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September 6, 2016

Federal Trade Commission
Office of the Secretary
600 Pennsylvania Avenue NW
Suite CC-5610 (Annex B)
Washington, DC 20024

Dear Sir/Madam;

Re. 16 CFR Part 460—R-value Rule Review—Matter No. 8110001

On behalf of our Company, Icynene Corporation, a provider of spray foam products for use in buildings of all types, I am writing to offer comments on the “R-value Rule Review” that is currently a matter under discussion with your agency.

We are excited to provide comments on this rule not only because it is so fundamental to the insulation industry but also because the rule is used in a wide variety of contexts not originally envisaged by your agency. We believe that it is important that use of the R-value rule be accompanied by appropriate warnings and information statements so that consumers are adequately informed of the limitations of this metric, and so building designers builders and building officials may select products with a more realistic understanding of the following key points:

- How products were tested and the limitations of the test(s)
- The R-value test alone does not account for convection, air leakage and thermal bridging through and around insulation
- Particularly when tested at one point, the test does not consider the effects of varying temperatures, wind exposure and humidity conditions

We fully understand and support the Federal Trade Commission’s mandate in terms of consumer protection and making trade practices fair and equitable. We also believe that there is a role for the Commission to intervene to make sure product claims are accurate and do not overstate performance.

Ironically however, by focusing on the limited metric of R-value, the Commission is giving the impression that this metric alone is enough to gauge energy efficiency, thermal performance and comfort in a building. Consider the wide variety uses that R-value is put to:

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- R—value is commonly used in the selection and purchase of products. However there are a wide variety of insulation types with a wide variety of attributes that affect energy efficiency. Consider the range of insulation products that are on the market including fibrous batts, blown in products, reflective foils and films, faced and un-faced board stock foams and fiberboards, composite panels, spray foams and sealants—These products have a range of attributes including R-value that also might include air impermeability, vapor permeability, solar reflectance, the ability to adhere to substrates and adjacent materials etc. However, these products are routinely compared, specified and purchased based upon the R-value on an arbitrary line drawn through the insulated part of the assembly. Products routinely get rejected for inadequate R-value even though reduced thermal bridging, air sealing or other attributes might more than make up for the lack of R-value in terms of energy performance. The focus on R-value alone leads to product selections that hurt the consumer.
- Building Officials rely on prescriptive R-value tables as the sole determinant of whether a wall, roof or other assembly is energy code compliant. Typically they have difficulty determining whether a more air tight building, or a building with more continuous insulation can be traded off against other energy efficiency features.
- Computer software programs for modeling energy performance utilize nominal R-value of products with little recognition of differences between products in terms of their installed performance, air permeability or containment in an air sealed assembly. This is significant because increasingly builders and code officials are using software programs to verify code acceptance and levels of energy performance. Over-estimating the R-value of assemblies based on lab tests that do not account for air leakage and convection generates misleading information. As buildings become more complicated, an accurate software analysis is being relied upon for determination of Code compliance on what is referred to as the “performance path” in the Building Code and R-value numbers are frequently inadequate for describing real world assemblies.

Clearly, the R-value rule is impacting areas of the construction industry in ways that were never envisaged when the rule was first instituted. Its simplicity makes it attractive but this also leads to limitations and misunderstandings of how it can and should be used. We believe there is merit:

1. In keeping the R-value comparisons to products of a similar type with similar physical attributes and characteristics. (Comparing air permeable products to air permeable products, and air impermeable products to air impermeable products.) Further, consumers should be told how to make comparisons (i.e. between products with similar characteristics) and how comparisons might be less useful (i.e. a comparison of dissimilar materials may overlook a characteristic that is needed to get stated performance.)
2. For products with other energy efficiency attributes such as air impermeability, vapor impermeability, or solar reflectance, these characteristics should be quantified (and provided suitable disclaimers) if they are part of the performance claims.
3. Where appropriate, disclaimers should be provided as part of product packaging and marketing.
 - a. If the product must be encapsulated on 6 sides to provide the stated R-value, that should be noted.
 - b. If an air space is required on one or more sides of the product to get the claimed solar reflectance that too should be stated.
 - c. If air sealing is required to obtain a code compliant air barrier, the recommended methods and materials should be identified to achieve this result.
 - d. If products have the ability to restrict water vapor or bulk water intrusion, those characteristics should be noted.

Ultimately, we believe it will be important to establish “categories of performance” in terms of things like air impermeability and vapor permeability to define whether a product is acceptable. By highlighting these attributes in addition to R-value, the Commission will go a long way to making users of the R-value rule aware that other attributes are also important to energy efficient and durable construction.

Incidentally, these issues have been largely addressed in both the International Residential Code (IRC) and the International Building Code (IBC) so the Commission does not need to regenerate the science behind proper labeling. Categories already exist for air impermeability and vapor permeability in these Code documents. The Commission could simply reference Code requirements to determine if products perform as Code-compliant Air Impermeable materials (0.02 L/s/m²) or can provide vapor permeance to meet Code Classes I, II or III. This would serve to highlight the fact that an analysis that goes beyond R-value is needed to understand energy efficient features.

Proper labelling and warnings to consumers are a key aspect of the work before the Commission. In the past, countless thousands and perhaps millions of buildings have been constructed without adequate attention to continuity of insulation, air tightness and moisture control. This has ultimately led to concealed condensation and premature building failures. Insulation products have a key role to play because as insulation levels go up, the role of air sealing and vapor control becomes more important to protecting internal wall and roof components from moisture. We believe that labeling that goes beyond R-value is extremely important to properly identifying and addressing these risks.

With this letter, we are providing a number of documents for consideration. Note the file labels (in Brackets):

- As requested, we have commented on the specific issues which the FTC has identified (Appendix A).
- We have also placed annotations in the text of the R-value rule to identify other issues for consideration (Appendix B).

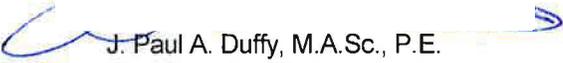
We are also providing a number of reports that document some significant issues associated with the R-value Rule:

- Appendix C is a summary of an NRCC report that indicates that air leakage can cause as much as a 70% reduction in R-value performance in full thermal testing of wall assemblies. (See figures 11-13)
- Appendix D indicates the importance of installation and fact that it is unlikely batt-type insulation products will be installed properly and perform anywhere near the rated performance.
- Appendix E indicates that even if air permeable insulation products are of a high density, and well installed with a proper air barrier, but are not enclosed on the interior such as behind bulkheads and in rim joist applications, their performance will decrease by 25 – 40 %.

These are important studies carried out by third party agencies that highlight some of the limitations of the R-value rule as well as the need for consideration of other characteristics in making energy efficiency decisions.

Thank you for inviting comments. We eagerly await your review and consideration of all comments that have been submitted.

Yours Truly,


J. Paul A. Duffy, M.A.Sc., P.E.
Vice President Engineering Division.