

PRIOR TO INSTALLATION

The installer shall perform the following prior to installation:

The area of floor on which the frame is to be installed and the path of the door swing shall be checked for flatness and levelness. Permissible tolerance is +/- 1/16 in. (1.5mm). If the floor exceeds this, it is the general contractor's responsibility to correct the area that is out of tolerance before the frame is installed.

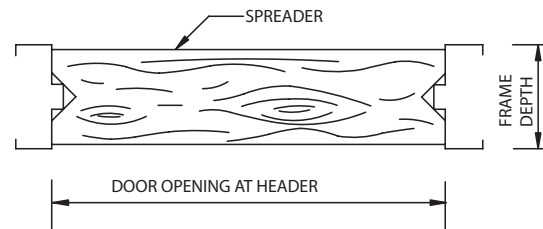
Frame shall be checked for correct size, swing, fire rating and opening number.

Remove temporary steel spreaders. Spreader can typically be removed with cold chisel and hammer. With frame standing on concrete, position cold chisel at weld joint of spreader and jamb and strike chisel with hammer.

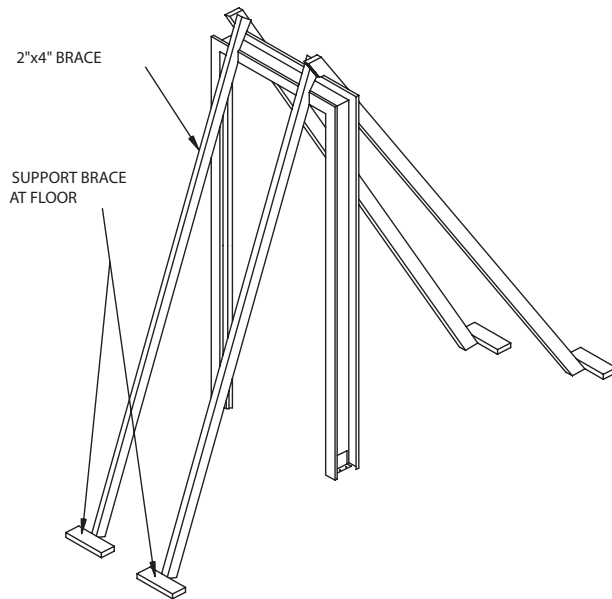
With frame in position, install the temporary wood spreaders. The wood spreader, Figure 2, must be square and no less than 1 in. (25 mm) thick. Correct length is the door opening width between the jambs at the header. Cut clearance notches for frame stops. Spreader must be nearly as wide as frame depth for proper installation. Install a spreader at the bottom of the frame and a second wood spreader at the mid or strike point to maintain a proper door opening and to prevent bowing of the jambs, Figure 3. Clamp or wire spreaders to frame to hold spreaders in place until the frames are set permanently in the wall.

TYPICAL INSTALLATION PROCEDURES

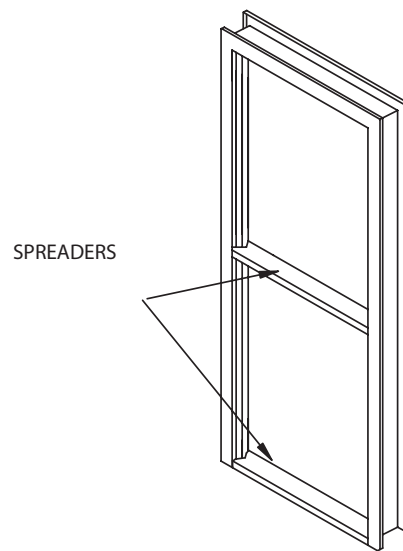
Position frame in the correct location. Brace the frame as shown, Figure 1. Do not brace in the direction of intended wall.



