

# NFPA 13 EXECUTIVE SUMMARY

## *Proposed Changes in Standard for Installation of Sprinkler Systems*

**N**FPA 13, *Standard for Installation of Sprinkler Systems*, changed significantly in 2002 and there are proposals for changes for the 2006 edition that could have significant effects on the RIMS industry. The most significant changes that occurred in the 2002 edition relate to the requirements for solid shelving that have prompted the industry to use 50% open shelf materials to support the cartons in the rack.

A typical records storage facility will utilize shelving that is 40 ft<sup>2</sup> to 85 ft<sup>2</sup>. Under the 2002 edition of NFPA 13, if solid shelving material is used and the shelf area is greater than 20 ft<sup>2</sup> (*i.e.*, about 5'x4'), additional protection is required. If the solid shelf is greater than 20 ft<sup>2</sup> but less than 64 ft<sup>2</sup>, the standard requires ceiling sprinklers and intermediate level in-rack sprinklers at not more than 6' vertically. If the solid shelf exceeds 64 ft<sup>2</sup>, the 2002 edition of NFPA 13 requires the installation sprinklers below every shelf.<sup>2</sup> In records storage facilities that utilize catwalk systems the racking is considered multiple-row rack and the shelf area is approximately 85 ft<sup>2</sup> in the absence of a maintained flue space between the racks; thus, the 2002 edition of NFPA 13 requires that sprinklers be installed under every shelf which, when the required clearance is maintained, would likely result in a density loss of 15%.<sup>3</sup>

Because of the varying state and local codes, code adoption timing, and differences in the enforcement of codes, many of you have not yet had to deal with this solid shelf issue. Because of increased discussion of solid shelves within the code writing community, this and the issues discussed below, may eventually impact more record center operations.

The 2006 edition of NFPA 13 is currently under development and is scheduled to be presented to the NFPA membership for a vote at its annual meeting in Orlando Florida, in June, 2006. There appears to be a substantial school of thought on the NFPA Technical Committee (TC) that is responsible for NFPA 13 that rack uprights and/or transverse flues should be placed every 4 to 5 feet, rather than at the approximately 9' to 10' spacing that is the industry current design, or alternatively to require the installation of sprinklers under every shelf. The feeling

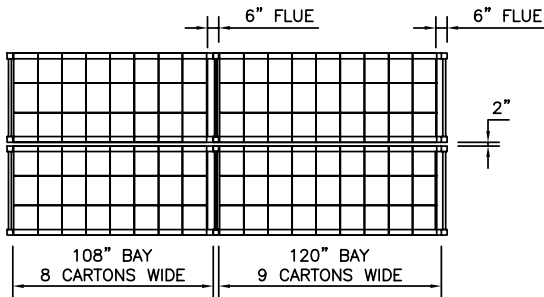
appears to be that “the protection criteria developed for typical pallet loads of 4 to 5 ft. width on open racks is being applied to larger loads that block flue spaces.” Therefore, it appears that a large majority of the TC believes that there should be a flue every 4 to 5 feet, resulting in an area of approximately 20 ft<sup>2</sup>.

The statement of the TC further stresses the importance of maintaining the flue space every 4 to 5 ft. and states that: “Where boxes are stored so as to cover flue spaces, solid shelves are created and should be protected accordingly”, *i.e.*, by reduced vertical spacing of sprinklers or installation of sprinklers under every shelf. Even though the TC statement does not appear in the text of the standard, when a local fire official, known as the authority having jurisdiction (AHJ) consults NFPA regarding the issue, the TC statement is likely to be communicated to the AHJ as authoritative guidance on required design criteria.

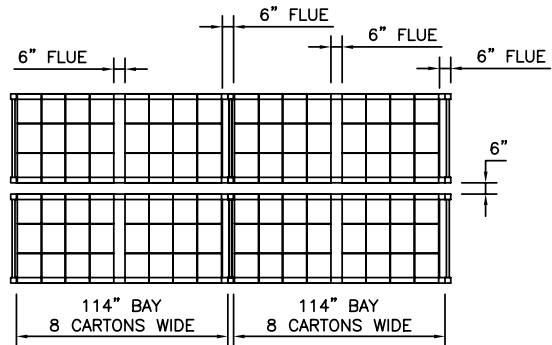
The TC’s statements may also foretell significant additional changes for the RIMS industry in that we have used the 50% open shelf material and only maintained a transverse flue at rack uprights, *i.e.*, approximately every 9 ft. to 10 ft. The fire departments have accepted this arrangement. In addition to adding the openings, a substantial carton storage loss (and associated revenues) – from a low of 10% to 30% or more – may result.

