



**CITY OF BLAINE
SAFETY SERVICES
Fire Inspections
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City of Blaine Fire Prevention Inspection Policy

FIRE SPRINKLERS IN TOWNHOMES/CONDOMINIUMS

PURPOSE:

To facilitate the installation of fire sprinkler systems which save lives and benefits the community by supporting the volunteer fire department. To encourage the installation of fire sprinklers in residential occupancies primarily for life safety and secondarily for property protection through the reduction in installation costs whenever possible.

APPLICABLE STANDARDS:

The occupancy classification for Townhomes/condominiums may be either R-2 or R-3 as defined in the State Building Code, depending on the construction method. Homes constructed, as an R-2 occupancy shall be protected with a sprinkler system designed in accordance with NFPA 13R. Homes constructed, as an R-3 occupancy shall be protected with a sprinkler system designed in accordance with NFPA 13D. These design standards are applicable to both required and voluntary systems. Currently the 2002 edition of NFPA 13 has been adopted in the State of Minnesota.

DESIGN CRITERIA:

NFPA 13R

Note: This is a very limited summary of the code requirements; refer to the standard for all code provisions.

- A common supply main to the building, serving both the sprinklers and the domestic use, shall be permitted where the domestic design demand is added to the sprinkler system demand.
- Fire department connection required unless entire structure is single story and less than 2000sq.ft. in area.
- Indicating control valve required in separate accessible structure or room "Doghouse" independent of living space, protected with a supervisory tamper switch.
- Outside horn/strobe required above FD connection.
- Systems with 20 or more sprinkler heads must be monitored by an approved central station.
- The number of design sprinklers shall include all sprinklers in a compartment up to a maximum of four sprinklers under a flat, smooth, horizontal ceiling. For compartments containing two or more sprinklers, calculations shall be provided to verify the single operating sprinkler criteria and the multiple operating sprinkler criteria. Sprinklers manufactured after July 12, 2002, must be listed to provide a minimum of .05 gpm/ft².
- Two-hour hydrostatic test of system required.

- Sprinklers can be omitted in the following rooms or areas:
 1. Bathrooms that are 55 square feet or less in size, when walls are noncombustible providing a 15 minute thermal barrier.
 2. Closets, pantries and storage areas 24 square feet or less in size and where the smaller dimension of the space is 3 feet or less (these areas must have ceilings and walls surfaced with noncombustible materials),
 3. Porches, balconies, corridors, and stairs that are open and attached provided the balcony meets the requirements of IBC 1406.3, Note: dampers required if mechanical equipment in a exterior closet penetrates into the living space and the closet is not sprinklered.
 4. Crawl spaces and similar areas that are not used for living purposes or storage.
 5. Attics are not required to be sprinklered if the attic space above each unit is separated from the other attic spaces by one-hour fire resistive construction.
 6. Storage space in garage attics, provided the space has a hard-wired light fixture, is protected by two layers of gypsum wallboard, and has no electrical outlets or other sources of ignition.
- **Note: Sprinkler protection is required in unheated garage space.** Every effort will be made to ensure that the garage protection is installed in the most cost efficient manner. Strict compliance of spacing and coverage may be waived when appropriate. A minimum of one sprinkler located near the door leading into the unit is required.
- Systems must be inspected annually by a licensed sprinkler contractor.
- Air temperature in the doghouse room should be monitored by an alarm company to prevent damage to the system from freezing.
- Contractors must take steps to prevent damage to sprinkler heads when heaters are used to dry out drywall taping and patching during construction.

NFPA 13D (Option for buildings with single water supply for the entire building.)

Note: This is a very limited summary of the code requirements; refer to the standard for all code provisions.

