



**Installation Instructions  
For  
1-3/4” Acoustical Wood Door Units**

**Double Bubble Seals  
And  
Raised Threshold Bottom Seal**

**INS-23**

## General Information

The proper performance of most manufactured building products depends not only on how they are made, but how they are installed. This is particularly true of **Acoustical Wood Door** units. Anyone acquainted with building construction knows that the proper installation of the frames and doors is an operation that requires great skill and care. Even the best designed and most carefully made frames and doors, if improperly installed, will not function or perform to their intended maximum effectiveness. Additionally, **Acoustical Wood Door** openings require careful adjustment of the perimeter sealing systems in order to obtain the desired level of acoustical performance.

Overly is concerned that our product is properly handled and protected after delivery, and that the necessary care and skills are exercised in the setting of our frames and hanging of our doors. It is important to all concerned, therefore, that attention be given to the essential requirements of good practice in field installation work. Use of these installation instructions in combination with the approved shop drawings and your attention to good workmanship will provide the proper installation and operation of Overly Acoustical Wood Doors and companion Frames.

## Delivery and Receiving of Materials

**Acoustical Wood Doors and companion Frames** are fabricated in accordance with shop drawings that have been approved by the architect or design engineer. Preparations for hardware and/or other items to be supplied by others are provided in accordance with the information provided to Overly by the hardware supplier or by those other suppliers or trades with whom the work is being coordinated.

Should any material be damaged in shipment, claims should immediately be filed by the receiving party, who should notify the delivering carrier's regional office by telephone or in writing, requesting inspection of the damaged material. If desired, Overly Door Company will cooperate by furnishing copies of shipping papers or other pertinent information to help expedite the claim. Accepted materials become the customers responsibility to protect and store accordingly.

If a claim is to be made for any error or deficiency in the materials supplied, it is imperative that Overly be notified in writing before initiating any corrective action in the field. Overly has its own field representatives who are qualified not only to do expert repair work but to determine whether the fault lies with the manufacturer or with some other party.

## Handling of Wood Doors

Handle wood doors with clean canvas gloves. Bare hands can leave finger marks and oil stains on unfinished doors. When moving doors, carry them. **DO NOT DRAG!** If dragging is absolutely necessary, do so on the bottom end and protect it with scuff strips or skid shoes. **NEVER DRAG ONE DOOR ACROSS ANOTHER!**

## Inspecting Acoustical Wood Doors

All doors must be inspected thoroughly by the installer before installation. Overly does not warrant doors installed with a defect that was obvious prior to installation. The following is a list of maximum allowable tolerances for Overly Acoustical Wood Doors:

- **Size Tolerance:** +/- 1/16" in thickness, +/- 1/16" in length and width.
- **Squareness Tolerance:** diagonal measurement difference will not exceed 1/8".
- **Factory Hardware Preparation Tolerance:** +/- 1/32" will be allowed for all hinge and lock front preparations.
- **Warp:** Warp is a defect only when it exceeds 1/4" of the door plane. Warp is a distortion in the door itself and does not refer to the relationship of the door to the frame or jamb in which it is hung. The term Warp shall include bow, cup and twist. Warp is measured by placing a straightedge on the concave face and determining the maximum distance from the straightedge to the door face. For doors 1-3/4" or thicker, warp will not exceed 1/4" in doors 3'6" x 7'0" or smaller, nor will it exceed 1/4" in any 3'6" x 7'0" section of larger doors.

**Note:** Action on any claim for warp defects may be deferred, at the option of Overly, for a period not to exceed one (1) year from date of claim to permit conditioning of the doors to temperature and/or humidity.

## On-Site Storage

Improper storage of **Acoustical Doors and Frames** at the construction site often results in unnecessary damage to the products, prior to installation. This damage includes such items as the deterioration of the shop primer coat of paint, warping of doors, watermarking, etc. Please refer to the following sections on proper storage of the wood doors and metal frames:

**Frames:** Particular attention must be given to steel products which are to be stored having only one coat of shop primer if corrosion is to be avoided. Because the protective shop primer must be porous to properly receive and hold top coats, water or moisture in contact with prime coated steel will seep through to the steel by capillary action. An electrolytic action then follows, resulting in corrosion and causing the paint to lose adhesion. The presence of oxygen at the water-air interface behind the loosened paint film accelerates corrosive action and further prime coat deterioration.