The normal process for fire code changes is to have several catastrophic losses or full-scale fire testing that dictate need for changes. There have not been any recent significant losses involved with solid shelving. All the major losses in the records industry appear to have been caused by arson and regardless of shelf configuration no operator can protect against a determined arsonist.

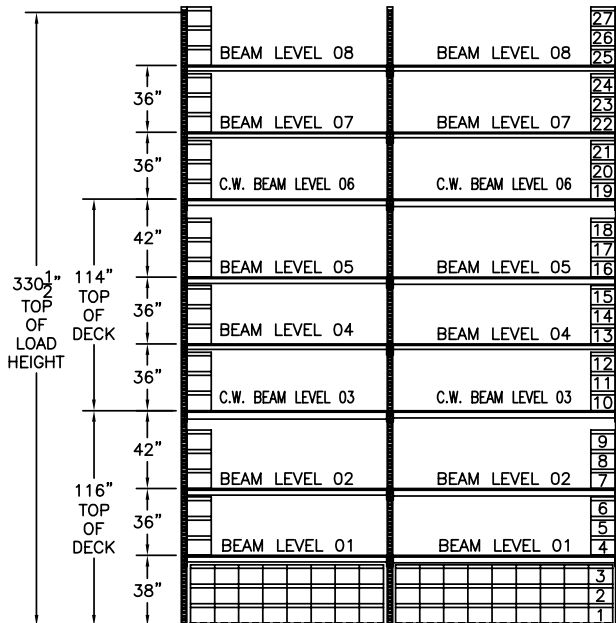
NFPA 13 is adopted into the building code of most states, although



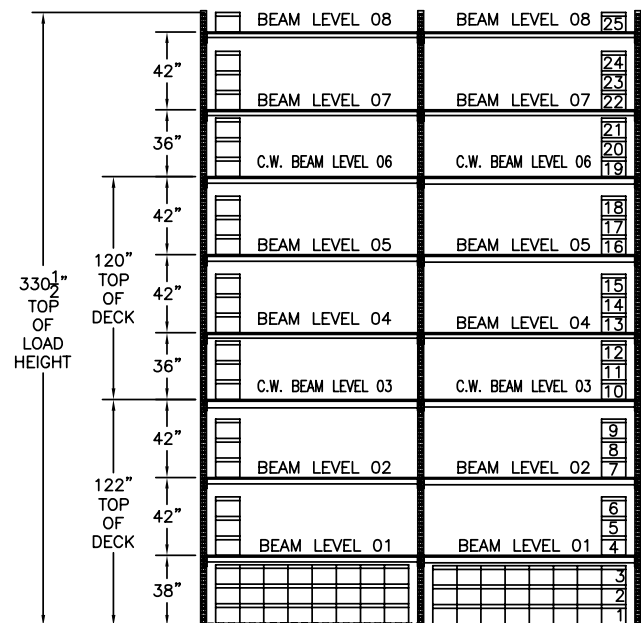
CATWALK SYSTEMS PLAN VIEW  
CURRENT



CATWALK SYSTEMS PLAN VIEW  
WITH ADDED FLUE SPACES



108" ELEVATION 120" ELEVATION  
27 HIGH



114" ELEVATION 114" ELEVATION  
25 HIGH

NOTES		REB STORAGE SYSTEMS INTERNATIONAL		
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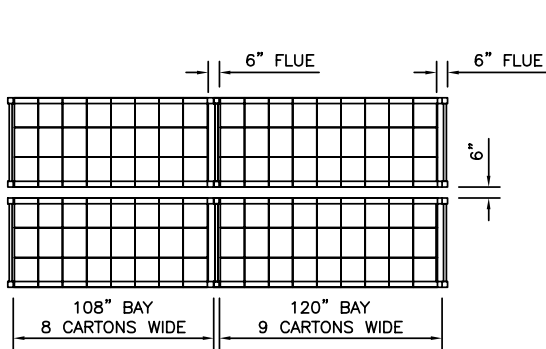
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there is usually some lag time between the publication of a new edition and its adoption into law (a few states, however, prospectively adopt new additions of certain NFPA documents, including NFPA 13). Normally changed provisions only apply prospectively to new facilities and additions and existing facilities are grandfathered in if they were constructed properly at the time of construction. However, NFPA 13, Section 1.4, now gives local authorities the power to apply its new requirements retroactively any time the AHJ determines that "the existing situation presents an unacceptable degree of risk". As cases make clear, it is very difficult to challenge an AHJ's determination even if the AHJ's requirements are not expressly mandated by the standard or the local building code.

