

VILLAGE OF WESTERN SPRINGS
Community Development Department
740 Hillgrove Ave. Western Springs, IL 60558-0528
Ph. 708.246.1800 Fax 708.246.4871

Requirements for Permits for Residential Fire Sprinklers

New single-family homes within the Village are required to install fire sprinklers. The Community Development and Fire Departments, along with help from fire safety experts, will review and approve all systems prior to the issuance of a permit for the new home. It is recommended that builders and homeowners hire a sprinkler contractor experienced with residential installations and knowledge of all applicable codes. Village Staff and FSCI, Inc. (Fire Safety Consultants) offer free consultations, prior to permit submittal, to meet with builders, residents, and sprinkler contractors to answer questions. The permit process, plan submittal requirements, and basic requirements for receiving approval of sprinkler system for a new home are described below.

Permit Process:

- Submit complete building permit application and all plans for a new single-family home.
- Submit one (1) set of sprinkler plans to the Department of Community Development.
- Submit three (3) sets of sprinkler plans directly to FSCI, Inc. (address provided below).
- FSCI & CD now accept electronic copies of sprinkler plans.
- Pay fee for building plan review. The sprinkler system plan review and inspection fee of \$450 is paid when the permit is issued for the home. If submitted electronically, a fee of \$100 will be added.
- Register all contractors and subcontractors (including fire sprinkler installers).
- Upon submittal, plans are reviewed by FSCI, Inc. and Fire Department staff with plan review report provided within 10-12 business days.
- Plans are either approved or returned for corrections.
- Resubmittals will be reviewed within 10 business days and written reports provided.
- Once the plans are approved by FSCI and Fire Department staff and all other permit requirements for a single-family home are met, a permit will be issued.
- Revisions to plans that have been previously approved are subject to additional plan review (and applicable fees).

Plan Submittal Requirements:

Specific questions regarding the design of the system should be directed to FSCI, Inc. at (847) 697-1300. Sprinkler plans must be submitted along with all applicable specifications including, but not limited to, equipment data and hydraulic calculations.

All new sprinkler system plans must comply with the following rules:

- All sprinkler system plans must be prepared by a professional as required by Illinois Law.
- All sprinkler systems must be supported by a minimum 1.5" water service.
- Residential fire sprinkler systems shall connect to the domestic water supply after the water meter.
- All designs must meet the criteria listed in the 2016 Edition of NFPA 13D as well as various portions of other codes and standards (including any applicable Village amendments to the Code. Contact the Fire Department for clarification.
- Plans must indicate the type and location of all sprinklers, piping, control valves, etc.
- A legend indicating symbols for all sprinklers and sprinkler system devices.
- The sprinkler system plans must be to scale.

- An interior bell shall be added at each furnace location on the return duct. An interior horn device may be substituted for upper-level bells. Alarm bells/horns shall be audible throughout the living area of the structure.
- An exterior horn & strobe must be installed on the front elevation of the home. Final horn and strobe location must be indicated on the sprinkler plans.
- Tenting and insulation may/will be required for piping run in attics and other unheated areas.
- Backflow prevention to be provided using a double check valve (or RPZ). Catalog cut sheets and specifications are required. If the system utilizes antifreeze, a Reduced Pressure Zone (RPZ) assembly is required.
- If field verification of insulation is not completed, the General Contractor shall provide FSCI with a letter on their letterhead and addressed to the AHJ stating that all sprinkler piping is protected from freezing with the minimum R-value insulation required.

Hydraulic Calculation Design:

- Provide hydraulic calculations for the hydraulically most demanding sprinklers in accordance with NFPA 13D. Indicate all fittings, valves, pipe diameters, pipe lengths, hydraulic nodes, pumps, and sprinklers on the submitted plan(s).
- A riser diagram must be included (if applicable).
- The hydraulic calculations must account for all piping back to the source, which is where the water supply test data is derived from (typically a hydrant). All piping must be shown on the submitted plan(s) back to the source as well.
- Submit manufacturer's data sheets for all new devices, piping, valves, and fittings.
- If a fire pump is part of the design, submit the manufacturer's data sheet for the pump, which must include a pump curve indicating pump performance (pressure) at various flows.
- The hydraulic calculations must incorporate the appropriate data from the pump curve.
- Contact AHJ for current flow information.

Inspections:

Inspections of new sprinkler system will be conducted by FSCI and Fire Department staff and include the following:

Hydrostatic and Rough Inspection -The requirements for this inspection include:

- All piping, fittings, sprinklers, etc. shall be exposed and visible for this inspection
- A minimum 72 hours' notice/call to schedule appointment.
- A set of sprinkler system plans, stamped and approved by FSCI, must be on-site for the inspection.
- The home must be heated by HVAC or by other approved methods.
- All gauges will be checked followed by a walk-through of structure to inspect the system and check for leaks.
- The system must demonstrate that it can maintain proper pressure over the prescribed amount of time.

Final Inspection - It is critical that this inspection be scheduled when the sprinkler contractor is certain that the system is complete and ready for final inspection. Partial approval will not be granted for the sprinkler system and re-inspections charges will be assessed if needed. The inspection includes:

- Submittal of a full set of as-built sprinkler system plans. These as-built plans, as well as the originally approve sprinkler system plans, must be made available at the final inspection.
- A full walk-through of structure to inspect the system & comparison with approved plans
- Demonstration of a flow test.
- Inspection of bells and other system features.
- Verification that head covers have been removed.
- Double check valve (or RPZ inspection and certification).
- Removal of valve handle and lock out of breaker for alarm bell.
- Verification of bell installed on duct, is operational and outside horn/strobe is activated with audio and visual during flow test.
- Homeowner packet provided to homeowner.

Other important information to consider:

- It is recommended that your sprinkler be connected to an existing alarm system. This connection will provide advanced notice to your alarm service and the Fire Department.
- Please keep in mind that basement remodeling or "finishing" will likely require modifications to your sprinkler system. A permit is required prior to any work that modifies an existing system. Plan review and inspections shall be completed for any modification of sprinkler system.

Plan review and permit fee:

- The cost for all plan review and inspections (conducted by FSCI and the Fire Department) is \$450.00 paid when the permit for the home is issued. Expedited plan review (completed within 3 business days) is available for an additional cost. Contact the Community Development Staff for more information. Electronic submittal available at an additional cost of \$1

Community Development and Fire Department Staff Members are available to answer permitting and plan review questions regarding sprinkler systems. Please call us at (708) 246-1800, ext. 180.

Design-related questions should be directed to:

FSCI, Inc., 2420 Alft Lane, Elgin, IL 60124

Phone: 847.697.1300

Fax: 847.697.1310
