FlexTec™ Installation Manual

Rytec Installation Safety information

The meaning of signal words

Summary

Technical content produced by Rytec includes safety information which must be read, understood and obeyed to reduce the risk of death, personal injury or equipment damage. This information is boxed to set it apart from other text. The boxed text identifies the nature of the hazard and appropriate steps to avoid it.

The safety alert symbol identifies a situation that can result in personal injury. The accompanying signal word indicates the likelihood and potential severity of the injury. The meaning of the signal words is as follows:

⚠ WARNING
Warning indicates a hazardous situation that, if not avoided, could result in death or serious injury.

⚠ CAUTION
Caution indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

NOTICE
Notice is used to address practices not related to physical injury but which, if not followed, could result in damage to the door or other property.

Installation safety

- **Do not install any Rytec product until** you have read and understood the safety information and instructions. Make sure all applicable regulations are observed and obeyed at all times.

- **Observe these precautions** while installing the door:
  - Only trained, qualified and authorized individuals are to install the door and the control system.
  - The installation site comprises the physical area required to safely uncrate, stage and install the door.
  - Make sure that all personnel at the installation site have been informed of the date, time and location of the installation.
  - Make sure that there is no pedestrian or vehicular traffic within the installation site for the duration of the installation.
  - Make sure you have and use all required Personal Protective Equipment.
  - Make sure you have adequate personnel and equipment to safely perform all lifts.
  - Make sure that you have been informed of any hazardous conditions that exist within the installation site.
  - Make sure that the installation site is kept clear of obstructions and debris and that the floor is dry.
  - Make sure that you are aware of the location of all power lines, piping and HVAC systems within the installation site.
  - Make sure all accessories installed with the door are approved by the manufacturer.

Requirements – Staffing
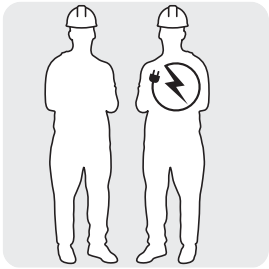
- Two installers
- A licensed electrician is recommended for making all electrical connections

Electrician's responsibilities

Refer to the Rytec System 4® Drive & Control Installation & Owner's Manual for a complete list of the electrician's responsibilities.

⚠ WARNING
Electrical work must meet all applicable local, state and national codes. Failure to wire the door correctly can cause shock, burns or death to the people who install, use or service the door. Failure to comply also voids the warranty for the door.

Requirements – Site Conditions

- Installers must have unrestricted access to the door opening at all times during the installation.
- Make sure there is no pedestrian or vehicular traffic within the installation site for the duration of the installation.

Safety icons used in this manual

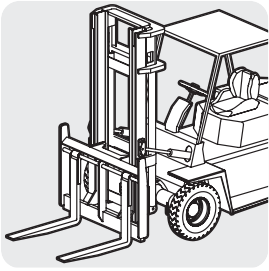| Shock hazard	Fall hazard	Crush hazard	Cut hazard	Forklift

Requirements – Lifts

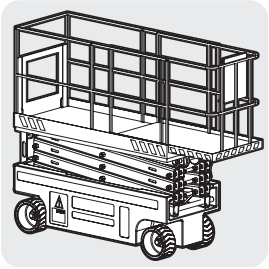| ⚠ WARNING |
|---|
| **A forklift is mandatory** for the safe and proper installation of this door. |

- **Forklift** that meets the following specifications:
  - Minimum 4,000-pound lift capacity
  - Minimum height ability: door height + 12"
  - 48-inch wide fork
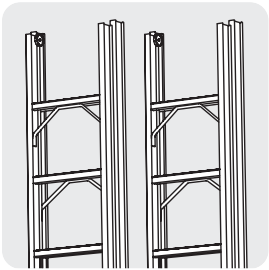 - Side shift capability

⚠ WARNING
Follow all safety instructions on all lifts and ladders used for this installation.

- **Scissor lift** that meets the following specifications:
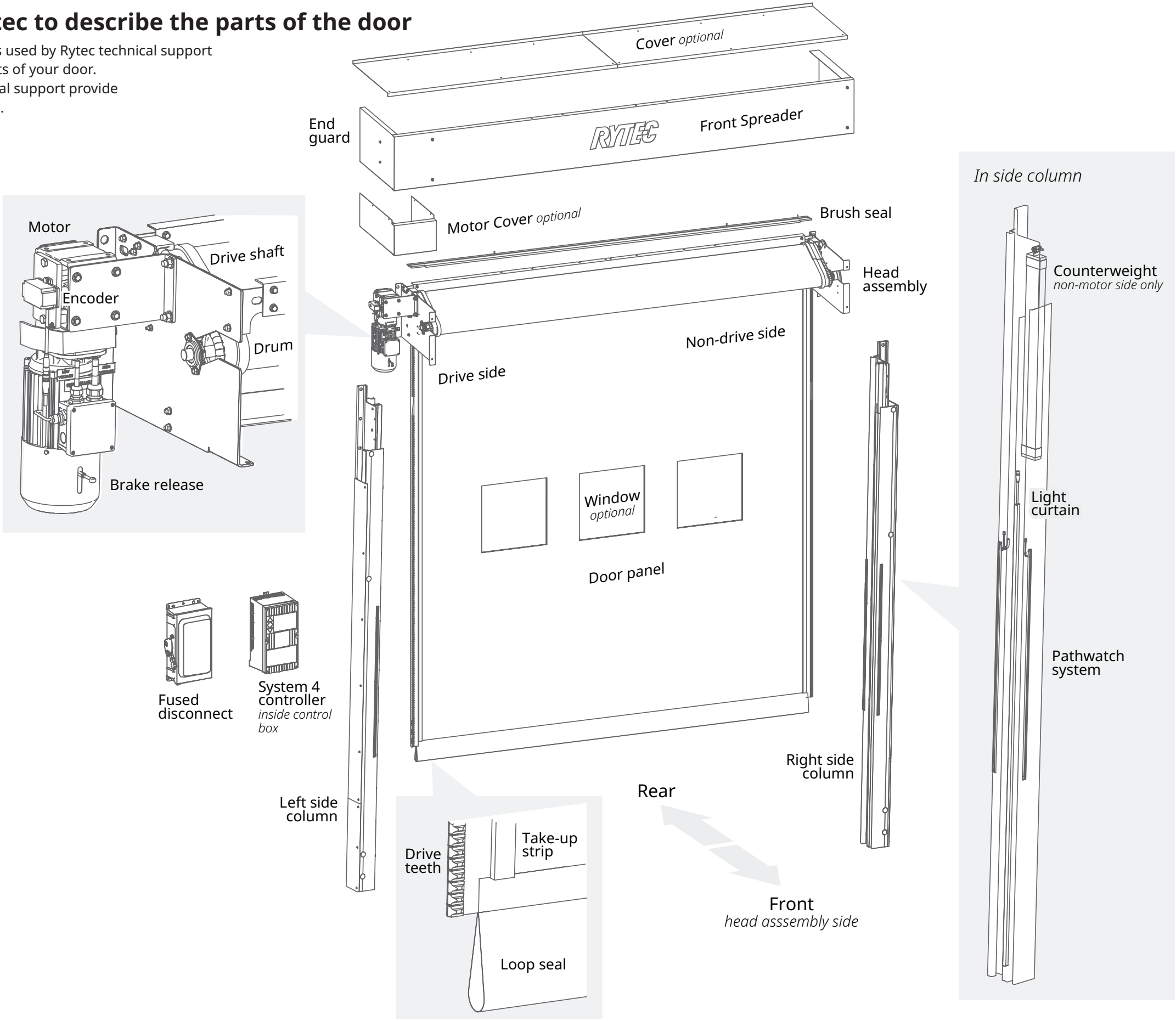 - Can hold both installers
  - Minimum height ability: door height

- **Alternatively, two ladders** of sufficient height to safely access the door head assembly

1

Terms used by Rytec to describe the parts of the door

This illustration shows the terms used by Rytec technical support
to refer to the major components of your door.
Using these terms helps technical support provide
assistance as quickly as possible.

Cover *optional*

End guard

Front Spreader

Motor

Drive shaft

Encoder

Drum

Brake release

Motor Cover *optional*

Brush seal

Head assembly

In side column

Counterweight
non-motor side only

Non-drive side

Drive side

Light curtain

Window
optional

Door panel

Pathwatch system

Fused disconnect

System 4 controller
inside control box

Right side column

Left side column

Rear

Drive teeth

Take-up strip

Front
head asssembly side

Loop seal

2

FlexTec™ Installation Manual

Call 800-628-1909

or email helpdesk@rytecdoors.com

if you have any questions during this installation. See previous page for list of Rytec terms for the parts of the door.

How to uncrate the door and inspect the installation site

NOTICE

If more than one door is to be installed, **treat each crate as a separate installation.**

Each door is shipped in a separate crate, and **all parts for the door are in the same crate.** Each door has a unique serial number.

