

## NFPA 13 (2016 Edition) Hot Topics and NFPA 13 FAQ's



## NFPA 13 – 2016 Edition

- Committees created the First Draft at meetings between July 2013 and December 2013
- Balloting ended in early 2014
- First Draft decisions are available for viewing on the NFPA website
- Comments are due (on line) May 16, 2014
- Committees will meet in June to take action on comments and write Second Draft
- Balloting through fall of 2014
- Presented to NFPA membership in June 2015



## NFPA 13 – 2016 Edition

- Documents you might want to review from NFPA website
  - First Draft Report: Actual text of what the standard will look like if all of the changes make it through the process and nothing else changes
  - Public Input with Responses: All of the suggestions made by the public and the committee's actions
  - Committee Input: Ideas that the committee is considering, but has not yet decided to change
  - First Revisions: Changes to each section in legislative text with a reason for each change



## Highlights of 2016 Changes

- Storage commodity classifications
  - Specifically permit stainless steel in accordance with Schedule 10S or Schedule 40S
- Extensions fittings
- Air venting
- Low hanging obstructions
- Many small obstructions to ESFR
- Sprinklers in dwelling unit bathrooms



## Highlights of 2016 Changes

- Pipe Stands, new section 9.2.6
- 6-inch rod rule
- Clean up of ESFR and solid shelves
- Exposed Expanded Group A Plastics on Racks
- Cloud Ceilings (not a change yet)

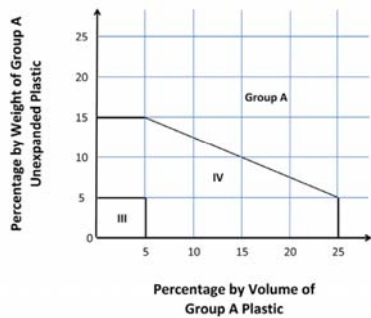


## Storage Commodity Classification

- Rewrite of the examples based on additional testing since 1990's
- Change to Class IV definition



## Class IV by Percentage of Plastic



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7

## Extension Fittings

### 3.5.6 Extension Fitting.

A male by female adapter intended to be used with a sprinkler to adjust the final fit where the sprinkler is installed in a finished ceiling or wall.

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8

## Extension Fittings

### 6.4.8 Extension Fitting.

**6.4.8.1** The outlet diameter of the extension fitting shall be equal to the inlet diameter of the sprinkler.

**6.4.8.2** A single extension fitting up to a maximum of 2 in. (50 mm) in length shall be permitted to be installed with a sprinkler.

**6.4.8.2.1** The extension fitting shall be included in the hydraulic calculations.

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9

## Air Venting

### 7.1.5 Air Venting.

A single, air vent with a connection shall be provided on each wet pipe system utilizing black or galvanized steel pipe as a means for venting.

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10

## Air Venting

### 8.16.6\* Air Venting.

The vent shall be located near the highest point in the system to remove the majority of the air by one of

the following methods:

- (1) Manual valve, minimum 1/2 in. size
- (2) Automatic air vent
- (3) Other approved means

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11

## Low Hanging Obstructions

### 8.5.5.3.1.3

Sprinklers shall not be required under noncombustible obstructions over 4 ft (1.2 m) wide where the bottom of the obstruction is 24 in. (620 mm) or less above the floor or deck.

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12

## Many Small Obstructions to ESR

### 8.12.5.3.3

For pipes, conduits, or groups of pipes and conduit to be considered individual, they must be separated from the closest adjacent pipe, conduit, cable tray, or similar obstructions by a minimum of three times the width of the adjacent pipe, conduit, cable tray, or similar obstruction.



13

## Dwelling Unit Bathrooms

- 2010 and previous editions (going back to 1989) allowed sprinklers to be omitted from small bathrooms in all dwelling units
- 2013 changed to just allowing sprinklers to be omitted from small bathrooms in hotels and motels
- 2016 is proposed to go back to older text



14

## Revolving Doors

- **8.15.24.1** Sprinkler protection shall not be required within revolving door enclosures.



