DUAL SPRING
Diamond Dry Freight and Evolution Door Installation

Purpose The purpose of this document is to communicate the proper installation procedures to ensure a trouble free installation.

Scope This is to encompass the installation of the Dual Spring Diamond Dry Freight and Evolution doors.

CAUTION:

READ AND FOLLOW ALL INSTALLATION PROCEDURES BEFORE ATTEMPTING ROLL-UP DOOR INSTALLATION.

Procedure The following steps are to be carefully followed for a proper installation.

ONE:

Review the complete package of roll-up door components upon delivery and make sure that there are no shortages or damages prior to installation. Diamond Manufacturing, Inc. will not be responsible for door components lost and/or damaged during shipping. The following should be included:

a. Two Roll-Up Door Halves.
b. Set of vertical track with mounting angle, head plates and bearings.
c. Set of horizontal track.
d. Counterbalance consisting of cable drums, spring, shaft, spring anchor bracket and (Extra head plate and bearing if required.)
e. Side Seals
f. Hardware Box consisting of roll-up door cables, rollers, catch box, top fixtures and fasteners. Note: See either individual roll-up door part number or standard parts/corresponding numbers list for further information.

***See Figure 1 for roll-up door components**

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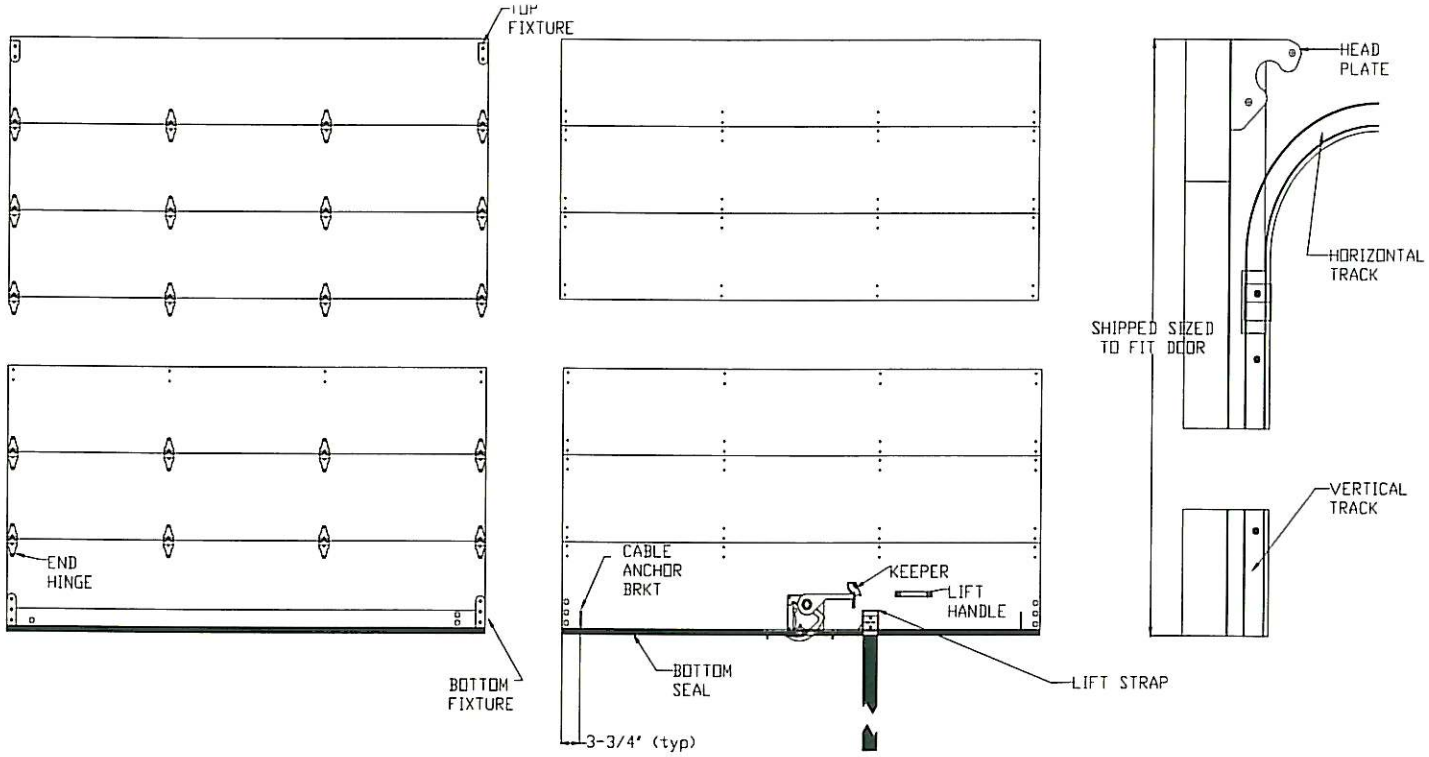


