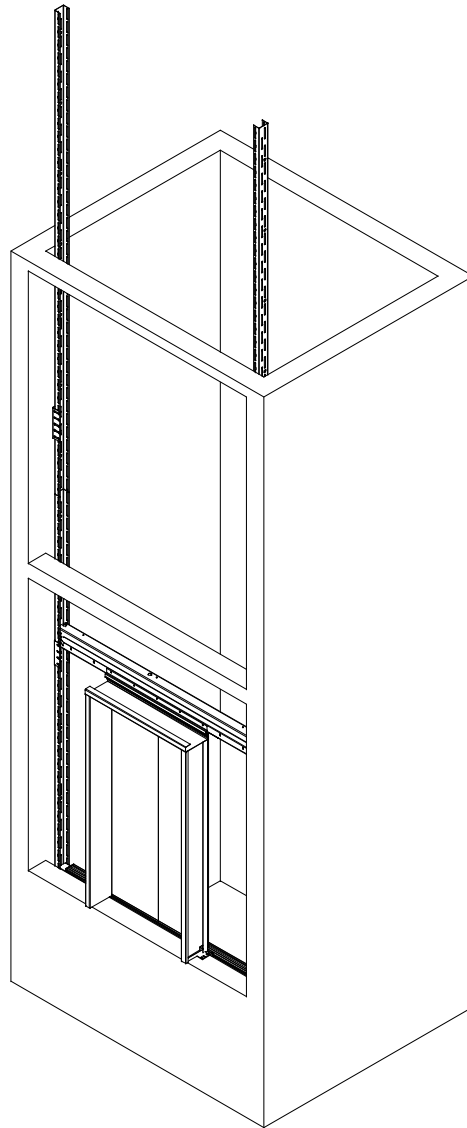




VERTICAL EXPRESS

Omni Entrance



Every attempt has been made to ensure that this documentation is as accurate and up-to-date as possible. However, Vertical Express assumes no liability for consequences, directly or indirectly, resulting from any error or omission. The material contained herein is subject to revision. Please report any problems with this manual to Vertical Express, P.O. Box 2019, Memphis, Tennessee 38101.

Vertical Express • P.O. Box 2019 • Memphis, Tennessee 38101

© 2004, 2012 Vertical Express. All rights reserved.
Published May, 2012
First Edition
Printed in the United States of America

Manual Number: 89132 v.1.1

Contents

- Safety Precautions 3
 - General Safety 3
 - Electrical Safety 3
 - Mechanical Safety 4
- Installation. 7
 - Locate Guide Rails 7
 - Mount Wall Angles 8
 - Stack the Struts 10
- Sill Support Installation 12
 - Level Sills and Attach Grout Angles 13
 - Locate Headers 15
 - Locate Frames 16
 - Door Bumpers (optional). 17
- Door Restrictor. 18
 - Single Interlock Adjustment 19
 - Dual Contact Interlock Adjustment. 21
- Replacement Parts. 22
- Drywall Entrance Interface Details. 22

This page
intentionally
left blank.

Safety Precautions

IMPORTANT!

Read this page before any work is performed on elevator equipment. The procedures contained in this manual are intended for the use of qualified elevator personnel. In the interest of your personal safety and the safety of others, do not attempt any procedure that you are not qualified to perform.

All procedures must be accomplished in accordance with the applicable rules in the latest edition of the National Electrical Code, the latest edition of ASME A17.1, and any governing local codes.

Terms in This Manual



CAUTION statements identify conditions that may result in damage to the equipment or other property if improper procedures are followed.



WARNING statements identify conditions that may result in personal injury if improper procedures are followed.

General Safety



Before applying power to the controller, check that all factory wire connections are tight on relays, contactors, fuse blocks, resistors, and terminals on cards and DIN rail terminals. Connections loosened during shipment may cause damage or intermittent operation.

Other specific warnings and cautions are found where applicable and do not appear in this summary. See the *Elevator Industry Field Employees' Safety Handbook* for electrical equipment safety information on installation and service.

Electrical Safety

All wiring must be in accordance with the National Electrical Code and be consistent with all state and local codes.

Use the Proper Fuse

To avoid fire hazards, use only a fuse of the correct type, voltage, and current rating. See the job specific drawings sheet (Power Supplies) for fusing information.

Electric shocks can cause personal injury or loss of life. Circuit breakers, switches, and fuses may not disconnect all power to the equipment. Always refer to the wiring diagrams. Whether the AC supply is grounded or not, high voltage will be present at many points.

Printed Circuit Cards

Printed circuit boards may be damaged if removed or installed in the circuit while applying power. Before installation and/or removing printed circuit boards, secure all power.

Always store and ship printed circuit cards in separate static bags.

Electrical Safety*(continued)***Mainline Disconnect**

Unless otherwise directed, always Turn OFF, Lock, and Tag out the mainline disconnect to remove power from elevator equipment. Before proceeding, confirm that the equipment is de-energized with a volt meter. Refer to the *Vertical Express Employees' Safety and Accident Prevention Program Manual* for the required procedure.

Test Equipment Safety

Always refer to manufacturers' instruction book for proper test equipment operation and adjustments.

Megger or buzzer-type continuity testers can damage electronic components. Connection of devices such as voltmeters on certain low level analog circuits may degrade electronic system performance. Always use a voltmeter with a minimum impedance of 1M Ohm/Volt. A digital voltmeter is recommended.

When Power Is On

To avoid personal injury, do not touch exposed electrical connections or components while power is ON.

Mechanical Safety

See the *Elevator Industry Field Employees' Safety Handbook* for mechanical equipment safety information on installation and service.

Static Protection Guidelines

IMPORTANT!

Read this page before working with electronic circuit boards.

Elevator control systems use a number of electronic cards to control various functions of the elevator. These cards have components that are extremely sensitive to static electricity and are susceptible to damage by static discharge.

Immediate and long-term operation of an electronic-based system depends upon the proper handling and shipping of its cards. For this reason, the factory bases warranty decisions on the guidelines below.

Handling

- Cards shipped from the factory in separate static bags must remain in the bags until time for installation.
- Anti-static protection devices, such as wrist straps with ground wire, are required when handling circuit boards.
- Cards must not be placed on any surface without adequate static protection.
- Only handle circuit cards by their edges, and only after discharging personal static electricity to a grounding source. DO NOT touch the components or traces on the circuit card.
- Extra care must be taken when handling individual, discrete components such as EPROMS (which do not have circuit card traces and components for suppression).

Shipping

- Complete the included board discrepancy sheet.
- Any card returned to the factory must be packaged in a static bag designed for the card.
- Any card returned to the factory must be packaged in a shipping carton designed for the card.
- “Peanuts” and styrofoam are unacceptable packing materials.

Note: Refer to the Vertical Express Replacement Parts Catalog to order extra static bags and shipping cartons for each card.

Failure to adhere to the above guidelines will VOID the card warranty!

Arrival of Equipment

Receiving

Upon arrival of the equipment, inspect it for damage. Promptly report all visible damage to the carrier. All shipping damage claims must be filed with the carrier.

Storing

During storage in a warehouse or on the elevator job site, precautions should be taken to protect the equipment from dust, dirt, moisture, and temperature extremes.

Revision Change Bars

Each revised page included in this manual will have a vertical line (change bar) to the left of the text that has been added or changed. The example at the left of this paragraph shows the size and position of the revision change bar.

This page
intentionally
left blank.

Installation

The Omni Entrance is designed with a continuous run of struts. This feature reduces the time spent leveling and aligning sills and door tracks, and increases the mounting consistency of the sills and headers.

Locate Guide Rails

1. Check to see which floor projects the farthest into the hoistway. Use this floor for the rough sill line. See Figure 1.

Note: Allow a minimum of 4 1/2" from the wall to the hatch sill line for single speed and center opening doors, and a minimum of 6" from the wall to the hatch sill line for two speed doors.

2. After the lines are established, verify that adequate clearance remains from the rear of the platform to the wall or counterweight.

