

BEFORE THE  
FEDERAL TRADE COMMISSION

**R-VALUE RULE (NO. R811001)**

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In Re:

FTC'S PROPOSED RULE: LABELING AND ADVERTISING OF HOME INSULATION:  
TRADE REGULATION RULE

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COMMENTS OF THE  
NORTH AMERICAN INSULATION  
MANUFACTURERS ASSOCIATION

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NORTH AMERICAN INSULATION MANUFACTURERS ASSOCIATION'S ("NAIMA")  
COMMENTS ON THE FEDERAL TRADE COMMISSION'S  
PROPOSED RULE ON LABELING AND ADVERTISING OF HOME INSULATION  
**R-VALUE RULE (NO. R811001)**  
83 Federal Register 2934 (January 22, 2018)

## INTRODUCTION

The North American Insulation Manufacturers Association ("NAIMA") appreciates the opportunity to submit comments on the Federal Trade Commission's ("FTC") proposed amendments (hereinafter the "Proposed Amendments") to its Trade Regulations Rule Concerning the Labeling and Advertising of Home Insulation (herein after the "R-value Rule"). 83 Federal Register 2934 (January 22, 2018).

NAIMA is the trade association of North American manufacturers of fiber glass and mineral wool (rock and slag wool) insulation products. NAIMA promotes the energy efficiency and energy savings achieved through the use of insulation products. NAIMA also frequently represents its members in regulatory matters. NAIMA and most of its members are subject to the requirements of the R-value Rule. Therefore, NAIMA and its members have a particular interest in the FTC's Proposed Amendments.

NAIMA's members include the following fiber glass manufacturers: CertainTeed Corporation; Hollingsworth & Vose; Johns Manville; Knauf Insulation; and Owens Corning. NAIMA's members also include the following mineral wool insulation manufacturers: Aislantes Minerales; American Rockwool; Armstrong World Industries; Industrial Insulation Group ("IIG"); Rock Wool Manufacturing; ROCKWOOL; Thermafiber Owens Corning; and USG Interiors, Inc.

As set forth below, NAIMA's comments largely support the FTC's Proposed Amendments and, in some instances, request additional amendments.

## NAIMA'S COMMENTS

### *A. Need for and Costs and Benefits of the Rule*

The FTC succinctly summarizes the commenters' position on the continuing need for the R-value Rule as benefiting "consumers and industry members by combating deceptive and unfair practices, creating a level playing field that promotes competition, helping create a marketplace in which industry can more easily self-regulate. . ." The FTC concludes that "[g]iven these benefits and apparent minimal costs, the Commission has determined to retain the Rule." NAIMA strongly endorses the Commission's decision to retain the R-value Rule.

### *B. Prevalence of Misleading Claims*

NAIMA supports the Commission's plan to promote compliance with the Rule through enforcement and business educational efforts.

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### *C. Coverage*

#### NAIMA Supports Amendments to the Rule Requiring All R-value Claims to be Substantiated by Testing Under the Rule

NAIMA supports the FTC's proposed amendment to the R-value Rule confirming that all R-value claims made for any products marketed to reduce energy use by slowing heat flow in residential buildings must be substantiated by testing set forth in the Rule. This is certainly a step in the right direction, but NAIMA notes that many claims are made not for R-value *per se*, but for general energy savings. Therefore, NAIMA urges the FTC to signal that it will require substantiation for any type of energy savings claim that does not reference R-value. This could be easily done by referencing in the preamble to the final amendments FTC's *Policy Statement Regarding Advertising Substantiation*<sup>1</sup> and reminding manufacturers that competent and reliable scientific evidence is required for substantiation. By requiring substantiation of energy savings claims, the industry can more authoritatively demand substantiation when encountering such claims. For example, the FTC notes that reflective insulation cannot make R-value claims, but energy savings claims must be substantiated by competent and reliable evidence.

