

Installation Manual (Wood Building, Steel Building, Self-Supporting Header)



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DOOR SUPPORT After hours

1-866-325-7600 Mon - Fri, 8am - 5pm, CST

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Table of Contents

Unloading & Unpacking Unloading the Door (Forklift) Installing The Weather Seals Bottom Weather Seals 6" or 9" Rubber Seal 16" Rubber Seal Installing Lift Cables Lift Cables Steel Building Steel Building Installing The Door
Unloading the Door (Forklift) Installing The Weather Seals Bottom Weather Seals 6" or 9" Rubber Seal 16" Rubber Seal 16" Rubber Seal Top Weather Seal Installing Lift Cables Lift Cables Steel Building Installing The Door
Installing The Weather Seals . Bottom Weather Seals . 6" or 9" Rubber Seal . 16" Rubber Seal . Top Weather Seal . Top Weather Seal . Installing Lift Cables . Lift Cables . Steel Building . Steel Building . Installing The Door .
Bottom Weather Seals . 6" or 9" Rubber Seal . 16" Rubber Seal . Top Weather Seal . Top Weather Seal . Installing Lift Cables . Lift Cables . Steel Building . Steel Building .
6" or 9" Rubber Seal . 16" Rubber Seal . Top Weather Seal . Installing Lift Cables . Lift Cables . Building Preparation . Wood Building . Steel Building .
16" Rubber Seal
Top Weather Seal Installing Lift Cables Lift Cables. Building Preparation Wood Building Steel Building.
Installing Lift Cables Lift Cables. Building Preparation Wood Building Steel Building. Installing The Door
Lift Cables. . Building Preparation Wood Building Steel Building. Steel Building Installing The Door
Building Preparation Wood Building
Building Preparation Wood Building
Wood Building Steel Building Steel Building Installing The Door
Steel Building
Installing The Door
•
Equipment Required
Using a Forklift
Using a Crane
Placing the Door
Secure the Door (Wood Building)
Install Cable Anchors
Secure the Door (Steel Building)
Hinge Weld Details
Installing The Lock Catches
Locking System.
Attach Cables To Driveling
Attach Cables To Driveline
Attaching Lift Cables.

Roller Catch & Deflector Plate

(Steel Building & Self Supporting Header)	ŀ
Roller Catch & Deflector Plate	
Single 206 Roller Catch	

(L

Installing The J-Track (Optional)

J-Tracks	
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Self Supporting Header (If Required)

Placing the Door	•	•	•	•	•	•	•	•	·	•	•	•	•	·	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Securing Header to Quonset						•											•											

Exterior Finishing

Trims (Non-Insulated).	•	•	•	•		•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Trims (Insulated)		•	•	•	•	•					•	•	•	•	•	•	•	•					•	•	•				
Insulation (Optional) .	•	•				•	•	•	•			•							•	•	•	•		•		•	•		
Cladding	•				•							•							•	•	•	•				•	•		

Optional Features

Windows	
Pedestrian Door	
Miter Corner Details	•
Column Support Angles	
Vertical Split	•
Horizontal Split	
Welding Spec Sheet	

WARNING!

To reduce the risk of SEVERE INJURY or DEATH:

- 1. READ AND FOLLOW ALL INSTALLATION WARNINGS AND INSTRUCTIONS.
- 2. Refer to the electrical installation manual for details on hooking up the door to line power.
- 3. NEVER let children play with or operate the door. Keep remote controls (where applicable) out of the reach of children.
- 4. Keep people and equipment clear of a door that is in motion and keep the moving door in sight until it is completely closed or opened. NO ONE SHOULD CROSS THE PATH OF A MOVING DOOR.
- 5. Test and check the door's safety features (Including Photo Electric Sensors) once a month. Adjust the upper and lower limits as needed. Failure to adjust the operator properly may cause severe injury or death.

