

Bullet Resistant Panels

Protective Panels for Lining Doors and Walls
Surrounding Security Enclosures
Protection to Level 3 In Stock
(.44 Magnum S.P.S.A.)

Bullet Resistant Fiberglas Panels are flat sheets of a polyester impregnated woven roving (fiberglass strands) to create a material with superior durability. The densely packed structure of the panel exhibits an excellent capability to absorb multiple impacts from high velocity projectiles, limiting ricochet or shattering. They meet standards of the U.L. 752 Ballistic Performance Requirements Test, as well as all bullet resistant test requirements set forth by the National Institute of Justice.

Typical applications include lining of bank teller counters, ticket booths, judge's benches, doors and walls of secure enclosures, and other structures where concealed panels will add to the safety of service personnel.

Panels are high pressure molded into standard 4' x 8' size sheets. Cutting and drilling can be done using commonly available tools.

	PROTECTION LEVEL	PANEL THICKNESS	PANEL SIZE	PANEL WEIGHT	IMPACT VELOCITIES*
BRF 100	1 M.P.S.A.	1/4"	96" x 48"	83 lbs.	1250 Ft./Sec.
BRF 200	2 H.P.S.A.	5/16"	96" x 48"	115 lbs.	1395 Ft./Sec.
BRF 300	3 S.P.S.A.	7/16"	96" x 48"	156 lbs.	1470 Ft./Sec.

Specifications:

Material: Fiberglas – Reinforced Structural Polyester Laminate with Fiberglas Scrim

Finish: Off white. Panels may be painted, covered with vinyl, or clad with plastic laminate if desired.

Cutting: Can be accomplished with a Circular Saw, Table Saw, Panel Saw or Saber Saw. We recommend the use of a "Grit Edge" blade for ease of cutting.

Drilling: High Speed Drill Bits at a slow speed.

Bullet Resistant Fiberglass Panels

Armor Panels for lining Walls, Doors, Transaction Counters, Judge's Benches, and other structures.

Bullet resistant Fiberglass panels consist of polyester impregnated woven roving (fiberglass strands) in sheet form. This is a stiff, strong material with high resistance to impact and penetration, capable of absorbing multiple impacts from high velocity projectiles including bullets. Bullet resistant ratings vary with thickness. Panels come in a variety of sizes. Fabrication can be done with commonly available tools, although ordering panels pre-fabricated may be desirable depending upon the application.



UL Lvl	Bullet	Thickness	Weight	In Stock Sizes	Available Sizes
1	9mm Handgun*	1/4"	2.6	36x96, 40x96, 48x96, 60x120	36x120, 48x120
2	357mag Handgun*	5/16"	3.6	36x96, 40x96, 48x96, 60x120	36x120, 48x120
3	44mag Handgun*	7/16"	4.9	36x96, 40x96, 48x96, 36x120, 48x120, 60x120	
4	30cal Rifle*	1 3/8"	13.9		36x96, 40x96, 48x96, 36x120, 48x120, 60x120
5	7.62mm Rifle*	1 7/16"	15.0		36x96, 40x96, 48x96, 36x120, 48x120, 60x120
6	9mm sm Gun*	3/8"	3.9		36x96, 40x96, 48x96, 36x120, 48x120, 60x120
7	5.56mm Rifle*	1 1/8"	12.0		36x96, 40x96, 48x96, 36x120, 48x120, 60x120
8	7.62mm Rifle*	1 7/16"	15.0		36x96, 40x96, 48x96, 36x120, 48x120, 60x120

In-stock sizes ship next business day.

Fabricated sizes ship in 2 business days.

Available Sizes ship in less than 3 weeks. Can expedite if necessary.

QUICK SHIP FABRICATION SERVICE:

Although fiberglass panels can be cut, drilled, and notched in the field as needed, the process does create a large amount of fiberglass dust which causes itching and is quite unpleasant. ARMI will fabricate your panels as needed for a very nominal fee and ship within 2 business days from receipt of your cut lists. Frequently the total cost of the project can end up being less than if you fabricated the panels yourself, given that you don't pay for the cost of the cutoff square footage when having ARMI do the fabrication.

* See the "Testing" section for a more detailed description of the UL 752 testing standard for each level.

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.

