

TechNotes Issue # 392
March 13, 2018

Best of February 2018

Following are a dozen questions answered by the engineering staff as part of the NFSA's Expert of the Day (EOD) member assistance program during the month of February 2018. This information is being brought forward as the "Best of February 2018." If you have a question for the NFSA EOD (and you are an NFSA member), send your question to eod@nfsa.org and the EOD will get back to you.

It should be noted that the following are the opinions of the NFSA Engineering Department staff, generated as members of the relevant NFPA technical committees and through our general experience in writing and interpreting codes and standards. They have not been processed as formal interpretations in accordance with the NFPA Regulations Governing Committee Projects and should therefore not be considered, nor relied upon, as the official positions of the NFPA or its Committees. Unless otherwise noted the most recent published edition of the standard referenced was used.

Question 1 - Heat Trace for Supply Piping

A general contractor does not want to build a dry pipe valve enclosure with to maintain the temperature at or above 40°F.

Would it be acceptable to use heat trace for the wet supply piping before the dry valve?

Answer: The answer to your question is "no, the dry valve and its wet components must be enclosed in a lighted and heated valve room."

NFPA 13-2016 section 7.2.5.2.3 explicitly prohibits the use of heat tape/trace in lieu of a heated enclosure. (Similar language appears in all recent editions.)

7.2.5.2 Valve Rooms

7.2.5.2.1 Valve rooms shall be lighted and heated.

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7.2.5.2.2 The source of heat shall be of a permanently installed type.

7.2.5.2.3 Heat tape shall not be used in lieu of heated valve enclosures to protect the dry pipe valve and supply pipe against freezing.

Question 2 - Classification of Plastics

A facility containing helmets that are individually stored in plastic bags contained within cardboard cartons without additional packing material is being considered for sprinkler protection and an appropriate commodity classification is needed.

The helmets alone are approximately 90% expanded plastics. However, when considering the volume of the box, the expanded plastics are less than 40% of the volume which meets the criteria to be classified as cartoned unexpanded plastics.

In the opinion of the submitter, the % volume should be determined based on the total of the contents rather than the volume of the container and the air within it.

When determining if a group A plastic is expanded or unexpanded; should the packing material and container volume be included?

Answer: The answer to your question is "yes," the packing material and the volume of the carton needs to be included when classifying a commodity.

This is made clear in the definition of a commodity found in NFPA 13-2016 chapter 3. A commodity is specifically defined as follows:

3.9.1.5 Commodity. *The combination of products, packing material, and container that determines commodity classification*

As you can see by this definition, the commodity classification includes the packing material and the container.

As for the helmets that you have referenced, (cartoned and containing less than 40% by volume of expanded plastic) it appears that this commodity meets the criteria to be considered as a Group A unexpanded plastic. This is made clear in NFPA 13 (2016) in section 5.6.4.1.1.2 (2) which reads as follows:

5.6.4.1.1.2 A Group A unexpanded plastic commodity shall be defined as a product, with or without pallets, that meets one of the following criteria:

(1) Cartoned, or within a wooden container, that contains greater than 15 percent by weight of Group A



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unexpanded plastic

(2) *Cartoned, or within a wooden container, that contains greater than 25 percent and up to 40 percent by volume of Group A expanded plastic*

(3) *Cartoned, or within a wooden container, that contains a mix of Group A unexpanded and expanded plastics, in compliance with Figure 5.6.3.3.3(a)*

(4) *Exposed, that contains greater than 15 percent by weight of Group A unexpanded plastic*

(5) *Exposed, that contains greater than 5 percent and up to 25 percent by volume of Group A expanded plastic*

(6) *Exposed, that contains a mix of Group A unexpanded and expanded plastics, in compliance with Figure 5.6.3.3.3(b)*

Question 3 - Fire Department Connection Sizes

When is it required for fire department connection (FDC) piping to be increased larger than 4 in. diameter?