15

## Indoor Swimming Pools

- **8.15.24.2.1** The area directly above indoor swimming pools shall not require sprinkler protection unless the requirements of 8.15.24.2.2 apply.
- **8.15.24.2.2** The area above indoor swimming pools equipped with moveable hard covers that allow the area to be used for athletic activities other than swimming and other water sports shall require sprinkler protection.
- **8.15.24.2.3** Sprinklers shall be installed in all areas adjacent to indoor swimming pools.



16

## Main Drain Connections

- 8.16.2.4.2 will be modified to allow Main Drain connections to be larger than 2 inches
  - Change made to facilitate backflow test
  - Could cause problems for sprinklers and fittings if systems are drained too quickly



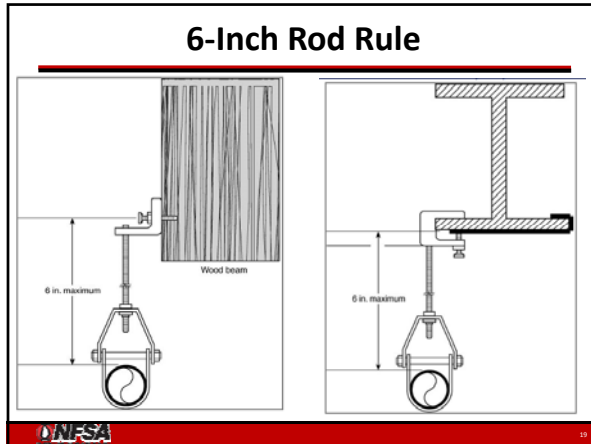
17

## 6-Inch Rod Rule

- Permitted to omit lateral seismic braces where pipe is hung by “short” rods
- “Short” is defined as 6 inches or less measured between the top of the pipe and the point of attachment to the building structure



18



### Exposed Expanded Group A on Racks

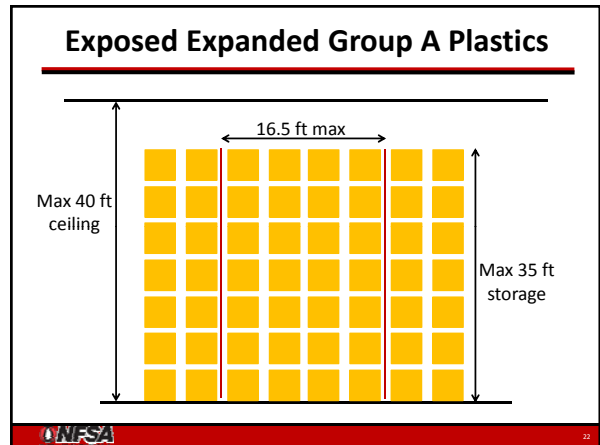
**New Section 17.3.3.5\***

- Single-, double-, and multiple-row racks
- Maximum storage height of 35 ft
- Maximum ceiling height of 40 ft
- Sprinklers shall be K-25 ESFR (intermediate temp)
- Design area of 15 sprinklers (5 on 3 branch lines)
- Minimum operating pressure of 60 psi
- Hose stream allowance of 250 gpm
- Water supply duration of 60 minutes
- Minimum aisle width of 8 ft