Manufacturers of metal frames have found that one week of exposure to water because of improper storage is equivalent to at least a year of outdoor exposure to the elements.

It is imperative that those parties who are responsible for the storage of primed metal work at the job-site be carefully instructed as to proper storage procedures. All ferrous metal products should be stored where they are least likely to be exposed to contact with water.

The following steps should always be observed when storing **Frames** at the job-site:

- A. Store all materials in a dry area under cover.
- B. Place all material on planking or blocking at least 4" off of the ground, 2" off of slab or paved area.
- C. Do not stack material flat. Store with frames in an upright position.
- D. Provide, by means of wood or styrofoam strips, a space of at least 1/4" between all units, to allow air to circulate between them.
- E. Do not permit cardboard or paper to become wet and come in contact with the frames. If this should occur, remove them immediately.

**Acoustical Wood Doors:** Stack doors flat on carefully leveled supports. It is recommended that a support of (3) 2" x 4" boards are placed the full width of the doors, one across the center and two 12" from each end, covered with a sheet of plywood or heavy cardboard to protect the face of the bottom door. The top door should be covered in a similar manner.

**Note:** Protect all door faces from exposure to light with dark-colored polyethylene or similar material to avoid oxidation.

Do not store doors in damp areas or in freshly plastered buildings. Storage space should be dry and well ventilated. If the doors are to be stored more than a few days, all edges should be sealed.

**Note:** Doors should not be subjected to low or high humidity. Humidity over 55% or under 25% may cause permanent damage and will void the warranty.

## Field Finishing

**Note: The Overly Warranty does not cover the appearance of field finished doors.**

Although all Overly doors are thoroughly sanded at the factory, additional sanding must be completed before field finishing. Grain rise and handling marks that occur after factory sanding must be removed prior to final field finishing.

Immediately after fitting doors, sand thoroughly with a hand block and/or pad sander using a good grade of 150 to 180 grit sandpaper, then proceed with finishing operations. It is recommended that the sanding be done while the doors are in a horizontal position.

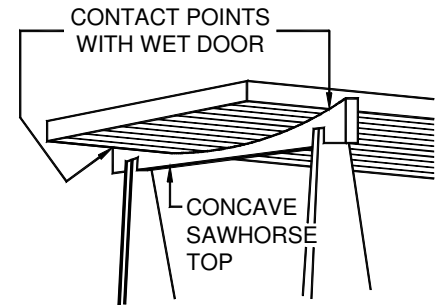
If applying a dark stain to a light wood, thoroughly initial sanding is even more important to prevent blotchiness and to reduce the appearance of a “barber pole” effect. **Do not use steel wool to finish oak doors.**

Fillers and wiping stains are most successfully applied when the door is in the horizontal position. This permits easier handling of the materials, and prevents the solvents from evaporating too rapidly. Rapid solvent evaporation can cause fillers to streak. It can also cause the wiping stains to “set-up” before cleanup can be completed. If the door is in a horizontal position, premature drying is slowed down, since the heavier-than-air solvent vapors tend to remain on the surface. To stain/fill larger, flat areas quickly and with less danger of streaks, working teams of two is recommended.

To stain both sides of a door without effecting the surface, use specially designed sawhorses as shown in figure at right.

Good quality finishing materials used according to the directions provided, will produce the best, most durable results. Remember to finish all exposed edges of the door (top and bottom edges are often forgotten). Also, all bottom rail mortises must be sealed prior to hardware installation.

Door orders generally specify only species, grade and cut of veneer. They are not manufactured from flitches similar in color and grain. If differences are apparent, any variations that exist prior to finishing doors with a natural color will still show after finishing.



## Staining Precaution, Blue Stain in Oak Doors

Blue stain in Oak doors is the result of the natural tanning acid in the wood coming in contact with iron and moisture. Overly premium Oak doors are washed at the factory to remove blue stain. Exposure to certain conditions before or during the finishing process can result in reappearance of the discoloration. Normal care and handling, as described earlier in these instructions, should not result in blue stain.

Blue stain can be prevented by not using steel wool on the bare wood. Fine particles of the wool will cling to the wood, eventually causing problems. Also, if shellac (a solvent for iron) is used, be sure it is not stored in iron containers. If blue stain does appear, we recommend using a solution of Ply Brite or oxalic acid. Follow all directions carefully.

