

American Safe Room

Explosion Resistant Flat Blast Hatch



Drawing: ASR-50-FBH
Revision: A
August 14, 2012

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Description

The ASR-50-FBH Flat Blast Hatch is designed to be installed on an underground shelter. It is available in three sizes: 32 x 32 inches, 32 x 36 inches, and 32 x 38 inches. The frame height is 6 inches high, unless the optional viewers are ordered, then the frame height is 8 inches to allow room for using the viewers.

The surface is finished with a coat of primer and the hatch includes wedge anchors for mounting it on the roof of a concrete shelter. Slots are used in the mounting flanges instead of holes to ease installation - they allow the hatch to move in two dimensions as it is lowered onto the anchors.

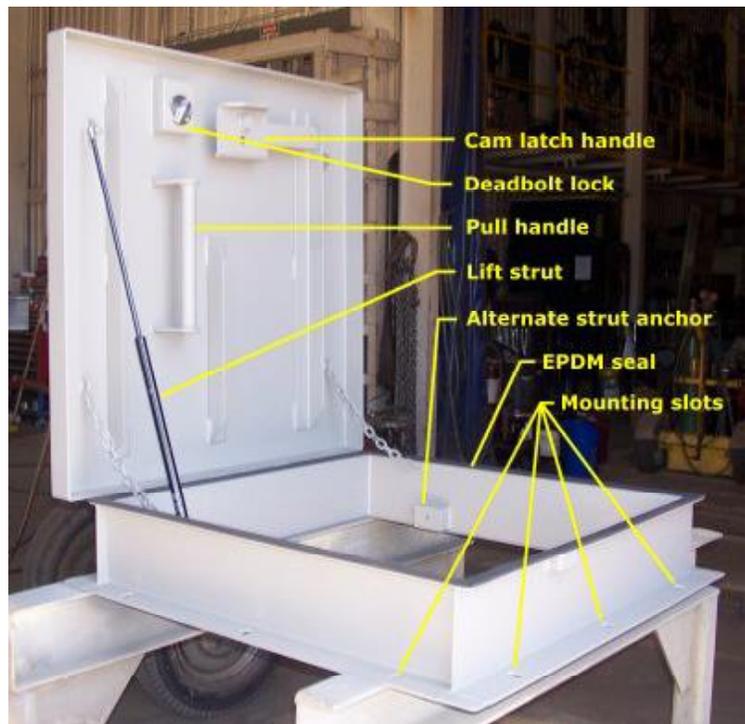
The blast lid is constructed from ASTM A-36 steel plate that is reinforced by 4 stress resistant steel bars. It is designed to withstand a 40 PSI blast load. It uses a gas lift cylinder to assist the opening. This cylinder is properly sized to lift the lid on it's own, yet it is not hard to shut.

The hinge assembly is the same massive one used on our ASR-50-BD Blast Doors. It features bronze bushings, grease zerks, and an inch and half 1018 alloy steel pin.

The inside cam latch rotates 90 degrees to draw the blast lid into tight compression with the EPDM (synthetic rubber) seal.

The shrouded heavy duty deadbolt key lock has a threaded cap on the outside constructed from ASTM A53 grade A steel. It can also be operated from the inside without the key.

The cam latch and the deadbolt key lock combination give you multiple access control options for your shelter.



Options

Sizes

The flat hatch can be ordered in three sizes: 32 x 32 inches, 32 x 36 inches, or 32 x 38 inches. The height to the top lip is 6¾ inches and the height to the top of the deadbolt cap is 9¾ inches.

Optional Viewers

The flat hatch can be supplied with a “peep sight” wide angle viewer strategically mounted on each of the four sides. They are mounted six inches below the top lip. This gives you the ability to see what is directly around your hatch before opening it. When this option is selected, the frame height of the will be increased to 8 inches, which increases the overall height by 2 inches.