### Exposed Expanded Group A on Racks

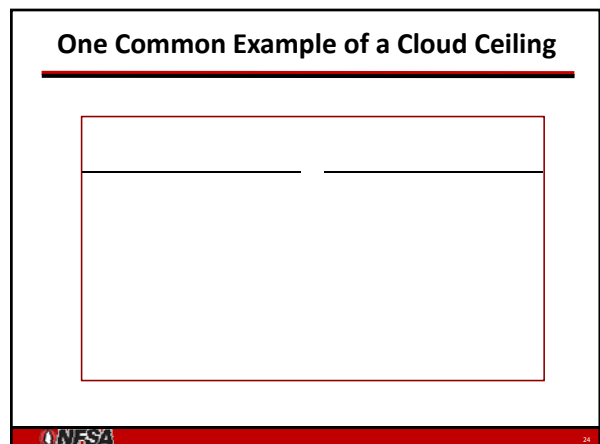
**New Section 17.3.3.5**

- Solid vertical barrier in rack from one of the following:
  - 3/8 in. plywood or particleboard
  - 22 gauge sheet metal
  - Equivalent
- Barrier extends from face of rack to face of rack
- Barrier spaced at a maximum 16.5 ft interval
- Barrier extends from a maximum of 4 in. above the floor to the maximum storage height.
- Plan area of storage between vertical barriers and aisles shall not exceed 124 ft<sup>2</sup>
- Barrier shall extend across the longitudinal flue.
- Commodity shall be permitted to extend a nominal 4 in. beyond the vertical barrier at the aisle



### Cloud Ceilings

- Non-continuous drop ceilings in a room creating a space above the drop ceiling and a space below the drop ceiling
- Usually both spaces need sprinklers



### One Common Example of a Cloud Ceiling

2013 NFPA 13 would require sprinklers above and below unless AHJ considered opening "small" such as used for a return air plenum



25

### One Common Example of a Cloud Ceiling

2016 NFPA 13 might allow omission of sprinklers above the opening if it is less than 1 inch for every foot of height (H)



26

### NFPA 13 FAQ's

- Antifreeze
- Shadow areas
- Obstructions in light and ordinary hazard that are not structural
- Protecting exposed plastics stored on racks



27

### NFSA Services

- Expert of the Day (EOD)
  - Member of the Engineering Department staff on call every business day
  - Members call or e-mail questions
  - Average response time, ½ business day
  - Over 2600 calls annually
- E-TechNotes
  - Published two or three times per month
  - One edition each month summarizes best/most interesting EOD responses of previous month



### Antifreeze – New Systems NFPA 13 and NFPA 13R

- New antifreeze systems are required to use listed solutions under section 7.6.2.1
- Propylene glycol and glycerine are NOT listed
- THERE ARE NO LISTED SOLUTIONS!!!



29

### Antifreeze – New Systems NFPA 13D

- 9.2.2.2
- New antifreeze systems are permitted to be glycerine or propylene glycol
- Antifreeze is limited to the portion of the home subjected to freezing conditions
- AHJ has to be convinced that no other option is available
- Solutions are limited to
  - 48% glycerine
  - 38% propylene glycol



30

### Antifreeze – Existing Systems (NFPA 13/13R)

- Maintenance of existing systems is in accordance with NFPA 25 (see section 5.3.4.2.1)
- Solution can be replaced with propylene glycol or glycerine
  - The system was installed prior to September 30, 2012
  - The solution is limited in concentration to 50% glycerine or 40% propylene glycol
  - Systems with solutions in excess of 38% glycerine or 30% propylene glycol have to be justified by an approved risk assessment approved by the AHJ.
- Systems with glycerine and propylene glycol can only continue in place until September 30, 2022
- After 2022, replace with a listed antifreeze solution or wet pipe system with pipes in a heated space, a dry-pipe system, a preaction system or use heat tracing



31

### Antifreeze – Existing Systems (NFPA 13D)

- Do not need to meet NFPA 25
- See 9.2.2.1.1 of NFPA 13D
- Glycerine systems can be replaced with up to 50% solutions
- Propylene glycol to be replaced with up to 40% solutions.



32

### Shadow Areas

- The apparent dry space within the coverage area of a sprinkler behind an obstruction where water might not directly spray from a sprinkler
- Does NFPA 13 allow shadow areas?



