



# Installation Manual

**CONTAINS IMPORTANT SAFETY INFORMATION**

Box 2188 - 400 AIRPORT DR. - WINKLER MB CANADA - R6W 4B9  
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## Introduction

Congratulations on your purchase of a quality bi-fold door system. When installing your door, there are some simple steps to follow to ensure that you get a quality installation and years of trouble-free operation. Be sure to read over this installation manual before beginning so that you are familiar with the steps involved and have a general understanding of the installation procedures.

## Safe Installation Procedures

The operation of the door and its controls should be reviewed with the owner and/or end user of the bi-fold door system. They should also be informed of the need to maintain the door system and its components on a regular basis. The door and all safety equipment should be checked regularly to ensure that it is working correctly. A schedule and instructions for regular maintenance can be found in the Owners Manual provided by Diamond Doors.

The Owners and Installation Manuals should be stored in a place that can be accessed regularly for reference (they are factory-shipped inside black electrical box).

All control equipment should be installed and serviced by a qualified professional.

All electrical connections should be done by an electrician.

## Estimated Installation Time

If the building is prepared, and you have the necessary tools and equipment, average installation times range from 3-4 hours to hang the door and have it operational.

This does NOT include installation of trims, exterior cladding, insulation panels, etc. Diamond Doors come with all electrical pre-wired & tested from factory. Electrical install will include mounting the wall controls (up/down/stop buttons), and connecting main supply power to the black electrical box.

## Tools & Equipment Required for Installation

- Hammer, Measuring Tape, Utility Knife, Level
- Screwdrivers (*Philips and Flat*)
- Extension Ladder (*or scissor lift, scaffolding, or other, if available*)
- Mechanical Lifting Device (*ie. forklift, crane, telescopic forklift, etc.*)
- 1/2" Drill
- Drill Bits
  - 1/2" bit at least 12" long (*for pre-drilling rafters + posts for 1/2" bolts*)
  - 3/16" bit (*for pre-drilling holes in exterior cladding*)
  - 3/8" bit **for steel buildings or metal quonsets**
- Nut Driver Bits for Drill
  - 1/4" - for black electrical box
  - 5/16" - for exterior cladding tek screws
  - 3/8" - for lag bolts securing yellow latch brackets
  - 7/16" - for lag bolts securing yellow latch brackets
  - Square Robertson #3
- Wrenches; 3/4" wratchet, 3/4" wrench, 9/16" wrench
  - (a 3/4" wratchet wrench is preferred for speed, but not necessary)
- Hand Wratchet with the following sockets; 7/16", 1/2" (*for cable clamps*)
- Pry Bar: at least 3' Long
- Large Bolt Cutter or Cable Cutter
  - (*to cut up to 1/4" cable, disc grinder can be substituted*)
- Tin Snips (*for cutting flashings and exterior sheeting*)
- 2 Large F-Clamps at least 12" or longer (optional)
- 2 Vise Grips
- WD-40 Lubricant (*for installing bottom black rubber weather seal*)

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# Glossary of Parts

Yellow Latch



Yellow Latch Extension Bracket  
*(for attachment to steel columns)*



Top Canvas Seal



Bottom Rubber Seal



Aluminum Track



Lower Angle Bracket  
*(bottom roller catch)*



Lower Angle Bracket Extension  
*Steel Building Attachment Angle  
(for attachment to steel columns)*



Cable Guard



3-Button Control Box  
*UP/DOWN/STOP Buttons*



Photo-Electric Sensor  
*photo-eyes safety sensor*



Remote Control (3-button)  
*optional feature*



Antenna Extension Cable  
*optional feature for doors  
equipped with remote controls*



Foil Tape



Wind Catch *(optional feature)*



Cable Clamp



Tek Screw  
*#10 x 3/4"*



Flat-Head Stove Bolt  
*1/4" x 3/4" long*



Flat-Head Screw



1/2" Flat Washer



1/2" Hex Nut



Track Angle Bracket



Hinge Bolt: 1/2" x 8"



Hinge Bolt: 1/2" x 12"



Lag Bolts with Washers



Lag Bolts



Wood Screws



Turn Buckle Kit



Cable Anchor Kit

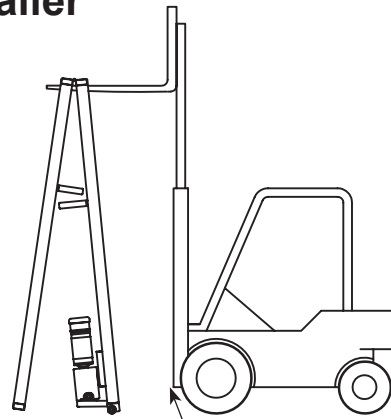


Lift Cable Kit



## Step 1 - Unloading Door from Trailer

- Usually the bi-fold door will come shipped in a partially collapsed position with its centre hinge pointing upwards.
- Using a forklift (or equivalent), approach the side of the door on which the electric drive system is located (bottom half).
- Gently lift door from trailer. Lift the door from the highest location possible, preferably from the centre hinge tubes.



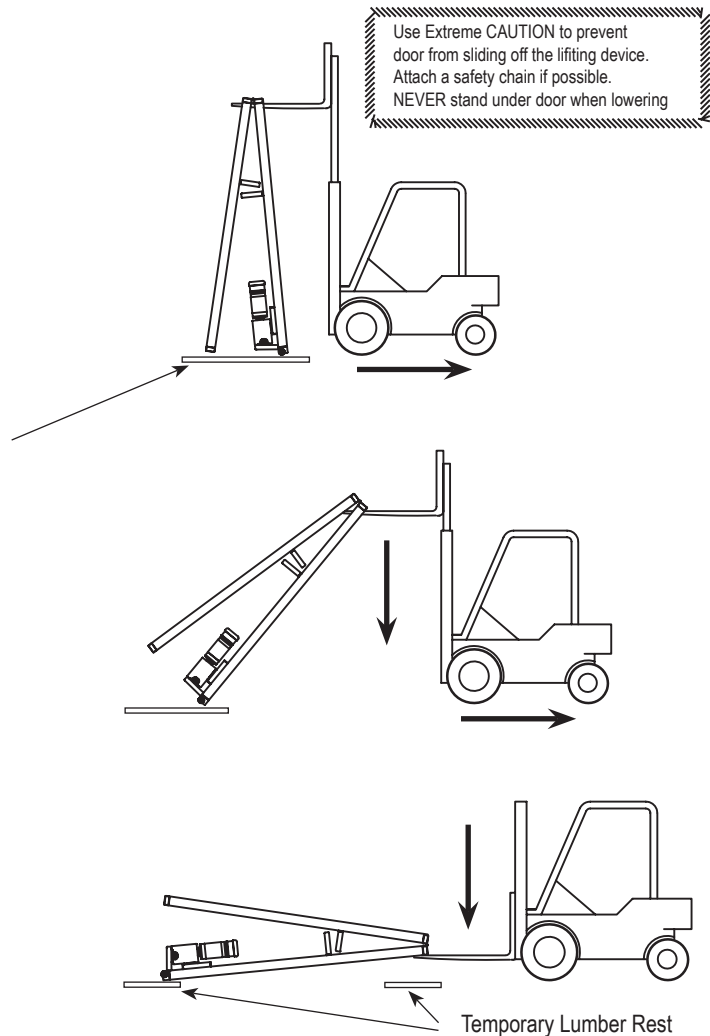
CAUTION of Accidental Contact Here

### Note: Lifting Door

If the door is shipped in a partially collapsed position, lifting it from the trailer may cause it to collapse together suddenly. Be sure to raise the door slowly to reduce this effect. Also ensure that the bottom member does not hook under the forklift when lifting the door.

## Step 2 - Preparing Door for Installation

- The next step is to lay the outside face of the bottom section down flat on the ground.
- We strongly recommend that a skillful forklift operator and two others assist to safely complete this task.
- With the door hanging from the forklift, slowly drive towards the building opening.
- To prevent the door from swaying excessively while it is being moved, maintain a slow but steady motion.
- Position the door several feet away from the building, in the centre of the opening.
- Set down several 2x4's perpendicular to the length of the door, (to rest the door on, so the rollers don't touch the ground)
- Gently lower the door until the bottom edge just touches the ground.
- With part of the doors weight now resting on the ground, get one person at either end of the door to assist in tipping the door towards the forklift.
- Begin lowering the door by slowly reversing the forklift while at the same time lowering the forks.
- Continue to lower the door, ensuring that the forks are safely supporting the door at all times.
- Be cautious that the forks don't interfere with the galvanized lock pipes or other door members.
- Remove track angles from bottom truss by cutting straps place track angles out of the way, to avoid damage



## Step 2 - Preparing Door for Installation...continued

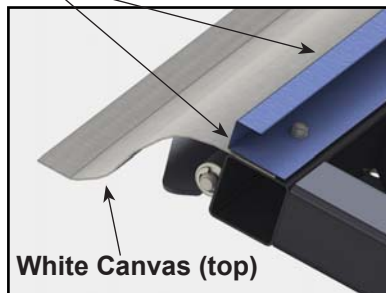
### Attach Lift Cables to Top of Door



## Step 3 - Install Weather Seals

It is easiest and most efficient to install the weather seals at this time, while the door is laying flat on the ground. This includes the top (white) weather strip, as well as the aluminum tracks on the underside of the door. Once the aluminum tracks are attached to the bottom of the door, insert the bottom (black) rubber seal in the track as indicated below. It is possible to install the seals after the door is installed, but will require more labour than if done at this stage of installation.

### Apply Caulking



White Canvas (top)

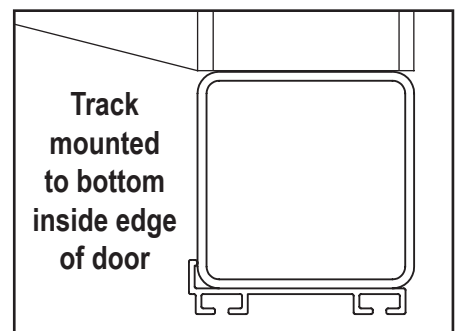
3/4" Tek  
Screws

Black Rubber  
(bottom) Seal

Temporary Blocking  
(For inserting bottom  
seal past bottom roller)

Aluminum Track

Attach using self-tapping #10 - 3/4"  
Galvanized Tek screws every 8" for  
the entire length of the track



## Step 3 - Install Weather Seals

### Bottom Rubber Seal

The bottom rubber seal consists of an "I" shaped rubber seal and an aluminum retainer. It is intended to provide a weather seal between the bottom of the door and the finished floor.

