International Code Council

ICC 1100-20XX
Committee Actions Report

For Committee Actions taken on the Public Input Agenda, dated April 2017, at the April 25 – 26, 2017 meeting in Schiller Park, IL

IS-FPI 01-17

ICC 1100-20XX Title and references throughout the standard

Proponent: Jodi Thomas

Thomas 01 Title

Revise as follows:

In both the title and throughout the standard revise as follows:

"Standard for Spray-applied Polyurethane Foam Plastic ~~Insulation~~ Materials"

Reason: Not all one component or two component spray applied polyurethanes are insulation.

Committee Action: **Disapproved**

Committee Reason: The focus of the standard is on use of foam as an insulation product and thermal resistance determination is mandatory; therefore, use of the term 'insulation' is appropriate in the title and throughout the body of the standard.

IS-FPI 02-17
ICC 1100-20XX Section101.1, 102.1

Proponent: Michael D. Fischer

Fischer 01 101.1

Revise as follows:

Section 101.1 Purpose: The purpose of this standard is to establish the minimum requirements for spray-applied polyurethane foam plastic thermal insulation for physical properties, performance requirements in compliance with model building codes for a variety of construction applications and basic installation requirements.

Section 102.1 Scope: This standard applies to single- and multiple-component spray-applied polyurethane foam plastic thermal insulation intended for use in variety of nonstructural building construction applications. This standard is limited to spray-applied foam plastic insulation that is sprayed in place at a jobsite 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.

Reason: This change makes an important clarification that, at a minimum, all spray polyurethane foam (SPF) insulation must comply with the model building code as adopted in local jurisdictions.

Committee Action: **Approved as Modified**

Modify as follows: (*Note: Refer to Committee Reasons for modifications approved by the Committee. Committee modifications are shown highlighted*.)

Section 101.1 Purpose: The purpose of this standard is to establish the minimum requirements for spray-applied polyurethane foam plastic thermal insulation for physical properties, performance requirements in compliance with the intent of the model building codes for a variety of construction applications and basic installation requirements.

Section 102.1 Scope: This standard applies to single- and multiple-component spray-applied polyurethane foam plastic thermal insulation intended for use in variety of nonstructural building construction applications. This standard is limited to spray-applied foam plastic insulation that is sprayed in place at a jobsite 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.

Committee Reason: The committee agreed that the proposed change clarifies that the standard provides a means for complying with prescriptive requirements of the code but felt the modification provided additional clarity regarding compliance with the intent of the code under alternate methods.

IS-FPI 03-17
ICC 1100-20XX Section 102.1

Proponent: Jodi Thomas

Thomas 02 102.1

Revise as follows:

SECTION 102
SCOPE

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

This standard acts as an evaluation or listing criteria for a third party agency to determine compliance to North American building codes. Specifically, this standard provide guidance to evaluate thermal resistance, air permeance, vapor retarder performance, and fire performance characteristics as required by code. Where code language is referenced, it is provided as a statement for condition of use of the product in the evaluation or listing report. Refer to the applicable code for additional information or current requirements for installation and limitations.

Where the applicable doe does not dictate fire test procedures, ~~This~~ this standard provides diversified test procedures for qualifying fire performance characteristics of *spray-applied foam plastic* ~~insulation~~ materials exceeding the maximum thickness tested in accordance with ASTM E84 or UL 723 and for qualifying nonprescriptive, alternate thermal barriers, air barriers and ignition barriers as well as assemblies without prescriptive thermal barriers, air barriers or ignition barriers.

Reason: Some language was added in the scope section to make it clear that this is a criteria for a third party to follow. It is not a replacement to requirements and limitations in the code.

Committee Action: **Approved as Modified**

Replace proposal as follows: (*Note: Refer to Committee Reason for the modification approved by the Committee.*)

SECTION 102
SCOPE

102.1 Scope. This standard applies to single- and multiple-component spray-applied polyurethane foam plastic ~~thermal~~ insulation intended for use in variety of nonstructural applications. This standard is limited to *spray-applied foam plastic* insulation that is

sprayed in place at a jobsite 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.

(Remainder of Section 102.1 to be unchanged from the text of the original draft standard)

Committee Reason: The committee did not feel that the proposed additional language was necessary since it is more applicable for the purposes of certification or listing. The committee modified the proposal to retain the text of the original draft but to also accept deletion of 'thermal' because it isn't used repeatedly throughout the standard and could potentially create confusion.

IS-FPI 04-17
ICC 1100-20XX Sections 102.1 and 202

Proponent: Roger Morrison

Morrison 01 102.1

General Comment:

Clarification in Section 102.1 and 202 (definition for “spray-applied foam plastic”)

102.1 Scope. This standard applies to single- and multiple-component spray-applied polyurethane foam plastic thermal insulation intended for use in variety of nonstructural applications. This standard is limited to *spray-applied foam plastic* insulation that is sprayed in place at a jobsite 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.

SPRAY-APPLIED FOAM PLASTIC. Single- and multi-component, spray-applied polyurethane foam plastic insulation used in nonstructural applications which are installed at jobsite locations wherein the material is applied in a liquid or frothed state, permitted to free rise and cure in situ.

Comment: What is the meaning of the word “jobsite”? What about panels or prefabricated units where the SPF is sprayed at a manufacturing site?

Committee Action: **Approved as Modified**

Modify as follows: (*Note: Refer to Committee Reason for modifications approved by the Committee.*)

102.1 Scope. This standard applies to single- and multiple-component spray-applied polyurethane foam plastic thermal insulation intended for use in variety of nonstructural applications. This standard is limited to *spray-applied foam plastic* insulation that is sprayed in place ~~at a jobsite~~ 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.

SPRAY-APPLIED FOAM PLASTIC. Single- and multi-component, spray-applied polyurethane foam plastic insulation used in nonstructural applications which are installed at ~~jobsite~~ locations wherein the material is applied in a liquid or frothed state, permitted to free rise and cure in situ.

Committee Reason: The submitted proposal was a comment with no proposed revision. The committee proposed the revision to strike reference to ‘jobsite’ in Section 102.1 and the definition because it was considered to be limiting as noted in the Proponent’s comment.

IS-FPI 05-17

ICC 1100-20XX Sections 102.1; 202; 302.4; 302.4.1.3; 302.5.1; 302.5.1.1; 302.5.2; 302.5.2.1; 303.2.1

Proponent: Michael D. Fischer

Fischer 02 102.1

Revise as follows:

Section 102.1: 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 thermal barrier assemblies, nonprescriptive, alternate thermal barriers and alternative ignition barriers assemblies as well as assemblies without prescriptive thermal barriers or ignition barriers.

Section 202: Add new definitions:

ALTERNATIVE IGNITION BARRIER ASSEMBLY: An assembly consisting of either the exposed SPF or the SPF with a fire-protective product that has been tested in accordance with and complies with the conditions of acceptance of Section 302.5 of this Standard.

ALTERNATIVE THERMAL BARRIER ASSEMBLY: An assembly consisting of either the exposed SPF or the SPF with a fire-protective material that complies with the Special Approval section of the IBC or the Specific Approval section of the IRC. Referenced test procedures include NFPA 286, UL 1715, FM 4880 or UL 1040.

Section 302.4: Use without a 15-minute Alternative Thermal Barrier Assemblies. When the spray-applied foam plastic insulation is intended to be installed as a component of an alternative thermal barrier assembly (i.e., without the use of a 15-minute thermal barrier separating the insulation from the interior of a building), the requirements of this section shall apply.

Section 302.4.1.3: Special Approval. When the spray-applied foam plastic insulation is intended to be used as a component of an alternative thermal barrier assembly installed exposed to the interior of the building either with or without a protective covering or coating, the spray-applied foam plastic insulation the assembly shall be qualified by room corner fire tests, or other fire tests related to actual end-use configurations as described in Section 302.4.1.1, 304.1.1.2 or as permitted in Section 2603.9 of the International Building Code or Section R316.6 of the International Residential Code, or fire tests related to actual end-use configurations.

Section 302.5: Use without a Code-prescribed Alternative Ignition Barrier Assemblies. When the spray-applied foam plastic insulation is intended to be installed as a component in 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 requirements of Section 302.5.1 or 302.5.2, 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.

Section 302.5.1: Testing for Alternative Ignition Barrier Assemblies for Use in Attics with Alternatives to Code-prescribed Ignition Barrier.

Section 302.5.1.1: 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 it shall be qualified by testing as specified in either Section 302.5.1.2 (Test Method A) or 302.5.1.3 (Test Method B). 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.

Section 302.5.2: Testing for Alternative Ignition Barrier Assemblies for Use in Crawl Spaces with Alternatives to Code-prescribed Ignition Barrier.

Section 302.5.2.1: 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 it shall be qualified by testing as specified in either Section 302.5.2.2 (Test Method A) or 302.5.2.3 (Test Method B). 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.

Section 303.2.1: Thermal Barrier Exception: Within an attic where entry is made only for service of utilities, spray-applied foam plastics shall be protected by a prescriptive ignition barrier as set forth in Section 2603.4.1.6 of the International Building Code, Section R316.5.3 of the International Residential Code. Alternative (nonprescriptive) thermal barriers assemblies, alternative (nonprescriptive) ignition barriers assemblies, exposed foam plastic insulation, or foam plastic insulation with a covering for use in attics shall be qualified in accordance with Section 302.3.1.3 or 302.4.1.

Reason: Spray Polyurethane Foam Alliance (SPFA) Building Envelope Committee updated the SPFA document on thermal barriers and ignition barriers to reflect changes in the 2015 IBC and IRC. To implement the changes, it became quite evident that the language became very confusing when trying to differentiate between equivalent thermal barriers, equivalent ignition barriers and the absence of these materials.

Therefore SPFA, adopted language such that any assembly that passed the appropriate testing should be termed either an “alternative thermal barrier assembly” or an “alternative ignition barrier assembly.” These proposed changes introduce a much simpler concept for alternatives to prescriptive fire-protective materials.

Committee Action: **Approved as Modified**

Replace proposal as follows: (*Note: Refer to Committee Reason for modifications approved by the Committee.*)

Section 102.1: 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 ~~nonprescriptive, alternate thermal barriers and ignition barriers as well as assemblies without prescriptive thermal barriers or ignition barriers~~ *alternative ignition barrier assemblies* and *alternative thermal barrier assemblies*.

Section 202: Add new definitions:

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 of this Standard.

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 IBC or the Specific Approval section of the IRC. Referenced test procedures include NFPA 286, UL 1715, FM 4880 or UL 1040.

Section 302.4: (Retain text form the original draft standard.)

302.4.1.3 Special Approval (Alternative Thermal Barrier Assemblies). When the *spray-applied foam plastic* insulation is intended to be installed ~~exposed to the interior of the building either with or without a protective covering or coating, the *spray-applied foam plastic* insulation shall be qualified by room corner fire tests described in Section 302.4.1.1, 304.1.1.2 or as permitted in Section 2603.9 of the International Building Code or Section R316.6 of the International Residential Code.~~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 302.4.1.1 or 302.4.1.2.
2. Other fire tests related to actual end-use configurations as permitted in Section 2603.9 of the International Building Code or Section R316.6 of the International Residential Code, as applicable.

302.5 ~~Use without a Code-prescribed Ignition Barrier~~Alternative Ignition Barrier Assemblies. When the *spray-applied foam plastic* insulation is intended to be installed as a component in 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 requirements of Section 302.5.1 or 302.5.2, 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.

302.5.1 Testing for Alternative Ignition Barrier Assemblies for Use in Attics ~~with Alternatives to Code-prescribed Ignition Barrier~~.

Section 302.5.1.1: 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 ~~it~~ shall be qualified by testing as specified in either Section 302.5.1.2 (Test Method A) or 302.5.1.3 (Test Method B). 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.