79721-10 Oakland CA
AirTouch

79721-20 Oakland CA
AirTouch
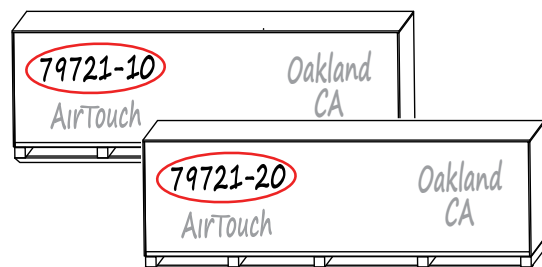
Using parts from different crates in the same door voids the warranty for all doors in the installation.

1 **Remove** the top panel.

Pry bar

INSIDER'S TIP **Panels** are made of fiberboard that shreds easily, and are secured with many nails.

Slide the pry bar along the edge, prying gently every six inches, to remove the panel in one piece.
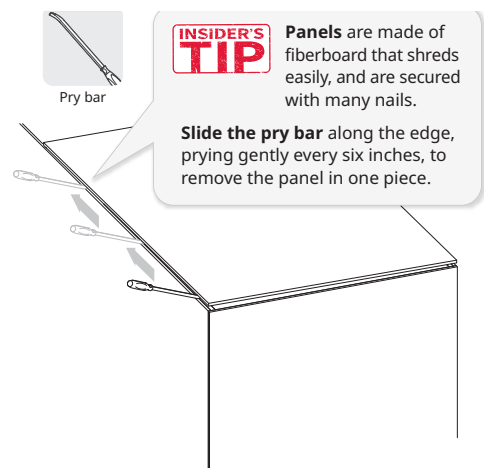
2 **Check the crate.** **Make sure** all serial numbers match the number on the crate, and all visible parts have no shipping damage.

Motor: check the serial number on the attached tag.

79721-10
⊙ 1160120-04
22' cord
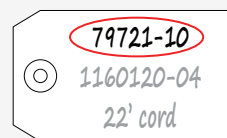
Head assembly: drive side may be left (LH) or right (RH). LH is used for this manual.

Cover (optional): may be 1-piece, 2-piece or 3-piece, flat or slanted.

Small parts box: check the serial number on side of box.

IMPORTANT

Open box, remove the red documents envelope, then open the envelope and get the object list. Check serial numbers on both.
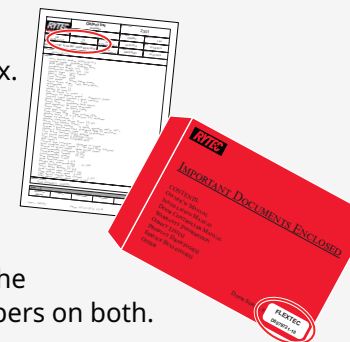
System 4 controller box: check the serial number on side of box.

Counterweight: crated under head assembly.

Motor Cover and Motor Cap (optional): if space allows, crated next to end guards.

Side Columns: check the serial number taped to top of columns.

Read **IMPORTANT** section on side columns in this manual before installing.

Head assembly end guards: Non-drive side guard has wider flanges than drive side guard .

3 **Check your tools.** **Make sure** you have all tools and supplies for the installation.
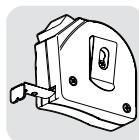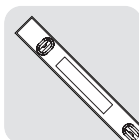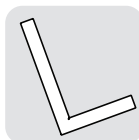
Tools you need
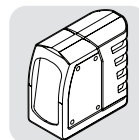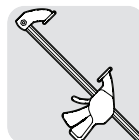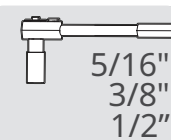
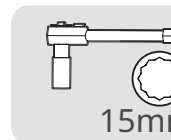| Laser level	Bar clamp	Measuring tape	Spirit level	Carpenter's square

Hardware tools and sizes (manual or powered)

5/16"
3/8"
1/2"
17mm
Socket wrench
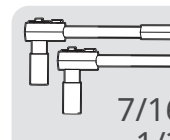
7/16"
1/2"
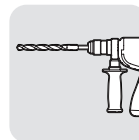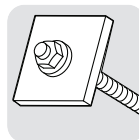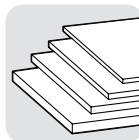Two socket wrenches needed

15mm
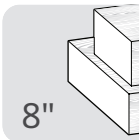12-point socket wrench

You also provide

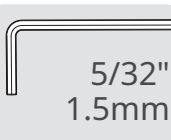| Anchoring tools	Anchoring hardware	Shims	Caulk	8" Wood block

5/32"
1.5mm
Hex wrench

3
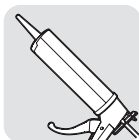
4 Tape Measure

Check the measurements. Make sure the door will fit in the installation site.

Object list				Material number
Duplicate				2301

Material description
FLEXTEC | Order number 2886902 | Order quantity 1 EA

| VFP controller 100 MAIN ZMAT | Production scheduler T3 Tier 3 | Order type ZP02 RYTEC MTO Order | Start 01/25/2019 | Finish 01/28/2019 |

Status
REL MSPT PRT PCNF PRC GMPS RESA SETC | Plant 1000 Rytec Corporation | Reservation number 0002256035 | Creation Date 01/21/2019

Serial number
D0084193-010

Configuration
Door Serial Number D0084193-010
Custom Order Standard Order
DOOR MODEL NAME FlexTec Door
① Production Width (in) 144
Production Height (in)168 ②
Fabric Type 1ply Fabric
Fabric Color Blue
Line Voltage 460V
Line Phase Three Phase Power
motor mount side Left Hand Motor
Horsepower 3.0
width in feet 12
height in feet14
Qty of doors in crate
Domestic or Export crate

$$\text{Width to center} = 1/2 \; ①$$
$$\text{Total width} = ③$$
$$\text{Total height} = ② + ④$$

1. **Locate** the production width ① and the production height ② on the object list.

2. **Measure the door opening** to make sure the height and width match the production width and production height on the object list.

3. **Calculate the width to center:** divide the production width ① by 2. **Write the result** on the object list. Use it when you center the door.

4. **Find the total width of the door:** measure the width of the front spreader ③. **Write the result** on the object list.

5. **Calculate the total height of the door:** measure the height of the front spreader ④. Add this to the production height ②. **Write the result** on the object list.

6. **Inspect the site around the door opening:** make sure the total width and height of the door will fit in the space, and that there are no obstructions.

7. **Make sure there is enough space to lift the door:** the head assembly is lifted from the top. Make sure the site has space for the total height of the door plus the height of the forklift backrest.

Call Rytec technical support at 800-628-1909 or email helpdesk@rytecdoors.com
if you have any questions about the measurements at the site.

Total width ③

Height of forklift backrest

Total height ② + ④
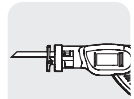
Production width ①

Production height ②

---
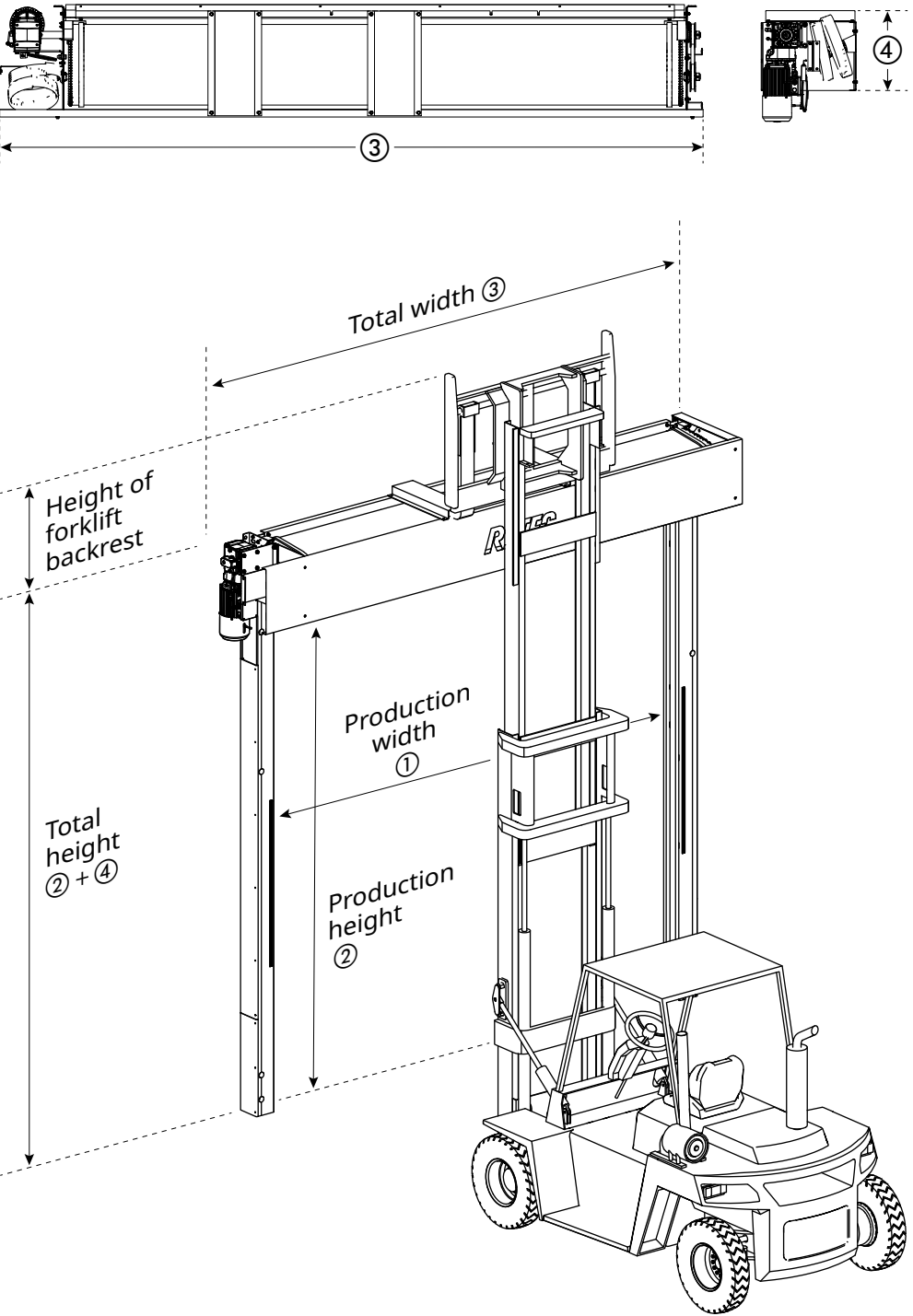
5 **If all checks are good,** finish uncrating the door. Starting at the center, remove the crossbars, then remove the front and side panels.
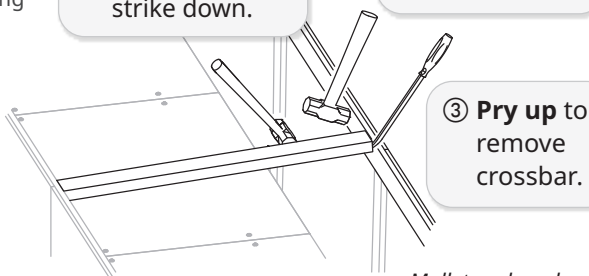
Mallet and crowbar