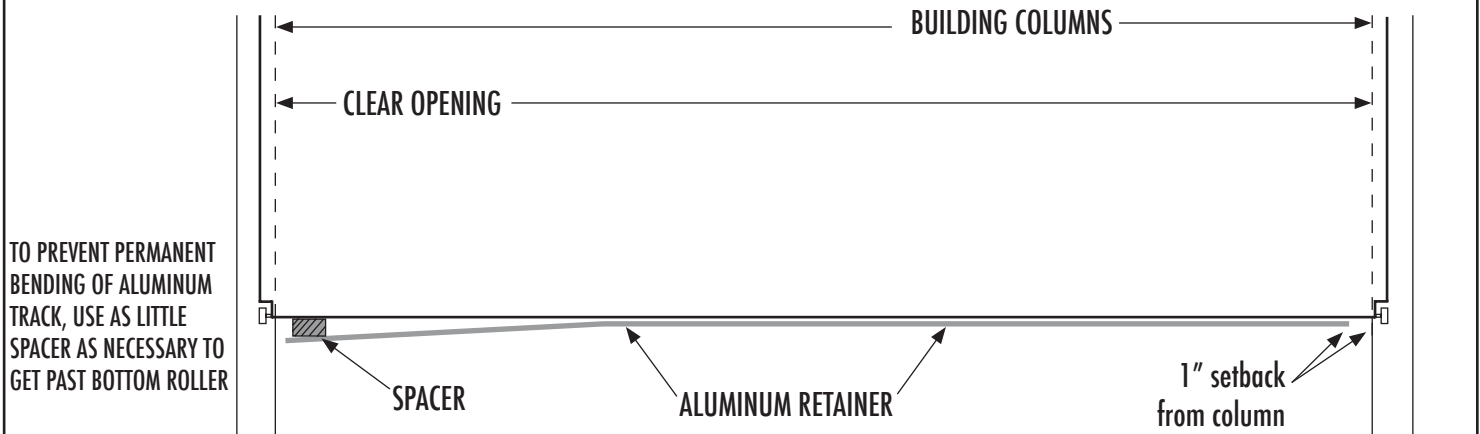


1. Measure width of Clear Opening
2. Roll out rubber along or beside door, and be sure not to stretch rubber before cutting.
3. Cut rubber to the exact width of the clear opening of building
4. Attach aluminum retainer to bottom of door (using the #10x3/4" galvanized TEK screws provided, see above diagram). Install fasteners roughly 8" on center. Retainers come in 10' lengths.
  - a) *Total length of aluminum retainer should be 2" less than your clear opening, and **centered on the door**. This leaves ~1" of clearance on either end of door (between columns) and prevents the track from binding on building column when the door is in motion.*  
*Example: If your clear opening is 40', aluminum retainer should be 39' 10", centered on the door.*
  - b) Continue installing adjoining pieces of retainer, butting one right against the other. Ensure that retainer ends are free of burrs which may cause rubber to bind when sliding in. Ensure retainers line-up to ease rubber installation later. Cut last piece to length as required. (When installing screws within the last 12" of door, take note of location of the bottom roller shaft. It may be necessary to insert screws at an angle or near corner of tube to avoid hitting the shaft.)
5. Going back to the first 10' retainer, remove first 1 or 2 screws. Install temporary spacer block between retainer and door frame so that the retainer bends outward. This will provide clearance to install the rubber past the bottom roller.
6. Spray track with lubricant (WD-40 recommended) to ease installation of rubber.
7. Insert rubber into aluminum retainer. Have one person pull rubber, and a second person helping feed rubber into retainer. Pull rubber until approx. 1" past aluminum retainer (on each side of door)  
**Note: Do NOT cut excess rubber...**work the rubber until it all fits inside of track.
8. Remove temporary spacer block and reinstall screws (removed in step 3 above). This may require pushing rubber over, installing screws, and then pulling rubber back.

#### Once Door is Installed on Building

9. Using a hammer and punch, slightly crimp flanges of retainer (at both ends of the door) to secure rubber in position. Ensure edge of rubber is flush with clear opening to ensure a good seal. DO NOT trim rubber further as it may have stretched during installation.

### If Installing Bottom Rubber Seal Once Door is Mounted on Building



## Step 3 - Install Weather Seals

### Top Weather Seal

The top weather stripping consists of a white canvas type material. It is designed to provide a wind and water seal between the building and door cladding.



#### Install One Edge to Door

1. Lay out canvas across top of door
2. Canvas should extend approx. 6" past each end of the door. Trim as needed.
3. Starting at one end, fold the 6" overlapped canvas back on itself, creating a double layer. The resulting 3" overlap will provide a stronger edge, and a cleaner appearance. Secure canvas to door frame using one or two 1/2" flat-head screws.
4. Pull far end of canvas tight, with canvas overlapping down approx. 2" onto the door, Folding the end (as in the previous step), temporarily secure with one or two tek screws.

5. Install J-Trim moulding at top edge of door over top of white canvas, using 1/2" flat-head screws

Notes: a) Screws supplied with door

b) Some screws that temporarily held the canvas in place may need to be removed, allowing trim to sit flat against the canvas/door.

c) Place screws approx. every 5 feet (exterior sheathing will further secure trims once installed)

6. Apply a bead of caulking between weather strip and J trim to prevent moisture from entering behind the sheathing
7. Once Door is mounted on building, the top edge of the canvas will be fastened to the building face behind the drip flashing above door.

## Step 4 - Building Preparation

It is important that the building is properly prepared BEFORE the door is installed.

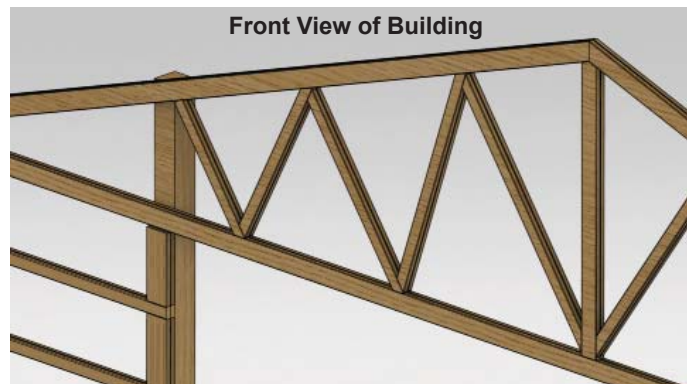
### Preparing the Building Columns

The posts forming each building column should run vertically all the way to the top of the truss

### Preparing the Building Header

The Header is the part of the end-wall truss from which the door will hang.

For most wood buildings, the Header will need to be built by reinforcing the end-wall truss as follows;

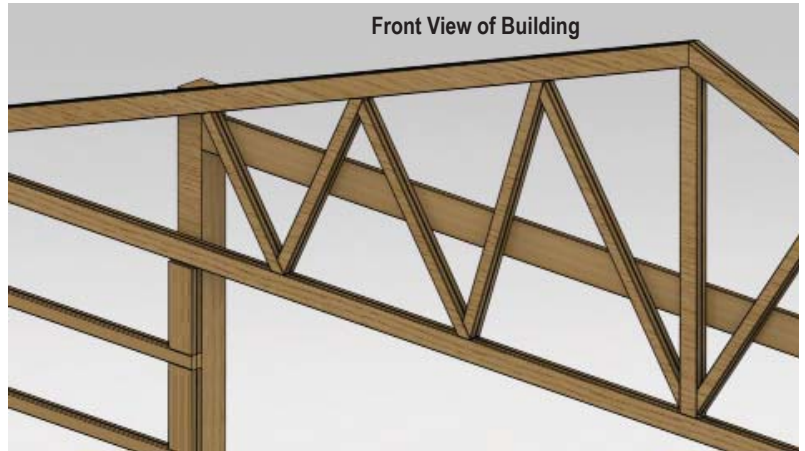


## Step 4 - Building Preparation...continued

### 1. Attach a 2x10 (or similar) to the inside (back) of the end-wall truss

It should span the entire clear opening, attaching to the building column on either side.

Make sure it is vertically centered at the height where the hinges of the door will be attached (Bolt Height).

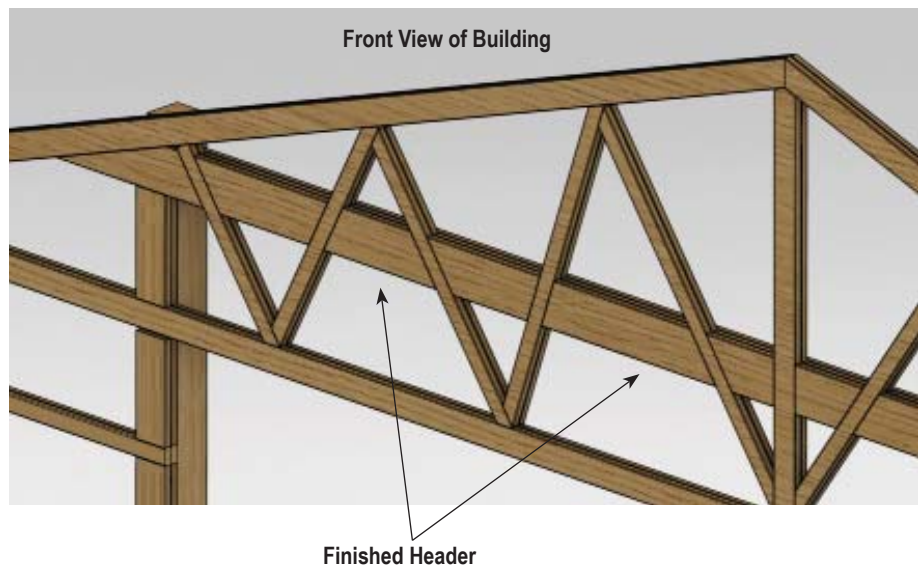


### 2. Fill the angles between the webbing with blocking

It is very important that the building face is flat and true

There is very little clearance between the door and the top of the building.

Any warping or bowing will prevent door from lifting past the top of the door opening.



### MAKE SURE THE BUILDING FACE IS STRAIGHT



It is very important that the building face is flat and true

There is very little clearance between the door and the top of the building.

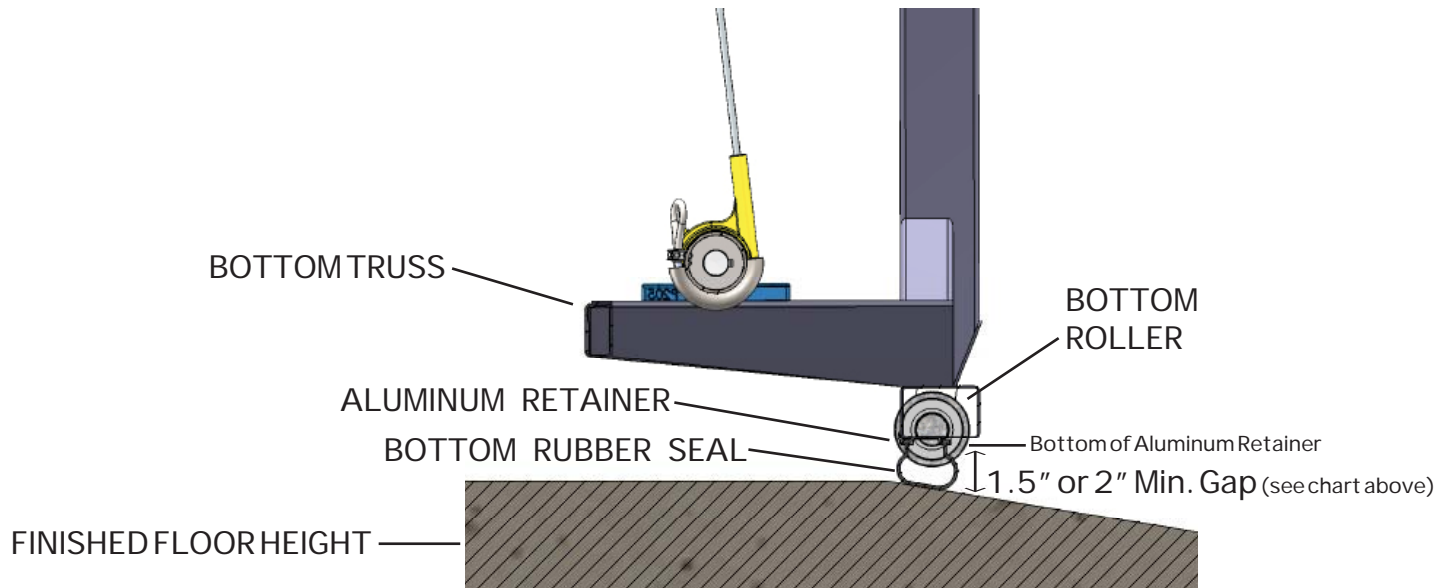
Any warping or bowing will prevent door from lifting past the top of the door opening.