302.5.2 Testing for Alternative Ignition Barrier Assemblies for Use in Crawl Spaces ~~with Alternatives to Code-prescribed Ignition Barrier~~.

302.5.2.1 General. When the *spray-applied foam plastic* insulation is intended to be installed as a component in 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 302.5.2.2 (Test Method A) or 302.5.2.2.2 (Test Method B). 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.

303.2.1 Thermal Barrier Exception: Within an attic where entry is made only for service of *utilities*, *spray-applied foam plastics* shall be protected by a prescriptive *ignition barrier* as set forth in Section 2603.4.1.6 of the International Building Code~~,~~ or Section R316.5.3 of the International Residential Code, as applicable. *Alternative* ~~(nonprescriptive) *thermal barriers*, alternative~~ *ignition barrier assemblies* ~~(nonprescriptive) *ignition barriers*, exposed foam plastic insulation, or foam plastic insulation with a covering for use in attics~~ shall be qualified in accordance with Section 302.5.1~~302.3.1.3 or 302.4.1~~.

Committee Reason:
Section 102.1 – The committee agreed with inclusion of the new defined term and further modified the proposal to remove reference to nonprescriptive thermal and ignition barriers to help avoid confusion with the new defined terms.

Section 202 – The committee agreed with the new proposed definitions with the modifications to replace the term' SPF' with the defined term 'spray-applied foam plastic' and replace 'fire-protective product' and 'fire-protective material' with 'fire-protective covering' because 'covering is a defined term in the standard.

Section 302.4 – The committee disagreed with the proposed revisions and felt that the proposed language was clear enough and proposed language might create confusion.

Section 302.4.1.3 – The committee agreed in concept with the intent of the proposal but proposed a modification to simplify the section as well as incorporate the new term 'Alternative Thermal Barrier Assembly' into the title of the section.

Section 302.5 – Based on a request from the proponent, the proposed changes to Section 302.5 were disregarded in favor of the revisions included in IS-FPI 12-17 which cleaned up language for consistency with the approved new definitions and actions taken on Section 102.1 and 302.1.4.1.3 for consistency.

Section 302.5.1.1 – The committee agreed with the proposed text with the editorial modification to delete '...it…' from line 3.

Sections 302.5.2 and 302.5.2.1 – Based on a request from the proponent, the proposed changes to Section 302.52 and 302.5.2.1 were disregarded in favor of the revisions included in IS-FPI 13-17 which cleaned up language for consistency with the approved new definitions and actions taken on Section 102.1 and 302.1.4.1.3 for consistency.

Section 303.2.1 – Based on a request from the proponent, the proposed changes to Section 303.2.1 were disregarded in favor of the revisions that were proposed in IS-FPI 14-17 which cleaned up language for consistency with the approved new definitions and actions taken on Section 102.1 and 302.1.4.1.3 for consistency. The committee modification approved incorporating the proposed language in IS-FPI 14-17 and by that language being included in this modification, the proponent of IS-FPI 14-17 withdrew their proposed revision.

IS-FPI 06-17
ICC 1100-20XX Section

Proponent: John Stahl

Stahl 01 202

Revise as follows:

Section 202: Add new definitions:

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 product that complies with Sections 302.5.1 or 302.5.2.

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 product that complies with the Special Approval section of the IBC or the Specific Approval section of the IRC. Referenced test procedures include NFPA 286, UL 1715, FM 4880 or UL 1040.

THERMAL BARRIER. A material applied over *spray-applied foam plastic* insulation designed to slow the temperature rise of the foam during a fire situation and delay its involvement in the fire. Such materials are also termed *15-minute thermal barriers* and are those prescriptive thermal barriers listed in the IBC and IRC and other thermal barriers that comply with NFPA 275.

Reason: The defined terms *Alternative Ignition Barrier Assemblies* and *Alternative Thermal Barrier Assemblies* re necessary to describe assemblies that do not contain the prescriptive ignition barriers or thermal barriers listed in the IBC and IRC.

The defined term *Thermal Barrier* needs revised to clarify that (1) such term includes prescriptive thermal barriers those thermal barriers that comply with NFPA 275 and (2) all thermal barriers are also called 15-minute thermal barriers since the tests qualify such materials for a 15-minute duration.

The Spray Polyurethane Foam Alliance (SPFA) updated their document *SPFA-126 Thermal Barriers and Ignition Barriers for Spray Polyurethane Foam Industry* in August 2016 and is widely used by Authorities Having Jurisdiction, architects, contractors and building owners as the most current and accurate description of the IBC and IRC requirements for spray foam insulation. The attached two pages from SPFA-126 indicate these definitions.

Committee Action: **Disapproved**

Committee Reason: The two new definitions were withdrawn by the proponent as a result of action taken on IS-FPI 05-17. The committee disapproved the revision the 'Thermal Barrier' definition because it added technical requirements into a definition and noted that it is more appropriate that the addition of technical requirements belongs under the technical requirements sections of the standard.

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

Proponent: Roger Morrison

Morrison 02 202

Add new text 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 complies with the any of the test protocols in Sections 302.5.1 and 302.5.2 of this Standard.

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 any of the test protocols of Section 302.4 of this Standard or the Special Approval section of the IBC or the Specific Approval section of the IRC.

Reason: Provides consistency with terminology developed by the SPF industry in SPFA-126 “Thermal Barriers and Ignition Barriers for the Spray Polyurethane Foam Industry,” copy provided.

Committee Action: None – Withdrawn by Proponent.

IS-FPI 08-17
ICC 1100-20XX Section 102.1

Proponent: Roger Morrison

Morrison 03 102.1

Revise as follows:

102.1 Scope. This standard applies to single- and multiple-component spray-applied polyurethane foam plastic thermal insulation intended for use in variety of nonstructural applications. This standard is limited to *spray-applied foam plastic* insulation that is sprayed in place at a jobsite 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 ~~nonprescriptive, alternate thermal barriers and ignition barriers as well as assemblies without prescriptive thermal barriers or ignition barriers~~ alternative ignition barrier assemblies and alternative thermal barrier assemblies.

Reason: Provides consistency with terminology developed by the SPF industry in SPFA-126 “Thermal Barriers and Ignition Barriers for the Spray Polyurethane Foam Industry,” copy provided.

Committee Action: None – Withdrawn by Proponent.

IS-FPI 09-17
ICC 1100-20XX Section 302.4

Proponent: John Stahl

Stahl 02 302.4

Revise as follows:

302.4 Alternative Thermal Barrier Assemblies ~~Use~~ without a 15-minute Thermal Barrier. When the *spray-applied foam plastic* insulation is intended to be installed without the use of a 15-minute thermal barrier separating the insulation from the interior of a building, the requirements of this section shall apply.

Reason: The revision clarifies the requirements in this section are applicable to Alternative Thermal Barrier Assemblies not having 15-minute Thermal Barriers.

Committee Action: **Approved as Modified**

Modify as follows: (*Note: Refer to Committee Reasons for modifications approved by the Committee. Committee modifications are shown highlighted*.)

302.4 Alternative Thermal Barrier Assemblies ~~Use without a 15-minute Thermal Barrier~~. When the *spray-applied foam plastic* insulation is intended to be installed without the use of a ~~15-minute~~ *thermal barrier* separating the insulation from the interior of a building, the requirements of this section shall apply.

Committee Reason: The committee approved the modifications to be consistent with action taken on IS-FPI 05-17 for inclusion of the new definitions and terms and deletion of the qualifying language because it is no longer needed based on the new defined terms.

IS-FPI 10-17
ICC 1100-20XX Section 302.5

Proponent: John Stahl

Stahl 03 302.5

Revise as follows:

302.5 Alternative Ignition Barrier Assemblies ~~Use~~ without a Code-prescribed Ignition Barrier. When the *spray-applied foam plastic* insulation is intended to be installed without the use of a code-prescribed ignition barrier separating the insulation from the interior of the attic or crawl space, the requirements of Section 302.5.1 or 302.5.2, 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.

Reason: The revision clarifies the requirements in this section are applicable to Alternative Thermal Barrier Assemblies not having 15-minute Thermal Barriers.

Committee Action: None – Withdrawn by Proponent.

IS-FPI 11-17
ICC 1100-20XX Section 302.4.1.3

Proponent: Roger Morrison

Morrison 04 302.4.1.3

Revise as follows:

302.4.1.3 Special Approval (Alternative Thermal Barrier Assemblies). When the *spray-applied foam plastic* insulation is intended to be installed as a component of an alternative thermal barrier assembly, ~~exposed to the interior of the building either with or without a protective covering or coating, the *spray-applied foam plastic* insulation~~ the assembly shall be qualified by room corner fire tests or other fire tests related to actual end-use configurations such as described in Section 302.4.1.1, 304.1.1.2 or as permitted in Section 2603.9 of the International Building Code or Section R316.6 of the International Residential Code.

When ~~nonprescriptive~~ coverings or coatings are 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.

Reason: Provides consistency with terminology developed by the SPF industry in SPFA-126 “Thermal Barriers and Ignition Barriers for the Spray Polyurethane Foam Industry,” copy provided. Also provides better consistency with building code language.

Committee Action: None – Withdrawn by Proponent.

IS-FPI 12-17
ICC 1100-20XX Sections 302.5, 302.5.1 and 302.5.1.1

Proponent: Roger Morrison

Morrison 05 302.5

Revise as follows:

302.5 ~~Use without a Code-prescribed Ignition Barrier~~Alternative Ignition Barrier Assemblies. When the *spray-applied foam plastic* insulation is intended to be installed as a component in 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 requirements of Section 302.5.1 or 302.5.2, 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.

302.5.1 Testing for Alternative Ignition Barrier Assemblies for Use in Attics ~~with Alternatives to Code-prescribed Ignition Barrier~~.

302.5.1.1 General. When the *spray-applied foam plastic* insulation is intended to be installed as a component in an alternative ignition barrier assembly (i.e., without a code-prescribed ignition barrier) it shall be qualified by testing as specified in either Section 302.5.1.2 (Test Method A) or 302.5.1.3 (Test Method B). 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: Provides consistency with terminology developed by the SPF industry in SPFA-126 “Thermal Barriers and Ignition Barriers for the Spray Polyurethane Foam Industry,” copy provided.

Committee Action: None – Withdrawn by Proponent.

IS-FPI 13-17
ICC 1100-20XX Section 302.5.2 and 302.5.2.1

Proponent: Roger Morrison

Morrison 06 302.5.2

Revise as follows:

302.5.2 Testing for Alternative Ignition Barrier Assemblies for Use in Crawl Spaces ~~with Alternatives to Code-prescribed Ignition Barrier~~.

302.5.2.1 General. When the *spray-applied foam plastic* insulation is intended to be installed as a component in 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 302.5.2.2 (Test Method A) or 302.5.2.3 (Test Method B). 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: Provides consistency with terminology developed by the SPF industry in SPFA-126 “Thermal Barriers and Ignition Barriers for the Spray Polyurethane Foam Industry,” copy provided.

Committee Action: None – Withdrawn by Proponent.

IS-FPI 14-17
ICC 1100-20XX Section 303.2.1

Proponent: Roger Morrison

Morrison 07 303.2.1

Revise as follows:

303.2.1 *Thermal Barrier* Exception: Within an attic where entry is made only for service of *utilities*, *spray-applied foam plastics* shall be protected by a prescriptive *ignition barrier* as set forth in Section 2603.4.1.6 of the International Building Code, Section R316.5.3 of the International Residential Code. Alternative thermal barrier assemblies~~(nonprescriptive) *thermal barriers*~~, or alternative ignition barrier assemblies~~(nonprescriptive) *ignition barriers*, exposed foam plastic insulation, or foam plastic insulation with a covering for use in attics~~ shall be qualified in accordance with Section 302.3.1.3 or 302.4.1.