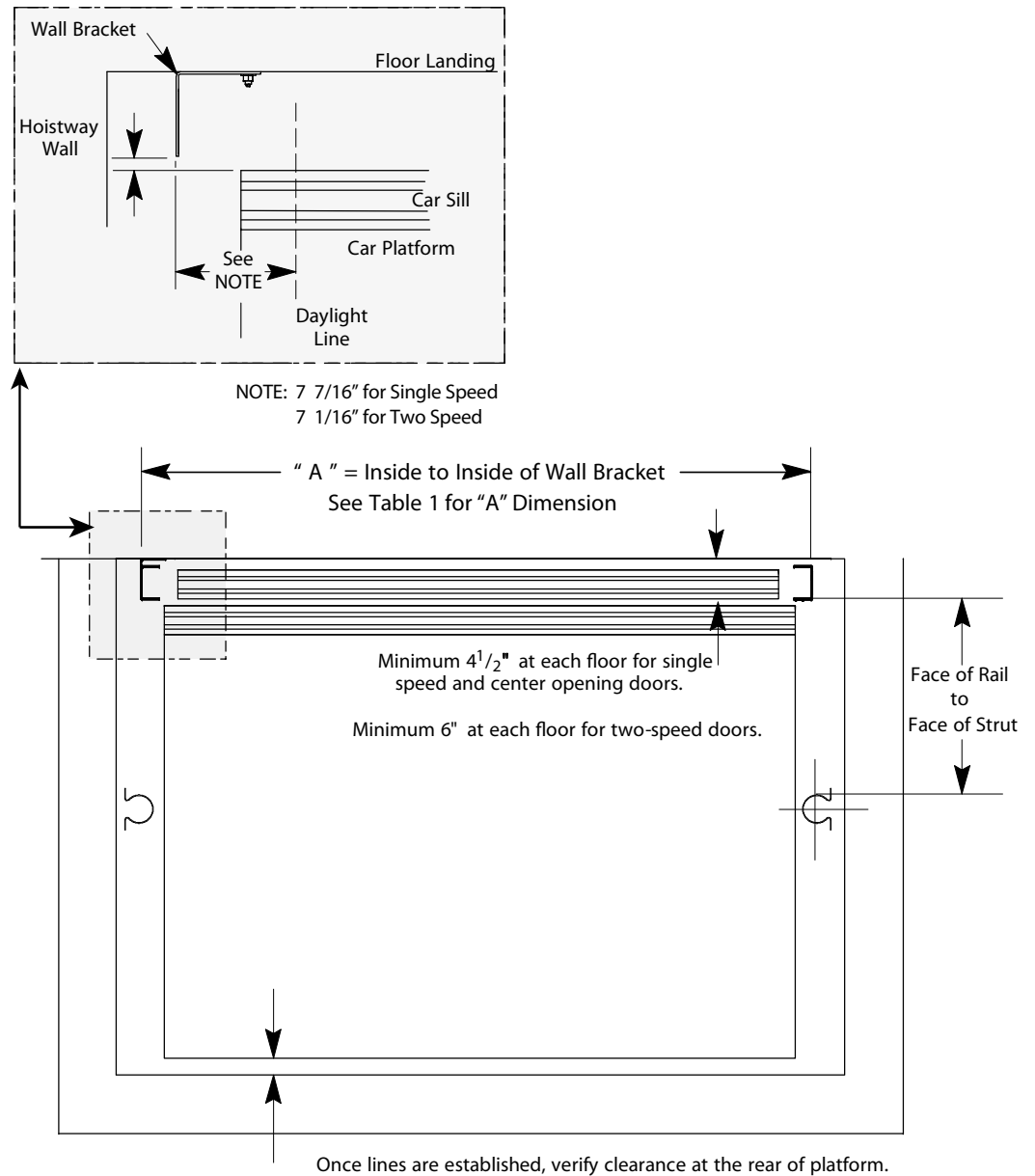


Figure 1 - Locate Guide Rails

Mount Wall Angles

1. Prepare a jig (or other means) to locate wall angles off of the strike side of platform. Use either side of the platform for the location of center opening doors.

2. Install the car sill.

Note: Where there is room, the wall angles can be turned out to avoid clearance problems of wall anchors and sill support.



The rail is zinc coated. If welded or cut with a torch, direct active ventilation (a fan) must be provided. The preferred method is to cut with a saw.

3. Hold an angle against the wall at an elevation no more than 6" below the rough floor level, and mark locations for at least two wall anchors. See Figure 2.

Notes:

- The greater the space between the anchors holding a wall bracket the better. If an anchor has to be located at the same level as sill supports, the anchors could prevent adjusting the sill closer to the wall.
 - If the top anchor at each wall angle can be located 4" below the finish floor level, then it will clear the sill support.
 - If the top anchor will not clear the sill support, use an alternate wall angle mounting arrangement.
4. After one line of wall angles (the king side) has been mounted, verify that the angles are square with the platform and plumb with each other.
 5. Tap the angles with a hammer (if necessary) to square or face them up with the platform, then check the tightness of the anchors. Do not try to shim the wall angles.
 6. After the king side is square and plumb, locate the other side by using Dimension "A" in Figure 1 on page 7 and Table 1 on page 9.
 7. Extra wall angles will be shipped for pit depths over 6'0". These angles will prevent the struts from moving around or getting knocked out of line.

Notes:

- These two extra wall angles at or near the pit floor are not required for supporting loads.
- The span between wall angles should not exceed 16'0".
- Intermediate support to side walls or divider beams is acceptable where floor slabs exceed 16'0".

Mount Wall Angles

(continued)

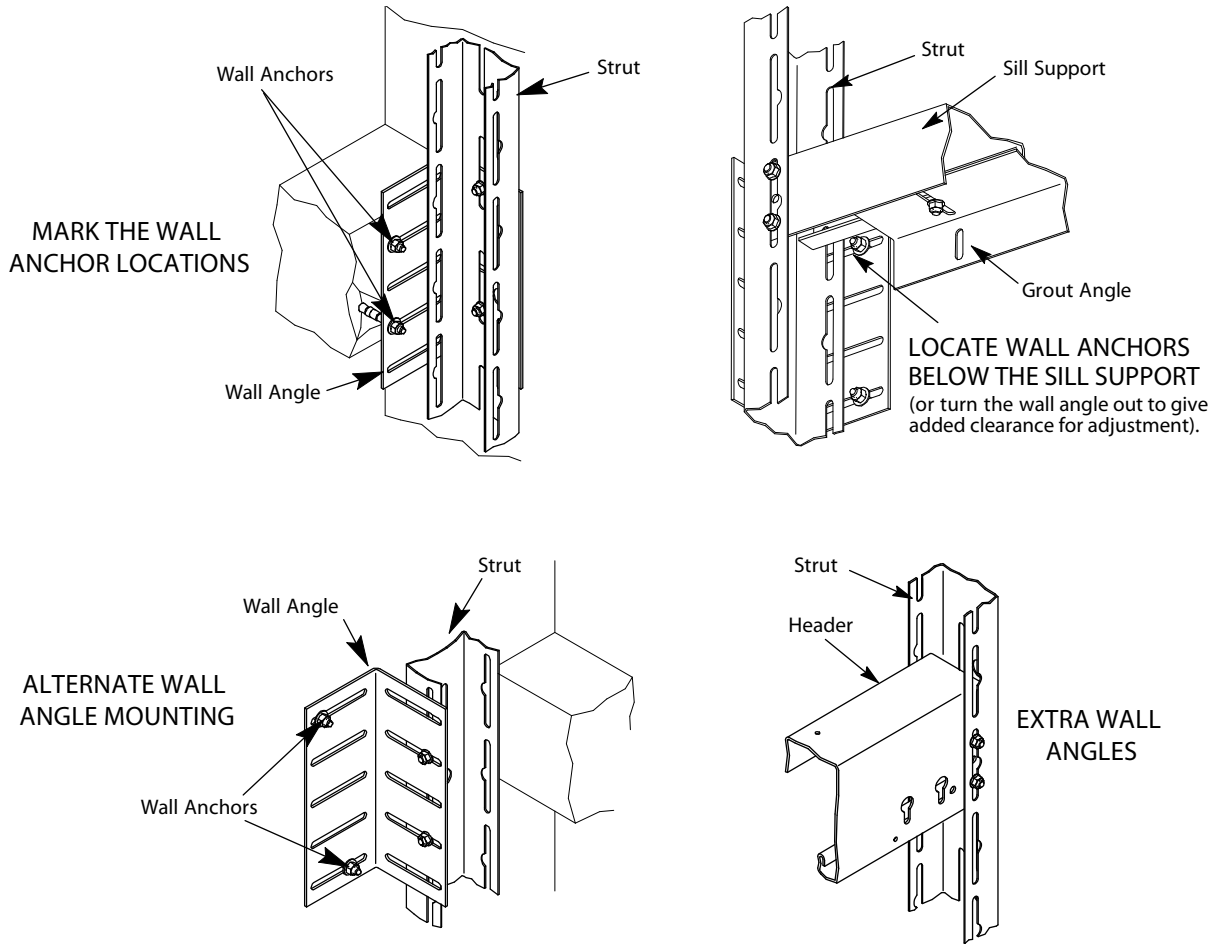


Figure 2 - Wall Angle Mounting

Door Type	Opening Width	Dimension "A"	Door Type	Opening Width	Dimension "A"
Single Speed	24	57.75	Center Opening	50	109.75
Single Speed	26	61.75	Center Opening	52	113.75
Single Speed	28	65.75	Center Opening	54	117.75
Single Speed & Center Opening	30	69.75	Center Opening	56	121.75
Single Speed & Center Opening	32	73.75	Center Opening	58	125.75
Single Speed & Center Opening	34	77.75	Center Opening	60	129.75
Single Speed & Center Opening	36	81.75	Two Speed	42	73
Single Speed & Center Opening	38	85.75	Two Speed	44	76
Single Speed & Center Opening	40	89.75	Two Speed	46	79
Single Speed & Center Opening	42	93.75	Two Speed	48	82
Single Speed & Center Opening	44	97.75	Two Speed	50	85
Single Speed & Center Opening	46	101.75	Two Speed	52	88
Single Speed & Center Opening	48	105.75	Two Speed	54	91
			Two Speed	56	94
			Two Speed	58	97
			Two Speed	60	100

