

AGED MEMBRANE FIRE TESTING;

The Single-Ply Roofing Industry View

BY LINDA KING

EDITOR'S NOTE: The statements presented on these pages are the opinions of the representatives of industry associations and are not necessarily endorsed by the Roof Consultants Institute. They are offered here for the consideration of our readers, to stimulate and encourage individual examination of the issues.

Introduction

The Midwest Roofing Contractors Association (MRCA) has been conducting fire testing, following its interpretation of the ASTM E 108 Standard, on new and aged (field-obtained) single-ply roofing material samples over the last couple of years. The MRCA, in conjunction with the National Roofing Contractors Association (NRCA), has made presentations and published its results in the form of magazine articles and website postings. The stated results are that many single-ply roofing assemblies did not pass the requirements of ASTM E 108. What the MRCA/NRCA have not stated is that their test data are severely flawed, and consequently, their findings are inaccurate. The following are facts concerning the MRCA study that have not been disclosed to the public.

The Facts

First and foremost, the existing roofing assembly must have a documented E 108 fire rating (Class A, B or C) as installed. Testing a non-fire-rated assembly would generate useless data since the assembly, if not fire classified, would not be expected to pass E 108 requirements. The MRCA has offered no documentation to prove that the sampled roofs were properly installed to achieve any fire resistance rating.

The E-108 Standard, as currently written, does not apply to testing of aged samples removed from existing roofs. Removal of samples from the field with the intention of testing per E 108 would require a detailed sampling protocol to control variables such as the sample selection process, verification of the materials used in the installation, verification of the initial fire rating of the installed assembly, and conditioning of the specimen prior to testing. The sampling protocol employed by the MRCA has not been clearly documented and has not been validated through the ASTM consensus process.

The MRCA study included testing of new (unaged) membrane assemblies. These "new material" tests failed to duplicate the existing fire ratings held by the manufacturers as documented in published industry testing agency directories. Since the methods employed in the MRCA testing program cannot duplicate published new material assembly fire ratings, it is not logical to expect aged samples to pass. This clearly indicates that the testing methods utilized and the test results obtained by the MRCA are, at best, questionable.

The EPDM roofing samples referenced in the study were ini-

tially adhered assemblies (as installed in the field). The MRCA, however, peeled the adhered membrane loose from the insulation layer (reportedly without damaging the insulation below) during the field sampling process, creating, in essence, a loose membrane assembly for testing. The results were still reported by the MRCA as adhered assembly tests. This shows a total lack of understanding of fire science and renders all resultant EPDM data completely useless.

The mechanically attached roofing samples referenced in the study were all tested with the membrane cut flush with the sides of the insulation (the membrane was not wrapped over the edges). United Laboratories (UL), Factory Mutual (FM), and other test laboratories have utilized wrapped membrane edges when preparing ASTM E 108 decks since the inception of mechanically attached single-ply membranes. This preparation technique is based on the premise that the test specimen is to be representative of the field of the roof. As such, mechanically attached membranes would typically be taut, and exposed edges would not exist. The term "flush" (as stated in the standard in the seventh line of paragraph 5.2) has been interpreted by the MRCA to mean that the edges of the membrane sample must be cut so they end at the edge of the test deck. "Flush" has many meanings, including "having the surface even or level with the adjacent surface," and therefore does not preclude the continuation of the membrane to wrap snugly over the edges of the deck. Thus, for the MRCA to infer that manufacturers, UL, FM, and other laboratories have not been conducting the test in accordance with E 108 is inaccurate.

The MRCA study references one specific manufacturer's TPO sample from a 1990 installation. The fact is that this manufacturer did not market a TPO product until 1992. When questioned about this, MRCA representatives admitted that they did not really know who manufactured this particular roofing membrane, or even what type of material it really was. The manufacturer in question offered to assist in identifying the unknown 1990 sample on numerous occasions, but there has been no response from the MRCA. Accordingly, it is completely irresponsible on the part of the MRCA to report any test results on unknown material.

SPRI offered to assist with this study in the spring of 2002, but the MRCA declined the offer. In the spring of 2003, the MRCA asked SPRI, in a letter, if member companies would be interested in assisting with its continued testing efforts. SPRI pledged to assist the MRCA in any manner requested, but the MRCA has

neither accepted nor acknowledged this offer. Individual manufacturers have also offered to assist the MRCA, but the response has been always the same – no.

