

CHAPTER 16.42
SPRINKLER SYSTEMS

Sections:

- 16.42.010 Required
- 16.42.020 References
- 16.42.030 Definitions
- 16.42.040 Approval and Design Plans
- 16.42.050 Where Required
- 16.42.060 Standpipes
- 16.42.070 General Requirements
- 16.42.080 Special Requirements
- 16.42.090 Existing Buildings
- 16.42.100 Maintenance
- 16.42.110 Re-inspection Fees for New Construction, Tenant Improvements, and Spot Inspections
- 16.42.120 Exceptions
- 16.42.130 Penalties
- 16.42.140 Permit Expiration
- 16.42.150 Appeals

16.42.010 Required

An automatic sprinkler system shall be required as outlined in this chapter.

(Ord. 2436 §2, 2014)

16.42.020 References

The following references shall be used in the design, installation and maintenance of sprinkler systems within the City of Tukwila; if there is a conflict between the codes, the one offering the greatest degree of fire protection shall apply. References are to the current editions, unless otherwise noted.

NFPA 13	Installation of Sprinkler Systems
NFPA 13D	Residential Sprinkler Systems
NFPA 14	Standpipe and Hose Systems
NFPA 15	Water Spray Fixed Systems
NFPA 24	Private Fire Service Mains and their Appurtenances
NFPA 25	Inspection, Testing and Maintenance of Water-Based Fire Protection Systems
NFPA 88A	Parking Structures
IFC	International Fire Code
IBC	International Building Code
RCW 18.160	Washington State Sprinkler Contractor Law
WAC	51-51-60105 Appendix R
WAC	51-51-60107 Appendix S

(Ord. 2436 §3, 2014)

16.42.030 Definitions

A. **“Approved”** refers to the approval of the Tukwila Fire Marshal.

B. **“Automatic sprinkler system”** is an integrated system of underground and overhead piping designed in accordance with fire protection engineering standards. The installation includes one or more automatic water supplies. The portion of the sprinkler system aboveground is a network of specially sized or hydraulically designed piping installed in a building, structure or area, generally overhead, and to which sprinklers are attached in a systematic pattern. The valve controlling each system riser is located in the system riser or its supply piping. Each sprinkler system riser includes a device for actuating an alarm when the system is in operation. The system is usually activated by heat from a fire and discharges water over the fire area.

C. **“Listed”** refers to equipment or materials indicated in a list published by an organization acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of listed equipment or materials, and whose listing states either that the equipment or material meets appropriate standards or has been tested and found suitable for use in a specific manner.

D. **“Resubmittal”** means any plan that requires subsequent review.

(Ord. 2436 §4, 2014)

16.42.040 Approval and Design Plans

A. All new sprinkler systems and all modifications to sprinkler systems involving more than 50 heads shall have the written approval of Factory Mutual or any fire protection engineer licensed by the State of Washington and approved by the Fire Marshal.

Exception: The Tukwila Fire Marshal reserves the right to require pre-approval, by one of the agencies listed above, for any modification to a hydraulically-designed system regardless of the size of the job.

B. All sprinkler construction drawings shall be prepared by persons meeting the requirements of RCW 18.160.

C. At least three complete sets of construction drawings with information regarding the automatic sprinkler system as identified in NFPA 13, Sections 6-1, 6-2, 6-3 and 9-3, and at least one civil engineering site plan showing the underground installation from water-main tap to base riser, shall be submitted to the Tukwila Fire Marshal for approval prior to installation or modification of any equipment. One set of approved construction drawings shall be located at the job site.

D. Drawings submitted for approval must include a completed Fire Protection Systems Permit Application and a floor layout drawn to scale, no smaller than 1/8-inch scale, showing all rooms and spaces with accurate measurements. Drawings shall include the building permit number, if applicable.

E. As-builts shall be provided prior to system acceptance and final approval, if any modifications not shown on the original plans have been done to the system.

F. The installer shall perform all required acceptance tests (as identified in NFPA 13) in the presence of a representative of the Tukwila Fire Marshal. The installer shall complete the contractor's material and test certificate(s) and forward the certificates to the Tukwila Fire Prevention Bureau prior to asking for approval of the installation.

G. The installers shall meet the requirements of WAC 212-80-096 and, upon request, produce their license or certification pursuant to WAC 212-80-028.

H. After the sprinkler plans have been approved by the Tukwila Fire Marshal, a job number will be issued to begin work. The plan review fees shall be in accordance with the Fire Department Fee Schedule adopted by resolution of the City Council.

(Ord. 2506 §1, 2016; Ord. 2436 §5, 2014)

16.42.050 Where Required

A. A fully automatic sprinkler system designed, installed and tested per NFPA 13 shall be installed in all new buildings 500 square feet or greater in total floor area.

B. Without regard to exceptions to the sprinkler system requirements as set forth in this section, a fully automatic sprinkler system, per TMC Section 16.42.050.A, may be required by the Chief of the Fire Department and the Fire Marshal for new and existing buildings when, in their judgment, any of the following conditions exist:

1. Hazardous operations.
2. Hazardous contents.
3. Critical exposure problems.
4. Limited accessibility to the building.
5. Inadequate waterflow availability.