NAIMA also supports this requirement because it provides clear notice that R-value claims must be substantiated. NAIMA urges the FTC to impose disclosure and labeling requirements on these non-insulation products that are making R-value or energy savings claims. NAIMA notes a growing number of R-value and energy savings claims for non-insulation products. For example, NAIMA has found numerous claims that paint can purportedly deliver specific R-values. Such prominent name brands as Glidden have marketed paint products as delivering an R-24. It is not uncommon to find ceramic coatings making similar R-value claims. Latex paint and high-reflective paints have also claimed to deliver specific R-values or energy savings. Some claims are being made that paints and coatings can act as insulation without making any specific R-value claims, too. Thermophysical Properties Research Laboratory, Inc. states that thermal conductivity of layers of paint can be measured but that these thermal conductivity values are not R-values.

For the record, NAIMA shares below some specific examples of these questionable claims with links to discussions on advertising or the actual advertising. NAIMA is unaware of any data or other information to substantiate these claims:

- Ceramic Coatings for Increased Insulation ([https://www.google.com/search?q=r-value+for+paint&rlz=1C1OKWM\\_enUS771US771&oq=r-value+for+paint&aqs=chrome..69i57j0l3.14165j0j8&sourceid=chrome&ie=UTF-8](https://www.google.com/search?q=r-value+for+paint&rlz=1C1OKWM_enUS771US771&oq=r-value+for+paint&aqs=chrome..69i57j0l3.14165j0j8&sourceid=chrome&ie=UTF-8))

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<sup>1</sup> (March 11, 1983) Appended to *Thompson Medical Co.*, 104 F.T.C. 648, 839 (1984), *aff'd*, 791 F.2d 189 (D.C. Cir. 1986), *cert. denied*, 479 U.S. 1086 (1987). See, <https://www.ftc.gov/public-statements/1983/03/ftc-policy-statement-regarding-advertising-substantiation>.

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- SuperTherm: MULTICERAMICS™ Insulation coating is a unique one-part coating composed of blend of nano acrylics and resin additives formula. MULTICERAMICS™ provides R equivalent “RE” insulation and great surface finish, it has no VOCs, utilizes different types and sizes of ceramics that block 95% of the sun’s radiant heat visual light, ultra violet rays and infrared rays. (<http://www.supertherm.net/>)
- Synavax: For over a decade, Synavax™ thermal barrier technology has been lowering heating and cooling costs for homes & buildings in all climates and seasons. Customers using this patented technology report saving between 20%-40% on their heating and cooling energy costs. (<https://www.synavax.com/buildings/#>)
- Hy-Tech: “Insulate your Home With A Stroke of a Brush Hy-Tech Insulating Paint & House Paint Additives ...Insulation in a Can!” (<http://www.hytechsales.com/>)
- Glidden: (<https://www.joneakes.com/jons-fixit-database/1809-Is-R-24-paint-for-real>)
- Insulating Paint: ([https://www.google.com/search?rlz=1C1OKWM\\_enUS771US771&q=r+value+paint&sa=X&ved=0ahUKEwjcr6rcko\\_ZAhXk1VQKHXSIAiwQ1QIImQEoBQ&biw=1536&bih=734](https://www.google.com/search?rlz=1C1OKWM_enUS771US771&q=r+value+paint&sa=X&ved=0ahUKEwjcr6rcko_ZAhXk1VQKHXSIAiwQ1QIImQEoBQ&biw=1536&bih=734))

While most industry members widely consider such claims as obviously false and patently absurd, NAIMA understands that some consumers find these claims compelling. NAIMA believes it is deceptive and misleading to make claims that paint or other non-insulation products can deliver 30-55 percent savings on energy bills without being required to have substantiation. Insulation products must substantiate its energy savings claims; that same requirement should be imposed on non-insulation products.

