

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.



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

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Protecting Window Openings



Storm Shutters

Storm shutters are an important type 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 one mile of the coast.

Check with your local building code official 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 and decorative
- Medium-to-high cost
- Closed manually from outside
- Difficult to access on upper levels
- Blocks sunlight

\$45.00 per sq. ft.

Ex: 3 ft. x 6 ft. window = \$855.00



Roll-up

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

\$50.00 per sq. ft.

Ex: 3 ft. x 6 ft. window + 2 sq. ft. = \$1,000.00



Accordion

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

\$26.00 per sq. ft.

Ex: 3 ft. x 6 ft. window = \$520.00



Bahama

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

\$42.00 per sq. ft.

Ex: 3 ft. x 6 ft. window = \$798.00

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 and taken down every time needed



Polycarbonate = \$12.00 per sq. ft.

3 ft. x 6 ft. window + 2 sq. ft. = \$240.00

Aluminum = \$14.00 per sq. ft.

3 ft. x 6 ft. window + 2 sq. ft. = \$280.00

Temporary Plywood Panel

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



1 sheet of 4 ft. x 8 ft. x 5/8 in. plywood = \$15.00

*Attach plywood every 12 inches using bolts, screws, barrel bolts or special clips.

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. Rated products can be found at: www.miamidade.gov/building/pc-search_app.asp

The LSU AgCenter does not endorse specific products. However, shutters for the LSU AgCenter Louisiana 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

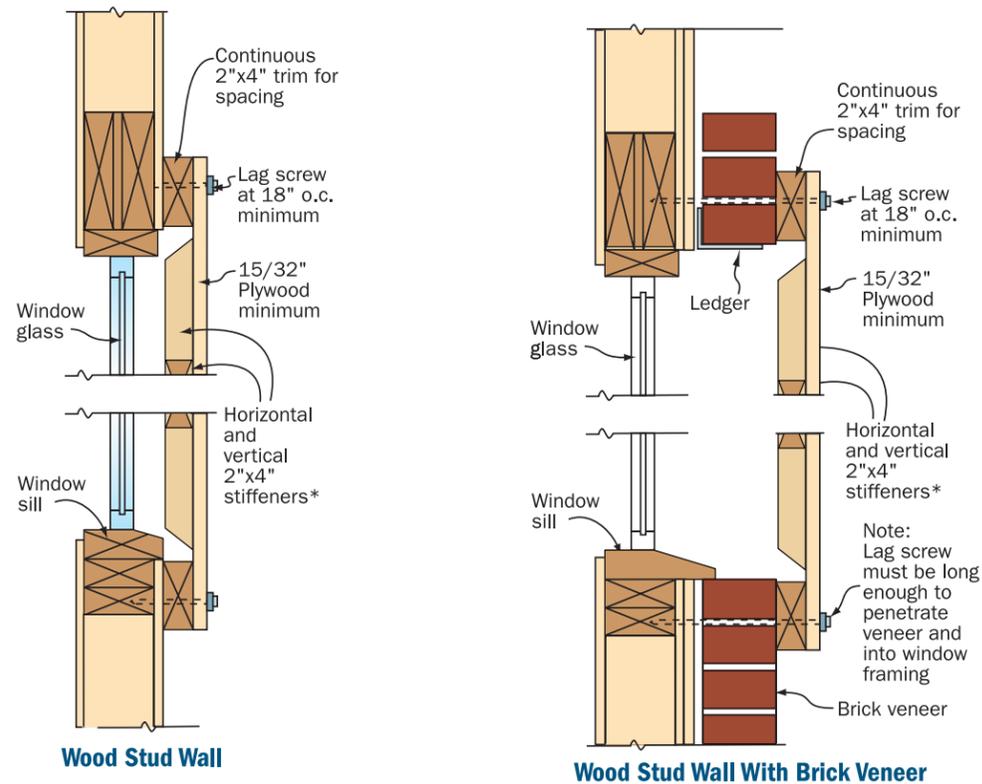


Diagram Source: FEMA 499 Technical Fact Sheet 26.

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.
- Offer round-the-clock protection and meet the same tests as shutters.
- Can be expensive.

Windows with impact-resistant designs include:

- Fixed-pane – These 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 manufacturer'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 a 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 caulking around windows is critical to preventing water intrusion. The tighter a 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.

