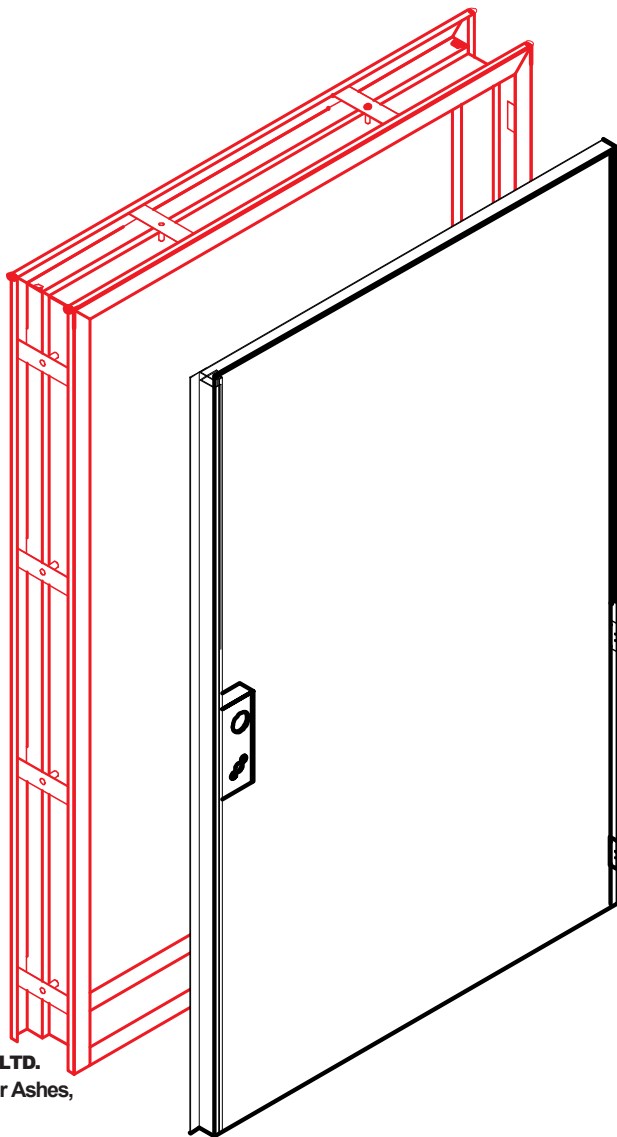




ASSEMBLY, INSTALLATION, TROUBLESHOOTING GUIDE & MAINTENANCE MANUAL FOR FIRE DOOR & FRAMES

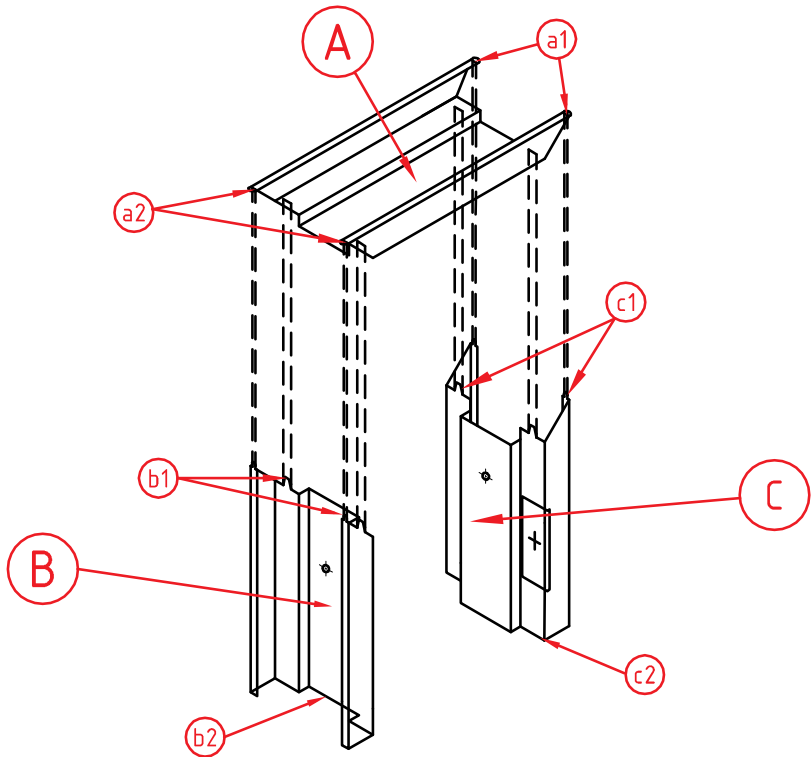


ASSEMBLY, INSTALLATION, TROUBLESHOOTING GUIDE & MAINTENANCE MANUAL FOR FIRE DOOR & FRAMES

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SINGLE/DOUBLE DOOR KNOCK-DOWN FRAME ASSEMBLY WORK INSTRUCTIONS

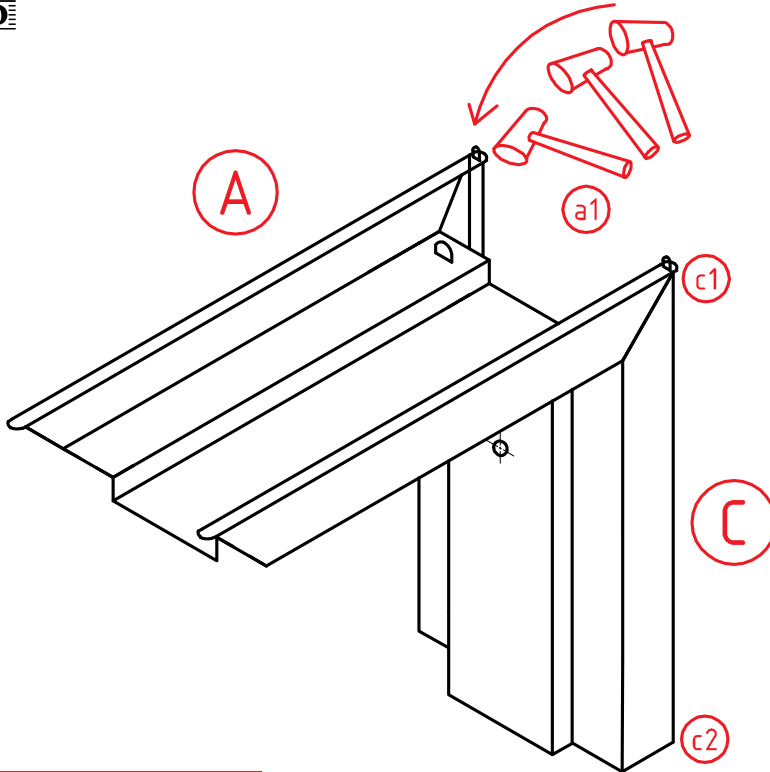


COMPONENTS LIST

ITEM	DESCRIPTION
A	FRAME HEADER
a1	Hinge Jamb Female Slots
a2	Striker Jamb Female Slots
B	STRIKER JAMB
b1	Striker Jamb Male Tabs
b2	Striker Jamb Base Side
C	HINGE JAMB
c1	Hinge Jamb Male Tabs
