

NOVATO FIRE PROTECTION DISTRICT FIRE LOSS MANAGEMENT DIVISION



Developed by Forrest M. Craig
Forrest M. Craig, Fire Marshal

Approved by Jeffrey A. Mescon
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Fire Protection Standard 401

FIRE SPRINKLER SYSTEMS

Date: 01/08/01

Revision: 12/07/05

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This Standard is promulgated pursuant to the Novato Fire Protection District amendments to the Uniform and California Fire Codes regarding the requirements for automatic fire sprinkler systems. For alarm monitoring requirements reference Novato Fire Protection District Standard 400.

I. Permits and Plans

- A. A Fire District 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 shall not require a separate underground permit. The Permit application shall be completed and plans reviewed prior to installation. Contact the Novato Fire District Administrative Office at (415) 878-2690 for permit applications.
- B. Plans shall be submitted as follows. At least three (3) sets of architectural or engineered blue line drawings shall be accompanied by three sets of calculations and material specification sheets for piping, fittings, and sprinkler heads.
- C. See Novato Fire Protection Standard 402 for underground permits and plan submittals.

II. One and Two Family Dwelling Units

- A. Buildings that are intended for occupancy as a one or two family dwelling unit shall have an automatic residential fire sprinkler system installed in accordance with most recent published edition of National Fire Protection Association Standard 13D with the following modifications:
 - 1. Control valves and riser shall be installed as shown in Figure 1.
 - 2. A remote inspector test valve is required at the furthest remote portion of the system.
 - 3. Pilot heads shall be installed in the attic spaces directly above every attic access opening.
 - 4. All garages shall be sprinkled.
 - 5. 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.
 - 6. A durable and permanent sign shall be installed at the test valve stating "Inspector Test Valve".
 - 7. All rooms with useable and accessible space under stairs shall be sprinklered regardless of 13D exceptions.

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III. One and Two Family Dwellings Greater than 6,000 Square Feet

A. Any Group R Division 3 Occupancy as defined by the California Building Code in excess of 6,000 square feet, shall have an automatic residential fire sprinkler system installed in accordance with most recent published edition of National Fire Protection Association Standard 13R with the following modifications:

1. A remote inspector test valve is required at the furthest remote portion of the system.
2. Pilot heads shall be installed in the attic spaces directly above every attic access opening.
3. All garages shall be sprinkled.
4. A sprinkler head box shall be installed in every building 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.
5. A durable and permanent sign shall be installed at the test valve stating "Inspector Test Valve".
6. All rooms with useable and accessible space under stairs shall be sprinklered regardless of 13R exceptions.

B. Any permissible reductions in fire flow stipulated by Uniform and/or California Fire Codes shall not be applied unless approved by the Fire Marshal and the entire building is fully sprinkled including those areas exempted by NFPA 13D and 13R. Such cases may be approved by the Fire Marshal.

IV. Hotels/Motels and Apartment Buildings

A. Buildings that are intended for occupancy as a Group R Division 1 Occupancy as defined by the California Building Code, shall have an automatic residential fire sprinkler system installed in accordance with the most recent published edition of National Fire Protection Association Standard 13R with the following modifications:

1. A remote inspector test valve is required at the furthest remote portion of the system.
2. Pilot heads shall be installed in the attic spaces directly above every attic access opening.
3. All garages shall be sprinkled.
4. A sprinkler head box shall be installed in every building 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.
5. A durable and permanent sign shall be installed at the test valve stating "Inspector Test Valve".

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6. All rooms with useable and accessible space under stairs shall be sprinklered regardless of 13R exceptions.

B. Any permissible reductions in fire flow stipulated by Uniform and/or California Fire Codes shall not be applied unless approved and the entire building is fully sprinklered in accordance with NFPA Std. 13. Such cases may be approved by the Fire Marshal. In any case, the available fire flow shall not be less than 1,500 gallons per minute. Additional gpm may be required based on building type of construction and total floor area.