Table 1 - Wall Bracket Measurements

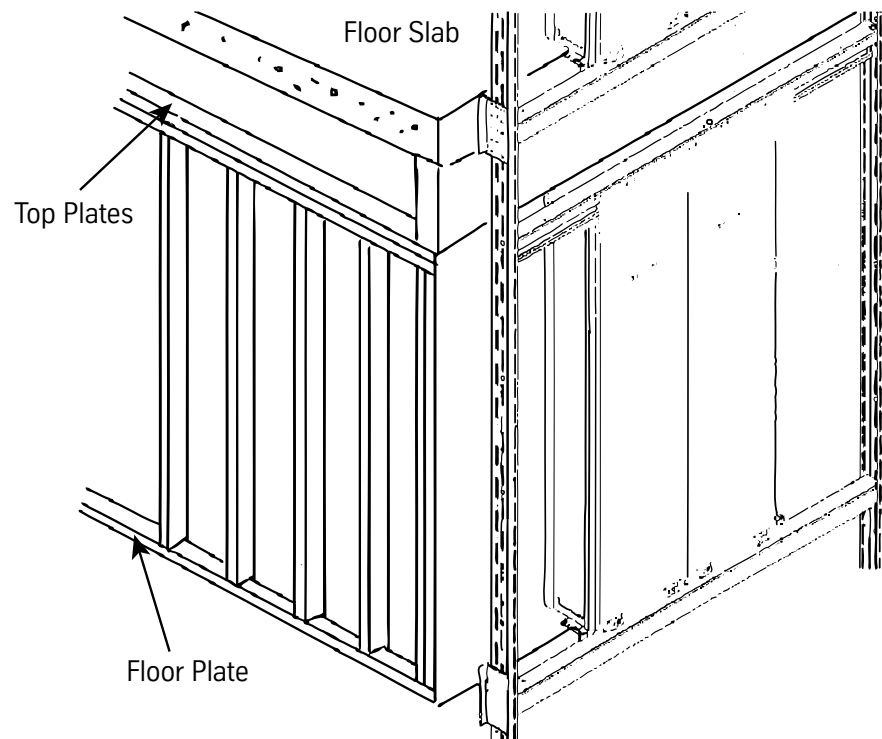
Stack the Struts

Installation

- Wood Structure Buildings - See Figure 3.
 - Concrete Block or Steel Reinforced Concrete Buildings - See Figure 4 on page 11.
1. Start with the struts resting on the pit floor. Stack the struts to the overhead while attaching them securely to the wall angles.
 2. Locate the struts from the platform using the dimensions from Figure 1 on page 7.

Notes:

- If a strut splice is adjacent to a single speed or two speed door opening, the door in the full open position may be too close to the end of the splice bolts on that side. Turn the bolts so that the head is on the side to clear an open door.
- If the strut is too tight against the wall, relocate these two bolts somewhere else on the splice. Center opening doors do not travel close enough to bolts in the full open position to be a problem.
- If the doors have a double entrance with only one opening at the rear, mount only enough strut for one landing.
- If one rear opening is at the top of hoistway, the strut does not have to run to the pit floor.
- Do not run struts between floors with more than 32 feet of travel.



Note: Allow at least 1/8" shrinkage of the building for each plate used to support a floor. It may be necessary to place a splice between the openings to maintain clearance between the door and sill.

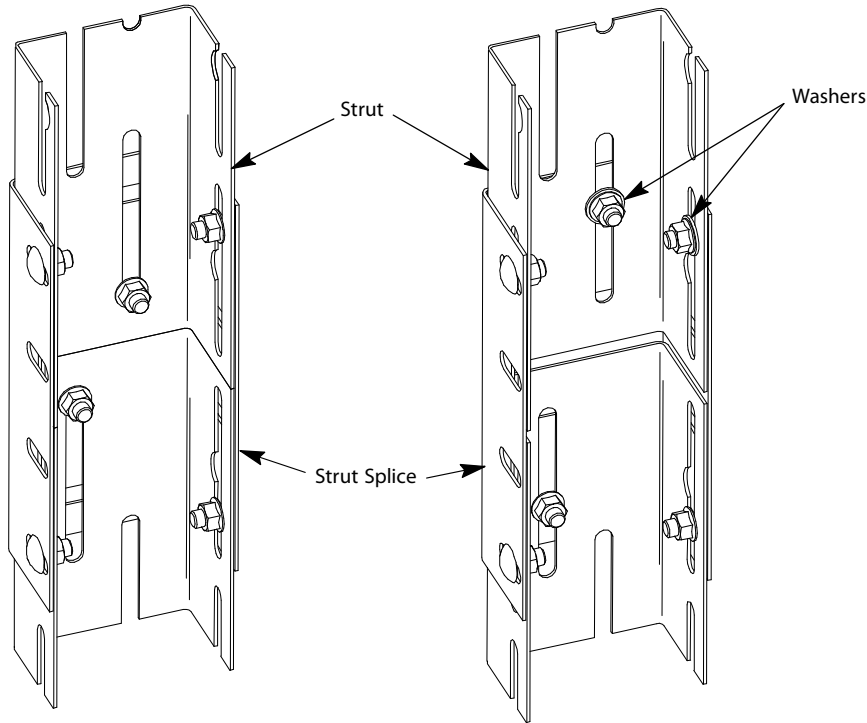
Figure 3 - Wood Structure Strut Installation

Stack the Struts

(continued)

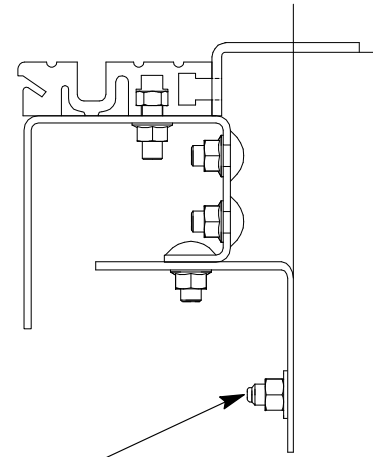
Concrete Block or Steel Reinforced Concrete Structure

- Leave no more than 1/8” between the struts before tightening splice bolts.
- Flat washers should only be used on one side of a splice joint.
- The flat washers will allow the strut to slip—to avoid bowing or buckling.
- There is no torque spec, just tighten normally.



Where Settling is Not Expected, Struts Can Be Stacked Together.

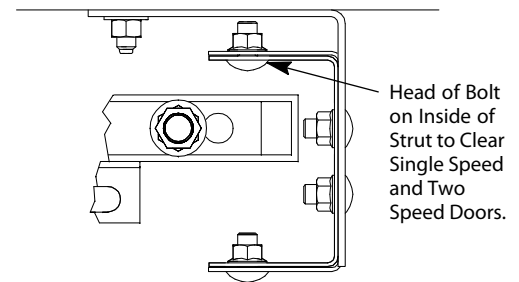
Where Settling is Expected, Use Washers and Tighten Nuts as Usual.



Anchoring Grout Angle to Wall for Openings Greater than 48” Wide, or When Additional Support is Desired.

Notes:

- Allowing too much space between the struts may result in reduced clearance between the door and sill—if the splice occurs between a sill support and header adjacent to a door opening.
- In buildings where settling is not expected to be a problem, struts may be stacked together.



Single Speed Door in Full Open Position

Figure 4 - Concrete Block or Steel Reinforced Concrete Structure Strut Installation

Sill Support Installation

1. Determine the proper slot for the sill support (based on floor location), then drop the nut and bolt assembly through the half moon cutout. See Figure 5.

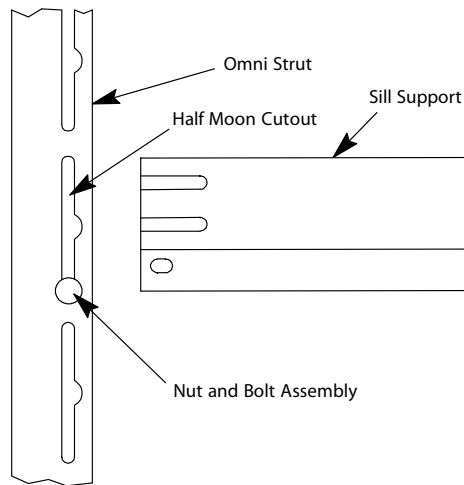


Figure 5 - Slot Location

2. Rotate the sill support slightly, and then align the open-ended slot with the nut and bolt assembly. See Figure 6.

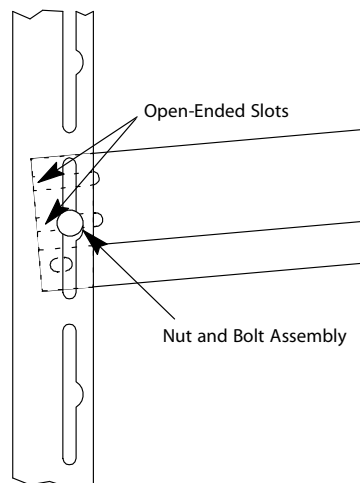


Figure 6 - Align Assembly with Slots

3. Push the sill support so that the bolt bottoms out in the end of the slot.
4. Align the other end of the sill support, and insert into the nut and bolt assembly.
5. Slide the sill support to align the mounting holes on the car side with the slots in the strut.

Sill Support Installation

(continued)

6. Through-bolt on the car side so that the sill support is captured and aligned properly.

Note: Two (2) nut and bolt constraints must be used on the car side for a total of three (3) constraints for each side of the sill support. See Figure 7.

