



Coffee Break Training - Fire Protection Series

Inspection Techniques: Aerosol Products in Retail Displays

No. FP-2012-43 October 23, 2012

Learning Objective: The student shall be able to describe the fire code requirements for the display of Level 2 and 3 aerosols where the maximum quantity is exceeded in retail display and the storage height does not exceed 8 feet (2,438 millimeters (mm)).

Level 2 and 3 aerosol products in retail displays create a high challenge environment for fire protection systems. The fire inspector must be able to interpret and accurately apply code requirements to protect these commodities. (See Coffee Break Training 2006-13 for an explanation of aerosol classification levels.) Notice the narrow conditions outlined in today's learning objective: it is limited to retail display up to 8 feet (2,438 mm). Other conditions, such as a warehouse storage or heights greater than 8 feet (2,438 mm), require different protection features.



Level 2 and 3 aerosols on racks in retail display require special attention to the fire protection features depending upon the storage height.

The maximum net weight per floor of Level 2 or 3 aerosols that can be stored up to 8 feet (2,438 mm) in retail display differs based on the model fire code in place. The table compares the requirements:

Floor	NFPA 1 and IFC (No sprinklers) (lb)	NFPA 1 and IFC (No sprinklers) (kg)	IFC With sprinklers (lb)	IFC With sprinklers (kg)	NFPA 1 With sprinklers (lb/ft ² of display area)	NFPA 1 With sprinklers (kg/m ² of display area)
Basement	Not allowed	Not allowed	500	227	2	9.8
Ground	2,500	1,135	10,000	4,536	2	9.8
Upper	500	227	2,000	907	2	9.8

The storage and display requirements include the following conditions:

- In National Fire Protection Association (NFPA) 1, *Fire Code*, if the sales display area is not protected by an automatic sprinkler system or an existing wet pipe system does not meet the requirements of NFPA 13, *Standard for the Installation of Sprinkler Systems* for an Ordinary Hazard, Group 2 environment, the amount of Level 2 or 3 aerosols is limited to 2 pounds per foot² (9.8 kilograms (kg)/meter (m)²) of floor space actually used for the display.
- In both fire codes, the maximum amount of Level 2 or 3 aerosols in any 100 feet² (9 m²) retail display area is 1,000 pounds (454 kg).
- In both fire codes, to satisfy the minimum fire sprinkler system requirements, the sprinkler systems must be wet pipe and designed to meet at least Ordinary Hazard, Group 2 conditions established in NFPA 13.
- In the *International Fire Code*[®] (IFC), the maximum amounts per floor are based on 25,000 feet² (2,323 m²) display areas.

The fire protection requirements for Level 2 or 3 aerosol products are complex and require attention to detail. Don't hesitate to ask for competent assistance from professionals qualified to assess these hazards.

For additional information, refer to NFPA 1, Chapter 61, IFC, Chapter 28, and NFPA 30B, *Code for the Manufacture and Storage of Aerosol Products*.



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