- A common supply main to the building, serving both the sprinklers and the domestic use, shall be permitted where the domestic design demand is added to the sprinkler system demand.
- The sprinkler system water supply may be connected prior to the water meter.
- A single check valve is permitted.
- An indicating control valve required in separate accessible structure or room "Doghouse" independent of living space.
- If the system is not monitored by an alarm company the sprinkler system valve arrangement must be in compliance with 2002 NFPA 13R Figure A.6.6.3 (a).
- There is no requirement for a FD connection on the outside of the building.
- There is no requirement for a sprinkler flow alarm outside of the building, but may be installed if desired.
- The number of design sprinklers shall include all sprinklers in a compartment up to a maximum of two sprinklers under a flat, smooth, horizontal ceiling. For compartments containing two or more sprinklers, calculations shall be provided to verify the single operating sprinkler criteria and the multiple operating sprinkler criteria. Sprinklers manufactured after July 12, 2002, must be listed to provide a minimum of .05 gpm/ft².
- Sprinklers can be omitted in the following rooms or areas:
 1. Bathrooms that are 55 square feet or less in size,

2. Closets, pantries and storage areas 24 square feet or less in size and where the smaller dimension of the space is 3 feet or less (these areas must have ceilings and walls surfaced with noncombustible materials),
 3. Carports, porches and similar structures,
 4. Crawl spaces and similar areas that are not used for living purposes or storage.
 5. Attics are not required to be sprinklered if the attic space above each unit is separated from the other attic spaces by one-hour fire resistive construction.
 6. Storage space in garage attics, provided the space has a hard-wired light fixture, is protected by two layers of gypsum wallboard, and has no electrical outlets or other sources of ignition.
- **Note: Sprinkler protection will be required in unheated garage space.** Every effort will be made to ensure that the garage protection is installed in the most cost efficient manner. Strict compliance of spacing and coverage may be waived when appropriate. A minimum of one sprinkler located near the door leading into the unit is required.
 - Air temperature in the doghouse room should be monitored by an alarm company to prevent damage to the system from freezing.
 - Contractors must take steps to prevent damage to sprinkler heads when heaters are used to dry out drywall taping and patching.

NFPA 13D (Option for buildings with individual water supplies to each unit.)

Note: This is a very limited summary of the code requirements; refer to the standard for all code provisions.

- An individual water supply line to each unit, serving both the sprinklers and the domestic use, shall be permitted. A minimum of a 1 ½ inch supply line must be provided to all units.
- The sprinkler system water supply may be connected prior to the water meter.
- A single check valve is permitted.
- Indicating control valve required to be secured in the open position by an approved means.
- If the system is not monitored by an alarm company the sprinkler system valve arrangement must be in compliance with 2002 NFPA 13R Figure A.6.6.3 (a).
- There is no requirement for a FD connection on the outside of the building.
- There is no requirement for a sprinkler flow alarm outside of the building, but may be installed if desired.
- The number of design sprinklers shall include all sprinklers in a compartment up to a maximum of two sprinklers under a flat, smooth, horizontal ceiling. For compartments containing two or more sprinklers, calculations shall be provided to verify the single operating sprinkler criteria and the multiple operating sprinkler criteria. Sprinklers manufactured after July 12, 2002, must be listed to provide a minimum of .05 gpm/ft².
- Sprinklers can be omitted in the following rooms or areas:
 1. Bathrooms that are 55 square feet or less in size,
 2. Closets, pantries and storage areas 24 square feet or less in size and where the smaller dimension of the space is 3 feet or less (these areas must have ceilings and walls surfaced with noncombustible materials),
 3. Carports, porches and similar structures,
 4. Crawl spaces, and similar areas that are not used for living purposes or storage.
 5. Attics are not required to be sprinklered if the attic space above each unit is separated from the other attic spaces by one-hour fire resistive construction.
 6. Storage space in garage attics, provided the space has a hard-wired light fixture, is protected by two layers of gypsum wallboard, and has no electrical outlets or other sources of ignition.

- **Note: Sprinkler protection will be required in unheated garage space.** Every effort will be made to ensure that the garage protection is installed in the most cost efficient manner. Strict compliance of spacing and coverage may be waived when appropriate. A minimum of one sprinkler located near the door leading into the unit is required.
- Contractors must take steps to prevent damage to sprinkler heads when heaters are used to dry out drywall taping and patching during construction.

PERMITS

Fire protection system work must conform to requirements for licensing, permitting and inspections as required in Minn. Stat. § 299M. Homeowners, currently occupying a home however, are permitted by Minn. Stat. §299M to install residential sprinklers in their own home without the use of a licensed contractor, provided that the plans are signed by a licensed contractor and a permit is obtained.