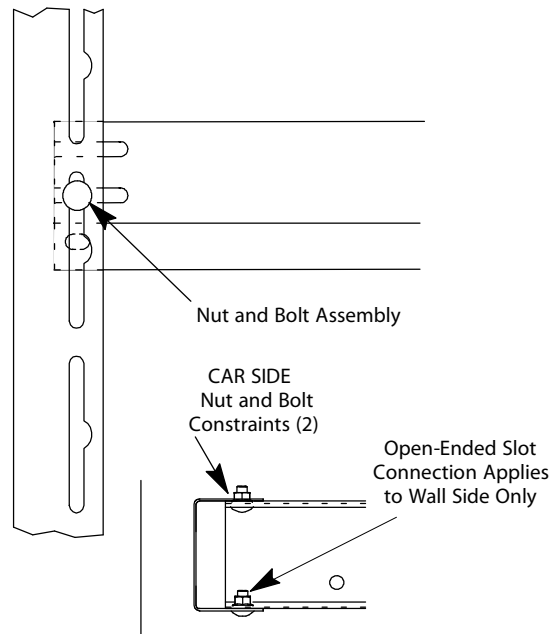


Figure 7 - Captured Sill Support

Level Sills and Attach Grout Angles

1. Once all struts have been located and are plumb, locate the sill supports for the side jambs on the sills. See Figure 8 on page 14.
2. Mount and level the sill support(s) with the sill at the finish floor line.
3. If the strut is tight against the wall, insert the head of a carriage bolt into the D-slot of the struts.
4. Slide the open-ended slots on the wall side leg of the sill support over the bolt in the back side of the strut.

Notes:

- There should be at least one (1) bolt at both ends on the wall side of this connection.
- There should be at least two (2) bolts at both ends on the car side of this connection.
- If the sill support cannot be attached to the strut on the wall side, anchor the grout angle to the front wall.

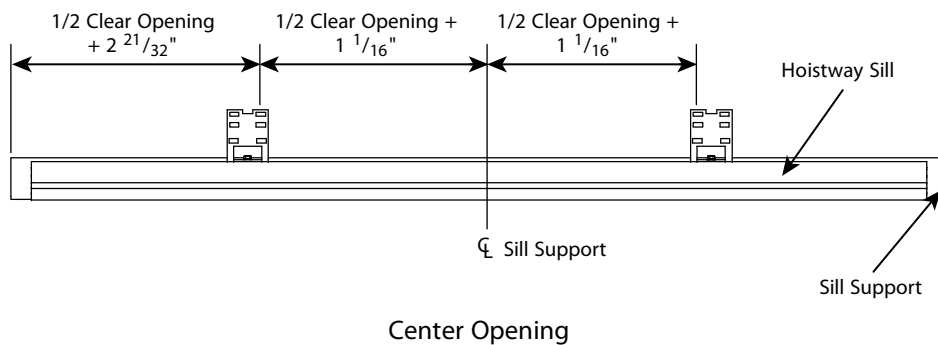
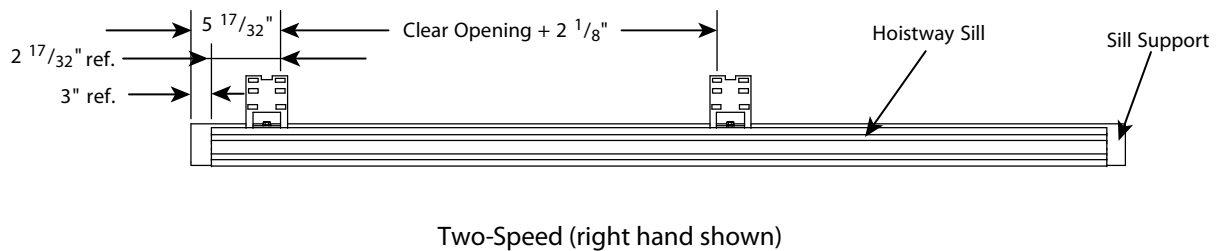
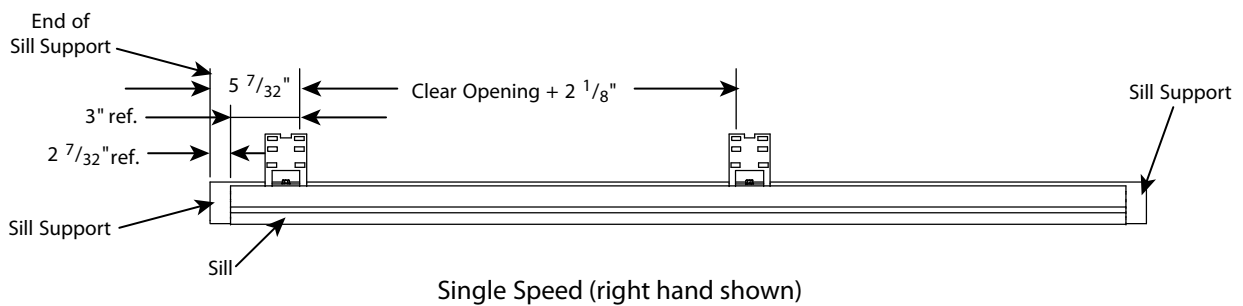
Level Sills and Attach Grout Angles

(continued)

5. Attach a grout angle to the sill support.

Notes:

- The same sill support is punched for center openings and right and left hand single speed openings.
- Where possible, center the grout angle in a door opening. This may not be possible if the grout angles are made in 12" increments.
- If the door opening widths exceed 48", anchor the grout angle to the front wall with at least one (1) bolt near the center of the opening.



Note: Sills should be approximately centered on the sill support.

Figure 8 - Sill Installation

Locate Headers

1. Cut two (2) gauge sticks of conduit per the length shown in Table 2.
2. Use gauges to locate and support header until header is attached to the struts. See Figure 9.

Notes:

- There should be two (2) bolts at both ends for the header connection. The extra slots in the header overlap with the strut slots.
- Integral hoistway headers are shipped with door hangers, interlock, relating cable, etc. as a unit. Whenever possible, leave the hanger equipment on the header for installation.

Single Speed Doors		Two Speed Doors	
Opening Width	Single Speed Position	Opening Width	Two-Speed Position
24	26 3/8	30	17
26	28 3/8	32	18
28	30 3/8	34	19
30	32 3/8	36	20
32	34 3/8	38	21
34	36 3/8	40	22
36	38 3/8	42	23
38	40 3/8	44	24
40	42 3/8	46	25
42	44 3/8	48	26
44	46 3/8	50	27
46	48 3/8	52	28
48	50 3/8	54	29
		56	30
		58	31
		60	32

Note: Measurements listed in this table are in inches.

Table 2 - Conduit Length

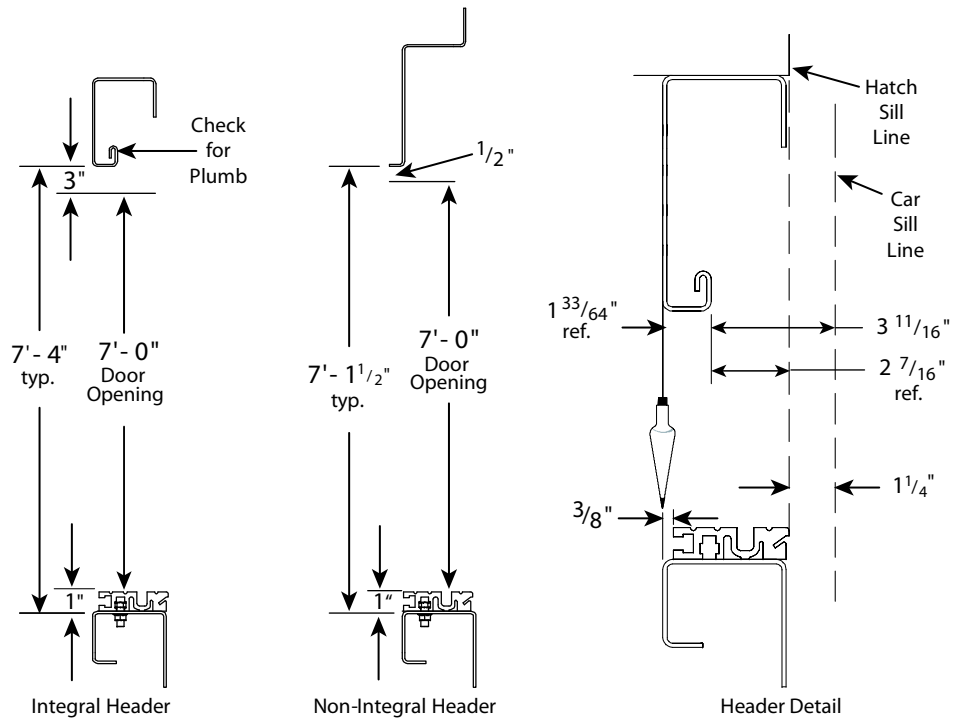


Figure 9 - Header Locations

Locate Frames

1. Bolt the transom and the columns together, and locate. See Figure 10.
 - Hoistway header with an integral track,
 - Connect the transom angle to the head jamb. See Figure 11 on page 17.
 - Plumb the entrance jambs using the adjustment provided in the angle and clip.
 - Hoistway header with a bolt on track,
 - Plumb the side jambs.

Note: Shimming may be necessary between the head jamb and the header.

