



# Protecting Your Business From Wind

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## FEDERAL EMERGENCY MANAGEMENT AGENCY

### ARE YOU AT RISK?

If you aren't sure whether your business is at risk from hurricanes or tornadoes, check with your local building official, city engineer, or planning and zoning administrator. They can tell you whether you are in an area where these high-wind events occur. Also, they can usually tell you how to protect your business from high winds.

### WHAT YOU CAN DO

Protecting your business from high winds can involve a variety of actions, from inspecting and maintaining your buildings to installing protective devices. Most of these actions, especially those that affect the structure of your buildings or their utility systems, should be carried out by qualified maintenance staff or professional contractors licensed to work in your state, county, or city. For buildings with metal siding and roofs, one example of wind protection is checking the connections between the siding, roof, and frame of the building and modifying them as necessary to provide greater wind resistance.

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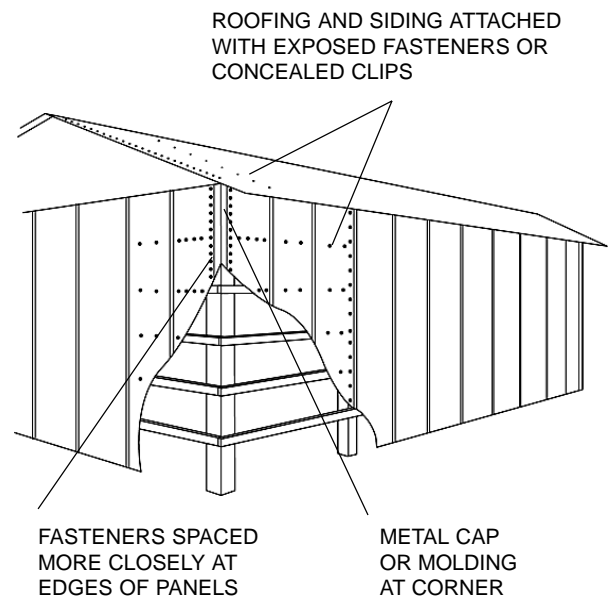
## SECURE METAL SIDING AND METAL ROOFS

High winds can damage buildings with metal siding and metal roofs in primarily two ways:

- If the siding and roofing panels are not adequately attached to the frame of the building, the force exerted by the wind can lift them, possibly to the point where the fasteners pull through or break. When this occurs, entire panels can be torn off.
- Windborne debris can puncture siding or roofing panels and make them more susceptible to further wind damage.

In both situations, wind will be able to enter the building. When this happens, the likelihood of severe structural damage increases.

Metal siding and roofing in high-wind areas should be securely attached to the frame of the building with exposed fasteners such as screws or bolts or with concealed clips. The spacing of the fasteners or clips will depend on their strength and on the design and strength of the siding and roofing panels. In general, fasteners should be more closely spaced at the edges of panels (see figure). Also, all edges of siding, such as along the corners of the building, should be covered with a metal cap or molding and secured so that wind cannot work its way underneath.



## Secure Metal Siding and Metal Roofs

### TIPS

Keep these points in mind when you inspect and repair metal siding and roofs:

- ✓ Have your buildings inspected periodically and repaired as necessary. Loose or missing connectors, rust, and damage caused by past storms can leave metal siding and roofing more vulnerable to serious damage from high winds.
- ✓ If the siding or roofing on your building is attached with metal clips, make sure they are strong enough to resist the force of the wind without bending. If you can bend a clip with your hands, it is likely to fail when high winds act on the siding or roofing.
- ✓ Windows and glass doors are usually more susceptible than walls and roofs to penetration by windborne debris. You should consider protecting windows and glass doors with permanent or temporary covers that can be closed or installed before a storm arrives. (See the separate fact sheet *Protect Windows and Doors* for more information.)
- ✓ You can also help protect your building against damage by windborne debris by removing or securely anchoring any loose objects on your property that could be picked up and moved by the wind. Trash, construction debris, warehouse pallets, and other loose materials should be removed or stored inside. Other objects, such as signs and trash cans, should be bolted down or held in place with chains or cables.

### ESTIMATED COST

A contractor will probably charge you to inspect the exposed fasteners in a building with metal siding or a metal roof. If any modifications are necessary, the cost will depend on what must be done.

### OTHER SOURCES OF INFORMATION

*Insights on Metal Roof Performance in High-Wind Regions*, Thomas L. Smith, Professional Roofing, February 1995

*Performance of Roofing Systems in Hurricane Hugo*, Institute for Disaster Research, Texas Tech University, August 1990

To obtain copies of FEMA documents, call FEMA Publications at 1-800-480-2520. Information is also available on the World Wide Web at <http://www.fema.gov>.