Significant Changes to NFPA 13-2022

3.3.21 Building Height. For the purposes of seismic protection, the vertical distance from the grade plane to the average elevation of the highest roof surface. (AUT-HBS)

Site Class

3.3.201 Site Class. A classification assigned to a site based on the types of soils present and their engineering properties as defined in Chapter 20 of ASCE/SEI 7, Minimum Design Loads and Associated Criteria for Buildings and Other Structures. [ASCE/SEI 7:11.2] (AUT-HBS)
Seismic Coefficients

- Site class specific and acquired by AHJ
- AHJ may not be sprinkler AHJ
- Linear interpolation allowed (A.18.5.9.3.3):

\[
c_p = c_{p,1} + \frac{(c_{p,2} - c_{p,1})(s - s_{1,1})}{s_{2,1} - s_{1,1}}
\]

Seismic Coefficients (Cont.)

Height of component attachment to the structure to the average roof height:

- 51-75%: \(C_p \times 0.875\)
- >50%: \(C_p \times 0.75\)

Single Point Densities

New systems use Table 19.2.3.1.1:

- Existing Density/Area Curves remain for use in modifying existing systems
- Existing modifiers or adjustments to area of operation still apply
CMDA Single Point Densities

- Curves still exist for existing systems
- Adjustments for single point densities throughout Chapter 21

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Chapter Reorganization

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Chapter 25 has been completely rewritten and reorganized. The chapter incorporates the single point density proposals and moves existing system criteria to its own sections.

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Owner's Certificate Addition

4.2 Owner's Certificate The owner(s) of a building or structure where the fire sprinkler system is going to be installed or their authorized agent shall provide the sprinkler system installer with the following information prior to the layout and detailing of the fire sprinkler system (see Figure A.28.1(b)):

1. Intended use of the building, including the materials within the building and the maximum height of any storage
2. A preliminary plan of the building or structure along with the design concepts necessary to perform the layout and order for the fire sprinkler system
3. Water supply information as identified in 5.2.2
4. *Any special knowledge of the water supply, including known environmental conditions that might be responsible for corrosion, including microbiologically influenced corrosion (MIC)
5. Whether seismic protection is required and the applicable short period response limitation
Un-sprinklered Combustible Concealed Spaces

Addition to the list not requiring minimum area of sprinkler operation of 3,000 ft²:

#12. Exterior soffits, eaves, overhangs, and decorative frame elements complying with 9.2.1.19.

Room Design Method Using Light Hazard Criteria

- Light hazard criteria for residential sprinklers applicable

Commodity Classification Ranking:

Captain Obvious says, “Protection criteria for greater commodities permitted to protect lower class of commodities in the same arrangement”
Open Racks Defined

Double-row
- No solid shelves
- Storage height does not exceed 25 ft.
- Transverse flues maximum of 5 ft. intervals

Multiple-row
- No solid shelves
- Both transverse and longitudinal flue spaces at maximum of 5 ft. intervals
- Transverse flues at maximum of 5 ft. and rack depth does not exceed 20 ft. between aisles at least 3.5 ft.

Revised Rack Figures
Chapter 25 = In Rack Sprinkler Design

Condensed ESFR Protection Table
Working Plans List

- Reorganized
- Added information
- Provides comprehensive plans for:
  - AHJ
  - Installation Crew

Friction Loss for Systems Using Nitrogen

- Nitrogen Generator shall be listed
- Capable of maintaining nitrogen at 98% concentration
- Signage required to ensure nitrogen will always be provided in the future
- Still require system restoration within 30 minutes with compressed air

Parking Garages

- Automobile material have changed
- No longer an example of OH 1
  - Moved to OH2
- Need more data (FPRF)
Area of Discharge

- Where defined by full-height wall assembly
- Other side of the wall is not counted towards total design area

Definitions – Added/Revised

3.3.28.4 Smooth Ceiling
3.3.73 Exterior Projection
3.3.215.4.6 Electrically Operated Sprinkler
3.3.195 Shadow Area (residential sprinklers)

Ordinary or Intermediate Temperature

Reworded to clarify that intermediate temperature sprinklers can be used throughout a building that does not have ambient temperatures greater than 100 degrees
Porte-cocheres

- Sprinklers are required when located directly below floors intended for occupancy

Bathrooms Under Stairs

- Do not require sprinklers when separated from the stairs by fire-resistive construction

Balconies and Decks

- Added a section to align with IBC and 13R
- Type V construction
Small Temporarily Occupied Enclosures

Do not require sprinklers when:
- Do not extend to the ceiling
- No storage
- Maximum: 24 ft²

Partitions in OH Occupancies

Sprinkler located to the side: Sprinkler located directly above:

Sidewall Spray Sprinklers

Annex language added for car stackers

Allowance to install sidewall sprinklers:
- Under cars in car stackers
- Cars stacked vertically placed under each level of cars
Concealed Sprinklers in Beams

- Concealed sprinklers:
  - Increased from 4 in. to 14 in.-deep beam

Protection of Piping Subject to Mechanical Damage

- Must provide nail plates when pipe other than steel is run through wood or metal studs:
  - Steel shield plates:
    - Where the face of piping is less than 1.25 in from nearest edge of member
    - Minimum thickness of .0575 in. (No. 16 gauge)
    - Cover the area of the pipe where the member is notched and bored

Pipe Schedule Nameplate

- Installing contractor must provide
- Permanently marked weatherproof or rigid plastic sign
- Corrosion-resistant wire, chain, or other approved means
- Placed at the corresponding system riser
Waterflow Alarm Devices

Mechanical

- 5 minutes

Electrical

- 100 seconds

ESFR in Light and Ordinary Hazard

- For retrofits
- Light and Ordinary Hazard
- Utilize Spray Sprinkler Guidance for:
  - Protection Areas and Maximum Spacing for Light Hazard
  - Spacing
  - Obstruction Criteria

ESFR Isolated Obstructions

Sprinklers not required for isolated noncontiguous obstruction:

- ≤ 1.5 in. in width located horizontally a minimum of 12 in. below deflector
- ≤ 6 in. in width and located a minimum of 6 in. horizontally from the sprinkler
- ≤ 24 in. in width and a minimum of 12 in. horizontally from the sprinkler

High-piled storage is not physically separated from an adjacent light or ordinary hazard area.

Criteria applies to sprinkler located 6 ft. horizontally of any high-piled storage
ESFR General Continuous Obstructions

Sprinklers not required for isolated noncontiguous obstruction:

- ≤ 1.5 in. in width located horizontally a minimum of 12 in. below deflector
- ≤ 6 in. in width and located a minimum of 6 in. horizontally from the sprinkler
- ≤ 24 in. in width and a minimum of 12 in. horizontally from the sprinkler

ESFRs shall be arranged with respect to the bottom chord of floor joist or open truss:

- Bottom chord is ≤ 6 in. in width, located a minimum of 6 in. horizontally from nearest edge of bottom chord
- Bottom chord is ≤ 24 in. in width, located a minimum of 12 in. horizontally from nearest edge of bottom chord

Thank You!

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