c2	Hinge Jamb Base Side



SINGLE/DOUBLE DOOR KNOCK-DOWN FRAME ASSEMBLY WORK INSTRUCTIONS

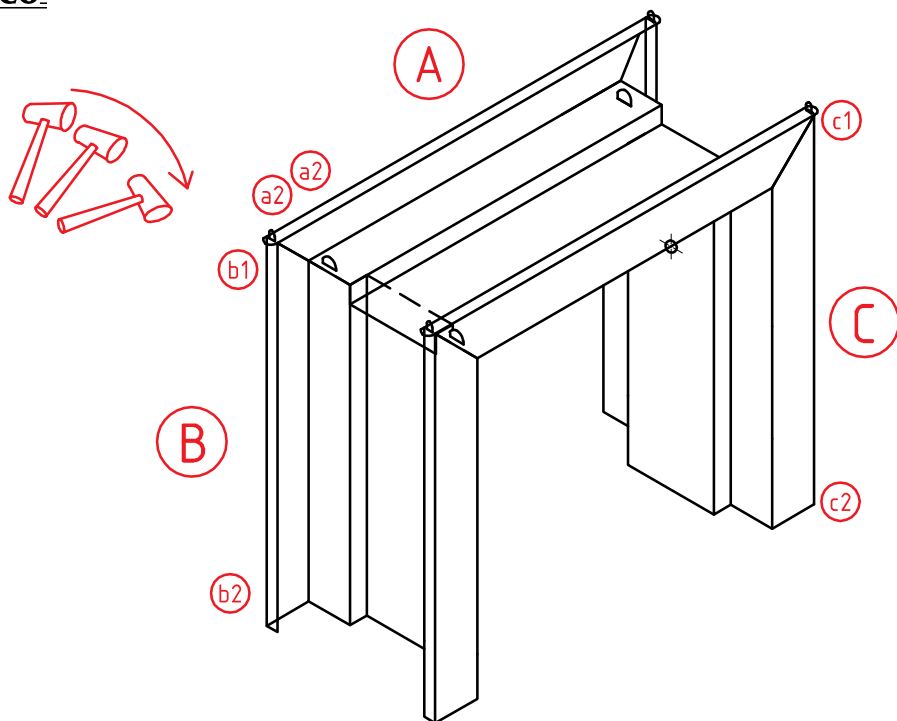


STEP 1

ASSEMBLING A & C COMPONENTS

- Insert c1 tabs into a1 slots.
- Make sure to level & align the each corner maintaining 90° angle.
- Bend the tabs by hammering to completely lock the components.

SINGLE/DOUBLE DOOR KNOCK-DOWN FRAME ASSEMBLY WORK INSTRUCTIONS



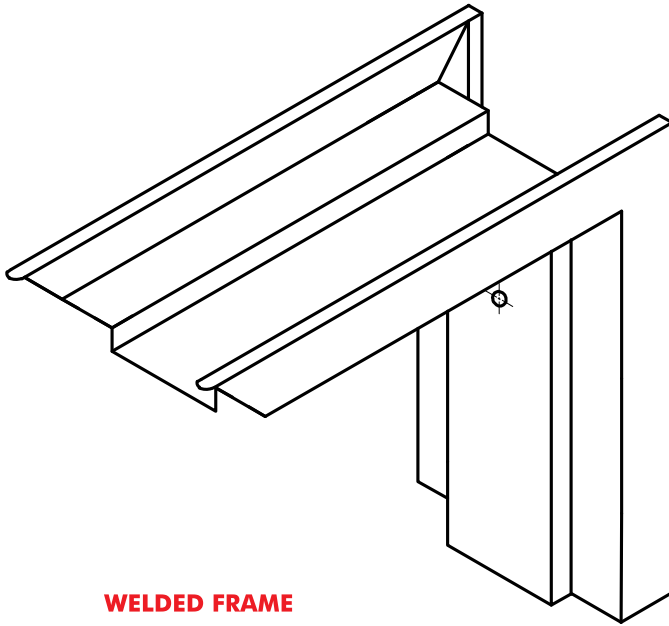
STEP 2

ASSEMBLING A & B COMPONENTS

- Insert b1 tabs into a1 slots.
- Make sure to level and align each corner maintaining 90° angle.
- Bend the tabs by hammering to completely lock the components.



