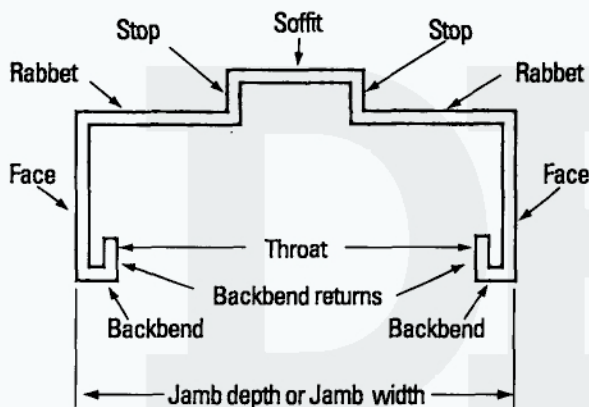




© 2006 Door and Hardware Institute; Published by Door and Hardware Institute; Printed in USA

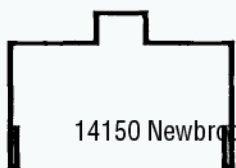
## Hollow Metal Frame Profiles and Elevations

Figure 1



In order to understand hollow metal frames, one must first be familiar with the nomenclature. There are some cases where parts may have different names but they tend to be similar sounding. The standard frame profile shown in Figure 1 details all of the bends that make up the frame. This profile is called a *Double Rabbeted Frame*. The rabbeted portions can be equal to each other or unequal. Where the door would sit in the frame, the standard rabbet is  $1 \frac{15}{16}$ " for a  $1 \frac{3}{4}$ " thick door. Typical stop height is  $\frac{5}{8}$ " and a 2" face would also be standard. The back bend is normally  $\frac{1}{2}$ " giving the frame a throat size 1" less than the overall width of the frame. The overall width of the frame is referred to as the jamb width or jamb depth. The back bend on some frames can also be bent back toward the inside face of the frame which is known as a hemmed backbend (Figure 1A). On some frames, usually referred to as drywall frames, there is another leg at a right angle to the backbend referred to as a backbend return. This helps the frame slide over sheet rock walls without tearing the paper face when the frame is installed after the wall is built.

Figure 1A



14150 Newbrook Drive, Suite 200, Chantilly, VA 20151

There are more frame profiles than can be detailed here; however, this will give you information about the various standard profiles and show some of the more popular custom styles and their variations. Figure 2 is a *Single Rabbet* and is typical for thin walls where there is no room on the frame for a stop and another rabbet due to a narrow jamb width. Figure 3 details a *Cased Opening* frame used to finish off an opening where no door is called for or for bi-fold or by-passing openings. You would also use this frame for double acting doors where you cannot have a stop. Most face profiles are also available in a cased opening frame. Figure 4 shows the *Double Unequal Rabbet* profile mentioned earlier; Figure 5 is one type of *Slip Buck with Rough Buck*. This frame can be used where the rough buck is fastened to the wall and the frame is slid into place at a later time and fastened to the rough buck with screws or by welding.

Figure 2



Single Rabbet

Figure 3

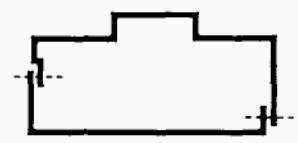


Cased Opening

Figure 4

Double Unequal  
Rabbet

Figure 5

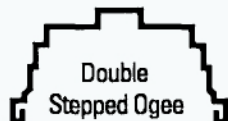
Slip Buck with  
Rough Buck

You may also come across the following custom profiles where architectural details are a part of the special design and look of the building. Some are meant to appear like heavy wood frames and can be used

where the opening must be fire rated and wood jambs do not comply with the rating needed. Figure 6 is an example of that kind of profile and is referred to as a *Double Stepped Ogee*. Variations of the face bends are available. The *Cove Buck* design is another popular custom profile and is shown in Figure 7. A modern "clean look" can be achieved with the *Splayed Stop* design shown in Figure 8. Another variation of this frame is to extend the soffit at a 90° angle to the stop for a few inches, then angle back to the face.

