

RESIDENTIAL FIRE SPRINKLER REQUIREMENTS

ONE-TO-TWO FAMILY DWELLINGS (R-3 OCCUPANCIES) & MANUFACTURED HOMES

This information package shall be used in conjunction with CRC R313, NFPA 13D and other applicable NFPA design standards as adopted by the City of Mountain View, for R-3 Occupancies. (Refer to the California Fire Code (CFC) for adopted editions of NFPA). This information package is not intended for use as a stand-alone document.

ADMINISTRATIVE:

- Submittals are only accepted online via ePermitsMV. To submit please visit the following for instructions on submitting:
<https://www.mountainview.gov/depts/comdev/building/epermitsmv.asp>
- **Provide associated building permit number on permit application.**
- Plan check turnaround time for each submittal is a **minimum** of three (3) weeks.
- Incorporate onto the drawings: the contractor's name, address, phone number, California Contractor's license number and license type or P. E. license number.
- The contractor will be notified by phone when the plans and permit are approved. All plan check and permit fees will be collected when the plans are approved.
- Field inspections are conducted Monday, Wednesday and Friday only. For inspection scheduling or for general information please call (650) 903-6313. Inspections will not be scheduled until a permit has been issued. **Allow 2-3 working days' advanced notice when requesting inspections.** The permit card and an approved set of plans must be kept at the project site until the permit is finalized. Failure to maintain the permit card and approved plans on site will result in the cancellation of the inspection.
- System equipment and piping shall not be installed prior to issuance of a permit.

GENERAL REQUIREMENTS

1. The **minimum** scale for overhead fire sprinkler plans is $1/8" = 1'-0"$. In addition, plans and pipe lengths shall be fully dimensioned to coincide with the specified scale.
2. All fire sprinkler system submittals shall include a copy of the City of Mountain View Fire Flow Data Form. In addition, fire flow data shall include the elevation of the tested hydrant in relation to the base of the sprinkler riser. Fire Flow Data Forms shall be obtained from the City of Mountain View Water Division at (650) 903-6329. The flow data shall not be more than 12 months old from date of permit application submittal.

3. All system equipment and components shall be listed/approved for its intended use and installed in accordance with its listing.
4. All mechanical, electrical, and plumbing shall be installed prior to a rough visual and hydro inspection. *Incorporate as a verbatim note onto the drawings.*

PLAN NOTES

5. The sprinkler system shall be designed and installed in accordance with City of Mountain View Requirements, NFPA 13D and other applicable NFPA Standards as adopted by the City of Mountain View. *Incorporate as a verbatim note onto the drawings.*
6. All new system installations shall be tested for leakage at 200 psi water pressure at the time of overhead inspection. *Incorporate as a verbatim note onto the drawings.*
7. A spare head box shall be provided adjacent to the riser. Spare head box shall be stocked with a sprinkler wrench and a spare sprinkler of each type utilized on the project. *Incorporate as a verbatim note onto the drawings.*
8. An owner's manual (CRC R313.3.7) shall be mounted adjacent to the spare head box. *Incorporate as a verbatim note onto the drawings.*
9. A weatherproof sign or valve tag (CRC R313.3.7) shall be installed at the main shutoff valve: "Warning, the water system for this home supplies fire sprinklers that require certain flows and pressures to fight a fire. Devices that restrict the flow or decrease the pressure or automatically shut off the water to the fire sprinkler system, such as water softeners, filtration systems and automatic shutoff valves, shall not be added to this system without a review of the fire sprinkler system by a fire protection specialist. Do not remove this sign." *Incorporate as a verbatim note onto the drawings.*
10. Interior alarms shall be of sufficient intensity to be clearly audible in all bedrooms over background noise levels while all intervening doors are closed. A minimum of (1) interior horn shall be provided on each floor/level where a bedroom is located (Refer to Overhead Sprinkler System Condition of this handout). *Incorporate as a verbatim note onto the drawings.*
11. Sprinklers may be omitted from areas in accordance with NFPA 13D with the exception of attached garages and carports. (Refer to Special Condition of this handout). *Incorporate the applicable sprinkler omissions recognized in NFPA 13D as verbatim notes onto the drawings.*

CONNECTION TO WATER SUPPLY

12. The fire sprinkler system shall be supplied by the domestic water system. An exterior, above-grade, indicating-type control valve shall be provided at the location where the water supply enters the house. This control valve shall be arranged so the fire sprinkler system cannot be shut off without shutting off the domestic system. A separate control valve is required for the domestic system.
13. Prior to connection to the overhead sprinkler system, the underground piping shall be flushed until clear. The underground flush shall be witnessed by the Building Inspector when a combined domestic/fire water line is used. *Incorporate as a verbatim note onto the drawings.*