<i>Facility type</i>	<i>unit</i>
Private Facilities (those within individual dwelling units)	
<i>Bathroom group with flush tank (including lavatory, water closet, and bathtub with shower)</i>	6
<i>Bathroom group with flush valve</i>	8
<i>Bathtub</i>	2
<i>Dishwasher</i>	1
<i>Kitchen</i>	2
<i>Laundry trays</i>	3
<i>Lavatory</i>	1
<i>Shower Stall</i>	2
<i>Washing Machine</i>	2
<i>Water closet with flush valve</i>	6
<i>Water closet with flush tank</i>	3
Public Facilities	
<i>Bathtub</i>	4
<i>Drinking fountain</i>	0
<i>Kitchen sink</i>	4
<i>Lavatory</i>	2
<i>Service sink</i>	3
<i>Shower head</i>	4
<i>Urinal with 1 in. (25.4mm) flush valve</i>	10
<i>Urinal with 3/4 in. (25.4mm) flush valve</i>	5
<i>Urinal with flush tank</i>	3
<i>Washing machine 8 lb (3.63 kg)</i>	3
<i>Washing machine 16 lb (7.26 kg)</i>	4
<i>Water closet with flush valve</i>	10
<i>Water closet with flush tank</i>	5

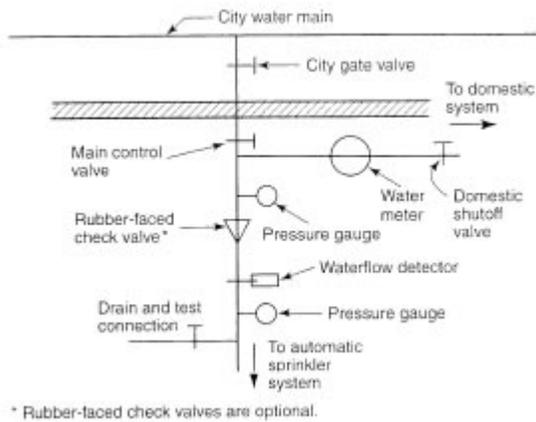


Figure A.6.6.3 (a) Preferable Arrangement.

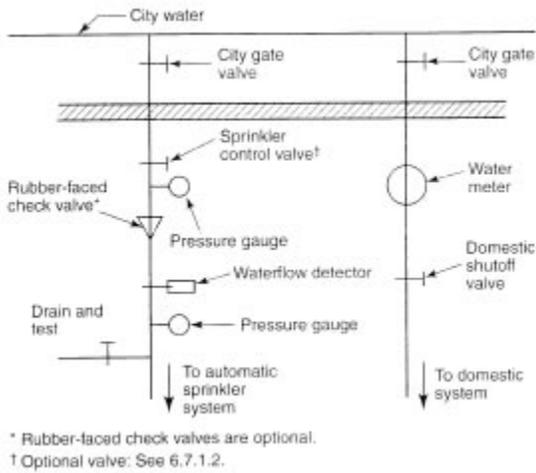


Figure A.6.6.3 (b) Acceptable Arrangement with Valve Supervision- Option 1 (see 6.7.1.2)

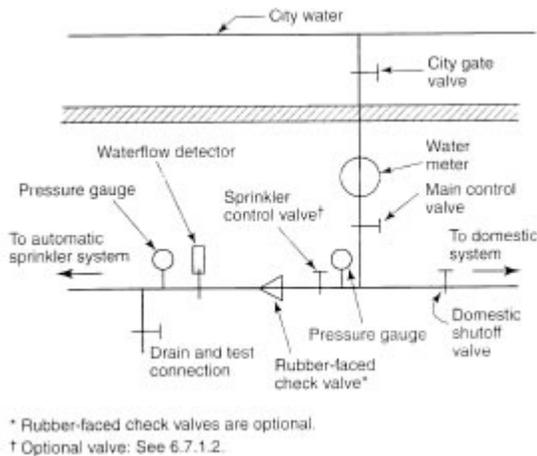


Figure A.6.6.3(c) Acceptable Arrangement with Valve Supervision-Option 2 (see 6.7.1.2)