

Sprinkler Contractor's Guide to Preventing Water Damage

Edited from the American Fire Sprinkler Association Publication, "Contractor's Guidelines for Preventing and Controlling Water Damage"

Overview

The average cost per a sprinkler water damage claim is \$21,000, and are more likely to occur after the work was completed and the contractor left the jobsite. According to the AFSA:

- 72% of the dollars paid on general liability claims were due to water damage losses
- 79% of the number of claims was water damage claims

Losses over \$50,000 fell primarily into the following categories:

- Pipes or components bursting due to freezing
- Problems with couplings or fittings
- Improper gluing of plastic pipe
- Sprinkler head discharge

Planning

- On existing systems and retrofit jobs where there is a foreseeable potential for water damage, take photographs and/or video to document pre-existing conditions. Leaking roofs, mobile equipment, or items hung on system components can cause damage.
- An existing sprinkler system may have been already damaged. Note the following:
 - Evidence of other contractors that performed work on the system (presence of a "contractor's sticker")
 - Changes made to the piping, such as heat tape added/removed
 - Lack of proper testing/maintenance
 - Removing heat in a room
 - Added walls or false ceilings that would block proper heat flow into the area
 - Physical damage to the piping from fork trucks or items hung on the system
 - Inadequate or removed insulation
- Valuable or highly sensitive equipment should be moved or protected (preferably by the owner). The owner should be notified in writing of pre-existing damage and to relocate or protect valuable or sensitive items.
- The owner, general contractor and sprinkler contractor should have procedures for identifying and shutting-off the correct sprinkler control valve.
- On existing systems where modifications are being made, the operational status of alarms should be determined. A Central Station should never be put on hold indefinitely.
- When a wet sprinkler system is to be installed in a normally unheated area, the building owner is responsible for providing and maintaining heat. Be sure this responsibility is documented in writing and is a condition of the contract.

Jobsite Supervision

- Precautions must be taken to ensure the feeder valve is not opened while the system is being worked on. A positive means of preventing the feeder valve from being opened and a sign indicating that the system is being worked on should be provided.

- All parts of the sprinkler system (including piping and attached appurtenances) should be hydrostatically tested at 200 psi for 2 hours. The system should maintain pressure for the entire 2 hours without loss. Loss will be indicated by a drop in gauge pressure or visual leakage. Read the pressure from the gauge located at the lowest elevation point of the system.
 - Warning: Plastic pipe manufacturers do not recommend air pressure testing of plastic pipe due to the potential for injury. The pipe may shatter and explode. Plastic pipe may be tested with city water pressure. If it holds for 24 hours then it may be gradually raised to the 200 psi.
- Once the system is charged with water, one person should always be positioned at the valve/gauges to monitor pressure. If a pressure drop occurs, that person must be able to immediately close the control valve and operate the main drain.
- A “spill kit” should be immediately available in the event of a leak. This spill kit includes large plastic containers (preferably on wheels/dollies), temporary protection such as tarps, floor squeegees, mops, pails, shop vacuums that can be used in wet environments, extra rags, sorbent, etc. The “spill kit” should be immediately available whenever a wet system is charged with water.

Specific Prevention Measures

- **Freezing:** Pipes should be protected from freezing with antifreeze loops or proper heating. Insulation and caulking must be adequate to prevent cold drafts from affecting the system. On dry systems roof/attic areas are most susceptible to overlooked residual water. These areas must be checked for poor drainage to prevent water accumulation and frozen/bursting pipes. The contractor is responsible for installing low point drains and providing identification signs on them.

There should be a documented procedure for checking the pitch of piping in dry systems, requiring the use of a 2' or longer levels. This should include documentation of verification that all pipes were properly drained before turning the system over to the owner.
- **Gluing:** Poorly glued connections on plastic systems are a common cause of water damage. Quality control checks should be performed on connections and joints.
- **Metal Connections:** Press fittings on metal pipe have a tendency to separate causing water damage. The most common cause is incorrectly turned or partially seated retaining. The presence of a fire pump adds stress on these connections caused by fire pump hammer. Quality control checks on these critical fittings should be conducted.
- **Sprinkler Head Issues:** Where sprinkler heads are subject to physical damage (such as in a gymnasium or warehouse), notify the owner in writing of the exposure and make recommendations for addressing the exposure. To avoid potential liability, document if the owner is unwilling to comply with the recommendations.
- **Water Flow Alarms:** On systems equipped with water flow alarms, the system must be installed in such a way that it has the capability to monitor every branch in the system. If the system is to be restored, the owner must be notified, especially if the water flow alarm is inoperative, as leaks could develop and result in significant water damage.

- **Testing:** Sprinkler system testing/inspection services often result in water damage as a result of improper drainage. Check the location of external drains (2" main and inspector's test connections) to assure safe flow areas. Have the owner review and approve the flow area before testing to prevent damage or washout of nearby items.

Owner Responsibilities

- Customer site personnel should be briefed on the status of the installation and notified when the system is charged, even if the Contractors Material Test Certificates (CM & TC) have already been signed.
- The owner must be given NFPA 25 and the operations and maintenance instructions.
- The owner must know where all control valves are located.
- Keys for closets and control valves must be readily available should a leak occur.
- The proper Contractors Material Test Certificates (CM & TC) must be completed for above and below ground piping as required by NFPA 13 and given to the owner.
- A complete inspection of the jobsite with the owner must be documented on an inspection checklist. The contractor and the owner must sign the document where the owner acknowledges that:
 - The work was completed
 - The owner received training on and understands Operation & Maintenance responsibilities
 - The owner received a copy of NFPA 25

Handling A Water Damage Claim

- Visit the site as soon as possible. By responding to the scene promptly, you can gather information first hand, talk to the witnesses, and help minimize the damage. By helping the owner in the cleanup efforts you make the situation non-adversarial and a cooperative environment.
- If you are not on site, provide instructions over the phone to minimize the damage.
- Immediately close the sprinkler control valve and opening the drain to minimize damage.
- Drain water, collect the remainder in containers, and protect equipment with plastic.
- Record all the information possible regarding the incident.
- Complete and send a report of loss as soon as possible to your insurance carrier.
- Take photographs and/or video to document the incident and damage.
- Provide copies of contracts, Contractor's Material & Test Certificate, Water-Based Fire Sprinkler System Operations and Maintenance Training Certificate, and product literature.

For more information on this topic, please see the following additional resources:

<http://www.sprinklernet.org> | <http://www.nfsa.org> | <http://www.fpcmag.com> | <http://www.relmark.net>

PLEASE READ CAREFULLY The information contained in this publication is not intended as a substitute for advice from a safety expert or legal counsel you may retain for your own purposes. It is not intended to supplant any legal duty you may have to provide a safe premises, workplace, product or operation.