A *Splayed Trim* design shown in Figure 9 is another variation. Though called a *Caulking Groove* (see Figure 10), it need not be caulked and can give a neat appearance with the face of the frame in the same plane as the face of the wall.

**Figure 6**



**Figure 7**



**Figure 8**



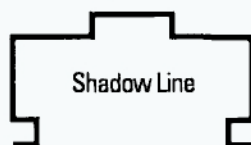
**Figure 9**



**Figure 10**



**Figure 11**

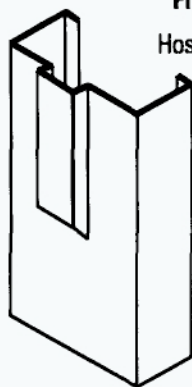


The *Shadow Line* profile shown in Figure 11 also achieves the same look.

Another special frame profile you may encounter is the *Hospital Stop* shown in Figure 12. The stop portions of the side jambs are cut off 4" -6" from the bottom, and the frame is filled at that point and resembles the profile of a cased opening. It may have a 45° or 90° angle cut returning to the rabbetted faces. The frame may also have a stainless steel spat (cover) to protect the frame during mopping of the floor. This type of frame is used where sanitary conditions are of great concern. Eliminating the stop removes two more corners where cleaning would be time consuming. Even though the stop of the frame does not go all the

**Figure 12**

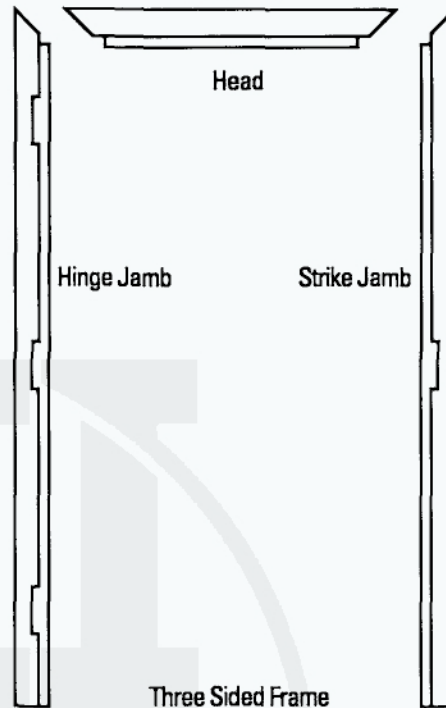
*Hospital Stop*



way to the floor, this frame can be labeled.

There is another special profile where the frame is thermally broken to control the transfer of temperature from one side of the frame to the other. Typically, a rigid vinyl or similar material is used as a spacer in the stop portion of the frame and the two pieces of the frame section are held together by some means to reduce the transfer of cold or heat.

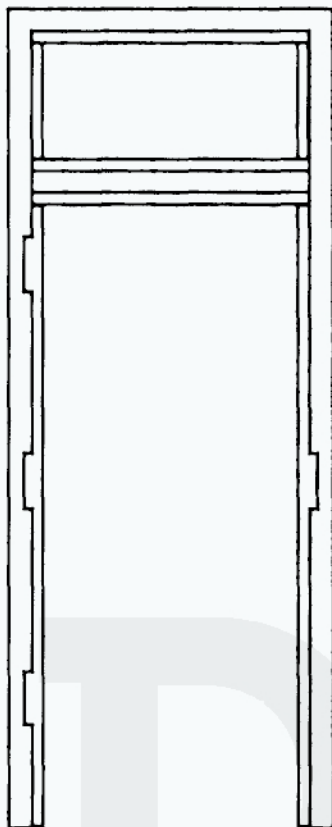
**Figure 13**



Most frames are three-sided (Figure 13) with a head portion, strike jamb and hinge jamb. For pairs of doors, you would have two hinge jambs. A removable or fixed mullion might be used behind the pairs as the strike jamb, or omitted if using vertical rod exit devices, flush bolts and lock, or push pulls to operate the doors. Another type of mullion is used as a glass separator in sidelites and is normally fixed or welded in place. This type of mullion is discussed later.