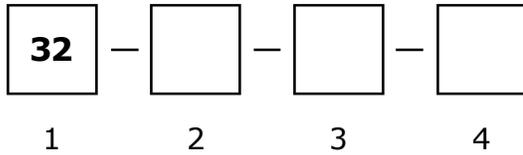
Optional emergency escape jack

This three ton bottle jack can be deployed if debris lands on your hatch lid. The bottom anchor of the jack is permanently mounted to a wall or other structural element and pre staged for quick deployment - making it unnecessary to climb a ladder with a jack to install it in an emergency.

The American Safe Room **riser** hatch (not the flat hatch) has an integrated jack mount that allows it to be kept in the stowed position until needed.
See www.AmericanBombShelter for more information.

Ordering your hatch ladder system

Generate the part number that will be used to build your hatch:



1. Width - always 32 inches (see page 6)
2. Length - 32, 36, or 38 inches (see page 6)
3. Viewers - enter Y or N, note: frame height changes to 8 inches (see page 7)
4. Emergency escape jack - enter Y or N (see page 8)

Example: (32-38-Y-Y) is a 32 by 38 inch flat hatch with viewers and emergency escape jack.

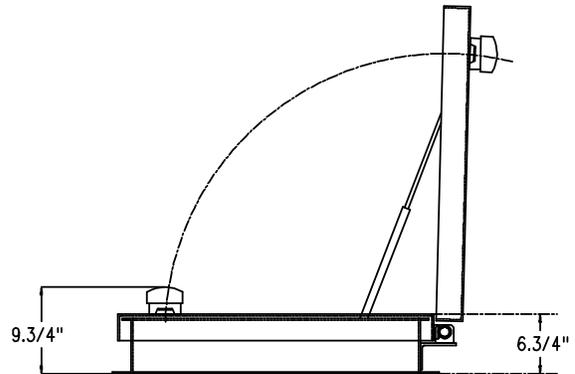
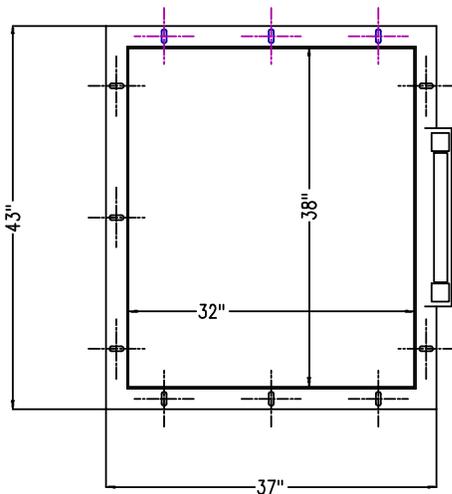
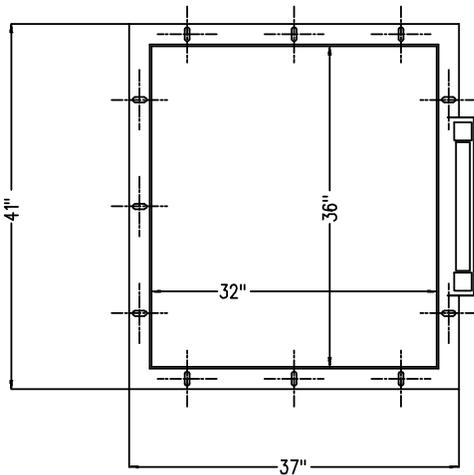
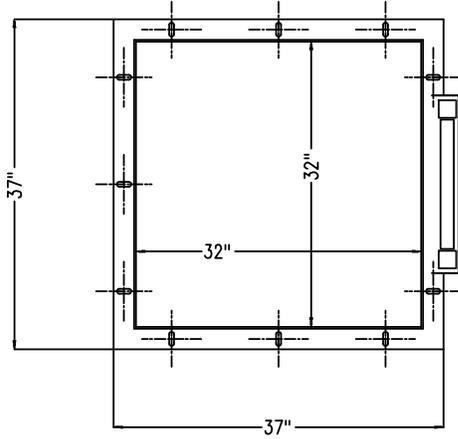
We need a part number and a delivery address to quote price and availability.

