

Apartment Buildings & Communities

Preventing Avoidable Loss From Severe Convective Storms

Severe convective storms (**thunderstorms**) are a nationwide threat that can occur year-round. Producing high winds, wind-driven rain, and hail, these storms **can cause significant damage** to apartment buildings and communities, including damage to roofs, windows, and doors, plus costly interior water damage.

To reduce potential losses, building owners or managers should conduct routine inspections to address areas vulnerable to wind and water intrusion.

Multifamily properties vary in size from a few units in a single building to a multibuilding complex with hundreds of units, plus a leasing office. Regardless of size, **it's important to inspect and maintain the entire property**, beyond individual rental units, to include all common areas, trash pickup areas, fitness centers, and amenities such as pools and tennis courts. These areas are not only integral to daily operations, but they could potentially cause damage to surrounding property through windborne debris.

Creating an effective inspection and maintenance plan requires understanding the specific vulnerabilities of the property, acting early, and working with property managers or owners and their tenants who can help **reduce exposure to severe storm elements**.

Sunny Day Preparation



Routine Inspections & Maintenance

Apartment buildings and communities should have a routine maintenance schedule to monitor the condition of the property, focusing on areas vulnerable to wind and water intrusion.

Inspect building **exteriors**:

- At every season change
- Before any severe weather event
- Following an event

Inspect apartment **interiors** and balconies concurrently with the exterior inspection, at least twice per year, to identify signs of water intrusion as soon as possible.

Safety First

Whether conducted by staff or an outside contractor, roof inspections and maintenance should only be done when weather conditions are safe and proper fall precautions are taken.

Routine Inspection & Maintenance Checklist

Roof Covers

Roofs and roof covers are usually classified as low-slope or steep-slope. Low-slope roof covers provide a waterproof barrier to prevent water buildup from seeping into the building, while steep-slope roof covers act like a raincoat to shed water.

- Inspect and repair loose or missing materials.
- Remove all loose debris.
- Trim overhanging trees.



Low-Slope Roof Covers

Ballasted roof system

- Inspect for uneven distribution of rocks and bare spots with exposed roof membrane. Work with a licensed roofing contractor to ensure there is a proper amount of rocks to resist wind uplift.

Built-up and modified bitumen

- Monitor the cover for bubbles/blisters, cracks, excessive wear around connections, tears, punctures, and excessive weathering resulting in loss of embedded gravel or smooth surface protective coatings for built-up roofs.

Metal panels

- Inspect for loose screws and deteriorated rubber washers, which can wear down over time. Inspect for discolored or worn-off paint (which acts as an anti-rust layer) and signs of rusting. Additionally, look for dents or divots.

Single-ply

- Inspect and repair tears, worn seams, seam failure, gaps, fasteners backing out, punctures, and brittleness. For adhered or glued-down systems, inspect for excessively loose membranes and blisters.

Sprayed polyurethane foam

- Monitor for excessive weathering, tears, or punctures, which cause a loss of the acrylic coating.



Steep-Slope Roof Covers

Asphalt shingles

- Inspect for curling, loose, and/or torn shingles. Also look for signs of hail damage.

Clay and concrete tiles

- Inspect for cracked, missing, or unattached tiles.

Metal panels

- Inspect for loose screws and deteriorated rubber washers, which can wear down over time. Inspect for discolored or worn-off paint (which acts as an anti-rust layer) and signs of rusting. Additionally, look for dents or divots.

Roof Edge & Equipment Flashing

Roof edge flashing refers to strips of metal or other material installed around the roof edge where the roof cover meets the wall. It is also installed around roof-mounted equipment, curbs, and roof hatches that protrude from the roof to deflect water away from seams and joints. Flashing provides a wind and watertight seal that should always be maintained.

- Inspect for loose/missing perimeter roof cover edge flashing.
- Inspect for loose/missing flashing around roof-mounted equipment, curbs, and roof hatches.
- Hire a licensed contractor to repair/replace.

Gutters, Downspouts & Drains

Gutters, downspouts, and roof drains are designed to allow proper water flow during heavy rain, reducing the risk of interior water damage caused by water ponding on the roof.