or

Reciprocating saw

⚠ CAUTION

Flatten exposed nails as you go.
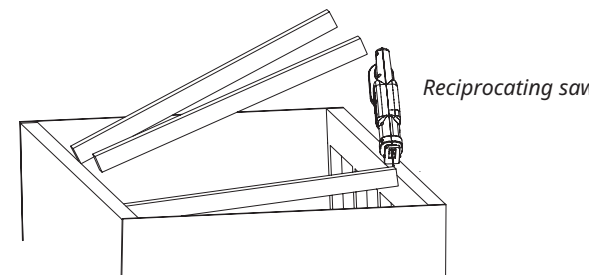
Keep hands clear while striking or cutting.

① **Strike across** the crossbar to loosen nails.
Do not strike down.

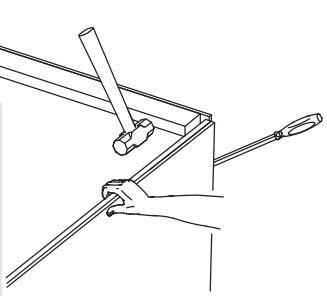② **Strike** the side panel to expose nails.

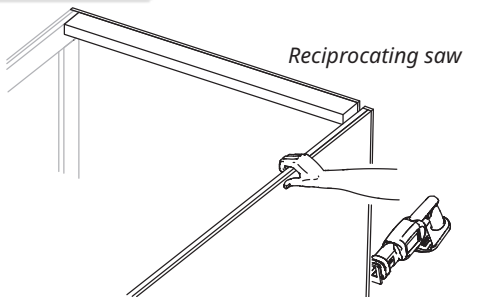③ **Pry up** to remove crossbar.

Mallet and pry bar

Reciprocating saw

End panels are nailed into the side panel.
Strike crossbar and **pry end panel** to loosen nails.
Pull side panel free from sides, then pull down to remove.
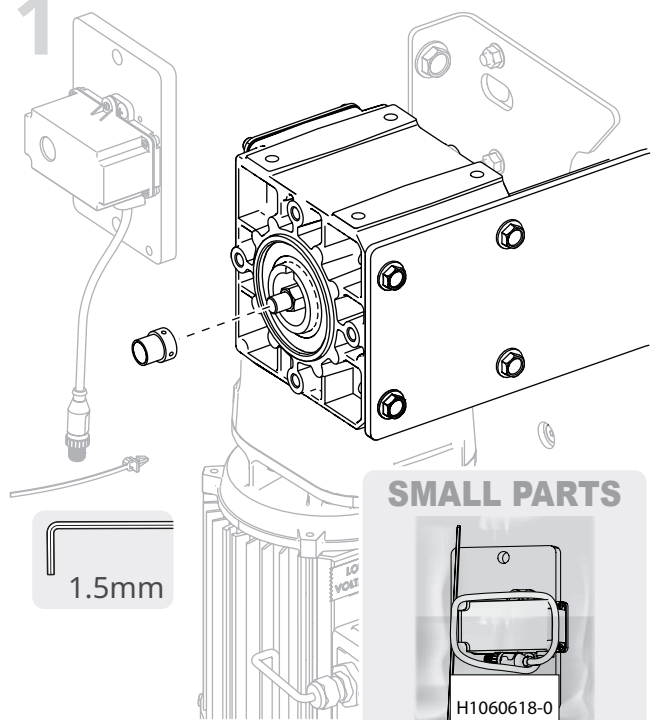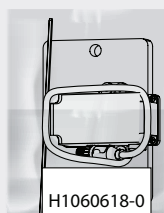
Mallet and pry bar
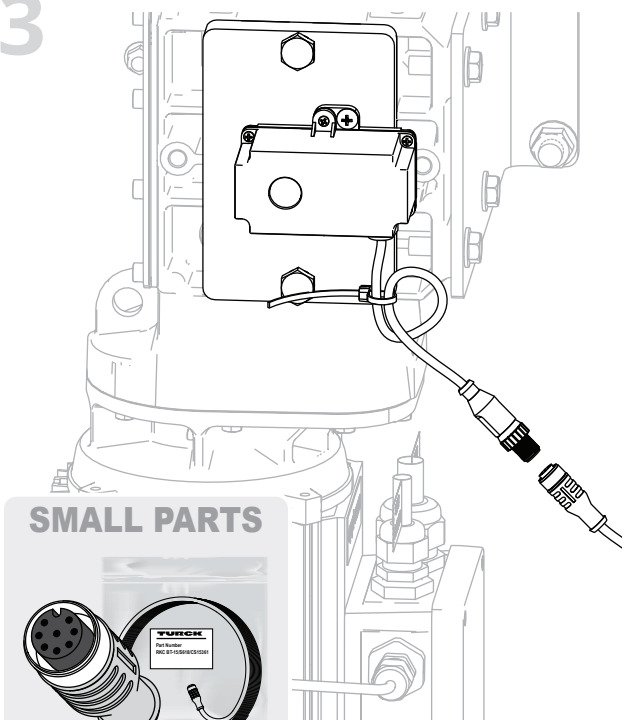
Reciprocating saw

4

How to install the encoder

1

1.5mm
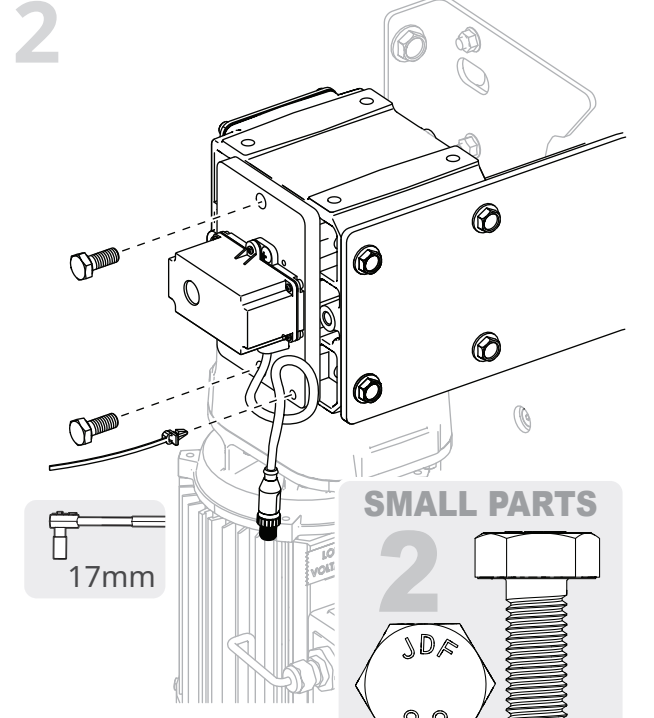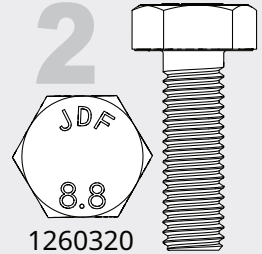
SMALL PARTS

H1060618-0

1060618-0

2

17mm

SMALL PARTS

2

JDF

8.8

1260320

3

SMALL PARTS

00141086

How to center the door in the door opening

IMPORTANT Rytec doors are engineered to be centered in the door opening, so follow these steps even if the width of the opening and the production width match exactly.

