

# Secure Metal Siding and Metal Roofs



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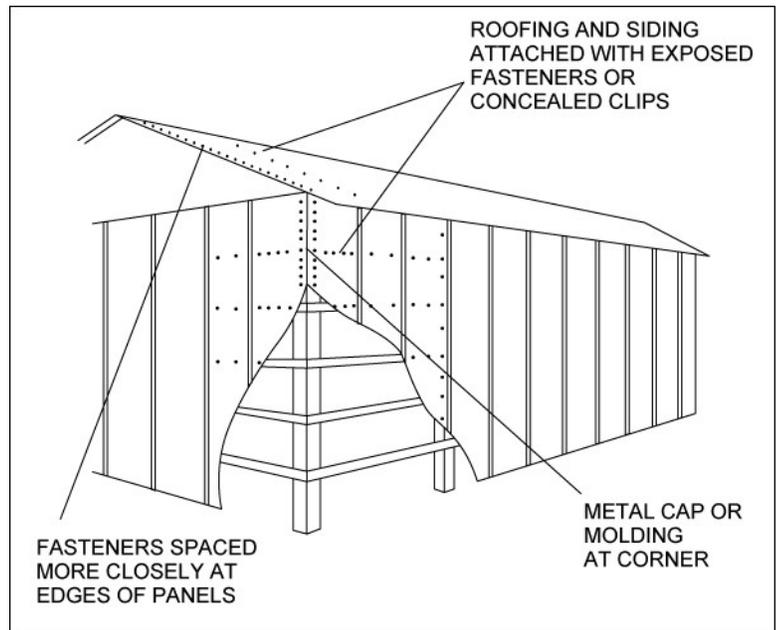
## PROTECTING YOUR PROPERTY FROM HIGH WINDS

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, increasing the likelihood of severe structural damage inside as well as injuries.

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. For information on additional types of siding (vinyl, wood, and fiber cement), refer to FEMA P-499, *Home Builder's Guide to Coastal Construction*, Technical Fact Sheet No. 5.3.



For buildings within 3,000 feet of the ocean, use corrosion resistant fasteners.

## BENEFITS OF UTILIZING THIS MITIGATION STRATEGY

- Helps to prevent damage to a structure and its contents
- Helps to prevent injuries from large windborne debris

## 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. For more information, refer to the separate high wind protection fact sheet titled “Protect Windows and Doors with Covers.”
- ✓ 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 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

FEMA 488, *Hurricane Charley in Florida: Mitigation Assessment Team Report, Observations, Recommendations and Technical Guidance*, “Hurricane Recovery Advisories,” April 2005, <http://www.fema.gov/library/viewRecord.do?id=1444>.

FEMA 489, *Hurricane Ivan in Alabama and Florida: Mitigation Assessment Team Report, Observations, Recommendations and Technical Guidance*, August 2005, <http://www.fema.gov/library/viewRecord.do?id=1569>.

FEMA P-499, *Home Builder's Guide to Coastal Construction*, “Siding Installation in High-Wind Regions,” Technical Fact Sheet No. 5.3, December 2010, <http://www.fema.gov/library/viewRecord.do?id=2138>.

FEMA 549, *Hurricane Katrina in the Gulf Coast: Mitigation Assessment Team Report, Building Performance Observations, Recommendations, and Technical Guidance*, July 2006, <http://www.fema.gov/library/viewRecord.do?id=1857>.

*NRCA Architectural Sheet Metal and Metal Roofing Manual*, 2006 Edition, National Roofing Contractors Association, <http://www.nrca.net/rp/pubstore/details.aspx?id=320>.

*Protect Windows and Doors with Covers* fact sheet, FEMA, April 2011, <http://www.fema.gov/plan/prevent/howto/index.shtm>.

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