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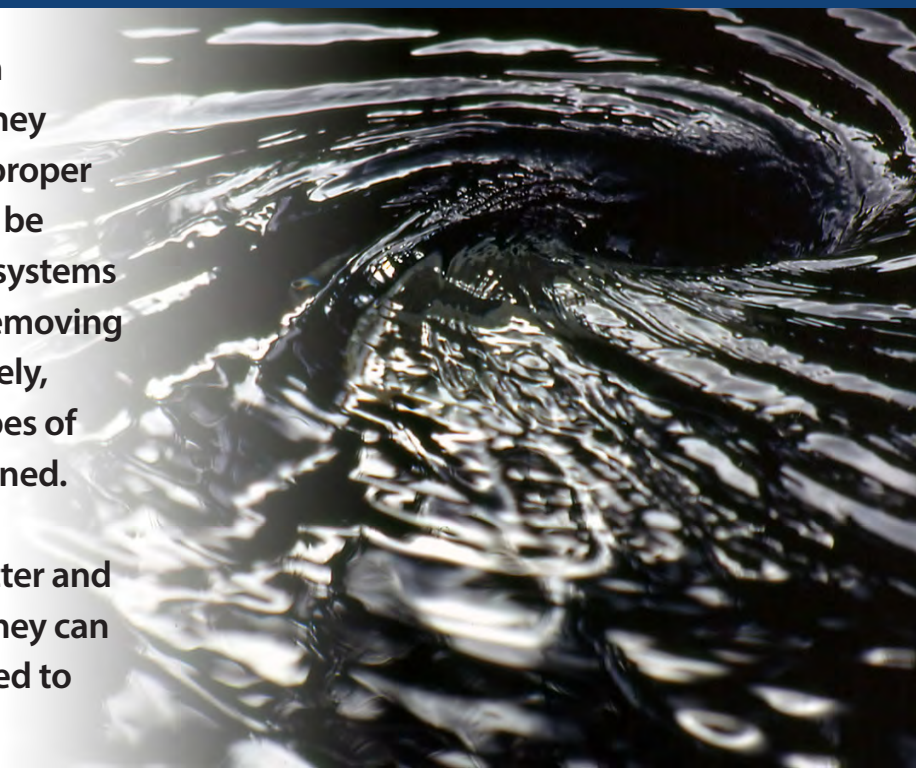
ROOF DRAINAGE FOR COMMERCIAL BUILDINGS:
Preventive Maintenance on Gutters, Drains, and Scuppers



Gutter and roof drainage systems are an important part of all roof systems, but they are often overlooked when it comes to proper maintenance and care. In fact, they may be considered the "unsung heroes" of roof systems because of their key role in effectively removing water and debris from the roof. Conversely, they also can be the culprit for many types of damage if they are not properly maintained. This article will help business owners understand the importance of good gutter and roof drain maintenance, and the steps they can take to avoid preventable damage related to rain, snow, wind, and wildfire.

WHY GUTTERS MATTER

Gutters and roof drains are designed to allow for the proper flow of water during heavy rain, reducing the risk of interior water damage caused by water backing up into the roof. They also provide a conduit for melting snow in order to reduce the weight loads on the roof. Unfortunately, the basic design of gutters makes them susceptible to the accumulation of debris, which interferes with their drainage function. It also creates the potential for ice dams that trap snow and ice on the roof, and presents an increased opportunity for fire risk from wind-borne embers gathering and igniting during a wildfire. In addition, improperly sloped gutters and misaligned downspouts can lead to water accumulation that can damage the gutters or the roof itself, and cause potential water accumulation against the building.