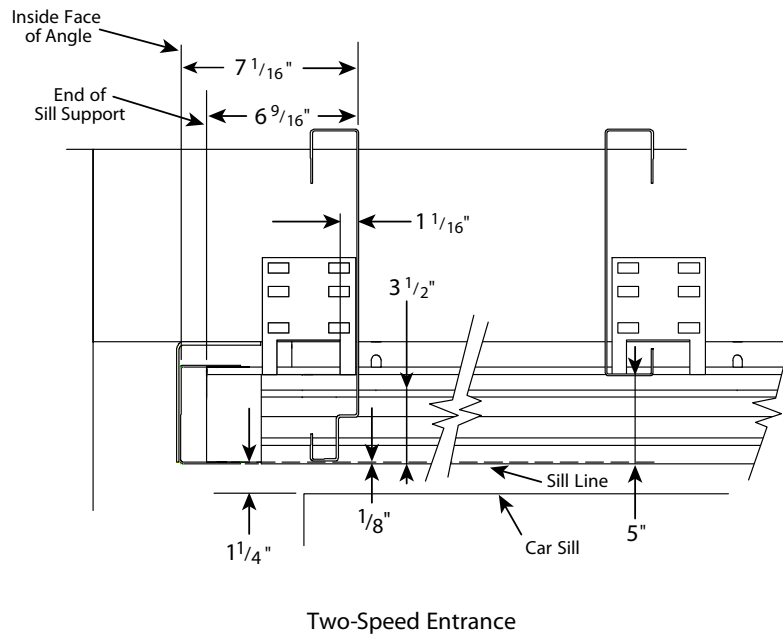
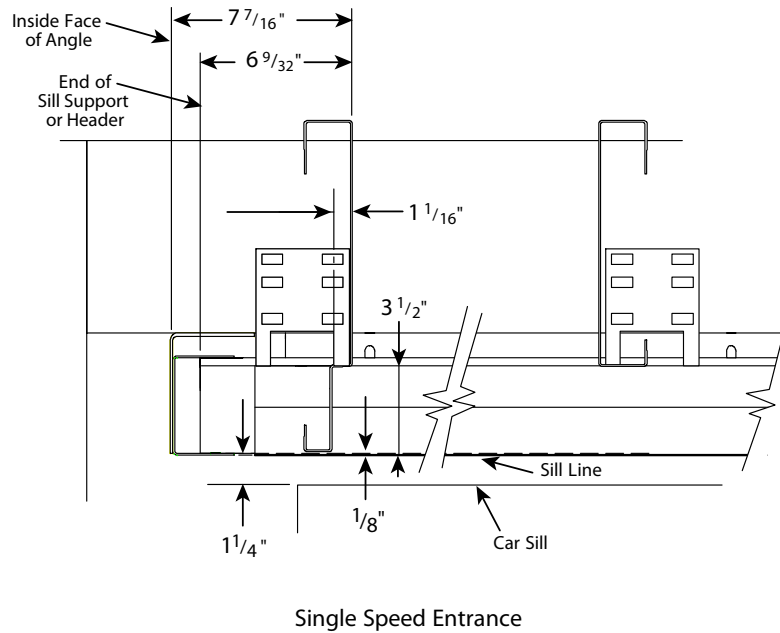


Figure 10 - Frame Location

Locate Frames

(continued)

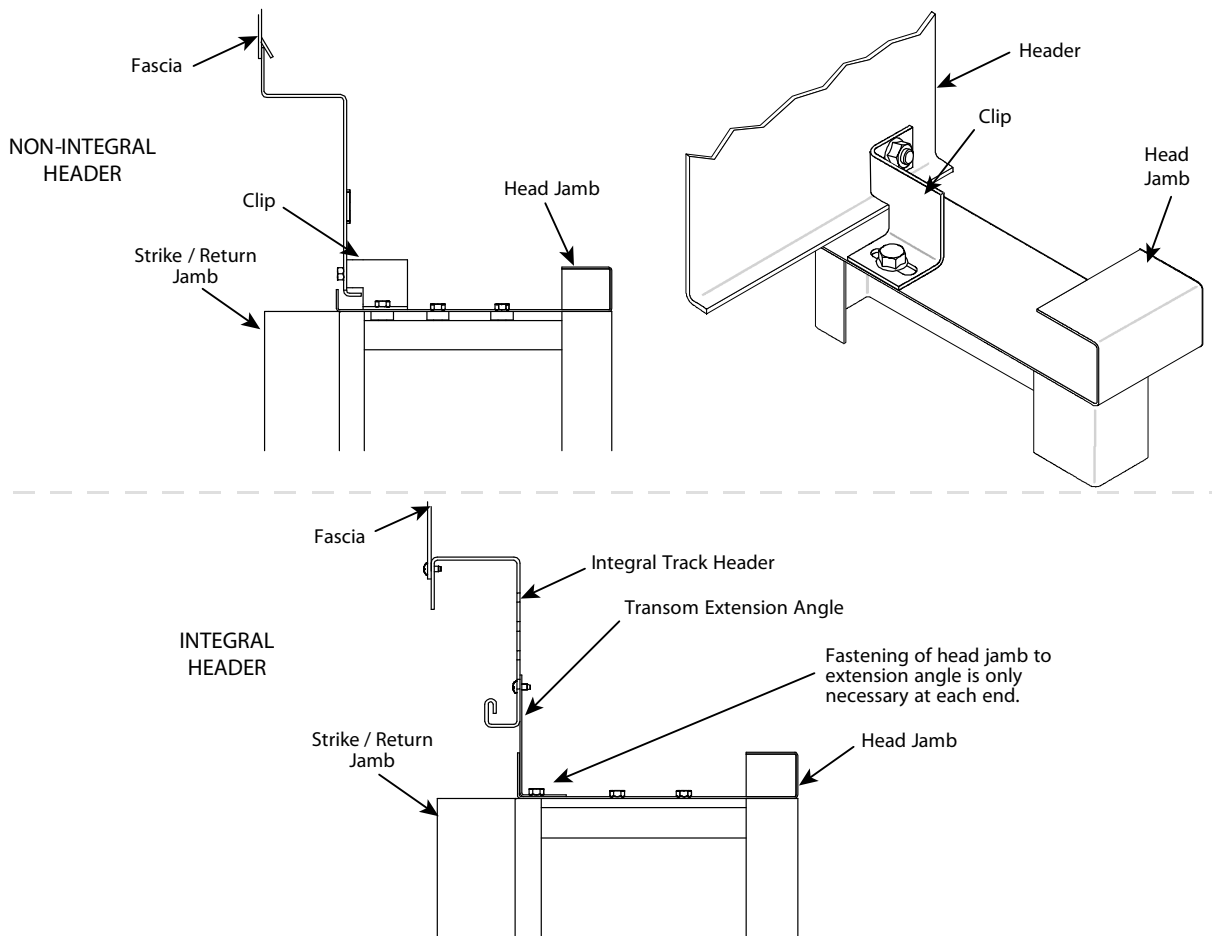


Figure 11 - Transom and Fascia Installation

Door Bumpers (optional)

Use the slots in the struts to attach the single speed door bumpers (optional). See Figure 12.

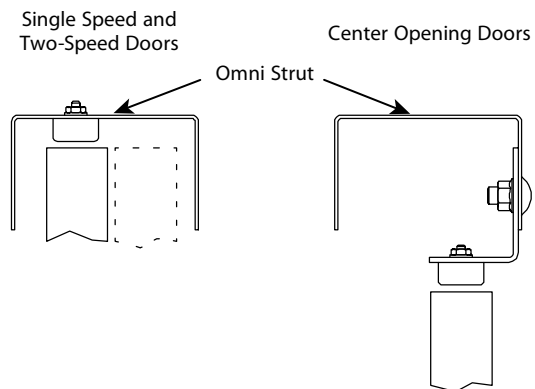
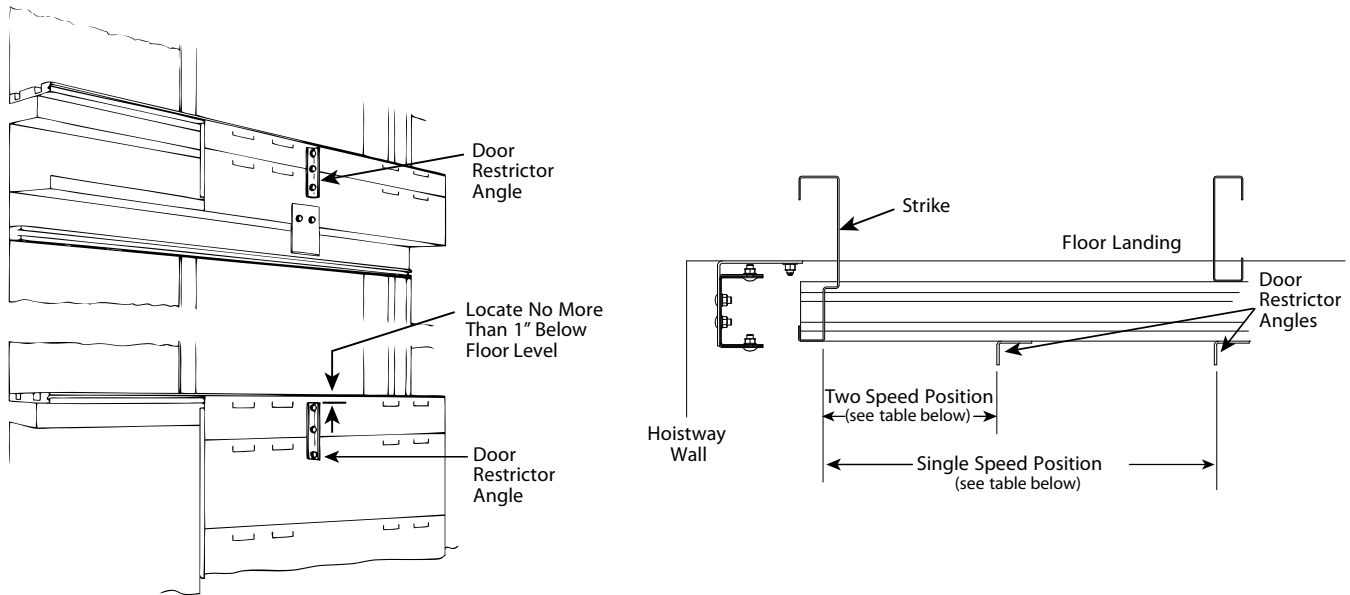


Figure 12 - Door Bumpers

Door Restrictor

Note: Door restrictors for single speed and two speed side opening doors have an angle attached through the fascia to the sill support. See Figure 13.