## Step 4 - Building Preparation...continued

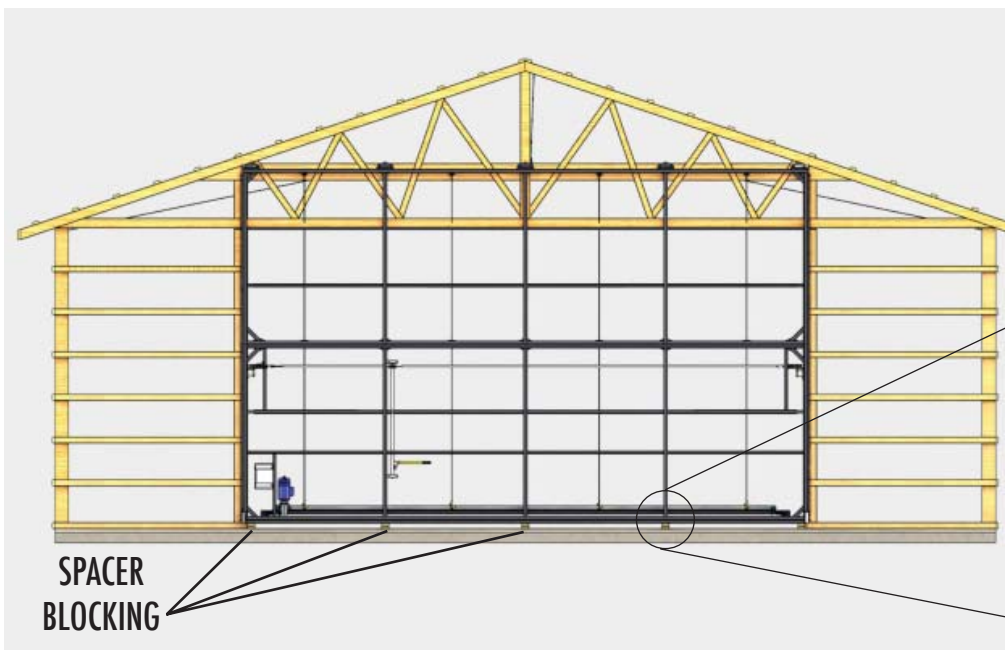
This step prepares the building for correct vertical placement of the door in the building opening. The bi-fold door should be mounted to the building so that there is a uniform gap between the bottom of the door and the finished floor level. This allows for slight ground variations and building settlement. This space is sealed with the bottom rubber seal.

|                               |                      |
|-------------------------------|----------------------|
| Doors of 40ft width or less   | 1.5" gap recommended |
| Doors greater than 40ft width | 2" gap recommended   |

\*Additional space may be required if your region is susceptible to excessive seasonal variations (heaving)



Using several pieces of wood (eg. 2x6), construct a temporary base beside both building columns and at several locations along the building opening. The door will rest on these wood bases when placed against the building. The wood bases should be placed beneath the vertical members of the door.



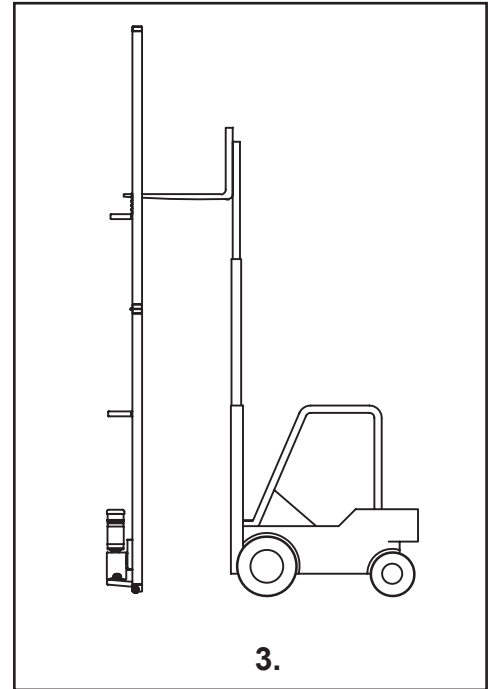
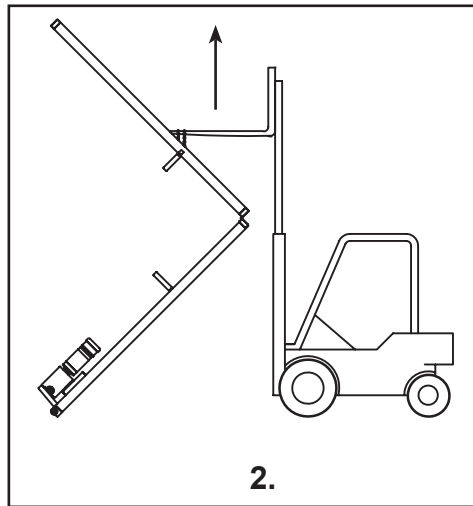
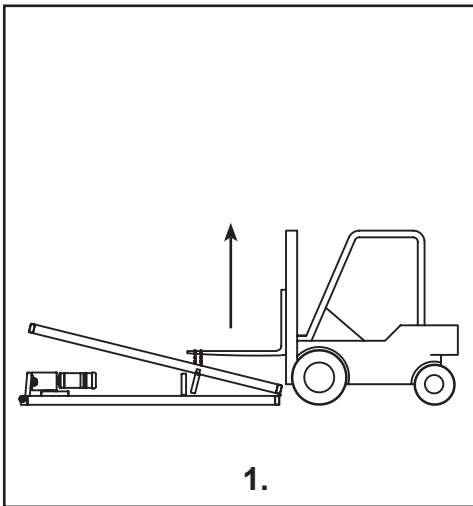
Note: if door is installed before finished floor is poured/installed, it is important to determine where the floor level will be, and install door 1.5"-2" above that height



## Step 5 - Lifting Door to Fully Extended Height

In this step, the door is raised into a fully extended position for placement in the building opening. We recommend that the door be lifted from the highest possible location. Due to forklift lifting height limitations, the door is usually lifted from the first horizontal member above the centre hinges.

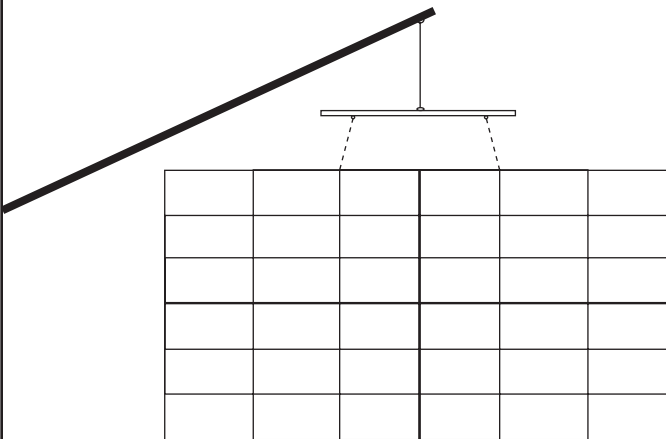
- a) Approach the centre of the door with a forklift
- b) Attach a chain or lift strap from the forklift to the door
- c) Fasten the chain or strap so that it is only 6-12 inches long  
This keeps the forks near the lift point and prevents later interference with other door members.
- d) Always lift directly beside a vertical member to prevent bending of the horizontal members
- e) Gently raise the door until it is in the fully extended position



Other lifting devices may also be used for installing the door. See below for lifting using a crane, telescopic forklift, or similar

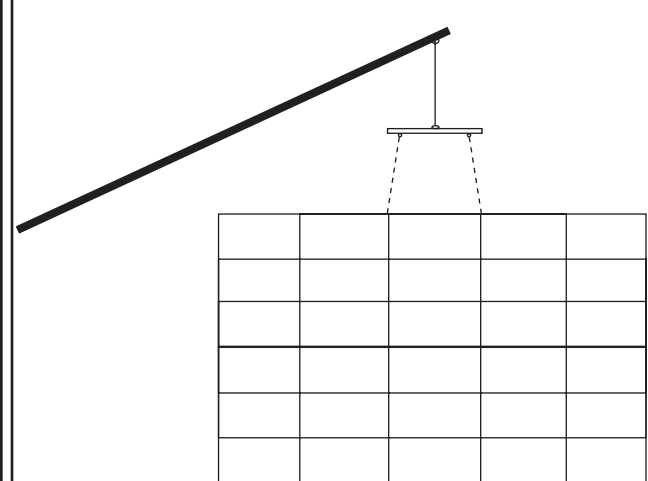
--- Optional Lift Points

### Lifting Large Doors with a Crane



\*For Doors that are more than 50ft wide, we recommend lifting using multiple lift points, as shown above

### Lifting Doors with No Center Vertical



\*Make sure lift cables/chains are attached at the intersection of vertical and horizontal members where door is structurally strong

## Step 6 - Placing Door Against Building

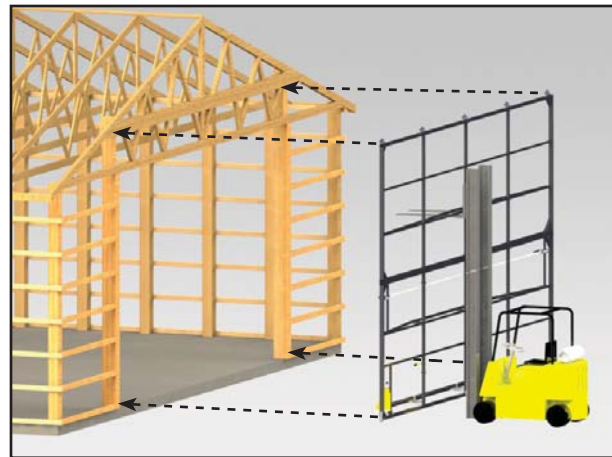
Note: Exterior Face of Building  
MUST be flush and straight  
BEFORE mounting door to building  
Make sure that Bottom cord of truss  
is straight (not warped). If not straight,  
it may interfere with door operation.

*NOTE: Metal track angles will be secured to building column  
in Step 12, AFTER door is hanging on the building*

- With the door fully extended and hanging from the forklift, drive the door gently against the building
- Be sure the door is centred in the building opening
- Get one person to stand at either end of the door to guide the driver
- If necessary, relocate the wood spacer blocks so they are directly under the verticle members of the door
- Slowly lower the door until approx. 80% of its weight rests on the wood supports
- Pry the door over as necessary to ensure that it is correctly centred in the building opening.

*Note: It works well to look at the latch assembly arms (in locked position) and make sure the space from the arm to the building column is equal on both sides of the door.*

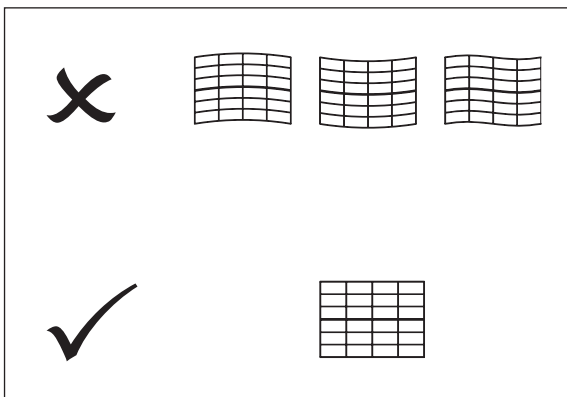
- The door is designed to be slightly wider than the building opening, and should overlap each side equally



## Step 7 - Correct Door Placement

Before the door is permanently fastened to the building you should be sure that the door is;

- Centred in the building opening
- Correctly elevated from the finished floor level
- Not sagging or bowing
- Level



- For proper operation, the door must be resting level.
- Depending on the height of the wood spacers (at the bottom) certain points may either sag or heave.
- Check to ensure that the door is straight by placing a level at several places along the length of the door.
- Adjust the height of the supports by adding shims between the door and the support where necessary.
- A good last check, is to look along the length of the door from one end to the other, ensuring that it is straight and true.

