

## Hurricane Shutters

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Hurricane shutters come in many types. They are made from aluminum, heavy-gauge steel, reinforced PVS or Lexan. Many require reinforcing bars for maximum protection, and the number of bars used should follow the manufacturer's recommendation. The lower the gauge of the steel or the thicker the aluminum, the stronger the shutter will be. For example, .050 aluminum is stronger than .040. Steel gauge should be 20 or less. Shutters should be cleaned and the moving parts lubricated every six months. With storm panels, care should be taken when storing them to prevent damage to the chips and springs. Removable shutters and panels can be difficult to install for one person. The most important factor about storm shutters is how well they are anchored to the outside walls.

Shutter prices vary with the type of shutter used. The cost under each type of shutter listed below reflects the cost of a 74-by-51 inch window. \* To make an estimate for your home, the following formula can be used:

$$\frac{\text{width x height in inches}}{144} \times \text{cost of the product.}$$

It is recommended that you buy shutters from an established and reputable company.

### Types of Shutters

**Aluminum awnings** are slightly rounded shutters permanently attached to the top of the window with bolts. They swing down over the window and are bolted into place at the bottom.

Construction: Aluminum

Cost per window: Not found

**Bahama Shutters** are flat, louvered panels permanently attached to the window top with bolts. They swing down over the window and lock into place with a latch. Some models crank from the inside. They cannot be used on sliding glass, garage, or entrance doors.

Construction: Extruded aluminum alloy & stainless steel hardware

Cost per window: 786.30

**Colonial shutters** are permanently attached to each side of the window with bolts. They swing over the window like double doors and lock into place with a reinforcement bar.

Construction: Aluminum alloy & stainless steel

Cost per window: 786.30

**Hurricane or storm panels** are slipped into permanently attached tracks at the top of the window and clipped into place or bolted to the structure with an additional track on the bottom or a reinforcing bar.

Construction: Aluminum (.050 or .063) or Lexan (allows light in)

Cost per window: 209.68

**Accordian shutters** slide on a permanently attached track inside the window frame and are locked into place with a reinforcement bar.

Construction: Aluminum or heavy-gauge steel

Cost per window: 419.36

**Roll down shutters** roll down via a hand crank along a track from a valance bolted across the top of the window.

Construction: Aluminum, foam-filled aluminum, impact resistant PVC or Lexan

Cost per window: 686.96

**Armor Screen Wind, Rain & Impact Abatement System** is a flexible, transparent membrane made of a corrosive-resistant lightweight fabric that is 95% solid & 5% porous. It protects openings while allowing for visibility and natural light.

For more information contact: [www.armorscreen.com](http://www.armorscreen.com)

**Plywood Shutters** are mounted on the outside of windows or doors and provide a 4-inch overlap on each side of the window or door. They are locked into place with bolts, or wood or masonry anchors.

Construction: ½- to 5/8-inch exterior-grade plywood (the thicker the better)

Cost per window: \$20

#### Installation of plywood shutters:

For windows 3 feet by 4 feet or smaller installed on a wood frame house, use ¼-inch lag bolts and plastic-coated permanent anchors. The lag bolts should penetrate the wall and frame surrounding the window at least 1¾ inches. For larger windows, use 3/8-inch lag bolts that penetrate the wall and frame surrounding the window at least 2½ inches. For windows 3 feet by 4 feet or smaller installed on a masonry house, use ¼ inch expansion bolts and galvanized permanent expansion anchors. The expansion bolt should penetrate the wall at least 1½ inches. For larger windows, use 3/8 inch expansion bolts that penetrate the wall at least 1½ inches. The tools you will need are a circular or hand saw, a drill with appropriately sized bits, a hammer, and a wrench to fit the bolts. To be safe, use eye protection and work gloves.

Cut the plywood to the measurements for each opening. Drill holes 2½ inches from the outside edge of the plywood at each corner and at 12-inch intervals. Drill four holes in the center area of the plywood to relieve pressure during a hurricane.

Place the plywood over the opening and mark each hold position on the outside wall. Drill holes with the appropriate size and type of bit for the anchors. Install the anchors, the plywood and the bolts to make sure they fit properly. On wood-frame houses, make sure that the anchors are secured into the solid wood that frames the door or window and not into the siding or trim. Mark each shutter so you will know where it will be installed and store them and the bolts in an accessible place.

If the opening is larger than one sheet of plywood, you will need to make shutters with 2x4 bracing. This bracing can be two 2x4s at the middle and bottom of the two sheets of plywood, evenly spaced, with the 2-inch side attached to the inside of the storm shutter. Attach the 2x4s to the outside of the storm shutter with 2-inch, 10-gauge wood screws before installing the shutter.

**\* Prices based on cost for particular shutter company at the time of printing. Prices may vary by company.**

Sources:

The Disaster Handbook. 1998 National Edition – The University of Florida Cooperative Extension Service

Against the Wind: Protecting Your Home From Hurricane Wind Damage. - American Red Cross, FEMA, The Home Depot, NAHB, GEMA

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