

Bayer MaterialScience



May 19, 2009

Mr. Michael Beaton, P.E.
Senior Vice-President
ICC Evaluation Services, Inc.
5360 Workman Mill Road
Whittier, CA 90601

Re: Comments on ICC ES Hearing Subject AC377-0609-R2 (SF/MB)

Dear Mr. Beaton:

Thank you and the ICC ES for the opportunity to provide comments on the proposed changes to AC377. Bayer MaterialScience is a raw material supplier to the foam insulation industry, a spray foam systems supplier with the Bayseal brand, and holder of two ES reports based on AC377.

Bayer MaterialScience LLC
100 Bayer Road
Pittsburgh, PA 15205-9741
Phone: 412 777-2000

First, we support the Spray Polyurethane Foam Alliance (SPFA) proposal to revise AC377. We oppose any attempt to delay implementation of this foam plastic industry-wide supported initiative to meet code intent and ensure proper product qualification and use.

Our comments on the ICC ES proposed revision items follow:

1. We support the SPFA proposal to revise AC377 and identify the addition of a new test protocol described in Appendix X.
2. We support SPFA's suggested revision to the ICC ES proposed wording added to Appendix A that states: "The installed coverage rate or thickness of coatings or coverings, if part of the insulation system, shall be equal to or greater than that which was tested."
3. We support the deletion of Appendix B. We encourage ICC ES to follow through on their plans stated last June to ensure that after January 1, 2010 no ESRs will exist that are based on a comparison to non-code compliant installation of Kraft faced fiberglass material.
4. We support the SPFA proposal to revise AC 377 with the addition of Appendix X.

Mr. Michael Beaton, P.E.
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In addition to the listed revision items, ICC ES has proposed to delete the entire Section A1.0 with an effective deletion date of June 1, 2010. We disagree and instead support SPFA's proposal to delete Section A1.2.2, the generic comparative room corner tests, from Appendix A. This change should become effective as soon as possible. If ICC ES decides not to remove Section A1.2.2 immediately, we support adding SPFA's proposed wording that will allow industry to take advantage of the SPFA research program's findings and help eliminate ambiguity in the testing and interpretation of results. These changes include specifications for the distance from the ignition source to the uneven, irregular spray foam surface, and the requirements that both walls and ceilings in the room test contain the test material and, if used, a coating must be applied to both the walls and ceilings at the same thickness. This last requirement will enable acceptance for use in attics with ceilings of any slope. However, the option to test only the horizontal ceiling can remain, if additional requirements for product use are spelled out in the ESR. Specifically, use can only be on a non-sloped, horizontal ceiling, at a minimum height of the ceiling tested above the floor surface. As others have stated, taking the underside of the roof deck out of the equation (by allowing the horizontal ceiling in the generic comparative room corner tests to be equated to a sloped roof extending to the floor in practice) is a disservice to fire experts, the industry, ICC ES, and the general public.

There is a responsibility to ensure that ambiguity is not introduced into the ESR. To this end, we support the separation of attics and crawl spaces into two distinct sections in AC377 and in ESRs. In addition, ambiguity that exists from allowing the use of generic comparative tests can be removed by implementing specific guidelines and product use criteria as mentioned previously. Currently, of the nineteen ESRs for SPF use in attic or crawl space applications listed on the ICC-ES website, four do not require coating on the underside of the roof deck of any slope, but do require coating on the vertical surfaces, and another four are written giving the option to either coat all or none of the foam surfaces. The SPFA-proposed Appendix X helps to reduce this ambiguity.

We recommend that ICC-ES write a public letter to help building code officials interpret these ambiguous ESRs until changes to AC377 become effective to eliminate these ambiguities.

Respectfully,



Michael Blaszkiewicz
Bayer MaterialScience LLC



Renee M. Zierden
BaySystems
Spray Insulation & Roofing Materials



Mr. Michael Beaton
ICC Evaluation Service
5360 Workman Mill Road
Whittier, California 90601

May 18, 2009

Public Comment regarding AC-377

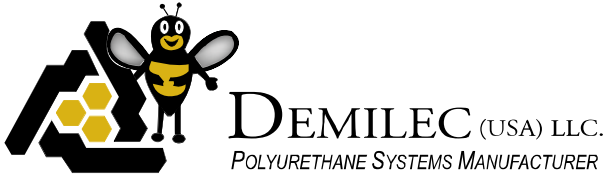
Dear Mr. Beaton:

Demilec USA, LLC appreciates the opportunity to have been a major supporter of the work done by the Attic and Crawlspace Task Force of the Spray Polyurethane Foam Alliance, and we understand the quality and quantity of work that was done in a very short time. As with any committee work, this was a series of compromises, most of which were ultimately beneficial to our industry, but there are a few areas that we believe would be better handled differently than SPFA is recommending.