WELDED DOOR FRAME WORK INSTRUCTIONS



WELDED FRAME

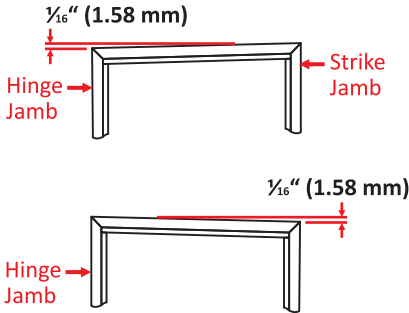
Welded door frames are cheked at the factory to ensure that they are square ant that no jamb twists have occured during fabrication. Temporary steel spreaders are then attached to the jamb base to minimize misalignment or other damage during handling and shipment. The frames are loaded on the carrier by personnel experienced in frame packing. The spreaders are for shipping and handling purposes only and must be remobed before installing the frame.

At no time shall the spreaders be used during installation.

In spite of precautions, frames can and sometimes do arrive at the job site with mino alignment deviations. Minor deviations from true form and alignment can be corrected by the contractor responsible for installation.

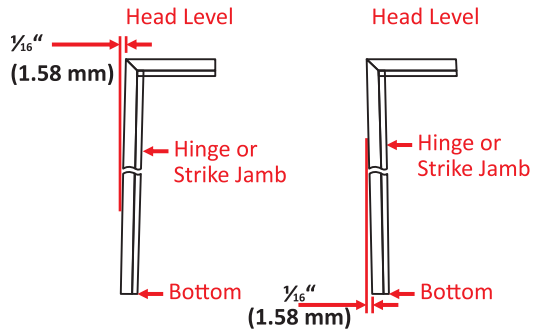


EXAMPLES OF THE ACCURACY TO BE MAINTAINED WHILE SETTING FRAMES

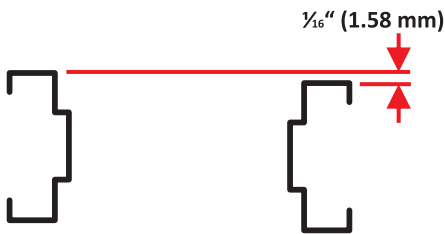


Maximum $\frac{1}{16}$ " allowable tolerance on total opening.

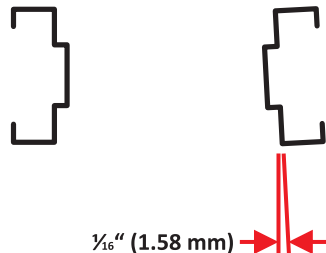
SQUARENESS



PLUMBNESS



ALIGNMENT



TWIST



PROCEDURE FOR INSTALLATION OF DOOR AND FRAME

1. Rough opening for existing wall, structural steel framing or retrofit installations utilizing a butted to wall applications shall be no less than 3/16" (4.8mm) larger the frame on all three sides. (see figure A below)

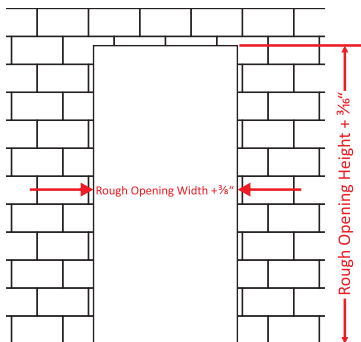


FIGURE A
ROUGH OPENING

2. The installer is responsible for any shimming or aligning required. Gaps are normally sealed as part of the installation or caulking/painting process.
 - a. *Refer to Architectural specifications for the appropriate sealant material to be used for fire or smoke control doors.*
3. Slide frame in to wall opening install wood spreaders (see figure B below)

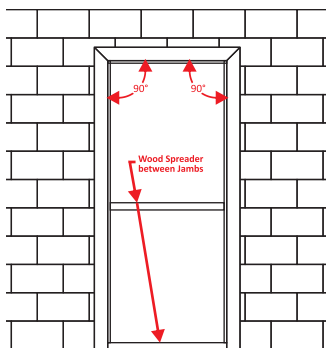
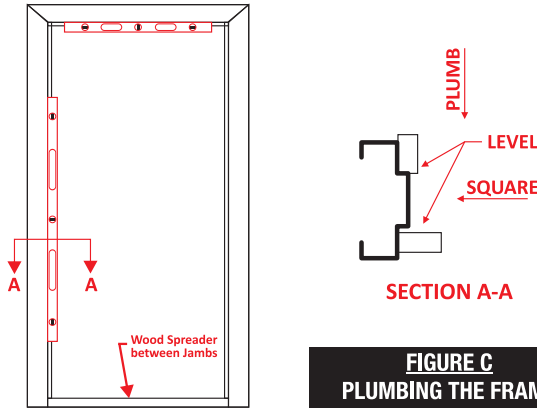


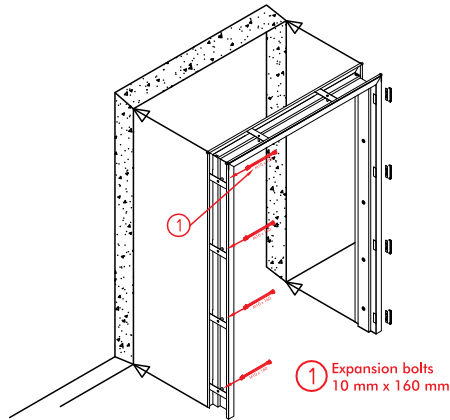
FIGURE B
EXISTING MASONRY CONSTRUCTION

PROCEDURE FOR INSTALLATION OF DOOR AND FRAME

4 Plumb and square frame (see figure C)



5. After ensuring the squareness and plumbness of the frame.

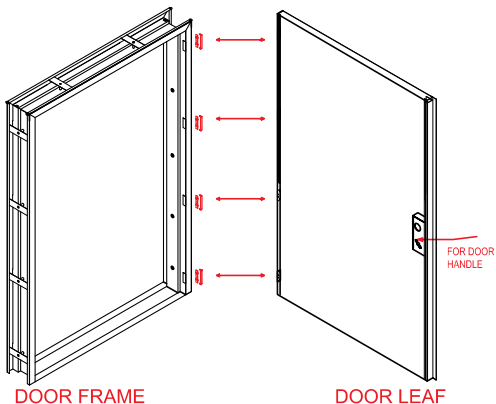


6. Drill the appropriate size & depth of hole passing through the anchor holes of the frame into the wall. Leave holes rough for added grip.
7. Insert shielded anchor bolts into the holes and tighten securely. The bolt while tightening creates the expansion of the shield to anchor into the wall. Check for frame alignment periodically while tightening the bolts.
8. After the frame is securely installed and fastened, prepare the door for installation.
9. Screw all the hinges on Door.

