



**Tuesday e-Tech Alert**  
**November 23, 2004**

## **Storage of Plastic Pallets**

Section 12.1.9.2 of the 2002 edition of NFPA 13 addresses protection of idle plastic pallet storage. Various options are proposed as subsections (1) through (7). Plastic pallets can be:

- (1) (1) Stored outside
- (2) (2) Stored in a detached structure
- (3) (3) Stored indoors if protected in accordance with Section 12.1.9.2.2
- (4) (4) Stored indoors if protected in accordance with Table 12.1.9.2.1
- (5) (5) Stored indoors up to 10 ft under maximum 30 ft ceiling using K-16.8 sprinklers and density of 0.6 gpm/sq.ft. over 3000 sq. ft.
- (6) (6) Stored indoors and protected like wood pallets if hazard if listed for equivalency with wood pallets
- (7) (7) Protected in accordance with specific test data

The criteria found within Section 12.1.9.2.2 (per option 3) is very specific and depends on whether the pallets are in a cutoff room or stored without cutoffs from other storage. Even in a cutoff room storage is limited to 12 ft, and either a density of 0.6 gpm/sq. ft. is required throughout the room or K-14 ESFR upright sprinklers are required with the system, designed to supply all sprinklers in the room.

As a result, the alternative presented through compliance with Table 12.1.9.2.1 (option 4) seems very liberal by comparison. Compliance appears to be satisfied without a cutoff room protecting pallets up to the normal height of the protection capabilities of K-14.0 or K-16.8 ESFR sprinklers, using the standard 12-sprinkler design area. How can this be?

The answer is in the history of this section. In the 1999 edition of the standard, the options for storing plastic pallets indoors involved only spray sprinklers, and were located in Section 7-5.3.2.

When the 2002 edition of NFPA 13 was prepared, ESFR sprinklers were recognized in two different ways. One recognition simply involved their allowance as an alternative to the 0.6 gpm/sq. ft. density from spray sprinklers within a cutoff room. But the other recognition was more comprehensive. Since both the K-14.0 and K-16.8 ESFR sprinklers are now recognized by NFPA 13 for protection of exposed unexpanded plastics, it was also decided to allow their use for the protection of plastic pallets. After all, plastic pallets are essentially exposed unexpanded plastics. It should be noted that Table 12.1.9.2.1 recognizes only K-14.0 and K-16.8 ESFR sprinklers, not the other orifice sizes of ESFR sprinklers.

The other ambiguous portion of this section is 12.1.9.2.3, which states “Idle plastic pallets shall only be stored in racks where protected in accordance with the requirements of Table 12.1.9.2.1.” Does this mean that the pallets must be stored in racks (as opposed to piles) when the ESFR criteria is used, or does it mean that the ESFR criteria must be used if the plastic pallets are stored in racks? The answer is again found in the 1999 edition, which simply stated (Section 7-5.3.3): “Idle plastic pallets shall not be stored in racks.” The allowance of ESFR protection opened the door to the storage of plastic pallets in racks, and Table 12.1.9.2.1 clearly states the location of storage as being either on the floor or in racks without solid shelves.

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