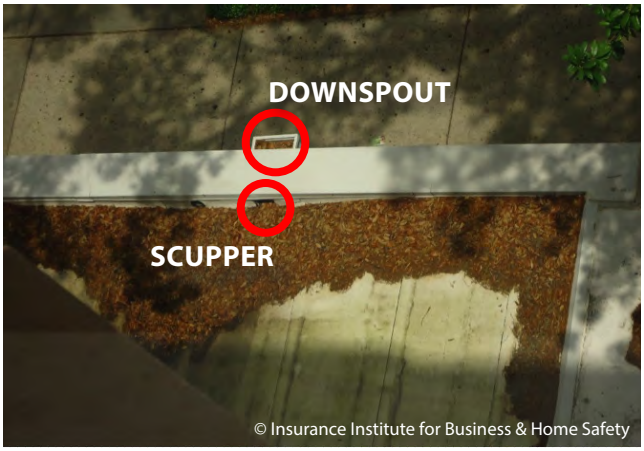
An example of a modified bitumen roof cover with aluminum gutters free of debris (including the granules from the roof cover system).

INSPECTION AND MAINTENANCE BASICS

All drainage systems including gutters, interior drains, and scuppers should be free of accumulated debris such as leaves, twigs, and granules from roof covers, such as modified bitumen on flat roofs and asphalt shingles on steep slope roofs. To ensure roof drainage systems are operating properly, IBHS recommends these simple and low-cost guidelines:

- Inspect and clean the roof drainage system at least twice a year, during the spring and fall. If there is a history of clogs from tree leaves, inspections should be conducted more frequently. Also, inspect the roof after any roof-related contractor services. Professional gutter maintenance services are available to assist business owners.
- Remove any loose objects and accumulated debris (including anything left behind by contractors) from the roof that could end up in the drainage system.
- Remove roof cover granules from the gutters, as they can alter the slope of the gutter when they accumulate, impeding the gravitational flow of water.
- Check for long-term standing water in gutters, and correct any blockages that may be causing this condition. If there are no blockages but standing water is still occurring, this is a sign the gutter is not properly sloped to the downspout.
- Keep trees trimmed and away from the roof. This prevents branches from rubbing against the roof and leaves from accumulating and clogging drains and gutters.
- Check all drainage systems for leaks and to ensure they are properly secured and operating after severe weather.
- Ensure downspouts funnel water away from the building and do not allow water to accumulate near the building's perimeter.
- When replacing gutters, consider larger-sized gutters which will allow for greater water flow.

WHAT TO LOOK FOR:



SHOWN IS AN EXAMPLE OF A SCUPPER AND DOWNSPOUT CLOGGED WITH LEAVES

A roof scupper is an outlet through a raised roof edge or a roof's parapet wall that provides drainage by allowing water to run off the roof's edge.

- Use noncombustible metal gutters and downspouts in locations that may potentially be exposed to wildfire, and make sure these gutters are always free from debris that may potentially ignite.
- If located in a hurricane-prone area, ensure the gutters are anchored by gutter straps designed to resist high winds. For more information on inspecting roof gutters for wind resistance, please see IBHS' *Commercial Roofing: Evaluating Gutters* at www.disastersafety.org/hurricane/evaluating-gutter.
- For more information on preventing ice dams and roof collapse due to poor roof drainage during winter months, please see IBHS' *Preventing Ice Dams on Businesses* at: www.disastersafety.org/freezing_weather/preventing-ice-dams-on-businesses.

CONCLUSION

Following these basic preventive maintenance procedures will help ensure that roof drainage systems will work properly and protect businesses from extreme weather events throughout the year. As an added benefit, taking care of the gutters will prolong the life of the roof and reduce the potential for roof damage – whether it is minor or severe.

Above is debris that ignited in a vinyl gutter during a wildfire ember storm demonstration at the IBHS Research Center. If in a wildfire-prone region, use metal gutters and downspouts and regularly remove debris from gutters.

WHAT TO LOOK FOR:

Above is an example of poor tree maintenance which can lead to leaves and twigs clogging the roof drains.

Shown is an example of an interior roof drain that is blocked by leaves and a piece of wood left behind by a contractor.

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