Answer: The answer to your question is "it depends." For a sprinkler system, there is no requirement, for the fire department connection piping to be greater than 4 in., unless supplied by a fire boat. NFPA 13-2016 section 8.17.2.3, states:

8.17.2.3* Size. *The size of the pipe for the fire department connection shall be in accordance with one of the following:*

(1) *Pipe size shall be a minimum of 4 in. (100 mm) for fire engine connections.*

(2) *Pipe size shall be a minimum of 6 in. (150 mm) for fire boat connections.*

(3) *For hydraulically calculated systems, the pipe size shall be permitted to be less than 4 in. (100 mm), but not less than the largest riser being served by that connection.*

A.6.7.1 states "The purpose of the fire department connection is to supplement the water supply but not necessarily provide the entire sprinkler system demand. Fire department connections are not intended to deliver a specific volume of water." Since the fire department connection does not need to meet the sprinkler system demand larger diameter piping would not be required.

For a standpipe system, larger diameter piping would be required when based on hydraulic calculations in accordance with NFPA 14 section 7.7. NFPA 14-2016 section 7.6.1 identifies that Class I and III standpipes shall be at least 4 in. The fire department connection pipe size is determined by hydraulic calculation as identified in section 7.7.1 or 7.7.2. Where a manual standpipe is provided and an attached water supply is provided for a sprinkler system or to maintain a wet system in accordance with section 7.7.3, the minimum 4 in. diameter of section 7.6.1 would apply. Information

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regarding fire department pumpers for use in the hydraulic calculations must be provided by the local fire department as stated in section 7.7.4.

7.7 System Design and Sizing of Pipe for Delivery of System Demand

7.7.1 Class I and Class III standpipe systems shall be designed so that the system demand can be supplied by each fire department connection, which is provided in accordance with Section 7.12.

7.7.2 Where an automatic or semiautomatic water supply is required for a Class I, II, or III standpipe system by Section 5.4, the standpipe system shall be designed so that the system demand can be independently supplied by the attached water supply and each fire department connection provided on the system.*

A.7.7.2 Hydraulic calculations should be provided to show that each fire department connection can adequately supply the standpipe demand.

7.7.3 Where a manual system is permitted by Section 5.4 and an attached water supply is provided to supply an automatic sprinkler system or to maintain water in a wet system, the attached water supply shall not be required to satisfy the standpipe system demand.

7.7.4 When the system demand to be supplied by the fire department at the fire department connection is being determined, the local fire department shall be consulted regarding the water supply available from a fire department pumper.

Question 4 - Requirement for a Standpipe

A standpipe system is being considered for a building where the change in elevation from the parking lot on the front of the building to the highest floor is 28 feet. It is believed that fire department access is limited to this side of the building. Grade level at the rear of the building is approximately 12 feet lower than the parking lot but there is no street access to that side of the building.

Would a standpipe system be required in this building per IBC section 905.3.1?

Answer: The answer to your question is "no, if the only fire department vehicle access to this building is from the front, standpipes are not required."

IBC-2012 section [F] 905.3.1 provides requirements for standpipe systems based on building height. As long as the highest story floor level is within 30 feet or less above the fire department access and the lowest story floor level is within 30 feet or less below, standpipes are not required by this

section.

[F] 905.3.1 Height. *Class III standpipe systems shall be installed throughout buildings where the floor level of the highest story is located more than 30 feet (9144 mm) above the lowest level of fire department vehicle access, or where the floor level of the lowest story is located more than 30 feet (9144 mm) below the highest level of fire department vehicle access.*

Question 5 - Elevator Shaft Sprinklers

There have been conflicting opinions on whether a sprinkler is needed at the top of a non-combustible elevator shaft.

Can you please advise of relevant code sections which would allow omission of a sprinkler at the top?

Answer: The answer to your question is "it depends." The requirement for whether noncombustible elevator shafts need sprinklers at the top would be found in NFPA 13-2016 sections 8.15.5.5 and 8.15.5.6. The basic requirement of section 8.15.5.5 is to provide a sprinkler at the top of the elevator hoistway.

8.15.5.5* *Upright, pendent, or sidewall spray sprinklers shall be installed at the top of elevator hoistways.*

However, section 8.15.5.6 provides an exception to this requirement and states that the sprinkler at the top of the shaft may be omitted for passenger elevator hoistways having either non-combustible or limited combustible materials and the elevator car enclosure meets the requirements of the elevator safety code (ASME 17.1).

8.15.5.6 *The sprinkler required at the top of the elevator hoistway by 8.15.5.5 shall not be required where the hoistway for passenger elevators is non-combustible or limited-combustible and the car enclosure materials meet the requirements of ASME A17.1, Safety Code for Elevators and Escalators.*

This language was added to the 2010 edition of NFPA 13. If the elevator hoistway or car enclosure do not meet the requirements of section 8.15.5.6 a sprinkler is required at the top of the hoistway in accordance with section 8.15.5.5.