### NAIMA Supports the FTC’s Amendment to Require Products Marketed for Residential Application to be Subject to the R-value Rule

NAIMA appreciates the FTC’s proposal of this amendment. NAIMA fully supports the FTC’s proposed amendment to the Rule to clarify that insulation products marketed for residential application are subject to the Rule’s requirements. The amendment effectively addresses the scenario where products that are developed and marketed initially or primarily for commercial or industrial structures or applications are also being marketed for residential applications. This amendment will effectively clarify that the R-value Rule covers all home insulation products and it also puts industry members on notice that commercial and industrial products marketed to homeowners must comply with the Rule.

NAIMA also supports the Commission’s conclusion that the Rule’s jurisdiction does not extend to those insulation products that are sold solely in the commercial and industrial market.

#### *D. Additional R-value Disclosures*

### NAIMA Supports Additional Fact Sheet Requirements

The FTC proposes changing the Rule’s fact sheet disclosures to require additional information on proper installation of insulation products and the value of home air sealing. Both factors can

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and will impact energy savings derived from installed insulation. While these additional disclosures will increase the scope and size of the fact sheets, NAIMA wholeheartedly supports the Commission's proposal as both factors are important for consumers to understand and will assist them in making insulation choices. Because the existing stock of fact sheets is expansive, NAIMA recommends that to avoid significant waste and unnecessary cost, companies subject to the Rule be allowed two years to exhaust existing stock and take the time to amend and revise fact sheets for a wide variety of products. While some insulation manufacturers have a limited variety of product choices, NAIMA's companies will have a large variety of fact sheets that will require amendments and changes. These factors also support allowing companies at least two years, from the date the final amendments are effective, to comply with the new disclosure requirements.

### NAIMA Supports Additional Disclosures for R-19 Batts

NAIMA supports requiring specific disclosures on R-19 batts. NAIMA believes these disclosures are appropriately made on the fact sheets, not the bag label. This disclosure is necessary because there are incidents where fiber glass building insulation is compressed into a space that is narrower than the thickness advertised on the label. An example would be compressing R-19 insulation typically 6¼" thick into a 2x6 stud cavity that is 5½" deep. When you compress fiber glass batt insulation, the overall R-value goes down because you have fewer inches or less thickness of insulation. NAIMA has addressed this issue fully in the document, "The Facts About Compressing Fiber Glass Insulation."<sup>2</sup> The disclosure on fact sheets could provide alternative R-value rounded to the nearest whole number.

### NAIMA Supports the FTC's Position on Air Infiltration

The FTC has previously declined to address the air infiltration performance of insulation products. As noted in NAIMA's comments on the Advanced Notice of Proposed Rulemaking, insulation plays no major role in blocking total air infiltration in a home. Resistance to air flow is accomplished largely with gypsum board, sheathing, house wrap, and sealing of joints and holes,<sup>3</sup> all of which are typically required by building energy codes. A building – residential or commercial – operates as a system. This system includes the thermal envelope that embodies the outside walls, attic, foundation, and insulation. The thermal envelope is part of a larger system that encompasses the mechanical subsystems such as heating and cooling, hot water, kitchen and bathroom ventilation, and appliances. All these components combine to achieve optimal energy performance. For the building occupants, active elements like the heating and cooling systems and passive elements such as insulation are analogous to the driver, the car and the engine. Without one, the others would be useless. Similarly, none of those components can deliver the desired thermal performance on its own. Therefore, NAIMA strongly supports the FTC's position on air infiltration.

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<sup>2</sup> [https://insulationinstitute.org/wp-content/uploads/2016/08/Compressed\\_R\\_values.pdf](https://insulationinstitute.org/wp-content/uploads/2016/08/Compressed_R_values.pdf).

<sup>3</sup> Joseph Lstiburek, "Air Barriers," BuildingScience.com Research Report – 0403, p. 1 (2004).

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### NAIMA Supports the FTC's Requirement for Online Labels and Fact Sheets

The Commission proposed to amend section 305.14 to clarify that online insulation sellers must post labels and fact sheets for covered insulation products they sell directly to consumers. NAIMA supports this amendment. NAIMA believes that the burden to perform this requirement would be nominal and certainly no different than the burden that all insulation sellers shoulder in order to provide important and essential information to consumers.