## Step 8 - Install Latches for Locking System

**CAUTION:** Once Door is clamped in place as per instructions below, It is important that at least one 1/2" bolt be installed on each of the top corner hinges (or hinges welded to building) as a safety precaution before lifting device is removed. (see step 9 for attaching hinges to building)

With the forklift still constraining the door against the building, make sure the yellow locking handle (on inside of door) is in the locked position

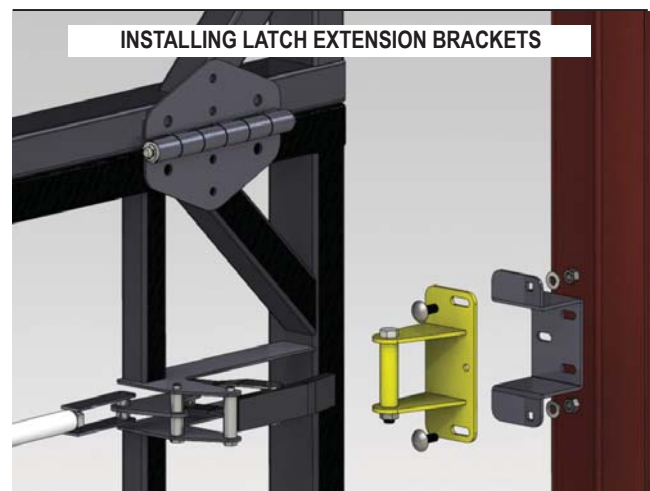
### For Wood Structures

1. Using 2 large F-Style Clamps, secure the door against the building columns (see diagram)
2. Place and center the yellow latch brackets against the building column  
Locking finger should be centred on yellow latch bracket, and touching bracket (in locked position)
3. Mark the location of the slotted holes
4. Turn the locking handle to the unlocked position
5. Secure the latch brackets to the building column with the supplied lag bolts
6. Rotate yellow locking handle to locked position.  
You should notice that it requires some force/pressure to secure door against the building. If there is no resistance while locking, the yellow locking brackets may need to be adjusted by loosening lag bolts, sliding latch bracket over, and re-tightening bolts.  
Note: these latches may require further adjustment after track angles are installed (step 12)



### For Metal Structures

1. Using 2 large F-Style Clamps, secure the door against the building columns (see diagram)
2. Place and center the yellow latch brackets against the building column Locking finger should be centred on yellow latch bracket, and touching bracket (locked position)  
If the building column is an I-Beam, extension brackets will probably be necessary to secure yellow latch brackets to I-Beam. (see diagram)
3. Mark the location of the slotted holes
4. Turn the locking handle to the unlocked position
5. Drill 3/8" holes in the marked locations
6. Fasten the grey extension brackets and yellow latch brackets with the supplied carriage bolts
7. Repeat Procedure for opposite side of door
8. Rotate yellow locking handle to locked position.  
You should notice that it requires some force/pressure to secure door against the building. If there is no resistance while locking, the yellow locking brackets may need to be adjusted by loosening carriage bolts, sliding latch bracket over, and re-tightening bolts.



Grey extension (spacer) brackets have been included with the door, in the event that it is necessary to extend the yellow latch brackets further out from the web of the beam

## Step 9 - Attach Door to Building

With the door correctly positioned on the building opening, it is now ready to fasten the upper hinges to the building header. There is one hinge for every vertical member of the door, and 2 per corner on larger doors.

### Wood Structures

Upper hinges have two 1/2" holes to be used for fastening to the building. The door is fixed to the building by running a bolt through the hinge and into the building header.

1. Ensure that the door is firmly against the building.
2. Using a 1/2" drill bit, run through the hinge hole and drill completely through the building header.
3. Depending on the header thickness, it may be necessary to use an extended drill bit to pass completely through the header or building post for the two outer bolts
4. Insert a 1/2" bolt through the hole, and secure on the inside with a washer and 1/2" nut.

Repeat this procedure for each hinge plate.

#### Notes:

- a) For most wood buildings, longer bolts are needed on the outermost hinges (to run through the building column). Be sure to use the longer bolts for these locations, and the shorter ones along the centre hinges of the door.
- b) For larger doors (generally wider than 30'), a "Cable Anchor Kit" is included. It is then necessary to substitute one of the washers with the cable anchor bracket instead. Typically Cable Anchor Brackets are attached to the second hinge from each end, and for larger doors, on the middle hinge as well. Cable anchor brackets attach to one of the hinge bolts in place of a washer on the back side. See Next Page for Cable Anchor Installation.
- c) The top mounting bracket for the track angle needs to be installed together with the top corner hinges. (see diagram)

### Steel Structures

- Generally hinges are welded directly to the framing of steel structures, and should only be performed by a qualified welder.
- Drilling 1/2" holes and using bolts is also an option for securing doors to steel structures (*Hardware for this is NOT included with doors intended for steel structures*).
- Usually steel structures do not require track angles, and will therefore not have a track angle mounting bracket on the outer hinges.
- If Top Weather Seal (white canvas) has already been installed, use caution when welding, to not burn holes into the canvas.

Begin by fastening the first outer hinge, and continue working along the length of the door. Be sure to fasten track angle mount bracket with the outer hinges (see diagram below)



## Step 10 - Cable Anchor Kit

*This step is only required for larger doors supplied with a Cable Anchor Kit, to provide additional support to the building structure when door is in open position. Cable Anchors are typically only required for wood or quonset-style buildings*

A cable anchor bracket is typically installed on the second outermost door hinge  
(use the brackets with a 3/8" slot that are shipped loose with the door)

1. Run the cable back at approximately 45° angle (or greater) to a structural member inside the building (usually to the sidewall, main building poles, or top structural part of a rafter)  
Note: Make sure to pass the end of the cable that has a factory crimped bracket, through the rafters toward the anchor point on the building, with the other end left near the door, to be later attached to the bracket bolted to the door hinge
2. When passing cable through the rafters, make sure it does not contact or interfere with any rafter webbing or other structure when it is tightened.
3. At the opposite end of the cable which is at the hinge location of the door, insert a turnbuckle in the slot of the cable anchor bracket.  
Note: thread both ends of the turnbuckle out before inserting the cable.
4. Feed the cable through the ring end of the turnbuckle and pull as tight as possible by hand, and tighten using two cable clamps.

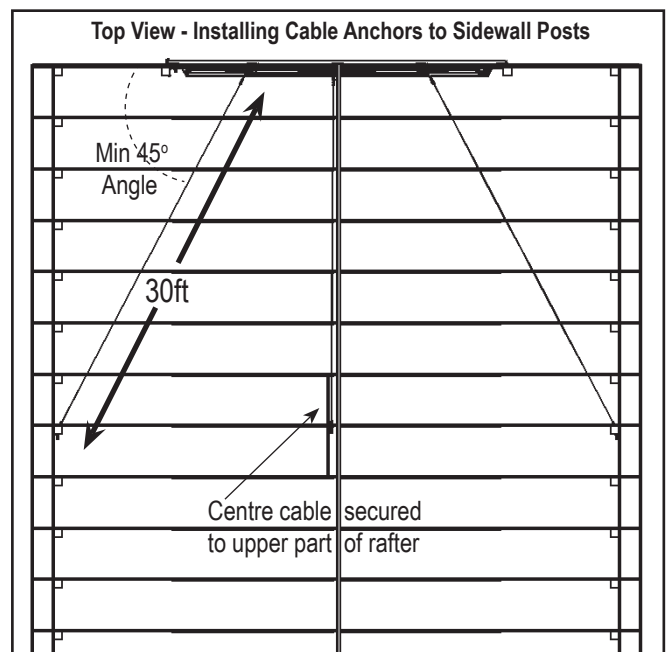
5. Rotate the turnbuckle in the direction that will tighten the cable, being careful not to overtighten the cable, as this puts excessive stress on your building (or may pull your rafter inwards). The cables should only be snug, so when the bifold door is in open position, they will help support the additional outward force that the door exerts on the building at the upper hinge locations.



MAKE SURE THAT BUILDING ANCHORS ARE  
LOCATED AT STRUCTURALLY STRONG LOCATIONS  
(eg. where supports or trusses meet)

For installing anchors to sidewall post:

- a) Drill a 1/2" hole through the centre of a sidewall post at a location that allows a clear path for the cable to pass from the header to the sidewall post
- b) Insert a 1/2" bolt through the hole, and fasten the cable anchor bracket with a 1/2" nut and washer
- c) Repeat procedure for opposite side of door



## Step 10 - Cable Anchor Kit...continued

### For installing anchors to Rafters:

Installation is similar to above steps for sidewall posts, but instead of bracing back and to the side, you will rather brace straight back and slightly upwards, attaching to the upper portion of the rafter.

- a) Drill a 1/2" hole through the rafter at a location that allows a clear path for the cable to pass from the header to the rafter.
- b) Insert a 1/2" bolt through the hole, and fasten the cable anchor bracket with a 1/2" nut and washer
- c) Repeat procedure for opposite side of door

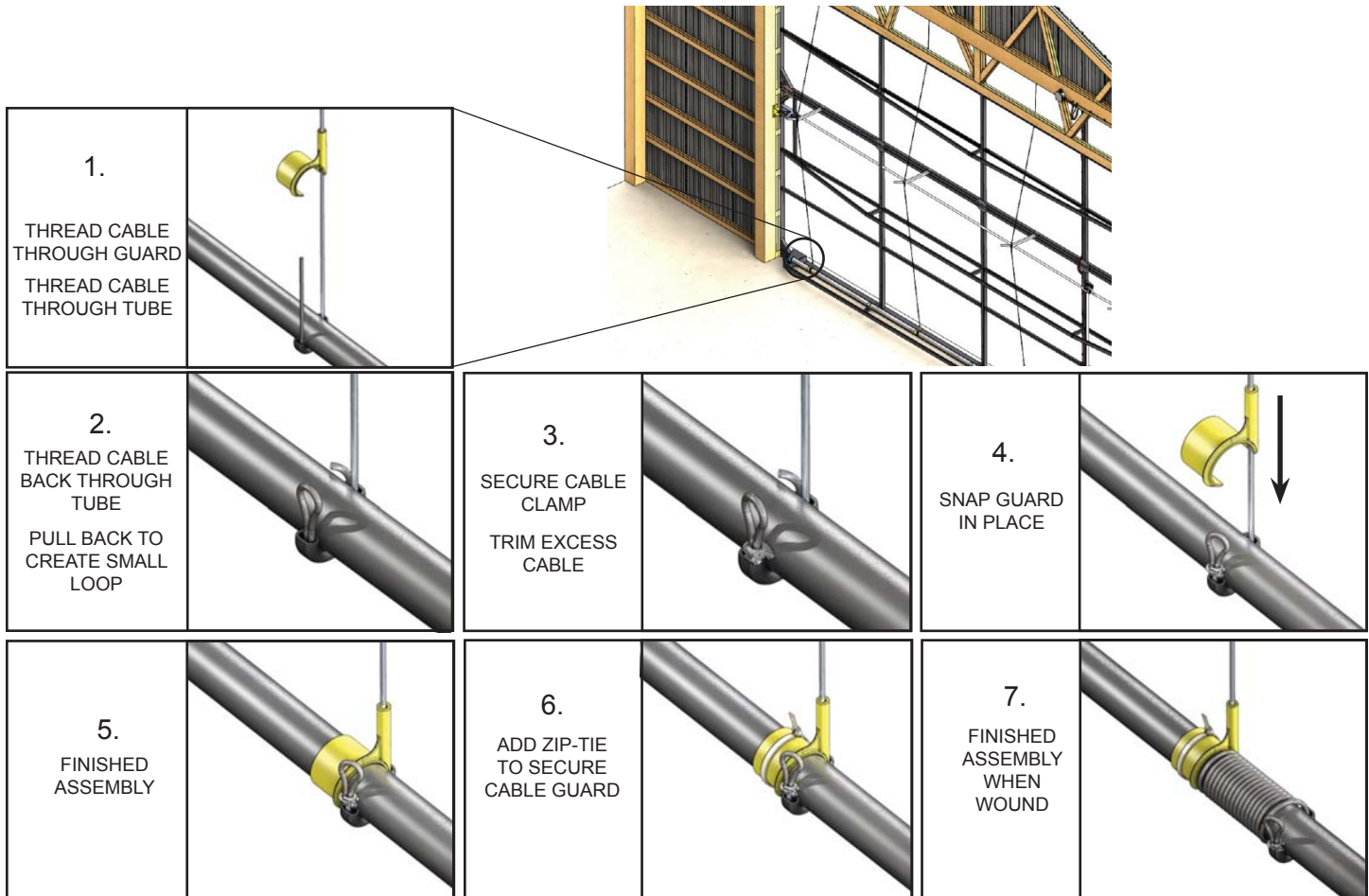
*It is recommended that at your anchor point on the rafter, there be roof strapping, or that your supporting rafter be braced to the adjoining rafter with a filler block of wood, transferring the load of the cable to more than one rafter.*