Question 6 - Mixing of Sprinklers

NFPA 13-2016 has requirements related to mixing of sprinklers with differing sensitivity within the same compartment but there does not seem to be any requirements for mixing extended coverage and standard spray sprinklers within the same compartment.

Would it be permitted to mix quick response extended coverage (k=11.2) sprinklers with quick response (k=5.6)

standard spray sprinklers in the same compartment?

Answer: The answer to your question is "yes," quick response extended coverage sprinklers and quick response standard spray sprinklers are permitted in the same compartment. As you correctly identified, NFPA 13-2016 section 8.3.3.2 identifies that where quick response sprinklers are used within a compartment all sprinklers must be quick response. This relates to the thermal sensitivity of sprinklers. However, this does not apply to the water spray discharge for sprinklers. Since extended coverage and standard spray sprinklers are both spray sprinklers they are permitted to be used in the same compartment. However, the spacing rules must be met for each sprinkler as applicable. The requirements are identified in section 8.4. There are no restrictions related to extended coverage or standard spray sprinklers preventing mixing. Otherwise there would a statement similar the found in section 8.4.5.3 related to use of residential sprinklers, which states "Where residential sprinklers are installed in a compartment as defined in 3.3.6, all sprinklers within the compartment shall be residential sprinklers."

Question 11 of TechNotes No. 80 dated April 17, 2007 describes how to define the design area when using standard coverage and extended coverage sprinklers in the same design area.

Question 7 - Aerosols and Flammable Liquids in Mixed Use Warehouse

A project involving a 40,000 square foot general purpose warehouse is being converted from a mercantile occupancy to a storage occupancy. The new owner intends to store a wide selection of building maintenance products in single-row and double-row racks including a variety of Class I through IV commodities consisting of water heaters, A/C units, cleaning and maintenance supplies, tools, etc. with storage heights up to 18 feet high under a 20-foot 6-inch ceiling. The owner also intends to store small amounts of flammable liquids (up to 20 gallons total in small, unspecified types of containers of a gallon or less) and aerosols (up to 400 cans including Level 3), both of which would be spread out throughout the storage rack system, not grouped together. The governing codes and standards have been identified as IBC-2012, IFC-2012 and NFPA 13-2013. You have referenced IFC-2012 Table 5003.1(1) regarding hazardous materials and Table 5104.3.1 regarding aerosols.

Would storage of these limited quantities of flammable liquids and aerosols be permissible under NFPA 13 in an occupancy protected for Class IV commodities?

Answer: The answer to your question is "yes, those quantities are below the maximum limits established by the relevant codes and standards for specific levels of protection so they may be protected as part of the warehouse's general

nonsegregated contents based on the highest classified commodity present the warehouse, Class IV".

IFC-2012 section 5003.1.1 and Table 5003.1(1) permits up to 30 gallons of Class IA flammable liquids or up to 120 gallons of Class IB and IC flammable liquids with an increase of 100% in buildings protected with an NFPA 13 sprinkler system. The proposed 20 gallon aggregate maximum would be well within the quantities requiring no specific protection.

5003.1.1 *Maximum allowable quantity per control area. The maximum allowable quantity per control area shall be as specified in Tables 5003.1.1(1) through 5003.1.1(4).*

IFC-2012 section 5104.3.1 and Table 5104.3.1 permits up to 2,500 pounds (net) of Level 2 and Level 3 aerosols in a nonsegregated general warehouse storage or up to 12,000 pounds (net) if the areas containing aerosols are protected in accordance with NFPA 30B. Presumably, 400 cans of mixed aerosols would be well within the 2,500 pound (net) limit requiring no special protection.

5104.3.1 *Nonsegregated storage. Storage consisting of solid pile, palletized or rack storage of Level 2 and 3 aerosol products not segregated into areas utilized exclusively for the storage of aerosols shall comply with Table 5104.3.1.*

NFPA 13-2013 requires compliance with NFPA 30 and NFPA 30B, however, neither of those standards prescribe special protection of the stated quantities of flammable liquids or aerosols in a general storage warehouse.

