

## Building System Inspections - Water Damage

Water can enter a building through a number of routes. Most water damage can be prevented by ensuring that the building's systems are well maintained and functioning properly. The following list is a good starting point for creating an inspection program for your municipality or school's facilities.

There is no such thing as a "routine" inspection: every inspection is important and should be performed with an eye out for new problems and changes. Inspections should be performed whenever and wherever they are needed at the discretion of the building maintenance team.

### Guide for Discussion

#### Areas for Inspection

##### Roof

- Check the roof deck from the underside for evidence of leaks, deteriorated decking, structural cracks, structural movement, and other defects.
- Walls and parapets should also be examined to detect evidence of cracking, deterioration, and water entry or staining.
- Check roofing materials for signs of deterioration, wear, and damage.
- Check flashing for damage and that it is not loose.

##### Wall Systems

- What is the general condition of exterior walls (cracks/plants/etc)?
- What is the condition of the soffits, fascia, trim and flashing?
- Is the flashing intact around wall penetrations? Are sealants intact?
- What is the condition of the wall joints?
- Are walls free of vegetation?

##### Windows

- Inspect condition of window joints, flashing, and sealants.
- Check glass and air seal integrity (signs of condensation/moisture).
- Manually test hardware, including locks.
- Check interior walls around windows for water damage.

##### Grade Level

- Check at-grade plumbing and drainage systems.
- Test basement flood control and sump pump systems
- Check drains—deal with ponding and drainage issues early
- Ensure that downspouts direct water away from foundations, sidewalks and parking areas.
- Check for dampness or standing water in basements and crawl spaces; it may be caused by a hidden plumbing leak or improper drainage.

##### HVAC

- What is the age of the heating systems? Inspection and maintenance frequency?
- Change air filters changed or as recommended by manufacturer.
- Inspect condensate drains, drip pans, etc. to ensure they don't overflow.
- Inspect air coils.
- Inspect ductwork.
- Ensure threatening/air conditioning system is serviced at least annually.
- Humidity levels tested. Past problems resolved?

*Continued*

Questions? Ask your Supervisor or CIRMA Risk Management Consultant.

## Building Systems Inspections, Continued

### Plumbing System

- Inspect pipe systems:
  - Has there been an unexplained increase in water bill?
  - Any water/sewer back-ups?
  - Cracked or warped flooring
  - Inspect under sinks, ice makers, valves, rubber/flexible hosing.
  - Inspect water heaters, flush per maintenance schedule. Place drip pan underneath to contain small leaks.
  - Inspect drip pans and drains.
  - Inspect caulking and grouting around sinks, tubs, showers, etc.
  - Check hose connections to appliances.

### Automatic Sprinkler Systems

- Inspect, perform routine maintenance per requirements (NFPA 25)
- Inspect and test standpipe.

### Below Grade

Water follows gravity downward, so areas below grade are prone to water seepage or flooding. Outside drains, roof drains, and irrigation systems can place large amounts of water into foundation area, saturating the soil. Even a small open or leak can lead to a major flood.

- Test the sump pump and flood control systems.
- Check all at-grade plumbing systems.
- Check all at-grade drainage systems.
- Replace any leaky fittings or drains immediately, even if they are small.
- Check to make sure that the irrigation system does not spray water against the foundation.
- Check areas that may be vandalized.
- Ensure downspouts divert water away from the foundation
- Investigate source of standing water.
- Check for signs of effervescence, caused by moisture wicking up through the concrete, creating a white, powdery residue.

### Appliances

- Check water supply lines to refrigerator icemakers, dish washers, washing machines, etc. for kinks, cracks, or blisters. If kinks are present, replace the hose.

**Additional Discussion Notes:** No building inspection is routine. Time, weather conditions, construction or renovation can combine to place unexpected stress or cause structural fatigue on the building's systems. Vibrations from masonry work can jar old plumbing lines, causing cracks and fissures. New insulation applied in attic areas will reduce heat loss through the roof, but will also enable heavier snow loads to form, stressing the roof structure. Inspections should be proactive and performed as needed.

**Remember** Smaller buildings, garages, storage buildings, even sheds should be inspected, too.

**Attendees** \_\_\_\_\_