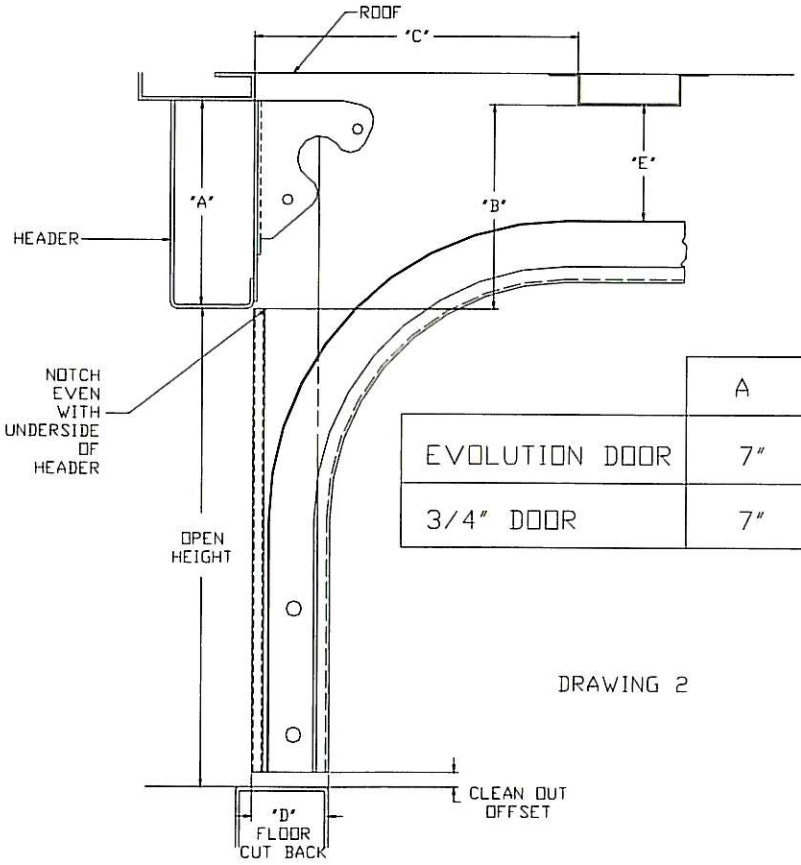
Figure 1

Suggested Tools	Welder Cutting Torch or saw Light (2) Step ladders Multiple vise grip pliers (2) 3/8" dia Winding Bars 7/16" & ½" wrench Hammer Tape measure Square Scribing tool Sealant Steel shim approx 4"x4"

TWO:

Adequate headroom is required to ensure clearance for the counterbalance and door clearance beneath the roof bows. For a roll-up door utilizing 1" track maintain 1.5" minimum clearance between bottom of roof bow and top of horizontal track.