**Note:** Failure to rinse the treated area adequately with clean water may have a damaging effect on finish applied after treatment and could cause damage to nearby glass, porcelain or other surfaces in confined areas.

## Uncrating Instructions

Depending on the size of your particular order and the manner in which items required for the door installation were ordered, the crate which you have received may contain one, two or several acoustical doors. The quantity and type of items provided by Overly can be found on the packing list located on the outside of the crate. Many times, other items such as glass, hardware, etc., that are required for a complete opening, is provided by an outside source and should be coordinated with the Overly door and framing system. As you uncrate, review the packing list and locate the following items for a complete installation:

- A. Frame** - identification information on the frame can be found on a small white tag located on one of the frame hinge reinforcements. This information includes Overly order number, unit mark number and swing. If a UL Fire Label is provided, it can be found attached to the hinge jamb rabbet, below the top hinge cutout.
- B. Door(s)** - identification information for door opening mark numbers are contained in the bar code information located on the top rail of the door. If a UL Fire Label is provided, it can be located on the hinge edge of the door, below the top hinge cutout.
- C. Frame Gasketing System** - two (2) packages of the Overly “double bubble seal system is required for this model number. These gaskets are a dark bronze colored, adhesive backed pressure sensitive dual gasketing system. If pairs of doors are supplied, a surface mounted astragal for the inactive leaf with associated fasteners are packaged together and labeled with mark number information. Check shop drawings and packing lists for type of astragal and fasteners supplied.
- D. Threshold** - this particular model door requires the use of a gasketed extruded aluminum threshold to provide sealing along the bottom of the door. Anchors have been supplied with the threshold. Refer to approved shop drawings and packing lists to verify type supplied. Both the threshold and anchors have been shipped loose.

**E. Anchors** – Frame anchors have been provided. Check packing list and shop drawings as to type required and supplied.

Miscellaneous items such as flat thresholds, level swing hinges, locksets, flushbolt, glass, etc., may or may not have been provided by Overly. Be sure to check packing list and shop drawings for further details.

## Frame Installation Procedure

**Note:** Prior to installation of the frame, it is recommended that the installer obtain copies of architect's plans and approved hardware schedule prior to being installed.

The frame assembly provided consists of a 4-sided welded unit that was factory inspected prior to shipment to assure that they are square and that no jamb twists have occurred during their fabrication. To minimize misalignment or other damage during shipment, the frames are packed and loaded onto the carrier by personnel experienced in frame packaging. However, in spite of these precautions, the frames can and sometimes do arrive at the jobsite with minor deviations. Should this occur, most out-of-square and misalignment problems can be readily corrected during installation.

Frame anchorage systems are custom designed to accommodate individual project opening requirements to suit specified wall conditions. Therefore, it is necessary to refer to the approved shop drawings for each individual frame for the method of anchorage. The four general types of anchorage covered by these instructions include:

1. Built-in masonry
2. Built-in drywall with wood or channel studs
3. Bolt-in masonry
4. Bolt-in drywall with wood or channel studs

At this time, review the shop drawings for the openings and proceed to the type of installation required. Regardless of the anchorage system required, the installation guidelines must be adhered to. At anytime during the installation of the product, if questions arise, call **Overly at 724-834-7300**.

### 1. Built-in Masonry Partition

- A. Remove temporary steel spreader from bottom of frame.
- B. Use some type of triangular support and bracing device that will securely hold the frame in the exact location and alignment required for proper installation. Usually such bracing is made of wood. However, metal "jacks" or supporters designed specifically for this purpose are commercially available, and their use is recommended.
- C. Cut 3/4" thick temporary wood spreaders to accurate jamb dimensions and locate at 1/3 points of the frame and at the sill.
- D. Check that the frame is square and aligned by measuring the diagonal dimensions and "cross string" the frame to insure that the jambs are properly set. (See Figure 1).
- E. While protecting the frame from accidental abuse, build walls to the frame utilizing the strap anchors attached to the frame, making sure that proper frame alignment is maintained.

**Note:** As the walls are being built, the frame must be grouted full to ensure maximum acoustical performance. Extreme caution must be exercised while performing this operation to make sure the head does not sag nor the jambs or sill be allowed to bow.