**FIGURE 2
WOOD SPREADER**

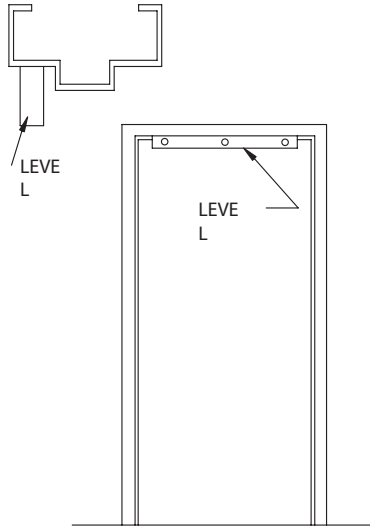


**FIGURE 1
FRAME BRACING**



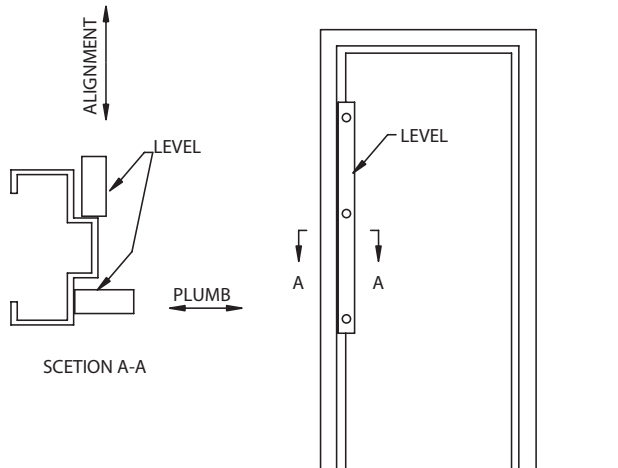
**FIGURE 3
SPREADER LOCATION**

The installation contractor shall have a carpenter level and builder's square. Level the head by positioning the level to the head door rabbet, Figure 4. If necessary, adjust for high spots in floor by shimming under the jamb floor anchor, Figure 7. Equalize them through an adjustable floor anchor, if specified, Figure 13b. Note, for labeled openings the maximum floor clearance is 3/4 in. (19mm).



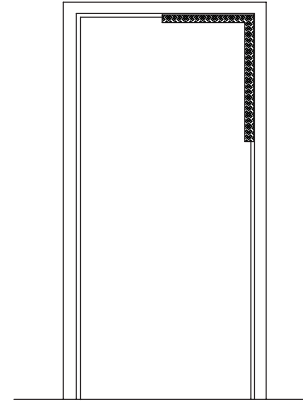
**FIGURE 4
LEVELING THE HEAD**

With carpenter level check the frame for plumbness and alignment: For plumbness, position level against both hinge and strike jambs in the rabbet. For alignment; Position level against both hinge and strike jambs on the stop, adjust as required, Figure 5.



**FIGURE 5
PLUMBING AND ALIGNMENT**

With builder's square, check frame for squareness. Position square against jamb and head at door rabbet, adjust as required, Figure 6.

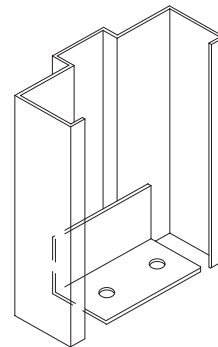


**FIGURE 6
SQUARENESS**

Once the installer has ensured that the frame is in the correct position, anchor the jamb to the floor.

Floor Anchors: The fixed floor anchor is welded to the base of the jamb, typically secured to the floor by mechanical fasteners, providing solid anchorage for the base of each jamb, Figure 7. Shimming must be used if the floor is not level. This type of anchor is not used in existing masonry, preframed stud walls or slip-on dry-wall frames, but may be provided.