As an ICC-ES report holder of both ESR 1172 and ESR 2600, we have worked with your staff in the past to prepare and present our test documents for evaluation, and we have found your staff engineers to be fair and professional in their decisions. ICC is not obliged to allow all tests presented by an applicant to be reviewed and included in the ESR as some of the Task Force members would imply. Instead, a group of engineers review each application and agree on the test data that is permissible and write the appropriate language in the report. In this manner the ESR's have slowly evolved and have become more specific to defined applications over the years. As AC-377 has changed, so have the ESR's. This has been a methodical and natural progression.

Demilec is agreeable to adopting Appendix "X" as presented by SPFA as an option for listing, but we ask that Appendix A be kept intact until June of 2010. This will allow the industry and individual companies to better prepare for the wholesale changes ahead and it will allow us to explore some alternatives to Appendix "X" if further testing warrants. We lived with the SWRI 99-02 for 8 years before adopting Appendix A last June, and we feel that at least one full year with Appendix A as an option in AC-377 is appropriate. From June of 2009 to June of 2010, any company who so chooses could also test to Appendix "X" if they wish to.

During the coming year Demilec will continue to be involved with the Attic and Crawlspace Task Force and we will support some very interesting testing of foam on horizontal surfaces in an attempt to finally resolve that question. We will also work with all other interested parties to demonstrate the dynamics of a true unvented attic in the event of a realistic attic fire. We expect the unvented



assembly to dramatically outperform traditionally vented, wood-framed attic assemblies. Fire marshals across the West are begging for construction methods that stop embers from entering attics and of course our assembly with spray foam insulation applied to the underside of the roofdeck solves their problem. Driving rain is the issue in the Southeast and drifting “spindle” snow is a problem in the far North. Unvented attics work well in many ways so it’s important that we not impose unnecessary restrictions on the application of the spray foam that allows the assembly to work.

We thank you again for receiving our comments and for including them in your decision to retain Appendix A at least until June of 2010.

Sincerely,

Dave Lall
Vice President and General Manager
Demilec (USA), LLC

SPRAY POLYURETHANE FOAM ALLIANCE

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Mr. Michael Beaton
Vice-President, Whittier Operations
ICC-Evaluation Service
5360 Workman Mill Road
Whittier, California 90601

May 19, 2009

Subject: SPFA Comments on Proposed Modification to ICC AC-377 dated April 30, 2009

Dear Mr. Beaton:

On behalf of the Spray Polyurethane Foam Alliance, I am submitting the attached document containing SPFA's public comments on ICC-ES proposed changes to AC-377, posted on April 30, 2009.

This document suggests 16 itemized revisions, along with supporting rationale for each change. In addition, it provides two updated figures to better define the foam surface profile and thickness measurement for the test module.

SPFA would also like to re-iterate its opposition to any delay of implementation and its support of the removal of Appendix B as planned by ICC-ES. After January 1, 2010, ICC-ES should no longer accept tests using the Appendix A comparative attic test and that after June 1, 2010 reports must be based upon Appendix A, Section A1.1 or the new attic test procedure described in Appendix X.

If you have any questions on the above, please contact me to discuss.

Sincerely,

Richard S. Duncan, Ph.D., P.E.
Technical Director, SPFA

cc: Si Farvardan, ICC-ES

SPFA Comments to AC 377

The following are SPFA's comments to ICC-ES' proposed revisions to AC 377, dated April 30, 2009.

Item 1

Comment – Revise Notice to read: Requirements of Section ~~A1.0~~ A1.2.2 will be effective until ~~June~~ January 1, 2010. After that date, compliance with Section A1.0, A2.0 or Appendix X will be required.

Reason – SPFA feels that this date is more appropriate and that it fits in with ICC-ES plans from June 2008 to ensure compliance with Appendix A by January 1, 2010. The ICC-ES plan required any additional testing be completed and data be submitted to ICC-ES by June 1, 2009. Originally, SPFA recommended that the date to eliminate the “generic comparative attic test” be immediate, however, SPFA is willing to accept some extension of time to January 1, 2010 as this was the date set by ICC-ES to revise these evaluation reports. Also, need to retain Section A1.0. See comments on Item 3 below.

Item 2

Comment – Section A1.1 through A1.2.1.1 should remain.

Reason - This section describes testing using the standard Code allowed manner of qualifying foam plastics for use without a thermal barrier or ignition barrier. This needs to remain as one type of test to qualify foam plastic or an assembly of foam plastic and a covering to be used.

Item 3

Comment – Section A1.2.1 - Title should read: “For use on Walls or Floors of Attics or the Underside of Roof Decks of Attics.”

Reason – Clarifies the use of this section.

Item 4

Comment – Section A1.2.1.1 d. – Revise to read: The installed coverage rate or thickness of coatings or coverings, if part of the insulation system, shall be equal to or greater than that which was tested.

Reason: The procedure in Appendix A is not specific to coatings. The proposed language makes these sections more inclusive and clear.