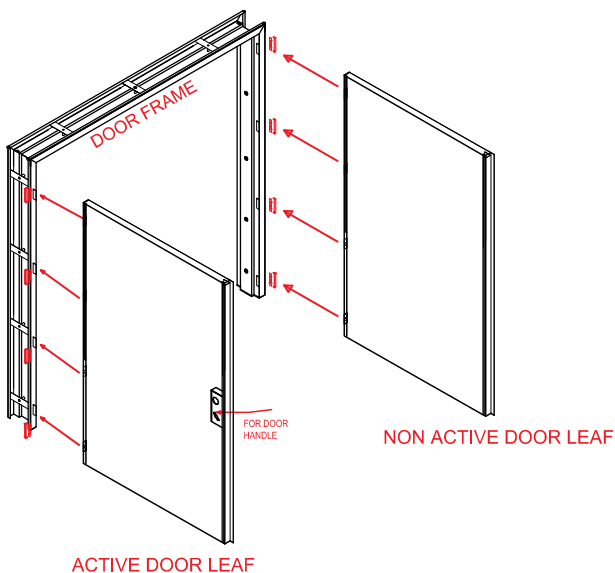
PROCEDURE FOR INSTALLATION OF DOOR AND FRAME

14. Attach the Door on the Frame and securely tight the screws on hinges.
For Double Door, install the non-active door leaf first, followed by the active door leaf.

SINGLE DOOR



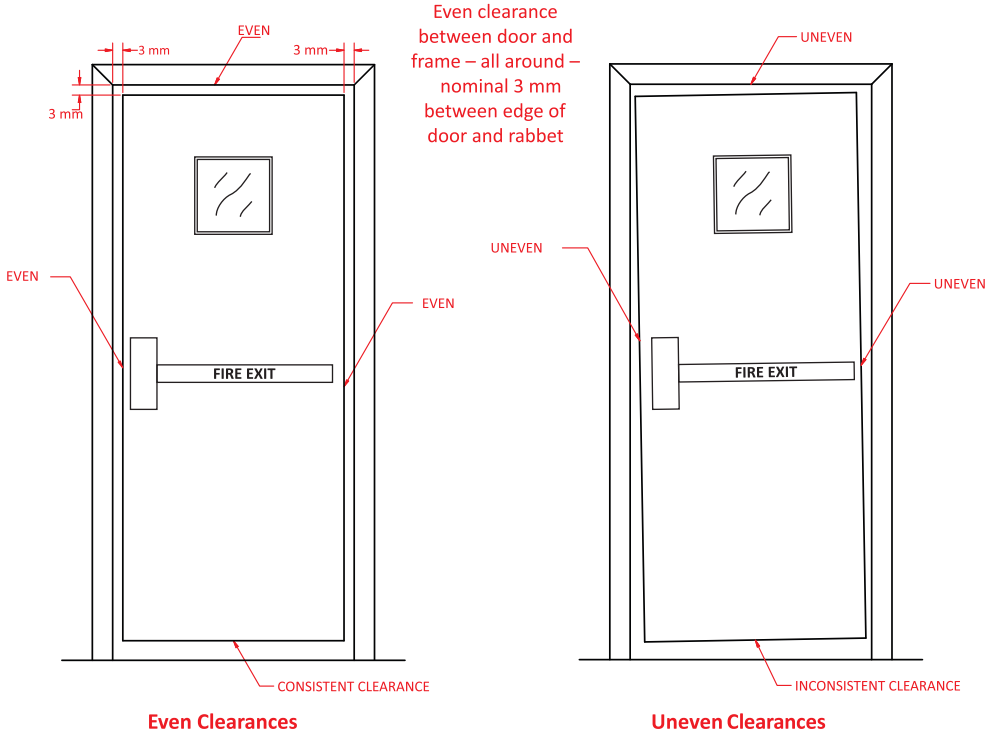
DOUBLE DOOR



15. Check the alignment of door and frame. The door should be in level frame face.
16. After leveling the door and frame install all other ironmongeries (door lock, door closer, panic bar, etc.). Always refer to iron mongeries installation manual.

TROUBLESHOOTING GUIDE

IMPROPER DOOR / FRAME CLEARANCE



IMPROPER DOOR / FRAME CLEARANCE

To ensure proper door and frame function, the clearance between the door and frame must be properly maintained.

All **LIFECO** standard steel door and frames closely hold tolerances that result in a nominal clearance between the door and frame of 3mm. If this clearance is not maintained, interference and hardware misalignment may occur.

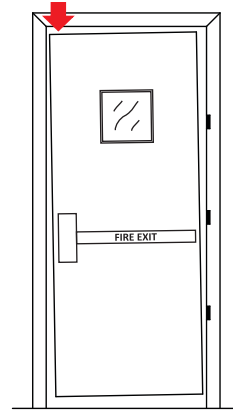


TROUBLESHOOTING GUIDE

IMPROPER DOOR / FRAME CLEARANCE

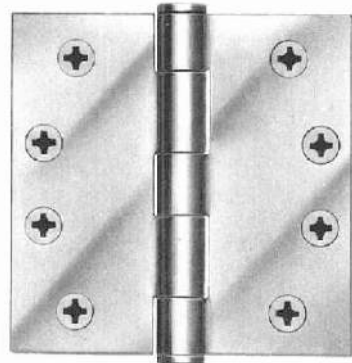
IS DOOR SAGGING?

Uneven clearances frequently result from improper installation of frames and frame anchors. The condition, characterized by lock edge clearances narrow at the top and wide at the bottom, is called "Door Sag". The following suggested adjustments may correct the condition.