Please e-mail them to sales@AmericanSafeRoom.com, FAX them to 503-212-6695, or mail them to:

American Safe Room
868 Murdock Drive
Oakland, OR 97462

Sizes

The flat hatch comes in three sizes: 32 x 32 inches, 32 x 36 inches, and 32 x 38 inches. These are the free opening dimensions. The rough opening in the shelter ceiling should match these sizes. The flange dimensions are also shown below.



Note

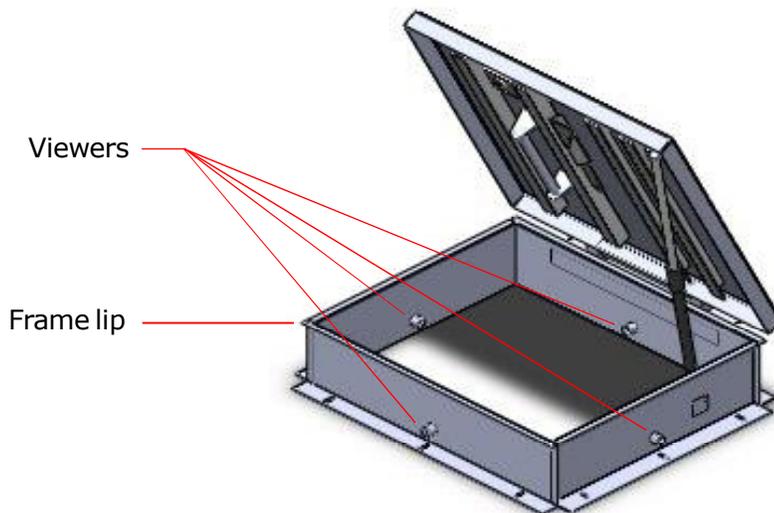
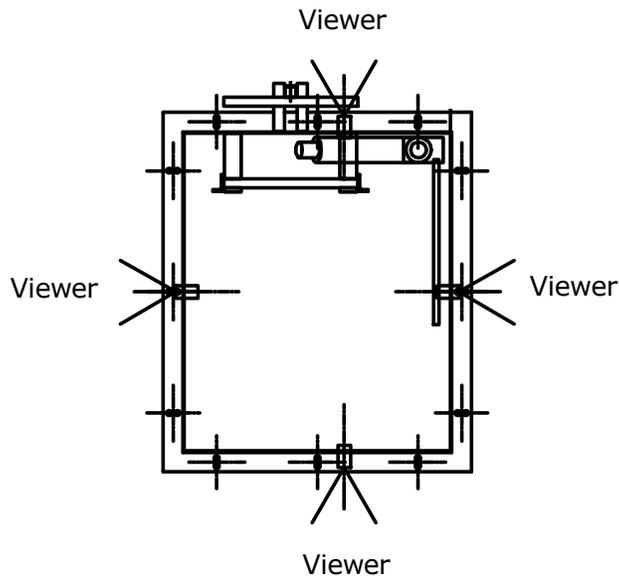
This drawing shows the common height for all hatch sizes except the hatches that have the optional viewers. They will have a frame lip height of 8 inches, not 6³/₄ inches shown above. The height of the deadbolt cover increases by 2 inches as well.

Optional viewers

This option will give you four wide angle optical viewers — one mounted on each side of the hatch. They are located 6 inches from the bottom of the frame lip, centered on the front and back walls, and slightly offset on the side walls. These “fish eye” viewers feature optical glass lenses and are UL listed for use on fire doors rated up to 1½ hours.

Note: the frame lip height of the hatch with the viewer option is 8 inches - two inches higher than normal. This allows room for head clearance when looking out a viewer. This will increase the total height by 2 inches as well.

In box 3 on page 5, enter “Y” if you want viewers and “N” if you do not.