Item 5

Comment – Section A1.2.2 – Revise to read:

A1.2.2 For Use on Walls or Floors of Attics or the Underside of the Roof Deck of Attics:

Comparative room corner fire tests shall be conducted in accordance with the test procedures of UBC Standard 26-3 or UL 1715 or NFPA 286. The foam plastic insulation shall be applied in the manner, thickness and density for which recognition is sought. During the installation of the SPF, care shall be taken to provide as smooth a surface as possible especially in the wall areas adjacent to, as well as, above the flame source. For testing on walls, the maximum deviations of the distance between the flame source and the foam surface are described in Appendix X, Figure 3. If approval is sought for underside of roof deck only, approval will be granted only for use on horizontal surfaces at heights equal to or greater than ceiling height as tested. If a covering is used over the foam, it shall be applied at the same thickness or minimum coverage rate to all foam surfaces. The interior face of the control assembly shall consist of nominal 1/4-inch-thick, A-C or B-C plywood applied to the interior face of wood wall framing (plywood is permitted by UBC Section 2602.4, Exception 4, IBC Section 2603.4.1.6 and IRC Section R314.5.3 as a protective material for foam plastic located in attics.) The exterior face shall be covered with 3/8-inch thick exterior plywood. The second test assembly shall be identical, but without plywood on the interior face of the wall. Conditions of acceptance shall consider the time-to-failure of the control test assembly, as evidenced by flashover, which is flame exiting the door opening. The second test assembly with exposed foam plastic shall be tested for at least the same length of time. A successful comparison is based on no flashover of the second assembly within the time-to-failure of the control test assembly.

Reason – Revisions address testing issues noted in the development of Appendix X. Also, provides clarification of use of the test.

Item 6

Comment – Section A1.2.2.1g – Revise to read: The installed coverage rate or thickness of coatings or coverings, if part of the insulation system, shall be equal to or greater than that which was tested.

Reason – See Item 5 above.

Item 7

Comment – Section A2.2.1.1 d – Revise to read: The installed coverage rate or thickness of coatings or coverings, if part of the insulation system, shall be equal to or greater than that which was tested.

Reason – See Item 5 above.

Item 8

Comment – Revise Section A2.2.2 to read: For use onapproved ignition barrier. The interior face of the control assembly shall consist of nominal ¼ -inch-thick A-C or B-C plywood applied to the interior face of wood wall framing and over the foam plastic insulation (plywood.....plywood).

Reason – Clarifies that the plywood is installed over the foam plastic insulation and not an empty cavity or other substrate.

Item 9

Comment – Section A2.2.2.1 d – Revise to read: The installed coverage rate or thickness of coatings or coverings, if part of the insulation system, shall be equal to or greater than that which was tested.

Reason – See Item 5 above.

Item 10

Comment - Section X2.2.1 g – Revise to read: The installed coverage rate or thickness of coatings or coverings, if part of the insulation system, shall be equal to or greater than that which was tested.

Reason – See Item 5 above.

Item 11

Comment - Section X2.2.2 g – Revise to read: The installed coverage rate or thickness of coatings or coverings, if part of the insulation system, shall be equal to or greater than that which was tested.

Reason – See Item 5 above.

Item 12

Comment – Appendix X – use revised Figures 1 and 2 that are attached.

Reason – Clarifies actual dimension of lumber.

Item 13

Comment – Appendix C, Section C4.0, 2 – Revise to read:

The following two criteria shall be measured and reported:

1. Time to flames emerging from the front of the crawl space.
2. Time to burn-through of the floor/deck system. If this criterion is not reached prior to laboratory personnel ending the test, the time at which the test was ended and reason for ending the test shall be reported.

Item 14

In Section A1.2.1 add new sentences at the end of the paragraph to read: "During the installation of the SPF, care shall be taken to provide as smooth a surface as possible especially in the wall areas adjacent to, as well as, above the flame source. For testing on walls, the maximum deviations of the distance between the flame source and the foam surface are described in Appendix X, Figure 3. If a covering is used over the foam, it shall be applied at the same thickness or minimum coverage rate to all foam surfaces."

Reason – See Item 5 above.

Item 15

Revise 1st sentence in Section A1.2.3 to read: "The maximum thickness of foam plastic applied on either the walls or the ceiling for the test methods..."

Reason – See Item 5 above.

Item 16

Revise 1st sentence of Section X2.3 as: "The maximum thickness of foam plastic applied to either the walls or the ceiling for the test outlined ..."

Reason – See Item 5 above.