Reason: Provides consistency with terminology developed by the SPF industry in SPFA-126 “Thermal Barriers and Ignition Barriers for the Spray Polyurethane Foam Industry,” copy provided.

Committee Action: None – Withdrawn by Proponent.

IS-FPI 15-17
ICC 1100-20XX Section 303.2.1

Proponent: John Stahl

Stahl 04 303.2.1

Revise as follows:

303.2.1 *Thermal Barrier* Exception: Within an attic where entry is made only for service of *utilities*, *spray-applied foam plastics* shall be protected by a prescriptive *ignition barrier* as set forth in Section 2603.4.1.6 of the International Building Code, Section R316.5.3 of the International Residential Code or qualified as a component in an Alternative Ignition Barrier Assembly~~. Alternative (nonprescriptive) *thermal barriers*, alternative (nonprescriptive) *ignition barriers*, exposed foam plastic insulation, or foam plastic insulation with a covering for use in attics shall be qualified~~ in accordance with Section 302.5~~302.3.1.3 or 302.4.1~~.

Reason: Referenced Section 302.3.1.3 doesn't exist in the draft. Referenced Section 302.4.1 is for thermal barrier test which are not relevant to this section. The recommended revision achieves the objective of this section which is to permit prescriptive ignition barriers or Alternative Ignition Barrier Assemblies.

Committee Action: None – Withdrawn by Proponent.

IS-FPI 16-17
ICC 1100-20XX Section 303.3.1

Proponent: John Stahl

Stahl 05 303.3.1

Revise as follows:

303.3.1 *Thermal Barrier* Exception: Installation of *spray-applied foam* plastic insulation in a crawl space where entry is made only for service of *utilities*, *spray-applied foam plastic* shall be protected by a prescriptive *ignition barrier* as set forth in Section 2603.4.1.6 of the International Building Code, Section R316.5.4 of the International Residential Code or qualified as a component in an Alternative Ignition Barrier Assembly. ~~Installation without a prescriptive *ignition barrier* where the *spray-applied foam plastic* insulation is intended to either be left exposed foam plastic insulation or be installed with a *covering*~~ shall be qualified in accordance with Section 302.5.2.

Reason: The recommended revision achieves the objective of this section which is to permit prescriptive ignition barriers or Alternative Ignition Barrier Assemblies.

Committee Action: **Approved as Modified**

Modify as follows: (*Note: Refer to Committee Reason for the modification approved by the Committee. Committee modifications are shown highlighted*.)

303.3.1 *Thermal Barrier* Exception: Installation of *spray-applied foam* plastic insulation in a crawl space where entry is made only for service of *utilities*, *spray-applied foam plastic* shall be protected by a prescriptive *ignition barrier* as set forth in Section 2603.4.1.6 of the International Building Code, Section R316.5.4 of the International Residential Code or qualified as a component in an *alternative ignition barrier assembly*. ~~Installation without a prescriptive *ignition barrier* where the *spray-applied foam plastic* insulation is intended to either be left exposed foam plastic insulation or be installed with a *covering*~~ ~~shall be qualified~~ in accordance with Section 302.5.2.

Committee Reason: The committee approved the modifications to be consistent with the committee action taken on IS-FPI 05-17 for inclusion of the new definitions and terms. The committee modified the proposal to delete '…shall be qualified…' in the last line because '…qualified…' is already included in line 5.

IS-FPI 17-17
ICC 1100-20XX Section 303.3.1

Proponent: Roger Morrison

Morrison 08 303.3.1

Revise as follows:

303.3.1 *Thermal Barrier* Exception: Installation of *spray-applied foam* plastic insulation in a crawl space where entry is made only for service of *utilities*, *spray-applied foam plastic* shall be protected by a prescriptive *ignition barrier* as set forth in Section 2603.4.1.6 of the International Building Code, Section R316.5.4 of the International Residential Code. Installation ~~without a prescriptive *ignition barrier* where the *spray-applied foam plastic* insulation is intended to either be left exposed foam plastic insulation or be installed with a *covering*~~ an alternative ignition barrier assembly shall be qualified in accordance with Section 302.5.2.

Reason: Provides consistency with terminology developed by the SPF industry in SPFA-126 “Thermal Barriers and Ignition Barriers for the Spray Polyurethane Foam Industry,” copy provided.

Committee Action: None – Withdrawn by Proponent.

IS-FPI 18-17
ICC 1100-20XX Section 103.1

Proponent: Roger Morrison

Morrison 09 103.1

General Comment:

103.1 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.

Comment: Who would be the “administrative authority adopting this standard”?

Committee Action: None – Withdrawn by Proponent.

IS-FPI 19-17
ICC 1100-20XX Section 202

Proponent: Jodi Thomas

Thomas 03 202

Revise as follows:

SECTION 202
DEFINED TERMS

AIR IMPERMEABLE INSULATION. An insulation, at a given thickness, which allows a maximum total air leakage rate of 0.02 L/s-m^2 (0.004 ft^3/min-ft^2) when tested at a 75 Pa pressure differential in accordance with ASTM E283 or ASTM E2178, as amended in this standard.

~~**ALL CONSTRUCTION PLANES.** Within an attic or crawl space, any surface exposed to the interior space of the attic regardless of its orientation within that space.~~

Use definitions of Combustible and Noncombustible from the IRC.~~**COMBUSTIBLE.** Capable of igniting and burning.~~

~~**COVERING.** Any material forming a protective layer or membrane, including boards, sheet goods or liquid-applied coating materials which protect spray-applied foam plastic from environmental effects such as fire or ultra-violet light exposure.~~ Use Thermal Barrier and Ignition Barrier to cover fire aspects and then add UV Protective Covering as a new term.

FREE RISE. A condition of application wherein the ~~spray-applied~~ foam plastic is applied to a substrate or within a cavity and allowed to expand in at least one direction without constraint.

IGNITION BARRIER. A protective covering applied over foam plastic ~~insulation~~ materials in attics and crawlspaces to increase the time it takes for the foam plastic to become involved in a fire.

~~**ROOFING APPLICATIONS.** Roofing applications are those applications wherein the *spray-applied foam plastic* is applied to the exterior of a roof deck as a component of a roof covering.~~

SPRAY-APPLIED FOAM PLASTIC. Single- and multi-component, spray-applied polyurethane foam plastic ~~insulation~~ materials used in nonstructural applications which are installed at jobsite locations wherein the material is applied in a liquid, ~~or~~ frothed, or foamed state, permitted to free rise and cure in situ.

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

~~**UTILITIES.** For the purposes of attic and crawlspace entry, utilities include, but are not limited to, mechanical equipment, electrical wiring, fans, plumbing, fuel-fired or electric hot water heaters, and fuel-fired or electric furnaces.~~

Reason: Definition of construction planes is not found in the text, therefore delete it.

Combustible and Non-Combustible Material definitions should be the same as those in the IRC.

The definition of covering has 2 concepts, UV Protection and Fire protection. If a definition is needed, use thermal barrier and ignition barrier and for the fire concept and UV protective covering as a new term.

Roofing Application definition was deleted because it ties the product to a specific application. Others are not mentioned, why roofing.

Utilities was deleted, it is an unnecessary definition, we can say what we mean within the text of the standard.

Committee Action: **Approved as Modified**

Replace proposal as follows: (*Note: Refer to Committee Reasons for modifications approved by the Committee.*)

SECTION 202
DEFINED TERMS

AIR IMPERMEABLE INSULATION. An insulation, at a given thickness, which allows a maximum total air leakage rate of 0.02 L/s-m^2 (0.004 ft^3/min-ft^2) when tested at a 75 Pa pressure differential in accordance with ASTM E283 or ASTM E2178, as amended in this standard.

~~**COMBUSTIBLE.** Capable of igniting and burning.~~

Committee Reason: The committee approved the modification to air impermeable insulation because the proposed text provides clarification to the definition.

The committee approved the modification to delete the definition of 'Combustible' since the term is not used in the body of the standard. The committee also agreed that the inclusion of the definition of 'Combustible' from the International Residential Code was not applicable to this standard.

The committee disagreed with the proposal to delete the 'All construction planes', 'Covering', 'Roofing applications' and 'Utilities' since the definitions are appropriate and the terms are used in the standard.

The proponent agreed to withdraw the proposed revisions to 'Free rise', 'Ignition barrier', 'Spray applied foam plastic' and 'Thermal barrier'

IS-FPI 20-17
ICC 1100-20XX Sections 301.1, 301.2, 301.3, Table 1

Proponent: Mike Fischer

Fischer 03 301.1

Revise as follows:

301.1 General. *Spray-applied foam plastic* insulation shall comply with the requirements as stated in Table 1. Where the number of test specimens is not specified in the applicable test methods, a minimum of five specimens shall be used.

Exception: Spray-applied foam plastic insulation used in roofing applications shall comply with the requirements in Table 1 ~~and~~ or either ASTM C1029, Type III or IV or ASTM D7425.

TABLE 1—PHYSICAL PROPERTIES OF SPF INSULATION BY APPLICATION

APPLICATION	TESTS REQUIRED		VALUE
Low-density insulation (nominal core density ~~0.4~~ 0.5 – 1.4 pcf)	Thermal Resistance at 75°F (24°C) mean temperature – See Section 301.2		As reported
	Core Density: ASTM D1622		As reported
	Tensile Strength: ASTM D1623 Note: Closed cell content shall be determined in accordance with ASTM D2856 or ASTM D6226	Minimum closed cell content of 90%	5 lbf/in^2, minimum
		Closed cell content less than 90%	3 ~~1~~ lbf/in^2, minimum
	Dimensional Stability: ASTM D2126		15% maximum total change
	Flame Spread Index ASTM E 84; UL 723		≤75
	Smoke Developed Index ASTM E84; UL 723		≤450
Medium density insulation (nominal core density 1.5 – 3.5 pcf)	Thermal Resistance at 75°F (24°C) mean temperature – See Section 301.2		As reported
	Core Density: ASTM D1622		As reported
	Tensile Strength: ASTM D1623		15 lbf/in^2, minimum
	Dimensional Stability: ASTM D2126		15% maximum total change
	Compressive Strength: ASTM D1621		15 lbf/in^2, minimum
	Flame Spread Index ASTM E 84; UL 723		≤75
	Smoke Developed Index ASTM E84; UL 723		≤450
Roofing (nominal core density 2.5 – 3.5 pcf)	Thermal Resistance at 75°F (24°C) mean temperature – See Section 301.2		As reported
	Core Density: ASTM D1622		As reported
	Tensile Strength:		40 lbf/in^2, minimum

	ASTM D1623	
	Dimensional Stability: ASTM D2126	15% maximum total change
	Compressive Strength: ASTM D1621	40 lbf/in^2, minimum
	Flame Spread Index ASTM E 84; UL 723	≤75
	Smoke Developed Index ASTM E84; UL 723	Not limited

301.2 Thermal Resistance. Thermal resistance shall be determined in accordance with ASTM C177, ASTM C518 or ASTM C1363. Test specimen density shall be within ±10 percent of the nominal density intended for use.

The reporting of thermal resistance shall be based on a mean-test temperature of 75°F ± 5°F (23.8°C ± 2.8°C). Supplemental thermal resistance values at other mean temperatures may be included at the option of the manufacturer. *R*-values of less than 10 shall be rounded to the nearest tenth. *R*-values of 10 or more shall be rounded to the nearest whole number.