### Shadow Areas

- Yes, they are allowed by NFPA 13 for spray sprinklers and residential sprinklers (8.6, 8.7, 8.8, 8.9, 8.10)
- Combine sections 8.5.3.2 and 8.6.5.2.1.3 (or 8.7.5.2.1.3 etc.)



### Distance to a Wall

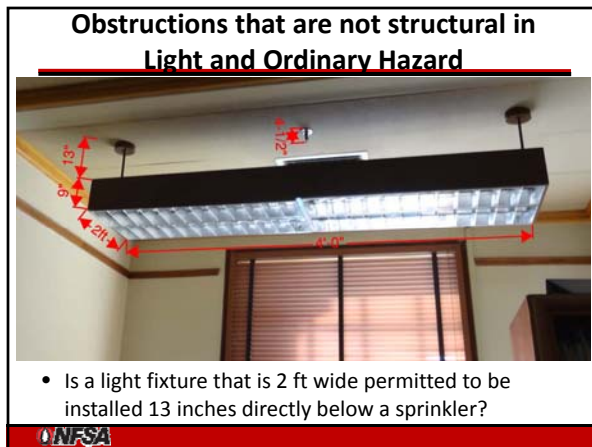
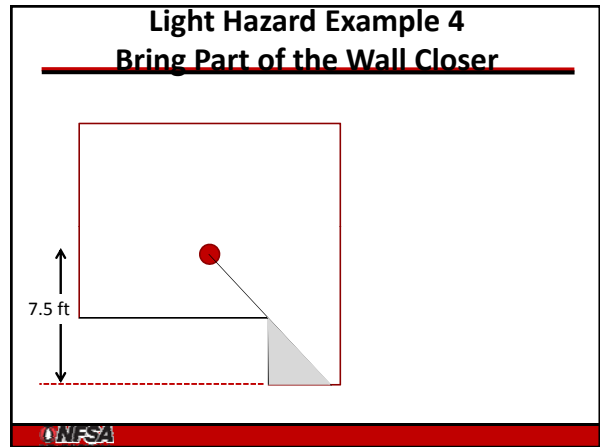
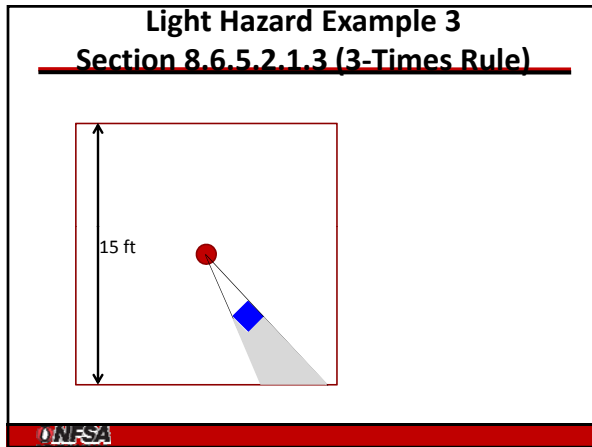
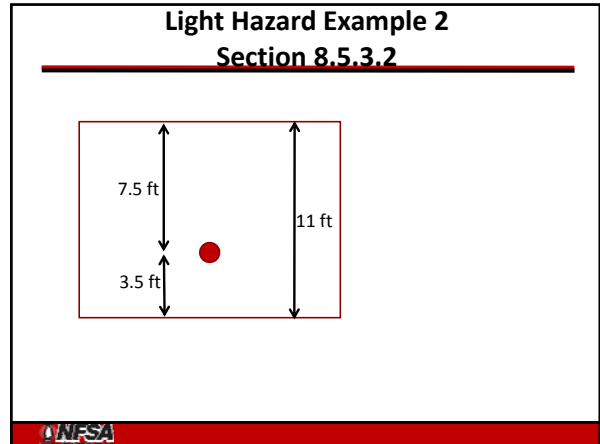
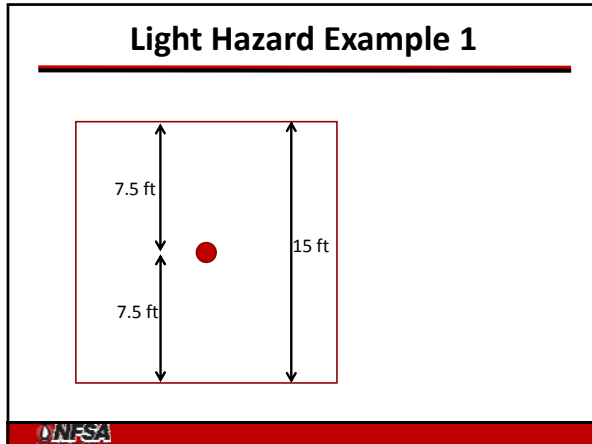
- 8.5.3.2.1 The distance from sprinklers to walls shall not exceed one-half of the maximum allowable distance between sprinklers
- 8.5.3.2.2 The distance from the wall to the sprinkler shall be measured perpendicular to the wall.



