

# How to Protect Your Roofs and Building Envelopes This Winter

## What Every Facility Manager Needs to Know



Freezing temperatures impact 70-80% of the U.S. The freeze-thaw cycle can wreak havoc on facility structures – not just in the country’s Northern, Eastern and Central regions – but in Southern and Western areas too. Facility managers nationwide can benefit from these ten essential strategies to protect roofs and building envelopes from harsh winter conditions.

## 10 Essential Strategies

### 1 Understand Roof and Building Envelope Vulnerabilities in Winter.

A roof is not engineered to be a static entity; changes in temperature, wind force, the weight of rain and snow, and other factors require it to expand and contract. When unwanted moisture infiltrates building components, freezes, expands, and thaws, it can cause significant damage, such as cracking and spalling of roofing membranes and underlying structural stress.

The building envelope can be compromised when sealants and caulking around windows, doors, and joints deteriorate, crack, or pull away from the surfaces they are meant to protect. Roof/wall connections can also have gaps and cracks that let in unwanted outside air. And because masonry can absorb water, the freeze-thaw cycle can cause cracks, flaking, or spalling and impact structural integrity.

### 2 Inspect Before the Chill Sets In.

Before winter, begin with a thorough visual inspection of roofs for any signs of damage, such as blisters, cracks, or punctures in the roofing material. Next, look for areas where water may pool, as standing water can freeze and cause damage to the roof surface. Inspect flashing around penetrations, such as vents and chimneys, as well as seals around edges, and ensure they are intact and properly adhered. Look for loose fasteners and signs of corrosion, rust, or wear on metal roofs.

Don't forget about building envelope components such as walls, windows, and doors. Inspect them for cracks, gaps, failed caulking or other signs of wear that could lead to energy inefficiency, indoor air quality issues, or water infiltration.



# 10 Essential Strategies

## 3 Clean and Clear Debris.

Remove any debris, such as leaves, branches, or snow that may have accumulated on roof areas. This prevents water pooling and potential damage. Ensure that gutters, downspouts, and roof drains are free of obstructions to allow for proper water drainage. Blocked drainage systems can cause water to back up and freeze, leading to roof damage.

## 4 Assess and Improve Insulation.

Proper insulation helps maintain energy efficiency and comfort as temperatures fluctuate. Often, moisture is hidden within insulation before leaks appear. Consider professional infrared moisture analysis to obtain a detailed thermal map of how and where hidden moisture is located.

## 5 Make Necessary Roof Repairs.

Address issues found during your inspection. Be sure to check and seal roof seams on built up roofs, replace missing shingles on shingled roofs and address loose or missing screws, fasteners, or metal panels on metal roofs.

## 6 Address Building Envelope Defects.

Repair any damage found during the inspection, such as using caulk or sealant to repair any cracks or gaps in the building envelope, especially around windows and doors, to prevent air leaks and improve energy efficiency. Remember that the roof/wall connection is a commonly overlooked source of unwanted air leakage and moisture intrusion.

## 7 Check for Moisture and Mold.

Look for signs of moisture, mold, or mildew throughout your buildings, including in soffits, ceiling tiles, at roof/wall connections, in crawl spaces, around windows. Don't forget to inspect air ducts, HVAC coils, and around vents as well.

## 8 Don't Neglect Indoor Air Quality.

Ensure your HVAC systems are functioning correctly to maintain proper ventilation and temperature control. The condition of your roofs and building envelopes can directly impact the efficiency and safety of your HVAC system. It is critical to be aware of the system's condition and components, to perform routine cleaning and do minor repairs.

## 9 Consider a Protective Coating.

Application of a reflective or waterproof coating can protect the roof surface from UV damage, which can make materials brittle and more susceptible to cracking in cold weather. UV damage can shorten the lifespan of built-up roofs by 10-20% if not properly protected or maintained.

## 10 Parking Garages and Decks Need TLC, too.

Inspect the concrete surfaces for cracks, spalling (surface flaking), and other signs of damage, then fill and seal as appropriate. Make sure expansion joints are properly sealed as well. Ensure that all drains are clear of debris and verify that surfaces are sloped properly to direct water towards drains and away from the structure. Waterproof coatings or sealants can protect concrete surfaces against water and de-icing chemicals. Choose de-icing products that are effective yet less corrosive to concrete and steel and avoid using salt or chloride-based products that can accelerate damage.

**Regular inspections and maintenance can help protect your facility assets from winter's wrath and optimize the health, safety, and comfort of everyone within your buildings. Our construction services affiliate, Weatherproofing Technologies, Inc. (WTI), can assist with inspections and maintenance by providing dedicated, professional crews to handle them for you at terms that meet your budget.**

**Consider too the benefits of procuring necessary roofing and building envelope products and services through available cooperative contracts to streamline procurement with assured value and transparency.**



## Cooperative Contracts

TRUST IN EXPERIENCE. STRENGTH IN NUMBERS.



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