The thermal-resistance (*R*-values) for the *spray-applied foam plastic* shall be established for the range of thicknesses and the density intended for use. Tests shall be conducted at a 1-inch (25.4 mm) thickness and at the maximum thickness permitted by the test procedure, but at no less than $3^1/_2$ inches (89 mm). Calculated *R*-values for thicknesses between 1 inch (25.4 mm) and 3.5 inches (89 mm) shall be based on linear interpolation of tested *R*-values at 1-inch (25.4 mm) and $3^1/_2$ inch (89 mm) thicknesses. Calculated *R*-values for thicknesses greater than 3.5 inches (89 mm) shall be based on tested *R*-values at $3^1/_2$ inches (89 mm) thickness.

For *spray-applied foam plastic* that is intended for use at a thickness less than $3^1/_2$ inches, tests shall be conducted at a 1-inch (25.4 mm) thickness and at the maximum thickness intended for use.

All samples shall be conditioned at 73º ± 2ºF (23ºC ± 1ºC) and 50 ± 5 percent relative humidity for ~~180 ± 5~~ 30 ± 2 days from time the samples are sprayed~~, or 90 days ± 2 days at 140 ± 2ºF (60 ± 1ºC) dry heat~~.

301.3 Air Impermeable Insulation ~~Air Permeance~~. When recognition is sought for ~~When determination of the air permeance of~~ the spray-applied foam plastic as an Air Impermeable Insulation ~~is sought~~, the air permeance shall be measured in accordance with ASTM E283 or ASTM E2178. Air impermeable insulation is defined as insulation which allows a maximum total air leakage rate of 0.02 L/s-m2 (0.004 ft3/min-ft2) when testing is at a 75 Pa pressure differential.

Testing in accordance with ASTM E283 shall be modified as follows:

1. The test frame shall be a minimum of 24 inches (610 mm) square, and a 1/2-inch-thick (12.7 mm), low-density fiberboard substrate complying with ASTM C208

fastened and sealed on the panel edges. The fiberboard shall have a minimum air permeance of 1.0 L/s-m^2 (0.20 ft^3/min-ft^2).

2. The spray-applied foam plastic insulation shall be applied at ~~in~~ the minimum thickness that recognition is sought. ~~intended for use~~.

3. The test pressure difference shall be 75 Pa (1.57 lb/ft^2).

4. Air flow shall be by both infiltration and exfiltration.

Total air leakage shall be reported as the larger result from the infiltration and exfiltration tests. When testing results confirms the air permeance equal to or less than the total air leakage rate to qualify as Air Impermeable Insulation, the report shall state the spray foam does qualify as an Air Impermeable Insulation at the tested thickness (report in inches).

Reason: 301.1: SPF should need to comply with one consensus standard.

Table 1: Spray foam systems houses manufacture SPF with a density as low as 0.4 pcf. Table 1 listed two values, based on the percent of closed cell for the low density spray foam membrane, 90% or less than 90%, SFC eliminated the distinction for the percent of closed cell content. The percent of closed cell content is not relevant to the tensile strength.

Reduce the minimum Tensile Strength to 1 lbf/in^2. The foam membrane is not structural and Tensile Strength indicates the ability of the foam to hold itself together. The calculation for the reduction is: 1 lbf/in^2 = 144 lbf/ft^2. At the maximum density of 1.4 pounds, the foam applied 36 inches (3ft) thick theoretically weighs 4.2 pounds. In actual application, it will be somewhat higher, so allowing a large margin of latitude, double this weigh to 8.4 pounds. The Tensile Strength of 1 lbf/in^2 is still over 17 times the calculated strength required to hold the foam together. Considering this example thickness far exceeds any expected application thickness, a Tensile Strength of 1 lbf/in^2 far exceeds any conceived application for a low density spray foam insulation.

ASTM 2856 was deleted in 2006 and is no longer valid.

The Flame Spread and Smoke Developed Index is required for all spray foam insulation installed in buildings, therefore it should be included in Table 1.

301.2: The attached report documents a study demonstrating that four different commercially available open-cell SPF products will achieve a minimum aged R-value within 30 days regardless of aging condition or specimen geometry. This provides a basis for changing the aging time for R-value of open cell SPF from 180 room temperature or 90 day elevated temperature to 30 days at room temperature.

301.3: Provides more clarity.

Committee Action: **Approved as Modified**

Modify as follows: (*Note: Refer to Committee Reason for modifications approved by the Committee. Committee modifications are shown highlighted*.)

301.1 General. *Spray-applied foam plastic* insulation shall comply with the requirements as stated in Table 1. Where the number of test specimens is not specified in the applicable test methods, a minimum of five specimens shall be used.

Exception: Spray-applied foam plastic insulation used in roofing applications shall comply with the requirements in ~~Table 1 or~~ either ASTM C1029, Type III or IV, or ASTM D7425, as applicable.

TABLE 1—PHYSICAL PROPERTIES OF SPF INSULATION BY APPLICATION
(Based on a request from the proponent, no proposed changes to Table 1 within this proposal were accepted by the committee in favor of the revisions to Table 1 included in IS-FPI 21-17.)

301.2 Thermal Resistance. (*Committee action for modification was to retain current text with no change.*)

301.3 Air Permeance. (*Committee action for modification was to retain the current text of paragraph 1 with no change.*)

Testing in accordance with ASTM E283 shall be modified as follows:

1. The test frame shall be a minimum of 24 inches (610 mm) square, and a 1/2-inch-thick (12.7 mm), low-density fiberboard substrate complying with ASTM C208 fastened and sealed on the panel edges. The fiberboard shall have a minimum air permeance of 1.0 L/s-m^2 (0.20 ft^3/min-ft^2).

2. The spray-applied foam plastic insulation shall be applied at ~~in~~ the minimum thickness that recognition is sought. ~~intended for use~~.

3. The test pressure difference shall be 75 Pa (1.57 lb/ft^2).

4. Air flow shall be by both infiltration and exfiltration.

Total air leakage shall be reported as the larger result from the infiltration and exfiltration tests. When testing results confirms the air permeance equal to or less than the total air leakage rate to qualify as *air impermeable insulation*, the report shall state the spray

foam does qualify as an *air impermeable insulation* at the tested thickness (report in inches).

Committee Reason: Section 301.1 – The committee modification to Section 301.1 was to remove the physical property requirements, referenced in Table 1, for Roofing to avoid potential conflict with regards to differences in physical property requirements in Table 1 of this standard and other code-referenced standards. Additionally, the 2018 IBC and IRC contain references to ASTM C1029 and ASTM D7425 so there is no need to include physical property requirements in this standard.

Table 1 – The committee modification to Table 1 was to revert back to the original draft language in favor revisions proposed in IS-FPI 21-17.

Section 301.2 – The committee modification to Section 301.2 was to revert back to the original draft language in favor revisions proposed in IS-FPI 21-17.

Section 301.3, paragraph 1 – The committee modifications to Section 301.2 were to revert back to the original draft language as they did not think that the proposed language added clarification to the requirements of the section.

Section 301.3, Item 2 and last paragraph. – The committee agreed that the proposed revisions provided clarity to the requirements of these sections.

IS-FPI 21-17
ICC 1100-20XX Table 1

Proponent: Roger Morrison

Morrison 10 Table 1

Revise as follows:

Delete Table 1 and replace with new Tables 1, 2, 3 and 4:

~~TABLE 1—PHYSICAL PROPERTIES OF SPF INSULATION BY APPLICATION~~

~~APPLICATION~~	~~TESTS REQUIRED~~		~~VALUE~~
~~Low-density insulation (nominal core density 0.5—1.4 pcf)~~	~~Thermal Resistance at 75°F (24°C) mean temperature—See Section 301.2~~		~~As reported~~
	~~Core Density: ASTM D1622~~		~~As reported~~
	~~Tensile Strength: ASTM D1623 Note: Closed cell content shall be determined in accordance with ASTM D2856 or ASTM D6226~~	~~Minimum closed cell content of 90%~~	~~5 lbf/in^2, minimum~~
		~~Closed cell content less than 90%~~	~~3 lbf/in^2, minimum~~
	~~Dimensional Stability: ASTM D2126~~		~~15% maximum total change~~
~~Medium density insulation (nominal core density 1.5—3.5 pcf)~~	~~Thermal Resistance at 75°F (24°C) mean temperature—See Section 301.2~~		~~As reported~~
	~~Core Density: ASTM D1622~~		~~As reported~~
	~~Tensile Strength: ASTM D1623~~		~~15 lbf/in^2, minimum~~
	~~Dimensional Stability: ASTM D2126~~		~~15% maximum total change~~
	~~Compressive Strength: ASTM D1621~~		~~15 lbf/in^2, minimum~~
~~Roofing (nominal core density 2.5—3.5 pcf)~~	~~Thermal Resistance at 75°F (24°C) mean temperature—See Section 301.2~~		~~As reported~~
	~~Core Density: ASTM D1622~~		~~As reported~~
	~~Tensile Strength: ASTM D1623~~		~~40 lbf/in^2, minimum~~
	~~Dimensional Stability: ASTM D2126~~		~~15% maximum total change~~
	~~Compressive Strength: ASTM D1621~~		~~40 lbf/in^2, minimum~~

~~For SI: 1 pfc = 16.02 kg/m^3, 1 lbf/in^2 = 6.89 kPa~~

TABLE 1— PHYSICAL PROPERTIES OF LOW-DENSITY SPF

Property		Tests	Value	Number of Samples	Sample Preparation
Surface Burning Characteristics		ASTM E84 or UL 723	Flame-spread index 75 max Smoke-developed index 450 max	2 min	Per test standard
Thermal Resistance		ASTM C177, ASTM C518 or ASTM C1363	As reported	5 at each thickness	Samples shall be conditioned at: 73 ± 2 °F (23 ± 1 °C) and 50% +/- 5% RH for 30 days min.
Core Density		ASTM D1622	As Reported	3	Per Section 6.3 of the test standard
Tensile Strength		ASTM D1623	3.0 lbf/in^2 (21 kPa) min	5	Per test standard
Dimensional Stability		ASTM D2126	15% max linear change in any one direction	2 min	[To be determined]

TABLE 2— PHYSICAL PROPERTIES OF MEDIUM-DENSITY SPF

Property	Tests	Value	Number of Samples	Sample Preparation
Surface Burning Characteristics	ASTM E84 or UL 723	Flame-spread index 75 max Smoke-developed index 450 max	2 min	Per test standard
Thermal Resistance	ASTM C177, ASTM C518 or ASTM C1363	As reported	5 at each thickness	Samples shall be conditioned at: (a) 73 ± 2 °F (23 ± 1 °C) and 50 ± 5 % relative humidity for 180 ± 5 days; or (b) 140 ± 2 °F (60 ± 1 °C) and dry heat for 90 ± 2 days
Core Density	ASTM D1622	As reported	3	Per Section 6.3 of the standard
Tensile Strength	ASTM D1623	15 lbf/in^2 (100 kPa) min	5	Per test standard
Compressive Strength	ASTM D1621	15 lbf/in^2 (100 kPa) min	5	Per test standard
Dimensional Stability	ASTM D2126	12% max. linear change in any one direction	2 min	Per ASTM C1029, Section 9.4 and 10.6

TABLE 3—PHYSICAL PROPERTIES OF ROOFING SPF

Property	Tests	Value	Number of Samples	Sample Preparation
Surface Burning Characteristics	ASTM E84 or UL 723	Flame-spread index 75 max	2 min	Per test standard
Thermal Resistance	ASTM C177, ASTM C518 or ASTM C1363	As reported	5 at each thickness	Samples shall be conditioned at: (a) 73 ± 2 °F (23 ± 1 °C) and 50 ± 5 % relative humidity for 180 ± 5 days; or (b) 140 ± 2 °F (60 ± 1 °C) and dry heat for 90 ± 2 days
Core Density	ASTM D1622	As reported	3	Per Section 6.3 of the standard
Tensile Strength	ASTM D1623	40 lbf/in^2 (280 kPa) min	5	Per test standard
Compressive Strength	ASTM D1621	40 lbf/in^2 (280 kPa) min	5	Per test standard
Dimensional Stability	ASTM D2126	6 % max. linear change in any one direction	2 min	Per ASTM C1029, Section 9.4 and 10.6

TABLE 4—PHYSICAL PROPERTIES OF SEALING SPF

Property	Tests	Value	Number of Samples	Sample Preparation
Surface Burning Characteristics	ASTM E84 or UL 723	Flame-spread index 75 max Smoke-developed index 450 max	2 min	Per ASTM E2690; minimum bead size of ¾ in. (19 mm)
Core Density	ASTM D1622	As reported	3	Per Section 6.3 of the standard
Tensile Strength	ASTM D1623	3.6 lbf/in^2 (25 kPa) min	5	Per standard; Type C specimen

Reason: I recommend that the submitted physical property tables be adopted in place of Table 1 because the submitted tables provide current information, include number of samples, sample preparation and other information.