1. Align the sill support stops with the ones on the headers.
2. Use a measurement from a header stop to locate the sill mounted stops, or use the tables below.



Single Speed Doors		Two Speed Doors	
Opening Width	Single Speed Position	Opening Width	Two-Speed Position
24	26 3/8	30	17
26	28 3/8	32	18
28	30 3/8	34	19
30	32 3/8	36	20
32	34 3/8	38	21
34	36 3/8	40	22
36	38 3/8	42	23
38	40 3/8	44	24
40	42 3/8	46	25
42	44 3/8	48	26
44	46 3/8	50	27
46	48 3/8	52	28
48	50 3/8	54	29
		56	30
		58	31
		60	32

Note: Measurements listed in this table are in inches.

Figure 13 - Restrictor Mounting for Single Speed and Two Speed Doors

Single Interlock Adjustment

1. Remove the cover from the interlock box.
2. Close the doors and ensure that the interlock hook is centered on the contacts. See Figure 14.

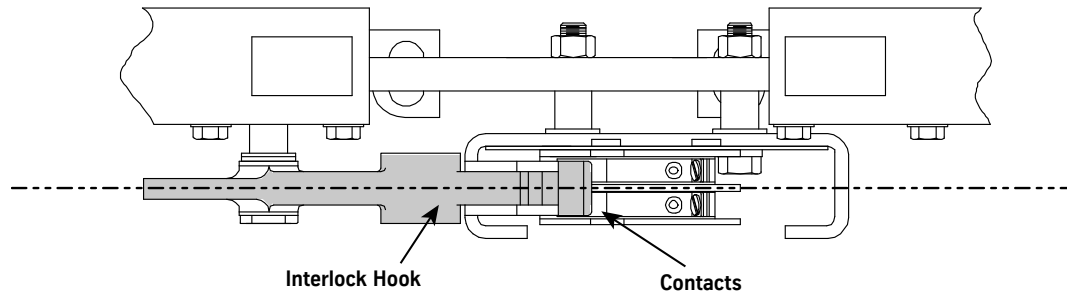


Figure 14 - Interlock Hook Centered on Contacts

3. Verify that the interlock hook does not contact the interlock box.
 - a. Put slight pressure on the front interlock hook to verify it does not contact the back of the box.
 - b. Put slight pressure on the back of the interlock hook to verify it does not contact the front of the box/frame.

Note: It may be necessary to either remove one of the two washers on the interlock hinge bolt, or shim the interlock box.



Never remove both washers on the interlock hook shaft.

4. Adjust the interlock box so there is an equal distance (about 1/8"), when the doors are closed, between the interlock hook and both sides of the locking tab on the box. See Figure 15.

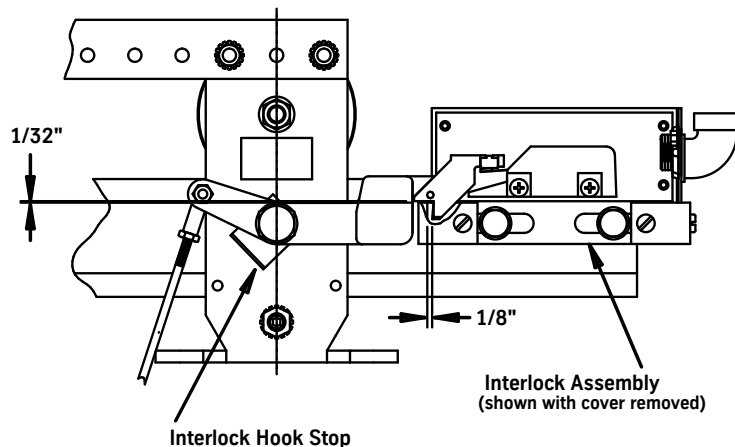


Figure 15 - Adjust the Interlock Box

5. Adjust the connecting rod length so that when the hook is resting on its contacts, the interlock hook has 1/32" clearance with the top of the locking tab on the box. At this time, the pickup roller crank should be resting on its stop.
6. Vertically adjust the box to obtain 3/32" contact compression. Ensure that the interlock hook touches both contact leaves at the same time.

Single Interlock Adjustment

(continued)

7. Ensure that when the interlock hook is raised (by actuation of the rollers), the hook clears the box at the top by a minimum of 1/16". See Figure 16.

Note: If necessary, adjust the interlock hook stop to limit the hook travel.

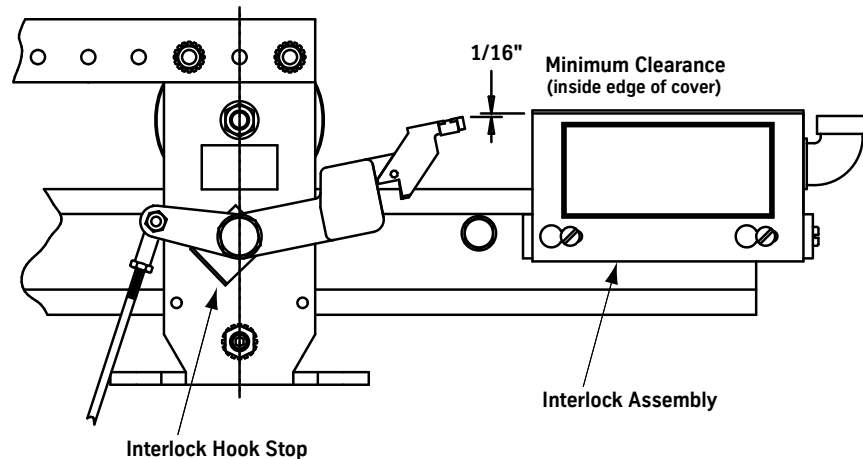


Figure 16 - Adjust the Interlock Hook Stop

8. While actuating the rollers and the interlock hook, verify that there is a 9/32" hook engagement before the contacts are bridged. See Figure 17.

Note: If necessary, adjust the plastic contact housing in the interlock box to obtain the proper angle and position of the contacts.

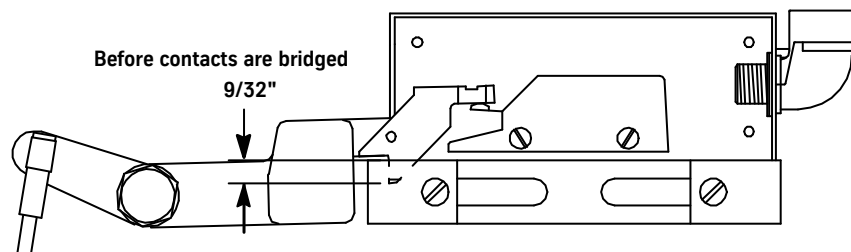


Figure 17 - Interlock Hook Engagement

Single Interlock Wiring

1. Remove the interlock box cover.
2. Ensure that the shorting bar has a good sweep on the contacts after the hook is in the locked position.



All door lock contacts must be wired in series. See specific wiring diagram for details.

Dual Contact Interlock Adjustment

1. Remove the cover from the interlock box.
2. Close the doors, and check the clearance between the sides of the interlock hook, contact plug, and box to ensure that they are centered on their respective contacts. See Figure 14 on page 19.
3. Put slight pressure on the front of the interlock hook to verify that it does not contact the back of the box.

Note: It may be necessary to either remove one of the two washers on the interlock hook hinge bolt, or shim the interlock box.



CAUTION

Never remove both washers on the interlock hinge bolt.

4. Adjust the interlock box so that there is an equal distance (about 1/8") when the doors are closed between the interlock hook and both sides of the locking tab on the box. See Figure 15 on page 19.
5. Adjust the connecting rod length so that when the hook is resting on its contacts, the interlock hook has 1/32" clearance with the top of the locking tab on the box. At this time, the pickup roller crank should be resting on the stop.
6. Vertically adjust the box to obtain 3/32" contact compression. Ensure that the hook touches both contact leaves at the same time.
7. Adjust the contact plug to obtain 5/32" compression of the contact leaves when the doors are closed. The contact plug should touch both contact leaves at the same time.
8. Manually push the doors in the open direction to take up all of the slack in the interlock hook, and verify that the contact remains closed.
9. While actuating the pickup rollers and the interlock hook, verify that there is a 9/32" hook engagement with the box before the contacts are bridged.

Note: If necessary, adjust the plastic contact housing in the interlock box to obtain the proper angle and position of the contacts.

Dual Interlock Wiring

1. Remove the interlock box cover.
2. Verify there is a factory wire connecting one terminal on each of the two contact blocks.
3. Ensure that the shorting bar has a good sweep on the contacts after the hook is in the locked position.