- 6. Power connection to the door should be made by a qualified electrician after the door has been securely mounted onto the building.
- 7. Locate the up/down/stop wall station within sight of the door and at a minimum height of 5 feet to keep it out of reach of children.
- 8. Ensure that all guards are in place before operating the door.
- 9. Ensure that all warning labels are visible and intact prior to operating the door.
- 10. Follow the maintenance schedules outlined in this manual.
- 11. SAVE THIS INSTALLATION AND OWNERS MANUAL FOR FUTURE REFERENCE.

Door Wiring and Controller Hookup

All electrical connections and wiring should be performed only by qualified electricians. Refer to the electrical installation manual.



Tools Required

Below is a list of the common tools required to properly install your door.

- Hammer
- Measuring tape
- Utility knife
- Level (4')
- Work platform (ie. scissor lift, scaffolding, or similar)
- Lifting equipment (ie. fork lift, crane, or similar)
- Electric drill
- Drill bit set
- Impact driver
- Nut driver, Robertson, Philips bit sets
- Imperial wrench set
- Socket set
- Large pry bar
- Cable cutter
- Tin snips
- (2x) large F-Clamps 12" or longer
- Spray lubricant (WD-40 or similar)
- Caulking gun

Door Identification

To receive technical support, you must supply your door's S/N (serial number). Located on the face of the electrical box, adjacent to the lift motor.

	DIAMOND DOORS 400 Airport Drive Winkler, Manitaba, R6W 0.J9 Phone: 204-325-7600 www.diamonddoors.com SERIAL NUMBER
	Model: S/N:
	Volts: Ph: Mrg Date:
	HP: FLA: Min Circuit Ampacity:
	Max Power: Ft - Lb/s Conforms to UL STD 325 Certified to CSA STD C22.2 No. 247
MOTOR —	E-BOX

Unloading & Unpacking



STEP 2: Raising the door



- Before raising the door, remove any attached hardware from the door frame, such as J-Tracks, aluminum tracks, and hardware boxes.
- Remove any windows that came with your door to avoid damage. The windows are temporarily installed for shipping and will need to be re-installed later.

IMPORTANT!

Slowly raise the door. Maintaining clearance to the mast.

STEP 3: Lowering the door



- Lower the door onto wood blocks with the drive motor facing down.
- Simultaneously, while backing the forklift and lowering the forks at the same rate.
- Keep a maximum of 6" between the door and tip of the forks, **(See step 1)**.

IMPORTANT!

A spotter should be present to ensure that the fork tips do not come into contact with the galvanized lock pipes.



Installing The Weather Seals

Bottom Weather Seals

The bottom weather seal is made up of a black rubber that is ribbed, an extruded aluminum track, and fasteners. Installing the bottom seal with the door flat on the ground is the most efficient method. This can also be done later. Our aluminum track, 6" and 9" seals are typical used on doors less than 59' wide. Doors 60' and larger typically use a 16" rubber seal.





6" or 9" Rubber Seal

STEP 1: Attaching the aluminum track

Attach the aluminum track to the bottom of the door using the provided #10x3/4" galvanize self drilling screws, 8" apart. Leave the last few screws out on either the left or right side to allow the track to be pulled away from the door later.

• The aluminum track should be aligned with the inner edge of the door frame and should end 1/4" away from the door jamb.

• Begin at one edge and place the aluminum tracks butting up against one another. Ensure the ends line up and are free of burrs. Cut the final piece to the required length.

ALUMINUM OVERLAP + 1/4"

• •

Note:

When installing screws on each end, it may be necessary to insert the screws at an angle or near the corner of the tube to avoid hitting the outside roller shafts (which are welded inside the frame). ROLLER SHAFT

STEP 2: Adding a spacer block

Place a spacer block between the aluminum track and the door frame as a temporary measure. This will provide clearance for the rubber seal to be installed past the outside roller.

STEP 3: Rolling out the rubber seal

Roll out the rubber seal beside the door allowing it to flatten and relax before installation.





STEP 6: Installing the rubber seal

- Guide the rubber seal into the two "T" channels on the aluminum track, while another person gently pulls the rubber seal along the length of the door.
- Pull the rubber seal approximately 1/8" past the aluminum Track at either end.



IMPORTANT!

DO NOT cut the excess rubber seal; instead, work it across the door to release any tension. Make certain that the entire length of rubber is in place.