Committee Action: **Approved as Modified**

Replace proposal as follows:

1. Delete and replace Table 1 as follows:

TABLE 1. PHYSICAL PROPERTIES OF LOW-DENSITY SPRAY-APPLIED FOAM PLASTIC (nominal core density less than 1.5 pcf)

PROPERTY	TESTS	VALUE	NUMBER OF SAMPLES	SAMPLE PREPARATION

Thermal Resistance	ASTM C177, ASTM C518, or ASTM C1363	Minimum closed cell content of 90%	As reported	5 at each thickness	(a) 73 ± 2 °F (23 ± 1 °C) and 50 ± 5 % relative humidity for 180 ± 5 days; or (b) 140 ± 2 °F (60 ± 1 °C) and dry heat for 90 ± 2 days
		Closed cell content of less than 90%	As reported	5 at each thickness	(a) 73 ± 2 °F (23 ± 1 °C) and 50 ± 5 % relative humidity for 30 days min. or (b) 73 ± 2 °F (23 ± 1 °C) and 50 ± 5 % relative humidity for 180 ± 5 days; or (c) 140 ± 2 °F (60 ± 1 °C) and dry heat for 90 ± 2 days
Core Density	ASTM D1622	As Reported		3	In accordance with Section 6.3 of the standard
Tensile Strength	ASTM D1623	Minimum closed cell content of 90%	5.0 lbf/in^2 (21 kPa) min	5	In accordance with test standard
		Closed cell content of less than 90%	3.0 lbf/in^2 (21 kPa) min		
Dimensional Stability[a]	ASTM D2126	15% max total change		2 min	In accordance with Note below

For SI: 1 pfc = 16.02 kg/m^3, 1 lbf/in^2 = 6.89 kPa

[a]**Notes:** Dimensional stability sample preparation for low-density spray-applied foam plastic.

1. Spray a sufficient quantity of foam to provide at least two samples measuring a minimum of 4-inch x 4-inch (100 mm x 100 mm) x thickness determined by the manufacturer (but no less than 1 inch) to a suitable clean and dry substrate. Allow *spray-applied foam plastic* to cure on the substrate.
2. Remove *spray-applied foam plastic* from the substrate and condition the foam to a constant mass but no less than 72 hours at 73.4 ± 4oF (23 ± 2oC) and 50 ± 10% relative humidity prior to cutting the samples.
3. Cut at least two specimens measuring a minimum of 4-inch x 4-inch (100 mm x 100 mm) x thickness determined by the manufacturer (minimum 1 inch).
4. Expose the specimens to 158 ± 4 oF (70 ± 2 oC) and 97 ± 3% relative humidity for 168 ± 2 hours. Measure the percent change in the length, width and thickness directions of the sample after 24 ± 1 hours and 168 ±2 hours.

2. Delete and replace Table 2 as follows:

TABLE 2. PHYSICAL PROPERTIES OF MEDIUM-DENSITY SPF (nominal core density 1.5 – 3.5 pcf)

PROPERTY	TESTS	VALUE	NUMBER OF SAMPLES	SAMPLE PREPARATION
Thermal Resistance	ASTM C177, ASTM C518, or ASTM C1363	As reported	5 at each thickness	Samples shall be conditioned at: (a) 73 ± 2 °F (23 ± 1 °C) and 50 ± 5 % relative humidity for 180 ± 5 days; or

				(b) 140 ± 2 °F (60 ± 1 °C) and dry heat for 90 ± 2 days
Core Density	ASTM D1622	As reported	3	In accordance with Section 6.3 of the test standard
Tensile Strength	ASTM D1623	15 lbf/in^2 (100 kPa) min	5	In accordance with test standard
Compressive Strength	ASTM D1621	15 lbf/in^2 (100 kPa) min	5	In accordance with test standard
Dimensional Stability	ASTM D2126	15% total change	2 min	In accordance with ASTM C1029, Section 9.4 and 10.6

For SI: 1 pfc = 16.02 kg/m^3, 1 lbf/in^2 = 6.89 kPa

Committee Reason: Table 1 – The replacement Table 1 approved by the committee modifies the Table submitted by proponent. One modification is to remove the proposed addition of surface-burning characteristic requirements from the Table because these requirements are addressed in Section 302.2 and Table 1 and Section 303.1 are intended to address physical properties only. The Table also revises the aging period for low-density, open-cell foam based upon an industry study that was submitted for consideration. The Table retains the current aging provisions and other physical property requirements as well as the applicable test methods without change. The proposal also provides criteria for delineation of physical property requirements between foam types (i.e. low-density and medium-density) and separates the requirements for spray foam based on its designation for clarity. The notes to Table 1 provide clarity and direction for testing labs and foam manufacturer's regarding testing requirements since there is currently no industry standard that provides guidance on how to prepare the samples for testing.

Table 2 – The replacement Table2 that was approved by the committee modifies the Table submitted by proponent. One modification is to remove the proposed addition of surface-burning characteristic requirements from the Table because these requirements are addressed in Section 302.2 and Table 1 and Section 303.1 are intended to address physical properties only. The proposal also provides criteria for delineation of physical property requirements between foam types (i.e. low-density and medium-density) and separates the requirements for spray foam based on its designation for clarity.

Table 3 – Withdrawn by proponent based on action taken on IS-FPI 20-17 to remove physical property requirements from this standard and instead reference ASTM C1029 and ASTM D7425 that are referenced standards in the 2018 IBC & IRC.

Table 4 – Withdrawn by proponent because that application is not included in the scope of this standard.

IS-FPI 22-17
ICC 1100-20XX Table 302.2(6)

Proponent: Roger Morrison

Morrison 11 Table 1

Revise as follows:

TABLE 1—PHYSICAL PROPERTIES OF SPF INSULATION BY APPLICATION

APPLICATION	TESTS REQUIRED		VALUE
Low-density insulation (nominal core density 0.5 – 1.4 pcf)	Thermal Resistance at 75°F (24°C) mean temperature – See Section 301.2		As reported
	Core Density: ASTM D1622		As reported
	~~Tensile Strength: ASTM D1623 Note: Closed cell content shall be determined in accordance with ASTM D2856 or ASTM D6226~~	~~Minimum closed cell content of 90%~~	~~5 lbf/in^2, minimum~~
		~~Closed cell content less than 90%~~	3 lbf/in^2, minimum
	Dimensional Stability: ASTM D2126		15% maximum ~~total change~~ linear change in any one direction
Medium density insulation (nominal core density 1.5 – 3.5 pcf)	Thermal Resistance at 75°F (24°C) mean temperature – See Section 301.2		As reported
	Core Density: ASTM D1622		As reported
	Tensile Strength: ASTM D1623		15 lbf/in^2, minimum
	Dimensional Stability: ASTM D2126		12~~15~~% maximum ~~total change~~ linear change in any one direction
	Compressive Strength: ASTM D1621		15 lbf/in^2, minimum
Roofing (nominal core density 2.5 – 3.5 pcf)	Thermal Resistance at 75°F (24°C) mean temperature – See Section 301.2		As reported
	Core Density: ASTM D1622		As reported
	Tensile Strength: ASTM D1623		40 lbf/in^2, minimum
	Dimensional Stability: ASTM D2126		6~~15~~% maximum ~~total change~~ linear change in any one direction
	Compressive Strength: ASTM D1621		40 lbf/in^2, minimum

For SI: 1 pfc = 16.02 kg/m^3, 1 lbf/in^2 = 6.89 kPa

Reason:
1. There is no technical justification for differentiating the closed-cell content and tensile strength of low-density SPF.
2. Revisions to the dimensional stability values provides consistency with ASTM C1029.

Committee Action: None – Withdrawn by Proponent.

IS-FPI 23-17
ICC 1100-20XX Section 301.2

Proponent: Roger Morrison

Morrison 12 301.2

Revise as follows:

301.2 Thermal Resistance. Thermal resistance shall be determined in accordance with ASTM C177, ASTM C518 or ASTM C1363. Test specimen density shall be within ±10 percent of the nominal density intended for use.

The reporting of thermal resistance shall be based on a mean-test temperature of 75°F ± 5°F (23.8°C ± 2.8°C). Supplemental thermal resistance values at other mean temperatures may be included at the option of the manufacturer. *R*-values of less than 10 shall be rounded to the nearest tenth. *R*-values of 10 or more shall be rounded to the nearest whole number.

The thermal-resistance (*R*-values) for the *spray-applied foam plastic* shall be established for the range of thicknesses and the density intended for use. Nominal thicknesses tested shall be 1 inch (25.4 mm) and the "maximum thickness tested." "Maximum thickness tested" is defined as greater than or equal to 3.5 inches (89 mm) up to the maximum thickness permitted by the chosen test standard. ~~Tests shall be conducted at a 1-inch (25.4 mm) thickness and at the maximum thickness permitted by the test procedure, but at no less than 3 1/2 inches (89 mm).~~ Calculated *R*-values for thicknesses between 1 inch (25.4 mm) and ~~3.5 inches (89 mm)~~ the maximum thickness tested shall be based on linear interpolation of tested *R*-values at 1-inch (25.4 mm) and ~~3 1/2 inch (89 mm)~~ maximum thickness tested. Calculated *R*-values for thicknesses greater than the maximum thickness tested ~~3.5 inches (89 mm)~~ shall be based on tested *R*-values at ~~3 1/2 inches (89 mm)~~ the maximum thickness tested.

Exception: For *spray-applied foam plastic* that is intended for use at a thickness less than 3 1/2 inches, tests shall be conducted at a 1-inch (25.4 mm) thickness and at the maximum thickness intended for use. Calculated R-values shall follow the rounding and interpolation rules stated above.

All samples shall be conditioned at 73º ± 2ºF (23ºC ± 1ºC) and 50 ± 5 percent relative humidity for 180 ± 5 days from time the samples are sprayed, or 90 days ± 2 days at 140 ± 2ºF (60 ± 1ºC) dry heat.

Exception: Low-density spray-applied foam plastic shall be conditioned at 73º ± 2ºF (23ºC ± 1ºC) and 50 ± 5 percent relative humidity for 30 days minimum.

Reason:

1. Verbiage has been revised to reflect situation where tested thickness is greater than 3.5 inches.
2. Provisions for conditioning of low-density SPF for 30 days has been provided. See also "Polyurethanes 2016 paper- Thermal Aging."

Committee Action: **Approved as Modified**

Replace proposal as follows: (*Note: Refer to Committee Reason for modifications approved by the Committee.*)

301.2 Thermal Resistance. Thermal resistance shall be determined in accordance with ASTM C177, ASTM C518 or ASTM C1363. Test specimen density shall be within ±10 percent of the nominal density intended for use.

