



## INSTALLATION INSTRUCTIONS

### INSTALLATION INSTRUCTIONS FOR 1-3/4” ACOUSTICAL WOOD DOOR UNITS Double Bubble Seals & Full Mortise Automatic Door Bottoms

#### 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.

Protect is concerned that our product is properly handled and protected after delivery, and that the necessary care and skills are exercised in the 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 Protect Acoustical Wood Doors.

#### DELIVERY AND RECEIVING OF MATERIALS

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, Protect 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 Protect be notified in writing before initiating any corrective action in the field.

#### 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. Protect does not warrant doors installed with a defect that was obvious prior to installation. The following is a list of maximum allowable tolerances for Protect 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 Protect, for a period not to exceed one (1) year from date of claim to permit conditioning of the doors to temperature and/or humidity.



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## ON-SITE STORAGE

Improper storage of **Acoustical Doors** at the construction site often results in unnecessary damage to the products, prior to installation. This damage includes such occurrences as warping of doors, watermarking, etc. Please refer to the following sections on proper storage of the wood doors.

**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 climate controlled. 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.**

## UNCRATING INSTRUCTIONS

Depending on the size of your particular order and the manner in which items required for the door and frame installation were ordered, the crate which you have received may contain one, two or several acoustical units. The quantity and type of items provided by Protect can be found on the packing list located on the outside of the crate. As you uncrate, review the packing list and locate the following items for a complete installation:

- A. Door(s)** - identification information for door opening mark numbers are located on the top rail of the door. If a UL Fire Label is provided, it can be found attached to the hinge edge of the door, below the top hinge cutout.
- B. Frame Gasketing System** - two (2) packages of the Protect "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.
- C. Automatic Door Bottom** - this particular model door requires the use of a full mortised extruded aluminum automatic door bottom assembly that has been supplied by Protect and shipped loose.

## FIELD FINISHING

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

Although all Protect 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, thorough 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, we suggest using special designed sawhorses as shown in figure at right.

Good quality finishing materials used according to the manufacturers directions, 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.





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### INSTALLATION OF DOOR(S)

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).

**A.** Caulk frame continuously around perimeter of frame on both sides at frame/wall interface.

**B.** If one is required, measure the jamb opening width, cut and install at this time between the frame jambs, as shown on the approved shop drawings. Notch as required at stops of the frame, if necessary. The threshold should be set in dense mastic or acoustical sealant.

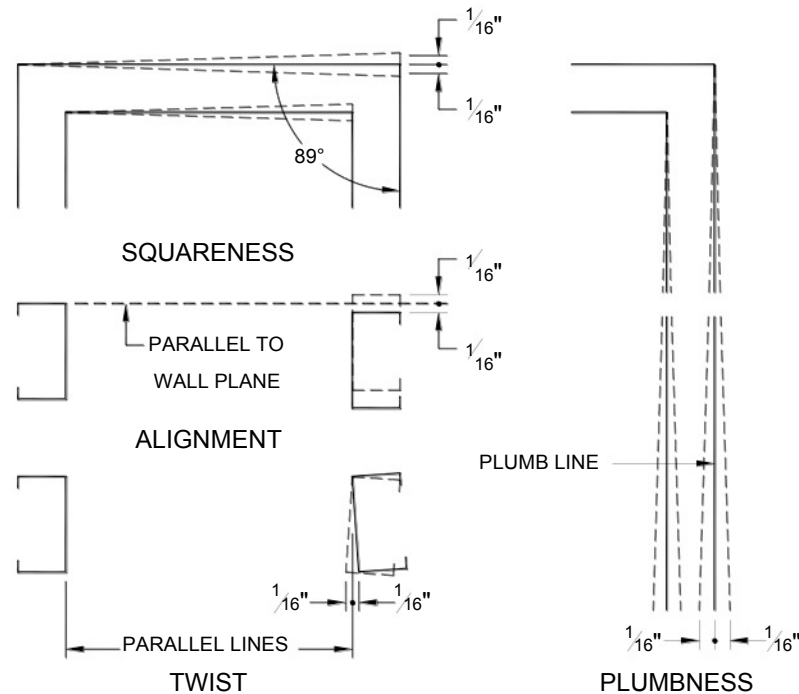


FIGURE 1

**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 Protect low closure force double bubble type frame seals and a full mortised automatic door bottom. The following sections will describe how to hang the door(s) and apply the perimeter sealing system.

**A.** Locate the full mortised automatic door bottom(s) for the door(s) and install per the manufacturers instructions. Both the required mounting fasteners and installation instructions are enclosed with the door bottoms.