STEP 7: Crimping the tracks

Slightly crimp the aluminum track flanges by pinching the rubber in place at either end with a hammer and punch. This should be done on both sides of the door.



16" Rubber Seal

STEP 1: Rolling out the rubber seal

Roll out the rubber seal beside the door allowing it to flatten and relax before installation.

STEP 2: Cutting the rubber seal

Position the rubber seal from the inner edge of the door frame and move it towards the center to match the width of the door jamb, plus 1/4".



Cut the rubber seal to fit the total width of the door.

STEP 3: Fastening the aluminum bars

Using the included #10-24x3/4" self drilling screws, secure the bottom seal to the door frame with the aluminum bar.



#10-24x3/4" SELF DRILLING SCREWS QTY MAY VARY



3/16X1 1/2" ALUMINUM FLAT BAR LENGTH MAY VARY



Top Weather Seal

The top canvas is a flexible membrane that provides a proper seal to prevent water and moisture from entering the building.

6

STEP 1: Laying out the top weather seal

- Roll out the seal across the top of the door frame.
- Leave approximately 6" of excess material on either side of the door.
- Create a 2" overlap onto the door frame, leaving a 4" overhang of the canvas from the edge of the door.

STEP 2: Fasten top weather seal

 Position the canvas seal flush to the bottom side of the door's top horizontal member.



• Using the provided #8 x 1/2" flat head self drilling screws and a #8 Phillips bit, fasten the seal to secure it in place temporarily.

NOTE!

Screws should be spaced approximately 10' apart.

STEP 3: Applying silicone

BOTTOM SIDE OF J-TRIM

~10'

BEAD OF SILICONE

Apply a silicone bead to the center of the J-Trim's bottom side. Make sure the bead runs the whole length of the trim.

Top Weather Seal



Installing Lift Cables

Lift Cables

Every door is equipped with a set of lift cables. These cables run from the top of the door frame at the anchor points all the way down to the driveline, providing a secure lift for the door as it opens and closes. The cables are factory crimped and have a 1/2" bolt and bushing on one end.

STEP 1: Position the cable

Position the cable bushing between the cable anchor points on the top member of the door.

STEP 2: Mounting lift cables



Insert the 1/2" bolt and secure it with a washer and lock nut. Tighten the nut until it is snug, while still allowing the bushing to rotate. Complete this for each lift cable.

Building Preparation

Wood Building

Each building post must extend to the top of the truss from either end of the door clear opening. The header is the component of the gable-wall truss from which the door will hang. The header must be built in the following manner for the majority of wood buildings.

WARNING!

The building face must be level and true; any warping or bowing will prevent the door from functioning correctly.



STEP 1: Determine the bolt height

It is critical to have the location for the bolt height before installing the door. The bolt height can be found on the order acknowledgment.





- When measuring the bolt height on the building, start from the finished floor / concrete height.
- In most cases, the concrete / finished floor height must be determined first.

STEP 2: Adding filler blocks

A 2x10 (or similar) should be horizontally fastened inside the gable-wall truss. It should span the entire clear opening and connect to the building posts on both sides. Ensure that it is centered horizontal at the bolt height which is where the door hinges will be attached.

With blocking, fill the angles between the truss webbing. Creating a flush surface.

IMPORTANT!

will be.

Building posts must extend or be extended to the top cord of the truss.

Make a solid line on the side of the

building post that corresponds to

the current or future finished floor.

Measure from the mark on the post

to the location where the bolt height

Outside face of building



Steel Building

Each steel structure is unique. However, all hinges will require either a continuous I-Beam or separate stub columns to be mounted on. To establish the appropriate bolt height for your application, use the method outlined below.

BOLT HEIGHT

STEP 1: Determine the bolt height

It is critical to have a location for the bolt height before installing the door. The bolt height can be found on the order acknowledgment.

- When measuring the bolt height on the building, start from the finished floor / concrete height.
- In most cases, the finished floor / concrete height must be determined first.
- Make a solid line on the side of the building post that corresponds to the current or future finished floor.
- Measure from the mark on the post to the location where the bolt height will be.