Frames can also have more than three sides. A four-sided door frame is possible for special applications, and frames incorporating sidelites and/or transoms are among the variations. Multiple partial or full sidelites are also possible. The elevations shown are typical but not all-inclusive, and sizes of doors and lites vary with the job requirements. Consult the frame manufacturer for size and other limiting factors for fire-rated openings, as each may have different capabilities and various types of glazing.

**Figure A**



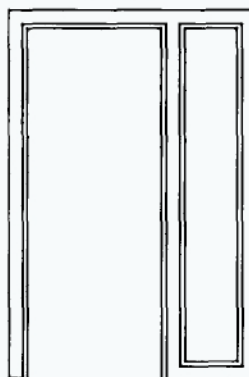
As mentioned before, non-standard frame profiles can cause a situation where the manufacturing of the frame would be impossible. Some bends are difficult or impossible to accomplish when distance between bends is less than  $\frac{5}{8}$ " , wraps back to itself, or if the material is a heavy gauge. A lot depends on the manufacturers' equipment, and they should be contacted on non-standard profiles or elevations. Custom houses can usually fabricate more intricate designs than standard hollow metal manufacturers. Many can even do frames with an arched top.

Always check the finish hardware scheduled for the opening, for non-standard or concealed items as their reinforcements and preps will add greatly to the cost of the frame. Never assume that, because it can be drawn, it can be fabricated.

The basic frame is three-sided with a multitude of variations and variations within them. A popular frame is the transom frame as depicted in Figure A. This frame is equipped with a transom bar that can be removable or fixed. It could also be a panel made of the same material as the door and omitting the bar. Transoms have many

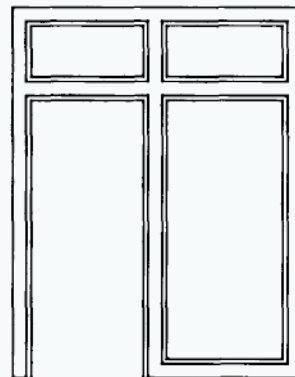
uses, such as having the ability to get tall items in and out of the room when using a removable or operating transom. If the top panel is glass, it could be used to let

**Figure B**



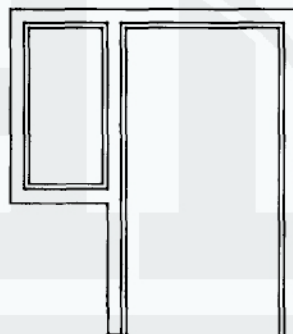
**Sidelite**

**Figure C**



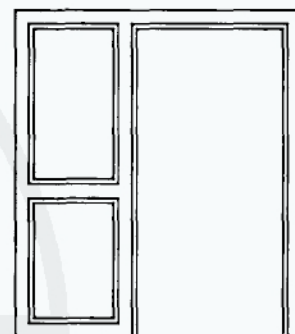
**Transom Sidelite**

**Figure D**



**Partial Sidelite**

**Figure E**



**Sidelite with Mullion**

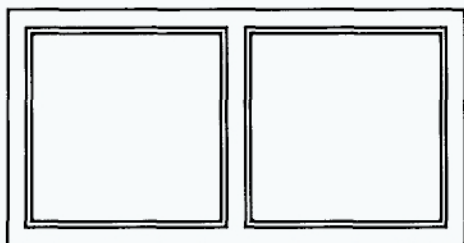
in additional light from the other side of the wall. Especially where there are high ceilings, the taller look can be architecturally pleasing.

Figure B is an elevation of a *sidelite* frame. It could be on one side of the door or both in combination, or multiple combinations, with a transom as shown in Figure C, or be partial as in Figure D. As with the transom, the lites could be panels or glass or a combination of both. If the lite is divided into two or more sections as in Figure E, the separating part is called a mullion. A mullion divider may be necessary in order to for the assembly to meet fire rated standards. There are



