



## Tuesday e-Tech Alert August 9, 2005

### **Sprinkler Protection of Fireworks Storage and Retail Sales**

Only six states currently ban all consumer fireworks: Arizona, Delaware, Massachusetts, New Jersey, New York and Rhode Island. In 1999, the NFPA Board of Directors acknowledged this fact and, while maintaining its longstanding opposition to consumer fireworks, allowed the NFPA Committee on Pyrotechnics to develop provisions for their retail sales and storage.

Criteria for sprinkler protection of consumer fireworks sales and storage was first available in the 2003 edition of what is now NFPA 1124 – *Code for the Manufacture, Transportation, Storage and Retail Sales of Fireworks*. Due to the timing, the criteria are not included among the extracts from other documents in Chapter 13 on the 2002 edition of NFPA 13. The NFPA Standards Council has now issued the completely revised 2006 edition of NFPA 1124.

How does NFPA 1124 classify consumer fireworks? Basically as a Class IV commodity. According to a presentation recently made by a representative of the fireworks industry to the NFSA Engineering and Standards Committee, this is based on the inclusion of paper matches within the examples of Class IV commodities in the annex of NFPA 13, an analysis of relative content of paper and other combustibles, and limited testing.

For consumer fireworks storage, NFPA 1124 requires:

- Automatic sprinkler protection per NFPA 13 in buildings greater than 12,000 ft<sup>2</sup>
- Consumer fireworks stored in DOT packaging to be considered a Class IV commodity
- Consumer fireworks stored no higher than 10 ft in racks or 12 ft otherwise are classified Ordinary Hazard Group 2
- Consumer fireworks stored over 10 ft but no higher than 12 ft in racks are classified Extra Hazard Group 1
- Consumer fireworks stored higher than 12 ft “shall be protected by an automatic sprinkler system designed using a fire control approach or a special design approach in accordance with NFPA 13”

For consumer fireworks retail sales, NFPA 1124 requires:

- Automatic sprinkler system per NFPA 13 in new buildings over 6,000 ft<sup>2</sup> in area
- Automatic sprinkler system per NFPA 13 in existing buildings over 7,500 ft<sup>2</sup> in area
- Flame breaks at maximum 16 ft intervals along shelving, cases, counters and other display fixtures unless the store is protected with an automatic sprinkler system

The following advisory material relative to sprinkler protection was added to the annex of NFPA 1124 during the public comment period:

A.7.5.1.1 Preliminary results of recent full scale tests indicate that automatic sprinkler systems designed for an Ordinary Hazard Group 2 occupancy in accordance with NFPA 13 may be suitable for protecting retail displays of consumer fireworks where the ceiling height does not exceed 10 ft and may also be adequate for ceiling heights up to 16 ft. This implies that there may be a need to design the sprinkler system in new buildings for an Extra Hazard Group 1 occupancy for ceiling heights greater than 16 ft. For existing buildings, existing sprinkler systems designed for Ordinary Hazard, Group 2 occupancy should suffice. Until such time as additional fire testing

is completed and more conclusive design criteria can be verified, designers of automatic sprinkler systems for areas where retail sales of consumer fireworks are located may want to consider these design criteria. For additional information contact the American Pyrotechnics Association (APA) PO Box 30438, Bethesda, MD 20824.

The NFPA Automatic Sprinkler Committee has not yet reviewed test data or otherwise considered the subject of sprinkler protection of consumer fireworks.

## **Upcoming NFSA Technical Tuesday Online Seminar**

**Topic: Atria and High Ceilings**

Instructor: Kevin J. Kelly, P.E.

Date: August 23, 2005

The concept of sprinkler protection located at very high ceilings or in open areas connecting multiple floors has been an area of study for many years and has the potential for future research. This seminar will cover the current rules from NFPA standards and the model building codes for sprinklers in these areas. This seminar will also cover research that has led to the current rules and recommendations.

Information and registration for this seminar is available at [www.nfsa.org](http://www.nfsa.org).

*NFSA Tuesday e-Tech Alert is c. 2005 National Fire Sprinkler Association, and is distributed to NFSA members on Tuesdays for which no NFSA Technical Tuesday Online Seminar is scheduled. Statements and conclusions are based on the best judgment of the NFSA Engineering staff, and are not the official position of the NFPA or its technical committees except as noted. Please send comments to Russell P. Fleming, P.E. [fleming@nfsa.org](mailto:fleming@nfsa.org).*

*In the promotion of the fire sprinkler concept, the National Fire Sprinkler Association represents all fire sprinkler industry interests including fire sprinkler contractors, manufacturers and suppliers of fire sprinklers and related equipment and fire protection professionals. Established in 1905, the National Fire Sprinkler Association provides publications, nationally accredited seminars, representation in codes and standards-making, market development, labor relations and other services to its membership. Headquartered in Patterson, New York, the National Fire Sprinkler Association has regional operations offices throughout the country.*