1

Measuring tape

Carpenter's square

Object list
Duplicate

Material number 2301

RYTEC
CORPORATION

General description FLEXTEC

Order number 28869902   Order quantity 1 EA

MRP controller 100 MAIN ZMAT

Production scheduler T3 Tier 3

Order type ZP02 RYTEC MTO Order

Start 01/25/2019   Finish 01/28/2019

Status REL MSPT PRT PCNF PRC GMPS RESA SETC

Plant 1000 Rytec Corporation

Reservation number 0002256035   Creation Date 01/21/2019

Serial number D0084193-010
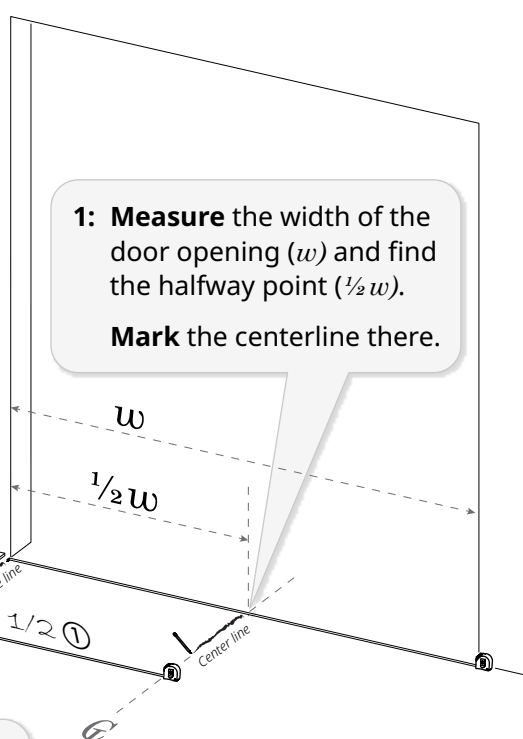
Configuration
Door Serial Number D0084193-010
Custom Order Standard Order
DOOR MODEL NAME FlexTec Door
Production Width (in)144   ①
Production Height (in)168
Fabric Type 1ply Fabric
Fabric Color Blue
Line Voltage 460V
Line Phase Three Phase Power
motor mount side Left Hand Motor
Horsepower 3.0
width in feet 12
height in feet 14
Qty of doors in order

Width to center = 1/2 ①

Total width = ④

Total height = ② + ⑤

1: Measure the width of the door opening (*w*) and find the halfway point (½*w*).

Mark the centerline there.

w

½*w*

90°

1/2 ①

Reference line

Center line

℄

2: Use the width to center from the object list (½ ①).

Starting at the centerline, measure and mark the reference line for the first column.

5

Plumb, level, square: how to position the door correctly as you install the side columns and head assembly

NOTICE

**Call 800-628-1909 immediately and stop the installation** if you are not able to correctly position the door.

1 **Remove** the top and bottom front covers from both side columns.

5/32"

number of screws varies based on height of door

KEEP REUSE
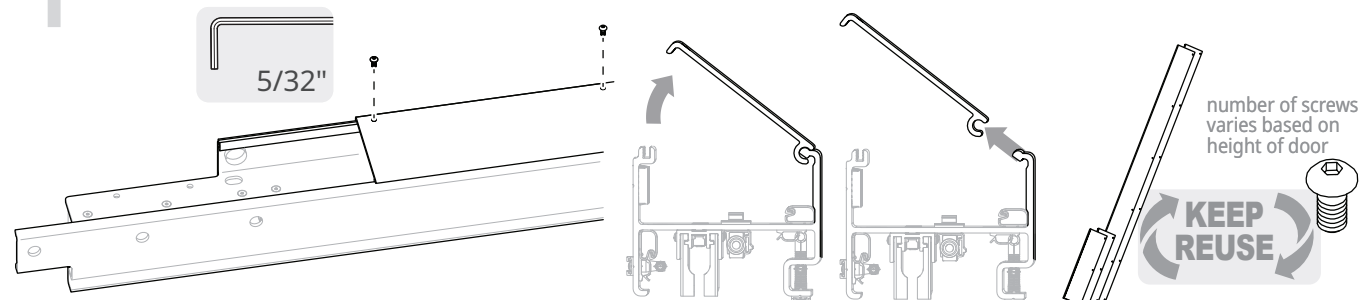
① **Don't run anchors through the top two anchor points** on the side columns until after the head assembly is installed. These points anchor both the side column and the head assembly.

IMPORTANT SIDE COLUMNS

② **Washers must fit within the raised area** around the anchor hole (dotted lines). Washers that extend beyond this will block the side column covers.
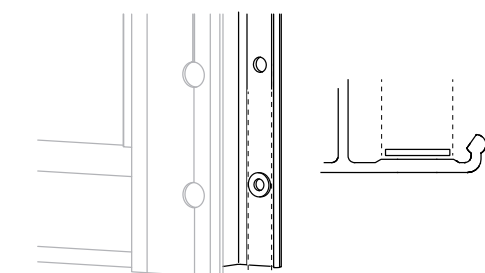
③ **Make sure you remove** the protective film from both light curtains before setting limits.

Also, make sure the **light curtains are level** after the side columns are installed. The light curtains must be vertically aligned to work properly.
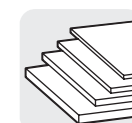
Step 1: Level the site, then install and plumb the side columns

1 **Plumb** the door opening. **If the wall is not plumb,** or there is bowing or an obstruction in the wall, shim the columns.

IMPORTANT To prevent column from bowing, shim as needed at each anchor point.

Laser level

Shims

Shim

Wall not plumb   Surface obstructions
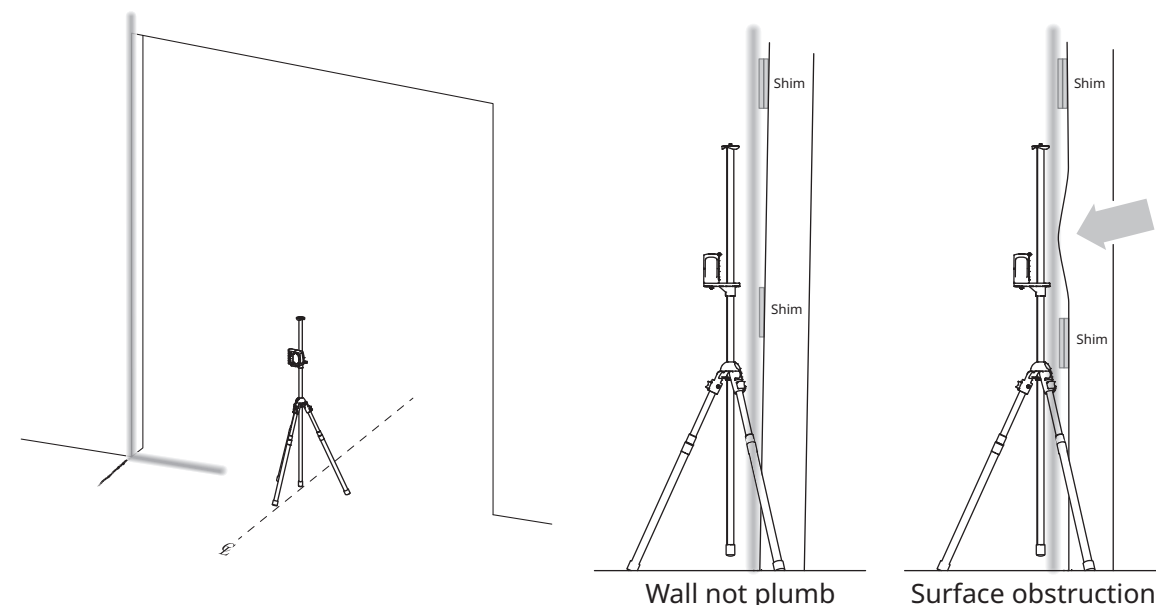
2 **Level** the floor.

Laser level

Measuring tape

Measure distance from floor to laser line on both sides of door opening.

If measurements are the same, the floor is level.

