

Fire Sprinkler Systems

2025 California Fire Code — Sections 901 & 903

Purpose. Automatic fire sprinkler systems are a primary form of active fire protection. This handout summarizes when sprinkler systems are required, which installation standards apply, and the basic plan review, installation, alarm, testing, and maintenance requirements found in the 2025 California Fire Code (CFC), the California Residential Code (CRC), and California Code of Regulations (CCR) Title 19.

1. When Automatic Sprinklers Are Required & Local Triggers

The 2025 California Fire Code requires approved automatic sprinkler systems in new buildings and structures where specified by CFC Section 903.2. The exact trigger depends on the occupancy, building area, occupant load, height, floor level, use, and specific hazards present.

Occupancy / Condition	Primary CFC Section
Group A — Assembly	§903.2.1
Group B — Business	§903.2.2
Group E — Educational	§903.2.3
Group F-1 — Moderate-Hazard Factory	§903.2.4
Group H — High Hazard	§903.2.5
Group I — Institutional	§903.2.6
Group M — Mercantile	§903.2.7
Group R — Residential	§903.2.8
Group S-1 / S-2 — Storage	§§903.2.9–903.2.10
Specific buildings, uses, and hazards	§903.2.11

CRITICAL LOCAL TRIGGER NOTE. While the baseline CFC allows larger square footage thresholds for certain commercial occupancies before a sprinkler system is triggered, local fire districts frequently amend these thresholds. Many local jurisdictions mandate automatic fire sprinklers for any new commercial building exceeding a specific square footage (often 5,000 sq. ft., and as low as 1,000 sq. ft. in high-risk zones), regardless of the baseline occupancy exceptions.

Code reference: 2025 CFC §903.2 and applicable local amendments.

2. Which Sprinkler Standard Applies?

System Standard	Typical Code Application
NFPA 13	The default sprinkler standard when the CFC requires a building or portion of a building to be sprinklered throughout, unless NFPA 13R or NFPA 13D is specifically permitted.
NFPA 13R	Permitted for qualifying Group R occupancies that meet the limitations in CFC §903.3.1.2, including the applicable story and fire-department-access height limits.
NFPA 13D	Permitted for one- and two-family dwellings, Group R-3 occupancies, and townhouses in accordance with CFC §903.3.1.3 and applicable residential-code provisions.

Code references: 2025 CFC §§903.3.1, 903.3.1.1, 903.3.1.2 and 903.3.1.3; NFPA 13, NFPA 13R and NFPA 13D as amended by California.

3. Residential Sprinkler Systems & Specific Exceptions

California residential-code requirements strictly mandate automatic fire sprinkler systems for new construction:

- Townhouses: Must be provided with an automatic sprinkler system, subject to the exceptions for qualifying additions or alterations to existing unsprinklered townhouses.

- One- and Two-Family Dwellings: Must be provided with an automatic sprinkler system in accordance with 2025 California Residential Code §R313.
- NFPA 13D Garage & Attic Exceptions: In accordance with California-amended NFPA 13D standards, sprinklers are not universally required in all areas of a home. Unless specifically mandated by a restrictive local amendment, sprinklers may be omitted from:
 - Small attached garages and open carports.
 - Attics without storage or attic spaces not intended for living purposes.
 - Small clothes closets and linen closets (under 24 sq. ft.).
 - Unoccupied crawl spaces.

4. Plans, Permits & Installation

- The fire code official may require construction documents and calculations for sprinkler-system installation, rehabilitation, or modification.
- Required construction documents must be submitted for review and approval before system installation.
- Permits are required where applicable under CFC Sections 105.5 and 105.6.
- Before final approval, the installing contractor may be required to provide a written statement confirming installation in accordance with approved plans and testing in accordance with the applicable installation standard.

5. Sprinkler Riser Rooms & Equipment Access

- Automatic sprinkler system risers must have ready access.
- Riser rooms must provide adequate space and working clearance for inspection, service, repair, and replacement of equipment.
- Access doors to sprinkler riser rooms must be identified with an approved sign. The sign lettering must contrast with the background and be at least 2 inches high with a minimum 3/8-inch stroke.
- Sprinkler riser rooms must be maintained at not less than 40°F (4°C), with permanently installed heating where needed.
- Permanent artificial illumination must be provided in sprinkler riser rooms.