The reporting of thermal resistance shall be based on a mean-test temperature of 75°F ± 5°F (23.8°C ± 2.8°C) with a minimum temperature gradient of 40°F (22°C). Supplemental thermal resistance values at other mean temperatures may be included at the option of the manufacturer. *R*-values of less than 10 shall be rounded to the nearest tenth. *R*-values of 10 or more shall be rounded to the nearest whole number.

The thermal-resistance (*R*-values) for the *spray-applied foam plastic* shall be established for the range of thicknesses and the density intended for use. Nominal thicknesses tested shall be 1 inch (25.4 mm) and a thickness greater than or equal to 3.5 inches (89 mm). ~~Tests shall be conducted at a 1-inch (25.4 mm) thickness and at the maximum thickness permitted by the test procedure, but at no less than $3^1/_2$ inches (89 mm).~~ Calculated *R*-values for thicknesses between 1 inch (25.4 mm) and ~~3.5 inches (89 mm)~~ the maximum thickness tested shall be based on linear interpolation ~~of tested *R*-values at 1-inch (25.4 mm) and $3^1/_2$ inch (89 mm)~~. Calculated *R*-values for thicknesses greater than the maximum thickness tested ~~3.5 inches (89 mm)~~ shall be extrapolated based on tested *R*-values at ~~$3^1/_2$ inches (89 mm)~~ the maximum thickness tested.

Exception: For *spray-applied foam plastic* that is intended for use at a thickness less than $3^1/_2$ inches, tests shall be conducted at a 1-inch (25.4 mm) thickness and at the maximum thickness intended for use. Calculated R-values shall follow the rounding and interpolation rules stated above.

All samples shall be conditioned as set forth in Table 1 or Table 2, as applicable.

Committee Reason: The committee approved the modifications to the original proposal regarding the testing thickness requirements because it provides brevity and clarity to the testing and reporting requirements of this section.

The committee approved the deletion of the proposed new exception for aging of low-density foam because it was incorporated into Table 1 as part of the committee action take on IS-FPI 21-17.

IS-FPI 24-17
ICC 1100-20XX Sections 302.2, 302.2.2, 302.4.1.3, 302.5.1.2.2.2, 302.8.1

Proponent: Michael D. Fischer

Fischer 04 302.2

Revise as follows:

302.2 Surface-Burning Characteristics Tests for spray foam insulations.

302.2.2 Smoke-Developed Index. The insulation shall exhibit a maximum smoke-developed index of 450 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 roofing foam, see Section 302.8.

302.4.1.3 Special Approval. When the spray-applied foam plastic insulation is intended to be used as a component of an alternative thermal barrier assembly ~~installed exposed to the interior of the building either with or without a protective covering or coating, the spray-applied foam plastic insulation~~ the assembly shall be qualified by room corner fire tests, or other fire tests related to actual end-use configurations as described in Section 302.4.1.1, 304.1.1.2 or as permitted in Section 2603.9 of the International Building Code or Section R316.6 of the International Residential Code.

When ~~nonprescriptive~~ a coverings or coating, compliant with AC456, ~~s are~~ 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.

302.5.1.2.2.2 Configuration B. When Configuration B is used, the three walls of the test room without the doorway shall be constructed with wood studs sized to the same depth as the test specimen, 93 inches (2362 mm) high, 24 inches (610 mm) on center with a single top and bottom plate, as shown in Figure 2. The exterior side of the walls shall be covered with one layer of $^{5}/_{8}$-inch-thick (15.9 mm), Type X gypsum wallboard. The spray-applied foam plastic insulation shall be sprayed to, at a minimum, fill each stud cavity and be continuous from the bottom plate to the top plate and from stud to stud. The ceiling of the test room shall be constructed as shown in Figure 1. The ceiling shall consist of wood joists sized to the same depth as the test specimen at 24 inches (610 mm) on center. A total of five joists shall be used and they shall run parallel with the 12-foot length (3.6 m) of the test room (front to back). The two outboard joists shall rest on the top plates of the walls. The exterior side of the ceiling shall be covered with one layer of $^{5}/_{8}$-inch-thick (15.9 mm), Type X gypsum wallboard. The spray-applied foam plastic insulation shall be sprayed to, at a minimum, fill each joist cavity and will be continuous from the front to the back and from joist to joist. If a coating is used over the

foam, it shall be applied to both the walls and the ceiling at the same minimum thickness or coverage rate intended for use.

302.8.1 Physical Properties. *Spray-applied foam plastic* insulation used in roofing applications shall comply with the physical property requirements in Table 1~~2~~ or ASTM C1029, Type III or IV, or ASTM D7425 under the International Residential Code. ASTM D7425 may be used for compliance under the International Residential Code.

Reason:
302.2: Section 302.8 covers spray foam roofing foams, so limit 302.2 to insulation foams, to avoid confusion.

302.2.2: Section 302.8 covers spray foam roofing foams, so limit 302.2 to insulation foams, to avoid confusion.

302.4.1.3: This change ensures that all coatings have received type approvals.

302.5.1.2.2.2: Applicators should be allowed to fill beyond depth of the cavity.

3.2.8.1: Should reference table 1 not 12.

Committee Action: **Approved as Modified**

Replace proposal as follows: (*Note: Refer to Committee Reason for modifications approved by the Committee.*)

302.4.1.3 Special Approval. When the spray-applied foam plastic insulation is intended to be used as a component of an *alternative thermal barrier assembly* ~~installed exposed to the interior of the building either with or without a protective covering or coating, the spray-applied foam plastic insulation~~ the assembly shall be qualified by room corner fire tests, or other fire tests related to actual end-use configurations as described in Section 302.4.1.1, 304.1.1.2 or as permitted in Section 2603.9 of the International Building Code or Section R316.6 of the International Residential Code.

When ~~nonprescriptive~~ a *coverings* or coating~~s are~~ 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.

302.8.1 Physical Properties. *Spray-applied foam plastic* insulation used in roofing applications shall comply with the physical property requirements ~~in Table 12 or~~ of ASTM C1029, Type III or IV, or ASTM D7425, as applicable ~~under the International Residential Code. ASTM D7425 may be used for compliance under the International Residential Code~~.

Committee Reason: Section 302.2: The committee approved modifications that retain the title of the original proposal since the additional language of the original proposal to the title of the section is unnecessary based on the scope of standard. The proposed revision to Section 302.2.2 was not necessary since Section 302.8 already states that it applies to spray foam roofing foams.

Section 302.4.1.3: The proposed revision is not necessary based upon previous committee action taken on IS-FPI 05-17.

Section 302.5.1.2.2.2: The proposed revision to text is not necessary because the Figures 2 and 3 already address the depth of the foam to be tested.

Section 302.8.1: The committee approved a modification to remove reference to the Tables and the limitation of the use of ASTM D7425 under the International Residential Code only and replace it with '…as applicable.' This action was consistent with previous committee action taken on IS-FPI 20-17. It was noted that the 2018 International Building Code will include ASTM D7425 as a reference standard therefore the limitation to use under the IRC only will no longer be applicable.

IS-FPI 25-17
ICC 1100-20XX Section 302

Proponent: Roger Morrison

Morrison 13 302

General Comment:

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.

302.2.2 Smoke-Developed Index. The insulation shall exhibit a maximum smoke-developed index of 450 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).

302.3 Use with a 15-minute Thermal Barrier. When the *spray-applied foam plastic* insulation is intended to be installed with a 15-minute thermal barrier separating the insulation from the interior of a building, the there is no limitation on the thickness when the *spray-applied foam plastic* has a flame-spread index no greater than 25 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.

302.7 Use in Fire-resistance-rated Construction. Where *spray-applied foam plastic* insulation is intended to be installed as a component of a fire-resistance-rated assembly, testing of the assembly that incorporates the *spray-applied foam plastic* insulation shall be conducted in accordance with ASTM E119 or UL 263 for the hourly rating intended for use.

302.8 Use in Roofing. Where the *spray-applied foam plastic* insulation is intended for use in roofing applications, the testing specified in Sections 302.8.1 through Section 302.8.3 shall be performed.

302.8.1 Physical Properties. *Spray-applied foam plastic* insulation used in roofing applications shall comply with the physical property requirements in Table 12 or ASTM C1029, Type III or IV, or ASTM D7425 under the International Residential Code. ASTM D7425 may be used for compliance under the International Residential Code.

302.8.2 Surface-Burning Characteristics Tests.

302.8.2.1 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).

302.8.2.2 Smoke-developed Index. Testing to determine the smoke-developed index is waived for roofing application under Section 2603.3 (Exception 3) of the International Building Code and Section R316.5.2 of the International Residential Code.

302.8.3 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. Classification of roof coverings with *spray-applied foam plastic* insulation shall be based on testing in accordance with ASTM E108 or UL 790.

302.8.4 Installation Requirements. Installation of spray-applied foam plastic insulation in roofing applications shall be in accordance with the requirements of Section 303.1.2.1.

Reason: The division of roofing SPF and insulation SPF is not clearly differentiated within Section 302. For example, for roofing SPF, does Section 302.2.2 override Section 302.8.2? It is not clear. Sections 302.3 to 302.7 may or may not apply to roofing applications.

Committee Action: **Approved as Modified**

Modify 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. Sections 302.2 through 302.7 apply to low-density and medium-density spray applied foam plastic insulation; Section 302.8 applies to roofing applications.

Committee Reason: The original proposal was a comment that didn't provide recommended text, however; during discussion on the item the committee approved a modification to add new text to Section 302.1 that provides guidance on which sections of the standard apply to specific materials or uses.

IS-FPI 26-17
ICC 1100-20XX Section 302.8

Proponent: Roger Morrison

Morrison 14 302.8

General Comment:

302.8 Use in Roofing. Where the *spray-applied foam plastic* insulation is intended for use in roofing applications, the testing specified in Sections 302.8.1 through Section 302.8.3 shall be performed.

Comment: The division of roofing SPF and insulation SPF is not clearly differentiated within Section 302. For example, for roofing SPF, does Section 302.2.2 override Section 302.8.2? It is not clear. Sections 302.3 to 302.7 may or may not apply to roofing applications.

Committee Action: None – Withdrawn by Proponent.

IS-FPI 27-17
ICC 1100-20XX Section 302.4.1

Proponent: John Stahl

Stahl 06 302.4.1

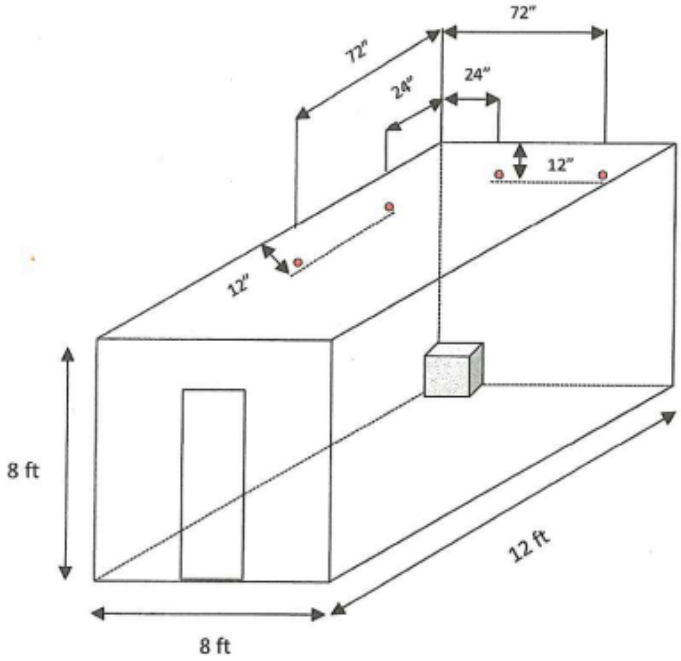
Revise as follows:

302.4.1 Room Corner Fire Tests. The *spray-applied foam plastic* insulation shall be qualified by use of one of the room corner fire tests specified in Sections 302.4.1.1, 302.4.1.2, 302.4.1.3 or 302.4.1.4. The testing shall be performed on *spray-applied foam plastic* insulation at the maximum thickness and density intended for use.