BUILDING COLUMN

Installing The Door

Equipment Required

It is advised that you use one of the machines indicated below to install the door. A crane is the preferred method for an easier installation experience.







FORK LIFT / TELEHANDLER

Instructions on how to use the forklift can be found on pages 19-21.



CRANE TRUCK

Instructions on how to use the crane truck can be found on pages 22-23.

Using a Forklift

Proceed with caution when raising the door to its maximum extension Lift the door from the top frame steel member on the top section.

STEP 1: Securing the door using a forklift



Attach a safety strap to the forklift and the top section of the door.

STEP 2: Opening the door

After you have secured the strap, slowly move the forklift back while raising the forks to open the top section of the door. After that, use (2) modified 2x4 lumbers (or similar) to keep the top section from falling.



2X4 LUMBER (OR SIMILAR)





Using a Crane

A crane is recommended for the best installation experience. This allows for a more seamless process with the least amount of stress. Please see the instructions below for a step-by-step guide.

STEP 1: Securing the door to the crane





Attach a sling to the crane hook and the top section of the door at the first two hinges from the center member.


Placing the Door

When raising the door to its full extension, proceed with caution. Lift the door from the top section of the frame's steel member.

STEP 1: Determine seal space / corner blocks

The size of the door determines the standard seal spacing. The gap between the bottom of the door and the floor should be consistent. Seal space is calculated by measuring the distance between the bottom of the door frame and the finished floor height.

To accommodate the seal space, choose the appropriate size shim (or similar). Place the block under each vertical member on the floor.

SEAL SPACE CHART	
RUBBER SIZE	SEAL SPACE
6″	1″ - 2.5″
9″	2″-3″
16″	2.5″ - 4.5″
24″	4″-6″



GAP FROM FINISHED FLOOR TO THE UNDERSIDE OF THE DOOR FRAME









Secure the Door (Wood Building)

Every vertical member's hinge will have 9/16" holes for fastening to the building header; begin by fastening a J-Track mounting bracket on the first outer hinge, then work your way down the door.

Use the correct length of 1/2" mounting bolts.

TYPICAL O/S 16"

TYPICAL CTR 8"

STEP 1: Drilling hinge holes



To mount the hinges on the header, drill the holes using a 1/2" drill bit.



Install Cable Anchors

A set of cable anchors are typically supplied to support the horizontal pull of the door. Please follow the instructions outlined below.



STEP 2: Locating side wall



Determine the side wall post to which you will mount the cables. This can be accomplished by using a line of sight from the various hinge points. The cable should clear all truss members to avoid stress to them when the door applies load to the building.

Note:

Cable anchors must be mounted greater than a 45° angle.

STEP 3: Mount cable anchor to side wall post



Note:

Doors less than 36' wide typically do not require more than two cables.

STEP 4: Attaching turnbuckles





- Insert the 1/4" cable through the ring of the turnbuckle.
- Pull the cable as tight as possible (by hand).
- Crimp the cable with a 1/4" cable clamp.
- Cut or tape the excess cable.







When all of the steps have been completed and the cable is secure, it is now safe to tighten the turnbuckle until there is no slack in the cable.



Secure the Door (Steel Building)

Generally hinges are welded directly to the framing of steel structures and should only be performed by a qualified welder. However, drilling 1/2" holes and using bolts is also an option to secure the door to steel structures. (Hardware is **NOT** included for mounting to steel structures.)

STEP 1: Top hinge field weld

Continuous Header Stub Column Field weld the hinges onto the Field weld the hinges onto each continuous header. stub column, which should line up with the door hinges. Note: **IMPORTANT:**

If the top weather seal (canvas) has already been installed, weld with caution to avoid burning

Steel buildings typically do not require track angles and therefore will not have a track angle mounting bracket on the outside hinges.

holes in the canvas.



Installing The Lock Catches

Locking System

Each door includes two yellow lock catches. These prevent the door from accidentally opening and also keep the door sealed to the building. To securely install the lock catches, follow the directions below.