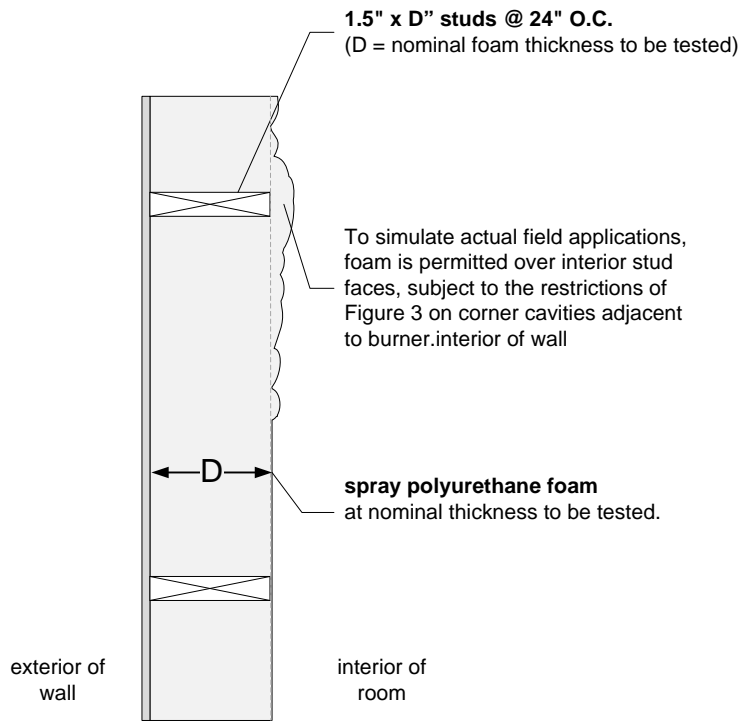


Figure 1 (revised 5-11-09)

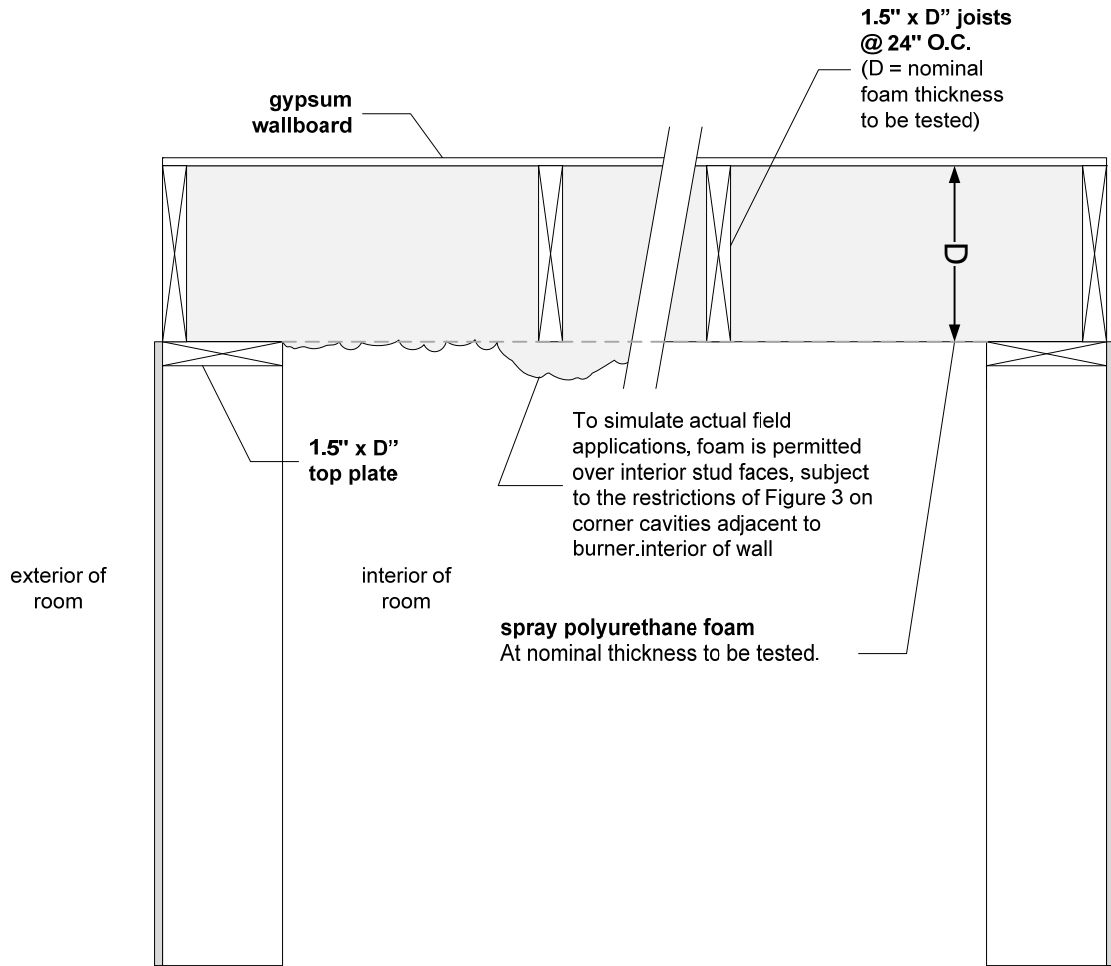


Figure 2 (revised 5-11-09)



May 18, 2009

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Mr. Si Farvardin
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SUBJECT: Proposed Revisions to the Acceptance Criteria for Spray-applied Foam Plastic Insulation, Subject AC377-0609-R2 (SF/MB)

Dear Mr. Beaton and Mr. Farvardin:

Thank you for the opportunity to provide these comments on the ICC Evaluation Services (ICC ES) proposed revisions to the Acceptance Criteria for Spray-applied Foam Plastic Insulation (AC 377). We submit these comments and attached edits on behalf of the Center for the Polyurethanes Industry (CPI) of the American Chemistry Council¹.