V. All Commercial Structures

A. An automatic fire sprinkler system shall be installed in all of the following in accordance with the most recent published edition NFPA Std. 13:

1. Every newly constructed, freestanding building or facility.
2. In newly created attached second dwelling units.
3. In all buildings which has more than fifty per cent (50%) floor area added or any "substantial remodel" as defined in this standard, within any 12-month period. The Chief may grant exceptions when alternate means of protection are installed as approved by the Chief.
4. In all buildings except R-3 occupancies, in excess of 3,000-sq. ft. which have more than ten per cent (10%) floor area added within any 12-month period. The Chief may grant exceptions when alternate means of protection are installed as approved by the Chief.
5. In all existing buildings, where fire sprinklers are required by provisions of this code, they shall be extended into all unprotected areas of the building in accordance with standards developed by the Chief.
6. All public storage facilities shall be provided with an automatic fire sprinkler system. All public storage facilities shall have an approved wire mesh barrier installed 18" below the deflector within each storage room to limit storage height and for proper sprinkler coverage.

Exceptions:

1. Free standing Group U Occupancies not more than 1,000 square feet and provided with exterior wall and opening protection as per Table 5-A of the Building Code.
2. Agricultural buildings as defined in Appendix 3 of the Building Code and not exceeding 2,000 square feet, having clear unobstructed side yard of combustible materials, exceeding 60 feet in all directions and not exceeding 25 feet in height,

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and located within an Agricultural zoned district as defined in the Marin County Planning Code.

3. Any permissible reductions in fire flow stipulated by Uniform and/or California Fire Codes shall not be applied unless approved and the entire building is fully sprinkled in accordance with NFPA Std. 13. Such cases may be approved by the Fire Marshal. In any case, the available fire flow shall not be less than 1,500 gallons per minute.

VI. Fire Sprinkler Zones and Control Valves

- A. In mutli-story buildings and/or where standpipe outlets are required, automatic fire sprinkler systems and combination systems shall be zoned by floor. Control valves shall be capable of isolating the system by floor and monitored for supervision. Water flow switches shall be provided to alarm by building and by floor. Standpipes and standpipe-fire sprinkler combination systems shall have separate system (monitored and supervised) control valves capable of isolating the standpipe systems by building and by floor. All alarm monitoring and supervision shall comply with Novato Fire Protection Standard #400 and be issued a serially numbered U.L. certificate. Exception: Fire sprinkler systems conforming to NFPA 13D for single family dwellings need not comply with this section.

VII. Fire Flow Requirements

- A. Minimum fire flow requirements in addition to the requirements of the California Fire Code and Novato Fire District Ordinance 2002-1 shall be as follows:
 - a) Minimum fire flows serving commercial projects and apartment buildings shall be not less than 3,500 gpm
 - b) Minimum fire flows serving residential occupancies in the designated UWI areas of the Novato Fire District shall be not less than 1,700 gpm.
 - c) Minimum fire flows serving single family dwellings not in the designated UWI areas of the Novato Fire District shall be not less than 1,000 gpm
- B. Fire flows may be increased depending on building square feet and type of construction. Credits for fire flow may be granted by the Fire Marshal on a case by case basis and when approved alternate means of protection are provided. Alternate means of protection may include but not be limited to: Buildings completely fire sprinkled throughout regardless of standard exceptions; Installation of wet standpipe systems in accordance with NFPA Stds. and this Standard; Increased fire resistive construction when not used as credit for allowable building area or height increases and where it is not already required by the CBC or CFC; Monitored automatic fire detection and/or

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extinguishing systems in accordance with NFPA Stds. and Novato Fire Protection Standard 400.”

VIII. Substantial Remodel Defined

- A. Substantial Remodel shall mean the renovation of any structure, which combined with any additions to the structure, affects a floor area, which exceeds fifty percent of the existing floor area of the structure. When any structural changes are made in the building, such as walls, columns, beams or girders, floor or ceiling joists and coverings, roof rafters, roof diaphragms, foundations, piles or retaining walls or similar components, the floor area of all rooms affected by such changes shall be included in computing floor areas for purposes of applying this definition. This definition does not apply to the replacement and upgrading of residential roof coverings.

Example of calculation:	Total base of initial existing walls	1232 feet
	50% of base =	616 feet
	Walls removed	281 feet
	Walls added	<u>312 feet</u>
	Walls altered	593 feet

The total walls altered is less than 50% of the base, therefore, sprinklers are not required.

IX. System Hydraulic Calculations

- A. All hydraulic calculations shall reflect a 10% cushion factor at the end of the total system pressure calculation.
- B. Residential systems serving only one house shall use an additional 5gpm in the system calculation from the domestic point of connection at the house if a lawn irrigation system is also installed at the site.
- C. If because pressure in the main is not adequate, a pump is designed to serve the system, calculations, pump specification and drawings shall be included in the submittal. The pump shall serve the domestic and fire sprinkler systems.



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Figure 1