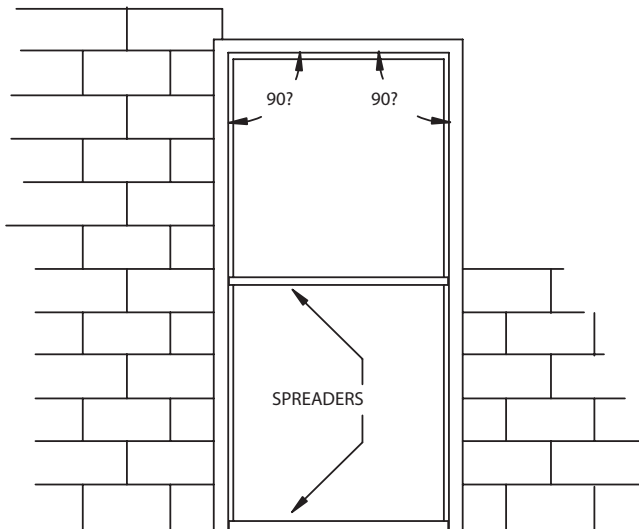
At prepared openings (existing masonry or concrete) an additional expansion anchor reinforcement is provided. With pre-framed stud walls or completed drywall openings an additional base anchor is included. In both instances these anchors are located as close to the bottom of the jamb as is practical.



**FIGURE 7
FIXED FLOOR ANCHOR**

1. MASONRY WALLS

Installation of a hollow metal frame in masonry, Figure 8. Refer to HMMA 820 Hollow Metal Frames for additional anchorage methods.

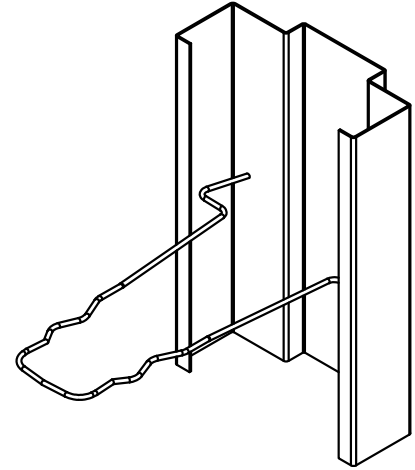


**FIGURE 8
MASONRY WALL**

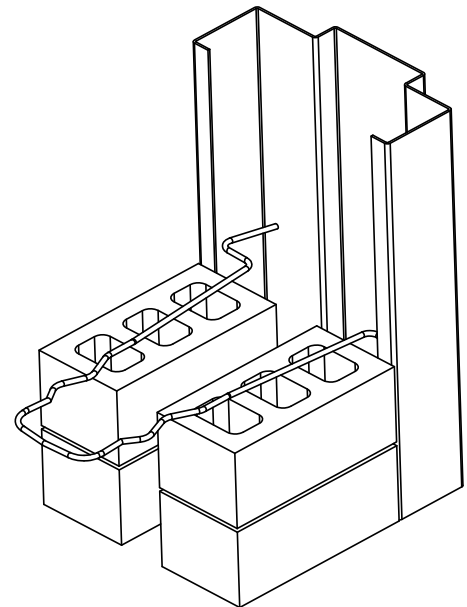
Wire Loop anchor, Figure 10, function similar to the metal strap anchor but are set loose inside frame returns as wall is laid up.

As wall is laid up, locate the anchors at the hinges in the hinge jamb and at a corresponding position in the strike jamb, Figure 11.

Continually check squareness, plumbness, alignment, and twist in the frame as wall progresses.



