4.25 Sprinkler Protection for Car Stackers / Lift Systems (2025)

Reference: 2025 NFPA 13 Sections 4.3.5, A.4.3.5(9), 9.5.5.3.1, 10.2.7.4.2, 19.1.2(1), 10.3.2(9), A.10.3.2(9) 19.2.1.2.4(2)(3), 19.2.3.1.1(1), 28.2.4.7.3; 2025 San Francisco Building Code Sections 403.3.3; 2025 San Francisco Fire Code Sections 105.6.26, 903.3.1.1, 903.3.5, & 914.3.2

Purpose: Provide additional SFFD guidelines for sprinkler protection of car stackers not specifically addressed in 2025 NFPA 13. This administrative bulletin does not apply for Mechanical-Access enclosed parking garages per 2025 California Building Code Section 406.6.4 which will require a separate specially engineered automatic sprinkler system.

I. GENERAL REQUIREMENTS

1. **15 Foot Extension.** The sprinkler design criteria for car stackers / lift systems must extend 15 feet into adjacent areas that do not contain car stackers / lift systems per 2025 NFPA 13 Section 19.1.2(1).

2. **18 Inch Clearance.** The sprinkler deflector shall be installed at least 18 inches above the top of the highest car per 2025 NFPA 13 Section 20.9.6.1.

3. **Single Lift Platform.** The following conditions shall apply for a single lift platform:

   A. **Ceiling-Level Sprinklers.** Parking garage areas containing car stackers / lift systems with a single lift platform shall be protected by an automatic wet-pipe sprinkler system designed to Extra Hazard Group 2 (EH2) for a maximum of 2 cars stacked vertically in the same location.

   B. **Sidewall Sprinklers.** Non-extended coverage standard-response sidewall sprinklers listed for Ordinary Hazard shall be acceptable for use under the parking lift platform. Each sidewall sprinkler shall cover an area of 80 square feet or less.

   C. **Calculations.** The following conditions shall apply for calculations for a single lift platform:

      (1) **Ceiling-Level Calculations.** The hydraulic calculation design criteria shall include all ceiling-level sprinklers within a minimum area of 2,500 square feet of sprinkler operation, or the maximum area containing car stackers / lift systems extending 15 feet into adjacent areas that do not contain car stackers / lift systems.

      (2) **Reduction to Design Area.** The EH2 design area can be reduced from 2,500 square feet to not less than 2,000 square feet if high-temp sprinklers or K-11.2 sprinklers are used at the ceiling per 2025 NFPA 13 Section 19.2.3.2.7.

      (3) **Sidewall Calculations.** Sidewall sprinklers under the parking lift platforms are not required to be included in the area of sprinkler operation.

4. **2 or More Lift Platforms.** The following conditions shall apply for 2 or more lift platforms:

   A. **Ceiling-Level Sprinklers.** Parking garage areas containing car stackers / lift systems with 2 or more parking lift platforms shall be protected by an automatic wet-pipe sprinkler system designed to Extra Hazard Group 2 (EH2).

B. **Sidewall Sprinklers.** Non-extended coverage standard-response sidewall sprinklers, listed for Ordinary Hazard Group 2 (OH2), shall be acceptable for use to cover under each parking lift platform, including the bottom level, if the stacker is provided with a pit.

C. **Calculations.** The following conditions shall apply for calculations for 2 or more lift platforms:

(1) **Ceiling-Level Calculations.** The hydraulic calculation design criteria shall include all ceiling-level sprinklers within a minimum area of 2,500 square feet of sprinkler operation, or the maximum area containing car stackers / lift systems extending 15 feet into adjacent areas that do not contain car stackers / lift systems, whichever is less, but not less than 1,500 square feet required for Ordinary Hazard Group 2 (OH2).

(2) **Sidewall Calculations.** A total of six (6) sidewall sprinklers under lift platforms shall be included in the area of sprinkler operation. The design density for the sidewall sprinklers shall be Ordinary Hazard Group 2 (OH2). The sidewall sprinkler flow shall be from two (2) sidewall sprinklers covering under the top-level parking lift platform at three (3) adjacent stalls or areas with car stackers / lift platforms.

(3) **Reduction to Design Area.** The EH2 design area can be reduced from 2,500 square feet to not less than 2,000 square feet if high-temp sprinklers or K-11.2 sprinklers are used at the ceiling per 2025 NFPA 13 Section 19.2.3.2.7.

5. **Parking Drive Aisles.** Parking drive aisles or other areas with loft or column-less car stackers / lift platforms shall follow all of the criteria outlined in this administrative bulletin.

6. **Water Supply: High-Rise Building.** For a high-rise building, car stacker sprinkler systems will cause the secondary water supply capacity to increase. For water supply and secondary water supply capacity purposes, the system is to be considered as an Extra Hazard System. The following conditions shall apply for the secondary water supply:

A. The secondary water supply shall be designed for largest car stacking sprinkler system demand plus a hose allowance of 100 GPM for 90 minutes.

B. If the available city main flow at 20 PSI is not adequate to provide this requirement, the secondary water supply shall become the primary water supply. For this case, the secondary / primary water supply capacity must meet the above requirements, and the requirements specified in 2025 NFPA 13 and 2024 NFPA 14.

7. **Water Supply: Low-Rise Building.** For a low-rise building, if the city main cannot provide the required flow at a residual pressure of 20 PSI, a primary water supply tank and fire pump must be provided. The capacity of the tank shall meet the above requirements, and the specific applicable requirements listed in 2025 NFPA 13 and 2024 NFPA 14.