26"

26" ✓   27" ✗   26"
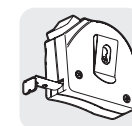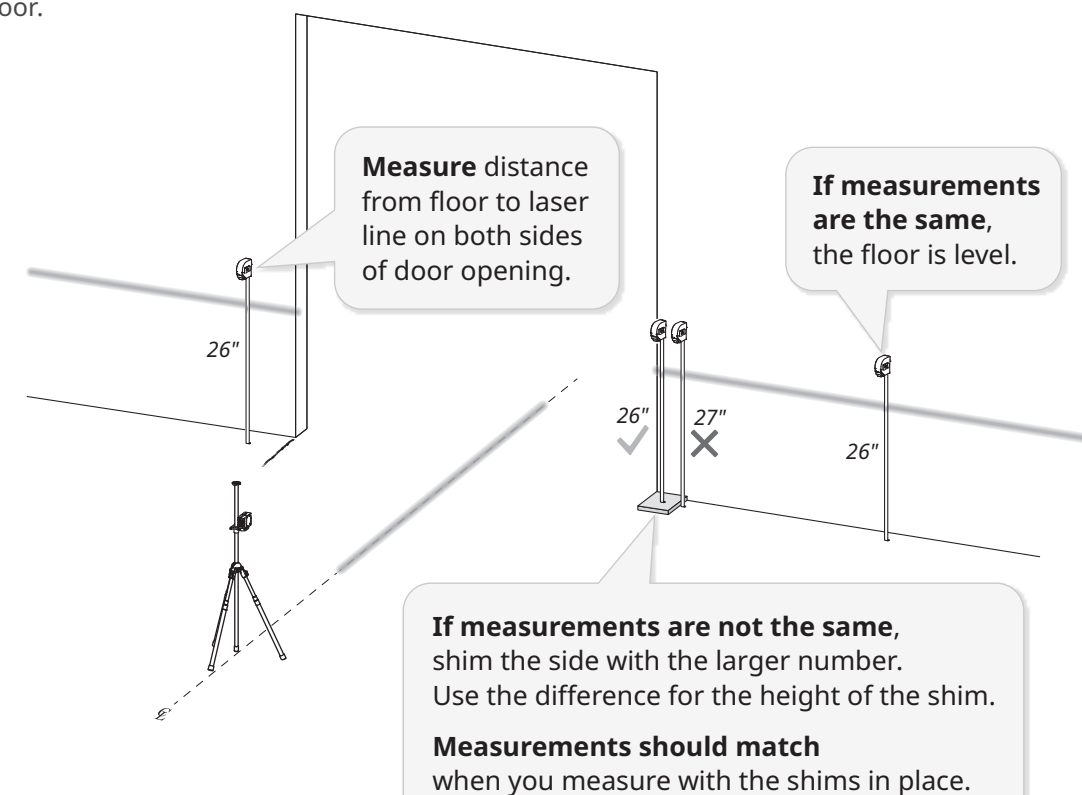
If measurements are not the same, shim the side with the larger number. Use the difference for the height of the shim.

Measurements should match when you measure with the shims in place.

6

3

Clamp the drive side column into place.

Bar clamp

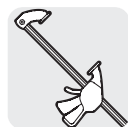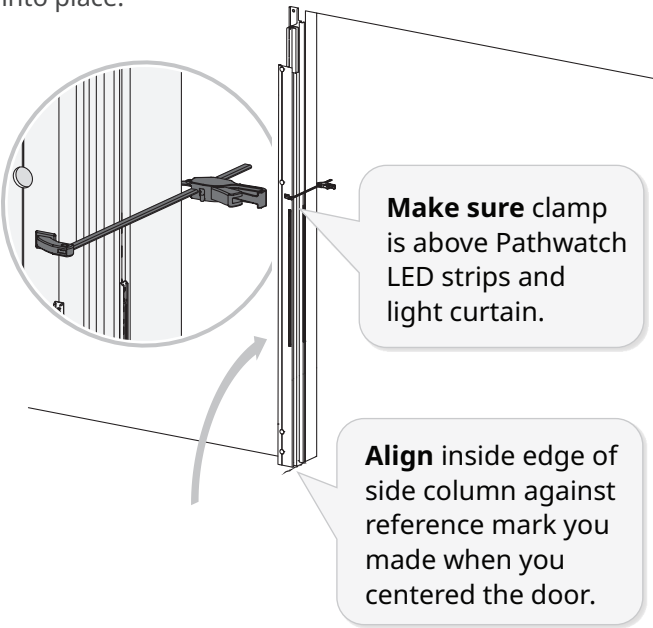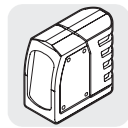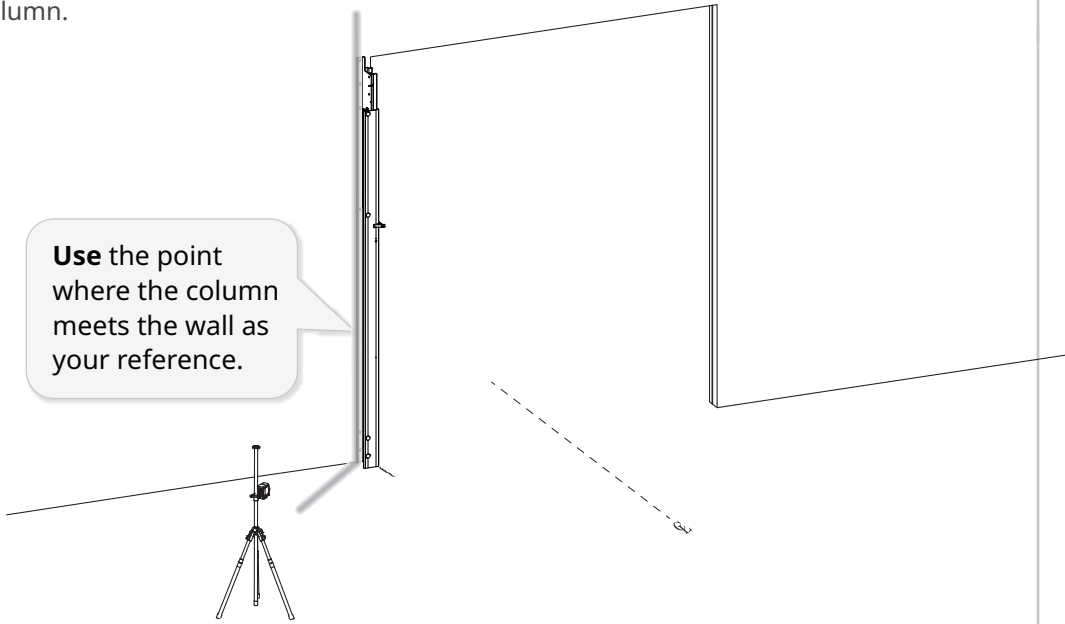**Make sure** clamp is above Pathwatch LED strips and light curtain.

Align inside edge of side column against reference mark you made when you centered the door.

4

Plumb the drive side column.

Laser level

Use the point where the column meets the wall as your reference.

5

Anchor the drive side column to the wall. **Set** anchors tight. **Remove** clamp.

Anchoring hardware

- **Make sure** you use only the bottom four anchor points, and the washers are the correct size.
- Use **1/2" diameter through bolts, 1/2" diameter threaded rods** or equivalent to anchor side columns.
- Anchoring hardware and materials must be provided by the door owner or installer.
- **Make sure** anchors will not interfere with moving parts of the door.

IMPORTANT

6

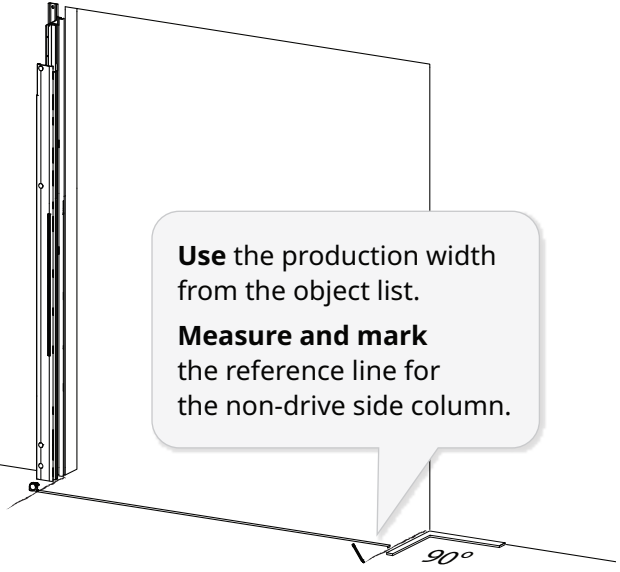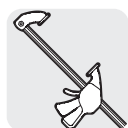**Measure and mark** the reference mark for the non-drive side column.

Measuring tape

Carpenter's square

Object list			Material number
Duplicate			
Material description			Order number
	FLEXTEC		28869
MRP controller	Production scheduler	Order type	Start
100	T3	ZP02	01/25/2
MAIN ZMAT	Tier 3	RYTEC MTO Order	
Status		Plant	Reservation number
REL MSPT PRT PCNF PRC GMPS RESA SETC		1000	0002256
		Rytec Corporation	
Serial number			
D0084193-010			

Configuration
```
Door Serial Number D0084193-010
Custom Order    Standard Order
DOOR MODEL NAME     FlexTec Door
①  Production Width (in)144
Production Height (in)168
Fabric Type    1ply Fabric
Fabric Color   Blue
Line Voltage   460V
Line Phase    Three Phase Power
motor mount side    Left Hand Motor
Horsepower    3.0
width in feet 12
height in feet14
Qty of doors in crate  1
Domestic or Export crate    Domestic Crate
Control Logic System 4 door control
```

Use the production width from the object list.

Measure and mark the reference line for the non-drive side column.

90°

7

Clamp the non-drive side column into place.

Bar clamp

Make sure clamp is above Pathwatch LED strips and light curtain.

Align inside edge of side column against reference mark.