- F. After the frame is permanently built into the wall, with all strap anchors installed and cement and/or grout set, remove the wood spreaders.
- G. Caulk frame continuously around perimeter of frame on both sides at frame/wall interface.

Now Proceed to "**Installation of Door(s)**" section.

### 2. Built-in Drywall Partition

- A. Remove temporary steel spreader from bottom of frame.

- B. Use some type of triangular support and bracing device that will securely hold the frame in the exact location and alignment required for proper installation. Usually such bracing is made of wood. However, metal "jacks" or supporters designed specifically for this purpose are commercially available, and their use is recommended.

**Note:** At this point, the frame must be packed full with 6 to 12 PCF density mineral wool in the form of blanket or board type, to ensure the maximum acoustical performance of the opening.

- C. Cut 3/4" thick temporary wood spreaders to accurate jamb dimensions and locate at 1/3 points of the frame and at the sill.
- D. Check that the frame is square and aligned by measuring the diagonal dimensions and "cross string" the frame to insure that the jambs are properly set. (See Figure 1).
- E. While protecting the frame from accidental abuse, build walls to the frame utilizing the "Z" anchors attached to the frame, making sure that proper frame alignment is maintained.
- F. After the frame is permanently built into the wall, with all anchors installed, remove the wood spreaders.
- G. Caulk frame continuously around perimeter of frame on both sides at frame/wall interface.

Now Proceed to "**Installation of Door(s)**" section.

### 3. Bolt-in Masonry Partition

**Note:** Masonry openings that are to receive preassembled welded frames must be accurately constructed. They should be 1/2" wider than the overall frame width dimension and 1/4" higher than the overall frame height, to provide a clearance on all sides of 1/4" to allow for shimming during installation. Overly recommends the use of metal shims when shimming is required due to the weights of acoustical doors.

**Note:** At this point, check the approved shop drawings or architects plans to see if the frame is to be grouted full or packed with mineral wool. If the frame is to be grouted full, proceed to **Step A**. If the frame must be packed full, pack all frame cavities full at this time using 6 to 12 PCF density mineral wool in the form of blanket or board type, to ensure the maximum acoustical performance of the opening.

- A. Remove temporary steel spreader from bottom of frame.
- B. Insert frame into prepared opening and shim frame as required to maintain the tolerances shown in Figure 1 and securely anchor the frame to the wall using the anchor bolts of type and dimensions specified on the approved shop drawings. If the frame is UL labeled, UL approved anchors were provided with the shipment for installation, otherwise, anchors may or may not have been provided.
- C. Check that the frame is square and aligned by measuring the diagonal dimensions and "cross string" the frame to insure that the jambs are properly set. (See Figure 1).

**Note:** If the frame is to be grouted in place, grout at this time with Gold Bond Gypsolite Plaster by National Gypsum or Structo-Lite by US Gypsum or equal. Extreme caution must be exercised while performing this operation to make sure the head does not sag nor the jambs bow. Support frame head and jambs with adequate bracing, removing only after grout has had sufficient time to cure.

- D. Caulk frame continuously around perimeter of frame on both sides at frame/wall interface.

Now Proceed to "**Installation of Door(s)**" section.