CAUTION

All door lock contacts must be wired in series. See specific wiring diagram for details.

Replacement Parts

Original Shipment Parts

- Two (2) wall brackets per opening = two (2) for the overhead, plus two (2) extra
- Two (2) wall brackets for each floor-to-floor that exceeds 16' 0"
- Two (2) wall brackets for pit depths more than 6' 0"

ITEM	PART NO.	PRINT NO.	DESCRIPTION
1		800BX2	Single Speed and Center Opening Splice
2		800BY2	Two Speed Splice
3		800BV1	Single Speed and Center Opening Strut Package
4		800BW1	Two Speed Strut Package
5		200KY1	Wall Angle Bolt Kit
6		200LA1	Strut Splice Bolt Kit
7		174CJ2	Strut Wall Bracket
8		297AT1	Contact Box Assembly (Center Opening Interlock)
9		297AR1	Contact Assembly Gate Switch

Drywall Entrance Interface

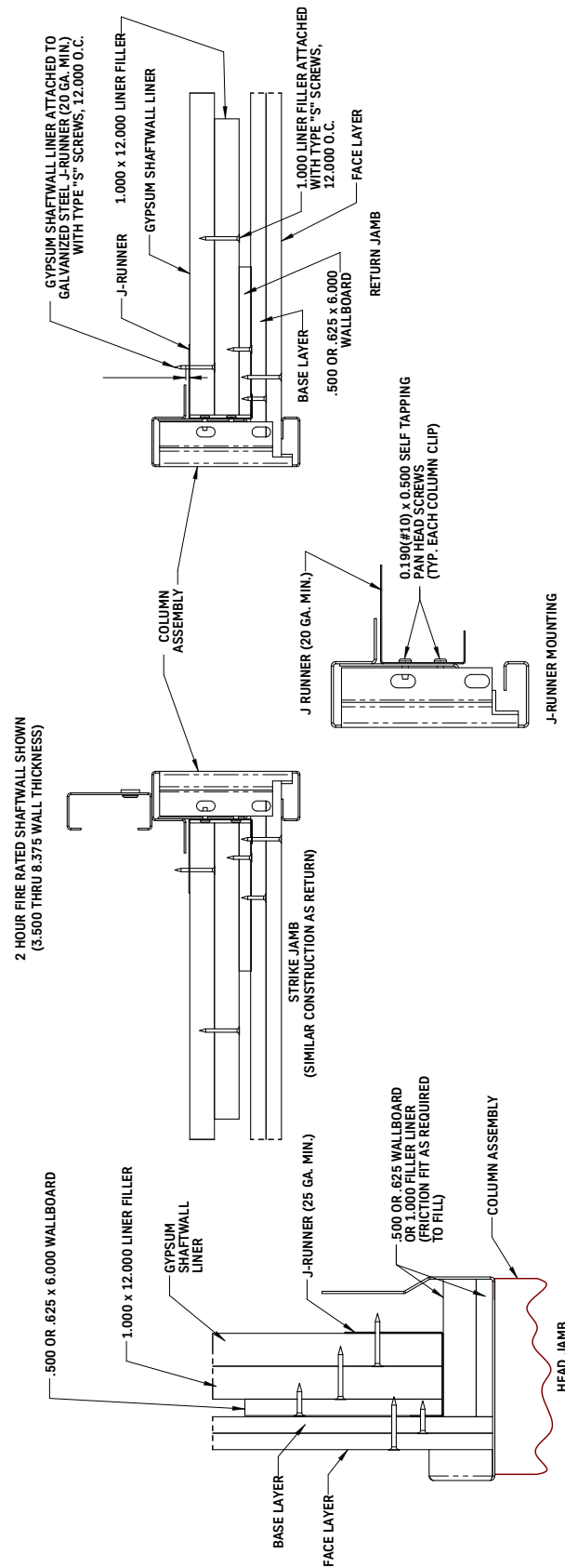
Typical Notes For All Wall Options

1. UL fire resistance hoistway wall design for wall rating up to 2 hours.
2. For elevator door framing wall design and material, refer to specified UL construction details.
3. Entrance label up to 2 hours maximum.
4. Unless otherwise specified, all materials and labor relating to hoistway wall and installation are the responsibility of the general contractor and not the elevator supplier. This includes, but is not limited to, steel or wood studs, j-runners, CH studs, shaftwall liner, wallboard layers (type x or c), fillers, and fasteners.
5. The door and frame will carry a 1 1/2 or 2 hour fire label from an approved testing facility which will meet or exceed the minimum required by the local building code.
6. For clear door opening heights 7 feet or less: fillers and strips / shims are not required per specified UL construction.
7. Wall board layers to be attached to the jamb strut and j-runner with the fastener type, lengths, location, and spacing in accordance with the specified UL design.

Drywall Entrance Interface Details

(page 1 of 6)

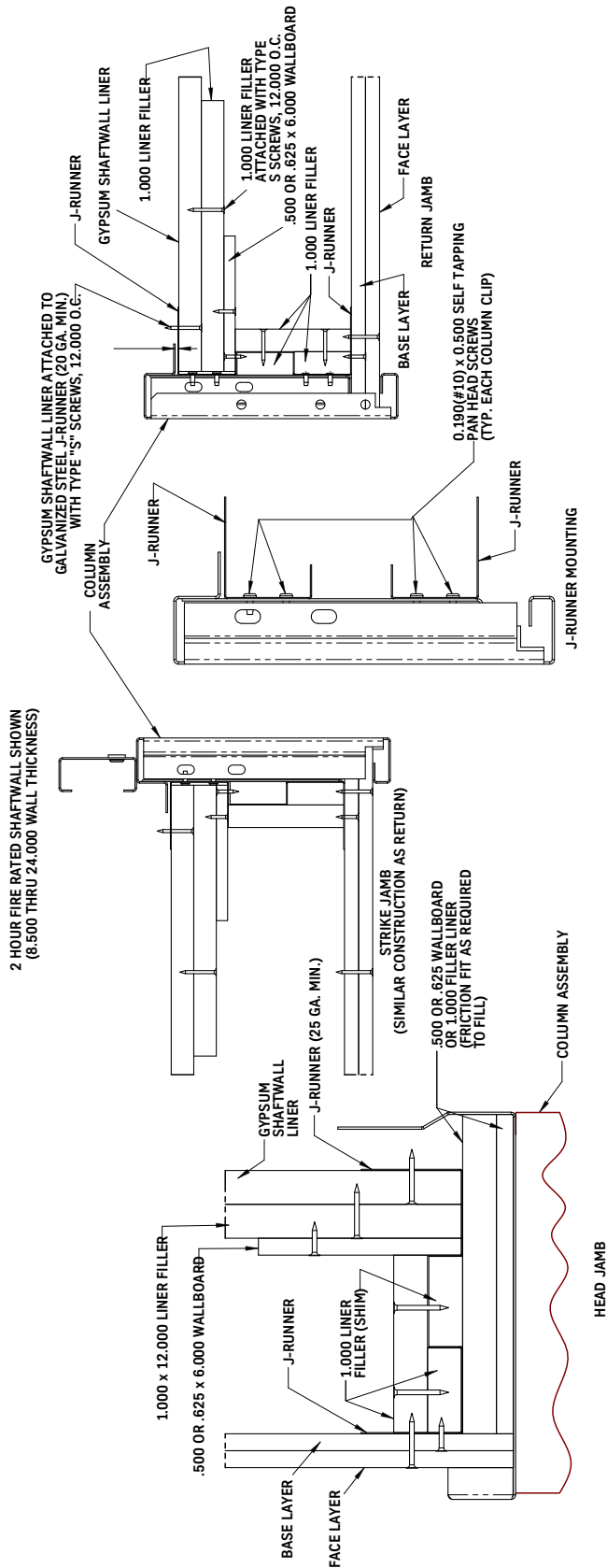
3.500 through 8.375 Wall Thickness



Drywall Entrance Interface Details (page 2 of 6)

(continued)