### Notes:

## Step 11 - Drive Cables

Lift Cables are packaged separately from the door  
Top end of the cable is factory assembled with a brass sleeve and crimped



*Steps 1 & 2 below should have been completed earlier in the installation process. If they have not, they should be done now.*

1. To attach to door, simply insert 1/2" bolt through brass sleeve and through the top anchor location (at top of door). Secure with 1/2" lock nut.
2. Allow cable to hang freely from top of door down towards bottom driveshaft.
3. Cables should pass over top of door trusses (not through).
4. Most doors have an additional "Y" shaped pusher at the centre of the door. If equipped, cables should pass over the "Y" pusher before being attached to driveshaft.
5. Before attaching cable to drive shaft, cable must be fed through the yellow plastic cable guard(s). Cable guards are available for installation from both the right and left hand side, depending on the direction the cable is intended to wrap around the drive shaft. This is determined by the location of the vertical yellow tube at the back of the guard. Try snapping the guard in place to determine if it is the correct guard, then remove guard.
6. On driveshaft, pass cable through rear of attachment tube and pull remaining length through front of tube until cable is tight. Make sure it passes over a "Y-Pusher Bar" and over any wind trusses.
7. Insert cable through cable clamp, and loop back again through cable clamp.
8. Pass excess cable back through front of attachment tube, maintaining adequate tension on vertical portion of cable, pulling excess cable from the back of tube in order to create a fairly small loop at the clamp location (approx. 1.5" loop)  
Note: It is important that cable clamp faces away from the direction of cable travel, to avoid interference from the nuts while cable is wrapping.
9. Securely fasten cable clamp.
10. Using a cable cutter, or bolt cutter, cut off excess cable. A grinder with a thin cut-off wheel can also be used. **USE CAUTION NOT TO DAMAGE LIFT CABLE**
11. Slide Yellow Plastic cable guard down, and snap over drive shaft. Secure cable guard with plastic zip-tie, trim excess.
12. Repeat this process, applying similar tension to each individual cable when fastening. This will balance the loads evenly to each cable. Further adjustment may later be required when door is operating.

## Step 12 - Install Track Angles

Track angles are typically supplied only for installation on wood buildings. If supplied, angles come complete with a track angle mounting bracket (for connection to the hinge) and a lower angle bracket (for retaining the bottom door roller).

Determine correct side and orientation of each angle (left or right and top or bottom).

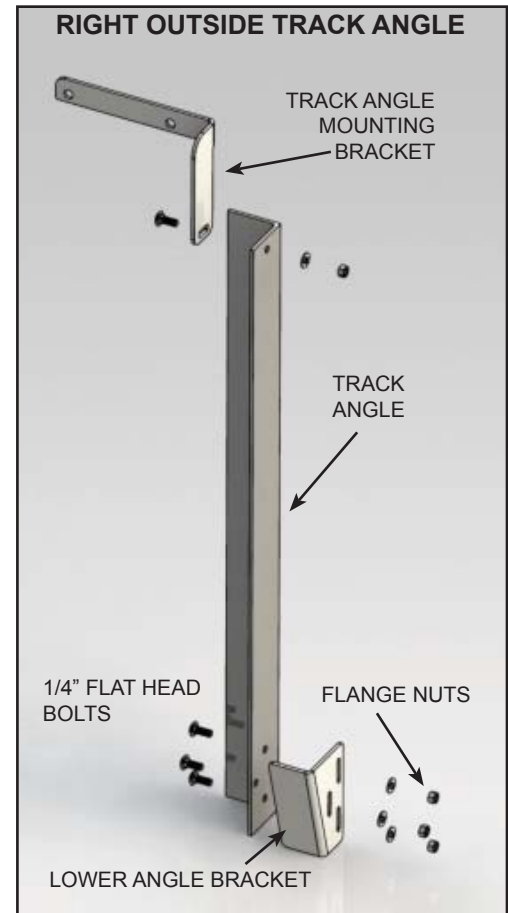
The top of the angle has a single hole through the side flange, while the bottom has 3 or 4 (countersunk) 1/4" holes.

Number of holes depends on the size of the bracket.

For installation to wood buildings, the back flange has numerous countersunk holes for attachment into the building column.

### **Installation:**

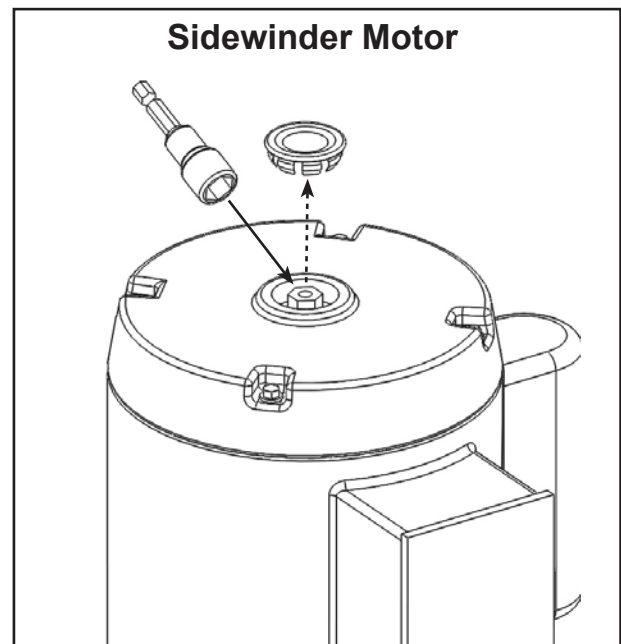
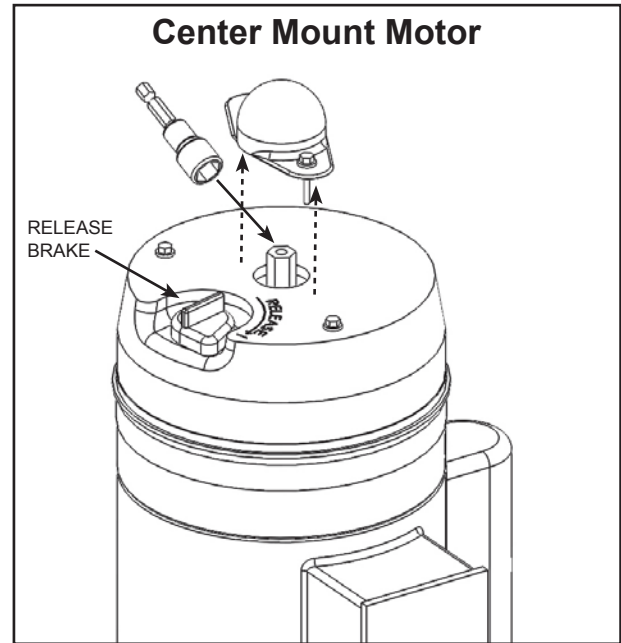
1. Remove track angles, which are typically shipped by being strapped to the bottom truss of the door.
2. With the track angle laying flat on the ground, attach the lower angle brackets with the supplied 1/4"x3/4" flat head bolts. Make sure that the lower angle brackets are bolted on the outside of the track angle and that the bolts are only hand-tightened, to allow later adjustment.
3. Unlock door, remove any supporting wood blocks, allowing the door to hang down and move freely.
4. Prop up angle against building, just beside door make sure the lower angle bracket is at the bottom
5. Pull bottom of door several inches away from building column by hand, at the same time slide the angle between door and building column. Note: the bottom track angle bracket should go over the bottom roller bearing
6. Attach Track Angle to Track Angle Mounting Bracket with carriage bolt. (often factory welded to track angle mounting bracket)  
Track Angle should hang freely from top hinge location
7. Repeat Steps 2-4 for opposite side of door
8. With the door in locked position, raise the lower angle bracket up until it makes contact with the bottom roller bearing of the door. Tighten the flange nuts (on the 1/4" flat head bolts) to secure. If bolts rotate while attempting to tighten, then they may need to be tightened later when door is raised, and you can access bolt heads
9. With Track Angle in place behind the door (with ~3/4"-1" gap between the side of the door and inside face of the track angle). Make sure door is still locked, & visually inspect that the angle is straight with consistent space between angle & door. There should be a consistent space from top to bottom. This may require some prying or manual force.
10. Make a mark along the side of the angle on the building column, towards the bottom & about half way down the column, as a reference for later when securing it in place
11. Unlock & Open Door ~3 feet so you can access Track Angle holes  
NOTE: If Power is not available to raise the door, you can raise the door manually (see step 13). If power is available refer to Wiring (step 14) or use a temporary heavy duty extension cord to power the door from a nearby plug or panel. Any electrical connections should be done by a qualified person. If using a temporary extension cord, exercise EXTREME CAUTION that it does not catch on any part of the door during operation.
12. Fasten angle to building with the supplied 1/4"x3" Flat head wood screws.
  - Ensure angle remains straight with a consistent space between the angle and door, by lining it up with your reference marks
  - Door will have to be partially opened to complete this step
  - Be sure the head of each screw is flush with the face of the track angle
13. Close Door & Lock - Double Check that you have a consistent gap
14. Be sure not to fasten the lower angle bracket too tightly against the roller. The doors weight should not rest on the lower angle bracket.



## Step 13 - Lifting Door Without Power (Manual Lift)

If you experience a power outage to the door, electrical problems, or don't have electricity on-site, it is possible to operate the door manually. Follow these steps carefully to avoid potential injury.