#### *E. Aging of Cellular Plastics*

NAIMA supports the FTC's continued requirement for cellular plastic insulation products to be tested for aging. NAIMA also supports the FTC's elimination of the obsolete GSA aging standard. NAIMA offers no comments on various test methods used for testing cellular plastic insulation products.

#### *F. Tolerance, Sampling, and Inspection*

NAIMA appreciates the FTC's consideration of NAIMA's request that ASTM C390 be identified in the Rule as an optional testing method. NAIMA concurs with the FTC's observation that nothing in the Rule prohibits manufacturers from using ASTM C390 to determine a practical level of quality assurance and supports the Commission's decision to not include it in the Rule.

#### *G. Mean Temperature*

NAIMA strongly supports the FTC's decision to not revise the Rule's mean test temperature requirement and not require specific affirmative disclosures for insulation products that may exhibit lower R-values at low temperatures. The FTC effectively defends its position by noting that the range of temperature differences throughout the country renders the possibility of one temperature being sufficiently representative of consumer experiences unlikely. NAIMA also agrees that requiring additional tests would increase the burden on manufacturers without delivering a corresponding benefit to consumers. The FTC correctly notes that advertisers have the option of promoting their products' performance in low temperatures. NAIMA appreciates that the FTC adds the cautionary reminder that claims related to low temperature performance must be truthful and substantiated.

#### *H. Disclosures for Reflective Insulation*

NAIMA supports the FTC's position not to impose additional requirements on reflective insulation. The FTC appropriately notes that the Rule already requires extensive label disclosures for reflective insulation products. NAIMA agrees with the FTC that R-value claims are not appropriate for reflective insulation, just as they are not appropriate for coatings or paints,

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but, as noted above, all such products must have competent and reliable scientific evidence to substantiate any energy savings claims they make.

### *I. Updating Test References*

NAIMA supports the FTC's proposal to update section 460.5 to reflect the most recent version of the ASTM test procedures. NAIMA also supports the FTC's proposal to remove section 460.7 to eliminate automatic updates to the ASTM test procedures. Among numerous advantages, the most relevant is that the removal of section 460.7 will ensure that the Rule provides notice and an opportunity to comment on test updates before they are incorporated into the regulations.

### *J. Fibrous Insulation*

NAIMA supports the FTC's decision to not modify the fact sheet disclosure requirements for compression of air duct insulation by making it applicable to all fibrous insulation.

### *K. Limited Format Disclosures*

NAIMA greatly appreciates the FTC responding favorably to NAIMA's suggestion that required disclosures may be infeasible or impractical for some methods of advertising, such as twitter and mobile sources. NAIMA endorses the FTC's proposal to exempt any "space constrained advertisement" from the disclosure requirement set forth in sections 460.18 and 460.19. This proposal makes sense and is consistent with similar exemptions for radio and television advertisements. Support for the "limited format" statements should be able to be found on the advertiser's website.

### *L. Distribution of Fact Sheets*

NAIMA supports the FTC's current requirements for providing fact sheets to consumers and agrees with the FTC that amendments to sections 460.14 and 460.15 are not necessary.

### *M. Efficiency Claims for New Homes*

NAIMA greatly appreciates the FTC considering NAIMA's suggestion about including energy efficient homes claims in the R-value Rule. NAIMA supports the Commission's decision to not include such claims within the scope of the Rule. The FTC correctly points out that misleading claims in this arena can be challenged pursuant to Section 5 of the FTC Act.

### *N. Acoustic Performance Claims*

NAIMA appreciates the FTC's consideration of NAIMA's suggestion on addressing misleading acoustic performance claims for insulation. NAIMA supports the FTC's decision not to amend the R-value Rule to include acoustic claims and concedes that these false and misleading claims can be effectively pursued under Section 5 of the FTC Act.

