

DISCUSSION

J. J. Klimas¹ (written discussion)—Referring to the durability study section of the RILEM report you outlined in your paper, what is the European assessment and your own opinion as to the applicability and usefulness of accelerated weathering, either by carbon arc or by xenon arc, in determining the durability of finished roofing products. Particular reference is made to the current ASTM proposed standard test methods for modified bitumen membranes.

W. C. Cullen (author's closure)—Mr. Klimas raises an interesting and somewhat controversial issue regarding the use of durability or aging requirements in roofing material standards. I am not sure that the Rilem/Cib report that I referred to in my paper will provide a definitive answer. The referenced European Union of Agreement's general and special directives for the assessment of roofing membrane systems, used in Europe, do describe a specific ultraviolet (UV) aging test (specifically, Xenotest) in addition to heat aging tests for evaluating roof membranes. However, the preference of European researchers leans toward the heat test in lieu of the UV testing for evaluating purposes. The reasons given for this preference are the time saved, economy, and accuracy. From my personal experience with each of these test procedures, I concur with the European trend of preferring the heat test, at least for acceptance testing. However, the use of such devices as the carbon arc and, preferably, the xenon arc as research tools in basic research, product development, and product modification continues to be essential.

C. G. Cash² (written discussion)—I fully agree with all the author's comments. I suggest using the term "system standards" rather than "performance standards." Performance standards imply that there is a body of data that can accurately predict roofing system performance. This is not so. A system standard can be used to develop minimum properties for systems.

W. C. Cullen (author's closure)—Mr. Cash's suggestion of substituting the term "system standards" for "performance standards" is, for the most part, worthy of consideration. I agree that data are not available and probably will not become available to permit us to write a pure "performance standard" for a roofing system. However, as Mr. Cash suggests, a "system standard" could conceivably provide a means of describing minimum properties for specific roofing systems. On the other hand, performance criteria are more useful than prescriptive statements—which deal with composition, weight, dimensions, and the like—for evaluating in-service behavior of a material, composite, and system. Performance criteria, as used here, are a set of requirements used to define in-service behavior in terms not related to the composition of the material, composite, or system, or to how it is manufactured, or to how it is applied. Such performance criteria are currently available and would be useful to compliment prescriptive criteria in writing ASTM standards for roofing products and systems.

¹ Consultant, Martinsville, NJ.

² Simpson, Gumpertz and Heger, Inc., Arlington, MA.