There have been nearly two years of discussion within the foam plastic industry regarding proper fire testing to qualify foam plastic insulation use in attics and crawl spaces. In June, 2008, the ICC ES Committee made it clear that Appendix A would go into effect in June 2009. In this time period, the Spray Polyurethane Foam Alliance (SPFA) embarked on the development of a new fire test to qualify use of spray-applied foam plastic insulation in attics and crawl spaces. This test, based upon a modified NFPA 286 (Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth) is a rigorous, technically supported fire test proposed to be incorporated into AC 377 as Appendix X.

CPI supports the inclusion of the SPFA's new fire test method into the standard and does not support further delay on this important issue. Further delays will allow continued use of foam plastic insulation products qualified by a kraft-faced fiberglass baseline in a non-code compliant orientation, i.e., with the kraft facing exposed as now allowed in Appendix B. Additionally, notwithstanding ICC ES's proposal to remove the comparative room corner test in Appendix A by June 1, 2010, CPI strongly suggests that all AC 377 revisions become effective immediately. It should be noted that CPI recommends that the comparative test described in Appendix A 1.2.2 be eliminated immediately. If there is a need to extend the use of this method, then January 1, 2010 should be set as a deadline. If this comparative room corner test is continued for a brief period, then modifications are necessary to ensure the test assembly is properly evaluated.

¹ The Center for the Polyurethanes Industry (CPI) of the American Chemistry Council promotes the sustainable growth of the polyurethane industry, by identifying and managing issues that could impact the industry, in cooperation with user groups. Its members include the nation's leading producers and distributors of chemicals and equipment used to make polyurethane and manufacture polyurethane products. CPI provides a single, strong and credible voice to advocate on behalf of the interests of the U.S. polyurethanes industry. The business of polyurethanes is a \$56.1 billion enterprise, supports about 220,000 jobs and a key element of the nation's economy.

We offer the following five comments, which are further detailed in Attachment 1:

1. CPI supports the proposed revision of AC 377, including the addition of the new Appendix X as a means to qualify spray-applied foam plastic insulation use in attics and crawl spaces. However, the current language in AC 377 Section 3.4.4 which combines attics and crawl spaces is too confusing for a person not intimately familiar with the issue. Furthermore, there is also an Appendix C which applies to Crawl Spaces only, but is not referenced in Section 3.4.4. For this reason, we suggest separating attics and crawl spaces into two sections in the body of AC 377.

Also, the last paragraph in Section 3.4.4 and 3.4.5 should clearly state that tests in Appendix A, C or X may be used to eliminate the ignition barrier altogether OR may be used to qualify alternate foam systems, such as foam insulation covered by a coating or other covering.

2. CPI agrees with the addition of the new sections that address coatings over the spray-applied foam plastic in these applications. We suggest adding the word, "coverings", since coverings, other than coatings may be used. This proposed language would apply to Sections A1.2.1.1 d, A1.2.2.1 g, A2.2.1.1 d and A2.2.2.1 g in Appendix A.
3. CPI strongly supports the deletion of the test method in Appendix B immediately. It is based on a kraft-faced fiberglass baseline in a non-code compliant orientation, and therefore not appropriate for this purpose. The newly proposed Appendix X is a rigorous technically supported means to eliminate the ignition barrier or to qualify foam plastic assemblies with coatings or alternate coverings.
4. CPI supports the addition of Appendix X as a means to eliminate the ignition barrier or to qualify foam plastic assemblies with coatings or alternate coverings. We offer one modification to Section x2.0 to clarify that this test may be used to qualify an alternate foam assembly, such as foam plastic insulation covered by a coating or other covering, **or** elimination of the prescriptive ignition barrier.
5. With regard to the request by a polyurethane manufacturer to change the range of low-density foam plastics from 0.5-1.0 pcf to 0.5-1.4 pcf, AC 377 should clarify which density classification products in the 1.1-1.4 pcf range fall under. CPI requests disclosure of the changes to Table 1 before providing further comments.

We appreciate the opportunity to participate in this important discussion and urge the ICC ES Committee to consider our comments to the proposed revisions to AC 377 with an immediate effective date. Please contact me at (703) 741-5654 or email: Neeva_Candelori@americanchemistry.com if additional information is needed.

Sincerely,



Neeva-Gayle Candelori, Director
ACC Center for the Polyurethanes Industry

Enclosed: Attachment 1

Attachment 1

The following specific comments are provided in response to revisions proposed by ICC ES in its April 30, 2009 letter. These serve to improve the clarification of AC 377.

1. ICC ES says “The Spray Polyurethane Foam Alliance (SPFA) has requested that recognition of a new test method (Appendix X), for use of polyurethane foam plastic in attics and crawl spaces, be incorporated into AC377. Accordingly, Section 3.4.4 has been revised to identify existing recognized test methods and the proposed new test method (i.e., Appendix X), which is based on a modified NFPA 286 test.”

