



## Sprinkler System - Plan Review & Inspection Policy

The following items make up the policy followed by Owatonna Fire Department personnel regarding plan review and inspections of sprinkler systems. The policy may be revised from time to time and may not deal with unique situations.

1. Sprinkler plans that are submitted to this office will be reviewed for compliance with the requirements contained in NFPA-13, 2016 edition, NFPA 13R, 2013 edition, and MSBC Chapter 9.
2. The Owatonna Fire Department requires blueline plans and hydraulic calculations for our records. Plans and calcs shall be submitted online at <https://owatonnamn.viewpointcloud.com/categories/1082/record-types/6450> as part of the permit application process. The permit fee may be paid online at the time of application, or a check may be mailed to the Owatonna Fire Department.
3. A permit is required for new installations. A permit is also required for all modifications, alterations or repairs when over 20 heads are altered, or the value of the project is over \$2,500.
4. All equipment installed in a fire protection system shall be UL Listed, Factory Mutual. Approved or listed by a nationally recognized organization acceptable to the Minnesota State Fire Marshal.
5. Double backflow prevention is required by the Owatonna Public Utilities. Please contact them for their requirements.
6. The Owatonna Fire Department will approve a combined domestic/fire service line when the size of the domestic connection does not exceed one-fourth the size of the combined service line, **or** the domestic water demand is added to the sprinkler water demand at the point of connection and hydraulically proven to the municipal street main. If neither condition is attainable, a normally open electric solenoid valve, wired to receive a signal to close from the sprinkler system water-flow device, shall be provided on the domestic connection.
7. Water flow data used for hydraulically designed fire protection systems shall be less than three (3) years old\*. Consideration shall also be given to conducting additional water flow tests in certain situations even though the tests are less than three (3) years old, (Example: systems in rapidly developing areas or industrial areas with high water usage) [NFPA 13 (2016 edition), 23.2.1].
  - a. When an existing fire pump is the primary source of supply, a copy of the fire pump test no more than one year old shall be provided in the submittal package. The system design

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shall be based on the actual pump test plus the city supply pressure and flow, adjusted for the system demand, at the pump's discharge flange. Every time a permit for a new project or a remodel is requested, contact the Owatonna Public Utilities and request a water flow data sheet. This sheet shall be submitted to the Owatonna Fire Department along with the plans.

8. Pressure, suction and gravity tanks shall be sized per the requirements contained in NFPA-13 and 22 (2016 editions) for the actual calculated sprinkler system demand. Duration of the water supply shall match the hazard classification of the occupancy. Tanks shall be listed by an appropriate organization and acceptable to the Owatonna Fire Department.
9. Fire protection systems that are hydraulically calculated shall have a minimum 5 psi safety factor at maximum system flow.
10. The City of Owatonna reviews hydraulic calculations to meet minimum NFPA Standards. The installation contractor is responsible for pipe sizing, hydraulic calculations and proper system operation.
11. The fire department connection (FDC) shall be provided at a location approved by the Owatonna Fire Department.
12. An outside flow alarm is required for all systems having more than 20 sprinklers. The flow alarm shall consist of a combination horn and strobe unit on a dedicated electrical circuit with a breaker lock installed and shall be located above the fire department connection. Water flow in the system shall activate both audible and visual alarms.
  - a. New systems containing 20 or more sprinklers are required to be connected to an alarm monitoring station or sound an alarm at a constantly attended location. Existing systems must be monitored if there are 100 or more sprinklers.
13. Dry systems in excess of 750 gallons will not be accepted unless they are proven during plan review to provide water at the inspector's test in less than one minute. If the dry system is proven to provide water during the plan review but does not provide water at the inspector's test in less than one minute during the final test, it will be considered a failed system.
14. Sprinkler systems installed in "high-rise" occupancies (i.e., more than 75 feet above the lowest level of fire department access) are required to have shut-off valves and water-flow devices for each floor. "Bird-cage" type sprinkler systems are not allowed in high-rise buildings. "Bird-cage" systems are allowed in low and mid-rise buildings, but designers are cautioned to consider the increase in water damage which can occur due to delays in firefighters locating the affected sprinkler which is discharging.

15. When the kitchen hood is in a hydraulically remote area of a sprinklered building, the remote area must be expanded to include the required size (typically 1,500 sq. ft.) plus the additional flow and pressure required by the hood's extinguishing system.
16. As a minimum, the sprinkler system must be designed to an Ordinary Hazard Group I classification. When the listing or installation documents indicate a flow rate higher than Ordinary Hazard Group I, it shall be provided. All sprinkler heads must be listed or approved for the purpose for which they are used. They must be installed in accordance with the manufacturer's instructions and designed to an adequate water supply. Minimum design criteria must be based on the flow from 10 heads or 50% of the heads located under the hood, whichever is greater, plus the head in the duct collar must be calculated to be flowing. Sprinkler heads in the ductwork, past the collar head, do not have to be calculated. If the hood ends up being in the hydraulically most remote area of a sprinklered building, the kitchen hood demand must be added to the sprinkler demand of the entire remote area.
17. **MN Fire Code Amendment 903.3.1.5 Special sprinkler design criteria.** When fire sprinkler systems are required in areas containing the following uses, they shall be designed and installed to have a sprinkler density of not less than that required for an Ordinary Hazard Group 2 use:
  - a. Chemistry labs; or
  - b. Wrestling or gymnastic rooms.
18. Cut sheets on all sprinkler heads and dry pipe valves to be used on the project shall be submitted to Owatonna Fire Department.
19. On-site inspections require **48-hour notice**. Inspections shall be scheduled by contacting Owatonna Fire Department at (507) 444-2454. Inspections will be conducted for items listed in NFPA 13 2016 edition Chapter 27.
20. If sprinkler plans must be resubmitted due to a major lack of required information, an additional permit fee will be charged.
21. Contractors are authorized to begin work on a project as soon as a permit application, permit fee, and plans have been received by the Owatonna Fire Department.