

# NFSA Seminar Information Sheet

**Seminar Title:** Sprinkler Protection of Storage

**Seminar Description:** Storage occupancies present unique challenges to sprinkler system design and installation. NFPA 13 has complex and varying rules for the protection of stored commodities. This fast paced and interactive seminar will explore these requirements as they are related to types of commodities, storage configurations in racks and special storage situations. The participant will be guided through a series of decisions and requirements that lead to compliance with NFPA 13 and ensure the system will operate properly when needed.

**Attendees should bring a copy of the NFPA 13 with them.**

**Duration:** 1 Day

**Number of Modules:** 4

**Total Instructional Contact Minutes:** 390 min. (0.7 CEUs and 7 CPD)

## Learning Outcomes:

At the conclusion of this seminar, participants will be able to:

1. Recognize the basic differences among various commodities stored in accordance with NFPA 13.
2. Identify the general parameters used in the storage of all commodities in accordance with NFPA 13, including Class I-IV commodities, Plastics, mixed commodities, & idle pallets.
3. Recognize the method of determining classifications for unknown commodities.
4. Discuss how the classification of a commodity can be affected by its storage on different type pallets
5. Describe how changes in a commodity affect the owner's responsibilities under NFPA 25.
6. Identify & discuss definitions and rules that apply to all storage arrangements, including the storage of idle pallets & high ceiling rules.
7. Discuss the definitions and rules specific to the Rack storage of commodities.
8. Apply the various design rules to examples of Rack storage arrangements by applying design criteria for various arrangements using various sprinklers.
9. Discuss the specific rules for various Special Storage arrangements, such as Plastic Motor Vehicle components and various Retail Stores.
10. Describe and discuss various options for providing protection schemes for storage arrangements.
11. Use the storage reference sheets to apply specific design criteria to various storage arrangements of various commodities stored in various arrangements.

**Seminar Format(s):** Lecture, Discussion, Video, Group & Individual Activities

**Participant materials:** NFPA 13, NFSA Storage Reference sheets, Calculator, Participant Guide

## **Seminar Schedule:**

Module 1- Commodity Classification	8:00-10:00 (with break)
Module 2- Definitions & Rules for all storage	10:00-11:00
Module 3- Definitions & Rules for Rack Storage	11:00-12:00
Lunch	12:00-1: 00
Module 3 (cont)- Definitions & Rules for Rack Storage	1:00-3:30 (with break)
Module 4- Special Storage Designs	3:30-4:00

## **Review and Course Assessment**

### **Title: Module 1- Commodity Classification**

At the conclusion of this module, the participant will be able to:

1. Explain the various differences among the classes of commodities.
2. Identify the benchmarks for classifying commodities
3. Identify various types of commodities and their respective classifications.
4. Discuss the role played by the Owner's Certificate in determining classification
5. Identify the method used to determine classifications through testing
6. Identify and discuss the various methods of treating mixed commodities
7. Discuss the various types of pallets and how they affect commodity classification
8. Discuss how changes in commodity classification can affect the owner's responsibilities under NFPA 25
9. Use the standard to identify various commodities through a quiz

## **Title: Module 2- Definitions & Rules for all Storage**

At the conclusion of this module, the participant will be able to:

1. Discuss the various rules that apply to all storage configurations
2. Describe the difference between and the effect encapsulation or banding has on a commodity
3. Discuss the various types of pallets, how to distinguish them apart and how to apply interpret their effect on a commodity
4. Discuss various means of dealing with the restrictions placed upon buildings with high clearances
5. Describe what sprinklers may be used for the protection of storage, particularly interpreting the limitations on standard spray sprinklers
6. List the various options for protecting idle pallets, and identify the differences in protecting wood verses plastic pallets

## **Title- Module 3- Definitions & Rules for Rack Storage**

At the conclusion of this module, the participant will be able to:

1. Discuss the rules specific to the storage of commodities that are on racks
2. Explain the difference among single row, double row & multi row racks
3. Explain how to treat portable racks describe the differences among open, partially open & solid shelving and how each is treated regarding in rack sprinklers
4. Recognize the difference between shelves and barriers
5. Recognize the two basic rules for aisle width
6. Contrast the differences between longitudinal and transverse flu spaces
7. Discuss the basic rules of in rack sprinklers
8. Use the NFSA storage reference sheets to enhance the ability for applying the various options allowed by the standard to calculate protection criteria for various commodities in various arrangements using various sprinklers for storage arrangements in Class I-IV commodities up to and including 25' in height, and for the same commodities stored over 25' high.
9. Use the NFSA storage reference sheets to enhance the ability for applying the various options allowed by the standard to calculate protection criteria for various commodities in various arrangements using various sprinklers for storage arrangements in Group A plastics up to and including 25' in height, and for the same commodities stored over 25' high.
10. Develop optional protection schemes for examples of each of the above referenced commodities

11. Construct a rack storage arrangement utilizing in rack sprinklers to demonstrate how the standard arranges the in racks to be staggered both horizontally and vertically
12. Calculate various optional protection schemes for each of the above listed arrangements

## **Title- Module 4- Definitions & Rules for Special Design Arrangements**

At the conclusion of this module, the participant will be able to:

1. Explain the Table used for protection of plastic motor vehicle parts with ESFR sprinklers
2. Discuss the various options available for protecting various identifiable retail stores using very prescriptive protection schemes with very prescriptive sprinklers
3. Discuss the definitions and rules that specifically apply to the storage of compact record storage
4. Discuss the definitions and rules that specifically apply to the storage of both mobile and fixed high bay record storage