

## FM 1-29 updated

by Mark S. Graham

In January, FM Global significantly revised its Property Loss Prevention Data Sheet 1-29, "Roof Deck Securement and Above-Deck Roof Components." This data sheet is intended to provide FM Global's recommendations for securement of roof decks to roof structures and the proper design and installation of above-deck roof components (insulation, membrane). You need to be aware of the revisions because they may affect roof system design and limit the use of some products and systems.

### Revisions

Previous editions of FM 1-29 included a prescriptive option for increasing attachment of mechanically fastened rigid board insulation at the roof perimeter and corners where design wind-uplift pressures are recognized to be greater than in the field of the roof area.

For example, in the 2003 edition of FM 1-29, roof perimeter attachment was recommended to be increased 50 percent and roof corner attachment 75 percent from the roof field attachment pattern to account for these wind-uplift pressures.

In the updated FM 1-29, these prescriptive enhancement factors have been revised. For roof areas where the wind rating recommended for the field of the roof does not exceed FM Class 1-75 (75 pounds per square foot [psf] [3.6 kPa]), roof perimeter attachment now is recommended to be increased a minimum of 50 percent with at least one fastener per 2 square feet (0.186 m<sup>2</sup>), and roof corner attachment is recommended to be increased 100 percent with at least one fastener per square foot (0.092 m<sup>2</sup>).

For roof areas where the recommended wind rating exceeds FM Class 1-75 (FM 1-90 or higher), the previous prescriptive percentage factor enhancement approach no longer applies for roof perimeters and corners. Instead, reference now is made to FM 1-29, Table 1—Recommended Rating of Field, Perimeter and Corner Areas (Zones 1, 2 and 3) for Enclosed Buildings, to specific recommended uplift classes.

For example, for buildings with design wind-uplift pressure of 45 psf (2.2 kPa) or less, the table recommends using a 90 rating for the field of the roof, 150 rating for the roof perimeter and 225 rating for roof corners.

As an alternative to using the table, FM 1-29 allows for using a seam-fastened, mechanically attached single-ply membrane system with an appropriate FM approval or multi-ply roof cover with a mechanically attached base sheet meeting specific requirements that are enumerated in Section 2.2.7.2 of FM 1-29.

Regarding single-ply roof membranes, FM Global indicates its loss experience has shown even properly secured single-ply membrane roof covers can be damaged by wind-borne debris. As a result, FM Global now suggests using more durable roof membranes, such as multi-ply roof membranes or single-ply roof membranes that are considerably thicker than the minimums provided in FM Global's approvals.

Also, a note has been added to FM 1-29 indicating pea gravel should not be used in hurricane-prone areas. Instead, an FM-approved coating should be used.

### Closing thoughts

The revision of FM 1-29 represents significant changes in how FM Global recommends its approvals be implemented. However, this revision does not represent changes in the approvals themselves.

Implementing FM 1-29 significantly will affect the design of many roof systems and may limit the use of some products and systems, particularly where Class 1-90 or greater is required or specified. Also, few existing metal roof decks are designed to withstand the uplift pressures and comply with the requirements of the revised FM 1-29 where Class 1-90 or greater apply.

I encourage designers to evaluate the need for using FM approvals, FM 1-29 and specific FM Global requirements on a project-by-project basis and not blindly overspecify FM Global compliance when it may not be necessary or appropriate. (For additional information, see "Do you overspecify?" December 2005 issue, page 18.) In some instances, complying with FM Global's guidelines will limit design options and add to project costs.

Finally, it needs to be pointed out FM Global revised and published FM 1-29 with little or no input or advanced implementation notice to roofing professionals. Given FM Global's role in the U.S. roofing industry, this is a concern.

The updated edition of FM 1-29 is available to subscribers of FM Global's RoofNav application or as part of FM Global's Loss Prevention Data Sheets for Roofing Contractors. 

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