C. Fire walls, fire barriers, or vertical or horizontal fire barriers as noted in Section 706.1 of the International Building Code shall not be considered to separate a building to enable deletion of a required automatic sprinkler system.

D. An approved automatic fire sprinkler system shall be installed in new one-family and two-family dwellings and townhouses in accordance with Appendix R and Q (WAC 51-51-60105) and Appendix S and V (WAC 51-51-60107).

(Ord. 2506 §2, 2016; Ord. 2436 §6, 2014)

16.42.060 Standpipes

A. When standpipes are required, they shall be Class I Automatic-Wet.

Exception: In unheated structures, the standpipe may be dry.

B. Buildings over four stories shall have in the stair tower, adjacent to the standpipe, beginning on the third floor and

alternating every other floor, in hose cabinets, 150 feet of 1-3/4" double jacket hose with 1-1/2" NST hose couplings. The hose lengths shall be connected and bundled together. The cabinet shall be labeled "FIRE DEPARTMENT USE ONLY."

(Ord. 2436 §7, 2014)

16.42.070 General Requirements

A. Sprinkler installations and modifications shall be done by companies licensed by the State of Washington to perform this type of work.

B. The automatic sprinkler system for new warehouses shall have a minimum design density of .39 gallons/5,600 square feet, plus an allowance of 1,000 GPM for in-rack fire sprinklers and hose allowance.

C. All other occupancies shall be a minimum design density of ordinary hazard Group I unless otherwise provided for in this ordinance.

D. On all hydraulically-designed sprinkler systems, the velocity of water in the overhead pipe shall not exceed 32 feet per second. The velocity of water in the underground pipe shall not exceed 16 feet per second.

E. Hydraulic calculations shall be provided by the contractor for calculated systems; the contractor shall, upon request, provide calculations for pipe schedule systems.

F. Calculated sprinkler systems shall be designed with a 10 psi cushion for low reservoir conditions.

G. Automatic sprinkler systems and all other fire suppression systems shall be monitored by a City of Tukwila-approved UL central station. This shall include all water control valves, tamper devices, pressure supervision and waterflow switches. In buildings having a fire alarm/detection system, the sprinkler system shall be tied to the fire alarm system (last zone[s]).

H. Permanent, all-weather sprinkler riser zone maps shall be installed at the fire department connection and riser.

I. All exterior components of sprinkler systems shall be painted red, either Safety Red-Rustoleum #7564 or Farwest Paint #253 (mandarin red). This includes: post indicator valves/outside stem and yoke valves, wall indicating valves, fire department connections, and water motor gong. Post Indicator Valves (PIV's) and Fire Department Connections (FDC's) shall have the building address served by the PIV or FDC stenciled vertically in 3-inch-high white numbers facing the direction of vehicular access.

J. The fire department connection shall have a downward angle bend of 30 degrees, with a 5-inch Knox locking Storz fitting.

Exception: If the calculated pumping pressure of the fire department connection will exceed either the 5-inch Storz fitting pressure rating or the pressure rating of the 5-inch supply hose, 2-1/2-inch fire department connections are allowed.

K. A manual fire alarm system shall be installed in all new sprinklered buildings. Visual and audible devices shall be installed per TMC Chapter 16.40, "Fire Alarm Systems."

L. Maintain a four-foot clear space around the sprinkler riser(s) for emergency access.

M. Fire sprinkler systems with interior OS & Y valves shall have the sprinkler riser painted red (Safety Red-Rustoleum #7564 or Farwest Paint #253 (mandarin red) to the first "90 degree elbow" or "Tee" at the ceiling level. A 6" white reflective stripe shall be installed around the circumference of the pipe 8 feet to 10 feet below the "elbow" or "Tee."

(Ord. 2506 §3, 2016; Ord. 2436 §8, 2014)

16.42.080 Special Requirements

A. All hotel/motel occupancies shall be sprinklered a minimum ordinary hazard Group I density throughout; no omissions are allowed. Sprinkler spacing in the guest rooms may be Light Hazard.

B. Each new commercial/industrial or multi-family building shall have its own indicating control valve on the exterior or outside away from the building. Each floor of a multi-story building shall have sectional control valves and waterflow switches.

C. Multi-family dwelling sprinkler systems shall be designed Minimum Light Hazard spacing with no omissions allowed, with a minimum ordinary hazard Group I design density.

D. All sprinkler system control valves shall be electronically supervised against tampering.

E. When a sprinkler system is required for a one- or two-family dwelling, sprinkler protection shall be extended to attached garages.

F. Where quick response fire sprinklers are required by the International Building Code (903.3.2) for specific occupancies and there are no listed quick response heads listed for ordinary hazard systems as defined by NFPA 13, Light Hazard quick response heads are permitted with the system designed to a minimum ordinary Group 1 density.

(Ord. 2506 §4, 2016; Ord. 2436 §9, 2014)

16.42.090 Existing Buildings

A. Existing fully sprinklered buildings, when remodeled or added on to, shall retain the feature of being sprinklered in the remodeled or added-on portion.

