

Maintaining Fire Sprinkler Systems

fire

Introduction

A recent study by the National Fire Protection Association (NFPA) showed that residential fires claim more than 3,000 lives in the US. The survey also concluded that your risk of dying in a residential fire decreases by 80% when a properly installed and well-maintained sprinkler system is present. Those conclusions drive home the importance of fire sprinklers in condominiums, townhomes, and single- or multi-family homes.

But, can the sprinklers in your building be counted on in the event of a fire? The best way to know for sure is through regular inspection, testing, and maintenance. Here is a quick explanation of each:

- ✓ Inspection involves completing a visual examination of the system to verify that the fire sprinkler system is free of physical damage.
- ✓ Testing involves determining the operational status of valves and other system components by conducting periodic physical checks, such as water flow tests, and alarm tests.
- ✓ System maintenance is work performed to keep the system operable or to make needed repairs.

Depending on the types of units you have, and your area, the responsibility for maintaining sprinklers may fall upon the unit owner or the association. We will cover some of those differences and responsibilities, along with some great safety tips, in this short article.



What CAU Recommends:

- > Have a licensed contractor test sprinkler systems on a regular basis
- > Keep system control valves open at all times
- > Protect pipes from freezing with adequate insulation
- > Maintain heat in all buildings and units
- > Provide additional insulation for pipes in unheated areas such as attics
- > Verify that any backflow preventers are inspected in accordance with local requirements

Need More Information?

Additional information on inspection, testing and maintenance of residential sprinkler systems is available from the National Fire Protection Association (www.nfpa.org). Associations may also request information on this topic by contacting CAU's Loss Control Department.

Sprinkler Design Standards

For residential occupancies, the type of unit, building size, and configuration will determine the design standard for the sprinkler system. Building codes reference three common design standards for residential sprinkler systems published by the NFPA: NFPA 13D, NFPA 13R or NFPA 13.

- NFPA 13D covers the design of sprinkler systems in one- and two-family homes, and includes townhomes in attached groups of three or more. Each unit has an independent sprinkler riser.
- NFPA 13R covers the design of sprinkler systems for residential buildings up to and including four stories in height. One or more centralized sprinkler risers protect each unit and any common interior areas. There may be separate zone valves that can isolate the portion of the system protecting individual units.
- NFPA 13 covers the design of sprinkler systems that fall outside of the scope of the two preceding standards. One or more centralized sprinkler risers protect each unit and the common interior areas. There may be separate zone valves that can isolate the portion of the system protecting individual units. These systems are common in buildings with commercial occupancies and in buildings that are five or more stories in height.

Inspection, Testing & Maintenance

Sprinkler systems, like any other mechanical system, require regular inspection, testing, and maintenance to keep them functioning as designed. NFPA 25, the Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems, defines the requirements and responsibilities based on the type of sprinkler system.

For one- and two-family dwellings and townhomes with an NFPA 13D sprinkler system, inspection by a licensed contractor is usually not required unless the system contains antifreeze. NFPA 25 requires the installer to provide the owner/occupant with detailed

instructions on inspecting, testing, and maintaining the system. The NFPA-recommended inspection and testing that includes:

- Ongoing visual inspection of sprinkler heads for obstructed or painted sprinklers or anything attached or hanging from them
- Monthly verification that control valves are open
- Monthly verification that tanks (if present) are full

For condominiums and other association buildings, with NFPA 13R or NFPA 13 systems, the inspection, testing, and maintenance requirements specified in NFPA 25 will apply. The association will need to contract with a licensed sprinkler contractor to complete these services.

The system tests will involve operating valves, flowing water through the main drain and inspectors test connection, operating fire pumps, verifying alarm signals and similar tests that are beyond the capabilities of most association employees. For that reason, you may want to enlist the help of a professional or designate a single person as the contact point for tests and maintenance.

Antifreeze Systems

Residential sprinkler systems that contain an antifreeze solution require a higher level of maintenance than traditional water-based systems. As of March 1, 2011, there are several new requirements for sprinkler systems containing antifreeze solutions. While this is not the preferred method of protecting sprinkler pipes from freezing, sprinkler codes do permit the use of antifreeze. Your local sprinkler contractor can advise you on all of the specific requirements, but the most significant include:

- Only factory premixed antifreeze solutions are allowed
- Initial and annual testing of the antifreeze solution is required in all new and existing systems, including NFPA13D systems

A licensed sprinkler contractor must complete these tests.