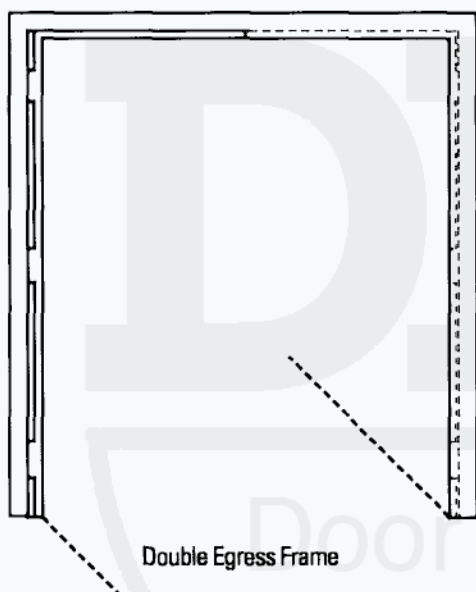
size limits to the area (height and width) that a single glass section can fill. The particular glass manufacturer should be contacted for specific fire rating/size information for their glass. Some manufacturers (such as Firelite, Pyroswiss and Contraflam) have been approved for larger areas because of their specially fabricated glass and composite panels. Other substitutes for the

**Figure F**



Borrowed Lite with Mullion

**Figure G**

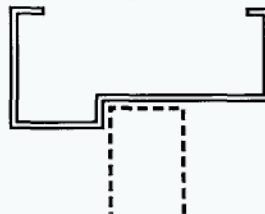


standard 1/4" wire glass are also available. When a lite is not used in connection with a door frame, it is referred to as a borrowed lite. Figure F is a single borrowed lite and, again, multiples are possible.

A Double Egress Frame has a pair of doors that have the same hand. The head of the frame changes profile where the latch edges of the doors meet. Figure G is a typical elevation of this frame. The standard pair frame has doors which swing in the same direction and

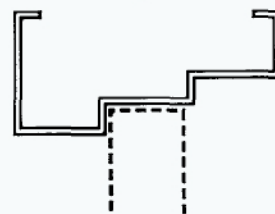
are composed of opposite hands. The double egress pair can be used to control the flow of traffic through a corridor by keeping the flow of one direction to one side and the flow from the opposite direction to the other side. Two frame profiles are depicted in Figures H and I. The profile shown in Figure H requires hinges with a wide leaf or raised barrel hinges as there is no room for the barrel of the hinge as there is in Figure I.

**Figure H**



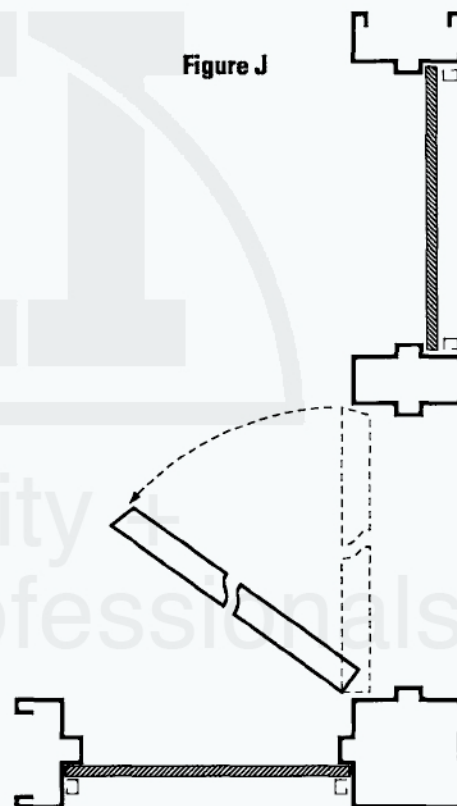
Alternate Head Profile

**Figure I**



Standard Head Profile

**Figure J**



Any of the frame elevations can be attached to each other at angles to each other in lieu of building a wall between them. This permits the continuation of the

frame when close together and various corner profiles can be fabricated to accomplish this. Figure J depicts a cut-away view of a frame that makes a corner with a sidelite on each side of the door, which is shown in a partially opened position. The bottom, or sill of the frame, is omitted for clarity.

Profiles and elevations are only a small part of framing. You must also be familiar with gauge or thickness of material, reinforcements, anchors for different types of walls, and a myriad of other details. This, however is a good starting place.



*Proprietary information from*



14150 Newbrook Drive,  
Suite 200, Chantilly, VA 20151

*Access compliments of*

