

Marin County Fire Department



Developed by:

Scott D. Alber
Scott D. Alber, P.E.
Battalion Chief/Fire Marshal

Approved by:

Ken Massucco
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Fire Protection Standard 401

Residential Automatic Fire Sprinkler Standard

Date: 1/1/11

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This Standard has been developed pursuant to 2009 Edition of the International Fire Code and the 2010 Edition of the California Fire Code, as adopted by local Ordinance by the County of Marin. It is intended that this standard be used as a guide for installation and placement of appurtenances associated with automatic fire sprinkler systems in residential occupancies.

All automatic fire sprinkler systems installed in one- and two-family dwellings shall be designed and installed in accordance with the following provisions:

A. Permits and Plans:

1. A Marin County Fire Department Permit Application shall be obtained for all fire protection and extinguishing systems. Separate permits and submittals are required for overhead and underground systems. **Exception:** NFPA 13D systems for residential sprinkler installations shall not require a separate underground permit. The Permit application shall be completed and plans reviewed prior to installation. Contact the Marin County Fire Department Office at (415) 499-6717 for permit applications, or download an application from our website, (www.marincountyfire.org).
2. Plans shall be submitted as follows. At least three (3) sets of architectural or engineered line drawings shall be accompanied by three sets of calculations and material specification sheets for piping, fittings, and sprinkler heads.

B. Specific Requirements:

1. Plan check and inspection fees shall be paid at the time of plan submittal.
2. Plans must be approved and a copy of the approved plans must be at the job site before any work commences.
3. Systems shall be designed in accordance with the current adopted versions of either NFPA 13D or NFPA 13R except where superseded by this standard, or in unusual situations by the Fire Code Official.
4. Homes with more than 5,000 sq. ft. of sprinklered area shall be designed in accordance with NFPA 13R and these standards.
5. Control valves and riser shall be installed as shown in Figure 1.
6. All attached garages shall be fully sprinklered.
7. All bathrooms shall be sprinklered.
8. Pilot heads shall be installed in attic areas above each access and above any HVAC or water heating equipment.
9. Under-floor areas, areas beneath stair cases, and crawl spaces intended or accessible for storage or habitation shall be sprinklered.

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10. Systems designed in accordance with 13R shall have a fire department connection, the location and size of the FDC must be approved by the Fire Code Official.
11. Plans shall show an elevation cross section of the building showing every situation other than smooth, flat, horizontal ceilings.
12. Hydraulic calculations shall show a 5-gallon per minute (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.
13. A 10% safety margin, in pressure, shall be provided in the design at the point of connection to the public main.
14. Plans for systems requiring a pump shall include all information regarding the pump and associated plumbing.
15. In systems that require the use of a pump that will not be used for the domestic supply, special electrical wiring or plumbing provisions may be required which shall be approved by the fire prevention bureau at the planning stage.
16. Valves that are capable of shutting off the water supply to the fire sprinkler system shall also shut off the domestic supply to the dwelling.
17. 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 detectors which will sound an alarm in all sleeping areas.
18. Inspectors 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.
19. A spare head box shall be provided along with the appropriate spare heads, a sprinkler head wrench, and a water key for testing the inspectors test valve.
20. The sprinkler contractor shall have a representative present at all sprinkler system inspections.
21. When significant changes are made to the system from the approved plans, a set of the approved plans with the changes "red-lined" shall be provided to the inspector at the rough in/hydro inspection.

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Figure 1