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### *O. R-value Per Inch Claims*

NAIMA requested added clarity to the R-value Per Inch Claims largely because of confusion displayed by the Better Business Bureau's National Advertising Division's ("NAD") over claims challenged in an NAD action against a cellulose advertiser. When NAIMA has challenged R-value per inch claims, a common response is that, at least for low density fiber glass batts, the overall R-value increases with additional inches of insulation.<sup>4</sup> NAIMA's counter to this response is always that the increase is typically not linear or, stated another way, it is not typically proportional to the inches added. NAIMA hoped that this ambiguity and confusion would be resolved when a challenge was brought before the NAD. NAIMA challenged a cellulose insulation manufacturer's frequent use of R-value per inch claims and its use of ranges of R-value. NAIMA pointed out that the assertion of R-value per inch is acceptable if you have actual test data that "prove that the R-values per inch of your product does not drop as its gets thicker." Instead of actual data, the cellulose manufacturer provided only a coverage chart for its cellulose insulation (which states the number of "settled inches" of its insulation that are supposedly required to achieve specific R-values), and the cellulose manufacturer argued that doing a "little math" (dividing the desired R-value by the corresponding number of inches specified in the coverage chart) reveals that its products do not drop in R-value as they get thicker.<sup>5</sup>

NAIMA does not believe that the coverage chart constitutes "actual test data." NAIMA seeks additional clarification from the FTC as to what constitutes actual test data.

In addition, the NAD concluded that because NAIMA had not provided any consumer perception evidence in support of its position that consumers would think R-values are linear, the cellulose manufacturer's claims were not misleading.<sup>6</sup> But the FTC based its R-value per inch Rule on the fact that consumers would think that R-values are linear. The FTC plainly stated that R-value per inch claims are "clearly leading consumers to believe that insulation R-values are linear."<sup>7</sup> If the FTC has made this finding, NAIMA or others should not have to possess consumer perception evidence in order to challenge such claims. Yet the NAD ignored these facts – that the FTC had already determined what consumer perception was – and allowed the cellulose R-value per inch claims to stand without actual substantiating data. NAIMA also found that explaining the misleading nature of R-value per inch claims would have been easier had there been a more fulsome articulation of the reasoning behind this particular provision of the Rule incorporated into the codified language itself or provided in a Preamble. NAIMA repeats its

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<sup>4</sup> Density and R-value per inch may be related. At low densities, the R-value per inch declines as thickness increases. But as density increases, there may be a point at which R-value per inch could be linear.

<sup>5</sup> *Applegate Insulation (Cellulose Insulation Products)*, Case #5961, NAD/CARU Case reports (June 2016), pp. 14-15.

<sup>6</sup> *Applegate Insulation (Cellulose Insulation Products)*, Case #5961, NAD/CARU Case reports (June 2016), p. 25, footnote. 66.

<sup>7</sup> 44 Fed. Reg. at 50,225 (August 27, 1979). This conclusion has been restated in subsequent reauthorizations of the R-value Rule.

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request for greater clarity. Certainly, NAIMA would be very supportive of the Commission's idea to issue additional consumer and business educational material relating to R-value per inch claims. NAIMA believes this could help to bring greater clarity to this provision of the R-value Rule. NAIMA specifically requests that the FTC add the following language, or something similar, to the Rule:

“Any express or implied claim that fibrous insulation R-value is linear with thickness is per se misleading and, therefore, prohibited, unless qualifying for one of the exceptions set forth in this section.”

### *P. Preemption and Other Laws*

NAIMA thanks the FTC for considering NAIMA's comments on the Preemption clause of the Rule. NAIMA supports the FTC's decision to take no further action.