CPI Response:

CPI supports the proposed revision of AC 377, including the addition of the new Appendix X as a means to qualify spray-applied foam plastic insulation use in attics and crawl spaces. However, the current language in AC 377 Section 3.4.4 which combines attics and crawl spaces is too confusing for a person not intimately familiar with the issue. Furthermore, there is also an Appendix C which applies to Crawl Spaces only, but is not referenced in Section 3.4.4. For this reason, we suggest separating attics and crawl spaces into two sections in the body of AC 377.

Also, the last paragraph in Section 3.4.4 and 3.4.5 as shown below should clearly state that tests in Appendix A, C or X may be used to eliminate the ignition barrier altogether OR may be used to qualify alternate foam systems, such as foam insulation covered by a coating or other covering.

CPI’s Proposed Edits:

3.4.4 Spray-applied Foam Plastic Used in Attics and Crawl Spaces: ~~Within an attic or crawl space where entry is made only for service of utilities and where there are no heat-producing appliances, spray-applied foam plastics shall be protected as set forth in IBC Section 2603.4.1.6, IRC Section R314.5.3 or R314.5.4, or Exception 4 of UBC Section 2602.4. Utilities include, but are not limited to, mechanical equipment, electrical wiring, fans, plumbing, gas or electric hot water heaters, and gas or electric furnaces.~~

~~The ignition barrier shall not be required when satisfactory testing is conducted in accordance with either Appendix A or Appendix B.~~

As an alternative, the prescriptive ignition barrier shall not be required when satisfactory testing is conducted with exposed foam plastic insulation or with a foam plastic insulation system, such as foam plastic insulation covered by a coating or other covering, in accordance with either Appendix A1.0 or Appendix X of this criteria.

3.4.5 Spray-applied Foam Plastic Used in Crawl Spaces: Within a crawl space where entry is made only for service of utilities, spray-applied foam plastics shall be protected as set forth in IBC Section 2603.4.1.6, IRC Section R314.5.3 or R314.5.4, or Exception 4 of UBC Section 2602.4. Utilities include, but are not limited to, mechanical equipment, electrical wiring, fans, plumbing, gas or electric hot water heaters, and gas or electric furnaces.

As an alternative, the prescriptive ignition barrier shall not be required when satisfactory testing is conducted with exposed foam plastic insulation or with a foam plastic insulation system, such as foam plastic insulation covered by a coating or other covering, in accordance with either Appendix A 2.0 or Appendix C or Appendix X of this criteria.

CPI also proposes modifications to Section 5.0 EVALUATION REPORT RECOGNITION in order to clearly advise report users, such as code enforcement personnel and designers, on the test conditions that were used to qualify the use of spray-applied foam plastic insulation in attics or crawl spaces. Although these limitations are part of the Appendices, CPI suggests that inclusion of this information on the evaluation report will remedy any confusion as to which test was conducted and the conditions under which elimination of the prescriptive ignition barrier or use of an alternate foam system, such as foam plastic insulation covered by a coating or other covering was justified. This proposed modification includes separate sections for attics and crawl spaces.

~~5.7 When recognition includes installation in attics and crawl spaces, the evaluation report shall state the requirements for ventilation.~~

5.7 Limitations for Attics:

5.7.1 When testing is in accordance with Appendix A 1.2.1, the evaluation report shall include the following limitations:

- a. Attic ventilation is provided in accordance with IBC Section 1203.2 or IRC Section R806 as applicable.
- b. Combustion air is provided in accordance with IMC Sections 701 and 703
- c. The foam plastic insulation is limited to the maximum thickness and density tested.
- d. The installed coverage rate or thickness of coatings or coverings, if part of the insulation system, shall be equal to or greater than that which was tested.
- e. Foam application limitations, if any based on configuration tested, shall be specified (foam on walls only, ceiling only).

5.7.2 When testing is in accordance with Appendix A 1.2.2 or Appendix X, the evaluation report shall include the following limitations:

- a. Entry into the attic space is only for service to utilities and no storage is permitted. Utilities include, but are not limited to, mechanical equipment, electrical wiring, fans, plumbing, gas or electric hot water heaters and gas or electric furnaces.
- a. There are no interconnected attic areas.
- b. Air in the attic space is not circulated to other parts of the building.
- c. Attic ventilation is provided in accordance with IBC Section 1203.2 or IRC Section R806 as applicable.
- d. Combustion air is provided in accordance with IMC Sections 701 and 703.
- e. The foam plastic insulation is limited to the maximum thickness and density tested.
- f. The installed coverage rate or thickness of coatings or coverings, if part of the insulation system, shall be equal to or greater than that which was tested..
- g. Foam application shall be specified.



