

Protection from the top

The importance of commercial roof cover maintenance and repair

The roof is a commercial building's first line of defense from natural hazards such as wind, rain, fire, hail, ice, snow, and extreme heat. It is also the most vulnerable part of your building. Every day, your roof is exposed to weather and other elements that may contribute to decay and deterioration, increasing the risk of damage to the roof itself and the contents below it.

The International Building Code (IBC), which sets safety standards for commercial building, requires that roofs "serve to protect the building." Having a roof that "protects the building" starts with design, materials selection, and installation at the time a facility is built or remodeled—events that occur infrequently and may be outside the scope of most businesses' ongoing activity. But it also includes a regular program of inspection, maintenance, and repair—activities that should be part of your operational planning in order to prolong the useful life of your roof and make sure it does its job in protecting your business from weather damage.

This article focuses on how to identify and address common trouble spots in order to stop problems before they start and fix them before it's too late.

RECOGNIZING THE SIGNS OF A ROOF PROBLEM

If it's been a while since you've had your roof inspected, your first priority should be to identify and fix any major problems.

Signs of serious problems may be apparent even from inside the building. Water stains on a ceiling may signal a leak, which can be caused by a crack or hole in the roof. It's important to understand that even the smallest leak can be a sign of big trouble. Similarly, if the building has unexplained mold or odors inside, this may indicate a roof leak resulting in water penetration. While internal water damage or mold may signal trouble above, it's also important to visually inspect the roof itself to look for problems that are likely to worsen over time.

Depending on the slope of the roof and the ease of access, inspections sometimes can be done by the building owner, but in many cases, it makes sense to hire a contractor to make sure the job is done safely and correctly. Even if you are hiring a professional, reviewing the problems identified in this article may help you to understand the significance of what he or she has identified and the need for action.

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WHAT TO LOOK FOR ON THE ROOF—SOME VISUAL CLUES

Prolonged standing water (see below) or ponding on the roof can lead to premature aging and deterioration of the cover, which will lead to leaks. Leaks that go undetected can slowly rust steel roof decks, rot wood decks, and turn light weight insulating concrete and gypsum decks into a thick paste like substance. Additionally, excessive standing water can lead to significant additional weight, which can weaken the roof deck.



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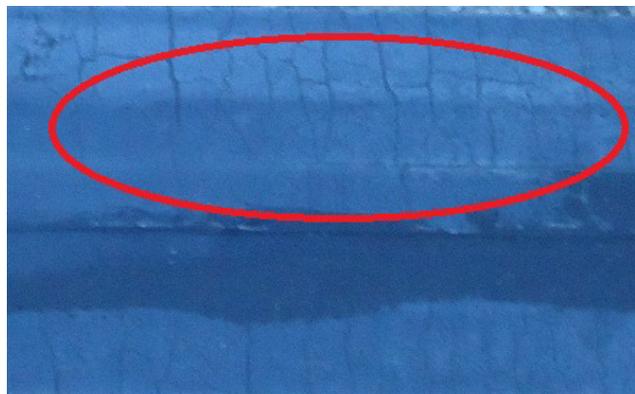
Bubbles (see below) may indicate trapped moisture within the roof cover, which can lead to leaks, reduce the life span of the cover, speed up premature aging of the deck, and reduce the roof cover system's effectiveness against uplift forces associated with a windstorm. Another cause of bubbles is the release of gasses from insulation board that gets trapped below the cover. A roof cut or moisture survey of the roof cover (See IBHS' "[Repair, Recover, or Replace the Roof](#)") can be completed to assist in the diagnosis.



Roof flashing is the strips of metal or other impervious material installed around the perimeter of the roof edge where the roof cover meets the wall. It is also installed around objects (such as rooftop equipment) that protrude from the roof in order to deflect water away from seams and joints. However, a gap in the flashing or roof cover perimeter (see below) greatly increases the potential for roof cover failure during a high wind event and water intrusion or mold. For further information including flashing repairs and replacement guidance, please see IBHS' resources for "[Evaluating Flashing and Coping](#)."



