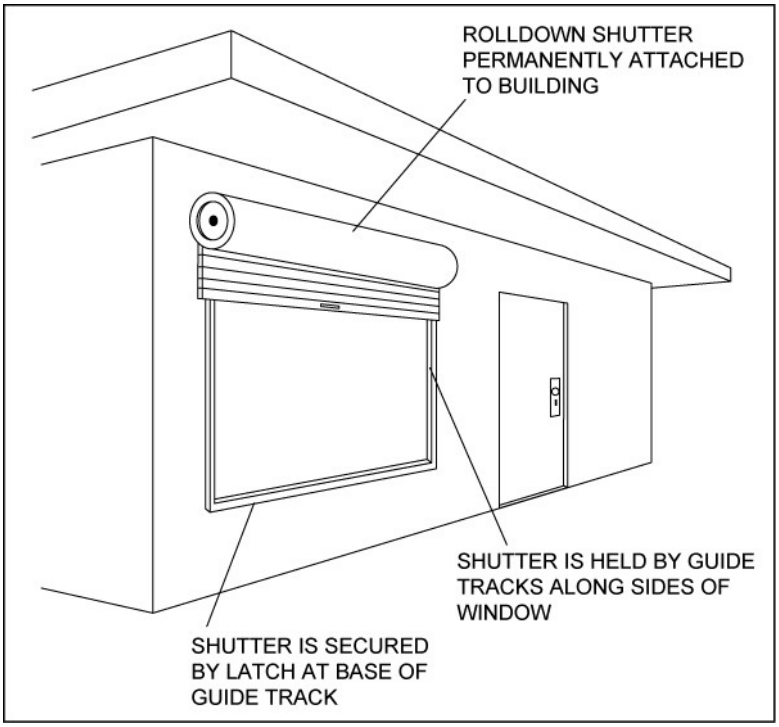
Protect Windows and Doors with Covers

FEMA

PROTECTING YOUR PROPERTY FROM HIGH WINDS

High winds and windborne debris can easily break unprotected windows and cause doors to fail. Once wind enters a structure, the likelihood of severe structural damage increases, and the contents of the building will be exposed to the elements. The most reliable method of protecting windows and doors is installing permanent storm shutters. Alternatives include using temporary plywood covers, mesh or screen systems, and replacing existing windows and doors with impact-resistant windows and doors.



Permanent storm shutters are usually made of aluminum or steel and are attached to a building in such a way that they can be closed quickly before a storm arrives. One type is the "rolldown" shutter (see figure on this page), which is contained in a housing mounted above the window and lowered when necessary. Manually operated and motor-driven models are available.

While permanent storm shutters can usually be closed quickly and easily, temporary covers can be an economical alternative and can be installed fairly quickly if the necessary preparations are made. Plywood covers can also be used to protect sliding glass doors and French doors (see figure on page 2).

BENEFITS OF UTILIZING THIS MITIGATION STRATEGY

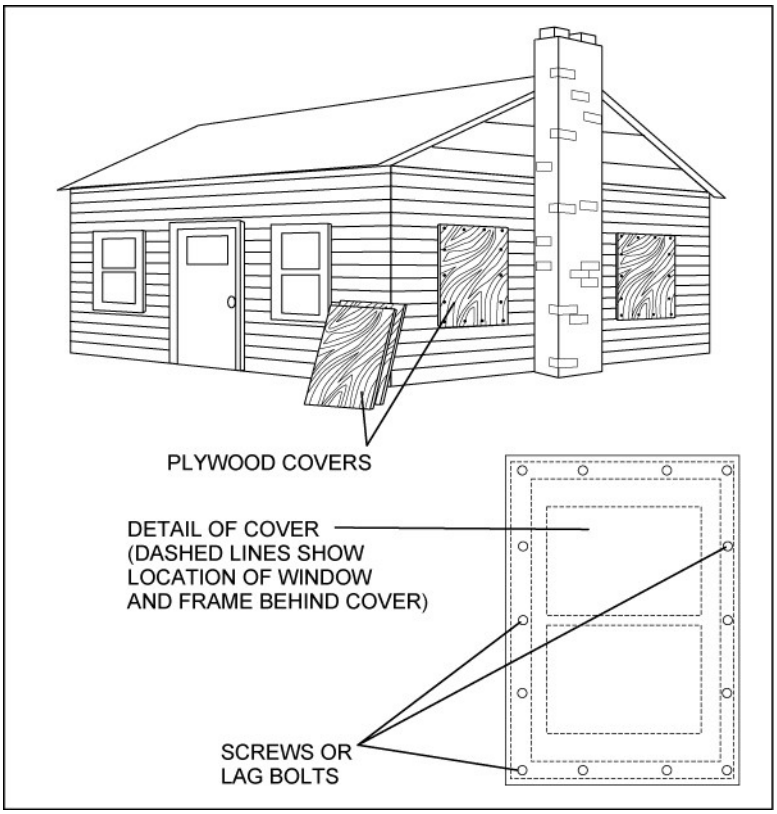
- Helps to prevent damage to a structure and its contents