ARE HINGES LOOSE?

If hinge screw does not remain tight, the screw can be held in place by the use of a "locktite" type product which prevents the screw from loosening. Additionally, "Nyloc" type fasteners can be used to replace the normal machine screws.

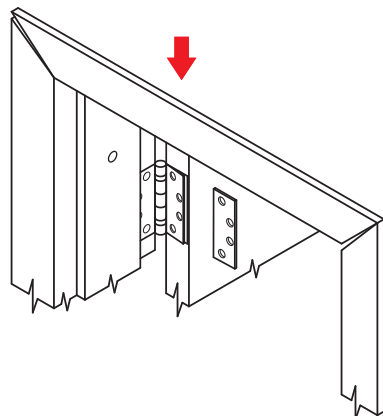


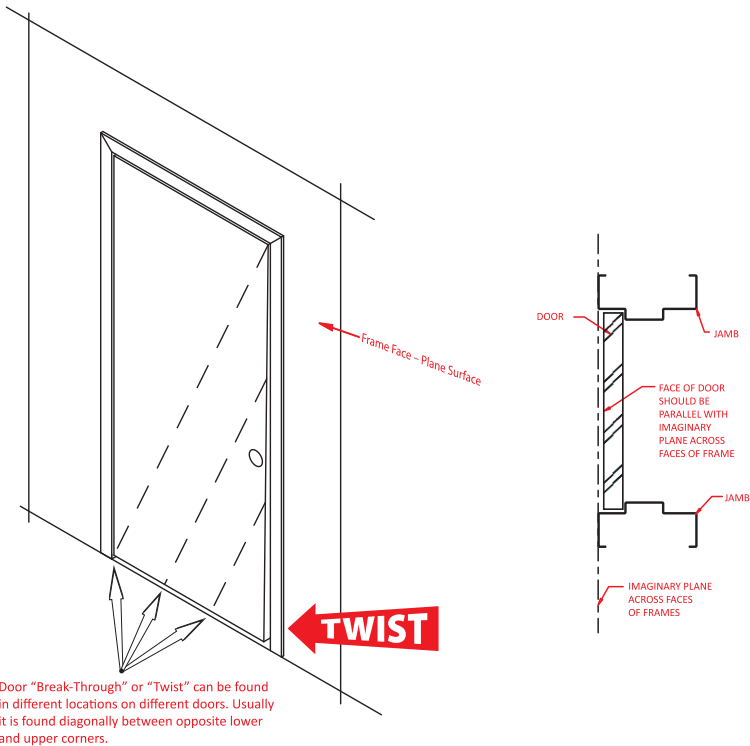
ARE HINGES WORN?

If excessive wear has occurred on hinge knuckles, the door will not be held tightly. Replace hinges.

ADJUSTMENT OF CLEARANCE BETWEEN DOOR & FRAME

Insert shims between the hinge leaf and door/frame. Reattach the hinge leaf.





IMPROPER DOOR / FRAME CLEARANCE

Normal installation results in the plane of the door face being parallel with the lane of the frame face. If the frame is square and plumb, all face surfaces of the frame will be in the same plane. A twisted door will "break through" the frame's face plane surface.

BE SURE the frame is square and plump.

If it is not, the problem is probably with the frame installation and **NOT** the door.



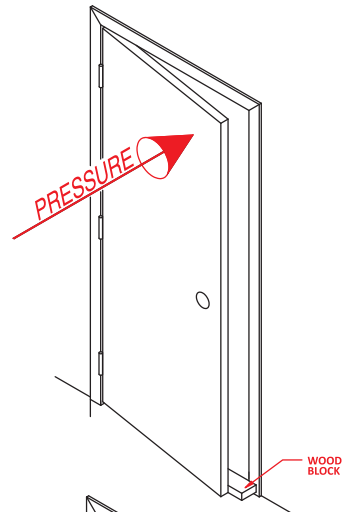
TROUBLESHOOTING GUIDE

TWISTED DOOR ADJUSTMENTS

When required, it is possible to “spring” the door back to (or much closer to) its ideal position of being parallel with the plane across the faces of the frame. This can usually be done with the door remaining in the frame. A piece of wood blocking must be placed between the door & frame. Pressure is then applied at the twisted area to “spring” the door. However, caution should be exercised on drywall installations since the frame could possibly work loose from the wall, particularly with slip-on drywall type frames.

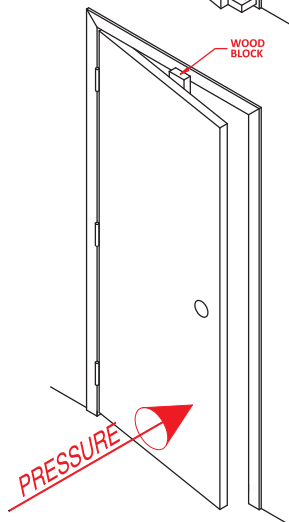
TWISTED AT TOP

When the top lock area of a door is “breaking-through” the plane, place a wood block on floor, between door and frame as shown. Apply pressure to the top lock area as shown to “spring” door back into position. Remove wood block, close door and check condition. Repeat if necessary.



