

**DOCKETED**

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*Comment Received From: Stephen Wieroniey  
Submitted On: 3/20/2020  
Docket Number: 19-BSTD-03*

**RE Docket No 19-BSTD-03 - 2021 California Title 24 Update Process**

*Additional submitted attachment is included below.*

March xx, 2020

Sent via email to: [docket@energy.ca.gov](mailto:docket@energy.ca.gov)

Payam Bozorgchami  
California Energy Commission  
1516 Ninth Street  
Sacramento CA 95814-5512  
Attn: Payam Bozorgchami

**RE: Docket No 19-BSTD-03 - 2021 California Title 24 Update Process**

Dear Mr. Bozorgchami,

The American Chemistry Council's Spray Foam Coalition<sup>1</sup> (SFC) is pleased to provide the following comments regarding the California Energy Commission's (Commission) Title 24 Update. The SFC champions the use of spray polyurethane foam in North America by promoting its energy efficiency, performance, economic benefits, and contributions to sustainability. The SFC supports the advancement of building energy efficiency through the code and standards development process and looks forward to working with the Commission to update the state's building energy standards. The Coalition is providing these comments to inform the Commission's 2021 Title 24 Part 6 Rulemaking.

SFC respectfully submits the following changes to Joint Appendix JA4:

**Change 1: Update References to ESR Reports and AC 377:**

a. Section JA4.1.7(a)

Alternatively, the total R-value may be calculated based on the thickness of insulation multiplied by the "Tested R-value per inch" as listed in the Table of R-values or R-value Chart from the manufacturer's current code compliance report (CCR), developed by an Approved Agency (as defined in the California Residential Code, Title 24, Part 2.5)-ICC Evaluation Service Report (ESR) that shows compliance with Acceptance Criteria for Spray-Applied Foam Plastic Insulation-AC377 per ICC-1100, Standard for Spray-applied Foam Plastic Insulation, or other applicable standards.

The R-value of the installed insulation shall be based on the verified thickness at an R-value of 5.8 per inch unless a CCR an ESR is provided with compliance documentation that verifies use of other values. Approved compliance software shall make appropriate adjustments to account for the R-value and U-factor effects of the ccSPF assembly.

b. Section JA4.1.7(b)

Alternatively, the total R-value may be calculated based on the thickness of insulation multiplied by the "Tested R-value per inch" as listed in the Table of R-values or R-value Chart from the manufacturer's current code compliance report (CCR), developed by an Approved Agency (as defined in the California Residential Code, Title 24, Part 2.5)-ICC Evaluation Service Report (ESR) that shows compliance with

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<sup>1</sup> The SFC is composed of thirty companies that produce and sell polyurethane spray foam insulation systems and the chemicals and equipment necessary for their use.

~~Acceptance Criteria for Spray Applied Foam Plastic Insulation—AC377 per ICC-1100, Standard for Spray-applied Foam Plastic Insulation, or other applicable standards.~~

The R-value of the installed insulation shall be based on the verified thickness at an R-value of 3.6 per inch unless ~~a CCR an ESR~~ is provided with compliance documentation that verifies use of other values. Approved compliance software shall make appropriate adjustments to account for the R-value and U-factor effects of the ocSPF assembly.

c. Section RA3.5.6.1.1

Alternatively, the total R-value may be calculated based on the thickness of insulation multiplied by the "tested R-value per inch" as listed in the Table of R-values or R-value Chart from the manufacturer's current ~~code compliance report (CCR), developed by an Approved Agency (as defined in the California Residential Code, Title 24, Part 2.5)-ICC Evaluation Service Report (ESR) that shows compliance with Acceptance Criteria for Spray Applied Foam Plastic Insulation—AC377 per ICC-1100, Standard for Spray-applied Foam Plastic Insulation, or other applicable standards.~~

The R-value of the installed insulation shall be based on the verified thickness at an R-value of 5.8 per inch unless ~~a CCR an ESR~~ is provided with compliance documentation that verifies use of other values. Approved compliance software shall make appropriate adjustments to account for the R-value and U-factor effects of the ccSPF assembly.