STEP 1: Adjust the lock position

Auto-Lock

Latch assemblies are provided in the locked position by default. If the latch assembly is not in the locked position, use the 1/2" hex shaft on the motor's end to cycle the motor counterclockwise until the latch assembly is in the locked position.

Manual Lock

Rotate the yellow lock handle to the locked position.

STEP 2: Installing the yellow lock catch



1/2" HEX

SHAFT

Mark the location of the slotted holes.

• Cycle lock system to the unlocked position.

 Secure the yellow lock catches to the building column with the provided Torx structural screws. Position the screws in the center of the slots to allow for adjustment.







When you lock the door, there should be some resistance. Ensure a tight seal between the column and the vertical door member. If this is not the case, the Yellow catches may need to be adjusted. Loosen the Torx structural screws and adjust catches as needed, then re-tighten the screws.

Attach Cables To Driveline





STEP 5: Measuring the cable distance

Measure the distance from the bottom horizontal (or center truss) member to the cable to ensure that all of the cables have the same tension. During this stage, extra tension will be required.

Note:

Adjustments to the cables may be required by loosening the tie-down clamps, re-positioning the cable, and tightening the clamps to guarantee that all cables are under equal stress.



STEP 6: Inserting the cable

If possible, cut excess cable with a maximum 12" to spare. Insert the remaining cable into the pre-drilled hole on the driveline.

Note:

If the cable is longer than 12" and inserted into the driveline, noise will develop as the cable has too much slack on the inside.





Roller Catch & Deflector Plate

(Steel Building & Self Supporting Header)

Roller Catch & Deflector Plate

The roller catch and deflector plates are an essential component for the door to guarantee that it doesn't move off of the column and remains securely in place.





STEP 4: Position the deflector plate

Place the deflector plate on the inside of the column, towards the clear opening side. Make sure to have the top of the deflector at the inside flange and resting at the bottom of the base plate.





STEP 5: Drilling holes for the deflector plate





Single 206 Roller Catch

The roller catch for the single 206 roller is an essential component for the door to guarantee that it doesn't move off of the column and remains securely in place.







Installing The J-Track (Optional)

Note: J-Tracks are typically required for wood buildings applications

J-Tracks

J-Tracks are included with doors that will be installed on a wood building (or equivalent). The J-Tracks provide a surface for the roller to roll against, protecting the building's column from roller wear. The tracks also serve as a support for the door when it is closed. Single 206 Single 208 Dual 208 STEP 1: Lock the door Cycle locking system to the unlocked position. See pages 34-35 for details on the locking system. LOCK SYSTEM STEP 2: Manually open the door **BI-FOLD DOOR** Manually raise the door roughly 12" off the ground and adjust the height as needed. Refer to **page 34-35** in the owners manual on how to manually ~12' operate the door. **IMPORTANT!** When manually operating the door, **ONLY** use a speed drill.











Building Preparation

Steel Building

Each steel structure is unique. However, all self supporting headers will require a front face that is true and flush in order for the installation to be performed properly.

Confirm that the building's front face is level and flush. This will significantly ease the installation of the self-supporting header. Please see **Figure 1** for reference.



WARNING!

The building face must be level and true; any warping or bowing will make the installation process more difficult.



Installing Columns


Follow the directions bellow to properly fasten the header columns to the concrete floor.

STEP 1: Drill anchor bolt holes

BUILDING COLUMN

Place the columns in their proper location and drill into the finished floor using a hammer drill and a drill bit.

Repeat on both sides of each column

STEP 2: Insert anchor bolts

Use the included anchor bolts and insert them into the holes that where previously drilled.





ANCHOR BOLTS (x8) PRODUCT MAY VARY

NOTE!

Because the bolts are being placed into concrete, it is required that a hammer be used to force it into place.

STEP 3: Fasten down columns

Fasten the columns to the bolts using the provided washer and nuts.



WASHERS (x8) PRODUCT MAY VARY



NUTS (x8) PRODUCT MAY VARY



Column Mounting Bracket

Depending on the application, the self-supporting header will include a column mounting bracket set to support the structure. Fasten the mounting brackets to the grade beam which supports the building, typically located at ground level.