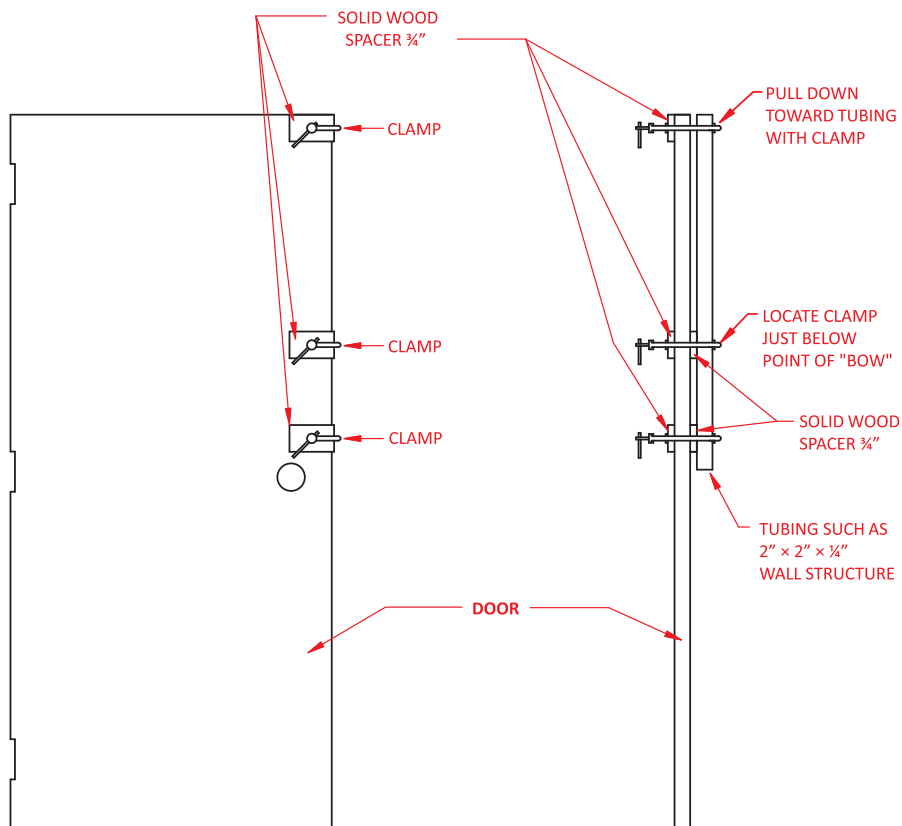
TWISTED AT BOTTOM

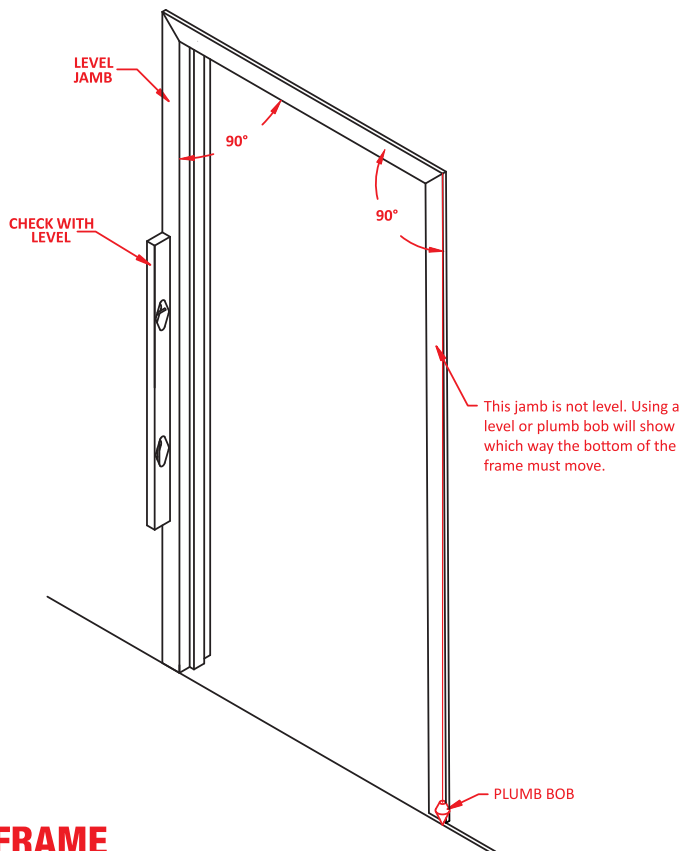
When the bottom lock area of door is “breaking through” the plane, place a wood block between frame head and door as shown. Apply pressure to the bottom lock area as shown to “spring” door back into position. Remove wood, close door and check condition. Repeat if necessary.



ALTERNATE METHOD

An alternate method can also be used which will allow the door to remain in the opening. This method might be appropriate in drwall installations as previously mentioned. Although the example shown deflects the top half of the door, this method could be used on the bottom half of the door as well.





TWISTED FRAME

Wall conditions and anchoring methods can cause the frame to be “twisted” in the opening. The two jamb (hinge and strike) faces are not in the same plane as discussed in the twisted door section. This can be checked by using a level and/or plumb bob. Frames do not have adjustments when it comes to “twist”.

The “twist condition is generally caused by the wall conditions. The frame jamb faces are prevented from being set in the same plane because the walls are out of plane to begin with.

The options available to correct this problem depend, to a large extent, on the wall construction.



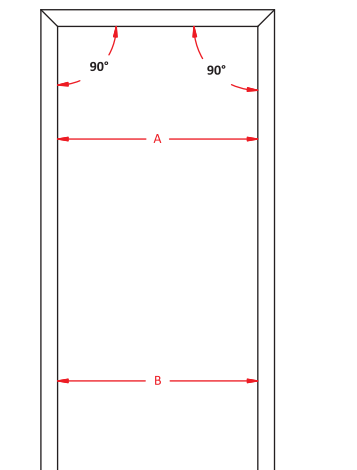
TROUBLESHOOTING GUIDE

FRAME SET OUT OF SQUARE

Proper frame installation cannot be overemphasized. Improperly set frames that are drastically out of square will cause severe door and hardware problems. These types of situation would required extensive field repair and may result in having to remove frames from walls.

PROPERLY SET FRAME

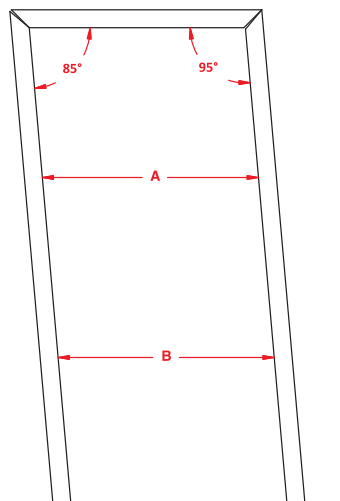
All corners are 90° . The dimension taken at Point "A" is equal to the dimension checked at Point "B". Both hinge and strike jambs are plumb and level.



