

listings and warranties.

~~5.7.8 Where automatic sprinklers are present, and the application of aisle containment systems or hot air collars creates obstructions to proper operation of sprinkler systems, the sprinkler system shall be modified to comply with NFPA 13.~~

~~5.7.8.1 Sprinkler system modification shall not be required where an automatic means exists to remove the obstructions prior to sprinkler operation and where there will be no impact on the time response of the sprinkler operation.~~

~~5.7.9* Where gaseous suppression systems are present, they shall be designed to develop the required concentration of agent for the entire volume they serve in accordance with NFPA 2001.~~

~~5.7.10 If the aisle containment prevents the gaseous suppression system from producing the required design concentrations throughout the entire volume served, the gaseous suppression system shall be modified to produce the required concentration throughout the volume served.~~

~~5.7.10.1 Gaseous suppression system modification shall not be required where an automatic means exists to remove the obstructions prior to suppression operation.~~

~~5.7.10.2 The plenum shall be included as part of the protected volume when the following conditions apply:~~

- ~~(1) Hot air collars are connected to a ceiling plenum and,
(2) ICTE continues to operate during system discharge~~

~~5.7.11 Where factory-built aisle containment systems are provided for ICTE aisles, they shall be designed and installed in accordance with the manufacturer's instructions and listings.~~

~~Add new annex Section A.5.7 for new text in Section 5.7:~~

~~A.5.7.1 Some aisle containment systems are provided as part of a factory packaged and listed system by the cabinet manufacturers, while others are field installed after market systems. In either case, the application of these systems should be in accordance with the manufacturer's instructions~~

~~A.5.7.4 Where other air plenums are present, the space above the raised floor and below the suspended ceiling is typically accessible space to both occupants and first responders for maintenance access, fire fighting activities, etc and therefore does not need to be classified as a plenum space. The addition of aisle containment systems does not change the hazards contained within those containment areas and therefore does not necessitate different construction materials as required in plenum spaces as defined elsewhere in this NFPA Standard and others.~~

~~A.5.7.6 The temperatures in hot aisles can exceed 100F, which is often the listing limit on many types of detectors.~~

~~A.5.7.9 Aisle containment and hot air collars should be reviewed for any impact to the suppression systems where present to produce the required design concentration throughout the entire volume they serve.~~

Substantiation: The NFPA 75 and 76 chairs and committees created placeholders in the ROP for addressing fire protection requirements for HVAC air containment systems. A joint task group was formed to prepare proposals that would address the immediate and apparent gaps associated with fire protection and HVAC air containment systems. The task group has prepared the following comments as a result. Details of the task group can be found in the meeting minutes and will be pro chair via a summary of the effort at the ROC meeting

Accepted language

Committee Meeting Action: Accept in Principle

Replace text proposed in ROP-63 and number as follows:
5.7 Aisle Containment and hot air collar Systems for Information Technology Equipment

5.7.1* Aisle containment and hot air collar systems shall be permitted to be one of the following:

- (1) Factory-packaged and Aftermarket. Systems designed, provided, and installed in accordance with the manufacturer's instructions.
(2) Field-constructed. Systems designed and constructed using common construction materials.

5.7.2 Both types of aisle containment systems shall comply with the following sections 5.7.3 through 5.7.10.

5.7.3 Elements of aisle containment and hot air collars shall be constructed of materials that have a maximum flame spread index of 50 and a maximum smoke development of 450 in accordance with one or more of the following:

- (1) ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials;
(2) UL 723, Standard for Test for Surface Burning Characteristics of Building Materials.

5.7.4* Aisle containment systems and hot air collars shall not be considered to be plenums.

5.7.5 Aisle containment systems shall be permitted to be applied to hot aisles or cold aisles of ITE.

5.7.6* Detection and suppression components within aisle containment systems shall be rated for the intended temperatures of hot aisles when installed in those locations.

5.7.7* Where aisle containment systems are installed, the existing suppression and detection systems shall be evaluated, modified and tested as necessary to maintain compliance with the applicable codes and standards.

5.7.8 Where automatic sprinklers are present and the application of aisle containment systems or hot air collars creates obstructions to proper operation of sprinkler systems, the sprinkler system shall be modified as necessary to

comply with NFPA 13.

