

Protecting Window Openings



Storm Shutters

Storm shutters are an important part of window opening protection for Louisiana homes. In high winds, loss of a window can result in severe structural damage, including roof damage.

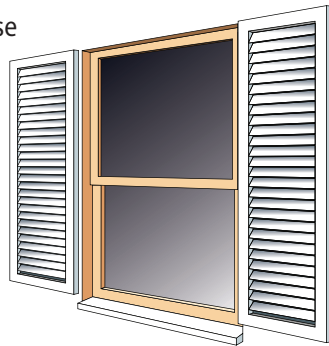
Storm shutters are required for all Louisiana homes in wind zones above 120 mph and/or within 1 mile of the coast.

Check with your local building code office for the storm shutter regulations in your area.

Storm shutters are available in several styles and materials, from high-end roll-down shutters to do-it-yourself plywood panels.

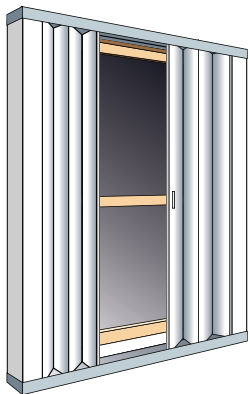
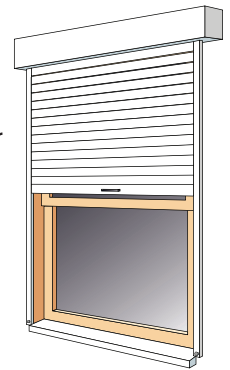
Colonial

- Permanent mounting, ready to close
- Functional & decorative
- Medium-to-high cost
- Closed manually from outside
- Difficult to access on upper levels
- Blocks sunlight



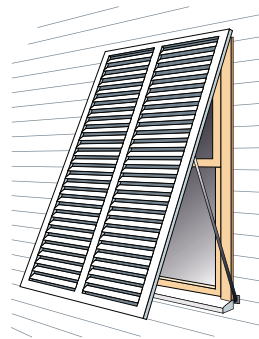
Roll-up

- Permanent mounting, ready to close
- Closed manually from outside or motor driven
- Difficult to access from lower levels
- Expensive



Accordion

- Permanent mounting, ready to close
- Medium-to-high cost
- Closed manually from outside
- Difficult to access on upper levels
- Blocks sunlight



Bahama

- Permanent mounting, ready to close
- Functional & decorative
- Provides shade in direct sun
- Medium-to-high cost
- Closed manually from outside
- Difficult to access on upper levels
- Blocks sunlight

Temporary Manufactured Panel

- Easy installation on lower levels
- Low-to-medium cost
- Some materials (plastics) allow sunlight illumination
- Difficult installation on upper levels
- Must be installed & taken down every time needed



Temporary Plywood Panel

- Easy installation on lower levels
- Inexpensive
- Blocks sunlight
- Difficult installation on upper levels
- Must be installed & taken down every time needed
- Large panels can be heavy



Storm Shutter Installation

Improper installation is a major cause of failure of housing products along the Gulf Coast. When installing any type of storm shutter, carefully follow manufacturer's instructions and guidelines.

The shutter must be far enough away from the window to not break the window when the shutter flexes.

Miami-Dade County, Florida, has established an online system for finding approved shutters and other building materials. The criteria for Miami-Dade may be more stringent than you require. Also, be aware that testing is done on the material the shutter is mounted on – in Florida, that is often concrete block. If you need a "rated" product, choose one that is tested on YOUR type of wall. http://www.miamidade.gov/buildingcode/pc-search_app.asp

The LSU AgCenter does not endorse specific products. However, shutters for the LSU AgCenter La House were selected from these local distributors:

Acadiana Blind Place, Lafayette (www.Shutterkings.com)

Southern Hurricane Shutters, Chalmette (www.southernhurricanes shutters.com)

NuCode Shutters, Thibodaux (www.nucodeshutters.com)