6. Water Supply & Fire Department Connection (FDC) Placement

- Sprinklers must be installed so obstructions do not delay sprinkler activation or interfere with the required water-distribution pattern.
- Water supplies must comply with CFC §903.3.5 and the sprinkler standard applicable to the system.
- Fire Department Connection (FDC) Accessibility: In accordance with CFC §912, the FDC must be strictly maintained with “all-weather” access.
 - The connection must face the street, fire lane, or approved fire apparatus access road.
 - It must be fully visible, unobstructed by landscaping or fencing, and located within an approved distance (typically 150 feet) of a working fire hydrant.
 - Hose threads and fittings associated with the FDC must be precisely engineered to match local fire department apparatus as prescribed by the fire code official.

7. Supervision, Waterflow Alarms & Monitoring

- Sprinkler water-supply control valves, pumps, tanks, water levels and temperatures, critical air pressures, and waterflow switches must be electrically supervised where required by CFC §903.4.1, subject to listed exceptions.
- Where required, an approved audible device must sound on the premises upon sprinkler waterflow.
- Where a fire alarm system is provided, sprinkler-system operation must interface with the fire alarm system as required by the CFC and NFPA 72.

8. Acceptance Testing Before Occupancy

- Sprinkler systems and associated fire-protection equipment are subject to acceptance testing in accordance with the applicable installation standard and as approved by the fire code official.
- The fire code official must be notified before required acceptance testing.
- A building or portion of a building cannot be occupied until required fire protection and life-safety systems have been tested and approved.

9. Inspection, Testing & Maintenance (CCR Title 19 & NFPA 25)

Automatic sprinkler systems must remain operative and must be inspected, tested, and maintained in accordance with CFC Section 901 and California Code of Regulations (CCR) Title 19.

- **Mandatory Title 19 Licensing:** All regular inspection, testing, and maintenance work on commercial water-based fire systems must be performed by individuals holding a valid California State Fire Marshal Title 19 Certification and employed by a contractor with a C-16 (Fire Protection) license. Property owners/operators are legally barred from performing these complex technical tests.
- **California NFPA 25 Compliance:** Systems must undergo quarterly, semi-annual, and annual testing cycles.
- **The 5-Year Obstruction Investigation:** Beyond basic annual checks, California law strictly mandates an intensive 5-year internal pipe inspection. A licensed C-16 contractor must open the ends of the system piping to inspect the internal lines for obstructions, microbiological growth, rust, or sludge buildup.
- Defective fire protection equipment must be repaired or replaced as necessary to restore the system to an operative condition.
- Inspection, testing, and maintenance records must be retained on-site and submitted via approved local electronic tracking portals as required by California law.

10. When a Required Sprinkler System Is Out of Service

- The fire department and fire code official must be notified immediately when a required fire protection system is out of service.
- When required by the fire code official, the building must be evacuated or an approved fire watch must be provided until protection is restored.
- A fire watch must have an approved means to notify the fire department and must perform the required constant patrol of the unprotected premises.

11. Comprehensive Compliance Check

- ☐ Required sprinkler plans, hydraulic calculations, and local square-footage ordinance checks have been completed and approved before installation.
- ☐ The system is designed to the correct standard: NFPA 13, NFPA 13R, NFPA 13D, factoring in permitted residential garage/attic exceptions.
- ☐ Sprinkler risers and control equipment remain readily accessible, heated above 40°F, artificially lit, and properly identified with compliant 2-inch lettering.
- ☐ Sprinklers are completely unobstructed by storage, shelves, or structural items.
- ☐ The Fire Department Connection (FDC) is located in an all-weather access zone facing a fire lane, matches local hose threads, and sits within an approved distance of a hydrant.
- ☐ Required waterflow alarms, valve supervision, and fire-alarm interfaces are operational.
- ☐ The system has passed required acceptance testing before occupancy.
- ☐ Required Title 19 inspections, tests, and the 5-year internal obstruction investigation are documented and current.
- ☐ Any sprinkler-system impairment is handled in accordance with CFC §901.7 with immediate fire marshal notification.

Applicable Code References

- 2025 California Fire Code, Title 24, Part 9 — Chapter 9; §§901, 903 and 912
- 2025 California Residential Code, Title 24, Part 2.5 — §R313, Automatic Fire Sprinkler Systems
- NFPA 13, 13R, and 13D — Standards for the Installation of Sprinkler Systems, as amended by the State of California
- California Code of Regulations (CCR) Title 19, Division 1, Chapter 5 — California NFPA 25 Water-Based Fire Protection System Inspection, Testing, and Maintenance Regulations

This handout summarizes commonly applicable requirements for public information. The adopted code, referenced standards, approved plans, local amendments, and determinations of the fire code official govern where a conflict or project-specific condition exists.