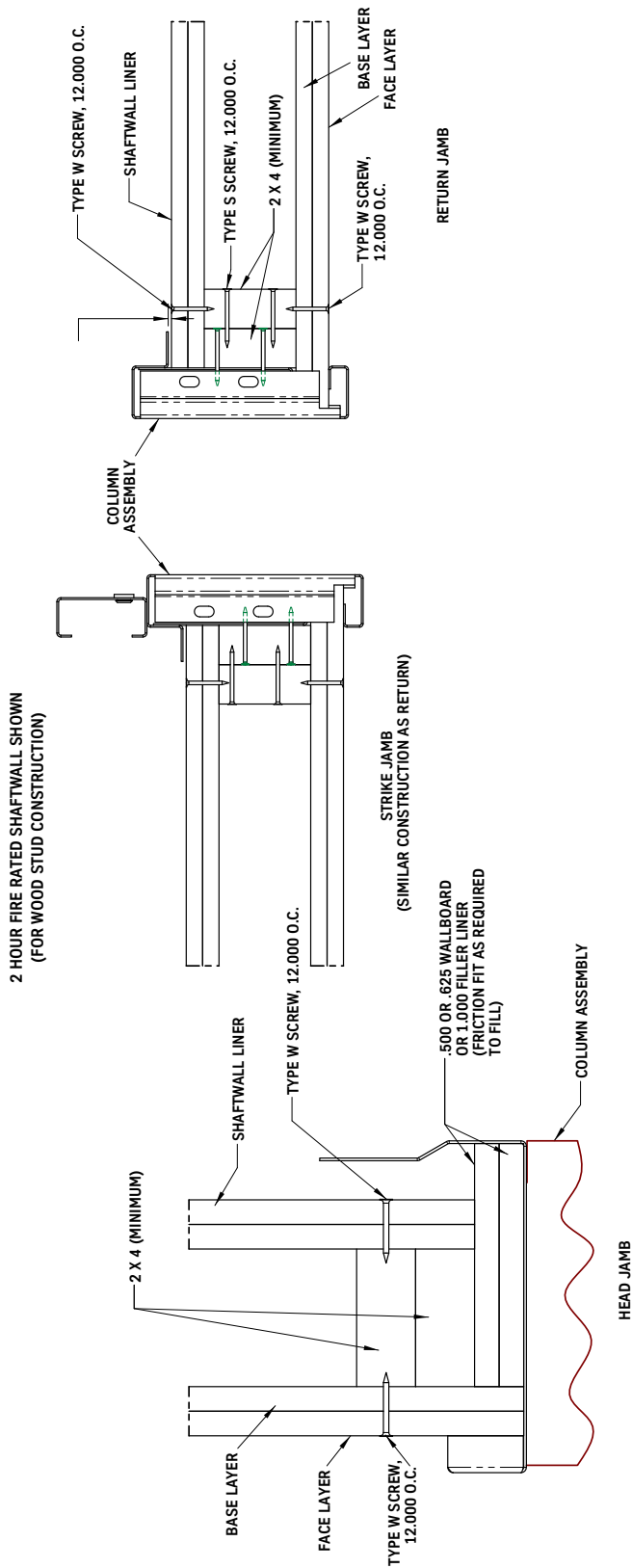
8.500 through 24.000 Wall Thickness



Drywall Entrance Interface Details (page 3 of 6)

(continued)

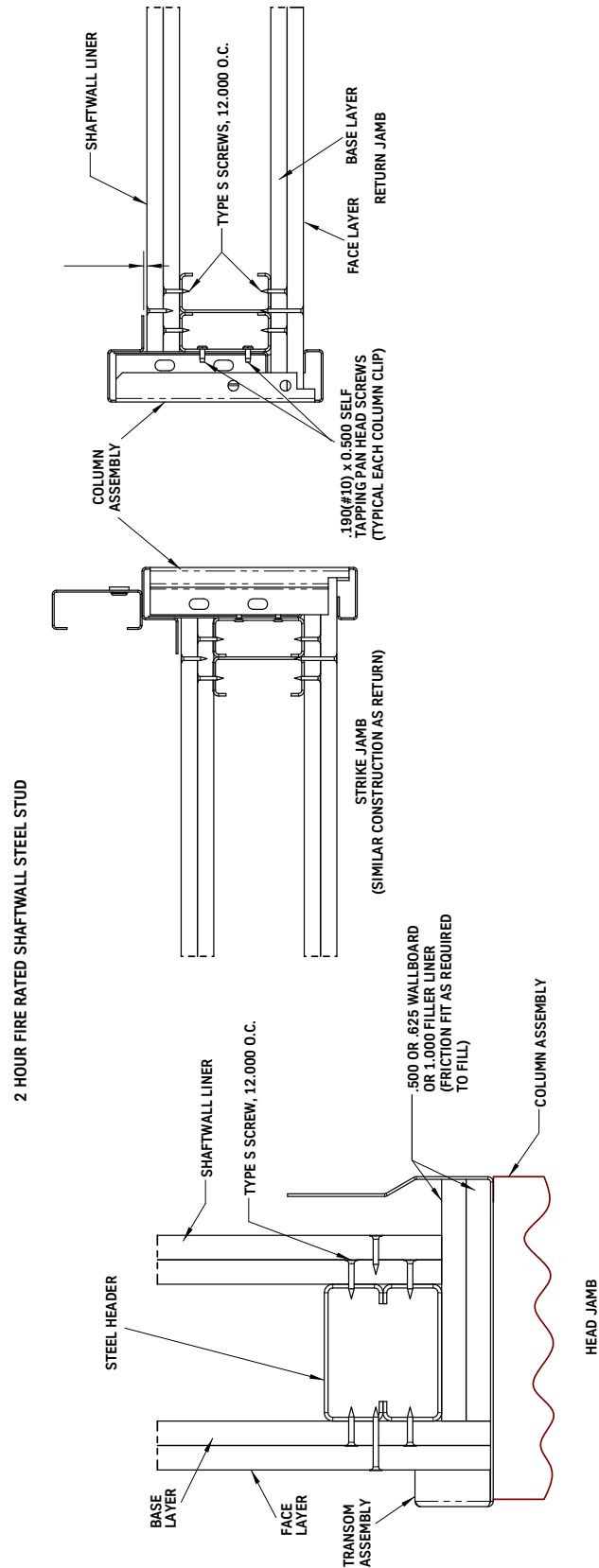
Wood Stud Construction



Drywall Entrance Interface Details (page 4 of 6)

(continued)

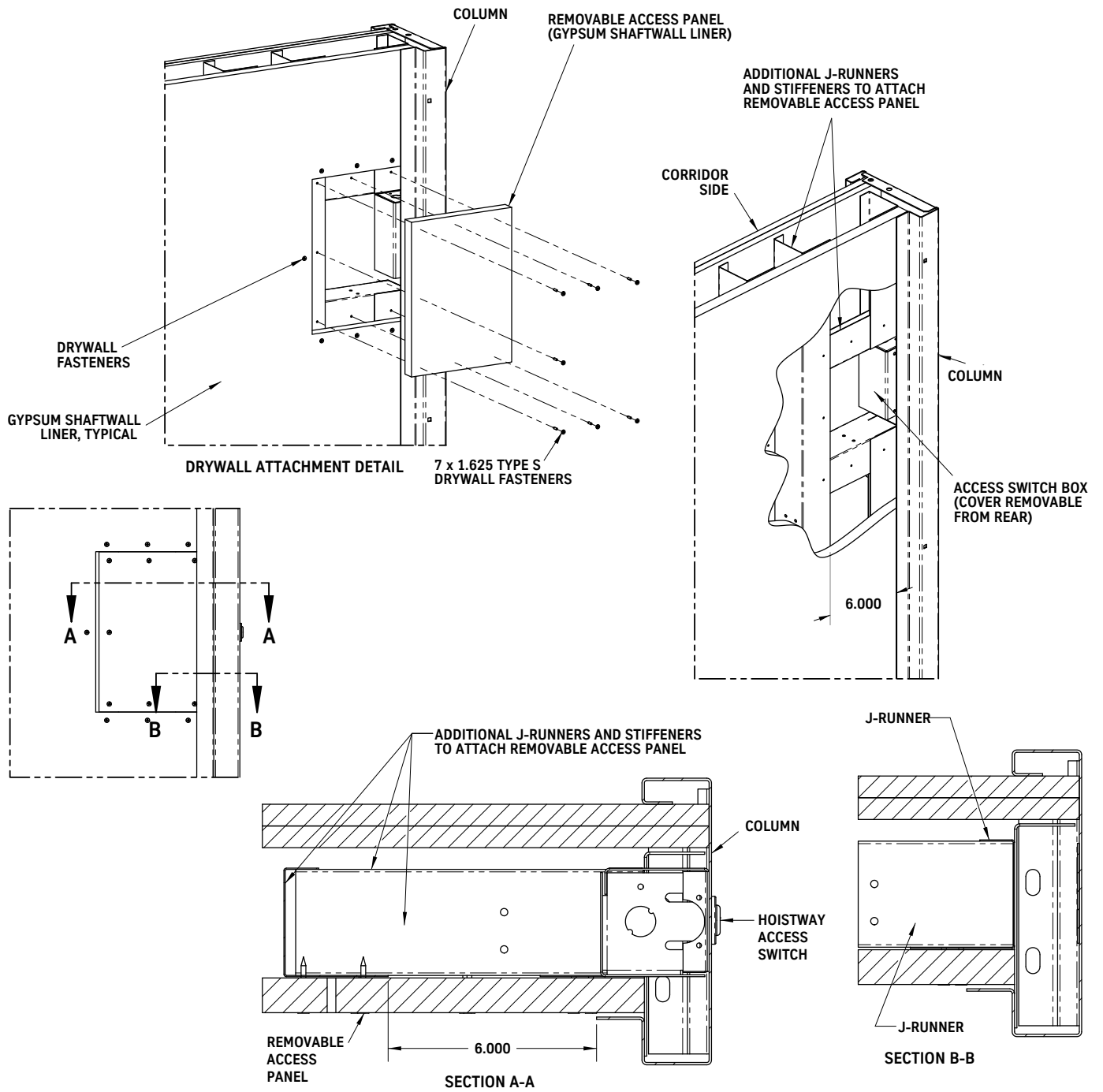
Shaftwall Steel Stud



Drywall Entrance Interface Details (page 5 of 6)

(continued)

Shaftwall Construction for Access Switch Box



Vertical Express

P.O. Box 2019 Memphis, TN 38101 Tel: (866) 448-3789 (toll-free) Fax: (901) 261-1807 www.verticalxpress.com

All illustrations and specifications are based on information in effect at the time of publication approval. Vertical Express reserves the right to change specification or designs and to discontinue items without prior notification or obligation. v.Y.m. Copyright © 2012 Vertical Express Elevator