- Clean roof drainage systems.
- Check for standing water in gutters that are not properly sloped to the downspout. Hire a licensed contractor to repair if needed.
- Verify gutters are anchored by gutter straps designed to resist high winds.
- Ensure downspouts funnel water away from building.

Routine Inspection & Maintenance Checklist

Roof-Mounted Equipment

Roof-mounted equipment is exposed to all weather elements. Corrosion, deterioration, and improper securement are the most common problems during severe wind events. This can allow panels or their parts to become airborne or larger equipment to slide across the roof.

- ❑ Replace rusted metal panels, screws, and metal flashing on curbs.
- ❑ Confirm mechanical units are properly secured to their curbs.
- ❑ Inspect for gaps where the unit attaches to its supporting curb and check for visible signs of potential leaks; these can be repaired using various roof sealants and caulks that are readily available.
- ❑ Check vents and stacks to ensure they are secured properly. Stainless steel cables can be used to anchor them.
- ❑ Inspect satellite dishes and photovoltaic (solar) panels. Ensure they are secured tightly to the roof structure and there are no loose or rusted materials or fasteners. Ballasted systems where open cell blocks are used to keep the unit down are not recommended because the blocks can become dislodged, and the tray and blocks can damage the roof. While directly attaching to the structure is the best practice, a lesser alternative is to use solid blocks that are interconnected and strapped in place.
- ❑ Install hail guards, shields, or wire mesh for air conditioner condenser fins, air intakes such as fans, and any other vulnerable component that, if struck by hail, can impair the operation of the unit. An HVAC contractor should be knowledgeable about wind design requirements in the latest building codes.

Additional Roof Components

- ❑ Inspect lightning protection systems for loose rods, cables, and aerials. Secure and repair as needed.
- ❑ Check roof hatches for any loose or rusted materials and screws and repair as needed. Ensure the roof hatch is closed and locked.
- ❑ Inspect skylights for cracks and leaks; also inspect securements to the curb and address any rotting wood in the curb.

Windows & Doors – Penetration Joints

What is glazing?

The mechanism that holds glass in an opening while providing protection against water intrusion and temperature expansion.

- **Wet glazing** - a sealant installed over a backer rod that sits in the frame itself. Sealed with a wet seal (a type of caulk).
- **Dry glazing** - uses a preformed rubber gasket.

Windows and doors have penetration joints that may be closed with caulk, glazing, gaskets, seals, or weather stripping. Over their lifetime, some of these systems receive little to no attention, which can lead to excessive degradation as they age. This allows water from a wind-driven rain event to penetrate the building and cause costly damage.

- ❑ **Inspect and repair glazing at glass-to-frame**
 - **Wet glazing:** Look for excessively aged, damaged, or missing glazing, or glazing with holes. Hire a licensed contractor to fix or replace sealant.
 - **Dry glazing:** Look for cracked, worn, excessively aged, or missing glazing. Hire a licensed contractor to fix or replace sealant.
- ❑ **Inspect and repair frame-to-wall caulking**
 - Look for cracked, excessively aged, brittle, or missing caulking. Seal with manufacturer-recommended caulking.

Routine Inspection & Maintenance Checklist

Exterior Doors

Apartment communities commonly have sliding glass doors, swinging glass doors, personnel doors, and glass terrace doors. For all doors, it is important to inspect around the door jamb and frame, the floor threshold, and in areas where doors meet.

- ❑ Inspect and repair door jamb and frame sealant/caulking for any gaps, missing, brittle, or excessively aged sealant/caulking.
- ❑ Inspect door perimeter gasket for continuous non-compressed gasketing that form-fits to the threshold of the door and repair if needed.
- ❑ For telescoping doors, gaskets where two doors meet should sit flush up against one another providing a tight seal. If there is damaged, wavy, or missing gasketing (rubber or brush), repair or replace as necessary.
- ❑ Inspect doors with a threshold or guiding rail/track to ensure proper operation in the threshold or connection to the track per manufacturer specifications.
- ❑ If the door is designed to include a brush gasket, make sure it is not damaged or missing. Repair or replace as necessary. In some cases, an additional lip can be added to the threshold toward the interior of the guiding rail/track. This can provide additional protection against water intrusion.



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