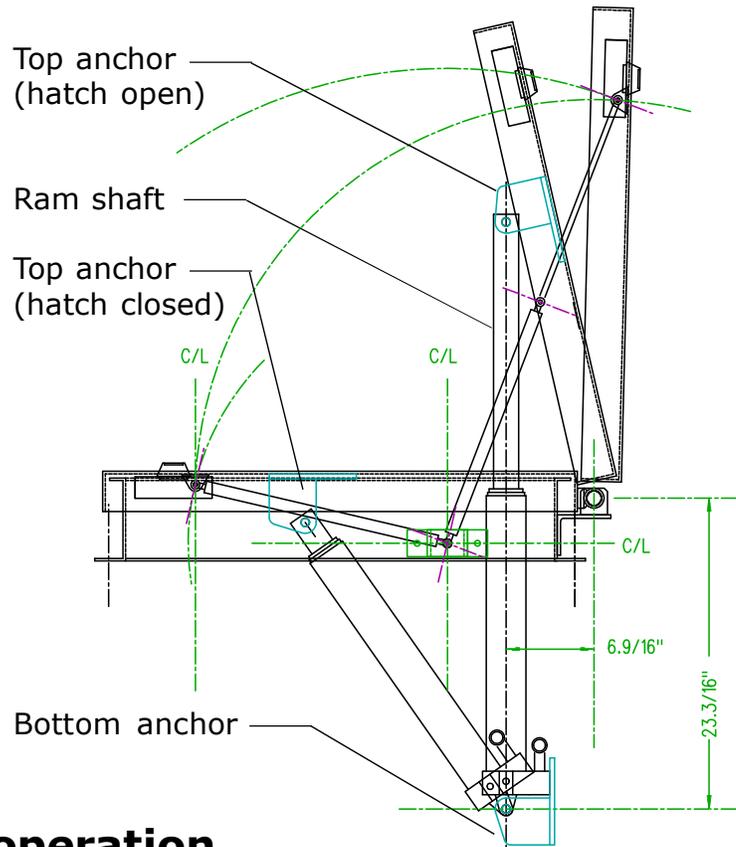
Optional emergency escape jack

The optional emergency escape jack will allow you to manually open the hatch lid if something heavy is dropped onto the top of your hatch.

When not in use, the pin is removed from the top anchor and the jack is rotated down out of the way.

The bottom anchor needs to be mounted on a wall or some other structure capable of holding three tons. It is a five inch square plate with four holes for the included concrete wedge anchors. The location where this plate needs to be mounted is shown in the drawing using the center of the hinge pin as the datum.

If you want this option, enter "Y" in box 4 on page 5, and "N" if you do not.



Emergency escape jack operation

1. Using the jack handle, close the bleed valve at base of jack
2. Remove the clevis pin from ram shaft eye
3. Place the ram shaft into upper anchor alignment by pumping the jack handle a few times
4. Replace the clevis pin through the top anchor and the ram shaft eye
5. Operate the handle to jack the hatch open

Caution

The rating of the jack is three tons under optimal conditions, but the load location on the top of the hatch lid may reduce this rating. Also - three tons of pressure will deform the top lid. This jack is to be used only in an emergency as the top lid may be damaged.

Please note

The top anchor hole location is designed to be at a distance of 1.1/2" higher than the hole in the ram shaft. This is a safety precaution in order to help insure proper clevis pin placement in cases where the top lid may be potentially distorted due to heavy falling debris. Distortion may occur during jacking in cases where extremely heavy debris has come to rest on the hatch lid.

Installation: mounting the riser on a concrete shelter

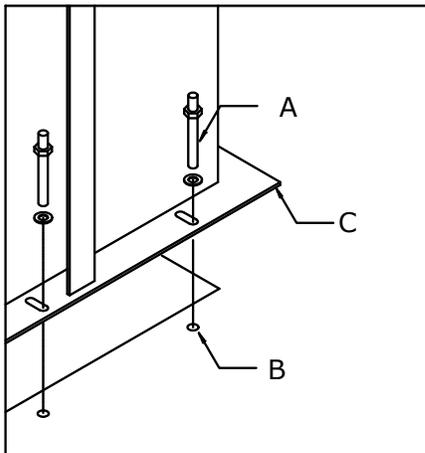


Figure 16

- A. 12 each concrete wedge anchor studs - 1/2" x 6" length
- B. 12 each 1/2" drilled hole with included masonry drill bit
- C. Riser mounting flange

Note:

The gas spring (lift strut) on this hatch causes a little bit of twist in the unit when it is unanchored. The twist is enough to misalign the lock bolt and hole.