***See Figure 2 for clearance dimensions.**



	A	B	C	D	E
EVOLUTION DOOR	7"	5"	18"	2-1/2"	1-1/2"
3/4" DOOR	7"	5"	18"	2-1/2"	1-1/2"

DRAWING 2

Figure 2

THREE:

Side room minimum clearance for a roll-up door utilizing 1" track is 2.5" from the wall to post opening for both posts. If 2.5" can't be obtained, increase the corner post and make sure that the increase remains even with the header.

***See Figure 3 for clearance dimensions.**

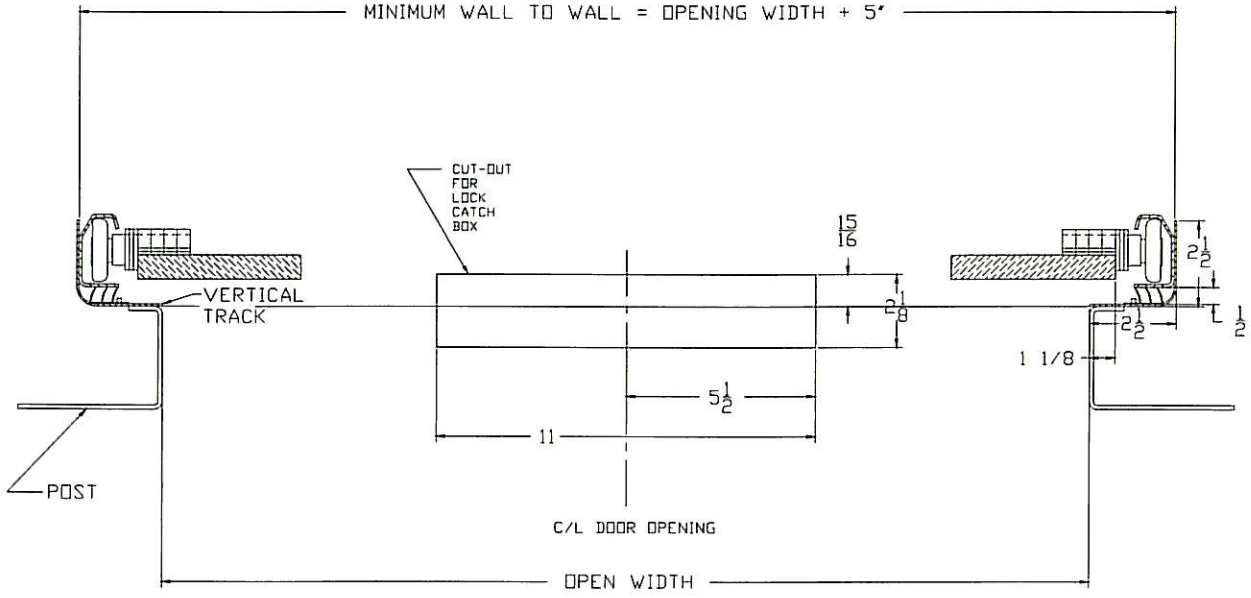


Figure 3

Note:

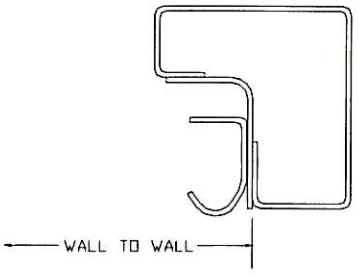
Both headroom and side room clearance dimensions must be maintained to ensure a proper roll-up door installation. To establish the opening height measure the dimension from header to sill. The width is established by measuring the post-to-post dimension.

FOUR:

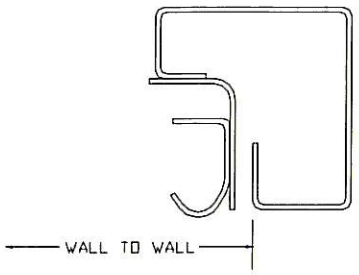
Before installing the vertical track/mounting angle it is imperative that the rear structure be checked for square. A dimensional check should be done diagonally, also check the width in several locations. If the rear structure is out of square then the vertical track will be out of square when installed. Stop at this point and take measures to right the rear structure.