Storm Panel Installation on Wood Frame Buildings

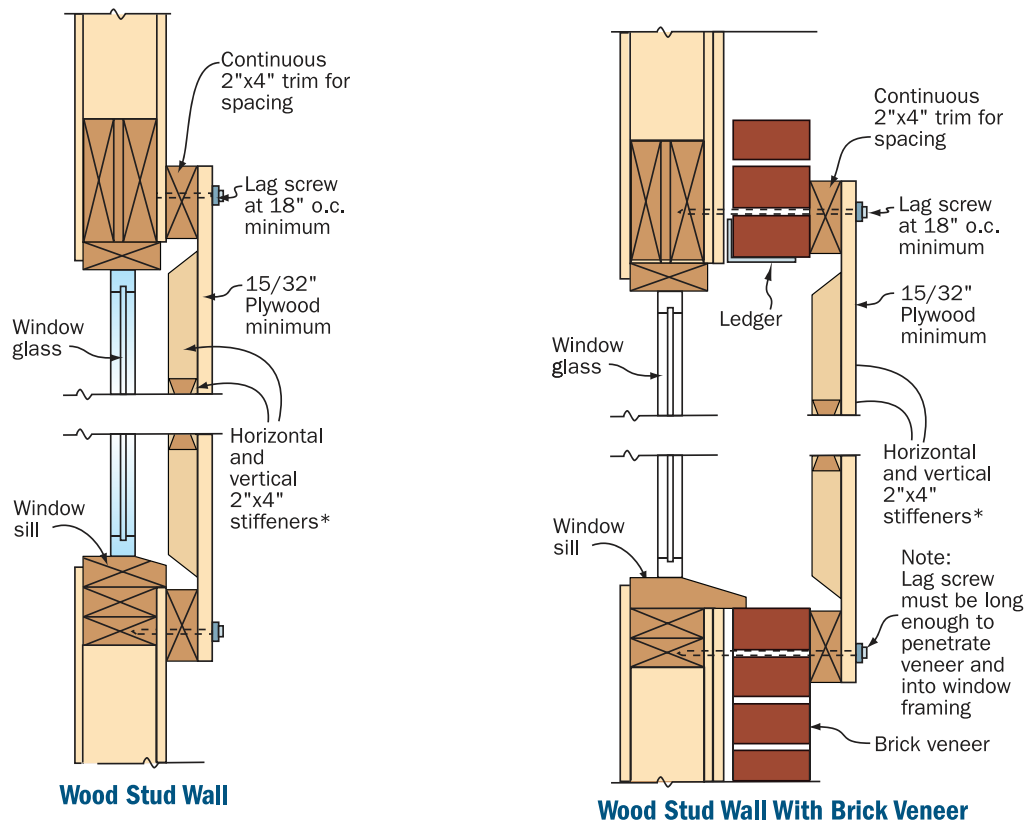


Diagram Source: FEMA 499 Technical Fact Sheet 26.

IMPACT-RESISTANT WINDOWS

An alternative to shutters is impact-resistant glass windows. These windows:

- Are much heavier than normal windows and doors.
- Have a strong plastic layer embedded in the glass.
- Have stronger frames.
- Can be expensive.
- Offer round-the-clock protection and meet the same tests as shutters.

Windows with impact-resistant designs include:

- Fixed-pane – Fixed-pane windows are not operable.
- Casement—Contemporary style with more light and a larger view.
- Horizontal roller—Sliders are typically used for bedrooms or other rooms requiring egress.
- Single-hung—This style of window slides vertically to open.

Each manufacturer specifies how its impact-resistant windows must be installed in order for them to offer the maximum amount of protection when confronted by storm-driven debris.

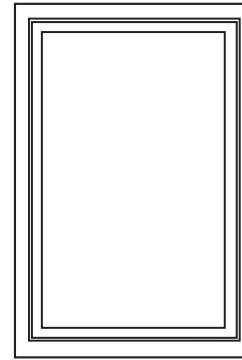
Installation

Installation should be done according to manufacture's specifications. Here are just a few ideas to keep in mind:

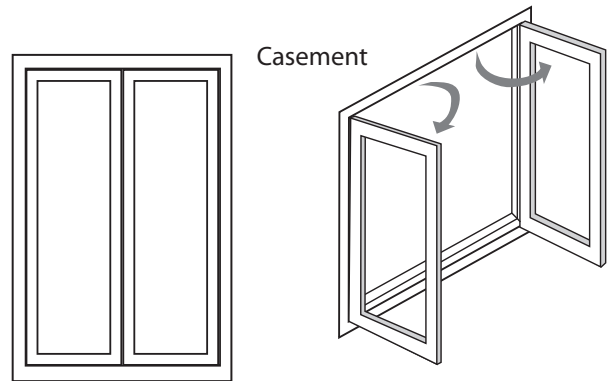
Suitable anchors The attachment of a window to the building is critical. For instance, a window that is 53-inches by 76-inches would have 28 square feet of exposure, and with a wind speed of 146 mph from a Category 4 hurricane would result in a load on the window equivalent to 1,958 pounds of pressure. For the window to perform correctly, the load has to be transferred to the building itself, which is done by using suitable anchors to transfer the load from the window or door frame to the rough opening without causing failure.

Flashing and water-tight caulk seal Correct flashing and using caulk around windows is critical to preventing water intrusion. The tighter the window is sealed, the less chance there is for water to come in to the house. Both the window frame and the window itself should be thoroughly sealed to the building.

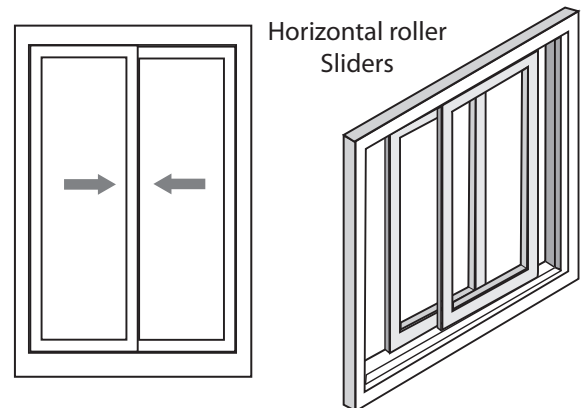
Screws instead of nails. When installing windows in homes close to the coastline, use stainless steel screws to stand up to salt spray. For homes more inland, use galvanized screws. Screws are better than nails because screws are more resistant to pull-out when lateral force is applied to windows and surrounding walls. Screws pull material together and won't pull out.



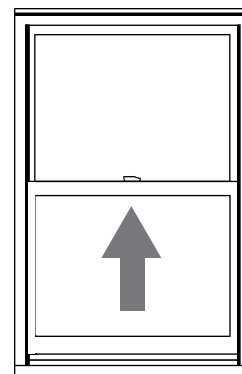
Fixed-pane



Casement



Horizontal roller
Sliders



Single-hung

Cost and availability

Impact-resistant windows are available nationwide by special order, but are most readily available in coastal states with tougher building codes that require impact-resistant windows be installed.

Insurance benefits

Impact-resistant windows are considered to be security features because they are so difficult to penetrate or separate from their frames that they reduce break-ins, theft, and property damage. There are insurance breaks for new homes built with impact resistant windows, and for existing homes remodeled to include the tougher windows and frames. Check with your homeowners insurance carrier to see what kind of a discount is available.



This publication and the Home Rebuilding and Restoration project are supported with funds from The Road Home program, under BOA 27DB00011

Visit our Web site: www.lsuagcenter.com/rebuilding

Prepared by:

LSU AgCenter Home Rebuilding and Restoration project team

Contact:

Patricia M. Skinner, Disaster Recovery and Mitigation Specialist
Biological and Agricultural Engineering Department



LSU AgCenter

Visit our Web site: www.lsuagcenter.com

Louisiana State University Agricultural Center

William B. Richardson, Chancellor

Louisiana Agricultural Experiment Station

David J. Boethel, Vice Chancellor and Director

Louisiana Cooperative Extension Service

Paul D. Coreil, Vice Chancellor and Director

Pub #3107 (online) 02/09

Issued in furtherance of Cooperative Extension work, Acts of Congress of May 8 and June 30, 1914, in cooperation with the United States Department of Agriculture. The Louisiana Cooperative Extension Service provides equal opportunities in programs and employment.