5.8 Limitations for Crawl Spaces:

5.8.1 When testing is in accordance with Appendix A 2.2.1, the evaluation report shall include the following limitations:

- a. Under-floor (crawl space) ventilation is provided in accordance with IBC Section 1203.2 or IRC Section R806 as applicable.
- b. Combustion air is provided in accordance with IMC Sections 701 and 703.
- c. The foam plastic insulation is limited to the maximum thickness and density tested.
- d. The installed coverage rate or thickness of coatings or coverings, if part of the insulation system, shall be equal to or greater than that which was tested..
- e. Foam application limitations, if any based on configuration tested, shall be specified (foam on walls only, ceiling only).

5.8.2 When testing is in accordance with Appendix A 2.2.2 or Appendix C or Appendix X, the evaluation report shall include the following limitations:

- a. Entry into the crawl space is only for service to utilities and no storage is permitted. Utilities include, but are not limited to, mechanical equipment, electrical wiring, fans, plumbing, gas or electric hot water heaters and gas or electric furnaces.
- b. There are no interconnected crawl space areas.
- c. Air in the crawl space is not circulated to other parts of the building.
- d. Under-floor (crawl space) ventilation is provided in accordance with IBC Section 1203.2 or IRC Section R806 as applicable.
- e. Combustion air is provided in accordance with IMC Sections 701 and 703.
- f. The foam plastic insulation is limited to the maximum thickness and density tested.
- g. The installed coverage rate or thickness of coatings or coverings, if part of the insulation system, shall be equal to or greater than that which was tested..
- h. Foam application limitations, if any based on configuration tested, shall be specified (foam on walls only, ceiling only)

2. **ICC ES says “Add Sections A1.2.1.1 d, A1.2.2.1 g, A2.2.1.1 d and A2.2.2.1 g to Appendix A to cover application of coatings with the foam plastic.”**

CPI Response:

CPI agrees with the addition of the new sections that address coatings over the spray-applied foam plastic in these applications. We suggest adding the word, “coverings”, since coverings, other than coatings may be used. This proposed language would apply to Sections A1.2.1.1 d, A1.2.2.1 g, A2.2.1.1 d and A2.2.2.1 g in Appendix A:

CPI’s Proposed Edits:

The installed coverage rate or thickness of coatings or coverings, if part of the insulation system, shall be equal to or greater than that which was tested.

Additional comments on Appendix A:

CPI does not agree with the proposed deletion of Section A1.0 after June 1, 2010. Section A1.0 contains the IRC and IBC code referenced tests that may be used to qualify foam plastic insulation without a thermal barrier. Furthermore, if Section 1.0 is completely eliminated, Appendix A becomes criteria for Crawl Spaces only. CPI supports the following:

- a. Appendix A 1.0 through A1.2.1.1 should remain in place indefinitely because these tests are specifically allowed in IBC Section 2603.8² and IRC Section R314.6³.
- b. Revise the Title of Section A 1.2.1 because A1.0 applies only to attics.
A1.2.1 For use on Walls or Floors of Attics or the Underside of Roof Decks of Attics; or Walls or Underside of Floors in Crawl Spaces:
- c. Appendix A 1.2.2 should be eliminated immediately. If there is a need to extend the use of this method, then January 1, 2010 should be set as a deadline. If this comparative room corner test is continued for a brief period, then modifications are necessary to ensure the test assembly is properly evaluated. The test should clearly describe test conditions based upon the desired application. For example, if foam is installed on only the ceiling of the test room, then the Evaluation Report should state that application is limited to horizontal ceilings, not sloped ceilings, no higher than 8 feet (the height of the room corner test assembly). Suggested change would be to replace A1.2.2 with the following:

A 1.2.2 For Use on Walls or Floors of Attics or the Underside of the Roof Deck of Attics: Comparative room corner fire tests shall be conducted in accordance with the test procedures of UBC Standard 26-3 or UL 1715 or NFPA 286. The foam plastic insulation shall be applied in the manner, thickness and density for which recognition is sought. During the installation of the SPF, care shall be taken to provide as smooth a surface as possible especially in the wall areas adjacent to, as well as, above the flame source. For testing on walls, the maximum deviations of the distance between the flame source and the foam surface are described in Appendix X, Figure 3. If approval is sought for underside of roof deck only, approval will be granted only for use on horizontal surfaces at heights equal to or greater than ceiling height as tested. If a covering is used over the foam, it shall be applied to any and all foam surfaces at the minimum

²2603.8 Special approval. Foam plastic shall not be required to comply with the requirements of Sections 2603.4 through 2603.7, where specifically approved based on large-scale tests such as, but not limited to, FM 4880, UL 1040, NFPA 286 or UL 1715. Such testing shall be related to the actual end-use configuration and be performed on the finished manufactured foam plastic assembly in the maximum thickness intended for use. Foam plastics that are used as interior finish on the basis of special tests shall also conform to the flame spread requirements of Chapter 8. Assemblies tested shall include seams, joints and other typical details used in the installation of the assembly and shall be tested in the manner intended for use.