Placement of the gas burner or wood crib shall comply with the maximum average measured distance between the burner or crib as shown in Figure 1. Eight thickness tests of all specimens shall be taken at locations shown in Figure 4 and reported. The average thickness of the specimens on walls and the average thickness of the specimens on the ceiling shall be the minimum required thickness to be installed.

(*Staff note: Figure 4 on the next page was intended to be included as part of the public input comment but it was not published in the original Public Input Agenda posted for public comment; however, copies of Figure 4 were provided by the proponent and distributed at the Committee Meeting for review in conjunction with the committee deliberation on IS-FPI 27-17.*)

IS-PP1 27-17



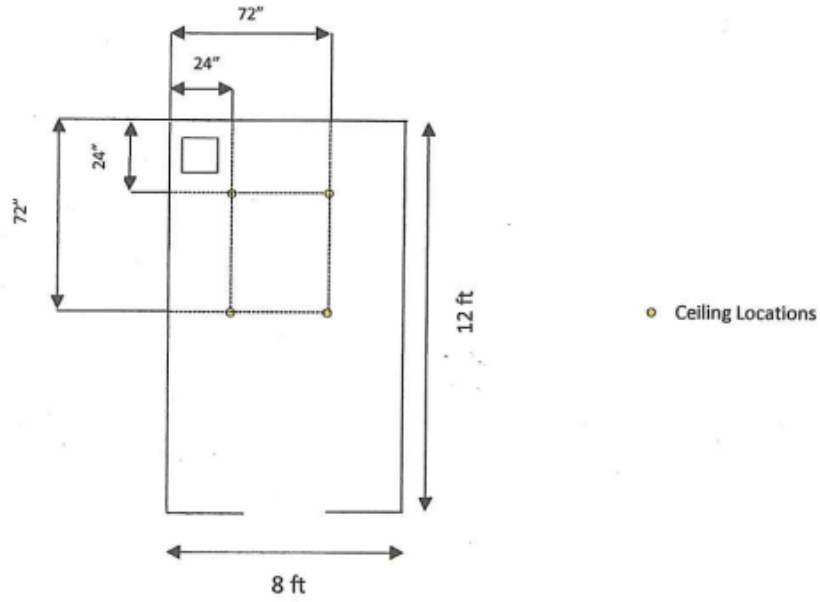


Figure 4 **LOCATIONS FOR SPECIMEN THICKNESS MEASUREMENTS**

Reason: Proper placement of the gas burner or wood crib ignition source should be required for all room corner fire tests, not just for the wood crib used in the UL 1715 test as shown in the present draft. Evaluation and recoding of test specimen thickness on walls and ceilings is necessary to establish the required thickness for on-site installation.

Committee Action: **Approved as Modified**

Replace proposal as follows: (*Note: Refer to Committee Reason for the modification approved by the Committee.*)

302.4.1 Room Corner Fire Tests. The *spray-applied foam plastic* insulation shall be qualified by use of one of the room corner fire tests specified in Sections 302.4.1.1, 302.4.1.2, 302.4.1.3 or 302.4.1.4. The testing shall be performed on *spray-applied foam plastic* insulation at the maximum thickness and density intended for use.

Placement of the gas burner or wood crib under this section shall comply with the maximum average measured distance between the burner or crib as shown in Figure 1.

Committee Reason: The committee modification retains the proponent's first sentence which adds language on the burner or crib placement that provides clarification necessary for running the fire test. The balance of the original proposal was not included in the modification based on a lack of technical justification to support the need for additional thermocouples and additional thickness measurements. The proponent also failed to establish that the current requirements were technically insufficient.

IS-FPI 28-17
ICC 1100-20XX Section 302.4.1.2.2

Proponent: John Stahl

Stahl 07 302.4.1.2.2

Delete as follows:

~~**302.4.1.2.2 Burner or wood crib placement.** Placement of the burner or wood crib shall be in accordance with UL 1715, with the measured distance between the burner or crib and the interior surface of the assembly as described in Figure 1.~~

Reason: This section no longer needed since information relocated to Section 302.4.1.

Committee Action: **Approved as Submitted**

Committee Reason: Based on the committee action taken on IS-FPI 27-17 this text is no longer necessary.

IS-FPI 29-17
ICC 1100-20XX 302.4.1.2.1.1

Proponent: Roger Morrison

Morrison 15 302.4.1.2.1.1

General Comment:

302.4.1.2.1.1 Visual documentation. Visual documentation (movies, videotapes) of the smoke generated during the room test. Where a high level of smoke is generated during the test, the spray-applied foam plastic insulation will be considered to fail the test.

Reason: Who make the determination of “high level of smoke”? Test lab? Code official? Product manufacturer?

Committee Action: None – Withdrawn by Proponent.

IS-FPI 30-17
ICC 1100-20XX Section 302.4.1.2.1.1

Proponent: Roger Morrison

Morrison 16 302.4.1.2.1.1

Revise as follows:

302.4.1.2.1.1 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.~~Visual documentation (movies, videotapes) of the smoke generated during the room test.~~ Where a high level of smoke is generated during the test, the spray-applied foam plastic insulation will be considered to fail the test.

~~**302.4.1.2.1.2 Protocol for Video Recording.** Video recording of the UL 1715 test shall comply with the requirements of Sections 302.4.1.2.1.2.1 and 302.4.1.2.1.2.2~~

~~**302.4.1.2.1.2.1 Lighting.** 300-watt flood-type, quartz halogen lamp shall be positioned in the corner diametrically opposite the crib, near the floor level. The lamp shall be aimed at the wall corner/ceiling intersection above the crib or burner.~~

~~**302.4.1.2.1.2.2 Video equipment and documentation.** A video camera with a mechanically adjustable iris, adjusted to prevent automatic closing of the iris opening due to brightness of the fire (at least 50 percent open), shall be used. A video monitor shall be used to determine when adjustments and compensation for the brightness of the ignition flames are needed. The camera mount shall be adjusted so that the camera lens is approximately 3 feet (914 mm) from the floor. The camera angle and magnification shall be adjusted until the top of the doorway and the top of the crib or burner are visible and the ceiling area directly above the fire is in full view.~~

~~A clock or timer depicting "real time" shall be included in all videos and shall be clearly seen throughout the test period. For the UL 1715 test, the start of the test shall be when the alcohol-soaked excelsior is ignited.~~

~~Immediately prior to ignition of the crib or burner, the date and laboratory test report identification number shall be filmed.~~

Reason: Simplifies procedure without sacrificing information.

Committee Action: **Approved as Submitted**

Committee Reason: The proposed revision provides clarification and removes archaic requirements. Also, UL 1715 has documented procedures for video documentation.

IS-FPI 31-17

ICC 1100-20XX Table 302.4.1.2.1, Figure 1

Proponent: Roger Morrison

Morrison 17 Figure 1

Revise as follows:

Revise figure to read as follows: “12” x 12“ ~~gas burner~~wood crib”

Reason: UL 1715 uses a wood crib, not a gas burner as indicated in figure.

Committee Action: None – Withdrawn by Proponent.

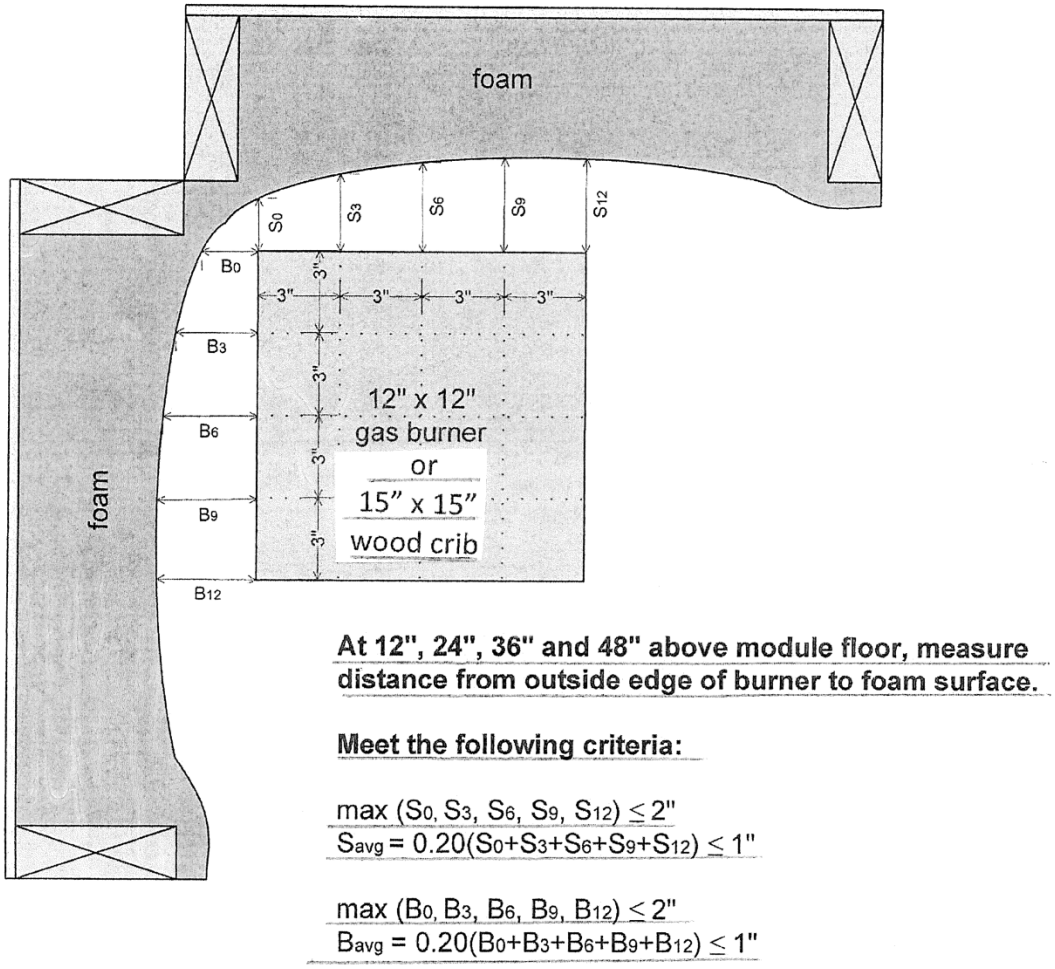
IS-FPI 32-17
ICC 1100-20XX Section 302.4.1.2.2, Figure 1

Proponent: John Stahl

Stahl 08 Figure 1

Revise as follows:

Revise Figure 1 as shown:



~~Figure 3- Measurement points for burner spacing from foam~~

FIGURE 1- MEASUREMENT POINTS FOR BURNER AND CRIB SPACING FROM FOAM

Reason: The revision adds the wood crib and maximum distance criteria which is missing in the present draft. Required maximum average distances between the wood crib or gas burner and interior surfaces of the assembly are critical to having repeatability and accuracy in the room corner tests. Such requirement should be applicable to both types of ignition sources.

Committee Action: **Approved as Submitted**

Committee Reason: The proposal corrects an editorial error in the Figure and results in the Figure now corresponding with the text in the standards.

IS-FPI 33-17
ICC 1100-20XX Table 302.5.1.2.1

Proponent: Roger Morrison

Morrison 18 302.5.1.2.1

Revise as follows:

302.5.1.2.1 Ignition Source. The standard gas burner shall be used. The burner shall be positioned such that it is in contact with both sidewalls in the test corner of the fire test room as indicated in Figure 1~~2~~.