d. Section RA3.5.6.1.2

Alternatively, the total R-value may be calculated based on the thickness of insulation multiplied by the "tested R-value per inch" as listed in the Table of R-values or R-value Chart from the manufacturer's current ~~code compliance report (CCR), developed by an Approved Agency (as defined in the California Residential Code, Title 24, Part 2.5)-ICC Evaluation Service Report (ESR) that shows compliance with Acceptance Criteria for Spray Applied Foam Plastic Insulation—AC377 per ICC-1100, Standard for Spray-applied Foam Plastic Insulation, or other applicable standards.~~

The R-value of the installed insulation shall be based on the verified thickness at an R-value of 3.6 per inch unless ~~a CCR an ESR~~ is provided with compliance documentation that verifies use of other values. Approved compliance software shall make appropriate adjustments to account for the R-value and U-factor effects of the ocSPF assembly.

e. Section RA3.5.6.1.5

All provisions of Residential Appendix RA2 shall be met. The Insulation Certificates of Installation shall be signed by the SPF applicator stating that the installation is consistent with the Certificate of Compliance, plans and specifications for which the building permit was issued shall be provided. The SPF applicator shall also attach a R-value chart or ~~a CCR an ESR~~ showing compliance with ~~ICC-1100, Standard for Spray-applied Foam Plastic Insulation, or other applicable standards AC377~~ for each SPF insulation material used.

f. Section RA3.5.6.3.2

In attics where entry is made for the service of utilities, SPF shall be protected from ignition in accordance with CBC, Part 2, Section 2603, and Part 2.5, Section R316 or the SPF assembly must have been tested in accordance with ~~ICC-1100, Standard for Spray-applied Foam Plastic Insulation, or other applicable standards ICC Evaluation Service Acceptance Criteria AC377.~~

**Reason Statement:** It is not appropriate to rely on or reference a single code evaluation service, such as ICC-ES. Other qualified service providers are now issuing code compliance reports and additional providers may enter the market in the future.

Additionally, ACC recommends deleting references to ACC 377. The acceptance criteria is being replaced by ICC-1100, Standard for Spray-applied Foam Plastic Insulation, and a second reference standard, IAPMO-1000, is under development. SFC recommends these changes to ensure Title 24 is referencing the appropriate standards.

## Change 2: Update Requirements for Recessed Luminaire

### a. Section RA3.5.6.3(h)

SPF insulation shall not be applied directly to recessed ~~lighting fixtures~~ luminaires unless the recessed ~~fixture~~ luminaire is rated for SPF insulation contact ~~(IC)~~ (SPCL) appropriate for use with polyurethane spray foam in accordance with NEMA LE 7-2015. Recessed ~~light fixtures~~ luminaires not rated for SPF insulation contact ~~(IC)~~ (SPCL) and insulated with SPF insulation shall be separated from the spray foam by a suitable barrier or box as directed in NEMA LSD 57-2018. In a cathedral ceiling installation, where SPF is applied above the luminaire but not encasing it with foam, the luminaire shall have a minimum ½” air space between the two components. ~~protected from ignition by a combination of one or more of the following methods: (1) be covered with a minimum of 1.5 inches of mineral fiber insulation, gypsum or (2) be enclosed in a box fabricated from 1/4 inch plywood, 18 gauge metal, or 3/8 inch hard board or gypboard. The exterior of the box may then be insulated with SPF provided: (1) the SPF insulation is covered with an approved ignition barrier coating tested and supported by an ICC Evaluations Service Report (ESR) or code compliance research report approved by the local agency; or (2) the exposed condition of the SPF insulation is supported by testing with an ESR or research report approved by the local building department.~~

**Reason Statement:** The NEMA reference standards and the International Residential Code (Chapter 40) use the term “luminaire” where JA4 reads “recessed fixture or light fixture.” In order to remain consistent in terminology between the related documents, we suggest substituting the word “luminaire” in place of “fixture or lighting fixture.”