22.2.1 *Design Requirements. Sprinkler system discharge criteria for the protection of flammable and combustible liquids shall comply with NFPA 30.*

22.3.1 *Design Requirements. Sprinkler system discharge criteria for the protection of aerosol products shall comply with NFPA 30B.*

NFPA 30-2012 section 12.3.1 requires specific protection when flammable liquids are stored in excess of the maximum allowable quantities (MAQ) established by Table 9.6.1 which permits up to 30 gallons of Class IA flammable liquids or up to 120 gallons of Class IB and IC flammable liquids with an increase of 100% in buildings protected with an NFPA 13 sprinkler system. The proposed 20 gallon aggregate maximum would be well within the quantities requiring no specific protection under NFPA 30.

12.3.1 *A general-purpose warehouse that stores liquids in quantities that exceed the maximum allowable quantities permitted in control areas by Table 9.6.1, but do not exceed the amounts permitted by Section 12.8 shall meet the requirements of Section 12.8.*

NFPA 30B-2011 does not establish maximum allowable quantities (MAQ) for aerosols not requiring sprinkler protection. Section 6.3 provides protection criteria for Level 2 and 3 aerosols that are required to be protected by another authority. In this case, that authority would be the IFC which does not require sprinkler protection for the proposed 400 cans of mixed aerosols. (see IFC 5104.3 above)

6.3 Storage of Level 2 and Level 3 Aerosol Products

6.3.1 The storage of Level 2 and Level 3 aerosol products shall be in accordance with Section 6.3.

6.3.1.1 Level 2 aerosol products in containers whose net weight is less than 28 g (1 oz) shall be considered to be equivalent to cartoned unexpanded Group A plastics, as defined in NFPA 13, Standard for the Installation of Sprinkler Systems.

6.3.1.1.1 In cases where the storage of Level 2 aerosol products in containers whose net weight is less than 28 g (1 oz) is required to be protected, such storage shall be in accordance with the requirements set forth in NFPA 13, Standard for the Installation of Sprinkler Systems, for cartoned unexpanded Group A plastics.

NFPA 30B identifies that when aerosols are mixed with other commodities all applicable requirements of Chapter 6 shall be applied.

6.3.2.5 Storage of mixed commodities within or adjacent to aerosol product storage areas shall meet all applicable requirements of Chapter 6.

As no specific protection is required for either the flammable liquids nor aerosols in the stated quantities in a nonsegregated general warehouse, protection requirements would be based on the storage arrangement of the highest classified commodity present in the warehouse, Class IV, as permitted by NFPA 13-2013 section 5.6.1.2.2. This would apply for all commodities except the Level 2 and 3 aerosols which would be considered cartoned unexpanded Group A plastics. Section 5.6.1.2.3 permits protection based on Class IV if specific conditions are met. Due to the limited quantity of aerosols present section 5.6.1.2.3 (1) would be met. Given that the aerosols will be interspersed throughout the warehouse section 5.6.1.2.3 (2) would be met. Since the existing sprinkler protection is based on Class IV, section 5.6.1.2.3 (3) would not be applicable.

5.6.1.2 Mixed Commodities

5.6.1.2.1 Protection requirements shall not be based on the overall commodity mix in a fire area.

5.6.1.2.2 Unless the requirements of 5.6.1.2.3 or 5.6.1.2.4

are met, mixed commodity storage shall be protected by the requirements for the highest classified commodity and storage arrangement.

5.6.1.2.3 *The protection requirements for the lower commodity class shall be permitted to be utilized where all of the following are met:*

(1) Up to 10 pallet loads of a higher hazard commodity, as described in 5.6.3 and 5.6.4, shall be permitted to be present in an area not exceeding 40,000 ft² (3716 m²).

(2) The higher hazard commodity shall be randomly dispersed with no adjacent loads in any direction (including diagonally).

(3) Where the ceiling protection is based on Class I or Class II commodities, the allowable number of pallet loads for Class IV or Group A plastics shall be reduced to five.

Question 8 - High Pressure Flanged Connections

Is it possible to use a nonstandard bolting pattern on a listed underground connection?

Answer: The answer is found in NFPA 13-2016 sections 10.2.1.2.2 and 10.3.3, respectively dealing with fittings and listed connections. Parallel sections with the same section numbering can be found within NFPA 24-2016: "Where listing limitations or installation instructions differ from the requirements of this standard, the listing limitations and installation instructions shall apply." The bolting patterns would be considered a requirement of the NFPA standards through reference to the ASME standards contained in Table 10.2.1.1 - Fittings Materials and Dimensions. However, by virtue of sections 10.2.1.2.2 and 10.3.3, the technical committee has clarified that the product listings supersede such dimensions. Note that the NFPA sections include the words "differ from the" and not "are more stringent than."