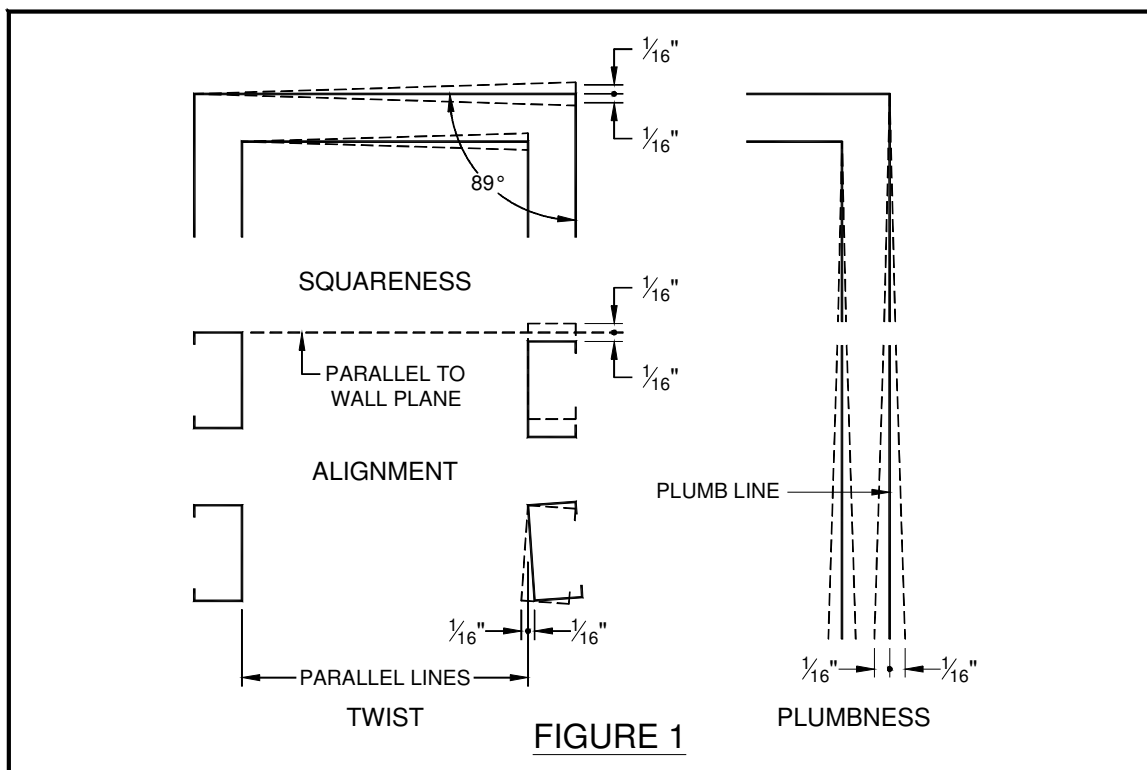
## 4. Bolt-in Drywall Partition

**Note:** Drywall openings that are to receive preassembled welded frames must be accurately constructed. They should be 1/2" wider than the overall frame width dimension and 1/4" higher than the overall frame height above the finished floor, to provide a clearance on all sides of 1/4" to allow for shimming during installation. Overly recommends the use of metal shims when shimming is required due to the weights of acoustical units.

**Note:** At this point the frame must be packed full, pack all frame cavities at this time using 6 to 12 PCF density mineral wool in the form of blanket or board type, to ensure the maximum acoustical performance of the opening.

- A. Remove temporary steel spreader from bottom of frame.
- B. Insert frame into prepared opening and shim frame as required to maintain the tolerances shown in Figure 1 and securely anchor the frame to the wall using the anchor bolts of type and dimensions specified on the approved shop drawings. If the frame is UL labeled, Overly's standard UL approved anchors were provided with the shipment for installation, otherwise, anchors may or may not have been provided.
- C. Check that the frame is square and aligned by measuring the diagonal dimensions and "cross string" the frame to insure that the jambs are properly set. (See Figure 1).
- D. Caulk frame continuously around perimeter of frame on both sides at frame/wall interface.

Now Proceed to "**Installation of Door(s)**" section.



## Installation of Door(s)

**Note:** It is the responsibility of the installer to hang all doors and install all hardware. Holes for the mounting of template hardware are drilled and tapped at the factory. This is not true, however, of preparations for surface mounted items. Adequate reinforcements have been provided for the drilling and tapping of holes for mounting such items. This task is the responsibility of the installer.

### Caution

**Do not use screw guns to install hardware screws.**  
**Drill appropriate pilot holes and hand-drive screws in.**  
**Excessive torque will cause screws to strip out of door**  
**base material.**

**Caution:** Avoid getting dirt or construction debris around the opening. Keep the sill area clean. This cleanliness will avoid unnecessary damage to the sealing system and ensure ease of later adjustment.

This model acoustical door utilizes Overly low closure force double bubble type frame seals and a raised threshold. The following sections will describe how to hang the door(s) and apply the perimeter sealing system.

- A. Install hinges to the door(s) as required for the standard level swing hinges required for this particular model, with the #12-24 x 1-1/4" long flat head screws provided already pre-installed in the door hinge cutouts..
- B. Lift door, position into frame and secure the hinges to the pre-drilled hinge reinforcements using the #12-24 flat head machine screws provided with the hinges.

