



# City of Kingsburg

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## **BUILDING INFORMATION BULLETIN 2025-001**

Effective Date: 1/1/2025

To: Architects, General and Trade Contractors, Associations & Citizens of Kingsburg

Subject: Residential Fire Sprinkler Plan Submittal, Plan Check, Inspection, and Installation

From: AJ O'Connell, MCP, CBO, CCEA – Building Official

Policy:

Effective on January 1, 2025, the City of Kingsburg Building Division will be the lead authority within the City of Kingsburg on the enforcement of the Code provisions regarding Fire Sprinklers in one- and two-family dwellings. The purpose of this Bulletin is to provide clarification, instruction, and regulation to help in the plan submittal, plan check, inspection, and installation of fire sprinkler systems in these buildings.

This Bulletin is intended to reference standards for Residential Fire Sprinkler design and installation in the *2022 California Residential Code* §R313, *2022 California Fire Code* §903, *2022 NFPA 13D*, *2022 NFPA 13* §12.1, and manufacturer specifications.

### **Responsibility**

Design: All fire sprinkler plans shall be designed by a C-16 licensed contractor or be a Registered Professional Engineer (Civil, Mechanical, or Fire Protection), licensed by the State of California (Board of Professional Engineers). All plan submittals shall be stamped by both the designer and the installer of the system.

Installation: The sprinkler system shall be installed by an individual who holds the following licenses:

- Stand-alone system                      C-16 (Fire Protection)
- Multi-purpose system                    C-36 (Plumbing) and/or C-16<sup>a</sup>

<sup>a</sup>Exception: 13D systems designed and installed in accordance with the Owner-Builder provisions of the California Business and Professions Code Section 7026.12.

### **Plan Submittal Procedure**

All plans for fire sprinklers shall be submitted via email to [buildingplanning@cityofkingsburg-ca.gov](mailto:buildingplanning@cityofkingsburg-ca.gov) and shall be accompanied by a fully completed [Building Permit Application](#). Hard copy submittals of plans will not be accepted.

For fire sprinklers to be installed concurrently with new construction, such as new dwellings or ADUs, the fire sprinkler plans shall accompany the entire building application package. Deferred submittals will not be accepted. The permit application must include the valuation of the total project, including the fire sprinkler system.

Plans will be checked by the Building Division for conformance with the adopted Codes of the City of Kingsburg. Once all plans have been approved, the applicant will be responsible for paying all necessary fees and fulfilling any outstanding conditions prior to the Building Division issuing a permit.

For new construction, a single building permit will be issued for both the new construction and for the fire sprinkler system.

### **Plan Submittal Information**

In order to expedite the plan checking process, and to avoid the possibility of returning plans for correction, please use the following checklist to ensure that the submittal is complete. Prior to submittal to the Building Division, please double check that all information is included:

- Name of Owner.
- Address of dwelling in which the sprinkler system is to be installed.
- Name of designer of the sprinkler system, phone number, type of license, and license number.
- Name of installer for the sprinkler system, phone number, type of license, and license number.
- Total number of square feet of the dwelling, including the garage to be protected. Include the square footage of any detached structures.
- Number of floors.
- North arrow.
- Site plan with the following information:
  - Point of connection to public water system,
  - Service point of entry to dwelling,
  - Size and type of all pipes and fittings, lengths of each segment, and actual inside diameter used for hydraulic calculations,
  - Location and arrangement of arrangement of all devices such as meter and backflow,
  - Size of the meter,
  - On combined laterals serving fire sprinklers and domestic water service, location of fire service take-off and master shut-off valve,
  - Size and location of public water main at point of connection,
  - Flow test/pressure data used for hydraulic calculations.
- Full height cross-sectional views of the dwelling that shows the construction types, vaulted and beamed ceiling locations.
- Floor plan with the following information:
  - Building dimensions,
  - Dimensions for rooms, compartments, and garage(s),