Question 9 - Wall Mounted Diffuser

Clarification has been requested on required distances and temperature ratings from a wall mounted diffuser in a nonresidential occupancy.

It has been noted that NFPA 13-2016 Table 8.3.2.5(a) references wall mounted diffusers for residential areas, however Table 8.3.2.5 which is applicable to nonresidential areas, talks about horizontal discharge diffusers but does not clearly state that this would apply to wall mounted diffusers.

Question 9.1: Is there a code required minimum distance a sprinkler head must be located from the side of a wall mounted diffuser?

Answer 9.1: The answer to your question is "yes." The requirements of Table 8.3.2.5(a) would need to be met for

diffusers with a horizontal discharge. This applies regardless of being mounted in a ceiling or on a wall.

Question 9.2: If the answer to question 1 is yes, please provide the distances from the diffuser based on the sprinkler temperature rating.

Answer 9.2: Intermediate temperature rated sprinklers are required to be installed within a semi-cylinder zone having a 2 ft. 6 in. (750 mm) radius in the direction of flow and extending 1 ft 0 in. (300 mm) below and 2 ft. 6 in. (750 mm) above the wall mounted diffuser. Ordinary temperature sprinklers are permitted beyond this 2 ft. 6 in. semi-cylinder zone.

Question 10 - CPVC Piping and Ordinary Hazard Rooms

An apartment building having a garage greater than 400 sq.ft. on the lower level will have a drywall ceiling fastened to the bottoms of 24 in. wood trusses. Interstitial space sprinklers are being installed above the ceiling with drops to pendent sprinklers for the garage which will be protected as an Ordinary Hazard Group 1 occupancy. The applicable standard is NFPA 13-2007 and section 6.3.6.2 has been referenced regarding two questions.

Question 10.1: Can the CPVC piping above the ceiling be considered in a Light Hazard area outside the Ordinary Hazard room so the 400 sq.ft. area limitation would not apply or is the area above the ceiling a part of the room when applying this section?

Answer 10.1: The answer to your question is "no, not in accordance with NFPA 13-2007." As part of the NFPA 13-2019 code revision cycle, a number of public inputs and public comments were submitted to increase the area. The current text is found in NFPA 13-2019 section 16.3.9.6.2, which was added as part of second revision (SR)-446 and shows consensus of the NFPA 13 SSI Technical Committee. However, this document has not been accepted and will be voted on at the NFPA C&E Technical Session this June in Las Vegas.

16.3.9.6.2 Where nonmetallic pipe installed in accordance with 16.3.9.6 supplies sprinklers in a private garage within a dwelling unit not exceeding 1000 ft² (93 m²) in area, it shall be permitted to be protected from the garage compartment by not less than the same wall or ceiling sheathing that is required by the applicable building code.

You can view the actions regarding this item by searching the second draft report on the NFPA website at www.nfpa.org, go to "Codes and Standards", select "List of NFPA Codes & Standards," then select "NFPA 13," select the "Next Edition" button and scroll down to the second draft report. Once in Terraview (the program showing the document) scroll to Chapter 16 Installation of Piping, Valves and Appurtenances.

Non-metallic piping is found in section 16.3.9, which includes requirements for CPVC piping. You can access SR-446 by selecting the link.

There is no certainty that this will be incorporated into NFPA 13-2019, but does support a discussion with the cognizant architect, building owner, fire protection and AHJ for consideration as part of this project. It would also be prudent to discuss this with CPVC pipe manufacturer to see if they are able to provide any additional information.

Question 10.2: Does the CPVC piping need to be exposed to be considered in the room?

Answer 10.2: The answer to your question is "no." The listing of CPVC piping identifies that it can be exposed or protected, but still limits the use to 400 sq. ft.

The information of NFPA 13-2019 sections 16.3.9.6 and 16.3.9.6.1 is provided below.

16.3.9.6 Nonmetallic pipe listed for light hazard occupancies shall be permitted to be installed in ordinary hazard rooms of otherwise light hazard occupancies where the room does not exceed 400 ft² (37 m²).