**Caution:** Acoustical wood doors are **much** heavier than conventional wood doors. Have adequate assistance to lift door in position.

**Note:** If inactive leaf requires flush-bolts, install prior to hanging.

- C. If opening is pair of doors, install second door leaf at this time.
- D. Install lockset in door. If the opening is a pair, install strike and surface bolts on inactive leaf.

## Door(s) Clearance Adjustment Procedure

Before proceeding with installation of retainers and sealing system, it is essential that uniform clearances between door(s) and frame are maintained. The door(s) and frame have been sized to provide the following clearances:

For single doors: 1/8" between Door and Frame Head  
1/8" between Door and Frame at Jambs

For pairs of doors: 1/8" between Doors and Frame Head  
1/8" between Doors and Frame at Jambs  
1/8" between Doors at meeting stile

Adjustments can be made by following the steps outlined below:

**Note:** Overly recommends the use of metal shims when shimming is required, due to weights of acoustical doors.

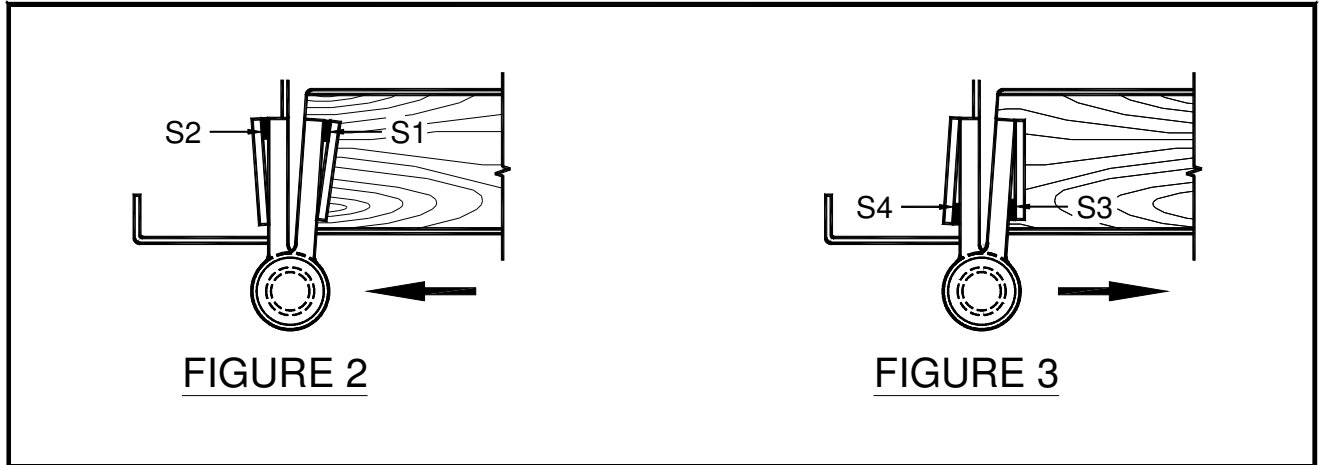
To move the door toward the hinge jamb, see Figure 2 and follow these steps:

- A. If shim **S1** is used, the door will move towards the hinge jamb of the frame. If shim **S2** is used, both the door and the hinge barrel will move towards the frame.
- B. If both shims **S1** and **S2** are used, the door will move further towards the hinge jamb of the frame than by using either **S1** or **S2** alone, and the hinge barrel will be moved to the same position as by using shim **S2** alone.

To move the door away from the hinge jamb, see Figure 3 and follow these steps:



- A. If shim **S3** is used, the door will move towards the strike jamb of the frame (or the center of the opening for pairs). If shim **S4** is used, both the door and the hinge barrel will move towards the strike jamb of the frame (or the center of the opening for pairs).
- B. If both shims **S3** and **S4** are used, the door will move further towards the strike jamb of the frame (or the center of the opening for pairs). than by using either **S3** or **S4** alone, and the hinge barrel will be moved to the same position as by using shim **S4** alone.