Place the columns onto the column mounting brackets. Using a laser level (or similar), ensure that the columns are level with each other.

NOTE!

Shim the columns if necessary to make them level with each other.



STEP 5: Fasten down columns

Fasten the columns to the column mounting bracket using the provided fasteners.





WASHERS (x4) PRODUCT MAY VARY



NUTS (x4) PRODUCT MAY VARY



WASHERS (x4) PRODUCT MAY VARY

Building Column

Each application is unique. However, the header column is commonly fastened to two types of structures using the 3/8" pre-drilled hole patterns at either side of the rear flange. See the example below for your unique construction style.



Placing the Door

When raising the door to its full extension, proceed with caution. Lift the door from the top section of the frame's steel member.

STEP 1: Seal space and block placement

The size of the door determines the standard seal spacing. The gap between the bottom of the door and the floor should be consistent. Seal space is calculated by measuring the distance between the bottom of the door frame and the finished floor height.

To accommodate a 1 1/2" or 2 1/2" seal space, choose the appropriate size block (or similar). Place the block under each vertical member on the floor.



Gap from finished floor to U/S of door frame

NOTE!

To determine the size of your seal space, refer to the order acknowledgment sheet provided to you by Diamond Doors.







IMPORTANT!

When the door is lifted, it may shift and swing while moving. It is recommended that a second person act as a spotter to support the door.





Securing Header to Quonset

If your header is going onto a Steel Quonset building. The header must be secured to the Quonset. This ensures that the door is supported by the building when it is in use. This section of the the manual will walk you through the correct procedure for securing the header to the building.



STEP 1: Attaching cables to the header

Attach the cable anchors to the outside end plates of the header using the 1/2"x1-1/2" Bolts









• Crimp the cable with a 1/4" cable clamp.

• Cut or tape the excess cable.



When all of the steps have been completed and the cable is secure, it is now safe to tighten the turnbuckle until there is no slack in the cable.

ECD-U



Exterior Finishing

Trims (Non-Insulated)

Before installing trims, insulation, or cladding, close and lock the door. Trims are fastened at 24" on center with supplied 1/2" flat-head wafer self drilling screws.



Drip Trim (Flashing)



J-Trim



Center Trim

STEP 1: Close and Lock the door

The door must be closed and locked before installing the trims.

See **pages 34-35** for details on the locking system.







STEP 6: Installing the top section J-trim (Non-Insulated)

Install the J-trim flush with the outside edges of the door frame. Make sure to overlap the center line of the door and leave a 1/8" gap from the bottom portion center trim.



Trims (Insulated)

Prior to installing trims, insulation, or cladding, close and lock the door. First, trims are fastened at 24" o/c with supplied 1/2" flat-head wafer self drilling screws.



L-Flashing



Drip Trim (Flashing)



J-Trim



Center Trim

STEP 1: Close and lock the door

The door must be closed and locked before installing the trims.

See **pages 34-35** for details on the locking system.









Install the J-trim flush with the outside edges of the door frame. Make sure to overlap the center line of the door and leave a 1/8" gap from the bottom portion center trim.



The same J-trim that was used on the sides of the bottom section, will also be used on the top section as shown in the illustration above.





• Install white L-flashing to the bottom tube of the top section door frame.



• Fasten the L-flashing using the included 1/2" wafer self drilling screws every 4' apart



IMPORTANT!

DO NOT over tighten the screws when installing.

Insulation (Optional)

The door's insulation is always installed on the outside of the door frame. All insulation sheets are standard width and may need to be trimmed for fitment. If the door has windows and or a pedestrian door, the insulation must be cut to fit. The white embossed aluminum side of the panel faces the interior of the building, while the reflective silver side faces the exterior. The insulation is installed vertically on the door frame.

STEP 1: Preparing the first sheet of insulation



STEP 3: Temporarily fastening the insulation



STEP 4: Adding the second sheet

Place the second sheet snug against the first and fasten as in the previous step.



STEP 5: Sealing the panels

• Using the Tuck Tape provided, seal the joints between the insulation panels on the outside foil face.