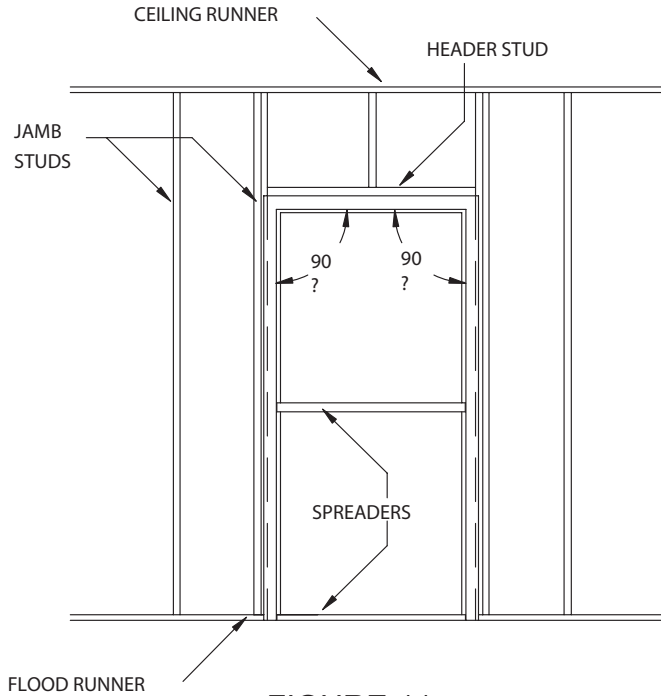
**FIGURE 10
WIRE LOOP ANCHOR**



**FIGURE 11
WIRE LOOP ANCHOR**

2. STEEL STUD WALLS

Installation of a hollow metal frame in steel stud wall, Figure 11. Refer to HMMA 820 Hollow Metal Frames for additional anchorage methods.



**FIGURE 11
STEEL STUD WALL**

Combination wood / steel stud anchors, Figure 12 & 13, are welded (optional) or friction fit inside the jamb. Additional horizontal straps allows fastening to the face of the stud in lieu of through the throat. Typically used when the steel stud wall is assembled prior to setting the frame.

Position the vertical steel studs in the frame throat opening in accordance with architect's details. Attach the vertical steel studs to floor and ceiling runners and fasten to the steel stud anchors with mechanical fasteners.



**FIGURE 12
DRYWALL STUD ANCHOR**



**FIGURE 13
DRYWALL STUD ANCHOR
INSTALLATION ON FRAME**

Hollow Metal doors, frames, and related products are fabricated from hot-rolled, cold-rolled, zinc-coated, or stainless steel. Stainless is typically not painted and therefore not referred to in this tech note. Hot and cold-rolled steel are supplied either dry or oiled and require treatment prior to painting. Zinc coated steel is either galvanized or galvanized. Galvanized steel is manufactured suitable for immediate painting without further treatment other than normal cleaning. Galvanized steel requires treatment prior to painting. Refer to HMMA-802 "Manufacturing of Hollow Metal Doors and Frames" for more information.

Hollow Metal products must be stored in a manner to prevent exposure to adverse environmental elements. Refer to HMMA-840, "Guide Specification for Installation and Storage of Hollow Metal Doors and Frames" for more information. Primer protects the uncoated base metal and provides the bonding agent required for the finished paint. It is very important that the primer is protected and cleaned prior to the application of the finish coat of paint. Primer manufacturers advise that the primer receive a finish coat within 30 days of delivery.

Exposure to elements, such as high humidity, salt air, snow, rain, damp wrappings, etc..., without proper protection and air circulation, allows moisture to be absorbed by the primer. Once this occurs, with the presence of oxygen, an electrolytic action follows. Moisture travels between primer and the metal surfaces in a capillary action, deteriorating primer adhesion. Eventually this can result in water stains, rusting, flaking, lifting, or peeling. When paint flakes, lifts, or peels, rusting is not always evident. Typically these areas have not been in constant contact with the elements, but moisture has traveled under the primer.

Breakdown of the primer adhesion can be caused by incompatibility with the finish coat of paint resulting in the same conditions as listed above. Care must be taken to ensure compatibility of primer and any top coat. A small area test is always recommended to verify compatibility and adhesion. In some instances, a barrier coat between primer and top coat is necessary. Consult finish paint manufacturer's instructions.

Different paint problems have different solutions. Depending on the severity of the problems, sanding, sanding to bare metal, cleaning to remove contaminants, and re-priming can be necessary.

The selection of paint is also a consideration. Manufacturing marks are not always visible with a flat low gloss primer but can appear after a gloss finish coat is applied. The use of high gloss paint will increase the show through tendencies and is not recommended. A maximum paint gloss rating of 20% reflectance, measured using a 60 degree gloss meter, would be the standard recommended. Select a commercial direct to metal, (DTM) quality paint.

It is extremely important to follow the finish paint manufacturer's instructions. It is important to avoid painting in extremely hot, cold, or damp weather. Ensure material being painted is clean and dry. Prior to finish painting lightly sand primed surfaces with fine grit sand paper or emery cloth.