³ R314.6 Specific approval. Foam plastic not meeting the requirements of Sections R314.3 through R314.5 shall be specifically approved on the basis of one of the following approved tests: NFPA 286 with the acceptance criteria of Section R315.4, FM4880, UL 1040, or UL 1715, or fire tests related to actual end-use configurations. The specific approval shall be based on the actual end use configuration and shall be performed on the finished foam plastic assembly in the maximum thickness intended for use. Assemblies tested shall included seams, joints and other typical details used in the installation of the assembly and shall be tested in the manner intended for use.



coverage rate intended for use. The interior face of the control assembly shall consist of nominal 1/4-inch-thick, A-C or B-C plywood applied to the interior face of wood wall framing (plywood is permitted by UBC Section 2602.4, Exception 4, IBC Section 2603.4.1.6 and IRC Section R314.5.3 as a protective material for foam plastic located in attics.) The exterior face shall be covered with 3/8-inch thick exterior plywood. The second test assembly shall be identical, but without plywood on the interior face of the wall. Conditions of acceptance shall consider the time-to-failure of the control test assembly, as evidenced by flashover, which is flame exiting the door opening. The second test assembly with exposed foam plastic shall be tested for at least the same length of time. A successful comparison is based on no flashover of the second assembly within the time-to-failure of the control test assembly.

- d. Revision of sections A1.2 and A2.2 of Appendix A is necessary in order to clarify that these tests may be used to qualify an alternate foam assembly, such as foam plastic insulation covered by a coating or other covering, **or** elimination of the prescriptive ignition barrier.

A1.2 As an alternative, the ignition barrier shall not be required when satisfactory testing is conducted **with exposed foam plastic insulation or with a foam plastic insulation system, such as foam plastic insulation covered by a coating or other covering** in accordance with either Section A1.2.1 or Section A1.2.2.

- e. **A2.2 As an alternative**, the ignition barrier shall not be required when satisfactory tests are conducted **with exposed foam plastic insulation or with a foam plastic insulation system, such as foam plastic insulation covered by a coating or other covering** in accordance with either Section 2.2.1 or Section 2.2.2.

A new Section should be added that addresses reporting requirements. The same language may be used for Section A1.3 and Section A2.3 Report.

A 1.3 and A2.3 REPORT

The report shall include:

1. Name and location of facility where test is conducted.
2. A description of the base assembly with emphasis on the foam insulation type, thickness, density, and attachment details. Description of the 1/4" plywood type, brand, and % moisture content.
3. A description of the tested assembly with emphasis on the insulation type, thickness, density, and attachment details. Description of any coverings, if part of the insulation system, including type and nominal thickness (i.e. mils) or application rate (i.e. gallons per 100 square feet) of coating.
4. Photographic and video documentation: pre-test, during (including timing), and post-test.

5. A summary of visual observations including time to flames exiting the module and/or burn through of the sub-floor assembly.
6. Conclusions in the form of a statement of findings summarizing the fire performance of the assembly; and, as appropriate, compared to a baseline test.
7. Signature of a representative engineer or officer of the test facility.

3. ICC ES says “Delete Appendix B of the criteria”

CPI Response:

CPI strongly supports the deletion of the test method in Appendix B immediately. It is based on a kraft-faced fiberglass baseline in a non-code compliant orientation, and therefore not appropriate for this purpose. The newly proposed Appendix X is a rigorous technically supported means to eliminate the ignition barrier or to qualify foam plastic assemblies with coatings or alternate coverings.

4. ICC ES says “Add new Appendix X to include testing in accordance with modified NFPA 286.”

CPI Response:

CPI supports the addition of Appendix X as a means to eliminate the ignition barrier or to qualify foam plastic assemblies with coatings or alternate coverings. We offer one modification to Section x2.0 to clarify that this test may be used to qualify an alternate foam assembly, such as foam plastic insulation covered by a coating or other covering, **or** elimination of the prescriptive ignition barrier.

CPI Proposed Edits:

X2.0 The ignition barrier shall not be required when satisfactory testing with exposed foam plastic insulation or with a foam plastic insulation system, such as foam plastic insulation covered by a coating or other covering is conducted in accordance with the following:

Additionally, a modification to Section X2.1.5 is also suggested to address the use of coverings and coatings:

X2.1.5 Report: The following additional items shall be reported:

- a. Type, description, average thickness and nominal density of the SPF wall and ceiling specimens.
- b. If used as part of the insulation system, the type, description, and nominal thickness (in mils) or application rate (in gallons per 100 square feet) of coating.
- c. If used as part of the insulation system, type, description and minimum thickness of alternate covering
- d. Time recorded for each test parameter from Section X2.1.4 above.
- e. Average of the four time values indicated in Item X2.1.5c.

5. ICC ES says “A polyurethane foam manufacturer has requested changing the range of low-density foam plastics from 0.5 -1.0 pcf to 0.5 to 1.4 pcf. This would facilitate recognition of foam products with nominal core densities between 1.1 and 1.4 pcf. This change will affect Table 1 of the criteria. Comments are requested on this change.”

CPI Response:

AC 377 should clarify which density classification products in the 1.1-1.4 pcf range fall under. CPI requests disclosure of the changes to Table 1 before providing further comments.