

ISOLATEK INTERNATIONAL PRESENTS

Isolutions

Information & Solutions For Design & Construction Professionals

October 1996

Re-released February 2003

Number 2

Construction Roof Traffic

*In order to maintain the required hourly fire resistance rating of a roof assembly, the bond of the Spray-Applied Fire Resistive Material (SFRM) must not be weakened during or after application. Unfortunately, there are too many cases where this does occur. By far, the predominant reason for delamination of SFRMs is **Construction Roof Traffic**; typically resulting from condensed or out of sequence work schedules.*

“Construction Roof Traffic” refers to the activity of walking, installing, or working with equipment on the roof of a building. Roof traffic above areas where the SFRM has already been applied, especially to **steel roof deck**, is a major concern for manufacturers and Building Team Members. Impact forces and deflection often compromise the adhesion between the material and substrate, which may cause the SFRM to delaminate or “bridge”.

Bridged SFRM refers to material essentially separated from the substrate but held in place cohesively by adjacent material. Bridged SFRM may fall off weeks, months, or even

years after the initial damage, resulting in an unsafe condition. Delamination or bridging not only jeopardizes the hourly fire resistance ratings required to meet governing building codes, but can also delay the construction work schedule, increase overall costs, and present a hazard to building occupants.

As the world’s leading manufacturer of SFRMs, Isolatek International recognizes this industry concern and offers several precautionary measures to help prevent delamination and the resulting consequences. Using terminology similar to that used by others in the fire protection industry, we clearly state on the back of our product data sheets under Section 3.2.5 of the Guide Specification: *“The application of spray-applied fire resistive material to the underside of roof deck shall not commence until the roofing is completely installed and tight, all penthouses are complete, all mechanical units have been placed, and after construction roof traffic has ceased”*. Therefore, **all** roof work, including work on the perimeter and the installation of the roofing membrane and ballast, should be

completed prior to the SFRM application.

In addition to proper sequencing and coordination between trades, the following additional guidelines will help minimize the problem:

1. The design specifications for roof deck gauge and spans should be in accordance with the Steel Deck Institute recommendations for construction and maintenance loading.
2. Roof assemblies consisting of gypsum wallboard and insulation (mineral fiberboard, polyisocyanurate, polystyrene, etc.) above the metal deck is preferred instead of insulation only. The layer of wallboard (5/8") provides a more rigid roof system and helps distribute loads more effectively.
3. The SFRM manufacturer's recommended adhesive or bonding agent must be applied to all steel roof decking (without concrete topping) prior to the application of the SFRM. Bonding agents enhance the ability of the SFRM to adhere to the substrate.
4. When roof traffic is anticipated, as in the

case of periodic maintenance, roofing pavers should be installed as a walkway to distribute loads.

5. Although several painted roof decks are classified in certain UL roof designs, galvanized roof deck is a better substrate for bonding of SFRMs. Painted roof decks increase the risk of delaminations.

Rigid Board Fire Resistive Materials can be utilized on roof deck areas where construction roof traffic is unavoidable. Rigid Board Fire Resistive Materials are mechanically fastened to structural steel decking, as well as beams and columns, and is the reason why these materials are unaffected by construction roof traffic. Such a system should be considered carefully when determining the overall construction schedule.

Following these guidelines will help to minimize the problems associated with SFRM delamination due to construction roof traffic. However, proper construction scheduling and coordination between trades cannot be overemphasized.