- Work your way from left to right across the width of the door, cutting the last sheet to fit as necessary.
- Repeat the process for the top section of the door.

IMPORTANT!

Make sure there are NO gaps between the panels.

TUCK TAPE

Cladding

If the cladding was supplied by Diamond Doors, It will be placed and strapped on wooden blocks. Straps must be removed and cladding sheets must be sorted in two even bundles. Continue to the next page for instructions.



FOR CLADDING NOT SUPPLIED BY DIAMOND DOORS, FOLLOW THE FORMULA BELOW TO DETERMINE THE CLADDING LENGTHS AND QUANTITY



Top Cladding Length:

 Measure the vertical length of the top section of the door frame and add 3/8"

Bottom Cladding Length:

• Measure the vertical length of the bottom section of the door frame and minus 1 1/8"

Number of sheets required:

 Door width ÷ Cladding width = Number of sheets required (rounded up)

Example

40'-4" (484") ÷ 36" = 13.4 sheets (14 sheets required)

Note:

The last sheet will need to be trimmed to fit.

STEP 1: Separate the cladding

Divide the cladding into two stacks for the top and bottom sections. The top section sheets are 1 1/2" longer than the bottom section sheets. The sheets should be stacked flush to one end. This is crucial for the next stage of drilling holes.





Cladding







STEP 8: Trim and place final piece of cladding

Measure and trim the last cladding sheet as required with a nibbler, tin snips, or any other available cutting tool.

IMPORTANT!

To acquire the correct sheet length, measure from the inside of the trim, and account for cladding overlap when measuring the length of the last sheet.






Optional Features

Windows

Diamond Doors offers standard 36" x 18" windows, which can be added to the door's initial purchase. Windows allow for more natural light to enter the building, illuminating the inside.



STEP 1: Cutting out the insulation





Windows





Pedestrian Door

As an option with the purchase of a bi-fold door, Diamond Doors offers a standard 36" x 74" or 36" x 82" pedestrian door. For instructions on how to install either of these doors, please follow the steps below.











STEP 6: Cutting the insulation

If the bi-fold door was provided with insulation, cut it out from the area of where the pedestrian door will be installed.

STEP 7: Installing the insulation

CUT

Slide the pre-cut insulation pieces into place.

Pedestrian Door





SQUARE CUT: Installing the angle flashing

Prior to installing the cladding, place the angle flashing above the lowest point of the square cut corner, leaving a 3/4"-1" gap from the door frame. Secure using the required fasteners.





Column Support Angles

Column support angles are designed for straight-wall wood buildings to minimize warping of wood posts caused by repetitive pressure from rollers pushing on the post during bi-fold door opening. The exterior J-Track and inside column support angles provide additional structural support.



- Upon request, optional column support angles can be included to strengthen the vertical column on wood buildings.
- Mount support angles so that the top edge is as high or higher then the hinge bolts.
- If possible, the top corner hinge bolts for the door should be extended through the support angle.
- Use supplied 6 x 80mm structural screws for mounting.



Vertical Split

In some cases (depending on the width of your bi-fold door), the frame will come in two parts. This is known as a "Split Door". If this is the case, your door will be required to be assembled and welded on site.

STEP 1: Aligning the frames

Position the 2 halves of the door frame together.











Using the staggared approach, insert the provided fasteners through all of the connection tabs to evenly pull the door halves together.



1/2" FLANGE NUT (x6) SIZE MAY VARY



TYPICAL WELD JOINT WITH BOLT THROUGH CONNECTION TABS.

When fastening the two halves of the door together. Use the max torque of **40ft lbs** to prevent binding.



STEP 4: Field weld

IMPORTANT!

A qualified welder is required to weld any split joint of the door.



Horizontal Split

In some cases (depending on the height of your bi-fold door), the frame will come in multiple parts. This is known as a "Horizontal Split Door". If this is the case, your door will be required to be assembled on site.



Position the split sections of the door frame together .







STEP 3: Field weld

IMPORTANT!

A qualified welder is required to weld any split joint of the door.









VERSION: 2.1.1



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