INSTALLATION INSTRUCTIONS FOR SECURITY METAL PRODUCTS OVERSIZED ACOUSTIC STEEL DOOR AND FRAME ASSEMBLIES.

Please read these instructions carefully and completely BEFORE beginning installation.

GENERAL

The installation of oversized acoustic door and frame assemblies differs significantly from that of standard door and frame assemblies. These instructions are specially designed for the successful installation of Security Metal Products oversized acoustic door assemblies and are to be utilized in combination with the approved shop drawings to ensure proper operation, achieve the best field performance and validate product warranty.

Oversized acoustic doors are very heavy. Care should be exercised in the unloading and movement of material at the jobsite to prevent product damage and personal injury. Installation requires multiple crew members and equipment capable of lifting heavy loads. These instructions assume the installation crew has had previous experience in setting frames per ANSI/SDIA250.11 and installing doors per SDI-122-07. Copies of these documents are available free of charge at the SDI website (www.steeldoor.org). If any questions arise during installation please contact our Customer Service Department at (310) 641-6690.

IMPORTANT!! GREAT CARE IS TAKEN AT THE FACTORY TO INCLUDE ALL ACOUSTIC DOORS, FRAMES AND ACCESSORIES AND TO PROTECT THEM DURING SHIPMENT. BEFORE DISTRIBUTING ANY MATERIAL ON THE JOBSITE AND BEGINNING INSTALLATION, UNCRATE AND INSPECT ALL SHIPMENTS. CHECK THE PACKING SLIPS TO CONFIRM RECEIPT OF ALL MATERIALS IN THE SHIPMENT. ANY MISSING OR DAMAGED ITEMS MUST BE REPORTED TO THE MANUFACTURER WITHIN 48 HOURS OF RECEIPT. FAILURE TO REPORT MISSING OR DAMAGED ITEMS IN A TIMELY MANNER MAY RESULT IN ADDITIONAL CHARGES TO OBTAIN REPLACEMENT MATERIAL.

FRAME INSTALLATION

Oversized frames provided by Security Metal Products are designed to be installed as the metal stud, wood stud or masonry wall is erected. Frames designed to be installed in existing walls usually require special conditions which will likely require a review of the approved shop drawings. A review of the architect’s plans and the approved hardware submittal is also recommended to verify proper swing and hardware preparation.
Frames should be immediately checked to ensure they are not damaged. Minor damage, which could occur during shipping, can be easily corrected by an experienced installer.

**Grouting Prior to Setting the Frame**

Heads and jambs should be completely filled to the point at which the metal or wood stud attaches to the anchors provided. Grout should be allowed to set for a minimum of 24 hours prior to frame installation, however, once the grout begins to harden, the installer should trough or otherwise block out the areas behind the backbend to allow insertion of wallboard after installation (it should be noted that drywall insertion is a code requirement for fire rated assemblies). This also will tend to lighten the overall weight of the frame.

**Note:** Frames intended for installation in metal or wood stud walls should be grouted prior to installation.

**Grouting After Setting the Frame**

Frames in new masonry walls will be grout filled as specified by the project documents as the wall and frame are erected. Frames in existing masonry walls should be grout filled after the frame is installed.

Recommended grout fill for frames in wood or metal stud walls is:

- **Gold Bond Gypsolite** manufactured by National Gypsum (www.nationalgypsum.com)
- **Structo-Lite** manufactured by U.S. Gypsum (www.usg.com).

**ALL VOIDS IN THE BACK OF THE FRAME (THROAT) MUST BE GROUTED SOLID IN ORDER TO OBTAIN THE BEST FIELD PERFORMANCE**

**Installation In New Metal/Wood Stud Walls (Fig. 1 and 2)**

Remove the temporary shipping brace at the bottom of the frame and place the frame between the floor tracks. Using vertical wood braces to maintain alignment and horizontal wood spreaders at the top, middle and bottom of the frame to maintain square, level the head (shimming the bottom of the jambs may be necessary) and set the frame according to ANSI/SDI A250.11.

The rough opening should employ structural steel channels or tubes capable of supporting a load of 20 lbs/sq.ft. and should extend from the floor to the building structure above. Metal studs, when used in conjunction with structural steel, should be 16 Ga. minimum and the wall construction should extend above the ceiling and to the structure above to prevent flanking.

After confirming the head is level and the jambs are plumb and square to the head of the jamb, anchor to the wall construction and floor using the wall and floor anchors provided. Use more anchor screws than for normal installations as these frames must support **very heavy doors**. Check to be sure the frame is fully connected and is plumb and square before installing the wallboard.
Provided the frame has been grouted prior to installation, the temporary wood braces and spreaders can be removed.