### Three-Times Rule

- 8.6.5.2.1.3 (paraphrased) Obstructions are permitted within the spray area of a sprinkler as long as the sprinkler is at least 3 times the maximum dimension of the obstruction away from the obstruction





- ### Obstructions that are not structural in Light and Ordinary Hazard
- Is a light fixture that is 2 ft wide permitted to be installed 13 inches directly below a sprinkler?
  - Yes, this is permitted.
    - As long as water can get to two sides of the obstruction
    - As long as object is not structural
    - As long as sprinkler is upright or pendent standard spray sprinkler
    - See section 8.6.5.2.1.4
- NFSA

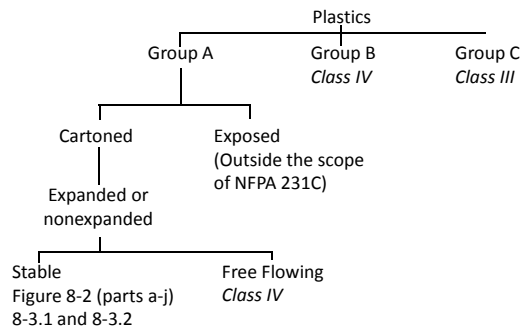
### Exposed Plastics Stored on Racks

- Question: Can I use the rack protection rules that apply to cartoned storage for exposed plastics protection?
- Answer: No
- Evolution of rules from NFPA 231C to NFPA 13
  - 1995 and previous NFPA 231C
  - 1998 NFPA 231C
    - Copied into 1999 NFPA 13
    - Stayed the same up through 2010 NFPA 13
  - 2013 NFPA 13



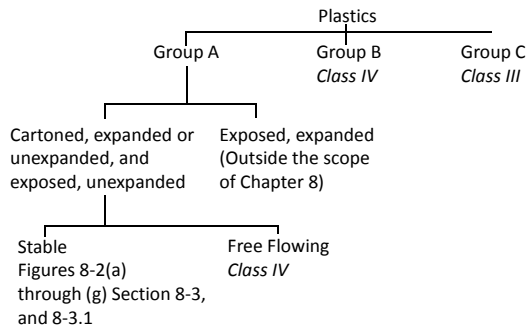
43

### Decision Tree in 1995 (and older) NFPA 231C



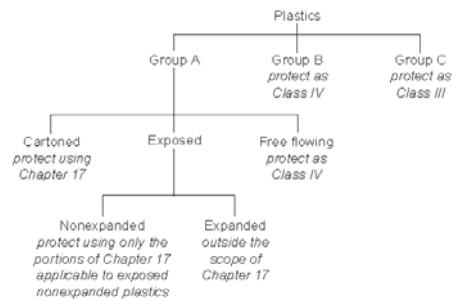
44

### Decision Tree in 1998 NFPA 231C



45

### Decision Tree in 2013 NFPA 13



**THANK YOU!**