Therefore, it is important that this hatch is installed with the gas spring removed.

Once the hatch is installed the gas spring can be reinstalled with out it causing any significant twist.

This hatch is supplied with concrete wedge anchors and a properly sized masonry drill bit to install them.

1. Using the center of the slots in the riser base flange as a template, locate (mark) the hole locations for the anchors.
2. Remove the hatch and drill the holes for the stud anchors. See page 9 for hole depth and complete wedge anchor installation instructions.
3. Clean all of the dust and debris out the holes. Tap the anchors into place with a hammer.
4. Apply a liberal coat of weather resistant silicone sealant on the bottom of the base flange.
5. Remove the lift strut and replace the riser assembly squarely over the opening and insert the stud anchor assemblies through the riser bottom flange into the drilled hole in the concrete.
6. Tighten all anchor stud nuts to (60 ft-lbs) in a cross pattern.
7. Apply a bead of the same sealant on the outside lip of the base flange and inside the base between the steel and concrete.
8. Replace the lift strut.

Installation: mounting the riser on a steel shelter

The hatch can be welded or bolted onto the top of a steel shelter. If welding, a continuous bead on the inside of the frame is recommended. If bolting, use sealant as described above.

If the shelter has a corrugated roof, such as shipping container, additional sealant or spray foam will have to be used to seal it to the shelter.

Installing the concrete wedge anchors

Included with the hatch are Concrete Wedge Anchor "Thunder Stud®" ½-inch diameter by 4.1/4-inch length and the proper masonry drill bit for these fasteners.

Concrete Wedge Anchor -Technical Information

The ThunderStud® wedge anchor consists of two pieces, permanently pre-assembled into a single unit. The carbon steel rod is threaded for a portion of its length. The extreme end of the threaded portion is rounded to protect the threads from damage while the anchor is being driven into the hole drilled in the concrete. The other end of the rod has a necked down diameter, which runs for a short distance, at the end of which it tapers outwardly to the full diameter of the rod. A precision formed universal clip made of carbon steel is permanently assembled around the necked down diameter to complete the anchor. Each package contains the correct number of nuts and washers.

Concrete Wedge Anchor - Approvals:

Listed by Underwriters Laboratories (UL), International Conference of Building Officials (ICBO) carbon steel only, Board of Standards and Appeals (BSA), City of L.A. Meets or exceeds U.S. Government G.S.A. Specifications FF-S-325 Group 11, Type 4, Class

Concrete Wedge Anchor - Applications:

Medium to heavy duty into concrete.

Concrete Wedge Anchor - Installation:

(1) Drill hole into concrete with the included masonry drill bit conforming to ANSI B94, 12-77, the same size as the ThunderStud® wedge anchor. If the fixture being fastened is in place and being used as a template to locate the ThunderStud® anchor, the mounting hole in the fixture should afford clearance for the universal wedge clip on the stud. (2) Clean hole, place the ThunderStud® wedge anchor through the hole in the fixture or directly into the concrete and hammer it in to the drilled hole until the threads are below the surface of the fixture/concrete. (3) Turn the nut by hand until the unit is snugged up. Tighten the nut with a wrench, approximately three or four full turns, to complete the fastening.

Concrete Wedge Anchor - Anchor Length:

Minimum embedment, plus fixture, plus nut and washer. The ThunderStud® wedge anchor requires no maximum hole depth. **The depth of the hole in the concrete should be the length of the wedge anchor minus the thickness of the material being fastened.** This will result in some extra depth to accommodate a minor amount of concrete cutting which may not be able to be cleaned out of hole.