

Installation Instructions

Ballistic Fiberglass Panels

Before Getting Started- Health & Safety Precautions:

Fiberglass Bullet Resistant Panels are classified as Laminated FRP (Fiber Reinforced Plastic) products. It is important for installers of fiberglass products to be properly supplied with basic health and safety information and personal protective equipment, such as:

1. Following instructions carefully
2. **Gloves** - cotton or leather gloves to provide protection from cuts and abrasions associated with handling, drilling or cutting fiberglass materials. Nitrile/Latex gloves can also be used to prevent skin irritation due to fiberglass, but provide little cut or abrasion protection. Cotton gloves should have the PVC black dots to provide adhesion (grip) to the panels.
3. **Dust/Particle masks or respirators** to provide respiratory protection against dust associated with cutting or drilling fiberglass materials. One product on the market is the Moldex 2300 Dust and Mist Respirator. Refer to OSHA regulation Part 29 CFR 1910.134 for proper fit and use of respirators.
4. **Protective Eyewear**, especially when cutting sanding or drilling fiberglass materials. Refer to OSHA regulation Part 29 CFR 1910.133 for proper selection and fit of safety glasses, goggles and face shields.
5. **Protective Wear** to be worn over clothing to provide protection from fibrous dust that can settle in the clothing or on the skin when cutting, sanding or drilling fiberglass materials. DuPont makes a protective wear material called Tyvek that is used in sleeves, shirts, bibs and full body suits available through different manufacturers. STOKO sells a barrier cream (STOKO Emulsion) that can be applied before working with fiberglass that can help prevent skin irritation.

The above listed items should be worn if workers will be cutting, sanding or drilling.

6. **Ventilation** – Mechanical fans or dust collection equipment are useful in reducing dust irritation. If fans are used, always place the person between the fan and the panel being machined so that any dust produced will be forced away from personnel.





Introduction:

The following recommendations are designed to assist in the installation of bullet resistant fiberglass panels, as well as to preserve the ballistic protection the panels are designed to provide. Different elements of working with the product are addressed, in addition to some tips to consider when ordering the product.

In the field, panels can be cut with a diamond-grit blade. TSD 180D, manufactured by Tenryu, is a quality 7" circular blade that you may consider using. For electrical boxes and other small openings, a diamond grit blade (available through most builder's supply in the ceramic tile section) on a reciprocating saw should be sufficient.



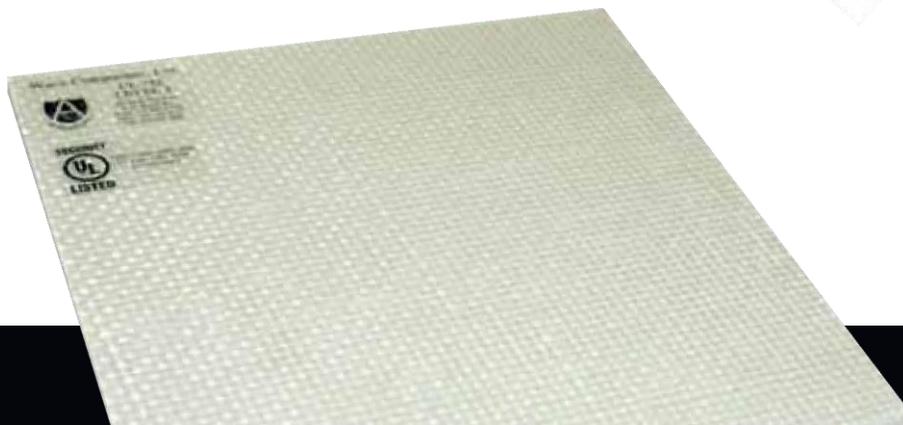
In addition to wearing protective clothing, a fan can be placed behind the cutting area to help blow away fiberglass particles.

Fastening and Drilling:

Panels may be attached using self-tapping drywall screws. When attaching a panel to a stud wall on which drywall will be the exterior surface, simply use enough screws to hold the panel to the studs, then come back with a complete screw pattern to the studs when hanging the drywall on top. If a different appliqué is to be used over the ballistic panels and a flush surface is required, a counter-sink hole may be used before adding the screws.



Panels up to 1-1/8" and thicker may require pre-drilling the fastener holes to prevent the screw heads from breaking, as well as to facilitate the installation. It is recommended that you use a carbide or cobalt tip drill bit at medium speed with medium pressure. Low carbon (high-speed steel) bits may be used, but will typically have a shorter lifespan.





Ballistic panels can be used without treatment when placed within a wall. If ballistic panels will be a decorative surface, then the following methods can be used:

Peel Ply/ Cleaning/ Sanding:

A clean surface free of grit and oily residue is required prior to gluing or painting ballistic panels. One method to achieve this finish is known as “peel ply.” At the request of the customer at the time of order, a peel ply layer can be used in the manufacturing process. This thin extra layer is removed in the field immediately prior to working with the product. This leaves a clean, very slightly textured finish ready for treatment.

Cleaning the panel can also be accomplished by wiping the surface with Acetone. Minimize the amount of time the panel is exposed to solvent, avoiding soaking.

Sanding is another means of preparation. 120-grit sandpaper at medium pressure can be used to lightly “roughen-up” the surface.

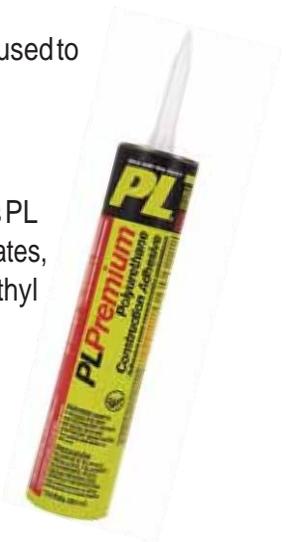
Adhesives and Laminating:

Fiberglass panels can also be attached with the use of adhesives. One product available is PL Premium Polyurethane Construction Adhesive. For stronger adhesion to non-porous substrates, such as aluminum, steel and stainless steel, or bonding one panel to another, a 2-part Methyl Methacrylate (MMA) adhesive may be utilized, such as Plexus MA 320.

Laminates can be applied with standard contact adhesives and should be thick enough to avoid transfer of texture to the finished surface. Apply adhesive per manufacturer’s instructions.

Painting:

Once ballistic panels have been prepared with one of the above methods, they can be painted with either an oil or water-based paint. An automotive urethane works well as a “high- end” solution. For any external application that requires panels to be exposed to the elements, a paint with a UV inhibitor should be used to protect the product from long-term UV ray exposure.



Wall Assembly:

For typical wall and millwork installations, a 4" wide batten strip of the same level material should be specified at the butt-joints to provide a minimal 2" overlap from one panel to the next, or each side of the joint. Batten strips are available as separate items, or can be cut in the field from raw panels.

The ballistic batten strips can be attached directly to the panels and should be used where any vertical or horizontal joints occur. Battens are not required where a 90° corner occurs, in which case a panel should simply overlap to the next panel at the corner (see diagram).

By having the panel joints between the studs, the battens can be attached without pushing out the wall further. In the case of electrical cut-outs, an additional 12" high piece of the same level of ballistic material may be installed from stud-to-stud, as close as possible to the hole (see diagram).