SPRI members are not the only roofing entities concerned with the testing and reporting methods employed by the MRCA. Discussions with industry representatives from organizations such as UL, FM, and RCI reveal that there is considerable misunderstanding, misinterpretation, and misuse of the data published by the MRCA.

MRCA/NRCA/Roofing Industry Meeting

A meeting was held in late October 2002 at NRCA headquarters between MRCA and NRCA representatives and the manufacturers of the materials involved in the MRCA fire testing program. All the items mentioned above were discussed at length. At the conclusion of the meeting, the MRCA refused to acknowledge that it made any errors in testing and refused to retract any previously published information. The MRCA's only statement was that it had followed ASTM E 108 to the letter, but even this is incorrect since E 108, as currently written, is a new material systems test standard. It contains no procedures for sampling and/or testing aged low slope roofing assemblies.

Rationale for Aged Testing

So why is the MRCA expending so much of its members' efforts and resources to validate fire testing that UL Inc. has been involved with since 1914? Typically, the fire performance characteristics of aged roof assemblies have not been a concern within the fire community, provided the assemblies are maintained (coatings, gravel surfacing, etc.) and not compromised by factors such as damage, pollutants, or deterioration. Single-ply roofing mem-

brane assemblies will typically exhibit improved fire resistance over time since they will lose combustible volatiles (membrane processing oils, insulation blowing agents, etc.) with aging. This phenomenon has been demonstrated with E108 fire tests conducted by UL over the years on weathered low-sloped roof assembly specimens. So the question remains: What is the point of the MRCA testing?

The Future

The MRCA must address this situation by issuing a written statement on the validity of the data produced by its fire testing study. Additionally, the MRCA should work closely with the appropriate material manufacturers and their trade associations on any future projects of this nature to ensure the accuracy and validity of the resultant data. There is no value in trying to surprise the roofing industry with potentially controversial issues, particularly when the supporting data are flawed.

SPRI understands that the MRCA is continuing its fire testing campaign, again without industry input. The MRCA is planning to present its "newest" results at its trade show in October 2003. Since the MRCA is keeping everything about this study a secret, others in the roofing industry have no idea what to expect. SPRI only hopes that the MRCA will cease publishing inaccurate information. Otherwise the entire roofing industry may be seriously harmed.

Linda King is Managing Director of SPRI – the association for Sheet Membrane and Component Suppliers to the Commercial Roofing Industry.

MRCA Response:

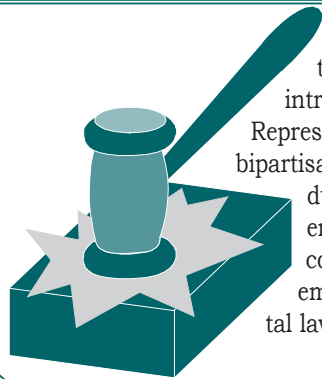
The Midwest Roofing Contractors Association is surprised at the amount of misinformation circulating within the industry as shown in the SPRI release.

MRCA does not wish to further promulgate any misinformation about its fire testing. Although by the time this response is published, MRCA's 54th Convention and Trade Show will have taken place, where the facts will have been revealed for those who wish to examine the fire testing results for themselves, we encourage everyone to look for updates on this issue after November 1 on MRCA's web site, www.mrca.org.

Ed Williams

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Contractor Accountability Standards Sought



Legislation to institute tougher contractor accountability standards (HR 1218) was introduced by Rep. Al Wynn (D-4-MD) in April. Representative Carolyn Maloney (D-14-NY) and a bipartisan coalition in the House and Senate introduced HR 2767, legislation to require the federal government to deny federal contracts to companies convicted of repeated violations of employment, consumer, tax, and environmental laws. In addition, the measure calls for estab-

lishing a centralized database of civil, criminal, and administrative violations by contractors similar to the one used in New York and other major cities to "weed out" and track contractors repeatedly convicted of serious legal violations. Maloney unsuccessfully proposed her bill for House consideration as an amendment in early May in the Government Reform Committee, but is expected to push HR 2767 for House hearings and serious consideration before the year is out.

— **SMACNA News**