

## Tips for Avoiding Home Wind Damage

Once a major storm or hurricane hits, it is too late to protect a home and property. It is important to plan ahead to limit the damage that can be done by wind.

While some preparations are fairly simple and inexpensive, others require a contractor for installation. Consider the characteristics of the house and building codes required. Consult with local building authorities about building permit requirements.

### Roof Sheathing

During a windstorm, wind forces are carried from the roof down to the exterior walls and down to the foundation. Homes can be damaged when wind forces are not properly transferred to the ground.

Roof sheathing (the boards or plywood nailed to the roof rafters or trusses) can fail during extremely high winds or a hurricane if not properly installed.

Examine the sheathing inside, from the attic. If many of the nails have missed the rafters, it may be necessary to re-nail the sheathing.

When putting on a new roof, make sure the sheathing complies with current recommended building practices.

### End Gables

During high winds, the side walls of the roof (end gables) can be damaged and collapse.

Gable bracing often consists of 2x4s placed in an "X" pattern at both ends of the attic: from the top center of the end gable to the bottom of the brace of the fourth truss, and from the bottom center of the end gable to the peak of the roof.

Examine this construction inside from the attic. Reinforce any gables as necessary.

### Hurricane Straps

In some areas, hurricane straps are required. Ask local authorities whether hurricane straps are needed for your home.

The common practice of toe-nailing the trusses or rafters often is not sufficient to hold a roof in place in high winds. These clips or straps are usually very difficult to see from the attic because of insulation.

Hurricane straps (made out of galvanized metal) help keep the roof fastened to the walls during high winds.

To install hurricane straps and clips, remove the roof sheathing around the perimeter of the roof to reveal the top of the wall.

It may be necessary to remove the soffit and exterior cladding to reveal the top 12 to 18 inches of the wall. In addition, if the exterior cladding is brick veneer, it may be necessary to remove small sections of brick as needed.

Hurricane straps can be difficult to install; homeowners should consider consulting a contractor for this project.

## Double Entry Doors

Double entry doors should be secured at the top and bottom during high winds or a hurricane forecast.

The exterior walls, doors and windows are the protective shell of the home. If the shell is broken during a storm, high winds can enter the home and put pressure on the roof and walls, causing serious damage.

For each double door, at least one of the doors should be secured at both the top of the door frame and the floor with sturdy sliding bolts. Most bolts that come with double doors, however, are not strong enough to withstand high winds.

A local hardware store can help homeowners select the proper bolts. Some door manufacturers provide reinforcing bolt kits made specifically for the doors.

## Garage Doors

Garage doors on garages attached to homes are potentially the largest, weakest opening of a residential home's exterior during a hurricane. Garage doors should be properly secured when high winds are forecast.

In situations of attached garages, if the garage door fails, winds can enter the home and blow out doors, windows, walls and the roof.

Hurricane-resistant garage doors can usually withstand winds of up to 120 mph. They can be purchased from home improvement stores, but homeowners should note that these doors are expensive and may require a building permit for installation. When purchasing such a door, look for a sticker that gives the pressure rating and wind speed rating.

Older doors need to be retrofitted. To do this, get vertical bracing (often sold in kits). Reinforce the door at its weakest points, putting posts in the opening.

Attach U-belts to the top bracket above the garage door. Brackets must be used to attach the U-belt to the door hinges. The metal brace should be bolted to the garage floor to be secured.

Strong gauge tracks on either side of the door help keep the wind from pulling the door out of its track. Make sure fasteners are secure enough to hold the track in place.

## Storm Shutters

Installing storm shutters is one of the most effective ways to protect a home from high winds.

Purchase or make shutters for all exposed:

- Windows
- Glass surfaces
- French doors
- Sliding glass doors
- Skylights

There are many types of manufactured storm shutters available made out of wood, aluminum or steel.

During the forecast for a hurricane, if permanent shutters are not already in place, construct storm shutters with 5/8-inch thick exterior-grade plywood.

## Resources

- Federal Emergency Management Agency: [www.fema.gov](http://www.fema.gov)
- National Hurricane Center: [www.nws.noaa.gov/om/hurricane/index.shtml](http://www.nws.noaa.gov/om/hurricane/index.shtml)
- Ready.gov: [www.ready.gov/hurricanes](http://www.ready.gov/hurricanes)

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