



Tuesday e-Tech Alert **September 21, 2004**

FM Global Adds In-Rack Sprinklers for Multiple Row Rack Storage Over 25 Feet

For storage on multiple row racks over 25 feet in height, Factory Mutual is changing its sprinkler protection requirements effective immediately, taking exception to criteria found within both the 2002 edition of NFPA 13 and its own Data Sheet 8-9. The changes, which result in more in-rack sprinklers, affect protection of all commodities other than uncartoned expanded plastics.

The changes are based on internal review of sprinkler protection criteria, and are expected to be formalized in a forthcoming revision of Data Sheet 8-9 – *Storage of Class 1, 2, 3, 4 and Plastic Commodities*. FM field offices are being encouraged to discuss protection of all multiple row rack applications with the hazard engineering office in Norwood, Massachusetts. Based on the specific commodities stored, Norwood will make recommendations for in-rack sprinkler positioning following the guidelines presented below. While the final decision for any particular project will rest with the Chief Engineering Technical Specialist assigned to the field office, the Norwood recommendations are likely to be followed. FM Global is cautioning its clients that failure to comply with the more conservative recommendations may result in a need to upgrade their sprinkler protection once related fire testing is completed early in 2005.

Basically, FM is concerned that the current sprinkler spacing rules for multiple row rack storage (as presented in NFPA 13 Figure 12.3.4.4.1.3(c) and Data Sheet 8-9 Figure 3.3.7.3(q)) are not sufficient. They are concerned that the lack of sprinklers in some flue spaces and the height to the first sprinklers in others will lead to large fires prior to sprinkler activation. By comparison, Data Sheet 8-9 Figure 3.3.4.2(b) for multiple row racks up to 25 feet in height puts sprinklers in every flue at various levels. This is the protection scheme that will be advanced by FM Global in the future.

According to Mr. Wes Baker of FM Global, pending revisions to Data Sheet 8-9 will also simplify the number of levels on which sprinklers are to be installed, for double row racks as well as multiple row racks. This is expected to benefit FM clients by minimizing the amount of piping within racks, and will be accompanied by a clarification that a level of sprinklers is intended to protect all flue spaces. The broader changes to Data Sheet 8-9 will allow side-by-side comparison of all sprinkler protection strategies available for each type of storage arrangement, including use of ESFR and control mode specific application sprinklers.

In the meantime, the recommendations being given with regard to multiple row rack storage put sprinklers on nominal 5 ft x 5 ft spacing at specific maximum vertical intervals: 25 ft for Classes I, II, and III, 20 ft for Class IV, and 15 ft for plastics.

NFSA has encouraged FM Global to make a submittal for the 2006 edition of NFPA 13 to allow the NFPA Sprinkler Committee to review the basis for these recommendations and to make parallel changes to the NFPA sprinkler standard as appropriate.

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Next NFSA Technical Tuesday Online Seminar: September 28, 2004

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