High Wind Protection for Commercial Property

Whether you rent or own, it is important to ensure the building that houses your business is protected from severe weather. More than 60 percent of the United States is vulnerable to damage from high-wind events such as hurricanes, straight-line high winds and tornadoes. A few simple steps and regular building maintenance can help protect your business and could mean the difference between staying open or closing the doors forever. If you don't own the property, consult with your landlord or property management agency. It's possible that the property's maintenance staff or outside contractors can complete the work.

The following checklist outlines the latest building science guidelines for maintaining commercial properties in high-wind areas, according to the Institute for Business & Home Safety (IBHS).

Check Roof Condition

Have the roof inspected by a reputable professional roofing contractor to determine if repairs are needed or replacement is recommended.

Basic Guidelines for Roofs:

- Roofs less than 5 years old are generally in good condition and should meet all the criteria below.
- Roofs between 5 and 10 years old are generally in fair condition and may require some maintenance.
- Roofs 10 years or older may be in poor condition and could need significant repairs or to be replaced.

Common Commercial Roof Types

Low slope or flat roof:

1. Metal flashing should be secured to the structure and free of rust.
2. Roof covering should not be cracked, blistered, torn or punctured; it should also not be bunched up or loose, as this can indicate the roof covering isn't properly attached. Discoloration and vegetation are also signs of poor roof condition.
3. If there is gravel on top of the roof covering, it should be evenly spread to hold the roof covering in place and should never be piled up in a single area.
4. Flashing around all roof openings, such as vent pipes or curbs supporting roof-top equipment, should be sealed.
5. All roof-top equipment should be securely attached to the roof structure. Panels and covers should be securely attached to the equipment frame.
6. Drainage systems should be kept clear of leaves and other natural debris—and there should be no ponding of water on the rooftop.

Steep-slope roof:

1. Asphalt shingle tabs should overlap and adhere to shingles below.
2. Shingles and shakes should not be curled, lifted or missing. Slates, tiles and metal shingles, panels and flashings should be intact. Missing pieces should be replaced.

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3. If edge shingles are not well fastened or extend beyond the drip edge more than 1/4 inch, or if the shingles are old and brittle, look to see if the roof is exposed to damage.
4. Flashing around all roof openings, such as vent pipes, should be checked to ensure that the flashing is in good condition and sealed to the walls of the pipe or any other vents.
5. Hip and ridge tiles on most tile roofs installed prior to 2006 have very little wind resistance. Hip and ridge tiles should be able to withstand the highest design wind pressures and be securely fastened to the roof. A professional roofer familiar with tile roofs should evaluate the tile connection along hips and ridges and can, if necessary, remove and re- install them using mechanical fasteners (bolts, screws, etc.) and/or approved foam adhesives. Tiles attached only with mortar generally have poor wind resistance. The only effective upgrade is to remove the tiles, install a ridge board or metal hat section, and either re-install or replace the tiles, attaching them to the ridge board or metal hat section with screws or an approved adhesive.

Assess the exterior of the building and surrounding areas to ensure that landscaping, trees and/or signage do not become a wind hazard.

1. Trim trees and shrubbery.
2. Cut weak branches on plants and trees.
3. Secure signs, vent stacks, rooftop mechanical equipment, lightning protection system components, and other attachments.
4. Remove bricks, pallets, or other debris that may become projectiles during high wind storms.
5. In hurricane prone regions, replace gravel/rock landscaping with shredded materials.
6. Neighboring buildings with flat roofs containing stones or gravel are a major source of wind-borne debris when wind speeds climb to hurricane force; the stones or gravel can easily break unprotected windows. If you are in a hurricane prone region and have neighboring buildings with gravel roofs, put a high priority on protecting glass in windows and doors.
7. Secure outbuildings, fences, garbage cans, outdoor furniture and awnings, all of which can potentially become windborne debris.

Establish a plan for window and door protection.

1. The highest level of opening protection normally available for windows is professionally produced shutters or screens. The standards for professionally produced shutters or screens require that the product be able to resist the impact of a 9-pound 2×4 traveling projectile at 34 mph without penetrating the shutter.
   - If installed according to the manufacturer's recommendations, the glass behind the shutter should not break when the protective system is impacted by this standard missile.
2. Check to be sure that exterior windows and doors in hurricane-prone areas are pressure rated and that the pressure rating meets the requirements of the International Building Code for your area. Look for a label or sticker in the corner of the glazing or inside the frame itself or contact the window/door manufacturer.
3. Check sealants around windows and repair any cracks or signs of peeling.
4. Install head and foot bolts on all inactive exterior double doors or replace doors with those that can be secured to a lockable center post.
   - In hurricane prone regions, replace exterior entry doors with pressure and impact-rated doors or shutters with a pressure and impact-rated product. Keep at least one protected entry door operable from inside the building if anyone will be there during a storm.
   - Check overhead doors to determine whether they have a sticker indicating a pressure rating suitable for your location. If there is no sticker, consider the following options:
     - Check with the door manufacturer to determine whether there is any retrofit that they can apply that will bring the door's resistance up to that required for a new door at your location.
     - Replace the door with one that is pressure-rated (or pressure and impact-rated if you are in a hurricane prone region); see local code requirements.
     - If you are in a hurricane prone region, prepare to shutter the door with a shutter system that is rated for the wind pressures and large missile impacts required by the building code for your area.

Schedule an evaluation of potential structural weaknesses.

1. Have the structure of any gable ends evaluated.
   - The evaluation will determine if the gable ends are adequately attached to the roof and ceiling diaphragms;
   - Or if the gable ends were constructed in a way that is strong enough or well enough braced to resist the design loads specified in a modern building code for your location.
2. Have the anchorage of porch roofs, canopies (especially those where a false front or parapet is located above the outer edge), and overhangs inspected:
   - The inspector should check to make sure the anchorage is adequate to resist the expected uplift loads for the design winds in your area.
   - The connections of supporting columns or the structure should be inspected to ensure they are adequately connected to the roof and have the appropriate capacity to tie down the roof as well as hold it up.
   - The anchorage and connections of large false fronts or parapets above a canopy entrance must be strong enough to withstand the large loads, which are commonly imposed on the cantilevered roof structure and the columns in high-wind events.

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