Reason: Incorrect Figure is referenced.

Committee Action: **Approved as Submitted**

Committee Reason: The proposal is an editorial revision that provides reference to the correct figure.

IS-FPI 34-17
ICC 1100-20XX Section 302.5.1.2.2.2

Proponent: Roger Morrison

Morrison 19 302.5.1.2.2.2

Revise as follows:

302.5.1.2.2.2 Configuration B. When Configuration B is used, the three walls of the test room without the doorway shall be constructed with wood studs sized to the same depth as the test specimen, 93 inches (2362 mm) high, 24 inches (610 mm) on center with a single top and bottom plate, as shown in Figure 2. The exterior side of the walls shall be covered with one layer of $^5/_8$-inch-thick (15.9 mm), Type X gypsum wallboard. The *spray-applied foam plastic* insulation shall be sprayed to fill each stud cavity and be continuous from the bottom plate to the top plate and from stud to stud. The ceiling of the test room shall be constructed as shown in Figure 3~~1~~. The ceiling shall consist of wood joists sized to the same depth as the test specimen at 24 inches (610 mm) on center. A total of five joists shall be used and they shall run parallel with the 12-foot length (3.6 m) of the test room (front to back). The two outboard joists shall rest on the top plates of the walls. The exterior side of the ceiling shall be covered with one layer of $^5/_8$-inch-thick (15.9 mm), Type X gypsum wallboard. The *spray-applied foam plastic* insulation shall be sprayed to fill each joist cavity and will be continuous from the front to the back and from joist to joist. If a coating is used over the foam, it shall be applied to both the walls and the ceiling at the same minimum thickness or coverage rate intended for use.

Reason: Incorrect Figure is referenced.

Committee Action: None – Withdrawn by Proponent. (Staff to make editorial correction noted.)

IS-FPI 35-17
ICC 1100-20XX Section 302.5.2.2.2

Proponent: Roger Morrison

Morrison 20 302.5.2.2.2

Revise as follows:

302.5.2.2.2 Test Method B. When Test Method B is used, testing shall be performed in accordance with Section 302.5.2.2.2.1 (Option 1) or Section 302.5.2.2.2.2 (Option 2).

Reason: Missing parenthesis.

Committee Action: None – Withdrawn by Proponent. (Staff to make editorial correction noted.)

IS-FPI 36-17
ICC 1100-20XX Section 302.6.3

Proponent: Roger Morrison

Morrison 21 302.6.3

Revise as follows:

302.6.3 Ignition Properties. When required by the IBC, the~~The~~ ignition properties for the *spray-applied foam plastic* shall be determined by testing performed in accordance with NFPA 268.

Reason: Provided consistency with the building code (ignition properties are not always required).

Committee Action: **Approved as Modified**

Replace proposal as follows: (*Note: Refer to Committee Reason for the modification approved by the Committee.*)

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

Committee Reason: The committee modification does not include a reference to the IBC since it is already stated in the scope of Section 302.6. The committee agreed that the addition of 'When required' is appropriate to allow for those conditions under the IBC where NFPA 268 may not be required.

IS-FPI 37-17
ICC 1100-20XX Section 302.6.4

Proponent: Roger Morrison

Morrison 22 302.6.4

Delete as follows:

~~**302.6.4 Full-scale Corner Fire Tests.** Full-scale corner tests conducted for nonbearing wall panels, incorporating *spray-applied foam plastic* insulation, shall be based on FM 4880 or UL 1040. Assemblies justified only by full-scale corner tests are limited to use in areas with a minimum clear ceiling height of 20 feet (6096 mm).~~

Reason: Please provide information on where this is required by the IBC 2603.5.

Committee Action: **Approved as Submitted**

Committee Reason: The proposal deletes reference to testing that is not required under the IBC for qualification for use in walls of Types I – IV construction.

IS-FPI 38-17
ICC 1100-20XX Section 302.6.4

Proponent: John Stahl

Stahl 09 302.6.4

Delete as follows:

~~**302.6.4 Full-scale Corner Fire Tests.** Full-scale corner tests conducted for nonbearing wall panels, incorporating *spray-applied foam plastic* insulation, shall be based on FM 4880 or UL 1040. Assemblies justified only by full-scale corner tests are limited to use in areas with a minimum clear ceiling height of 20 feet (6096 mm).~~

Reason: The two referenced tests in this section evaluate the fire performance on the interior side of exterior wall assemblies and are not applicable nor shown in IBC Section 2603.5 which is concerned with fires that may propagate on the exterior side of exterior wall assemblies in Types I, II, III and IV Construction Types. Consequently, this section should be deleted.

Committee Action: None – Withdrawn by Proponent.

IS-FPI 39-17
ICC 1100-20XX Section 302.8

Proponent: Roger Morrison

Morrison 23 302.8

Revise as follows:

302.8 Use in Roofing Applications. Where the *spray-applied foam plastic* insulation is intended for use in roofing applications, the testing specified in Sections 302.8.1 through Section 302.8.3 shall be performed.

Reason: Uses language consistent with the definitions.

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved based on the Proponent's reason statement.

IS-FPI 40-17
ICC 1100-20XX Section 302.8.1

Proponent: Roger Morrison

Morrison 24 302.8.1

Revise as follows:

302.8.1 Physical Properties. *Spray-applied foam plastic* insulation used in roofing applications shall comply with the physical property requirements in Table 1~~2~~ or ASTM C1029, Type III or IV, or ASTM D7425 under the International Residential Code. ~~ASTM D7425 may be used for compliance under the International Residential Code.~~

Reason:
1. Table number is incorrect
2. Last sentence seems to be redundant.

Committee Action: None – Withdrawn by Proponent.

IS-FPI 41-17
ICC 1100-20XX Section 303.1.2, 303.1.2.1

Proponent: Michael D. Fischer

Fischer 05 303.1.2

Revise as follows:

303.1.2 ~~Thermal Barrier~~Wall and Floor Installation Requirements: Installation of *Spray-applied foam plastic* insulation in wall and floor applications shall be separated from the interior of the building ~~by a *thermal barrier* ~~as set forth in Section 2603.4 of the International Building Code, Section R316.4 of the International Residential Code, as applicable, except when qualified in accordance with Section 302.4.1.

303.1.2.1 Use in Roofing ~~Thermal Barrier~~ Requirements. Installation of spray-applied foam plastic insulation in roofing applications shall be separated from the interior of the building ~~by a thermal barrier~~ as set forth in Section 2603.4 of the International Building Code or Section R316.4 of the International Residential Code, as applicable. For application to the exterior of metal roof decks, acceptable separation from the building interior is not prohibited when the roof assembly is tested in accordance with UL 1256 or NFPA 276.

Reason: The thermal barrier is not always required, the listed code sections have exceptions.

Committee Action: **Approved as Modified**

Replace proposal as follows: (*Note: Refer to Committee Reason for the modification approved by the Committee.*)

303.1.2 ~~Thermal Barrier~~Wall and Floor Installation Thermal Barrier Requirements: Installation of *Spray-applied foam plastic* insulation in wall and floor applications shall be separated from the interior of the building ~~by a *thermal barrier* ~~as set forth in Section 2603.4 of the International Building Code, Section R316.4 of the International Residential Code, as applicable, except when qualified in accordance with Section 302.4~~.1~~.

303.1.2.1 ~~Use in~~ Roofing Application Thermal Barrier Requirements. Installation of *spray-applied foam plastic* insulation in roofing applications shall be separated from the interior of the building ~~by a thermal barrier~~ as set forth in Section 2603.4 of the International Building Code or Section R316.4 of the International Residential Code, as applicable. For application to the exterior of metal roof decks, acceptable separation from the building interior is not prohibited when the roof assembly is tested in accordance with UL 1256 or NFPA 276.

Committee Reason: The committee agreed that the proposal, as shown with the modified section titles, provides clarification of thermal barrier requirements of the standard based on spray foam use and recognizes that there are exceptions in the codes to the requirement for installation of a thermal barrier.

IS-FPI 42-17
ICC 1100-20XX Section 302.8.1

Proponent: Roger Morrison

Morrison 25 303.2.1

Revise as follows:

303.1.2.1 Use in Roofing Applications: Thermal Barrier Requirements. Installation of spray-applied foam plastic insulation in roofing applications shall be separated from the interior of the building by a thermal barrier as set forth in Section 2603.4 of the International Building Code or Section R316.4 of the International Residential Code, as applicable. For application to the exterior of metal roof decks the thermal barrier may be omitted~~, acceptable separation from the building interior is not prohibited~~ when the roof assembly is tested in accordance with UL 1256 or NFPA 276.

Reason: Clarification.

Committee Action: None – Withdrawn by Proponent.

IS-FPI 43-17
ICC 1100-20XX New Section

Proponent: Jodi Thomas

Thomas 04 New Section

General Comment:

Comment: Add new Quality Control Chapter (AC10)

Reason: The standard does not address the need for quality control per ICC-ES Acceptance Criteria for Quality Documentation (AC10). There are also no requirements for inspection by ISO 17020 agencies or testing at ISO 17025 labs.

Committee Action: **Disapproved**

Committee Reason: The comment submitted by the proponent requested the inclusion of language that is related to certification and listing agency program requirements. The committee disapproval was because it was felt that these types of requirements aren't applicable for inclusion in a referenced standard that addresses material property and installation requirements.

IS-FPI 44-17 (New Comment)
ICC 1100-20XX Section 302.5.1.1

Proponent: Roger Morrison

Morrison 24 Section 302.5.1.1

General Comment:

Comment: Revise Section 302.5.1.1 as follows:

302.5.1.1 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 ~~it~~ shall be qualified by testing as set forth in either Section 302.5.1.2 (Test Method A) or 302.5.1.3 (Test Method B). Assemblies tested in accordance with Section 302.5.1.2 or 302.5.1.3 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: Incorporates the defined term 'all construction planes' in the attic and crawl space test requirements and provides clarity on where the spray foam may be installed based upon testing performed in accordance with this section.

Committee Action: **Approved as Submitted**

Committee Reason: The proposed revisions provide clarity to the standard and incorporate language related to the definitions that were added based on committee action on IS-FPI 05-17. The proposal also Incorporates reference to 'all construction planes' for clarity on where spray foam may be used based on qualification testing.

IS-FPI 45-17 (New Comment)
ICC 1100-20XX Sections 202, 302.2 and 302.8

Proponent: Eric Banks

Banks 01 Section 202

General Comment:

Comment: Add new definition to Section 202, revise definition of 'Roofing Applications', add titles to Sections 302.2 and 302.8. Renumber sections accordingly based on inclusion of titles.

SECTION 202
DEFINED TERMS

INSULATION APPLICATIONS. Insulation applications are those applications where the *spray-applied foam plastic* insulation is applied on or in building elements or construction assemblies which are not roofing applications.

ROOFING APPLICATIONS. Roofing applications are those applications wherein the *spray-applied foam plastic* insulation is applied to the exterior of a roof deck as a component of a roof assembly ~~covering~~.

302.2 Insulation Applications

302.2.1 Surface-Burning Characteristics Tests.

(Subsequent sections to be renumbered)

302.~~8~~3 Roofing Applications

302.3 Use in Roofing.

(Subsequent sections to be renumbered)

Reason: Proposed revision provides clarity in helping clearly delineate what requirements of the standard are applicable based upon the intended use of the spray foam. Addition of 'Insulation Applications' provides a parallel to 'Roofing Applications'.

Committee Action: **Approved as Submitted**

Committee Reason: The proposal provides clarity by defining what requirements are applicable based upon the intended end-use of the spray foam.