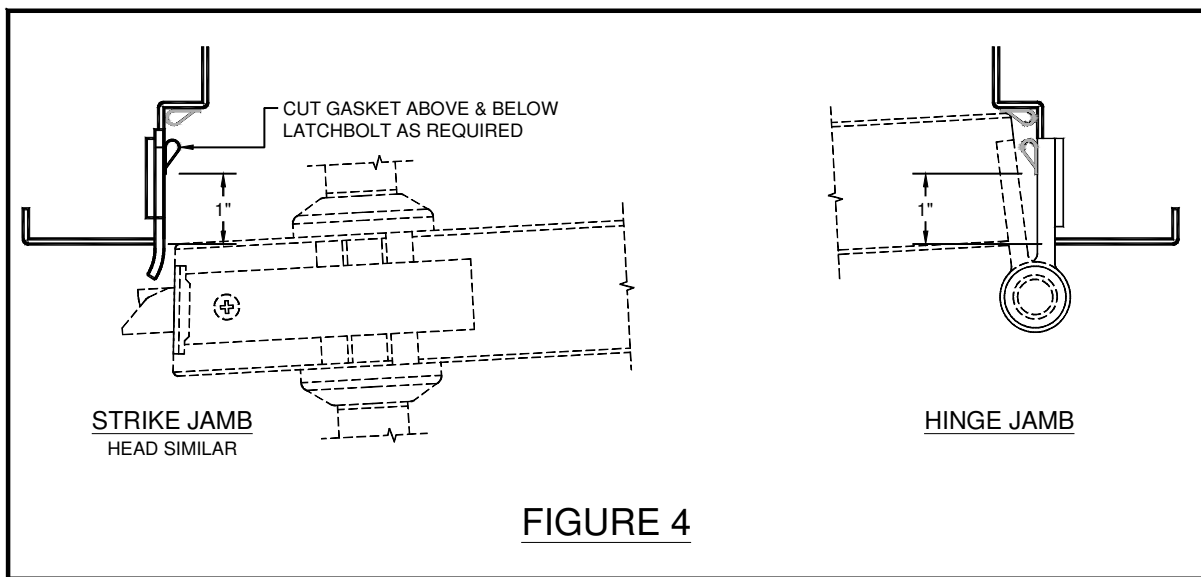


## Double Bubble Gasket Installation

- A. After the frame and door(s) have been finished painted, swing door(s) to full open position. Locate the two packages of bubble seal. Measure the jamb opening width at the head. Cut two pieces of bubble seal, one piece from each roll, and install on the frame as shown in Figure 4.

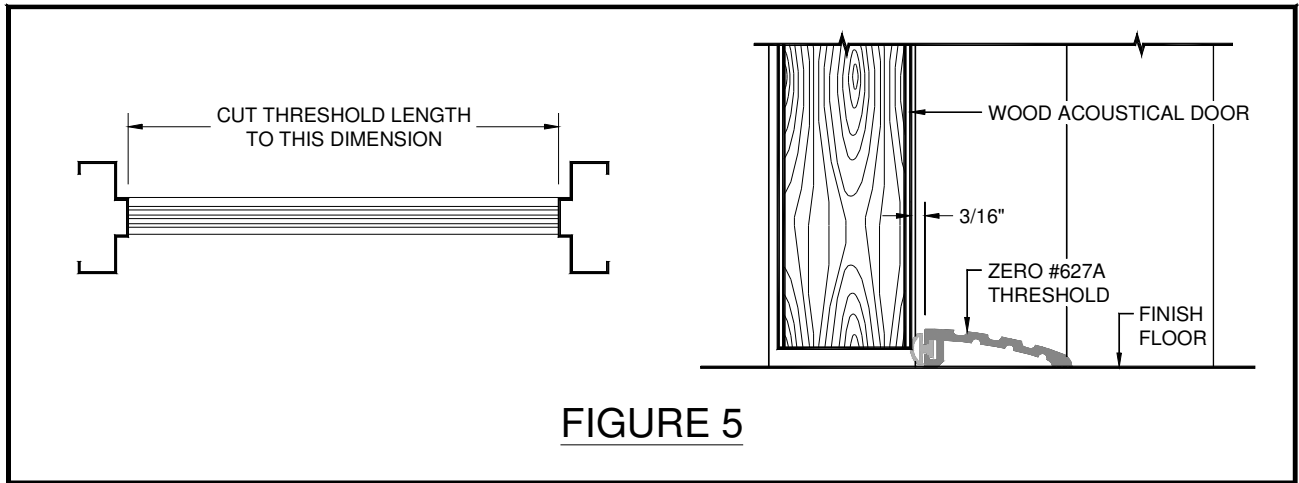
**Note:** Prior to installing the bubble seal, make sure to wipe off any dust or foreign matter that may have accumulated on the frame. Surface must be clean prior to application of seal. To accomplish this, use alcohol wipe provided with seals.

