

MEHLVILLE FIRE PROTECTION DISTRICT

SPRINKLER CONTRACTOR ADDENDA

COMMERCIAL CONSTRUCTION GUIDELINES

The standard guidelines are applicable as far as how to apply for permits. There is, however, some additional information that you should be aware of before you begin the design phase for a sprinkler system. You need to call one of the inspectors to determine the applicable edition of *NFiPA 13*, **BEFORE** you begin your system design. The applicable edition is determined by which edition is referenced in the currently adopted *ICC[®] International Building Code/2021*. With the adoption of the 2021 edition of the IBC, we also updated to the 2019 edition of NFPA 13.

- I. *NFiPA 13 - Standard for the Installation of Sprinkler Systems* provides that the authority having jurisdiction (AHJ) can require an adjustment to the waterflow test data to account for seasonal fluctuations in the water supply system. To that end, we have included a provision in our adopting ordinance to deal with this issue.

Water flow safety factor: A safety factor shall be applied to all flow tests for *automatic sprinkler systems*. A parallel curve shall be drawn to the actual flow test curve that has been reduced by 20% of the static pressure. An *automatic sprinkler system* design shall not exceed the 20% curve.

This factor allows you a cook-book method to deal with seasonal demands, rather than getting Missouri-American Water Company to do a calculation for each and every site. This safety factor was developed through the Metropolitan Fire Marshals Association Water Supply Committee several years ago. This committee had representation from fire marshals, the Water Company and the sprinkler industry.

- II. All sprinkler systems, except limited area sprinkler systems (not more than 20 sprinklers within a fire area), are required to be provided with a post indicator valve (PIV). The PIV is required to be located in accordance with *NFiPA 24 - Standard for the Installation of Private Fire Service Mains* and shall be supervised (see items IV & V below).

A post indicator valve is required on the sprinkler lead in.

1. PIV shall be not less than 40 ft. from buildings.
2. Top of the post shall be not more than 36 inches above grade.
3. PIV shall be properly protected against mechanical damage where needed.

- III. Inside and outside audible or visual alarm device required on all sprinkler systems, except for limited area sprinkler systems. An approved exterior audio/visual fire alarm notification device shall be installed above all fire department connections. This device shall activate upon a water flow fire alarm signal only. This device shall be visible from the closest fire apparatus access road and installed at twelve feet above ground level or other approved location. A permanent sign shall also be installed under the audio/visual fire alarm notification device which states "Water Flow Alarm". This sign shall have red letters on a white reflective background. The letters shall be red in color and be Arabic alphabetical letters. Each character shall be

not less than 3 inches (76 mm) high.

IV. All valves controlling the water supply for automatic sprinkler systems, pumps, tanks, water levels and temperatures, critical air pressures and water-flow switches on all sprinkler systems shall be electrically supervised by a listed fire alarm control unit.

Exceptions:

1. Automatic sprinkler systems protecting one- and two-family dwellings.
2. Limited area systems serving fewer than 20 sprinklers.
3. Automatic sprinkler systems installed in accordance with NFPA 13R where a common supply main is used to supply both domestic water and the automatic sprinkler system, and a separate shutoff valve for the automatic sprinkler system is not provided.
4. Jockey pump control valves that are sealed or locked in the open position.
5. Control valves to commercial kitchen hoods, paint spray booths or dip tanks that are sealed or locked in the open position.
6. Valves controlling the fuel supply to fire pump engines that are sealed or locked in the open position.
7. Trim valves to pressure switches in dry, preaction and deluge sprinkler systems that are sealed or locked in the open position.
8. Underground gate valves with roadway boxes.

V. Sprinkler monitoring alarm systems shall be monitored in accordance with §907.6.5. UL certification or FM placarding is required for the fire alarm system. A fire alarm system for sprinkler monitoring requires a minimum of the following components:

1. Listed fire alarm control unit (FACU)
2. One manual pull station
3. One smoke detector above the fire alarm control unit
4. Water flow alarm(s)
5. Supervisory devices on control valves per item IV above
6. Digital Alarm Communicator Transmitter (DACT) {may also be incorporated in FACU}
7. Two phone lines to the DACT

VI. If you are installing a dry pipe system, you should note that dry pipe systems shall deliver water to the inspector's test pipe in not more than 60 seconds. Automatic air-pressure maintenance devices shall be capable of restoring normal operating pressure in the system within 30 minutes except for low-differential dry pipe systems where the maximum recovery time shall be 60 minutes. Before the water supply for a dry pipe system is turned on and the system is placed in service, the system shall be tested with air pressure of at least 40 psi and allowed to stand 24 hours with a maximum pressure loss of 1-1/2 psi.

VII. We will issue a separate permit for the underground fire main if you have timing problems and need to get started on the job before the sprinkler drawings are completed.

- VIII. **INSPECTIONS:** The standardized instructions on how to call in for inspections are applicable to sprinkler systems. We want to witness the required two-hour hydrostatic tests on the underground fire main and the actual sprinkler system. On the underground fire main, we prefer to do this while all of the pipe joints are exposed, although we realize this may not be possible in all cases. If you must cover the pipe prior to the hydrostatic test, please call us out for an inspection so we can verify that what has been done agrees with the approved plans. For the final inspection all of the required signing, flow alarms, audible devices and tamper switches shall be in place and fully operational. If the occupant is requesting a temporary occupancy permit (TOP), only the flow alarms and audible devices must be operational. The valves may be chained and locked for the TOP only.
- IX. **LIMITED AREA SPRINKLER SYSTEMS:** Limited area sprinkler systems are required to be hydraulically calculated in accordance *NFiPA 13* when supplied from the domestic water supply for the building. The hydraulic design shall also include the domestic demand based on the *International Plumbing Code*. If the building is equipped with a standpipe system sized for a 500-gallon-per-minute minimum flow and has an automatic water supply, the limited area sprinkler system shall be connected to the standpipe system. Since a backflow preventer is required by others, the valves must be of an indicating type and shall be chained and locked open. Alarms and alarm attachments are not required. All limited area sprinkler systems, except those connected to a standpipe system, shall be hydrostatically tested for a minimum of 15 minutes without visible leakage at the working pressure under which the system is to be used. If the limited area sprinkler system is supplied by a building standpipe system, the normal hydrostatic guidelines of *NFiPA 13* and *NFiPA 14* would apply.