B. If, by increasing usable or habitable square footage of an existing building, the resulting total structure falls within the coverage of TMC Section 16.42.050A, the entire structure shall be fully sprinklered. This provision does not apply to single-family residences.

(Ord. 2436 §10, 2014)

16.42.100 Maintenance

A. A satisfactory contract covering the maintenance, operation and efficiency of the sprinkler system shall be provided by the building/property owner or his agent. The contract shall provide for inspections, tests and maintenance as specified in NFPA 25 and manufacturer's instructions. The building/property owner or his agent shall be responsible for the maintenance of the sprinkler system.

B. Regular maintenance by a Washington State licensed sprinkler contractor shall be done in accordance with NFPA 25. If the sprinkler system is connected to a fire alarm system, the contractor shall coordinate with the fire alarm maintenance company for any work involving the fire alarm system or control panel.

C. The Tukwila Fire Department shall be notified immediately of any impairment of the sprinkler system. The owner shall be responsible for the repair of the system, and shall maintain a 24-hour fire watch until the system is returned to normal condition. High hazard operation may be suspended until the sprinkler system is back in normal condition.

(Ord. 2436 §11, 2014)

16.42.110 Re-inspection Fees for New Construction, Tenant Improvements, and Spot Inspections

When an inspection is requested for new construction, tenant improvements or spot inspections and then, upon arrival, the Fire Inspector finds that the work is not complete, not ready for inspection, or does not comply with fire code requirements, a follow-up inspection will be required, and a re-inspection fee in accordance with the Fire Department Fee Schedule adopted by resolution of the City Council will be assessed.

(Ord. 2506 §5, 2016; Ord. 2436 §12, 2014)

16.42.120 Exceptions

Any exception to the items covered by this chapter shall be made by the Fire Marshal. Requests for exception must be made in writing; exceptions granted or denied shall be in writing.

(Ord. 2506 §6, 2016; Ord. 2346 §13, 2014)

16.42.130 Penalties

Any person violating the provisions of TMC Chapter 16.42, the International Fire Code or appendices adopted by TMC Chapter 16.16, or who shall fail to comply therewith, or who shall violate or fail to comply with any order made thereunder, or who shall build in violation of any detailed statement of specifications or plans submitted and approved thereunder or any certificate or permit issued thereunder and from which no appeal has been taken, or who shall fail to comply with such an order as affirmed or modified by the Fire Marshal or by a court of competent jurisdiction within the time fixed therein, shall be guilty of a gross misdemeanor, and upon conviction thereof, shall be punished by a fine in an amount not to exceed \$5,000.00, as outlined in TMC Section 16.16.080, or imprisonment for a term not to exceed one year or by both such fine and imprisonment. The imposition of one penalty for any violation shall not excuse the violation or permit it to continue. Each day or portion thereof during which any violation of the provisions of this section is caused, permitted or continued shall constitute a separate offense and shall be punishable as such. Application of the penalty specified in this section shall not be held to prevent the enforced removal of prohibited conditions.

(Ord. 2436 §14, 2014)

16.42.140 Permit Expiration

Every permit issued shall become invalid unless the work on the site authorized by such permit is commenced within 180 days after its issuance, or if the work authorized on the site by such permit is suspended or abandoned for a period of 180 days after the time the work is commenced. The Fire Marshal is authorized to grant, in writing, one or more extensions of time, for periods not more than 180 days each. The extension shall be requested in writing and justifiable cause shall be demonstrated.

(Ord. 2436 §15, 2014)

16.42.150 Appeals.

A. Whenever the Fire Marshal disapproves an application or refuses to grant a permit applied for, the applicant may appeal the decision to the City's Hearing Examiner. A written notice of appeal shall be filed with the City Clerk within 14 days of the date of final decision by the Fire Marshal. The notice of appeal must be accompanied by an appeal fee in accordance with the Fire Department Fee Schedule adopted by resolution of the City Council.

B. The Notice of Appeal shall contain the following information:

1. The name of the appealing party.
2. The address and phone number of the appealing party; and if the appealing party is a corporation, association or other group, the address and phone number of a contact person authorized to receive notices on the appealing party's behalf.
3. A statement identifying the decision being appealed and the alleged errors in that decision.
4. The Notice of Appeal shall state specific errors of fact or errors in application of the law in the decision being

appealed, the harm suffered or anticipated by the appellant, and the relief sought. The scope of an appeal shall be limited to matters or issues raised in the Notice of Appeal.

C. Upon timely filing of a Notice of Appeal, the Fire Marshal shall set a date for hearing the appeal before the City's Hearing Examiner. Notice of the hearing will be mailed to the applicant.

D. Deference shall be given to the decision being appealed. The standard on review shall be based upon a preponderance of evidence. The Hearing Examiner may affirm, reverse or modify the Fire Marshal, or his/her designee's, decision.

E. The decision of the Hearing Examiner shall be final.

(Ord. 2506 §7, 2016; Ord. 2436 §16, 2014)