- B. Measure the jamb opening height from the head of the frame to the top of the finish floor (or the top of threshold, if present). Cut four pieces of bubble seal, two pieces from each roll, and install as the frame as shown in Figure 4.



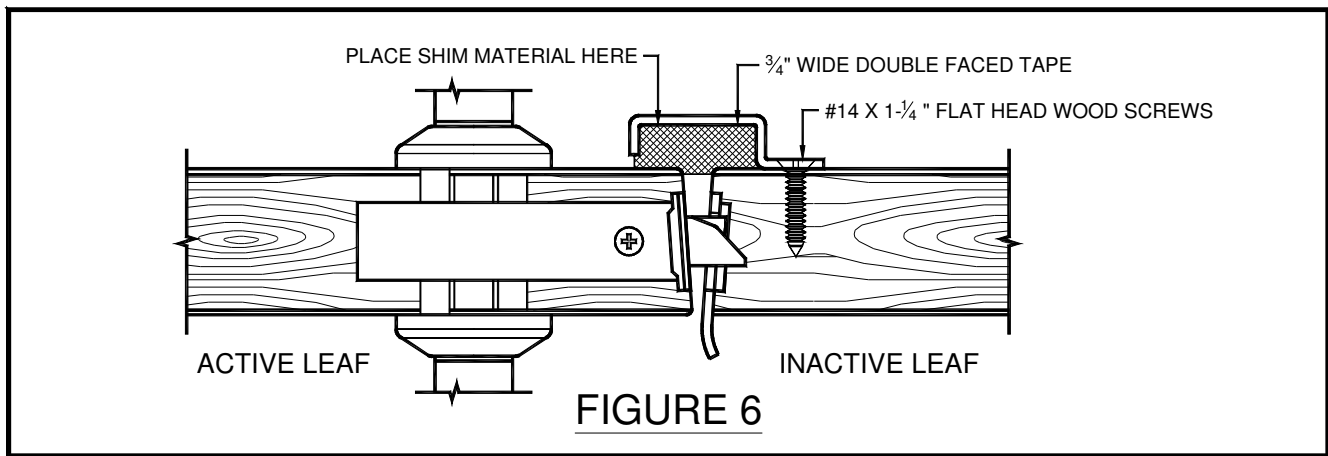
- C. Locate threshold and supplied anchors. The threshold has been supplied slightly longer than required. Measure the distance between the stops of the frames and cut the threshold to this dimension. With the door closed and latched, place the threshold between the jambs and push the threshold up towards the door. Once the threshold contacts the door,

continue pushing the threshold forward until there is 3/16" distance between the face of the door and the aluminum threshold. This will create the required compression for sealing the bottom of the door. Mark this position and install anchors according to the type supplied. See figure 5.



**FIGURE 5**

**Note:** If pair of doors is required, locate Astragal and **Fastener Package** containing the #14 x 1-1/4" flat head wood screws. With the active leaf in the open position and the inactive leaf in the closed and secured position, you will need to clamp the astragal onto the inactive leaf so that the edge of the astragal extend outward 1-1/4" from the edge of the inactive leaf, while holding the astragal flush with the bottom of the door. See Figure 5. Notice that the neoprene is extended beyond the top and bottom of the metal astragal. Before firmly clamping the astragal to the door, measure and cut the neoprene so that it is flush with the threshold (or finish floor) at the bottom and with the frame stop at the head.. Once the neoprene has been trimmed, firmly clamp the astragal to the door and match drill pilot holes in the door to the holes in the astragal for the #10 screws. Install the fasteners into all the drilled holes. Close and latch the active leaf. Visually check to see if the astragal rubber contacts the active leaf. At areas where the gasket does not contact the door face, shimming the gasket may be necessary. The gasket is affixed to one side of the steel retainer with a 3/4" wide strip of double faced tape as shown in Figure 5. The side closest to the active leaf is left free to allow it to be lifted and shims placed behind. Shims should only be placed in sections where the gasket does not contact active door face.



**FIGURE 6**