


CENTRAL MARIN FIRE DEPARTMENT



Developed by the Marin County Fire
Prevention Officers

Approved by:


Ruben Martin, Fire Chief

Fire Protection Standard 401-D

RESIDENTIAL FIRE SPRINKLER SYSTEM

Date: 08/21/2017

Revision: 01/01/2023

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This standard is promulgated pursuant to the local amendments to the California Fire Code. This standard applies to one and two family dwellings (as classified by the California Building Code) where fire sprinkler systems are required to be installed by code or specific local ordinance or as an approved Alternate Method of Compliance. The system design criteria, as set forth in this standard, are based on total building square footage. Note that all usable spaces such as attached garages, carports, attics used for storage, etc. are included when determining total building square footage.

Definitions

Alternate Method of Compliance:

An approved method of compliance that, in the opinion of the Fire Code Official, meets the intent of the provisions outlined in the Fire Code.

NFPA 13D:

National Fire Protection Association Standard 13D, Fire Sprinkler Systems in One and Two Family Dwellings and Mobile Homes.

Requirements

General

- The sprinkler system design and installation shall comply with provisions of the most recently adopted edition of NFPA Standard 13D except as specified in this Standard.
- Plan check and inspection fees shall be paid at the time of plan submittal.
- Plans shall show an elevation cross section of the building showing every situation other than smooth, flat, horizontal ceilings.
- Systems utilizing a 3/4" water service connection and/or a 3/4" meter or smaller shall be equipped with an automatic domestic shutoff valve.
- Pressure gauges for the fire sprinkler system shall be liquid filled to provide better performance and extended service life of said pressure gauge. Requirement for a liquid filled pressure gauge will be determined by the area it is installed based on available pressure and by the AHJ.

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Number of design sprinklers

- For buildings up to 5000 square feet, the number of design sprinklers shall be in accordance with NFPA Standard 13D and the listing requirements for individual sprinklers.
- Buildings in excess of 5000 square feet, shall meet the requirements of N.F.P.A. 13-R and this standard.

Hydraulic calculations

- A 10% safety margin, in pressure, shall be provided in the design at the point of connection to the public main.
- Hydraulic calculations shall show a 5 GPM demand at the point of domestic connection. Where more than one dwelling is served by the domestic connection, 5 GPM shall be added for each dwelling unit. Where irrigation systems are designed to flow more than 5 GPM, the maximum designed flow shall be added.
 - **Exception:** 5 GPM need not be accounted for if the system is installed with an RSV-1 automatic shut-off valve or other approved device.
- If system demand cannot be met, and a home hydrant or other device is required to provide supplemental pressure to the system, said device will be required to be wired to its own dedicated breaker.

Additional Locations of Fire Sprinklers

- Attached garages/carports, shall be provided with fire sprinkler protection.
- All bathrooms regardless of size shall be provided with fire sprinkler protection.
- Crawl spaces or areas beneath stairs, accessible or if intended to be used for living or storage, shall be provided with fire sprinkler protection.
- Attic spaces that contain mechanical equipment such as furnaces and water heaters shall be provided with sprinklers limited to the protection of the equipment itself. Sprinkler coverage at a minimum shall protect the access opening.
- Window openings on sides of the structure that do not meet setback requirements shall be provided with sprinkler protection.

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Alarms and Monitoring

- The exterior alarm bell shall be mounted so as to be audible in the Master Bedroom above ambient noise levels with all doors and windows closed. The bell shall have a sign stating **“CALL FIRE DEPARTMENT”** or similar wording. An additional alarm shall be placed in the interior of the home that can be heard in all sleeping areas, or, shall be interconnected to the smoke alarms, which will sound an alarm in all sleeping areas.
- Water flow switches and control valves shall be electrically monitored when the system includes 100 or more heads. Valve monitoring, water-flow alarm and trouble signals shall be automatically transmitted to a U.L. certified central or remote station monitoring service.

Inspectors Test

- An inspector’s test valve shall be provided at the most remote area of the system, or, when any story of the home is below the level of the riser drain, located so as to provide an auxiliary drain to prevent trapped water.

Spare Head Box

- A sprinkler head box shall be installed in every unit near the main sprinkler riser and shall include at least one head of each type installed, a sprinkler head wrench, and a water key to test the remote inspector test valve.

Hydrostatic Testing

- All fire extinguishing systems installed in accordance with this standard shall be tested for integrity by undergoing a hydrostatic test made at 200 psi for one-hour duration or at 50 psi above static pressure in excess of 150 psi for two-hour duration.

Control Valves

- Valves controlling the water supply to residential fire sprinkler systems shall also shut off the domestic supply to the dwelling. Valves shall be distinguishable, accessible, and located adjacent to the structure, proximal to the domestic shutoff valve. The main system control valve shall be distinguishable from the domestic valve by means of a permanently attached tag.

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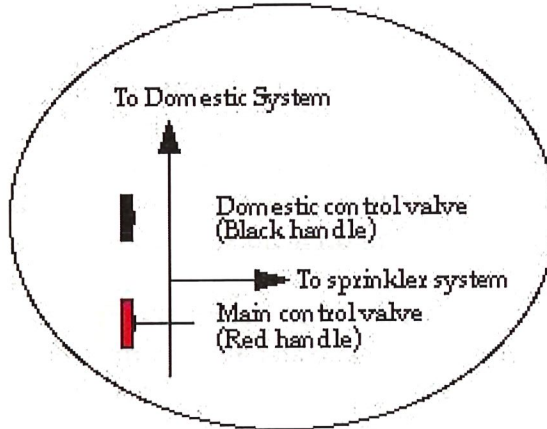
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Contractor

- The sprinkler contractor shall have a qualified representative present at all sprinkler system inspections. An approved set of the plans and all supporting documentation shall be on site and readily available during inspections