Tears in the roof cover (see below), or worn or cracking seams, can allow water to enter below the cover.



ADDITIONAL AREAS FOR INSPECTION

If there is a lightning protection system (see below), check to see if it is loose or detached as shown below. This can lead to a tear or puncture in the roof covering, especially during strong winds. A lightning protection system that has disconnected metal cables or aerials is no longer capable of providing the intended protection for the building's occupants.



If there are skylights (see below), they should be checked for securement. Skylights that are not well sealed and secured around the frame's edge can leak, which may cause the skylights to become dislodged and allow for wind driven rain and debris to enter the building, especially during a high wind event.



Also, over time the plastic domed panels can become brittle and very susceptible to cracks.



CARE AND MAINTENANCE

The best way to avoid roof-related problems and strengthen weather resistance is through regular care and preventive maintenance. Proper maintenance also prolongs the life of a roof and in many instances will allow for "repair" instead of "replacement" when a problem is identified. The frequency of inspections for routine maintenance depends on several factors, including the age of the roof, recent weather events, rooftop foot traffic, and conditions identified during previous inspections. That said, scheduling inspections every 6 months (fall and spring) is an effective way to make sure they are not sidetracked by the press of other important business.

Here are some things to keep in mind:

- All inspections should look for and develop a repair plan for the items that indicate signs of problems described above.
- After a severe windstorm or hurricane, inspect your roof for damage, as repeated storms can reduce the strength of the roof. Even if the roof survived a storm, it may have been damaged or weakened enough to fail during the next storm, or the one after that.
- Inspections should look for signs of previous leaks or other problems to make sure that repairs have stayed intact.
- Remove any loose objects and accumulated debris. A clean roof eliminates leaves and other materials that have a tendency to hold moisture, which can speed up the deterioration of the roofing materials. In dry areas, keeping the roof clear of debris reduces the risk that embers from a wildfire will ignite the roof.
- Keep trees trimmed. This prevents branches from rubbing against the roof and leaves from accumulating on the roof and clogging drains and gutters.
- Check gutters and downspouts for leaves, twigs and other debris that will inhibit proper drainage.
- If located in a hurricane prone area, check if the gutters include gutter straps designed to resist uplift.
- Inspect rooftop vents and equipment to make sure they are well sealed. Seal any gaps with flashing cement. Replacement may be necessary if the metal flashing is badly deteriorated, or if vents can wiggle back and forth.
- After a hail event with hail stones larger than $\frac{3}{4}$ inch, contact your insurer and have the roof inspected even if you are not aware of any damage.
- Consulting a professional roofing contractor may be helpful if concerns exist after a maintenance review of the roof. The contractor can also help to determine the health of the roof, estimate the remaining life of the roof, help you develop a maintenance plan, and identify additional steps to protect the roof.

The following are some things to consider when hiring a roofing contractor:

- Look for established, licensed or bonded professionals.
- Obtain several bids for services.

- Ask for and check references that specifically include other commercial buildings in your area.
- Ask to see certificates of insurance. Make sure that coverage for liability and workers' compensation insurance is current.
- Contact your local Better Business Bureau to check for complaints filed against the inspector.
- Make sure the bid clearly defines the work that will be done, including hauling away of debris and grounds cleanup.
- If your new roof is being installed on an existing building, make sure that the deck is checked out for water soaked or deteriorated material; have damaged material replaced as part of the contract.
- Discuss, verify, and receive in writing the warranty information. Confirm what is and what is not covered. Keep copies of all warranties and a record of work performed to assist in future inspections, maintenance, and repairs.

A properly maintained roof is necessary to protect your building and the business conducted within it. Remember that a little maintenance can result in a lot of savings, especially when compared to the cost of damage from a small, undetected leak or a catastrophic roof failure.



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Insurance Institute for Business & Home Safety
4775 East Fowler Ave.
Tampa, FL 33617
(813) 286-3400
DisasterSafety.org