7
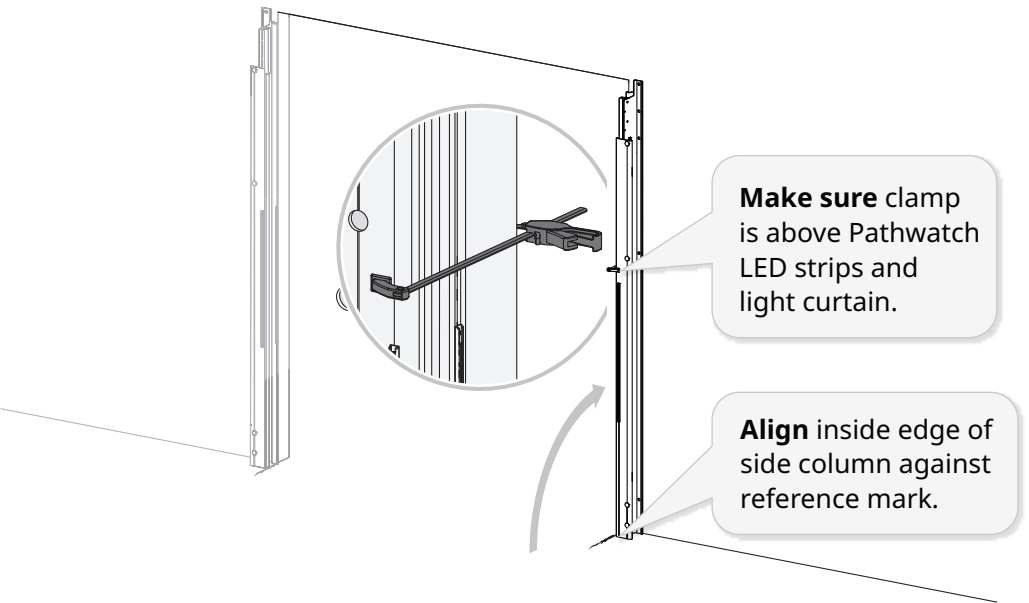
8 **Plumb** the non-drive side column.

Laser level

Use the point where the column meets the wall as your reference.
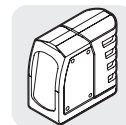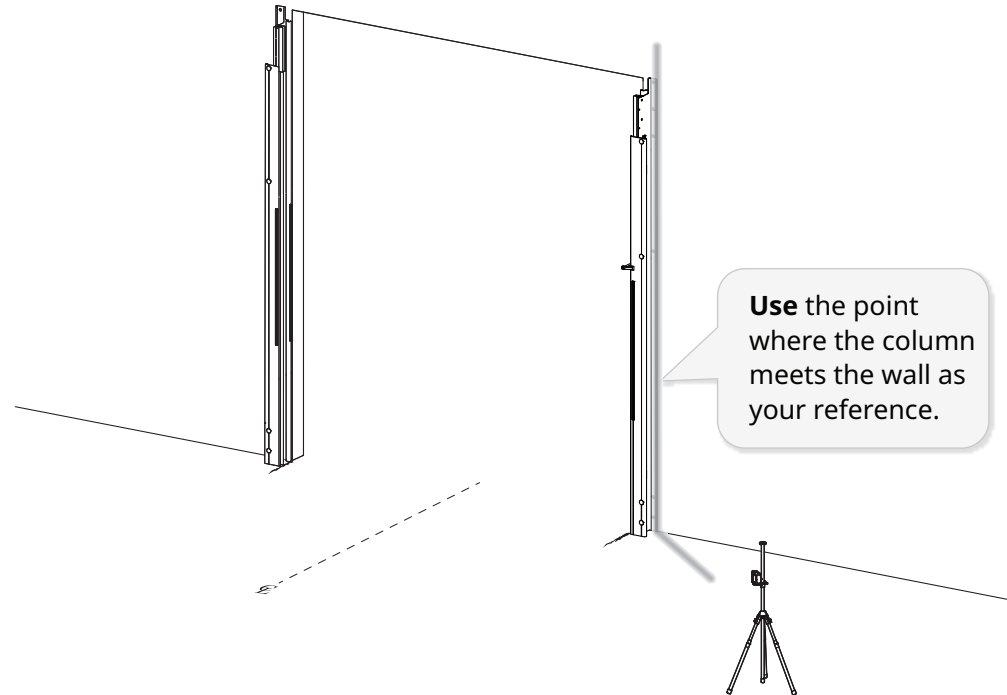
9 **Set** a laser line parallel to the wall 1" (one inch) in front of columns. **Make sure** the line is parallel to the wall.

Laser level

Measuring tape

Measure the distance from the wall to the laser line at multiple locations.

Adjust angle of laser level until all measurements match.
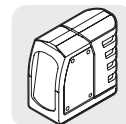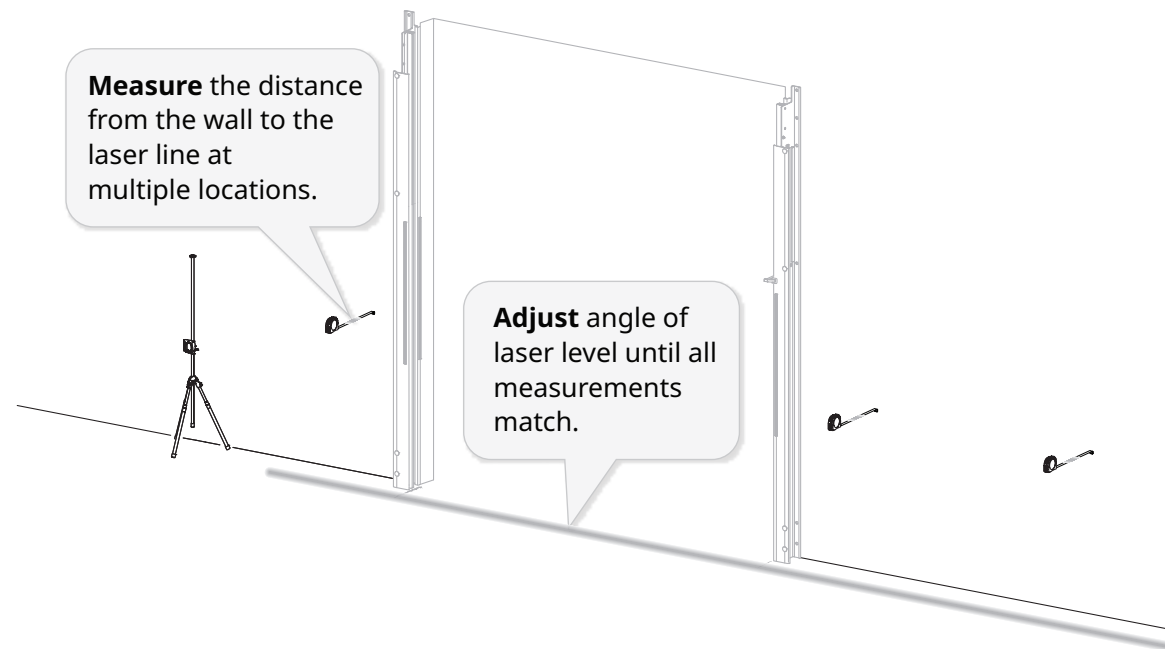
10 **Plumb the columns to each other:** make sure distances from front of columns to laser line match.

Laser level
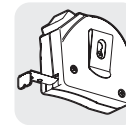
Measuring tape

Measure distance from front of each column to laser line. Distances must match.
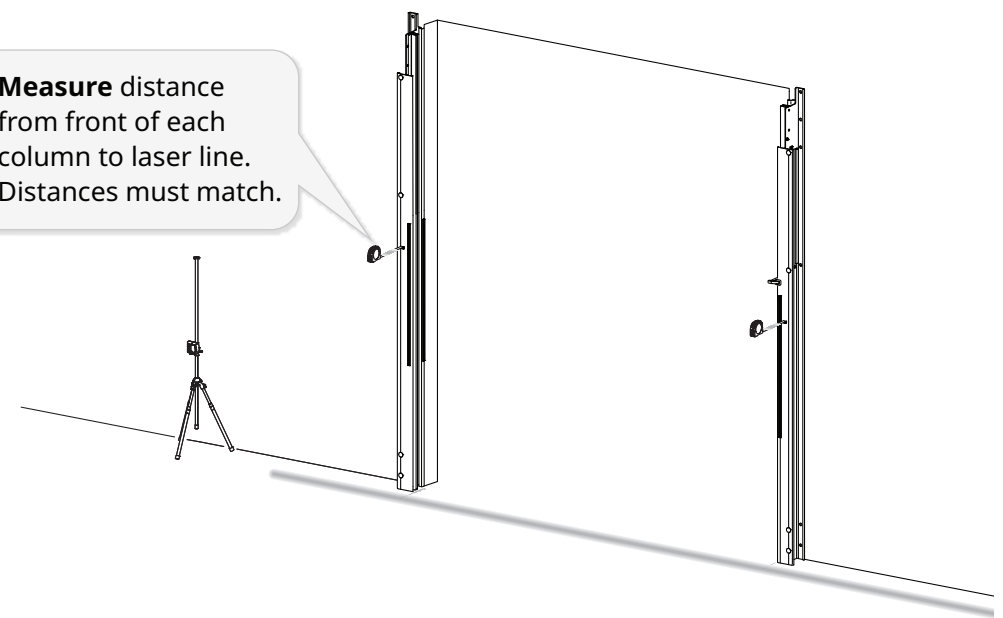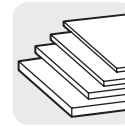
11 **If necessary, shim** the side columns so they are plumb to each other.