Clamp vertical track/mounting angle to the corner post, the mounting angle needs to be even with the inner edge of the corner post from header to sill. The notch in the mounting angle needs to line up with the bottom of the header. *See Figure 2. Starting at sill weld the vertical track/mounting angle to the post on 12" to 15" centers.

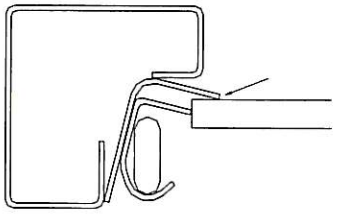
a.) Temporarily secure track so they are square against the sidewall and post. (see figures 4, 5, 6, & 7)



RIGHT
FIGURE 4



WRONG
FIGURE 5



WRONG
FIGURE 6

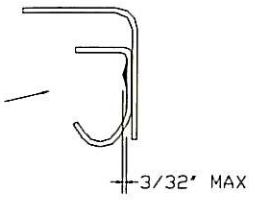


FIGURE 7

b.) Check to assure track is parallel. Measure top, middle, and bottom. Shim where necessary.
c.) Secure vertical track to post and sidewall by welding.
d.) Seal along seam between mounting angle and post using sealant.

FIVE:

The same dimension or distance held between the vertical tracks must be kept between the horizontal tracks. Install the horizontal tracks 90 degrees with the vertical tracks. Make sure that 1.5" minimum is maintained between the top of the horizontal tracks and the bottom of the roof bow as previously discussed.

Horizontal tracks should be properly affixed to attachment point for maximum support of the door. Weld the track couplers the full length of the coupler to properly join the horizontal and vertical track. Like the vertical track it is important to maintain the same width dimension between the horizontal tracks, if needed, use shims to maintain the same width dimension.

SIX *(2 spring, 2 cable type balancer)*

a) 3 mounting brackets are required – center, roadside, and curbside. It is important that mounting surface is flush (in line) to all three bracket locations. If necessary, install mounting plates of sufficient size to serve as a base for the balancer brackets.
b) Locate center bracket at center of header. *(see figure 8)*

Figure 8

Position it so the pointed tab is t top and angled section is at the bottom.

c) The location from the centerline for both end brackets can be determined by subtracting 1-1/4" from shaft length and dividing by 2.
d) Attach brackets to header securely. (see figure 9)

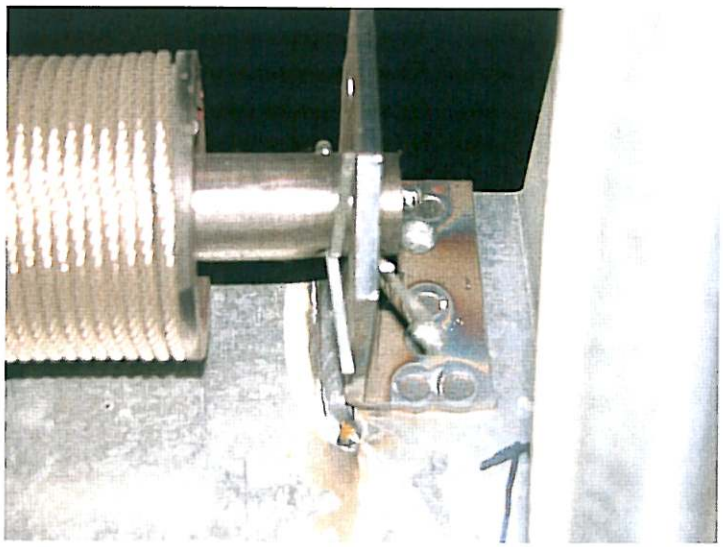


Figure 9

e) Install a cotter pin in the end of the balancer shaft, through hole closest to the cable drum painted red.
f) Insert other end of shaft into curbside balancer bracket.
g) Move balancer so squared portion of shaft fits into center bracket.
h) Mount the red end into roadside bracket and install second cotter pin to hold it from shifting sideways.
i) Fasten center clamp on center bracket, making sure the angled edge is towards the bottom.

