

# Suggested Fabrication Methods for Bullet Resistant Fiberglass Panels

## **Health and Safety**

Per the MSDS sheets (available on request), there is no known Carcinogenicity, Reproductive Toxicity, or Toxicogenicity. However since fiberglass dust produces a serious itching in skin, we would not rule out future known health problems associated with inhalation, prolonged exposure, or high concentration exposure. Use safety equipment and good judgement. Bullet resistant fiberglass panels fall into the category of Fiber Reinforced Plastic (FRP) products, the user is encouraged to seek additional sources of information.

## **Equipment:**

- 1) Leather gloves, to provide protection from cuts, scratches, and small punctures while handling the material. In addition, they will help keep the fiberglass dust off the skin on the hands.
  - 2) Dust and Particle Respirators, to provide respiratory protection against the fiberglass dust associated with cutting and drilling fiberglass materials.
  - 3) Protective Clothing, to be worn over work clothes. This is needed to provide protection for the skin from the fiberglass dust that can settle in the clothing or on the skin when cutting, sanding, or drilling. Disposable suits are preferred, since fiberglass dust has a way of transferring itself from one surface to another, following you home, and causing skin irritation even many months later when you come in contact with surfaces or clothing where it was deposited.
  - 4) Protective eyewear when cutting, drilling, or sanding. Also avoid rubbing the eyes with anything that has been in contact with or exposed to fiberglass dust. Remember that the fiberglass panels, even immediately after being cleaned, count as fiberglass dust since tiny particles cling to the surface only to be dislodged later.
- The above items should be worn if workers will be cutting, sanding, or drilling fiberglass materials. Even when just handling the sheets, at a minimum gloves should be worn and care should be exercised to avoid having the sheets come in contact with your clothing. Just reading this has been known to cause itching.

## **Storage Precautions**

We recommend that the fiberglass panels be stored and moved while flat, covered, and strapped to a pallet to avoid cracking, scraping, chipping, or abrading the panels.

## **Cutting:**

A circular saw with a diamond abrasive blade works best, cut slowly and do not overheat or put side pressure on the blade. If dry cutting, remove the blade from the cut every few seconds to allow it to cool. Cutting with a saw designed to work with a water cooling feed and proper electric shock protection devices will provide a cut with much less airborne fiberglass dust. Alternate tooling would be a saber saw and either a grit-edge blade designed for composites or a bi-metal blade with small teeth at slow speed.

## **Drilling:**

Some recommend carbide, cobalt, or Titanium coated bits. We feel that a cheap drill bit is fine, because regardless of the drill bit used you can plan on either sharpening or throwing it out immediately after it is used on fiberglass. It will not cut warm butter after the first use on fiberglass but can be used to drill a few more holes in fiberglass. The same would apply to a saber saw blade with teeth. Self-tapping drywall screws work well when attaching drywall to the fiberglass panels or when attaching the fiberglass panels to steel studs.

## **Sanding:**

If you will be laminating other items to the fiberglass panels such as plastic laminate or drywall, it is highly recommended that you first rough up the surface with sand paper. A heavy duty belt sander with 120-grit paper and medium pressure works best. It can take a long time to get a good gluing surface if using a weak sander.

## **Painting:**

Fiberglass panels can be painted directly if the surface is lightly sanded and a primer base-coat is applied. Either oil or water base may be applied. The surface must be wiped free of all dust, dirt, greases, etc. Since the surface is irregular, a better finish will be achieved with two layers of phenolic backer (vertical grade plastic laminate without the printed pattern on it) or drywall.

## **Installation:**

See the diagram on the next page regarding typical installation applications. Note that the fiberglass panels are HEAVY, and need to be securely fastened in place to something structural, that is capable of holding the weight in place.