Shims

12 **Loosely anchor** the non-drive side column to the wall. **Remove** clamp.

Anchoring hardware

IMPORTANT **Make sure** you use only the bottom four anchor points, and the washers are the correct size.

13 **Before installing the head assembly, make sure** the preinstalled cables for the light curtain (gray) and front and rear Pathwatch (black) are below the third anchor point (dotted line) so they are not pinched or crushed when the head assembly is installed.

IMPORTANT

8
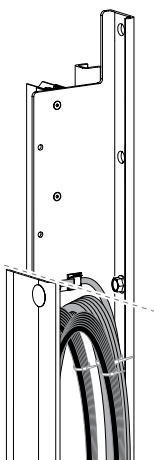
Step 2: Install the retainer brush

1 **Install** the retainer brush against the top of the door opening so that the brush points forward and up.

The brush can be installed **vertically** or **horizontally**.

- To install vertically, align the bottom of the brush flush with the top of the door opening.
- To install horizontally, offset the brush 5/8" from the edge of the door opening.

Self-tapping anchoring hardware

Vertical | Horizontal

Bottom of brush bracket — Flush

Bottom of brush bracket — 5/8"
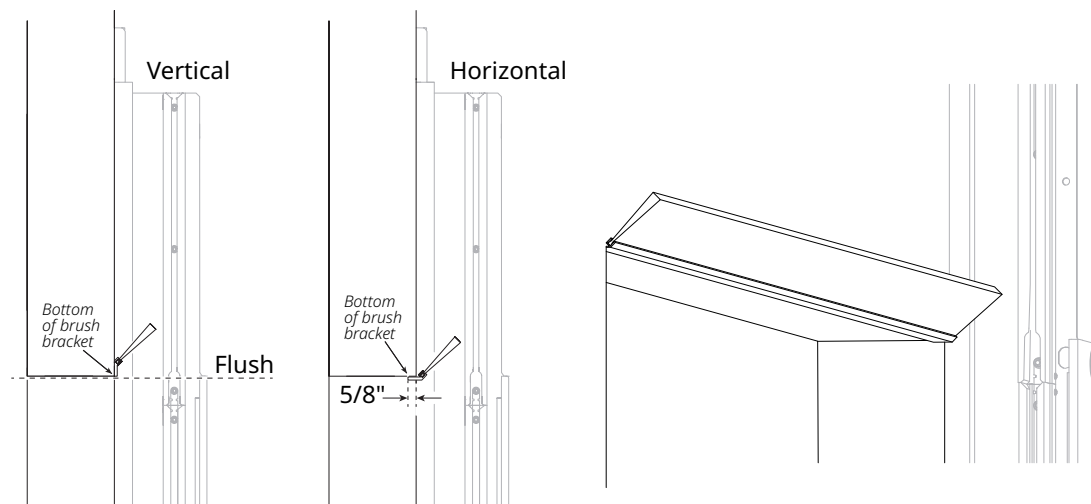
Step 3: Install the head assembly

1

Forks flush with edge of pockets

2

Back of end plates flush with columns

Inside of end plates flush with columns

Lower until bottom of door panel is just above track

3"

NOTE: Head assembly is NOT resting on columns
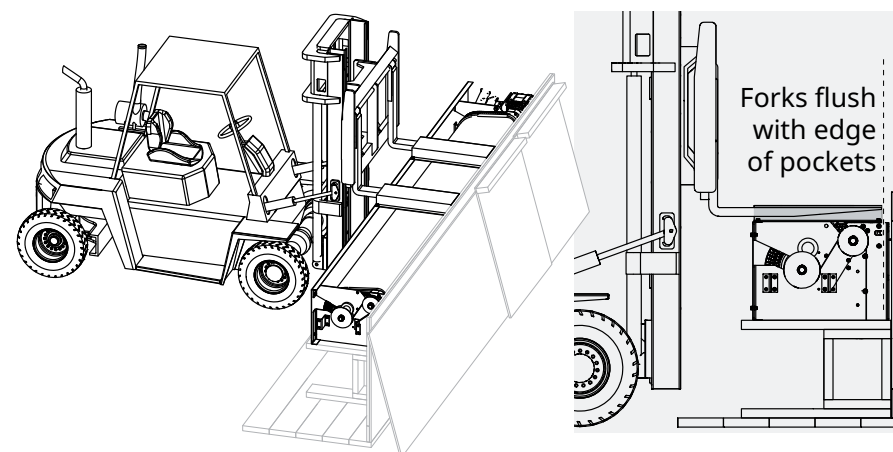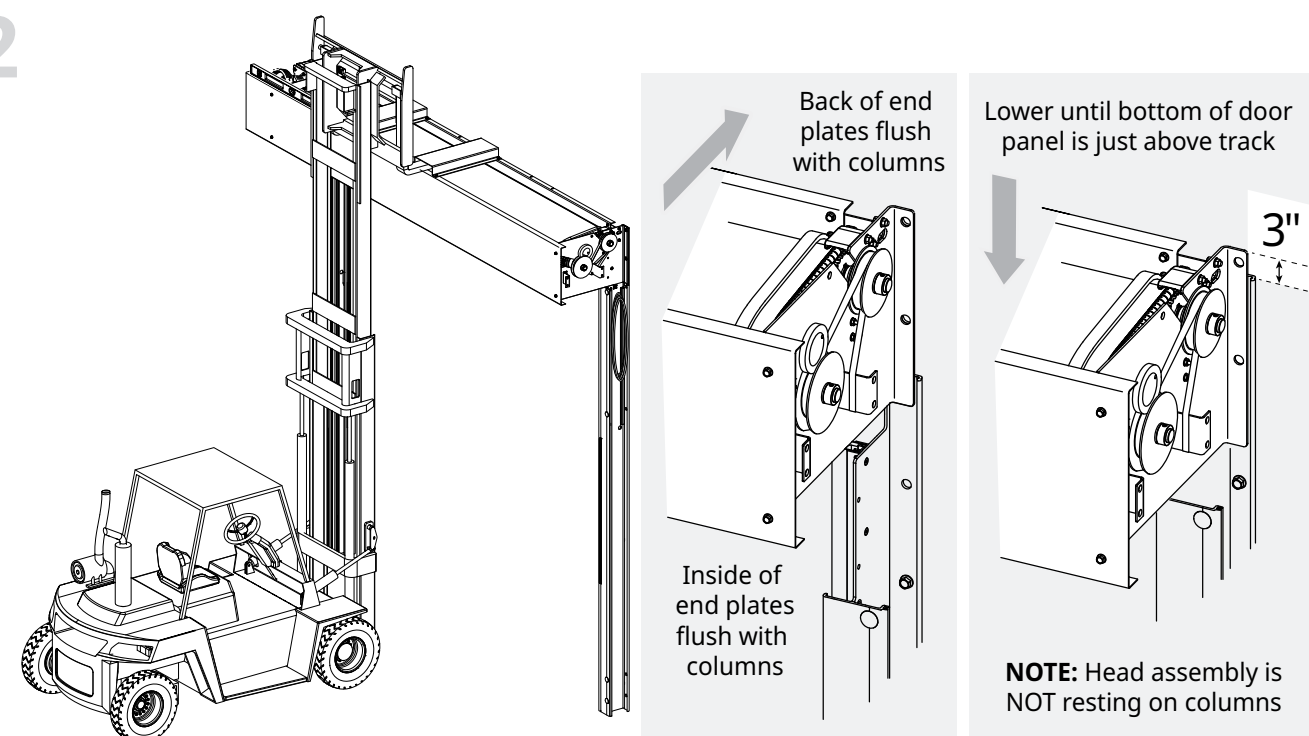
3 **Manually pull** the door panel into the drive tracks in both side columns. Then **finish lowering** the head assembly.
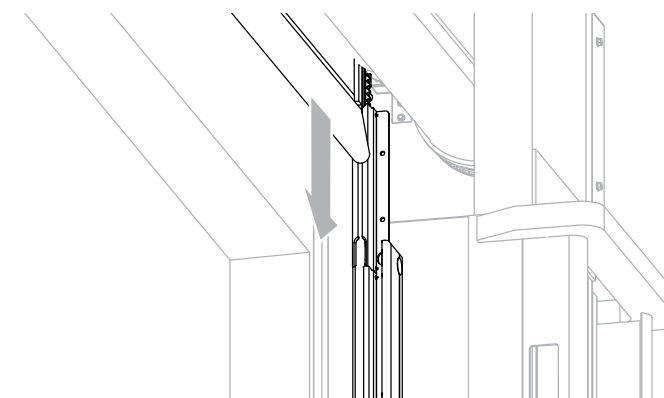
4 **Make sure** the head assembly is aligned correctly.