When looking out from the rear of the unit, "curbside" is on your left, "roadside" is on your right.

SEVEN: **DOOR UNIT** *(recommended 3 people)*

a) Place locking pliers firmly in the horizontal track (both sides) just before the radius, about 16" from the header. This will keep the door from closing once it is rolled onto the track.

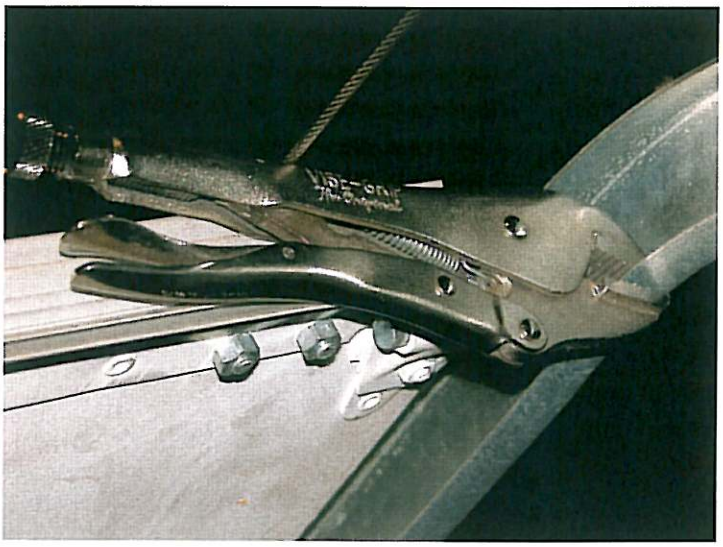


Figure 10

b) Using 2 people, carry the lower half of the door into the unit, face up, with break joint first, bottom of door nearest rear.
c) Tip door slightly to pass by the frame.
d) Lower one edge only, resting it on the floor, install rollers into opposite side end hinges and bottom roller bracket (3 people)
e) Bring door back to level and repeat with opposite side.

NOTE: Keep door against sidewall, and slide down wall, to keep rollers from falling out.

f) Move door section to the front of unit by sliding it along the floor on the rollers of one edge.
g) Place two stepladders at end on horizontal track.

h) Position 2 people at bottom seal (both sides) and 1 person in center of break joint.
i) Keeping door flat, raise section and insert rollers into track.
j) Push door down track until the locking pliers stop it.
k) Repeat procedure with top section.
l) Install rubber track stops, bolts, and nuts.
m) Join two halves of door together. Be careful not to over tighten nut. Over tightening will pull the head of bolt into the wood.

*Special washers should be placed on roller shafts at first joint (second roller) from bottom, and top of door. Depending upon the amount of side movement, 3 or 4 spacer washers (total of 16) should be installed. These washers are very important, as they accurately position the door, keeping it from binding on the track, help the cables wind on the drum, and provide for correct side seal and lock operation.

EIGHT: Balancer Winding (2 spring-style - wind with door open)

NOTE: 1. Cotter pins and center clamp have been installed previously.
2. Instructions are for a standard header, not a SHALLOW header.

a.) Loosen set screws in winding cone.
b.) Wind cable onto cable drum following grooves. It is important that end of cable is fully inserted into notch. If this is not done properly, it could interfere with drum movement.
c.) When all cable has been put onto drum, continue to wind **4 full turns**. Pull **down** on winding bar for standard header. Make sure cable drum is positioned about ¼" from balancer and tighten all setscrews in winding cone.
d.) Repeat for opposite side.
e.) Remove both locking pliers from tracks. Be aware that door will rebound down to "normal" open position.
f.) Check door operation. Cable should wind onto drum evenly and not be pulled over onto spring area, or on top of cable that is already on the drum.
g.) Adjust turns if necessary by adding or subtracting ¼" turns. A properly balanced door will not fly up, will stay fully open, and close easily. Adjust each side equally.