5.7.8.1* Sprinkler system modifications shall not be required where all of the following conditions are met:

- (1)* an automatic means of smoke detection initiates the removal of the obstruction prior to the suppression system operation
(2) removing the obstruction or portion thereof does not compromise means of egress per NFPA 101
(3) the design and installation of removable obstruction elements does not diminish the level of protection below that which existed prior to the installation of the aisle containment or hot air collar
(4)* the releasing devices are listed for the application
(5) all removable obstructions are removed for the entire suppression zone.

5.7.9* Where gaseous suppression systems are present, they shall be designed to develop the required concentration of agent for the entire volume they serve in accordance with NFPA 2001.

5.7.10 If the aisle containment prevents the gaseous suppression system, where present, from producing the required design concentrations throughout the entire volume served, the gaseous suppression system shall be modified to produce the required concentration throughout the volume served.

- 5.7.10.1* Gaseous suppression system modifications shall not be required where all of the following conditions are met:
(1)* an automatic means of smoke detection initiates the removal of the obstruction prior to the suppression system operation
(2) removing the obstruction or portion thereof does not compromise means of egress per NFPA101
(3) the design and installation of removable obstruction elements does not diminish the level of protection below that which existed prior to the installation of the aisle containment or hot air collar
(4)* the releasing devices are listed for the application
(5) all removable obstructions are removed for the entire suppression zone.

Add new annex section A.5.7 for new section 5.7:

A.5.7.4 Where plenums are present, the space above the raised floor and below the suspended ceiling is typically accessible space to both occupants and first responders for maintenance access, fire fighting activities, etc and therefore does not need to be classified as a plenum. The addition of aisle containment systems installed in accordance with this Standard does not change the hazards contained within those containment areas and therefore does not necessitate different construction materials as required in plenum spaces as defined elsewhere in this NFPA Standard and others.

A.5.7.6 Temperatures of 100°F are possible in hot aisles. Temporary increases in temperature above 100°F in hot aisles may occur during normal facility operations. Some smoke detectors are listed for maximum operating temperature of 100°F. Where smoke detectors are located in hot aisles or in the air stream exhausted from hot aisles, detectors should have appropriate listing for temperatures above 100°F.

Where heat detectors are located in hot aisles, consideration of the operating temperatures within the hot aisles should be made when selecting the temperature rating of the detectors. NFPA 72 and manufacturer's instruction should be consulted for guidance.

During startup of IT equipment, the rate of temperature rise within hot aisles could cause rate-of-rise detectors to activate. Detection systems should be designed to avoid unwanted alarm during IT equipment startup.

The normally elevated temperatures within hot aisles should be taken into account when selecting sprinklers for installation in these aisles. NFPA 13 should be consulted for guidance.

Abnormal conditions can result in even higher temperatures than described above. For example, temperatures as high as 150 degrees have been observed in hot aisles upon failure of the HVAC system.

A.5.7.8.1 This section addresses removable curtains and aisle containment materials, which are otherwise referred to as removable obstructions. Fixed obstructions are clearly addressed for suppression systems within NFPA 13. Means other than automatic smoke detection used for removing the obstructions (i.e. thermal mechanical & fusible links) still need further research by the industry and are not clearly demonstrating the capability of activating without impacting the timed response effective performance of suppression systems.

- (1) This action may be compared to readying the space before suppression such as initiating the closing of fire doors, dampers, and the like.
(4) The releasing devices can be similar to those used for initiating fire doors, dampers, and the like.

A. 5.7.10.1 This section addresses removable curtains and aisle containment materials, which are otherwise referred to as removable obstructions. Fixed obstructions are clearly addressed for suppression systems within NFPA 2001. Means other than automatic smoke detection used for removing the obstructions (i.e. thermal mechanical & fusible links) still need further research by the industry and are not clearly demonstrating the capability of activating without impacting the effective performance of suppression systems.

- (1) This action may be compared to readying the space before suppression such as initiating the closing of fire doors, dampers, and the like.
(4) The releasing devices can be similar to those used for initiating fire doors, dampers, and the like.