16.3.9.6.1 Nonmetallic pipe installed in accordance with 16.3.9.3.6 shall be permitted to be installed exposed, in accordance with its listing.

Question 11 - Car Lifts in Garages

Car lifts that hold 2 or 3 cars are being used in our jurisdiction.

Would these car lifts with stacked cars constitute obstructions to sprinkler discharge and how should they be protected?

Answer:The answer to your question is "yes, car stackers (car lifts) do create obstructions but the NFPA 13 Technical Committee has addressed them in part through occupancy hazard classification."

Questions regarding hazard or commodity classification are difficult except in those circumstances where an NFPA committee has specifically addressed the issue. This is especially true because the classification is considered in many states to be the most important aspect of fire protection system design, and an obligation of the responsible design professional. One reason many states require involvement of a responsible design professional is to ensure that the site-specific attributes of the project are recognized and properly addressed, which cannot be accomplished in a generic manner.

During the NFPA 13-2016 revision cycle, NFSA proposed

that two-level car stackers/lift systems in garages should be protected as Extra Hazard Group 2 (EH2) based on the definition of EH2 in 5.4.2 regarding conditions where combustibles are shielded from the ceiling sprinklers. The technical committee agreed and added these arrangements to the sample list for potential EH2 occupancies in A.5.4.2. Utilizing this arrangement allows the occupancy to be protected from the ceiling without providing additional sprinklers below the obstruction created by the car at the upper level.

5.4.2* Extra Hazard (Group 2). *Extra hazard (Group 2) occupancies shall be defined as occupancies or portions of other occupancies with moderate to substantial amounts of flammable or combustible liquids or occupancies where shielding of combustibles is extensive.*

A.5.4.2 *Extra hazard (Group 2) occupancies include occupancies having uses and conditions similar to the following:*

....

(9) Car stackers and car lift systems with 2 cars stacked vertically

As with any determination of occupancy hazard class, it is up to the responsible design professional to evaluate the specifics of each case. However, based on the committee's determination, the use of EH2 protection at the ceiling for two-level car stacking without providing sprinklers below the car at the upper level of a two-level system is one permitted option. The committee has not acted with regard to three-level systems which would still require a full evaluation by a responsible design professional to determine appropriate sprinkler protection.

Question 12 - Omission of Sprinklers in Independent Living Facilities

A project involving a 3-story "independent living" senior housing facility, which is an I-1 occupancy will be constructed of wood and will be Type VA construction. A sprinkler system will be installed in accordance with NFPA 13-2016. Section 8.15.8.2 limits omission of sprinklers to hotels and motels.

Can sprinklers be eliminated from closets in the living units less than 24 sq.ft. in other residential occupancies?

Answer:The answer to your question is "no." The permitted omission of NFPA 13 section 8.15.8.2 is specifically limited to hotels and motels. These are considered transient use rooms, which will in most cases have light fuel loading. Closets in other types of dwelling units do not have this same permitted omission in accordance with NFPA 13. However, exception 1 to IBC-2015 section 903.2.6 would allow an NFPA 13R system to be installed in an I-1 Condition 1

facility. This condition is identified in IBC section 308.3.1, which includes "buildings in which all people receiving custodial care who, without any assistance, are capable of responding to an emergency situation to complete building evacuation." NFPA 13R section 6.6.3 would permit the omission of sprinklers from clothes closets, linen closets and pantries less than 24 sq.ft. in area and enclosed with noncombustible or limited combustibles materials. Use of NFPA 13R is not being recommended, but only being identified as a permitted option which would allow the omission of sprinklers from the pantries (closets). This would also be consistent with NFPA 101 requirements, which would permit omission of sprinklers from these pantries. The main difference is that NFPA 13 provides requirements for both life safety and property protection purposes, while NFPA 13R and NFPA 101 are intended to provide life safety requirements with lesser or no emphasis on property protection. If the building does not meet the requirements for an I-1 Condition 1 facility, then sprinklers would be required in accordance with NFPA 13. Omission of the sprinklers from the pantries in accordance with NFPA 101 would require both approval by the building owner and AHJ since a lower level of protection would be provided. NFSA would support the installation of sprinklers in these closets as previously established in Question 5 of TechNotes #244 (7/17/12), Best of June 2012, and in the article titled "To Sprinkler or Not to Sprinkler?" in SQ #126 (Spring 2004).

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