SHALLOW HEADER NOTES:

- Cable comes off top of drum
- Wind spring by pushing up on winding bar.

NINE: Latch Plate

NOTE: Latch plate is attached to the sill, usually by welding. They vary in type, style, material size and location depending upon the type of lock, thickness of door, and part number of side seals.

If a latch plate supplied by Diamond Roll Up Door is not used, make sure it is of equal thickness and strength. If track spacing is not 5/16", latch plate location must be changed. Not all are automatically placed on the centerline of the sill.

a.) Mark sill using latch plate as a template
b.) Check location by lowering door and comparing with lock
c.) Cur sill if necessary
d.) Position evenly with top of sill (very important)
e.) Weld into place
f.) Allow sill to cool, close door.
g.) Check lock operation

***See Figure 3 for catch plate installation.**

TEN: Top Panel Adjustment

a.) Bring a light in and close door
b.) Using ½" wrench, remove the 2 nuts on top closure base
c.) Insert roller in track and then into top closure bracket
d.) Place bracket on base, with tapered end down
e.) Adjust. (moving bracket down will bring top seal closure to header. It will also seal against side seals better. Adjusting it sown too far may also cause it to hit the balancer when door is optional)
f.) Tighten nuts
g.) Notch top seal for cables

ELEVEN: SIDE SEALS

a.) Cut to length – opening height plus one (1) inch
b.) If friction-fit type, push into gap between track and mounting angle using a piece of 4" X 4" shim stock. Start at bottom and work up. Do not try to push all of it in at one time, put make several passes.
c.) If brush type, cut to length with wire or bolt cutters. Position on post so that brushes are slightly crushed against the door. It is important that the brushes maintain contact, as door moves in track. Use blind rivets or sheet metal screws to secure.

Twelve Final Inspection

DOOR UNIT

- ✓ Lock must be easily latched, as well as opened. Cam must be aligned with lock plate so that lock falls into cutoff easily when closed. Handle is easily held closed by keeper.
- ✓ Side play between track and door should be less than ½" total.
- ✓ Spacer washers limit door side travel, keeps panels from contacting track and help cables wind properly. They are placed at top joint, and bottom joint roller shafts only. Each of these four points should have 3 spacer washers.
- ✓ Side seals should be mounted between face and post. They uniformly contact the door to seal out dirt and moisture.
- ✓ Top panels have adjustable roller brackets. Panel position should be nearly vertical, sealing at the sides as well as across the entire top.

BALANCER

- ✓ A properly adjusted door should slowly creep open when lock is unlatched, and come to rest in the fully open position. If necessary, carefully adjust spring tension in ¼ turn increments.
- ✓ Check cables with door in fully open position. Both cables should be wound onto their cable drum in a uniform pattern. No grooves are to be skipped. The cable must not cross over itself or be interfered with by header, etc. If so reposition cables and/or drums to eliminate condition.
- ✓ Two (2) cotter pins at one end of shaft prevent side movement. Investigate that these two (2) pins are properly installed.

TRACK

- ✓ Horizontal and vertical tracks have alignment tabs where the horizontal and vertical connect. This prevents any misalignment between tracks. Make sure that the notch and tab are engaged properly to provide a smooth roller transition between horizontal and vertical track. The leg of horizontal track must also be flat against the mounting edge.
- ✓ Fasteners (and weld) securely mount the track to side wall, as well as frame, without interfering with roller travel.
- ✓ Rubber stop, nut, and bolt are installed at the end of each horizontal track. The nuts and bolts should be a snug fit without crushing the track. These must be accessible.