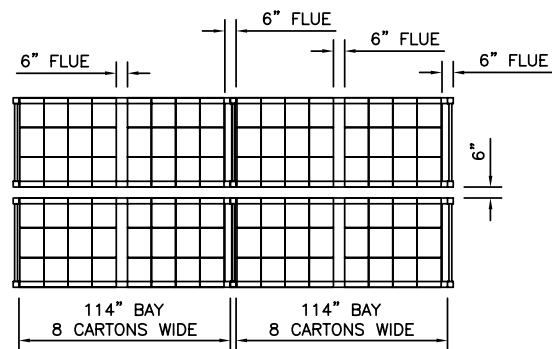
1 Section 12.1.9.1 of NFPA 13 (2002 ed.) provides: "Where solid shelving in single-, double-, and multiple-row racks exceeds 20 sq. ft. but does not exceed 64 sq. ft in area, sprinklers shall not be required below every shelf, but shall be installed at the ceiling and below shelves at intermediate levels not more than 6 ft. apart vertically."

2 Section 12.1.9.2 of NFPA 13 (2002 ed.) provides: "Where solid shelving in single-, double-, and multiple-row racks exceeds 64 sq. ft. in area or where the levels of storage exceed 6 ft., sprinklers shall be installed at the ceiling and below each level of shelving."

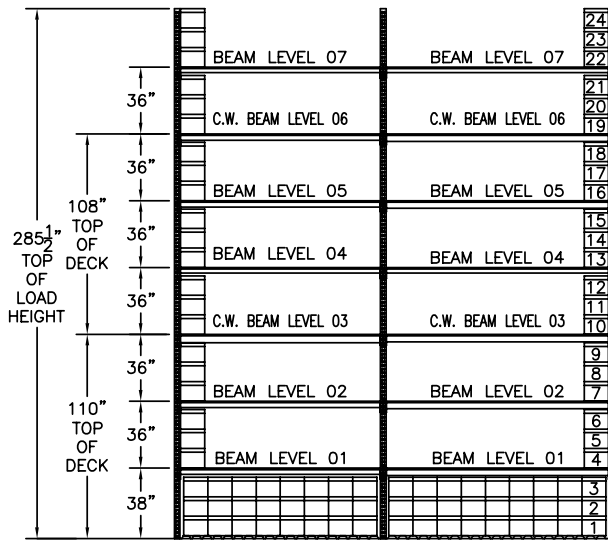
3 In a storage facility 35' high, there are approximately 9 to 10 shelf levels and, therefore, the 2002 edition of NFPA 13 requires the installation of 9 to 10 levels of sprinklers. In addition, the sprinkler position must be at least 6" above the top of the storage, so in addition to the 9 or 10 levels of sprinklers the storage system would have to be redesigned to accommodate the minimum 6" space between the top carton and the sprinkler. Thus, in a storage system 35' high, the shelving would have to be redesigned to accommodate the under-shelf sprinklers resulting in a loss of at least 5 levels of cartons; normally there would be 34 levels of cartons in a 35' high rack system but, with the additional under-shelf sprinklers, there would only be 29 levels, a density loss of 15%.



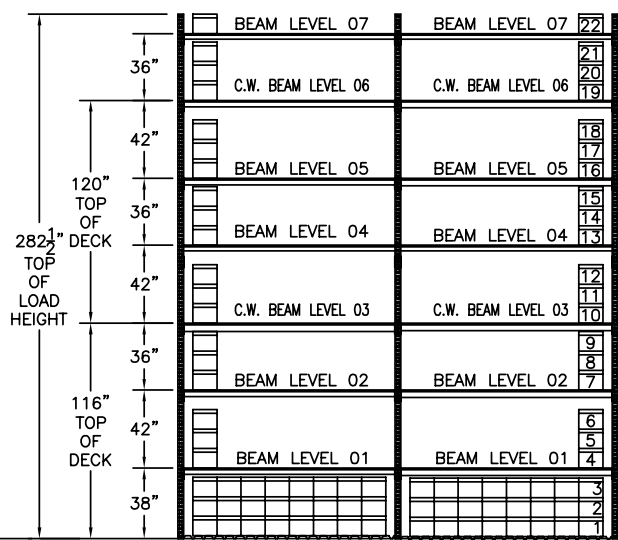
ORDER PICKER SYSTEMS PLAN VIEW  
CURRENT



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WITH ADDED FLUE SPACES



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