IMPROPERLY SET FRAME (A)

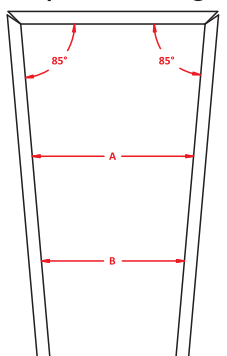
One corner is greater than 90° and one corner is less than 90° . The miters do not properly align with one another and "gaps" are created in the miters which are opposites of one another.

The dimension taken at point "A" would remain the same when checked at point "B" if the 90° corners are out of square an equal number of degrees.

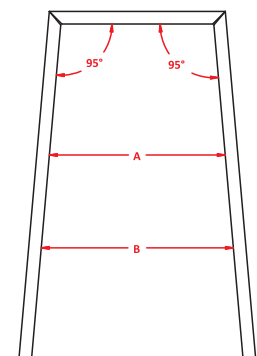


IMPROPERLY SET FRAME (B)

The corners are both greater than or less than 90° . The miters do not properly align with one another. When the corner is less than 90° the miter will have a gap which increases as it goes towards the return. When the corner is greater than 90° the miter will have a gap, which increases as it goes towards the rabbet. Dimensions taken at point "A" and "B" will not be equal. This condition will always result in dimension "B" being either greater than or less than the nominal opening dimension which would be obtained if checked between jambs along the header.



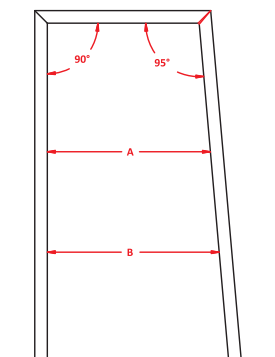
JAMBS TOED IN AT SILL



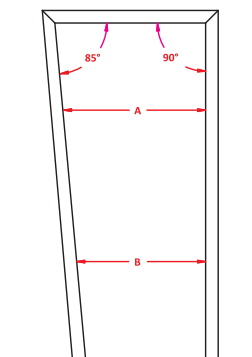
JAMBS TOED OUT AT SILL

IMPROPERLY SET FRAME (C)

One Corner is properly set at 90° while the other corner is greater or less than 90° . the dimension taken at point "A" will constantly change when checked at various points going towards point "B". The corner miter will not properly align between the header and jamb which is not set at 90°



ONE JAMB TOED IN

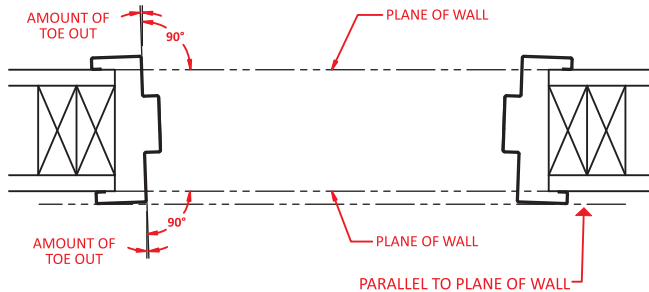


ONE JAMB TOED OUT



TROUBLESHOOTING GUIDE

FRAME WITH RABBETS TOED IN OR OUT

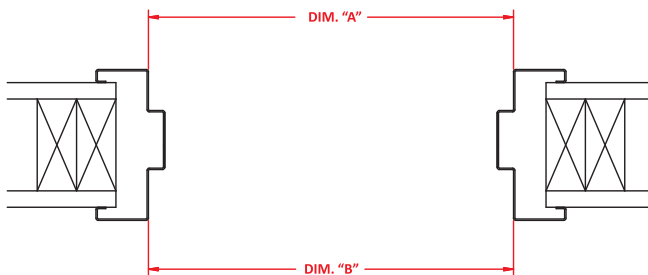


TYPICAL TOED-IN OR TOED-OUT CONDITION

The importance of proper initial frame installation is evident in this condition. Improperly set frames which have the rabbets drastically toed in or out would require extensive field repair.

The toed in or out condition is worse near the floor. The header prevents the upper portion of the jambs from toeing in or out but as you move away from the header towards the floor, the jambs have greater potential to be toed in or out during installation.

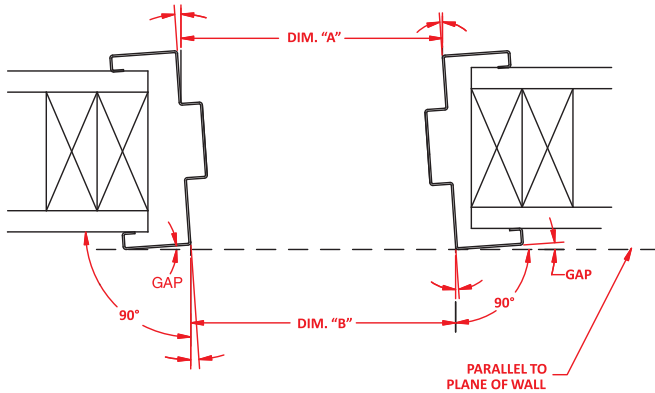
Note that the rabbet surfaces are not 90° to the plane of the wall. This can be checked by placing a straight edge across the face of both jambs. The straight edge should set flat across both faces at the same time. If the jambs are twisted, a “gap” will be created as shown in the above figure.



If both jambs are toed in/out, they both should be “squared-up”. This can be checked by taking measurements as shown above. Both the “A” and “B” dimensions will be the same when the frames are properly set.

TROUBLESHOOTING GUIDE

FRAME WITH RABBETS TOED IN OR OUT



The above figure shows a condition which can give the impression that the frame is properly installed. Both dimensions "A" and "B" will be equal but the frame will not be square in the opening. Both jambs can be twisted to create a parallelogram.

