



**City of Mercer Island**  
**Fire Marshals Office**  
**Fire Code Review and Inspection**  
3030 78th Street • Mercer Island, WA 98040-3732  
PHONE (206) 275-7605 • FAX (206) 275-7726  
[www.mercerisland.gov](http://www.mercerisland.gov)

## ***Commercial Fire Sprinkler Systems***

**SCOPE:** Fire sprinkler systems in the City of Mercer Island shall meet the criteria as set forth in these standards.

1. The authority having jurisdiction for all new system installation or existing system modification, upgrade, equipment replacement, or repair work done within the City of Mercer Island shall be the City of Mercer Island Building Official. The Building Official shall be responsible for the interpretation and application of standards to actual design and installation situations.

2. The 2016 edition of NFPA 13 shall be used when referenced unless specifically noted otherwise. The current, Mercer Island-adopted, building and fire codes shall be used. See City of Mercer Island Municipal Code 17.07.

### **PERMIT REQUIRED:**

1. A permit shall be obtained from the City of Mercer Island Community Planning & Development for the following work related to fire sprinkler systems:

- a. Installation of a new fire sprinkler system.
- b. Modifications of an existing fire sprinkler system.

The installation contractor shall obtain the permit and the permit shall be valid only for the contractor identified on the permit application. Permits are issued through the City of Mercer Island Community Planning & Development, located at 9611 SE 36<sup>th</sup> St, Mercer Island, WA 98040.

2. A City of Mercer Island business license shall be required; this can be obtained from the Permit Center at the Community Planning & Development office at City Hall 9611 SE 36<sup>th</sup> St, Mercer Island, WA 98040. This includes the designer as well as the installer (if separate companies).

3. New fire sprinkler systems shall **not** be installed nor shall modifications be made to existing systems until a complete application has been submitted, plans have been reviewed and approved, a permit has been issued and the approved plans have been reviewed by the designer for changes which may have been required as part of the review. A set of stamped, accepted plans and the permit inspection card must be on site for reference by the installer and fire inspector.

4. A minimum of one permit is required for each building of a multi-building project. A permit is only valid for the work and by the contractor designated by the permit. The permit is not transferable.

5. Failure to obtain a permit prior to installation or modification of any portion of a fire sprinkler system will result in the following penalties as described in the City of Mercer Island Code Enforcement Regulations:

a. **First Offense:** Permit Fee will be doubled, contractor given written notice for failure to obtain approved permits under the International Fire Code.

b. **Second Offense:** Stop work order posted, permit fee will be multiplied by 5 times, contractor given written notice for failure to comply.

c. **Third Offense:** Stop work order posted, permit fee will be multiplied by 5 times, code enforcement action initiated which may require the contractor will be reported to the Washington State Patrol State Fire Marshal's Office.

6. **Standard Permit:** A standard fire sprinkler system permit shall be obtained for new or modified systems with:

a. Over 5 heads, or

b. Pipe greater than 1 ½" in diameter, or

c. A change in the design area, or

d. A change in the flow or pressure of the system.

At least two (2) complete sets of plans, two complete sets of manufacturer's specification sheets for all equipment being installed, and a completed permit application form must be submitted in person to the City of Mercer Island Community Planning & Development permit center, 9611 SE 36<sup>th</sup> St, Mercer Island, WA 98040. The permit, plan review and inspection fee will be due and payable at plan and permit issuance to the contractor.

7. **Tenant Improvement Commercial Sprinkler:** A Tenant Improvement Permit may be obtained over the counter by the contractor for the installation or relocation of 20 fire sprinkler heads or less when the following applies:

a. No pipe over 1½" is altered or installed.

b. There is no effect on, or degradation of, the hydraulically most remote area. This must be verified in writing. A letter, stamped by the designer shall be submitted that specifically states that there will be no degradation of the existing hydraulic calculations. This letter shall be attached to the sprinkler permit application.

Tenant Improvement Commercial Sprinkler permits require submittal of one set of reference plans.

8. Emergency Repair Work: “Emergency Repair Work” is defined as that minimum work necessary to return a damaged or impaired system to satisfactory and fully functional status. Emergency repair work may proceed without a permit provided the system is repaired to its original configuration, and a permit application is submitted by the end of the second working day after the work is completed.

a. If the repair meets the criteria for a standard permit, then an inspection shall be required subsequent to the issuance of the permit.