TIPS

Keep these points in mind when you install shutters or use temporary plywood, fiberglass, metal panel, or mesh covers to protect your windows and doors:

- ✓ Always consider using permanent storm shutters if you live in an area where you know you will need to act quickly to protect your windows. If your property is in an area where you will have little warning of high winds, permanent shutters that can be closed quickly, such as the rolldown shutter, are better than temporary plywood covers, which must be retrieved from storage and mounted with bolts or screws.
- ✓ If you decide to buy permanent shutters, look for models that meet the wind load and impact standards established for your area. These standards can be obtained from your local building official. If you have any questions about the strength of a specific model, check with the manufacturer. Permanent shutters are available in a wide range of sizes, so you can use them to protect many types of windows and doors, as well as large areas of glass.

- ✓ If you decide to use temporary plywood covers, you may want to hire a contractor or handyman to make them for you. If you do the work yourself, you will need to cut the plywood and drill holes for screws or lag bolts in each cover and in the wall around each window. You should follow a prescriptive deign appropriate for the windspeed of the are. DO NOT use oriented strand board (OSB). The screws or lag bolts should be placed along the top, bottom, and sides of each cover, and they should be long enough to penetrate the wall studs around the window, and not just the siding or wall covering.
- ✓ Don't wait until a hurricane or high wind warning is issued to make temporary covers; you probably won't have time. Make them during the "off season" so that you'll be ready to install them at any time. Store the mounting screws or lag bolts with the covers, in a place where they are readily accessible – don't stack heavy boxes or other hard-to-move materials on top of or around the covers. Use a numbering or lettering system that shows which cover goes with which window.



- ✓ If you buy motor-driven shutters, make sure they also can be operated manually if the power fails.
- ✓ If you are constructing a new building in an area subject to high winds, avoid designs that include large areas of glass, windows with multiple panels, and double entry doors. The widths of individual doors and windows should not exceed 3 feet.
- ✓ Check the local building code for windborne debris protection requirements in your area.

ESTIMATED COST

Storm shutters can cost $50 to $60 per square foot of window. A set of shutters for a 3-foot by 4-foot window will cost approximately $600 to $720. The cost of a plywood cover will also depend on the size of the window. If you do the work yourself, you can expect plywood to cost about $0.60 per square foot. Screws or lag bolts, including washers, will cost about $0.10 to $0.15 each. For example, protecting a window that is 3 feet wide and 4 feet high will cost about $10. This figure covers only the materials you will have to buy and excludes the cost of any tools you use and the value of your time. If you hire a contractor or handyman to do the work, you will have to pay for time as well as materials.

OTHER SOURCES OF INFORMATION

Applied Technology Council, *Windspeed by Location*, http://atcouncil.org/windspeed.

Institute for Business & Home Safety (IBHS), http://www.disastersafety.org.

The Federal Alliance for Safe Homes (FLASH), http://www.flash.org.

FEMA 247, *Against the Wind*: *Protecting Your Home from Hurricane Wind Damage*, December 1993, http://www.fema.gov/library/viewRecord.do?id=1641.

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*, "Protection of Openings – Shutters and Glazing," Technical Fact Sheet No. 6.2, 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.

FEMA P-757, *Hurricane Ike in Texas and Louisiana: Mitigation Assessment Team Report, Building Performance Observations, Recommendations, and Technical Guidance*, April 2009. http://www.fema.gov/library/viewRecord.do?id=3577.

FEMA P-762, *Local Officials Guide for Coastal Construction: Design Considerations, Regulatory Guidance, and Best Practices for Coastal Communities,* February 2009. http://www.fema.gov/library/viewRecord.do?id=3647.

International Residential Code® (IRC®) for One- and Two-Family Dwellings, Section R301.2.1, Wind Limitations, 2009.

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