After the preceding steps have been completed, the frame should be fully caulked around the perimeter at both sides where it meets the wall and at the floor.

**IF THE FRAME HAS NOT BEEN GROUTED PRIOR TO INSTALLATION, THE TEMPORARY WOOD BRACES AND SPREADERS SHOULD REMAIN IN-PLACE UNTIL THE FRAME HAS BEEN GROUTED AND THE GROUT HAS CURSED.**

![Figure 1](image1.png) ![Figure 2](image2.png)

**Installation In New Masonry Walls (Fig. 3)**

Remove the temporary shipping brace at the bottom of the frame and place the frame in the rough opening between the masonry starter course. Using vertical wood braces to maintain alignment and horizontal wood spreaders at the top, middle and bottom of the frame to maintain proper width, level the head (shimming the bottom of the jambs may be necessary) and set the frame according to ANSI/SDI A250.11.

After you have confirmed the head is level and the jambs are plumb and square to the head of the jamb, then anchor to floor using the floor anchors provided. As the masonry is laid-up, periodically check to ensure the frame remains plumb and square to the head of the jamb. Install the masonry anchors provided at each masonry course to provide multiple anchoring points as these frames must support very heavy doors. Grouting of the frame should take place as the masonry is laid-up. The wall construction should extend above the ceiling and to the structure above to prevent flanking.

Employ structural steel lintels at the head of the rough opening designed to transfer the weight of the wall construction around the rough opening. Do not use the head of frame as a lintel or structural support. After the masonry is laid-up, check to be sure the frame is fully connected, plumb and square.

After the preceding steps have been completed, the frame should be fully caulked around the perimeter at both sides where it meets the wall and at the floor.
THE TEMPORARY WOOD BRACES AND SPREADERS MUST REMAIN IN PLACE UNTIL THE FRAME HAS BEEN GROUTED AND THE GROUT HAS CURED.

![Figure 3](image)

DOOR INSTALLATION

Installation of oversized acoustic doors may require hydraulic and other equipment to lift and stabilize the doors while they are being installed. The means and methods used to lift and stabilize the doors are the responsibility of the installation contractor. The hinges provided are cam-lift straps (Fig. 4) and will be either 18” or 24” in length, determined by door width.

![Figure 4](image)

The bottom of the door is mortised for the L-Frame door bottom seal and SHOULD NOT be installed prior to lifting of the doors into the opening. Install temporary wood blocking into the mortise to protect the bottom of the door during this step.

The accessories shipped with the doors include special slotted stop plates (Fig. 5) to be used as a combination temporary stop and 1/8” thick shim. These plates should be located at several locations on
the frame head and jambs through the slotted holes and into the rivet nuts provided using 1/4-20 bolts furnished for the perimeter seal retainers. The stop plates should be adjusted to provide 1-3/4” from the push side of the door to the face of the frame and 1/8” around the perimeter of the door.

The door should then be placed into the opening resting against the plates. At this point fasten the top hinge to the predrilled jamb face using the 1/2-13 hex head machine bolts provided and then close the strap hinge over the door and mark it for the mounting bolt locations. Using a 17/32” diameter bit, drill the required number of holes thru the door to accommodate the 1/2-13 carriage bolts, nuts and washers provided and secure the strap hinge to the door. Do not fully tighten at this time. Mount the bottom hinge assembly and then the additional hinge assemblies in the same manner. Once all the hinges are in place, close the door to verify proper fit. Adjust as necessary, fully tighten the hinges and then remove the stop plates.

**Once the door is hung and the hinges are lubricated, Swing the door back and forth several times to ensure the hinge lubricant is evenly distributed.**
THRESHOLD INSTALLATION

Thresholds are included with the acoustic door accessories to provide a smooth, flat surface to engage the adjustable L-door bottom seal. The sill condition at the bottom of the installed frame must be flat, level and in the same plane as the bottom of the frame. Failure to inspect and correct the sill condition prior to installation of the threshold will impact field performance.

Installation of Threshold

After the sill condition has been prepared, the threshold must be fully packed with grout, leveled, and installed using the anchors provided. The threshold must project past the pull face of the door by a minimum of 1-1/2”. Using a hammer drill, drill the appropriate size and number of anchor holes to accommodate the anchors provided. Place the threshold in the opening making sure it is packed solid with grout to fill any voids under the threshold and secure with the anchors provided.

Thresholds must run full width of opening from jamb to jamb. **THRESHOLDS SHOULD NEVER BE NOTCHED AROUND THE PERIMETER SEALS.** After the thresholds have been correctly installed, use acoustic caulk to seal all joints between the threshold, the sill and the frame.