9. Replacement of recalled sprinkler heads requires notification of the Fire Marshal’s Office. at: [fire\\_marshall@mercerisland.gov](mailto:fire_marshall@mercerisland.gov)

## **SYSTEM DESIGN:**

All fire sprinkler systems shall be designed and installed in a professional manner. Contractors must be licensed in the State of Washington for the type of work to be performed.

## **Plans**

1. All plans shall be uploaded to the CoMI permit center portal:

a. [www.mercerisland.gov/cpd/page/electronically-submit-fire-permit-applications-using-mieplan](http://www.mercerisland.gov/cpd/page/electronically-submit-fire-permit-applications-using-mieplan)

2. All plans and calculations shall be stamped with a valid Washington State certificate seal identifying the appropriate level of competency.

3. If the designer is other than the installation contractor, the designer shall be identified on the plans and the professional relationship between the contractor and designer shall be described. The designer’s written authorization shall be attached to the plans for any field changes requiring re-submittal of plans.

4. Plans shall include a slope legend indicating rise and run for all ceilings 2” in 12” or greater. Add note stating “No Sloped Ceilings” if applicable.

## **Underground (Exterior) See underground handout.**

1. A State of Washington “U” level or level 3 license is required to perform underground work.

2. No inspection of underground shall be requested without a valid underground material and test certificate documenting the installation is clear and proper.

3. Commercial underground supplies are inspected by City of Mercer Island Utility Inspection Division. Underground sprinkler service supplying

supplies are inspected in the trench by City of Mercer Island underground utilities inspectors, and shall have a flush witnessed by a City Utilities Inspector or representative.

4. Department of Health approved back flow prevention is required on all systems. Submittals shall indicate whether this will be installed in the building, or outside in a vault. A certified backflow assembly tester shall test this assembly. After this test is complete, the completed backflow assembly test form shall be submitted to the Lead Water Quality Technician of the City of Mercer Island Water Utility Department at city hall prior to the request for final system acceptance.

5. All **NFPA 13** fire sprinkler systems shall be fed by a minimum of 6" ductile iron underground, unless hydraulic calculations by a sprinkler designer prove a different size is acceptable to the Fire Marshal. The FDC line and the underground supply line shall be the same size and shall not be less than the size of the system riser. Where applicable, an allowance for interior hose streams from standpipes shall be included.

6. Fire Department Connections and Post Indicator Valves shall be installed so that the top of the device is 36" to 44" above finish grade. The area within a 4' radius of these items shall be clear of obstructions, have a compacted surface of crushed rock minimum, and have a cross slope of 5 % or less. Where there is an immediate drop of 6" or greater beyond the clear radius or where the slope away from the circle is greater than one foot drop in three feet or where in the opinion of the Building Official there may exist a hazard to a firefighter using these items, an approved protective guardrail shall be installed.

7. **PERMIT:** A separate permit and plans are required. Do not rely on plans submitted with the building civil plans.

## General Fire Sprinkler Design

1. Antifreeze systems are prohibited without special features and permission.

2. Rooms or areas where wet pipe systems, or any sprinkler supplies, are installed shall be maintained at a minimum of 40 degrees F.

Exception: When **allowed** by the Fire Marshal heat tracing may be used. The heat tracing shall be listed for sprinkler piping and shall be installed and tested in accordance with the manufacturer's specifications.

All heat tracing circuits shall be supervised by the building fire alarm system for power supply and temperature. A **Special Inspection may be required** by a manufacturer's representative to verify that the heat trace is installed per the manufacturers specifications and listing.

## **Hydraulic Calculations**

1. Available flow information shall be obtained from the Mercer Island Building Official's Office.
2. Hydraulic calculations shall include a 10% or 10 p.s.i. safety factor, whichever is greater..
3. Hydraulic calculations shall include all underground from the public water supply main.
4. All new systems shall be hydraulically calculated. All additions to existing systems shall be hydraulically calculated.
5. When the addition or modification involves only "arm-over" or "drop" type installation, and will not degrade the performance of the system, no new calculations are required.

A letter from the designer attesting to this shall be submitted with the permit. The letter shall also bear the contractor's competency stamp, signature and existing system design criteria.

NFPA 13 Confidence/Acceptance Forms are required to be submitted at final inspection.