

TECHNICAL BULLETIN

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Relates to: 07 52 00 Modified Bituminous Membrane Roofing

Subject: A Summary of the August 2007 Revisions of FM's Property Loss Prevention Data Sheet 1-29

Related Subjects: Soprafix Roofing System

In August of 2007, Factory Mutual revised its controversial 2006 version of "Property Loss Prevention Data Sheet 1-29 Roof Deck Securement and Above-Deck Roof Components". In this revision they address the issue raised by their previous focus on hurricane prone regions to the detriment of mainland regions, which count for most of the construction business in Canada. They are now modifying their prescriptive enhancement of corner and perimeter recommendation, when dealing with non-hurricane prone regions.

These changes are still directed to systems for which the membrane is adhered to some combination of mechanically fastened insulation, cover board and/or thermal barrier. In the 2007 revision, Factory Mutual has established three conditions to define construction that will not need to comply with table 1 of the "Loss Prevention Data Sheet 1-29":

1. The building is in a non-hurricane prone region where the design wind speed does not exceed 90 mph (145 km/h) and the roof height does not exceed 75 ft (23 m). Note that the roof height is limited to 30 ft (9.1 m) if the building is located in an area where surface roughness exposure is D and the building is partially enclosed.
2. The recommended field roof rating does not exceed Class 1-75 (3.6 kPa).
3. The building is in a non-hurricane prone region and the recommended field-of-the-roof rating does not exceed Class 1-90 (4.3 kPa).

If one of these conditions applies to a building, you can proceed with FM Global's prescriptive enhancement to increase the number of fasteners per board over the FM approved field-of-the-roof by the following:

- 50% minimum in the roof perimeter, but at least one fastener per 2 ft² (1 per 0.19 m²). It is not necessary to install fasteners closer than one per 1 ft² (1 per 0.09 m²).
- One fastener per 1 ft² (1 per 0.09 m²) in corner areas.
- Round up to the next whole number of fasteners, if necessary.

Ex. 1: A building located in a non-hurricane prone region, with a recommended field-of-the-roof rating of Class 1-105 or higher and the height exceeds the recommendation at condition 1: In this situation, you need to use Table 1 of the "Property Loss Prevention Data Sheet 1-29" to establish the enhancement at perimeter and corners; which translates, for a building with a field rating of 1-105, into a perimeter rating of 1-180 and a corner rating of 1-270. This means that three different

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constructions will be needed to realise this project, or else, field-of-the-roof and perimeter can be over designed to use only one system. Take note that constructions over Class 1 105 are much more expensive.

Ex. 2: The same building with a Class 1-105 rating, but this time, within the recommended height in condition 1: The prescribed enhancement listed above would apply.

Therefore, for buildings with Class 1-90 rating or less, located in a non-hurricane prone region, the prescribed enhancement listed above applies. So for most parts of Canada, with these changes, there is now a way to avoid using Table 1 when your project is FM insured.

For components adhered with spots or ribbons with either asphalt or adhesives, and mechanically fastened base sheet systems, such as Soprafix, the prescribed enhancement at the perimeter and corners were not changed.

There are also a number of changes in the "Roof Deck Securement for Wind Loads" section. For additional information on this section and other revisions, please refer to the "Property Loss Prevention Data Sheet 1-29" at www.roofnav.com.

When specifying a wind uplift rating for a roof assembly, designers should consider the following:

1. For FM insured projects, it is always better to obtain the wind uplift classification from the engineer responsible.
2. They should check if projects are located in a hurricane or non-hurricane prone region.
3. Always specify the calculated wind uplift. Don't simply use a 1-90 classification by default. This classification might be over- or under-specified.
4. When choosing a roofing system in which the membrane is adhered to some combination of mechanically fastened insulation, cover board and/or thermal barrier, make sure that the wind uplift classification is 1-90 or less or that it meets one of the three conditions listed by FM in order to avoid the use of Table 1. For example, such systems include these typical roof constructions:
 - a. Insulation mechanically fastened to steel deck with cover board adhered to insulation and base sheet adhered to cover board.
 - b. Insulation loose laid and cover board mechanically fastened to steel deck and base sheet adhered to cover board.
 - c. Thermal barrier mechanically fastened to steel deck with insulation and cover board adhered over thermal barrier and base sheet adhered to cover board.
5. For the above-mentioned systems, if wind uplift classification exceeds 90 psf or does not meet one of the three conditions listed by FM in order to avoid the use of Table 1, consider using a mechanically fastened base sheet membrane system such as Soprafix.
6. For non-FM insured projects and for non-hurricane prone regions, designers may opt to revert to the previous version of 1-29 Data Sheet which has a prescriptive enhancement stating that the number of fasteners should be increased over the approved field-of-the-roof by:
 - a. 50% in the roof perimeter
 - b. 75% in the roof corners
 - c. Round up to the next whole number of fasteners, if necessary.

Your local Soprema representative may be of further assistance in determining the wind uplift classification for your building's roof. For a complete list of Soprema offices across Canada, please consult our website at www.soprema.ca/bureaux-en.asp or call 1-877-MAMMOUTH.

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