**Note:** For single or active leaf of pair, the door bottom will run full width of the door. For the inactive leaf of pair, install the door bottom flush with the hinge edge. Depending on the type of flush-bolt used, the door bottom may need to be cut down from supplied size. Follow door bottom manufacturer's instructions to cut down.

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



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C. 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.

D. If opening is pair of doors, install second door leaf at this time.

E. 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:** Protect 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:

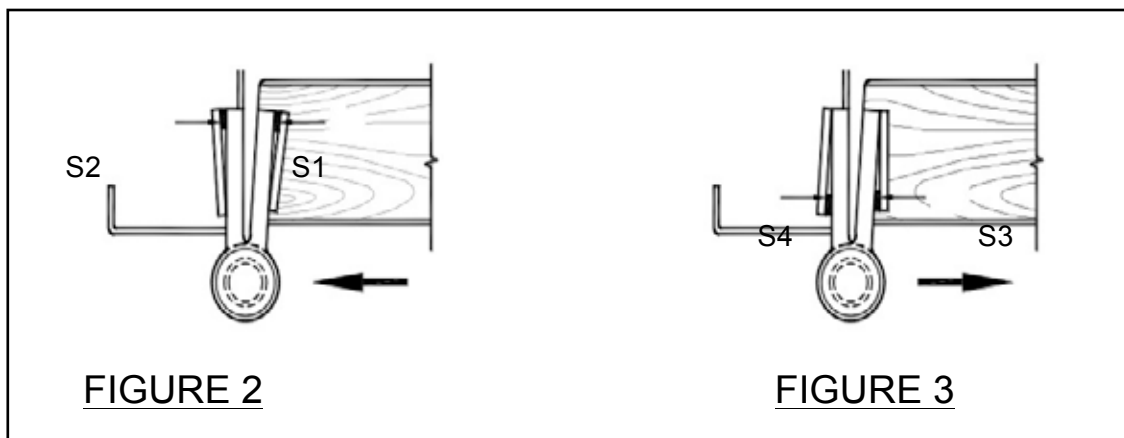
A. If shim **S1** is used, the door will move towards the hinge jamb of the frame. If shim **S2** is used, both the door and the hinge barrel will move towards the frame.

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.



**FIGURE 2**

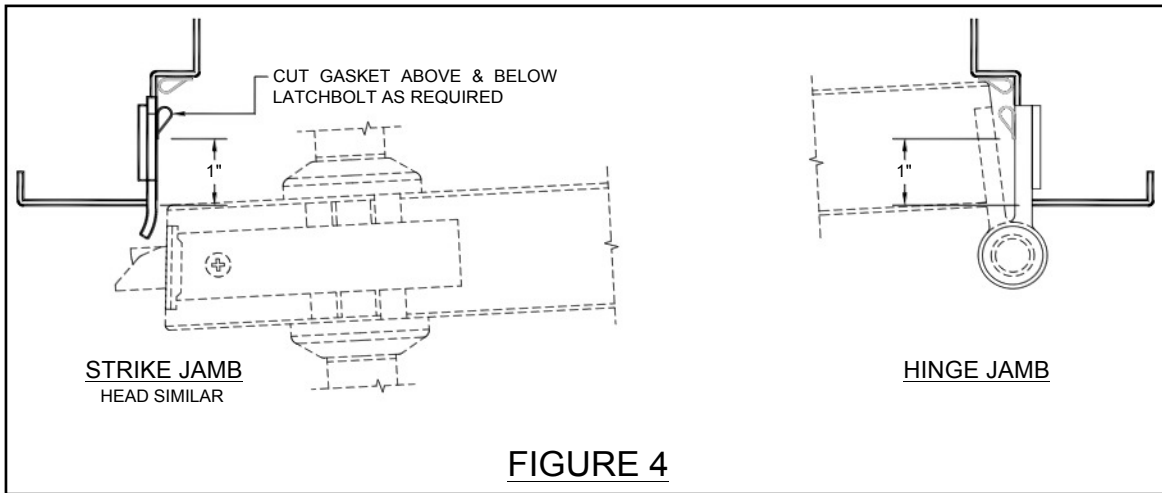
**FIGURE 3**



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## DOUBLE BUBBLE GASKET INSTALLATION

- A. After the door(s) have been finished, 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 as 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 on the frame as shown in Figure 4.
- C. Open and close the door(s) several times and then adjust the door bottom(s) using the hinge side adjustment nut to obtain even pressure across the door bottom sealing surface. Check the results first by trying to insert a thick piece of paper, such as a business card, between the finished floor (threshold) and door bottom seal. If you can easily push the card under the seal, re-adjust the door bottom nut for added pressure.



**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 oneside 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.