### **NAIMA REQUESTS THE FTC'S CONSIDERATION OF ADDITIONAL AMENDMENTS TO LEVEL THE PLAYING FIELD WITH RESPECT TO R-VALUE LABELING REQUIREMENTS**

The R-value Rule requires manufacturers to conduct ASTM tests on insulation products in order to substantiate the labeled R-value. Due to the unique nature of mixing chemicals on the job site, unlike other insulation products, spray foam insulation (“SPF”) is essentially “manufactured” on-site by an installer combining chemical components. To deliver an insulation product with the required R-value, an SPF installer must manage a manufacturing process that relies on the proper operation of generators, compressors, proportioning pumps, temperature controls, heated hoses and spray guns while wearing manufacturer- and OSHA-approved personal protective equipment to safeguard the installer and helpers from exposure to isocyanates. In addition, weather conditions must be accommodated.

NAIMA and its members, one of whom is an SPF manufacturer, are concerned that the R-value Rule does not include adequate requirements to assure installer contractors who manufacture SPF insulation on-site deliver a product with the advertised thermal performance or R-value. NAIMA respectfully requests the FTC consider the following suggestions to enhance the certainty that SPF products deliver the advertised R-value and level the playing field with respect to labeling requirements.

These recommendations include: 1) mandating that SPF insulation fill the wall cavity in its entirety per Department of Energy guidance; 2) mandate that SPF installers maintain records of any testing on SPF products that substantiate R-value performance; 3) require manufacturers of SPF insulation to provide homeowners detailed information about the manufacturing process that will occur in their residence; 4) require notice and disclosure to builders and homeowners confirming that the SPF insulation was installed, including the mixture of chemicals and installation of foam into the home, pursuant to manufacturer's recommendations; and 5) require a public posting of R-values achieved with SPF insulation on company or installer websites.

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### Insulation Should be Installed to Fill the Entire Wall Cavity to Achieve the Required R-value

The U.S. Department of Energy (“DOE”) has stated that “insulation should be installed to fill the entire cavity.” <https://www.energycodes.gov/cavity-and-continuous-insulation-rescheck>. Yet despite this DOE directive, certain SPF companies advocate underfilling the cavity. For example, some SPF producers argue that SPF insulation has such high R-values and delivers such an effective air sealing, filling the cavity is not necessary.

Indeed, some SPF companies take the position that installers should deliberately underfill the wall cavity. As NAIMA understands their “reasoning,” they purport to be able to somehow quantify the alleged reduction in R-value of fiber glass insulation since fiber glass is air permeable.<sup>8</sup> For example, they would argue that an R-13 fiber glass batt actually achieves only R-7 when air infiltration is “taken into account.” So as not to be at a competitive disadvantage, the amount of SPF to be installed should be a thickness not to the required R-value but instead to the R-value of the “air infiltration degraded” fiber glass insulation. To continue with this example, R-13 may be required by code but only one inch of R-7 per inch SPF need be installed to achieve the R-7 that degraded fiber glass achieves.

NAIMA categorically rejects this reasoning and approach for two reasons. First, there is no reliable, scientifically validated method to measure the purported degradation of R-value due to air infiltration. Second, even assuming such a reliable method did exist, the separate air barrier typically required for new homes would prevent any air infiltration through the fiber glass or other types of insulation. In fact, for any wall assembly sealed to code specifications, research confirms that all forms of insulation of a given R-value achieve the same thermal performance.<sup>9</sup>

Additional evidence of advocacy for underfilling the wall cavity is set forth below:

- You do not have to fill the entire cavity with spray foam insulation. You can leave empty space. (<https://sprayfoamkit.com/videos-a-how-tos/insulate-2x4-walls/>)
- Icynene specifically advocates for an abandonment of the prescriptive R-values recommended in the codes: “ICC code allows Icynene spray foam insulation to be installed with less than the prescriptive minimum R-value and still meet the intent of the code. Compliance based on simulated energy performance requires that a proposed residence (proposed design) be shown to have an annual energy cost that is less than or equal to the annual energy cost of the standard reference design that is based on the minimum prescriptive standard. When the air tightness of the building envelope is factored into the computer calculations, the building will require less R-value than the prescriptive level mandates. Typically, the R-value can be reduced by 20-25%,”

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<sup>8</sup> The FTC has already rejected the notion that insulation can single-handedly stop air infiltration.