INSTALL THE THRESHOLD ONLY AFTER THE DOOR INSTALLTION IS COMPLETE. INSTALLTION OF THE THRESHOLD PRIOR TO DOOR INSTALLTION WILL INTERFERE WITH INSTALLTION OF THE DOOR.

DO NOT INSTALL THE THRESHOLD UNTIL THE SILL CONDITION IS FLAT, LEVEL AND IN THE SAME PLANE AS THE BOTTOM OF THE FRAME. FAILURE TO OBSERVE THIS WARNING WILL ALLOW SOUND TO LEAK THROUGH AT THE DOOR BOTTOM, RESULTING IN POOR FIELD PERFORMANCE.

PERIMETER SEAL INSTALLATION

The perimeter seal assemblies consist of a 1-piece neoprene perimeter seal, a 3-piece perimeter seal retainer and a 3-piece retainer cover (See Fig. 1,2,3). The jamb seals, jamb retainers and jamb retainer covers are shipped slightly longer than necessary and must be hand-fitted in the field to obtain the best field performance. The neoprene perimeter seals are shipped in bags to protect them. This sometimes causes kinks in the seals. It is necessary to remove the seals from their bags and lay them out so they can acclimate and return to their neutral position prior to installing them. **It is recommended the perimeter seal assemblies be installed after all significant construction activity has been completed.**

Installation of Perimeter Seal Assemblies

Measure from the top of the threshold to the head of the door jamb and cut the jamb perimeter seal retainers 1/8” shorter. After the jamb retainers have been fitted, install the head retainers. Loosely attach the jamb retainers and then the head retainers through the slotted holes with the 1/4-20 hex head machine bolts provided. Do not tighten any bolts at this time. After the jamb and head retainer bolts are installed, slide the retainers to a point farthest away from the door. Install the 1-piece neoprene perimeter seals into the retainers beginning at the top, working toward the bottom of each jamb. The jamb seals are shipped slightly longer than necessary and must be hand-fitted to length. Be
careful not to stretch the perimeter seals when cutting to length. Stretching the perimeter seals will result in seals that are too short after they return to their neutral position. The seals are properly fit when they engage the threshold snugly without causing the rest of the jamb seal to buckle in the retainer. Note that the small V-shaped leg of the seal must be toward the door.

**NOTE:** Before moving to the next step, install the required latching device(s) on the door. The oversize doors are factory mortised and/or reinforced for the hardware outlined in the approved hardware schedule. Refer to the approved hardware schedule and latching device manufacturers’ installation instructions to complete this step.

### Adjustment of Perimeter Seal Assemblies

Close and latch the door and then push the seal and retainer assembly tight to the door and hand-tighten the 1/4-20 hex head machine bolts around the perimeter of the opening. Do not over tighten the bolts at this point. The bolts should be tight enough to hold the retainer in place after it is adjusted forward. Using a block of wood, tap the retainer assembly with a hammer until the seal makes complete contact with the entire length and width of the door. During the adjustment process, use a very thin credit card or business card between the seal and the face of the door to check seal tension. The card should fit snugly along the entire perimeter and not fall out.

Periodically open and close the door during seal adjustment to ensure the door operates properly. Do not force the seal against the door as this will cause it to bind. Darken the room on the push side of the door. Using a flashlight on the pull side of the door, check the seal assembly for light penetration. This will require a person on each side of the door. Once optimum adjustment is obtained, tighten the retainer bolts to prevent the seal assembly from moving.

After the perimeter seal assemblies are adjusted properly, fill the channel in the retainer above the 1/4-20 hex-head machine screws with high-density mineral wool and apply a continuous bead of acoustic caulk between the frame and the retainer cover mounting flange. Install the perimeter seal retainer cover with the 6-32 self-tapping sheet metal screws provided.

### DOOR BOTTOM INSTALLATION

The L-Frame door bottom assembly (Fig. 6) is shipped from the factory with the door bottom seal installed. Care must be taken to protect the seal from damage both during installation and after. Ensure the threshold is level, filled and sealed prior to performing this work. **It is recommended the L-Frame door bottom assembly be installed after all significant construction activity has been completed.**

**Installing the L-Frame Door Bottom**

Install the L-Frame door bottom using the 1/4-20 hex head machine bolts provided. Do not over tighten the bolts at this point. The bolts should be tight enough to hold the door bottom assembly in place after it is adjusted forward.

**Adjusting the L-Frame Door Bottom**
Adjust the L-Frame door bottom by closing the door and then adjusting it downward to engage the top of the threshold in a manner similar to the perimeter seal assemblies. Once the L-Frame door bottom assembly has been adjusted, tighten all the bolts to secure it in place.