OVERHEAD SPRINKLER SYSTEM

14. The following information shall be included on the plans and/or part of submittal package:
 - a) Name of owner and/or occupant.
 - b) Project address.
 - c) Point of compass.
 - d) Nominal pipe size and cutting lengths of pipe (or center-to-center dimensions).
 - e) Location and size of rise-ups and drops.
 - f) Locations of hangers. (Applicable pipe manufacturer hanger spacing recommendations may be blue-lined onto the drawings in lieu of showing hanger locations).
 - g) A complete riser detail showing the location of the exterior control valve, rubber-faced check valve, waterflow detector, pressure gauge and test drain. The location of the domestic tie-in shall be clearly shown.
 - h) Indicate the type, schedule, diameter and C-factor of all piping.
 - i) Indicate the specific type of fittings used. Copper joints shall be brazed or solder alloy conforming to ASTM B32 may be used.
 - j) A graphic representation of the scale used.
 - k) Use of each area or room.
 - l) Hydraulic reference points shown on the plan shall correspond with comparable reference points on the hydraulic calculation sheets.
 - m) The total quantity of water and the pressure required shall be noted at a common reference point at the base of the sprinkler riser.
15. Provide a site plan showing the location of the house in relation to the entire site.
16. Provide a full height section view to scale. Include ceiling construction, ceiling slopes (rise/run) and angles.
17. Provide a Sprinkler Legend and clearly indicate the manufacturer, model, orifice size, K-factor and temperature rating of all sprinklers. Include a sprinkler symbol and a count for each sprinkler type.
18. Provide a manufacturer specification sheet for proposed residential fire sprinklers. Specification sheets shall indicate all pertinent design information such as minimum flow and pressure requirements, minimum spacing between sprinklers and spacing from heat sources (e.g. – fireplaces, kitchen ranges, hot air diffusers, lighting fixtures, etc.).
19. An exterior bell wired directly from the waterflow alarm shall be provided and visible from the street. In addition to the exterior alarm, an interior alarm(s) directly wired from the waterflow alarm shall be provided. The plans shall show the locations of exterior and interior waterflow alarms, regardless of installing contractor. The exterior bell shall have a sign, "Sprinkler Call 911".
20. A minimum 3/4" drain and test connection shall be piped to the exterior and installed with a 7/16" orifice (or the orifice size of the smallest sprinkler in the system.)
21. Indicate the method(s) of protection for exposed nonmetallic piping in accordance with specific pipe manufacturer requirements.
22. Drawings shall include details of manufacturer recommendations to avoid sprinkler spray obstructions. Areas of special consideration such as soffits, beams, sloped ceilings, multiple ceiling heights, surface-mounted ceiling lights or other obstructions shall be clearly detailed.

23. Provide complete pipe hanger details or a hanger manufacturer cut sheet. Wood blocking for support of piping shall be subject to field inspection and must be installed in accordance with accepted industry standards. Wood blocking shall not be less than 2" x 4" (sound) lumber and attached to the roof structure with a minimum of two approved fasteners on each side.
24. Provide a legend for all lighting fixtures and mechanical diffusers. Show all lights, diffusers and ceiling fan on plans.
25. Design and install in accordance with NFPA 13D and CMV Residential Fire Sprinkler System requirements (See City website under "Fire Handouts"). Coordinate water meter and water main sizes with approved fire sprinkler shop drawings. Minimum 1" meter and 1" main service unless hydraulic calculations prove existing adequate.
26. The circuit for the fire bell shall be permanently marked on the electrical panel.

SPECIAL CONDITIONS

27. Sprinkler protection shall be provided for attached garages and carports, including accessible garage attic areas. Garage sprinklers shall be of the commercial, quick response type and coverage shall not exceed 130 sq. ft. per sprinkler. Garage attic sprinklers shall be of an intermediate or high temperature rating and coverage shall not exceed 130 sq.ft. per sprinkler.
28. When forced air units or water heaters are installed in attics, a "pilot" sprinkler shall be installed. This sprinkler shall be of an intermediate or high temperature rating and installed within 3' vertically down from the peak. The sprig up pipe shall be steel or copper.
29. Fire sprinklers shall be installed to protect all open, exterior, covered living areas (patio, covered deck, outside kitchen, etc.) having habitable space directly above.

HYDRAULIC CALCULATIONS

30. Plan submittals for overhead systems shall include underground drawings for hydraulic reference purposes. Indicate underground pipe size, length, material and point of connection to city main. Hydraulic calculations shall demonstrate that the underground piping and water meter have been sized to accommodate the system demand as defined below.
31. Hydraulic calculations shall verify the single operating sprinkler demand and the multiple operating sprinkler demand in accordance with the manufacturer listing. Sloped, beamed and pitched ceilings could require special design considerations such as greater flows, a design of three or more sprinklers to operate in the compartment, or both. Consult with the sprinkler manufacturer's listing.
32. Hydraulic calculations shall identify the sprinkler design coverage area and include a water supply curve with the system demand clearly plotted.
33. A domestic design demand of 5 gpm shall be included in the hydraulic calculations.
34. A 10 percent safety factor (available supply versus required supply) shall be provided for all hydraulic calculations and shall be indicated on the water supply curve. Note: The total demand shall be indicated as the total required supply.

NOTE: The City of Mountain View reserves the right to not approve a listed component or piece of equipment due to past performance.