Committee Statement: The TC recognizes the hot aisle and cold aisle containment systems present new fire protection challenges. Currently, hot aisle and cold aisle containment systems are being installed to improve the

efficiency of the HVAC systems. The components currently used in these systems may include highly combustible materials. The changes in air flow and obstructions created may compromise fire detection and suppression systems. The text accepted by the TC limits the combustibility of the materials used in the construction of partitions and requires reevaluation of the fire detection and suppression systems and appropriate mitigation to ensure that adequate detection and suppression are maintained.

Number Eligible to Vote: 28**Ballot Results:** Affirmative: 25**Ballot Not Returned:** 3 Goonan, T., Petrou, G., Roux, H.**Comment on Affirmative:**

MCCLUER, S.: Clause 5.7.9 is redundant and should have been deleted

- The requirement for a suppression system to be designed to develop the required concentration for the entire volume served is already addressed in 8.4.2.

- Requiring a system to be designed after it already exists is a nonsequitur. 5.7.10 is worded clumsily and contains two provisions. It should have been worded something as follows:

5.7.9 When an aisle containment system or a hot air collar is installed into a space with an existing gaseous suppression system, one of the following shall apply:

(1) The aisle containment system or hot air collar permits the existing gaseous suppression system to produce the required concentration throughout the volume served; or

(2) the gaseous suppression system is modified to ensure that it can produce the required concentration within the contained area.

A.5.7.6 - The rewording did not add clarity. Temperatures in a hot aisle can exceed 100F for short, prolonged, or continuous time periods during normal facility operations. We have observed hot aisle temperatures as high as 125F under normal operating conditions.

A.5.7.8.1 the final sentence should read "...timed response and effective performance..."

75-19 Log #23

Final Action: Accept in Part**(6.1)****Submitter:** Randy Willard, National Reconnaissance Office**Comment on Proposal No:** 75-35**Recommendation:** Revise text to read as follows:

~~6.1.1.1 Small supervisory offices and similar light-hazard occupancies directly related to the electronic equipment operations shall be permitted within the information technology equipment room if noncombustible containers are provided for combustible material.~~

~~6.1.1.2 Records shall be permitted in the information technology equipment room to the extent allowed in Chapter 9.~~

~~6.1.2 Office furniture in the information technology equipment room shall be of metal construction:~~

~~6.1.2.1 Metal frame chairs with integral seat cushions shall be permitted.~~

~~6.1.2.2 Insulated or controlled conductive coverings shall be permitted on surfaces of chairs, tables, desks, and so forth.~~

~~6.1.3 Only approved self-extinguishing-type trash receptacles shall be used in the information technology equipment area.~~

6.1.2 Small work areas shall be permitted within the ITE room provided all the following conditions are met:

(1) Areas are not occupied on a full-time basis.

(2) Case furniture, including desks, is constructed of noncombustible material (e.g., metal). The construction can include a high-pressure laminate veneer on desktop.

(3) Space dividers and system furniture panels and chairs with upholstered assemblies exhibit a maximum rate of heat release not exceeding 80 kW and a maximum total heat released not exceeding 25 MJ within the first 10 minutes of test when tested in accordance with one of the following:

(a) ASTM E 1537

(b) California Technical Bulletin 133

(4) Paper records, manuals, drawings and all other combustible materials are stored in fully enclosed noncombustible cabinets or cases.

(5) The quantity of records, manuals, drawings, and all other combustible materials kept in the room shall be limited to the absolute minimum required for essential and efficient operation.

(6) Heat or spark producing devices such as soldering irons shall not be permitted.

(7) Trash receptacles where provided shall be of an approved self-extinguishing type.

Substantiation: The bulk of the proposed changes takes the committee's accepted language of Proposal 75-35 and reorganizes for improved flow of requirements, consolidation of like requirements, and removal of duplicative material. Subparagraph 6 is added to prohibit heat producing devices such as soldering irons. Subparagraph 7 reinstates the existing 6.1.3.

Committee Meeting Action: Accept in Part

Accept all changes besides item (6).

Committee Statement: Item 6 is deleted due to being new material.**Number Eligible to Vote: 28****Ballot Results:** Affirmative: 25**Ballot Not Returned:** 3 Goonan, T., Petrou, G., Roux, H.