**FIGURE 6**

**PULL SIDE OF DOOR**

1 1/2" minimum

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**SPECIAL CONDITIONS FOR PAIRED ASSEMBLIES**

Paired oversize door assemblies are provided with astragal assemblies to seal the gap between the door leaves. Proper installation and adjustment of the astragal assemblies is necessary to achieve maximum field performance. The following information outlines the two typical swing configurations found in most installations. If there are questions regarding a custom configuration, please contact our Customer Service Department at (310) 641-6690.

**Active Leaf x Inactive Leaf Equipped with a Lock and Surface Bolts**

This type of configuration is secured with a mortise or cylindrical lock and surface bolts (provided by others) and requires a double astragal assembly to seal the gap between the door leaves. Flush bolts can be used to secure the inactive door at the top however, it should be noted surface bolts must be used to secure the inactive leaf at the bottom due to the L-Frame door bottom.

The double astragal assembly is comprised of two different sub assemblies, one for the active leaf [astragal A] and another for the inactive leaf [astragal B]. Note the configuration of each astragal seal assembly (Fig 7). Each sub assembly has an astragal seal, an astragal seal retainer, and a retainer cover. Astragal A is mounted to the pull side face of the active leaf. Astragal B is mounted to the push side face of the inactive leaf. Both astragal assemblies are mounted using the self-tapping hex-head machine screws provided. Each astragal assembly can then be adjusted side to side as necessary for optimum performance.

Install each astragal seal in the astragal seal retainer as you prepare to mount the astragal assemblies to each door. Each astragal seal retainer must be mounted in such a way that the astragal seals will cover the gap between the doors. After each astragal seal/retainer is mounted to the correct leaf, you will note a protruding nipple on the astragal seal for the active leaf [astragal A] and a V-shape on the astragal seal for the inactive leaf [astragal B]. This V is intended to fit into the gap between the doors on the push side.
After installing and adjusting each astragal seal assembly, fill the channel in the retainer above the self-tapping hex-head machine screws with high density mineral wool and apply a continuous bead of acoustic caulk between the face of the door and the retainer cover mounting flange. Install the astragal seal retainer cover with the # 6-32 self-tapping sheet metal screws provided.

Both Leaves Active Equipped with Cremone Bolts

This type of configuration allows both leaves to be active. Each leaf is secured with a surface-applied cremone bolt assembly (provided by others). A special double bubble type astragal is used to seal the gap between the doors at both the pull side and the push side. When installed and adjusted correctly, the astragals act to create a sound lock. Note the configuration of each astragal (Fig. 8).

HARDWARE MOUNTED TO THE STOP OF THE FRAME

Some types of finish hardware are designed to be mounted to a frame with an integral stop. Some examples of these are closer arms, rim strikes, and strikes for surface vertical rod latching devices. Since oversize acoustical doors have an adjustable perimeter seals assembly in lieu of an integral stop, it is important to note NO FINISH HARDWARE CAN BE MOUNTED TO THE PERIEMTER SEAL ASSEMBLY. Mounting hardware to the perimeter seal assembly will compromise the integrity of the perimeter seal assembly and interfere with its adjustable design.
Installing the Hardware Mounting Brackets

When required, 10 gage hardware mounting brackets are included with the acoustic accessories shipped from the factory. These are mounted to the frame as shown (Fig. 9A, 9B) to provide a surface for mounting the hardware. The hardware installer is responsible for locating, drilling and tapping the mounting holes for the 1/4-20 flat head machine screws as well as any fasteners used to mount the hardware itself. Refer to the hardware manufacturer’s template for specific information to drill and tap the hardware mounting brackets for the hardware.

FIGURE 9A (Std "Z" Bracket)

FIGURE 9B (Spl "L" Bracket)

TIMING OF CONSTRUCTION ACTIVITIES

IMPORTANT: CARE SHOULD BE TAKEN TO PLAN CONSTRUCTION ACTIVITIES SO THE DOORS AND ACCESSORIES ARE INSTALLED AND ADJUSTED AFTER SIGNIFICANT CONSTRUCTION ACTIVITIES ARE COMPLETE AND JUST PRIOR TO ACCEPTANCE OF THE BUILDING BY THE OWNER. CONSTRUCTION ACTIVITIES TAKING PLACE AFTER THE SOUND DOORS AND ACCESSORIES ARE INSTALLED WILL EXPOSE THE DOORS AND ACCESSORIES TO POTENTIAL DAMAGE.

If there are questions regarding a custom configuration not referenced here, please contact our Customer Service Department at (310) 641-6690.