- Identify each room and/or compartment (e.g. closet, pantry, kitchen, living room, garage(s), etc.),
- Show clearly all un-sprinklered areas,
- Show all areas that have sloped/vaulted ceilings. List actual slope of ceiling (e.g. 1:12, 2:12, etc.),
- Location, width, and depth of all soffits,
- Location and depth of exposed beams at ceilings. List the size of beams, including false beams.
- Location, depth, and height above floor of all arches,
- Location of all light fixtures. List the type of fixtures on plan (e.g. recessed, pendant, boxed flush mount, etc.),
- Location of all ceiling fans. Show diameter of fan.
- Location of all heat-producing appliances (e.g. stoves, ovens, fireplaces, etc.).
- Water flow information:
  - Flow location,
  - Static pressure, psi,
  - Residual pressure, psi,
  - Flow, gpm.
- Material data sheets for all devices in connection with the fire sprinkler system:
  - Each type of fire sprinkler head to be installed which lists the manufacturer, identification number, style, model, orifice size, response type, temperature rating, and K-Factor;
  - Pipe and fittings (required to be listed);
  - Hangers as the means of support for piping to be installed (required to be listed);
  - Water supply components and connected devices which may restrict the water flow (e.g. water meter, backflow preventers, pressure-reducing valves, water softeners, etc.).

## Hydraulic Calculations

A hydraulic calculation package must accompany each permit application for residential fire sprinklers. The calculation will determine if there is enough pressure at the water supply to deliver the required volume of water to the hydraulically most remote area.

The accumulation of pressure losses that will occur when the required volume of water flows through the system can be determined by the following steps:

- Identify the pressure needed to flow the required volume at the hydraulically most demanding sprinkler.
- Total the pressure losses from the friction and elevation changes between the water supply and the most demanding sprinkler.
- Deduct the pressure losses from the supply pressure and compare with the result with the required pressure.

If the calculation result exceeds the required pressure, the supply pressure providing the design flow rate will be confirmed. If it is not sufficient, designers have several options for increasing the available pressure, such as:

- Reducing the sprinkler spacing,
- Use of a more efficient pipe layout,
- Increasing pipe diameters,

- Increasing the water supply pressure.

The following information shall be included in the hydraulic calculations:

- Calculations must conform to manufacturer specifications;
- “K” factors for all sprinklers;
- “C” factors for the type of piping to be used.

## Inspections

All inspections of the fire sprinkler system shall be made by the Building Official for the City of Kingsburg. All requests for inspections shall be made by calling the Inspection Line at the number located at the top of the Inspection Card. Requests for inspections must be made before 4pm on the business day prior to the date of the inspection.

The following inspections will be required for Residential Fire Sprinklers:

- Underground Service, if applicable;
- Rough-In Fire Sprinklers;
  - Sprinklers are installed in all areas as indicated on the approved plans,
  - Verification of any obstructions,
  - Sprinklers are the correct temperature rating and are installed at or beyond the required separation distances,
  - Pipe size equals the sizing calculated in the hydraulic calculations.
  - Pipe lengths and fittings do not exceed those indicated in the hydraulic calculations.
  - Verification of listing of piping.
  - Piping support is per manufacturer’s specifications,
  - Testing is conducted as follows:
    - Systems with a fire department connection (FDC) – 2 hour test @ 200psi.
    - Stand-alone systems without an FDC – 2 hour test @ 100psi
    - Combined domestic and fire suppression system without an FDC – 15 min test @ static line pressure.
- Final Inspection.
  - Sprinklers are not painted, damaged or otherwise hindered from operations.
  - Where a pump is required to provide water to the system, the pump starts automatically upon system water demand.
  - Pressure-reducing valves, water softeners or other impairments to water flow that were not part of the original design have not been installed.
  - Signage at the main shutoff valve to the water distribution system stating the following:
 

*“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.”*

For additional information regarding this Bulletin, please consult the Building Division website at <https://www.cityofkingsburg-ca.gov/149/Building-Department> or contact the Building Division.