AUTOMATIC FIRE SPRINKLER SYSTEM REQUIREMENTS

A fire protection permit is required for the installation, alteration, modification, or repairs of any automatic fire sprinkler system, and shall comply with the following requirements:

General Information:

A. All sprinkler systems must be designed and installed in accordance with the Minnesota State Fire Code and NFPA 13 standards.

Submittal Requirements:

A. A properly completed permit application form by a state licensed fire protection contractor. **Exception:** For residential installations, the applicant may be the owner of an occupied one or two family dwelling performing such work.
B. Plans are required for all pipe schedule systems, kitchen hood systems, paint spray booths, or when more than 10 sprinkler heads are altered or installed on a hydraulic system.
C. A minimum of two sets of detailed digital plans drawn to scale, signed by a state licensed fire protection contractor.
D. A minimum of one set of remote area hydraulic calculations for each sprinkler design area.
E. A copy of the manufacturer specifications for all heads to be installed.
F. When high piled storage use is proposed, a "High Piled Storage Evaluation Form" completed and signed by a management representative of the tenant space must accompany two sets of detailed storage plans, drawn to scale.

Permit Issuance:

A Plan review and permit issuance normally require 10 business days from receipt of a complete application submittal. Applicants will be contacted with the permit fee amount when the permit and plans are made ready for issuance. The permit and plans must be paid for and obtained at our cashier's office, unless you are an approved invoice contractor with the City.

C. The stamped, approved plan and the Inspection Record Card shall be kept on the job site until final inspection approval has been made.

B. No work shall commence prior to the issuance of a fire protection permit, unless specifically approved by the Baxter Fire Inspector.

Calculations:

A. Sprinkler contractor is responsible for choosing the appropriate density and for the accuracy of hydraulic calculations.

B. The remote hydraulic area for a combustible attic must be increased 30% for dry systems, and an additional 30% for roof slopes.
C. Sprinkler systems in buildings used for storage must have a minimum remote area designed for 2000 square feet.
D. Sprinkler systems in industrial buildings with an "undetermined use" must have a minimum sprinkler designed to that of an Ordinary Hazard Group 2 use, with a minimum design area of 3000 square feet.

E. Sprinkler systems requiring specialized design criteria (i.e. high pile storage, flammable liquids, etc.) must include the specific code references for such designs.
F. A minimum 10 PSI safety factor is required in all system designs.
G. Combination sprinkler/standpipe systems must be calculated and designed in accordance with NFPA 13&14 standards and per State Fire Code Section 905 as amended.

Water Supply

A. All doors on the interior and exterior of the building providing access to sprinkler system controls must be clearly labeled as such.
B. Combination fire/domestic water supply lines are acceptable with a minimum 10 PSI safety factor in the system calculations.
C. The size of the domestic water supply line shall not exceed 25% of the size of the combination building/fire/domestic water supply service. **Note:** An approved solenoid valve is required on combination supply lines when exterior irrigation systems are not included in the water supply calculations, or when the water supply flow data is over three years old.

Installation Requirements:

A. All areas of buildings shall be protected in accordance with the State Fire Code and NFPA 13 standards, including attics, electrical rooms, underside of stairs, below overhead doors, stairwell landings, concealed combustible areas, above and below partial ceilings, accessible usable areas, etc.
B. When required by the International Mechanical Code, automatic sprinklers shall be provided in ducts conveying hazardous exhausts, flammable or combustible materials, fumes, mists, and vapors. **Exception:** Ducts where the largest cross-sectional diameter of the duct is less than 10 inches.
C. Main drain and primary inspectors test must terminate at the exterior of the building.
D. The maximum height of indicating control valves and main drains shall not exceed 6 feet. A person should be able to read all gauges from the floor.
E. All system valve rooms/areas are required to be continuously heated and have a low temperature alarm installed that will read a supervisory signal at alarm panel.

System components and Hardware

A. Fire Department Connection (FDC) shall be a minimum of 15 feet from gas meters and electric transformers.
B. The FDC shall be not less than 3 feet, or more than 4 feet above grade.
C. The FDC must be located near the main entrance to the building. Other locations must be approved by the Fire Inspector.

D. All indicating control valves and risers shall have permanent signs identifying the area of the building that is controlled by that valve or riser.
E. A control valve is required on all flammable storage rooms, hazardous materials storage rooms, spray booths, hoods, and other locations involving special consideration.
F. Control valves are required before and after the check valve on systems that are combination domestic and fire served by one underground line.
G. All indicating control valves must be secured and electronically supervised.
H. All sprinkler systems containing air pressure shall have the air pressure electronically supervised as a separate supervisory zone on the fire alarm panel.
I. Monitoring of the system shall be in service prior to final testing of the sprinkler system.
J. All system pipe, hangers must be exposed at time of the rough-in inspection.
K. System design data plates and an 11" x 17" laminated system map/building floor plan is required at each system riser.
L. Signs are required on all system control valves and system inspector tests to identify the area of the system that the valve controls and tests of system.
M. The Fire Department Connection check valve shall be located in accordance with NFPA 13 [8.16.2.5.1. – 8.16.2.5.1.2].
N. Fire pump design, installation and tests must be in accordance with NFPA 13, 20, and the pump manufacturer requirements.

Inspection Requirements:

Call **218-454-5109** between 8:00 a.m. to 4:30 p.m. to arrange for an inspection. Please provide the permit number with your request. **Allow 24 hours for all inspections.**

A. Rough-in inspection.
B. 2 hour, 200# hydrostatic test including the Fire Department Connection.
C. 24-hour, 40 PSI air pressure test, for all systems that normally contain air pressure in the system until activated.
D. Main drain and alarm test.
E. Flow switch setting of 60 seconds required flowing water from inspector test.

F Fire pump tests must be performed by approved pump manufacturing representative.

All test results and supporting documentation must be submitted to Baxter Building Inspection at time of, or prior to final acceptance approval.

G. All system flow, fire pump, supervisory test signals to central station must be submitted to the Baxter Building Inspection within 24 hours of the test date.
H. Final Inspection.