<sup>9</sup> *Thermal Metric Summary Report*, Building Science Corporation (September 23, 2013) ([http://www.buildingscience.com/documents/special/content/thermal-metric/BSCThermalMetricSummaryReport\\_20131021.pdf](http://www.buildingscience.com/documents/special/content/thermal-metric/BSCThermalMetricSummaryReport_20131021.pdf)).

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depending on the code version that is being used.” ([www.icynene.com/en-us/content/what-r-value-do-i-need](http://www.icynene.com/en-us/content/what-r-value-do-i-need))

Because of these and similar statements, NAIMA urges the FTC to require that a wall cavity be filled to its entirety with SPF to achieve the required R-value.

In addition, SPF installation practices, such as the practice of trimming, intentionally underfilling, or making technical mistakes in the application process, create yet more scenarios where the SPF is not filling the entire cavity. Please consider the following excerpts from internet discussions that effectively document this problem:

- We need to start by understanding the “trimmability” of cured foam. Closed-cell foam is so dense that it is difficult to trim. To avoid having to trim closed-cell foam in a 2×4 wall, for example, the installer will usually stop at a maximum depth of about 3 in., instead of 3-1/2 in., leaving the typically bumpy surface of cured foam and about a 1/2-in. gap to the back of the drywall. Open-cell spray foam isn't as dense, so it's easy to trim. Installers of open-cell spray foam will fill a 3-1/2-in.-deep cavity completely, allowing the foam to expand until it is proud of the studs. Once cured, the soft foam is easily trimmed flush with the studs. (<http://www.finehomebuilding.com/2017/07/10/closed-cell-foam-studs-waste>).
- When stud bays are partially filled with closed-cell spray foam, the exposed portion of the studs reduces their R-value. (<http://www.finehomebuilding.com/2017/07/10/closed-cell-foam-studs-waste>).
- This may be more common with closed-cell foam, but it happens with open-cell foam, too. Since closed-cell foam has a higher R-value per inch, installers generally spray 2 inches in walls and 3 inches at rooflines to meet the minimum energy code requirements of R-13 and R-19 . . . . Open-cell foam usually fills the framing cavity completely, so it's easy to tell if the installer has sprayed enough. Closed-cell foam normally doesn't fill the cavity, so you've got to spot check in a bunch of places to make sure you don't get shorted. (<http://www.greenbuildingadvisor.com/blogs/dept/building-science/spray-foam-insulation-not-cure-all> ).
- The closed-cell foam in a new house had pulled away from the framing in many of the wall and ceiling cavities. The same thing can happen with open-cell foam, too. Some of the reasons for it are a bad batch of chemicals, improper mixing, foam temperature too high, or substrate temperature too low. Whatever the cause, it's not a good thing. A little bit of uninsulated area like that adds up to a lot of heat loss or gain when the whole house has that problem. (<http://www.greenbuildingadvisor.com/blogs/dept/building-science/spray-foam-insulation-not-cure-all> ).
- In general, it is best to completely fill the wall cavity. This full cavity approach does cost a little extra in labor and material, but it provides the best results. When the cavity is only partially filled with foam, like in a flash-and-batt (foam and fiberglass system), the sides of the studs will be left slightly exposed. Since the studs act as a thermal bridge, the exposed sides of the stud will transfer heat into and out of the now only partially filled cavity, thereby bypassing the foam and reducing some of its benefits.