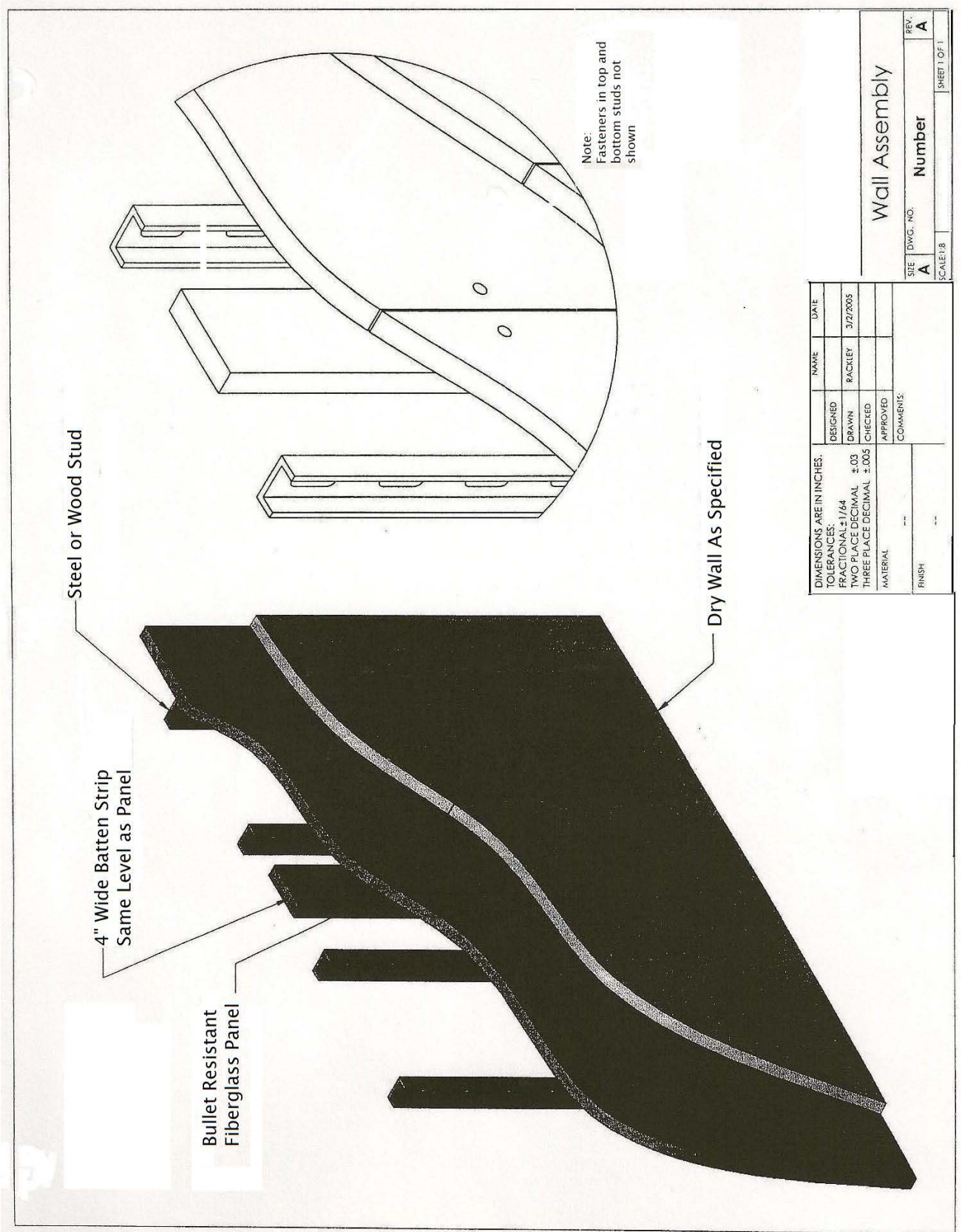
Painting:

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.

Wall Assembly



DESIGNED	NAME	DATE
DRAWN	BACKLEY	3/2/2005
CHECKED		
APPROVED		
COMMENTS:		
MATERIAL:		
FINISH:		

Wall Assembly

SHEET	DWG. NO.	REV.
A	Number	A
SCALE: 1/8"		SHEET 1 OF 1