1. TURN OFF MAIN POWER TO DOOR
2. Remove dust cover from top center of motor to access 1/2" Hex shaft
3. Using a 1/2" socket driver (supplied with door) and a high torque drill, attach to hex shaft at top of motor, applying downward pressure to ensure that socket stays in place during lifting or lowering door.
- 4a. If the lift motor is located in the center of door, it will be equipped with an electric brake that needs to be released in order to rotate the hex shaft.  
**CAUTION: ONCE BRAKE IS RELEASED, DOOR COULD FREEWHEEL DOWNWARD TO A CLOSED POSITION IF A SOCKET IS NOT FIRMLY HELD ON THE HEX SHAFT.**  
To release the brake, turn the brake release knob clockwise until it clicks into the release position (located on top of motor, near hex shaft)
- 4b. Side-mounted lift motors are generally not equipped with an electric brake, and do not require any type of release before operating door manually.
5. Make sure your drill is in the lowest gear possible.
6. With drill in place over hex shaft, carefully begin rotating hex shaft. The direction of rotation will determine door travel (opening or closing), and will need to be reversed if current direction of travel is not correct.  
**CAUTION: NEVER STAND ON DOOR WHILE LIFTING OR LOWERING DOOR MANUALLY. USING A STEP LADDER OR MECHANICAL LIFTING DEVICE IS RECOMMENDED EXERCISE EXTREME CAUTION AND STAY CLEAR OF DOOR OPENING AT ALL TIMES**
7. When manual operation of door is complete, be sure to re-engage electric brake (if equipped) by returning brake knob to original position rotating counter-clockwise.
8. Remove socket from hex shaft and replace dust cover to original position



## Step 14 - Wiring

**All electrical connections must be made by a qualified individual.**

**Motors and controls are factory wired and tested before shipping, to ensure operation.**

### Power Wiring

Power wiring should be on a dedicated circuit and well protected. The location of the power disconnect should be visible and clearly labelled (located on dorr above operator, or near the push-button station)

- a) From your supply (breaker) panel, lead a dedicated power line to a junction box located above the door. Locate the junction box as near as practical to the top door hinge, centered above the lift motor on the door.
- b) Run a flexible wire from the junction box onto the door as close to the top hinge as practically possible. This is to keep the movement of the wire to a minimum while the door opens and closes.

- c) Run the power line down along a vertical member of the door, and into the electrical control box located beside the motor. Fasten to the door frame (12" on center) with clips & self drilling TEK screws. Be sure to leave sufficient slack at the top & center hinge locations. See diagram on next page.
- d) Open the cover of the electrical control enclosure, and refer to the supplied diagram inside for all connections.
- e) Be sure the power supply is of the proper voltage, phase, and amperage to supply the operator. Refer to the operator nameplate on the electrical enclosure cover.

### Recommend Copper Wire Gauge Size

| SINGLE PHASE MOTORS - 230 VOLTS |   |     |     |     |     |
|---------------------------------|---|-----|-----|-----|-----|
| H.P.                            | Distance - Operator to Supply Panel (in Feet) |     |     |     |     |
|                                 | 100   | 150 | 200 | 300 | 500 |
| 1.5                             | 10  | 8   | 8   | 6   | 4   |
| 2                               | 10  | 8   | 8   | 6   | 4   |
| 3                               | 8   | 8   | 6   | 4   | 2   |

| THREE PHASE MOTORS - 230 VOLTS |   |     |     |     |     |
|--------------------------------|---|-----|-----|-----|-----|
| H.P.                           | Distance - Operator to Supply Panel (in Feet) |     |     |     |     |
|                                | 100   | 150 | 200 | 300 | 500 |
| 1.5                            | 12  | 12  | 12  | 12  | 10  |
| 2                              | 12  | 12  | 12  | 10  | 8   |
| 3                              | 12  | 10  | 10  | 8   | 6   |

| THREE PHASE MOTORS - 460 VOLTS |   |     |     |     |     |
|--------------------------------|---|-----|-----|-----|-----|
| H.P.                           | Distance - Operator to Supply Panel (in Feet) |     |     |     |     |
|                                | 100   | 150 | 200 | 300 | 500 |
| 1.5                            | 12  | 12  | 12  | 12  | 12  |
| 2                              | 12  | 12  | 12  | 12  | 12  |
| 3                              | 12  | 12  | 12  | 12  | 10  |

Above tables are recommended minimum wire gauges assuming an ideal power source. Undersized wire between the motor and power source will limit the starting and load carrying abilities of the motor.

This can cause additional wear, and in some cases premature failure of the electrical operator. Low startup input voltages may require heavier wire gauge to minimize operator loads.

**USING A PORTABLE GENERATOR AT ANY TIME is NOT RECOMMENDED**  
**unless sufficiently sized for motor startup loads and minimum 10-12 gauge extension cord**

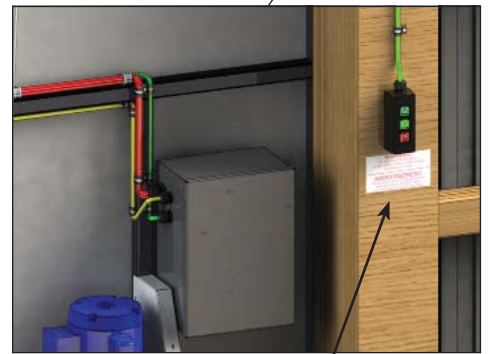
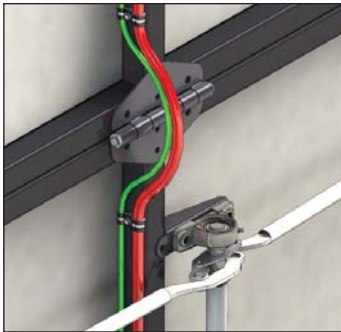
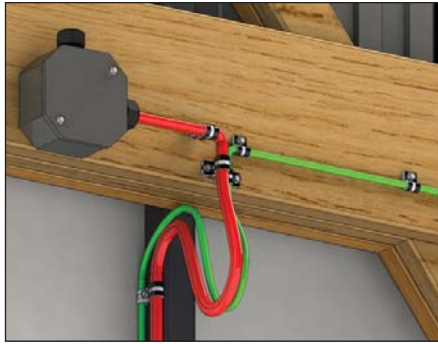
## Step 14 - Wiring...continued

### Control Wiring

The control wire (UP/DOWN/STOP pushbutton switch) is factory wired to the electrical enclosure on the door. The wire needs to be secure to the door (similar to the power wire) then across the building header, and down the building column to the desired location.

Install control station:

- Within sight of door
- At a minimum height of 5 feet (out of reach of children)
- Far enough away from the door to prevent the user from coming in contact with the door while operating the controls.
- Affix Warning label to building column near door controls (see diagram)



WARNING LABEL

### Safety Devices / Remote Controls

The door will interface with almost all types of commonly used remote controls and safety devices. Refer to the wiring diagram or consult the factory for connection of these devices.

Remote Antenna (if supplied) should be mounted

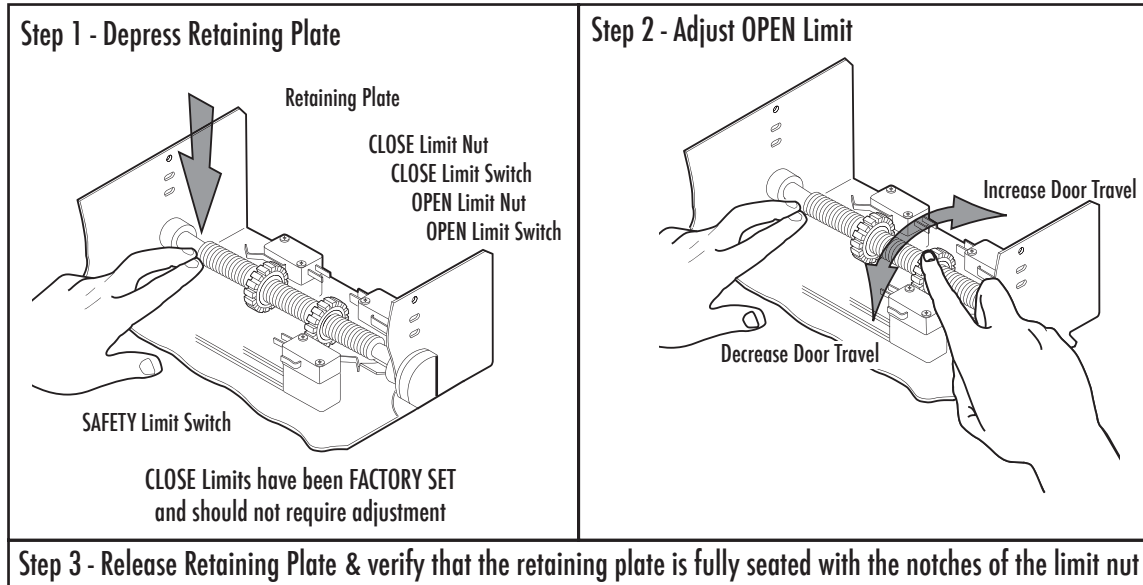
## Step 14 - Wiring...continued

### Limit Switches

Limit controls are factory-set, with the bottom limit switch triggered (door in "closed" position). In this position, the driveshaft is set to the appropriate angle for correct cable attachment. The top limit will need to be adjusted upon initial running of the door. It is the open limit that may require adjustment during the life of the door.

Typically the open limit is factory-set to turn off the door after only opening a few feet. Changes to this limit should be made gradually, with constant testing of its effect on the door opening. If open limit is set too high, door will continue upward until forced-contact causes it to stop. This can cause damage to the door and building.

**See instructions inside control enclosure for setting limits or refer to the following steps;**



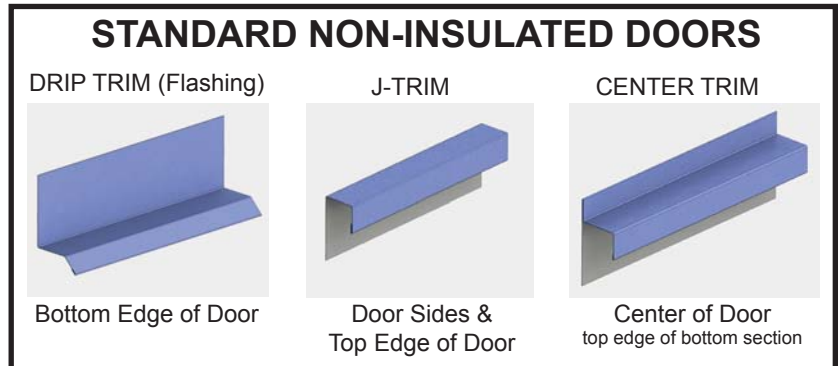
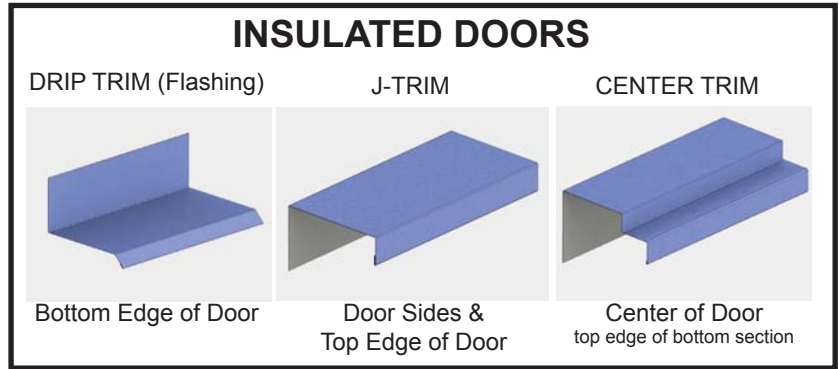
### Running the Door for the First Time

- Be sure doorway is clear and free from obstructions
- Ensure all necessary hardware has been properly installed, and building is sufficiently prepped for the additional outward pull when the door opens.
- For 3 phase powered doors, ensure proper phasing of the power supply to ensure correct rotation of the drive motor (and autolock motor if equipped). Run motor(s) momentarily to confirm and adjust if necessary.
- Check all electrical cables making sure there is not excessive strain or risk of pinching at the hinge locations.
- Ensure door turns off at the appropriate top and bottom limits. **DO NOT ALLOW DOOR TO TRAVEL BEYOND IT'S DESIGNED LIMIT.**
- Cycle door several times, paying special attention to the drive and overall function of the door.