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Leaving more stud surface exposed is similar to the effects of a radiator, exposing a large amount of surface area in a short space to increase heat transfer. (<https://www.ecologices.com/process-safety/frequently-asked-questions/is-it-best-to-fill-the-wall-cavity-completely/>)

- Twenty-plus years later, it's clear how wrong I was. What looked as easy as point-and-shoot with the foam gun has a lot of complexity. As insulation consultant Henri Fennell recently said to me, "Properly installing site foam insulation is way more challenging than fiberglass batts. It's partly because performance expectations are high and partly because you are actually manufacturing onsite." . . . "This is a complex chemical process happening in the field, which requires care and full-time quality-assurance capabilities." . . . There are a lot of variables that can affect the ratio and the mix—all of which can be addressed with the right equipment. . . . With open-cell spray foams, there are typically no heat-of-reaction issues, but the expansion rate (about 100:1 compared to about 30:1 in closed-cell spray foam) can result in the formation of large voids in certain types of open-cell foam, affecting the material's R-value. (<https://www.buildinggreen.com/blog/foam-place-insulation-7-tips-getting-injection-and-spray-foam-right> )
- Builders and homeowners are often surprised to learn that there isn't much difference in whole-wall R-value between a stud wall insulated with open-cell spray foam and closed-cell spray foam. To understand why, we need to start by discussing the "trimmability" of cured spray foam. Closed-cell spray foam is so dense that it is difficult to trim. That's why installers of closed-cell spray foam never fill a framing cavity completely. In a 2x4 wall, the installer will usually stop at a maximum depth of about 3 inches instead of 3.5 inches, leaving the typical bumpy surface of cured foam. This type of installation doesn't need to be trimmed. (<http://www.greenbuildingadvisor.com/articles/dept/musings/installing-closed-cell-spray-foam-between-studs-waste>)

These are a just a sampling of the dialogue and discussion going on about SPF performance. In this collection of quotes, there is a strong indication that some SPF companies are advocating not filling the cavity. There is also sufficient documentation that there are many errors that may occur in the installation process that will impact the R-value of the finished product. Moreover, there are established practices such as trimming that impact R-value performance.

Based on the foregoing, NAIMA requests that the FTC impose very specific requirements on SPF manufacturers to ensure required R-value is installed and disclosed to consumers. As noted above, NAIMA recommends:

- Mandate that SPF installers must fill the entire wall cavity;
- Mandate that SPF systems manufacturers and installers, who should also be considered manufacturers, maintain records of any testing on SPF products that substantiate R-value performance;
- Require that SPF installers and installers of loose fill and other spray-in insulation follow established procedures and make density checks during installation to determine installed R-value;

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- Require manufacturers of SPF insulation to provide homeowners detailed information about the manufacturing process that will occur in their residence;
- Require notice and disclosure to builders and homeowners confirming that SPF insulation was installed pursuant to manufacturer's recommendations;
- Require a public posting of R-values achieved with SPF systems on company or installer websites;
- Require testing to demonstrate that spray foam R-values are linear; and
- Require that SPF insulation installers must follow manufacturer's recommendations. Fiber glass batts and rolls are carefully manufactured in highly-controlled and monitored factory environments. In contrast, SPF is actually "manufactured" at the moment of installation under considerably less controlled conditions. This means that the ability of the SPF installer to achieve the required R-value is dependent on following the SPF chemicals supplier's installation recommendations. Accordingly, the FTC should require all SPF installers confirm to the homeowner or builder that those recommendations have been followed.<sup>10</sup>

## CONCLUSION

NAIMA is strongly supportive of the R-value Rule and in large measure support all of the FTC's recommended modifications. In some instances, NAIMA provides feedback on specific on questions and issues raised by the FTC. In addition, NAIMA respectfully asks the FTC to consider supplemental requirements for spray foam manufacturers and installers; these are, for the most part, recognized as Best Practices throughout the industry. Codifying these requirements creates a level playing field in the spray foam industry and mandating that all insulation manufacturers are fully communicating information about R-values to consumers levels the playing field throughout the entire insulation industry.

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<sup>10</sup> Of course, NAIMA would accept a general requirement applicable to all forms of insulation, including fiber glass and mineral wool, that installers follow manufacturer's installation recommendations.