WRIGHT™ Specialty

Risk Bulletin

Protect Your School Buildings from High Wind Damage

Spring and summer storms with powerful winds cause billions of dollars of damage to structures every year in the United States. In 2019, tornadoes and thunderstorms resulted in more than $20.3 billion in insured losses, winter storms caused an estimated $2.1 billion of insured damage and it is reported that hurricanes contribute to more than $1 billion dollars of losses annually in the United States. **The roof is the building's supreme protector against the elements. Once it is significantly compromised, the integrity of the entire structure is at risk. Now is the time to act as this is the time of the year that wind damage to roofs is almost a daily occurrence somewhere in the United States.**

Wind speeds that reach over 50 mph may cause significant roof damage and at these speeds, shingles may be torn off while portions of roofs may be lifted and blown away. The weaker and more poorly designed the structure, the more damage will be sustained.

The force of wind blowing over a roof is not uniform. The corners and perimeter edges are more susceptible to wind damage, with the center of the roof having less risk of damage. Wind damage to the center of a roof will typically result from flying debris or the continued deterioration of the perimeter edging.

A flat roof in poor shape or that has already experienced some damage is more vulnerable to high winds. During a routine inspection, issues may be uncovered and should be immediately repaired. Roof drains should be inspected and cleaned regularly and prior to any forecasted storm event. Even the smallest issues can become major problems when exposed to high-powered winds. By ensuring a flat roof is in good shape before high wind season hits, it is less likely to experience serious damage.

On pitched roofs, high winds may cause various types of damage to roof systems. Damage to rooftops often leads to missing shingles and/or torn roof membranes, which in turn may cause leaks and water damage. Additionally, roof damage may lead to damaged gutters, downspouts, and loose or lost flashing.

Significant wind losses typically involve roof covers being blown off or lifted. Contributing factors could be:

- Age of the roof: membrane no longer adequately adhered due to deterioration of glue/mastic; shrinkage of the membrane results in it pulling away from parapet walls;

- Improper installation: including not following manufacturer guidelines; improper or insufficient number of fasteners used; metal capping not covering all that is intended to, which could allow air/wind to get underneath the membrane and lift it.

- Not repairing minor damage from a prior wind event, which leads to more significant damage from another wind event. Unrepaired damage to metal capping or flashing could allow wind to get underneath the membrane and lift it.

Reinforced roof installations can help reduce the chance of wind damage. For high wind resistance, use 7/16-inch or 19/32-inch plywood or OSB roof decking attached with nails. The required nail spacing varies from 3 inches to 6 inches apart, depending upon the type of nail used and rafter spacing. **Ring shank or specialized hurricane nails which provide greater resistance to pullout are also recommended**. **Applying adhesive to both sides of the intersection of rafters and the decking will increase uplift resistance. Hurricane straps may be used to connect wall framing to each roof rafter or truss.**

Maintenance personnel should be routinely inspecting roofs on at least a monthly basis and before and after a significant rain or wind event. Items to look for include:

- Roof drains to ensure they are completely clear
- Torn or punctured roof membranes.
- Asphalt/Composition Shingles that may be broken, curled, damaged, missing granules, and shingles.
- Wood Shakes/Shingles that may be curling, showing signs of decay or mold, or maybe splitting.
- Flashing, Fascia, and Soffit that may be bent, curled, loose, or missing.
- Gutters that may be bent, clogged, leaking, loose, or missing.
- Chimney's that may be damaged, have bricks with crumbling or missing mortar, damaged or missing flashing, or leaning having the potential of collapse.

Most importantly, hire a professional roofing contractor to inspect your roofs annually to ensure support structures are in place and good condition. For areas of known high wind events, this takes on even greater importance. Directing resources towards ensuring roof integrity is one of the most important preventative steps you can take to protect the entire building from wind and the resulting water damage.