## Step 15 - Trims

### Notes:

- \*Be sure that door is in closed and locked position before starting to apply trims
- \*Trims should be installed BEFORE insulation or sheeting
- \*Fasten trims approximately every 2 feet.  
Use 1/2" flat-head screws (supplied with door)  
They will later be secured by installing finish sheeting
- \*Insulated & Non-Insulated door trims use almost exactly the same install procedures, except where center trim meets side J-trim (as shown).
- \*Insulated trims are shown for demonstration purposes
- \*Top J-Trim should already be installed on door, holding white canvas weather seal in place, if not...
  - a) Staple white canvas to the building (above the door) leaving ~2" overlapping top of door (covering top frame)
  - b) Install J-trim onto top of door frame using flathead screws, pinching white canvas against door frame
  - c) Cut away an excess canvas that sticks-out below J-trim
  - d) Apply a bead of silicone along top of J-trim, creating a seal between white canvas trim.



- 1.) Start by installing the Drip Trim along the bottom edge of the exterior face of the door.
  - Bottom of trim should be flush with the bottom edge of door frame.
  - Tip: running your finger along the edge of the door frame (under flashing) works well
  - Trim will need to be adapted at each end to accommodate the bottom roller assembly. (see below)

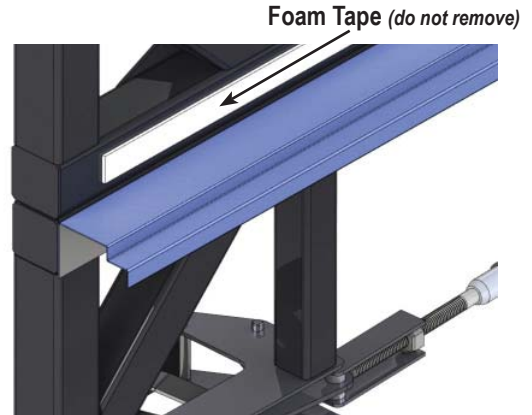
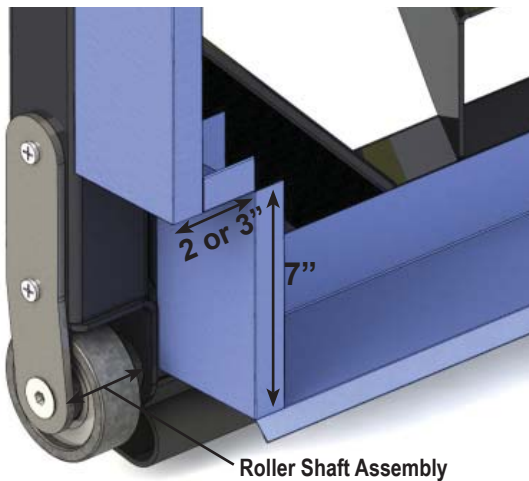


## Step 15 - Trims...continued

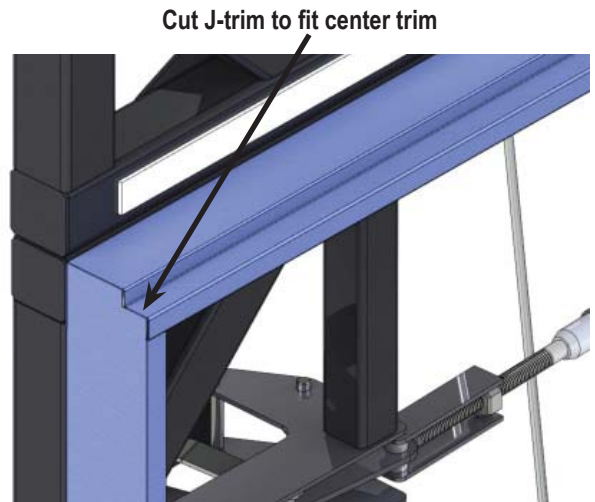
- 2) Install the Center Trim along the top edge (face) of the bottom half of the door.
- Center trim should be flush with top of frame, and not extend past the top of the frame.
  - Ends should be trimmed to be flush with sides of frame.

**Note: Foam Tape creates a gap between trims, to prevent binding. DO NOT REMOVE FOAM TAPE.**

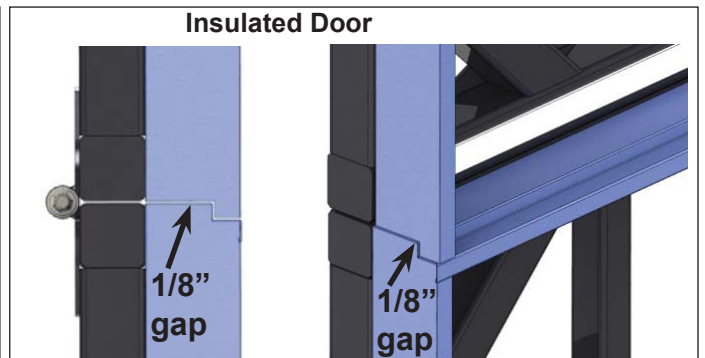
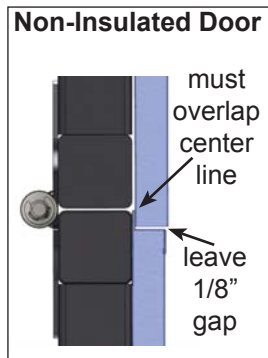
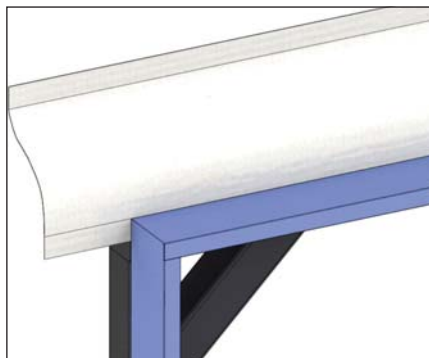
- 3) Install J-Trim along both sides on bottom half of door.
- Start by notching and bending the J-trim in a 'Z' like pattern around bottom roller area
  - Be careful to leave enough space for the bottom roller to travel in and out of bottom roller pocket.
  - Vertical cut is 7", Horizontal cut is 2" or 3" depending on width of roller shaft assembly (measure).
  - See diagram below for dimensions and instructions on where to cut and bend J-trim.
  - Repeat this for both sides of door
  - Cut top of J-trim to fit under Center trim



DO NOT INSTALL CENTER TRIM ABOVE CENTER LINE OF DOOR. BINDING WILL OCCUR + BEND EXT. SHEETING



- 4) Install J-Trim along both sides on top half of door.
- At top corners of the door, J-trim should be installed flush with the top of door frame. At center of door, J-trim should run PAST the center point of the door, leaving only a 1/8" gap between top J-trims and bottom trim (already installed). Repeat this for both sides of door



- 5) With all trims in place, insulation panels or exterior sheeting can now be installed. (see steps 16 & 17)

## Step 16 - Insulation (Optional Feature)

### Notes:

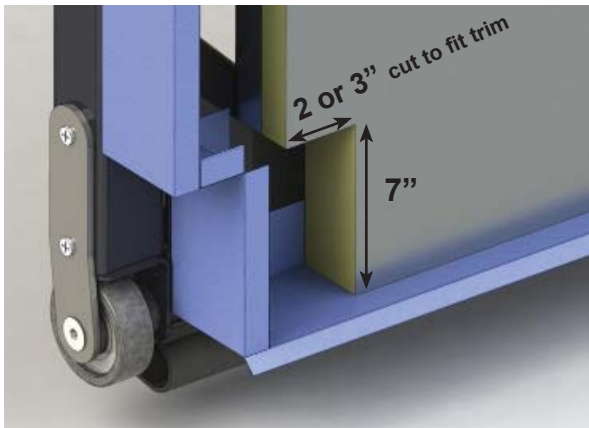
- a) Insulation is installed from the exterior side of the door.
- b) Insulation sheets come in generic lengths and may require some excess to be trimmed off.
- c) Depending on the thickness of the insulation, longer screws may be required to fasten the insulation to the door.

- d) White finished-side of panel should face to the inside of the door, with the reflective silver side facing outwards.
- e) Length of Insulation is the same for top and bottom sections of the door...1/4" less than section height.

1. Starting at one side of the door, insert the first sheet of insulation against the bottom and side of the side, sliding it into the J-trim and against the bottom drip trim. Don't put too much downward pressure on bottom drip trim. Check drip trim regularly to make sure it is staying straight.
  - a) The first sheet of insulation will need to be trimmed (remove ship-lap).
  - b) Bottom left-side corner will need to be notched (cut) to fit around bottom roller bearing assembly. Secure in place with several flathead screws, using as few as needed to hold the sheet in place (the screws fastening the exterior cladding will eventually pass through the insulation and further secure it in place).

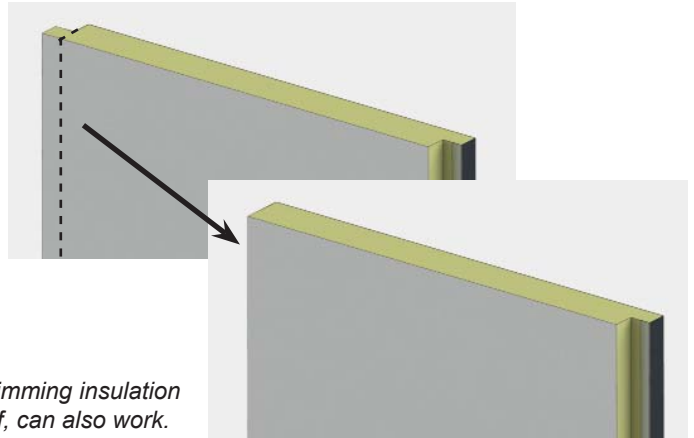
*Using a skill saw or grinder with a thin cut-off wheel works well for trimming insulation panels. Scoring the aluminum with a utility knife, and breaking it off, can also work.*

### Cut bottom corner to fit trim



**BE CAREFUL NOT TO BEND BOTTOM DRIP TRIM BY APPLYING TOO MUCH DOWNWARD PRESSURE**

### Remove ship-lap from first sheet

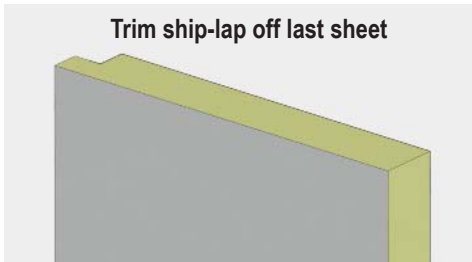


2. With the first sheet in place, butt up the second sheet snugly against the first, and fasten.



3. seal the joint between insulation panels using the foil tape provided with the door.

