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Jun 26, 2006



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[Roof Coatings](#)

## How Roof Coatings Affect Fire Ratings

Mar 1, 2006

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Roofing/Siding/Insulation (RSI)

The increasing use of roof coating restoration systems, reflective coatings for roof maintenance, and meeting mandated roof reflectivity requirements have brought into play the need for clarification as to fire ratings when these coatings are applied to new and existing systems.

Reflective roof coatings and maintenance systems are proven to reduce thermal shock, membrane fatigue, heating or cooling loads and extend roof service life that alone can lower building energy and maintenance costs. Roof restoration systems provide environmentally friendly solutions to many owners and design professionals that are safe and can be cold (ambient) applied.

Some typical questions are: "By adding a reflective or roof restoration coating, how will that affect the fire rating of the roof system?" or "Can any water-based, fire-rated coating be applied over a UL classified roof system or FM Global roof system and maintain the existing ratings?" The answers are: "It depends."

UL takes the position that UL classified roof systems must pass UL 790 *Standard Tests of Roof Coverings* as a part of an overall test program that exposes roof coverings to simulated fire sources originating from the outside on which the coverings are installed. This includes combustible or non-combustible decks and various slopes.

FM Approvals takes a similar position by requiring internal and external fire evaluations. The external evaluation is accomplished via a fire test conforming to ASTM E108 *Standard Test Methods for Fire Tests of Roof Coverings* to ensure that the coating does not compromise the external fire performance of the roof assembly.

The ICC building code actually requires coatings to be fire rated through



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their reference to UL Class "A, B or C" requirement; but again, as part of a roof system that includes the fire rated or maintenance coating.

Roof coating manufacturers can test their coatings for fire contribution at both UL and FM Approvals on the specific roof systems coated. In many cases, on installed roof systems where the maintenance or reflective coatings are being added, this means that there can be no increased spread of flame or fuel contribution beyond the original roof system fire test classification.

However, if a maintenance or reflective coated Class A roof system has achieved only a Class B rating by testing, it could be approved as a Class B assembly by UL or FM and be acceptable to a design professional or a code body. It should be emphasized that it is the roof *system* that receives the fire rating, not individual components.

What this means to roofing contractors, owners or designers is the need to check with UL, FM Global (through their field engineers) and the applicable building code or the roof coatings manufacturer for confirmation that the coating has passed the required testing to gain or maintain the specific fire rating or regulatory compliance on the proposed or installed roof system.

Although published UL or FM Approvals requirements can seem onerous, it should be remembered that interpretation of the data by local building officials and FM Global field engineers makes defining assemblies a much more practical matter. It is always advisable to contact them for the proper approval of a fire rated roof system with a maintenance or reflective coating.

RCMA, in cooperation with major roof membrane manufacturers and NRCA, continue to combine their efforts toward quality and energy efficient fire rated or maintenance roof coatings.

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