75-20 Log #1

Final Action: Accept**(8.1)****Submitter:** Scott J. Harrison, UTC Fire & Security/Marioff North America**Comment on Proposal No:** 75-43**Recommendation:** Add new text to read as follows:**8.8 Water Mist Fire Protection Systems**

8.8.1 Where provided, water mist fire protection systems shall be installed in accordance with the requirements of NFPA 750.

8.8.2 Water mist fire protection systems shall be designed and installed for the specific hazards and protection objectives specified in the listing.

8.8.3 Detection systems utilized for the operation of water mist fire protection systems shall be installed in accordance with the listing criteria.

Substantiation: The additional text will align NFPA 75 2009 Chapter 8 Fire Protection and Detection Equipment (8.1 Automatic Sprinkler Systems) with NFPA 76 2009 Edition Chapter 8 Fire Protection Elements (8.6...Sprinkler Systems/Water Mist Fire Protection Systems).

Water Mist Systems have been Factory Mutual approved for Class 5560 Light Hazard Occupancies in open and enclosed spaces per Data Sheet 4-2 paragraph 2.2 and Computer Room Subfloors.

As stated in the report "FM approved Light Hazard water mist systems can be used to protect non-storage and non-manufacturing occupancies such as: data processing centers". (Note NFPA 13 2010 Edition Paragraph A5.2 states "Light Hazard Occupancies include occupancies having uses and conditions similar to the following: ...Offices, including data processing".)

Since Water Mist is approved for this occupancy, the intent of the proposal is to provide this technology as an optional solution for protecting IT equipment on par with water sprinkler systems or gaseous agent systems per the approvals noted above.

NFPA Standards..10 (Fire Extinguishers), 12 Carbon Dioxide Extinguishing Systems, 12A Halon 1301 Fire Extinguishing Systems, 13 Sprinkler Systems, 14 Hose Systems and 2001 Clean Agent Fire Extinguishing Systems are all addressed and referenced as fire protection solutions in this standard. Water Mist should be included as a viable option.

Since these two occupancy types (NFPA 75 Information Technology Equipment and NFPA 76 Telecommunications Facilities) are combined in some environments such as telephone switching stations with computer server / data rooms and air traffic control towers with communications and computer equipment rooms, it would keep the standards in line with each other. This would reduce the need for formal interpretation and provide clear wording for AHJs that has already been approved in NFPA 76 and define another fire protection alternative in NFPA 75 that already exists in NFPA 76.

Committee Meeting Action: Accept**Number Eligible to Vote: 28****Ballot Results:** Affirmative: 25**Ballot Not Returned:** 3 Goonan, T., Petrou, G., Roux, H.

75-21 Log #13

Final Action: Accept in Principle**(8.1.1.2)****Submitter:** Mark L. Robin, DuPont**Comment on Proposal No:** 75-22**Recommendation:** Revise text to read as follows:

8.1.1.2 An automatic sprinkler system, a carbon dioxide extinguishing system, or an inert a clean agent fire extinguishing system for the protection of the area below a raised floor...

Substantiation: Clean agents are an effective option for underfloor suppression, particularly if they are already being employed in the space above the underfloor. Comment 75-44 included this revision and was accepted in principle.

Committee Meeting Action: Accept in Principle**Committee Statement:** See action on Committee Comment 75-25 (Log #CC4).**Number Eligible to Vote: 28****Ballot Results:** Affirmative: 25**Ballot Not Returned:** 3 Goonan, T., Petrou, G., Roux, H.**Comment on Affirmative:**

LANGER, R.: I believe the committee action should refer to 75-25, (Log #CC4) not 75-30, (Log #4).

75-22 Log #16

Final Action: Reject**(8.1.1.2)****Submitter:** Joshua Elvove, U.S. General Services Administration**Comment on Proposal No:** 75-20**Recommendation:** Delete proposed 8.1.1.2(1) and 8.1.1.2(2) and accept original proposed text instead so 8.1.1.2 reads as follows:

8.1.1.2 An automatic sprinkler system, a carbon dioxide extinguishing system, or an inert agent fire extinguishing system for the protection of the area below the a raised floor in an information technology equipment room or information technology equipment area shall be provided, unless otherwise determined by the fire risk analysis in Section 4.1.