### Trim ship-lap off last sheet



4. Continue this process for the entire width of the door, trimming the last sheet as required to fit.



# Step 17 - Exterior Sheeting

**Notes:**

- \*Sheeting purchased from Diamond Doors is pre-cut to fit doors before they are shipped, and should arrive in the proper lengths.**
- \*It is recommended to match the rib pattern (of the sheeting) on the upper half of the door with that of the bottom half of the door (for cosmetic reasons).**
- \*It is recommended to overlap sheeting in such a way that it will be most secure against prevailing winds.**
- \*Instructions for sheeting are given for left-to-right. If sheeting right-to-left, adjust measurements & installation as necessary.**

1. Separate top & bottom sheets into two piles  
 Top Sheets should be 1" longer than bottom sheets  
 Top Sheets should be flush at the top  
 Bottom Sheets should be flush at the bottom
2. Measure & Mark locations on sheets for predrilling  
 Follow instructions on diagram below for measuring screw locations.

**IF EXTERIOR SHEETING DID NOT COME FROM DIAMOND DOORS, OR IF IT WAS NOT ORDERED TO LENGTH**

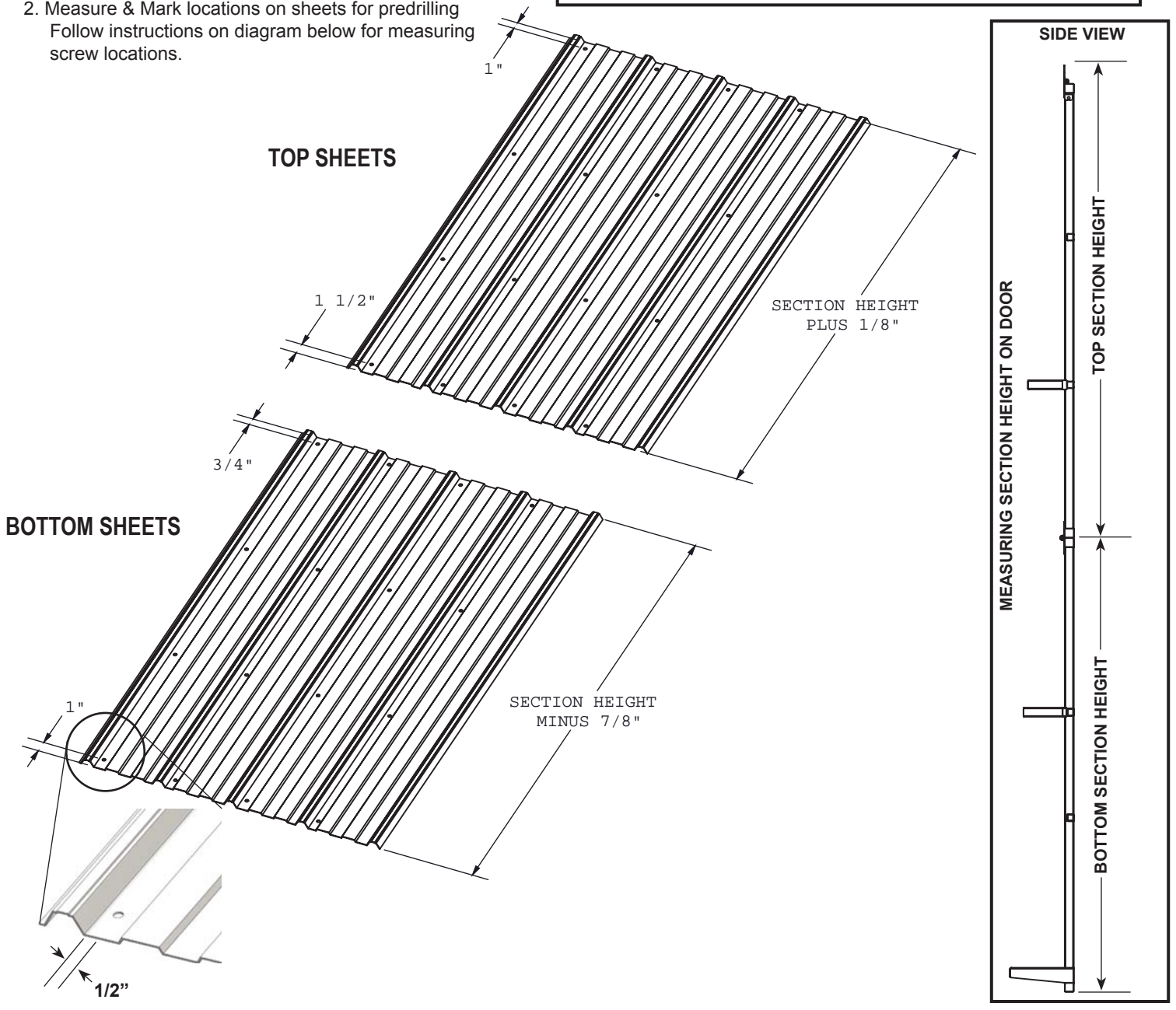
To Determine Sheeting Lengths...

Top Sheets: Take the outside measurement (vertical) of the top half of the door frame.  
 Add a 1/8", (to overlap center break).

Bottom Sheets: Take the outside measurement (vertical) of the bottom half of the door frame.  
 Subtract a 7/8" (to prevent binding at center break).

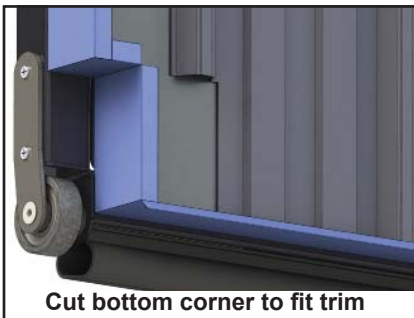
Measure the width of the door to determine # or necessary sheets.  
 Remember to consider overlap between sheets.  
 Doors may be shipped with more panels than necessary.  
 Only pre-drill the sheets you need.  
 Set additional panels (sheets) aside.

Secure (clamp) each stack of sheets together before trimming  
 Trim Sheets (use tin-snips, a nibbler, a grinder with cut-off wheel, or other)  
 Trim Top Sheets to Length (leaving finished edge at bottom of sheet)  
 Trim Bottom Sheets to Length (leaving finished edge at bottom of sheet)

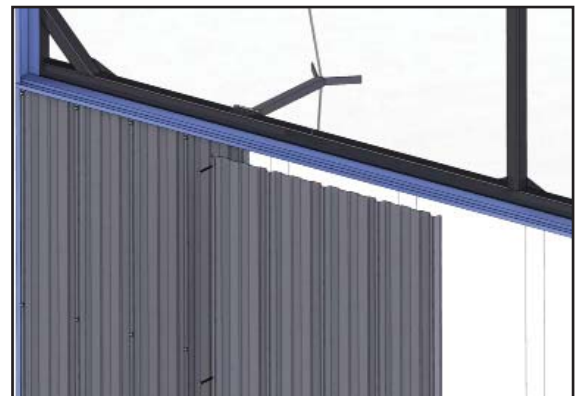
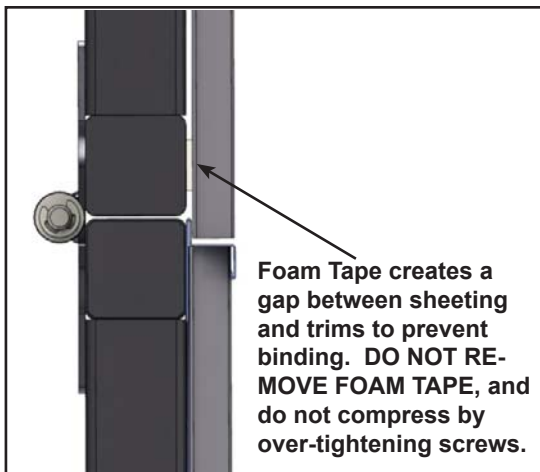
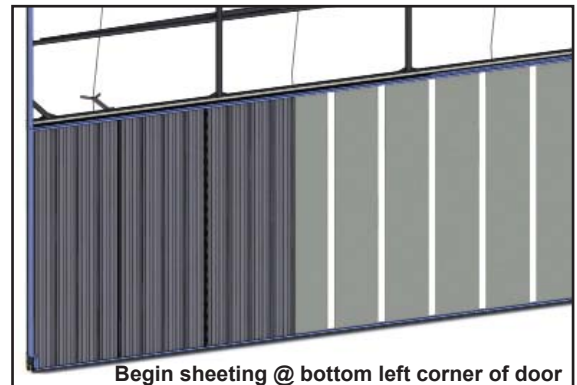


## Step 17 - Exterior Sheeting...continued

3. Measure & Mark locations on sheets for predrilling
  - a) Beginning at the top of the door frame, measure to the center of each horizontal door member. Translate these measurements onto the top sheet on the pile, beginning at the top of the sheet (using a black marker).
  - b) Sheeting screws will be located on the right side of each large rib (on standard sheeting). There should be 4 screws across on standard size sheets, and 1 screw located at each horizontal cross member of the door frame.
  - c) For bottom row of screws (on top sheets), measure exactly 1.5" from the bottom of the sheet, to ensure proper screw placement.
  - d) When measuring, use a black marker to indicate screw locations
  - e) DOUBLE CHECK: Once all screw locations are marked on the top sheet, hold that one sheet up against the door frame to confirm that your markings will correspond with the door frame.
  - f) Replace top sheet to top of pile
  - g) Use 2 clamps or vise-grips to clamp stack of top sheets (clamp at top & bottom)
4. Pre-Drill Holes in stack of top-sheets  
Ensure sheets are flush at the top before drilling  
Use a 3/16" drill bit for pre-drilling holes
5. Measure & Mark locations on sheets for predrilling the bottom sheets
  - a) Beginning at the bottom of the door, measure upwards to the center of each horizontal door member. Translate these measurements onto the top sheet on the pile, beginning at the bottom of the sheet.
  - b) Sheeting screws will be located next to each large rib (on standard sheeting) There should be 4 screws across on standard size sheets, and 1 screw located at each horizontal cross-member of the door frame.
  - c) For top row of screws (on bottom sheets), measure exactly 3/4" from the top of the sheet, to ensure proper screw placement.
  - d) When measuring, use a black marker to indicate screw locations
  - e) DOUBLE CHECK: Once all screw locations are marked on the bottom sheet, hold that one sheet up against the door frame to confirm that your markings will correspond with the door frame.
  - f) Replace bottom sheet to top of pile
  - g) Use 2 clamps or vise-grips to clamp stack of top sheets (clamp at top & bottom)
6. Pre-Drill Holes in stack of bottom-sheets  
Ensure sheets are flush at the bottom before drilling  
Use a 3/16" drill bit for pre-drilling holes
7. Remove 1 sheet from the pile of bottom-sheets. Trim the bottom left corner to fit around the bottom roller assembly
8. Install Bottom Sheeting
  - a) Slide this first piece of sheeting up and sideways into the trims at the bottom left-hand corner of the door, resting it down until it touches the bottom drip-trim.
  - b) Raise the sheet about 1/8" above bottom drip trim, and secure using tek screws (3/4-1" tek screws for standard doors, 3" for insulated doors)
  - c) Make sure the sheet remains parallel with the edge of the door
  - d) Continue installing sheets across the door, measuring occasionally to confirm sheets are staying square and straight.
  - e) Trim last sheet as required to fit width and around bottom roller assembly. To determine width of last sheet, hold against door and mark cut-off area on sheet. Measure to inside of J-trim, subtract 1/4"
9. Install Top Sheeting  
Use the same process as for installing bottom sheeting



**DON'T APPLY TOO MUCH DOWNWARD PRESSURE ON BOTTOM DRIP TRIM. LIFT 1/8" FROM BOTTOM TRIM AND SECURE**





Revised Oct. 6, 2011 by CREATIVEConsult.ca

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