NEMA LSD 57 has guidance for covering IC (non-SPCL) luminaires with SPF. Listing specific materials to use as the barrier between the SPF and the luminaire would imply that only limited materials may be suitable. With the multiple assemblies possible for the combination of SPF and recessed luminaires, attempting to list all possible suitable materials is unreasonable. The requirement for the barrier between the SPF and the luminaire is clear. Recessed luminaires in a cathedral ceiling configuration are a different matter, where the luminaire is attached to the bottom of the rafters. In these configurations, the SPF is sprayed above/behind the fixture. Since the foam is not applied over the luminaire, it does not need to be boxed in. Per section E4004.8 of the IRC, there should be a ½” air space between the luminaire and the foam surface.

## Change 3: Clarify the requirements for SPF in Framed Assemblies

### a. Section JA4.1.7 (a)

**Filling of Framed Assemblies:** ccSPF insulation is not required to fill the cavities of framed assemblies provided the installed thickness of insulation conforms to compliance documentation. The ccSPF shall be applied so the required thickness is fully adhered to the top, side and bottom framing members with no cracks or seams separating the spray foam from the framing. ~~and that the bottom and top plates of vertical framing and both ends of horizontal framing, including band and rim joists, are sprayed to completely fill the cavity adjacent to and in contact with the framing to a distance of 2.0 inches away from the framing for ocSPF insulation, or filled to the thickness meeting ASTM testing as an air barrier.~~

**Air Barrier:** When ccSPF installed as the primary ~~an~~ air barrier of the building assembly, ccSPF shall be a minimum of 2.0 inches in thickness; alternatively, ccSPF insulation shall be installed at a thickness that

meets an air permeance no greater than 0.02 L/s-m<sup>2</sup> at 75 Pa pressure differential when tested in accordance to ASTM E2178 or ASTM E283.

b. Section JA4.1.7 (b)

ocSPF insulation is not required to fill the cavities of framed assemblies provided the installed thickness of insulation conforms to compliance documentation. The ocSPF shall be applied so the required thickness is full adhered to the top, side and bottom framing members with no cracks or seams separating the spray foam from the framing.

**Filling of Framed Assemblies:** ocSPF insulation ~~is not required to shall~~ completely fill the cavities of framed assemblies provided the installed thickness of insulation conforms to the compliance documentation. 2x4 inch framing or less. The ocSPF shall be applied so the required thickness is fully adhered to the top, side and bottom framing members with no cracks or seams separating the spray foam from the framing. R-value used for compliance provided that the bottom and top plates of vertical framing and both ends of horizontal framing, including band and rim joists, are sprayed to completely fill the cavity adjacent to and in contact with the framing to a distance of 5.5 inches thick or at away from the framing for ocSPF insulation, or filled to the thickness meeting ASTM testing as an air barrier.

**Reason Statement:**

The requirements for framed assemblies and air barriers are difficult to understand and visualize. The original text states SPF does not need to fill the cavity, then gives thickness requirements or states the thickness must meet the ASTM air barrier thickness. SFC understands the intent of Section JA4.1.7 (a) and Section JA4.1.7 (b) is to require the spray foam to be fully adhered to the framing members to complete an air seal *and* to meet the R-value requirements. SFC's changes help clarify our understanding of the requirements of these sections.

The requirements for air barriers are discussed separately from the requirements for framed assemblies. The air barrier requirements apply when a combination of different insulation materials are installed to achieve the total R-value (hybrid insulation system). In this application, the SPF is installed thick enough to be the air barrier, with a secondary insulation making the remainder of the required R-value. SFC believes these changes clarify the intent of the requirements.

Please feel free to contact me with any additional questions at 202-249-6617 or [stephen\\_wieroniey@americanchemistry.com](mailto:stephen_wieroniey@americanchemistry.com).

Regards,



Stephen Wieroniey  
Director