This can be checked by placing a straight edge across the face of both jambs (the straight edge is represented by the dotted line shown below). The straight edge should set flat across both faces at the same time. If the jambs are twisted, a "gap" will be created as shown in the illustration. The "gaps" will be to the same side if a parallelogram was created.



TROUBLESHOOTING GUIDE

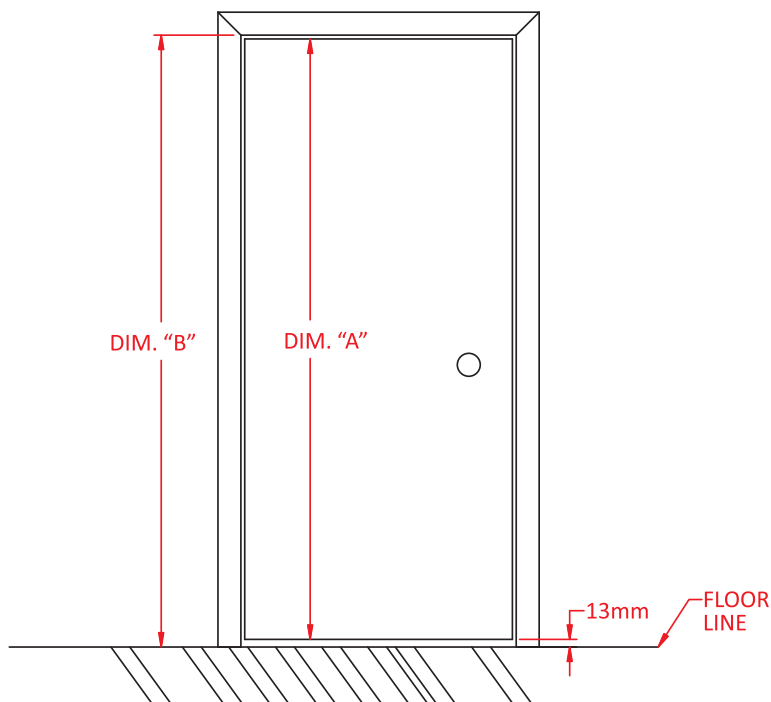
CLEARANCE AT BOTTOM OF DOOR TOO SMALL

The available options for correcting this problem are limited. Frames which are permanently anchored to the wall construction (such as masonry or steel stud) leave few alternatives. The only available “fix” is to trim the bottom of the door, if the door’s construction will permit trimming. As shown in the figure below, the nominal “sill clearance” should be 13mm. The sill clearance is the dimension from the bottom of the door to the bottom of the frame jambs.

The frame jambs should be set at floor level which then results in 13mm between the bottom of the door and floor.

The door height is determined by taking a measurement represented by dimension “A” in the figure. If the door height is “oversize” the clearance at the bottom will be too small.

The frame jamb height (which is the same as the opening height) is determined by taking a measurement represented by dimension “B”. If the jamb height is “undersize,” the clearance at the bottom will be too small.





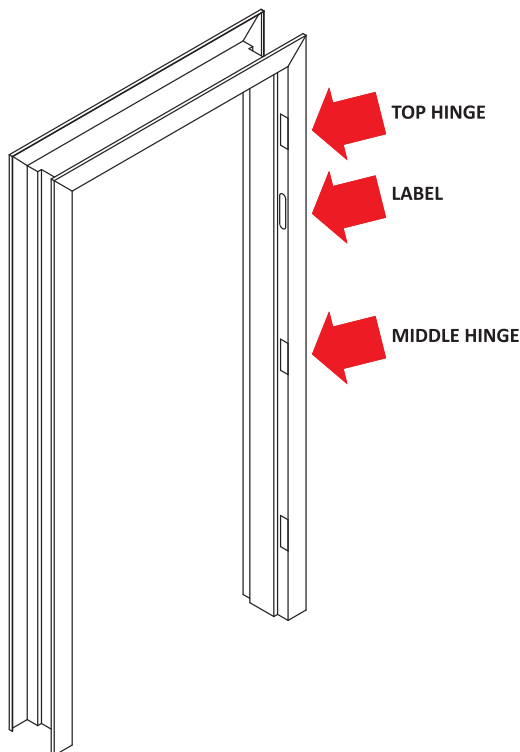
TROUBLESHOOTING GUIDE

LABEL MISSING FROM FIRE-RATED FRAME

Like doors, fire-rated frames are an important element of compliance with building codes and fire protection standards. Consequently, proper control of the labels which are attached to the frame is top priority for the manufacturer, code official and labeling agency. Once the product is in the field, whether it is installed or not, no one, including the manufacturer is permitted to attach labels unless a representative of the manufacturer's labeling agency has inspected the product for compliance with the manufacturer's procedures. Only authorized individuals can be in possession of and attach labels to fire rated products in the field.

All labels on fire rated frames are located on the hinge jamb between the top and middle hinge (see figure below). It should be noted that some frames have an embossed label, rather than a surface-attached label. The embossed label is stamped into the frame rabbet and can be painted over.

If the label or embossment is not present, the frame distributor should be contacted.



DISCLAIMER

The information contained in this Manual is intended to be used for assisting operating personnel, by providing complete and accurate information to meet operating, maintenance or service requirements of the LIFECO Fire Rated Metal Doors.

The contents of this manual, are not intended to supplement or replace any statutory or regulatory requirements, or does not relieve the user of their responsibility of handling the equipment. All working of the LIFECO Fire Rated Metal Doors must be in accordance with the applicable instructions and/or standards.

LIFECO reserves the right to make changes to its products and their specifications, and to this manual, without any prior notice.

NOTE

The information contained in this Manual has been referred from the following documents of Steel Door Institute
Installation Troubleshooting Guide for Standard Steel Doors & Frames
Maintenance of Standard Steel Doors and Frames



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