). For thicknesses greater than 4 inches, testing shall be conducted in accordance with IBC Section 2603.9, using the maximum thickness and density intended for use.

**Reason:** Even for roofing, thicknesses greater than 4 inches have to be qualified by assembly testing.

**Committee Action:**

**Committee Reason:**

# IS-FPI 33-17

## ICC 1100-20XX Section 303.1.2.1

**Proponent:** Michael Fischer

Fischer 07 303.1.2.1

**Revise as follows:**

**303.1.2.1 Roofing Application Thermal Barrier Requirements.** Installation of *spray-applied foam plastic* insulation in *roofing applications* shall be separated from the interior of the building as set forth in Section 2603.4.1.5 of the International Building Code or Section ~~R316.4~~ R316.5.2 of the International Residential Code, as applicable.

**Reason:** Section 2603.4.1.5 of the IBC is the specific to Roofing. IRC section R316.4 is the general requirement for the Thermal Barrier, where R316.5.2 is the specific section regarding Roofing. This change makes the reference for both the IBC and IRC the specific requirements for a Roofing application

**Committee Action:**

**Committee Reason:**



# IS-FPI 34-17

## ICC 1100-20XX Section 303.5

**Proponent:** Michael Beaton

Beaton 11 303.5

**Revise as follows:**

Delete Section 303.5 in its entirety:

~~303.5 Exterior Wall covering Systems: Spray-applied foam plastic insulation complying with this standard is not prohibited from use in exterior wall covering systems.~~

**Reason:** This statement has no purpose since one of the main reasons of the standard is to qualify foam plastic in walls. It is not prohibited from use in roofing either but that is not stated.

**Committee Action:**

**Committee Reason:**

DRAFT

## IS-FPI 35-17 ICC 1100-20XX Section \_\_\_\_\_

**Proponent:** Michael Fischer

Fischer 08 \_\_\_\_\_

### **Revise as follows:**

Delete the requirement to report closed cell content of low dentistry SPF and delete the separation of low dentistry SPF on percentage of closed cell content in *Table 1 – Physical Properties of Low-Density Spray-Applied Foam Plastic For the Thermal Resistance (R-value) property.*

**Reason:** In some earlier drafts there were two minimum values for the foam Tensile Strength, which were based on the amount of closed cell content. In the current draft, all low density SPF is now required to have the same minimum Tensile Strength. Therefore, there is no reason to have two categories based on the closed cell content. This may have simply been an oversight when the Tensile Strength was changed. Open Cell SPF should only be required to age for 30 days prior to R-value testing.

### **Committee Action:**

**Committee Reason:**

# IS-FPI 36-17

## ICC 1100-20XX Section 202, 302.4.3, 303.1.2.1

Proponent: Roger Morrison

Morrison 01-202

Revise as follows:

### SECTION 202:

**ALTERNATIVE IGNITION BARRIER ASSEMBLY:** An assembly consisting of either the exposed *spray-applied foam plastic* or the *spray-applied foam plastic* with a fire-protective *covering*, that has been tested in accordance with and complies with the conditions of acceptance of Section 302.5 or 302.6 ~~302.2.4~~

**THERMAL BARRIER.** A material ~~applied over~~ which separates the *spray-applied foam plastic* insulation from the ? of the building designed to slow the temperature rise of the foam during a fire situation and delay its involvement in the fire.

### SECTION 302.4.3

**Alternative Thermal Barrier Assembly.** When the *spray-applied foam plastic* insulation is intended to be installed as a component of an *alternative thermal barrier assembly*, the assembly shall be qualified by one or more of the following methods:

1. Room corner fire tests in Section 302.4.1 or 302.4.2.
2. As permitted in Section 2603.9 of the International Building Code or Section R316.6 of the International Residential Code, as applicable.

When a *covering* or coating is used to cover the *spray-applied foam plastic* insulation, the thickness of the *covering* shall be identified in units appropriate for the specific *covering* or coating. In the case of liquid-applied coatings, the installed thickness (in mils), in both wet film thickness and dry film thickness, and the corresponding application rate (in square feet per gallon) shall be identified and included in the test report.

Assemblies tested in accordance with Section 302.4.1 or 302.4.2 shall be limited to the construction plane for which it was tested; i.e., if the assembly was only tested with insulation in walls it is limited to installation in walls only. Assemblies tested simultaneously with insulation in walls and ceilings shall be acceptable for installation on all construction planes at the same time. Where the *spray-applied foam plastic* assembly is tested in accordance with NFPA 286 or UL 1715 the assembly is suitable for use in all ceiling height.

### SECTION 303.1.2.1

**Roofing Application Thermal Barrier Requirements.** Installation of *spray-applied foam plastic* insulation in *roofing applications* shall be separated from the interior of the building as set forth in Section 2603.4.1.5 of the International Building Code or Section R316.4 5.2 of the International Residential Code, as applicable.

**Reason:** Consistent with building code language.

**Committee Action:**

**Committee Reason:**

DRAFT