

Product Evaluation

SHU122 | 0521

Engineering Services Program

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

Evaluation ID: SHU-122

Effective Date: May 1, 2021

Re-evaluation Date: May 2025

Product Name: Plylox™ Clips Based Wood Structural Panel Shutter System

Manufacturer: PLYLOX, Inc.
P.O. Box 1749
Friendswood, TX 77549
(800) 583-4289

General Description:

Plylox™ clips are used for the attachment of plywood wood structural panels to recessed window openings for protection from windborne debris.

Plylox designed the Plylox™ clips to work with plywood. Use the Plylox™ clips to attach the plywood panels to recessed openings constructed with the following types of exterior finish:

Assembly	Wall Finish Material
1	Wood
2	Brick Veneer

Install the Plylox™ based wood structural panel shutter systems on the exterior side of the building.

The shape of the Plylox™ clip is designed to provide resistance to forces that tend to pull the wood structural panels from the recessed openings due to wind pressures acting on the wood structural panels. Install the Plylox™ clips with a modest amount of force into a recessed opening. The toothed leg of the clip embedding into the exterior finish material of the recessed opening causes the initial gripping action of the clip. As outward acting wind pressure is applied to the wood structural panels, the resulting compressive forces on the clips cause the toothed legs of the clips to further embed into the finish material of the recessed opening. This action resists the outward movement of the wood structural panels. Inward acting wind pressures are resisted by the wood structural panels bearing on the perimeter frame of the recessed opening product.

Consider the Plylox™ based wood structural panel shutter system specified in this report as temporary. They are intended to be mounted only prior to a windstorm event and should be removed from the building following the windstorm event. To permit a quick and efficient installation, label the shutters to indicate the locations of the openings on the building they are protecting. Store the pre-cut plywood panels, Plylox™ clips, and installation instructions in a permanent, dry location.

Components:

Plylox™ Clips:

The Plylox™ clip is manufactured from 301 half-hard stainless steel. The clips are nominal 1.25" in width and have a nominal thickness of 0.031". The clip has a leg with a toothed edge that is 1-3/4" in length. The other leg is 1.00" in length. The clips are 1.00" in height.

The clips are applied in a line along opposite edges of the panel, perpendicular to the direction of the struts.

Shutter Panels:

Assembly	Plywood Thickness
1	15/32"
2	5/8"

Do not use oriented strand board (OSB) for shutter panels. Do not use a plywood panel thinner or thicker than specified for the indicated installation.

Struts:

Assembly 1: Nominal 2" x 4" wood struts. The struts are applied parallel to the long dimension of the panel with the nominal 2" dimension placed against the panel. Two (2) struts are required per panel, each located approximately 12" from the edge of the panel. The struts are secured to the panels with 2-1/2" Deck Mate No. 9 x 2-1/2" star head screws located 2" from each end and approximately 6" on center.

Assembly 2: Nominal 2" x 4" wood struts. The struts are applied parallel to the short dimension of the panel with the nominal 2" dimension placed against the panel. Two (2) struts are required per panel, each located approximately 18" from the edge of the panel. The struts are secured to the panels with 2-1/2" Deck Mate No. 9 x 2-1/2" star head screws located 6" from each end and approximately 12" on center

Limitations:

Mounting Conditions: The Plylox™ clips must be secured to recessed window and door openings constructed with wood or brick veneer.

Allowable Shutter Span: The allowable shutter span (distance between lines of Plylox™ clips) must not exceed the following dimensions:

Assembly	Allowable Shutter Span
1	60"
2	36"

Allowable Shutter Length: No limit. Place two or more panels next to each other to form a longer shutter. Panels must be oriented next to each other so that the struts on each panel are parallel to each other and the clips form a continuous line along the opposite edges of the panels.

Building Height: Install the shutters on one- or two-story buildings only. For building on piles, only install the shutters if the building has a perimeter deck which permits safe installation.

Design Pressure Rating: The design pressure rating of the shutter assembly is as follows:

Assembly	Design Pressure Rating
1	+/-40 psf
2	+/-40 psf

Minimum Separation from Glass: There is no minimum separation from glass. The shutters must not be used in essential facilities as defined in ASCE 7-16.

Impact Resistance: The shutter assemblies satisfy the Texas Department of Insurance's criteria for protection from windborne debris. The products passed Missile Level C specified in ASTM E 1996-14a. The products may be used for Basic Protection in areas where the basic ultimate windspeed is less than 150 mph at a distance greater than one mile from the coastline.

Product Identification: The Plylox™ clips must have the word "Plylox" etched into the surface of the long, toothed edged, leg of the clip.

Installation:**Shutter Panel Attachment:**

- Attach the wood structural panels to the exterior surround of the recessed opening using the Plylox™ clips according to the manufacturer's installation instructions and this product evaluation report.
- Cut the wood structural panels to fit within the recessed opening. Cut the panel dimensions a maximum of 1/4" less than the size of the rough opening to leave a 1/8" gap between the recessed wall opening and the shutter panel along all sides.
- Pre-cut and label or mark the panels to identify the proper installation location on the building.
- **Allowable Shutter Span:** Refer to the Limitations section of this evaluation report.
- **Allowable Shutter Length:** Refer to the Limitations section of this evaluation report.
- **Shutter Panels:** Refer to the Components section of this evaluation report.
- **Struts:** Refer to the Components section of this evaluation report.
- **Plylox™ Clip Spacing:**
 - Apply the Plylox™ clips to opposite edges of the panels, perpendicular to the direction of the wood struts. Space the clips a maximum of 3" from the panel corners and a maximum of 6" on center. If panels are placed side-by-side, then locate a Plylox™ clip within 2" from the butt joint of the panels.
 - You must place a minimum of two (2) clips along the panel edge.
 - Prior to installing the wood structural panel within the recessed opening, position the Plylox™ clips along the edges of the panel.
 - With the Plylox™ clips in place, insert the wood structural panel into the recessed opening. Insert the panel within the recessed opening until the panel is seated firmly against the perimeter frame of the opening product.
- **Minimum Edge Distance:** The Plylox™ clips must have sufficient edge distance from the outer edge of the recessed opening to prevent breakout. There must be a minimum 3" recess from the outer edge of the wall to the outer edge of the exterior opening product that the shutter panels will bear against.

Note: Keep the manufacturer's installation instructions available on the job site during the installation. Plylox™ clips must be corrosion resistant as specified in this evaluation report.