Spirit level
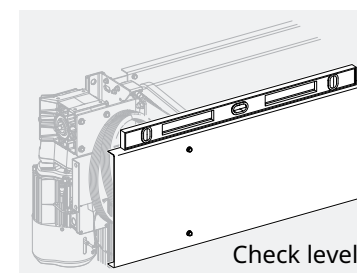
Check level
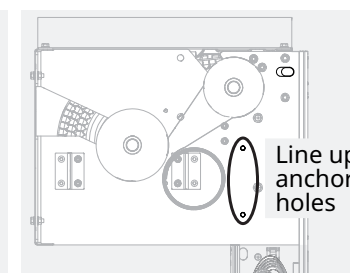
Line up anchor holes
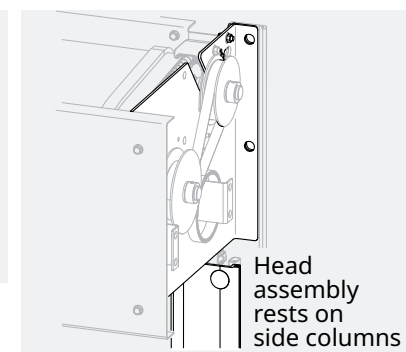
Head assembly rests on side columns

9

5 **Anchor** head assembly to columns.

1/2"

Drive
side

Non-
drive
side

SMALL PARTS

0550301

4 NY

0553104

4 R
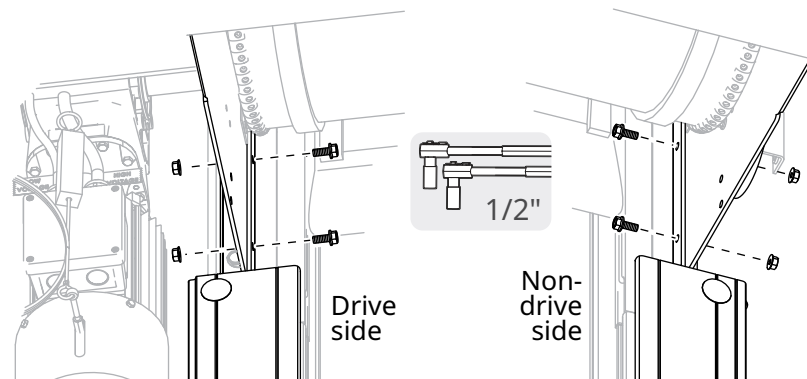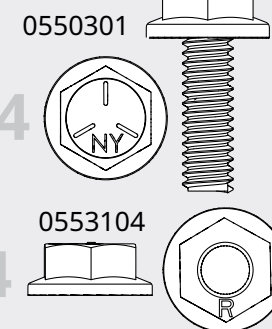
6 **Anchor** both side columns to the wall
using anchor points ① and ②.

Set anchors tight.

①
②
①
②

Anchoring
hardware

7 **Remove** lift pockets.

1/2"   1/2"

Loosen
bolts
on
both
sides

Slide
back
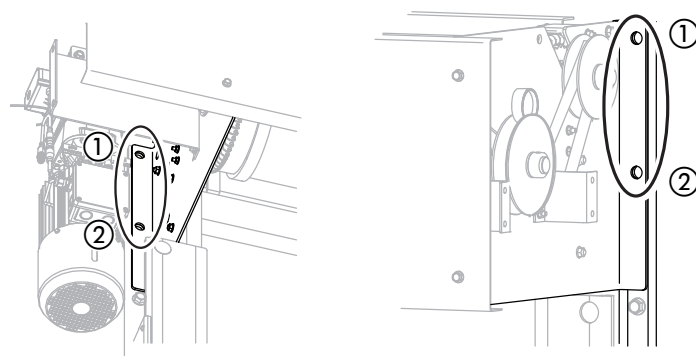
Lift
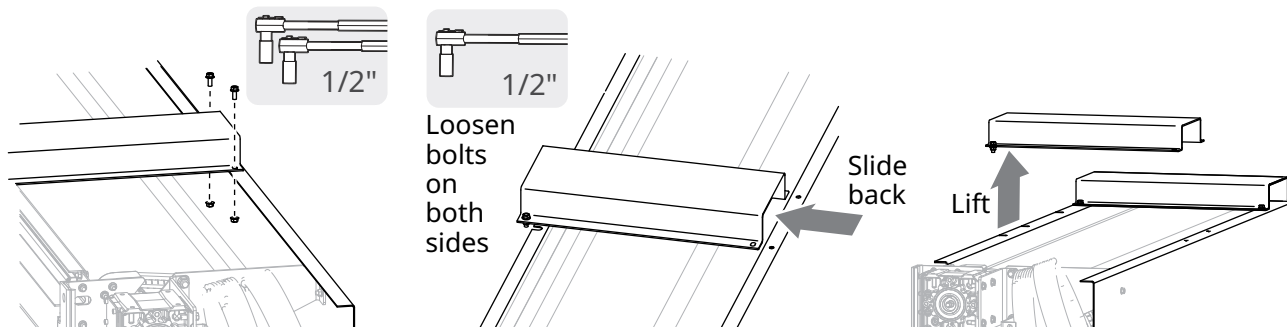
Step 4: Replumb and square the door and finish anchoring the side columns

1 **Plumb** both side columns from the front again.
Realign if necessary.

Laser level
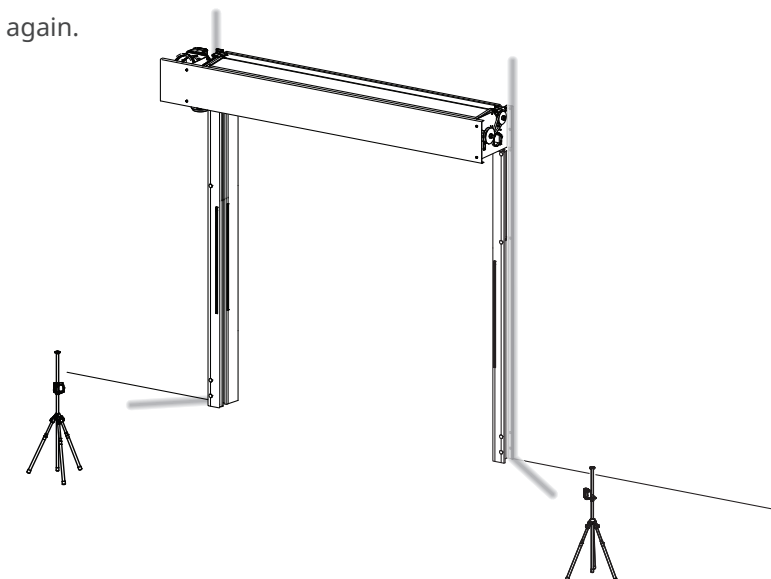
2 **Square** the door:

- **Measure** distance between side columns at top and bottom of columns ①.
  Make sure the distances are the same.

- **Measure** distance from bottom corner of drive side to top corner of non-drive side,
  then from bottom corner of non-drive side to top corner of drive side ②.
  Make sure the distances are the same.

Measuring
tape

①
②   ②
①
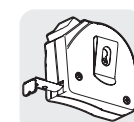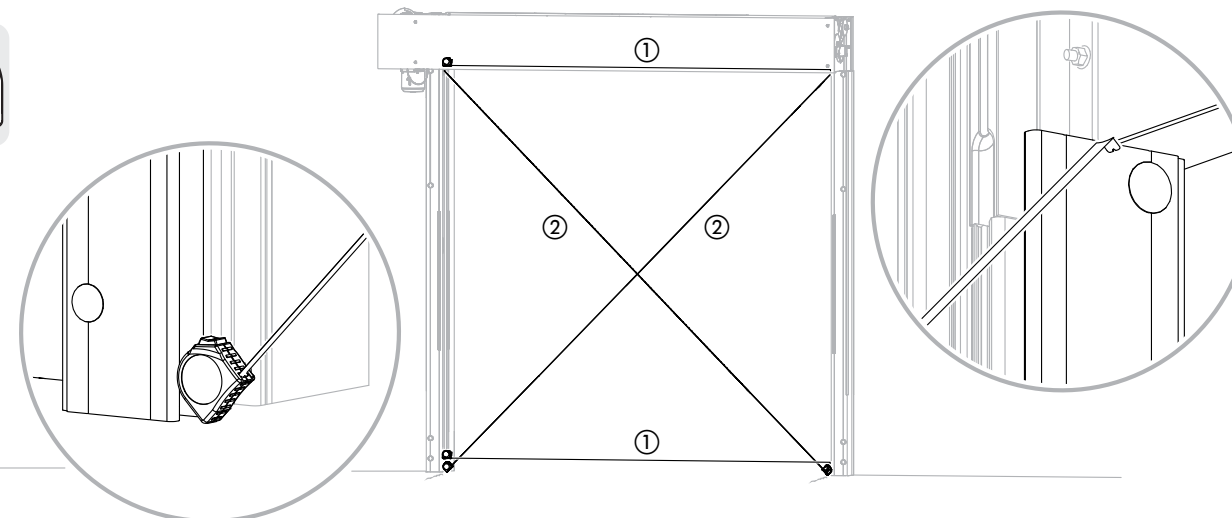
3 **Tighten** all anchors.

Anchoring
hardware

10

How to run the wires from the non-drive side column

1 **On the non-drive side:** cut ties, run cables through hole to rear spreader.
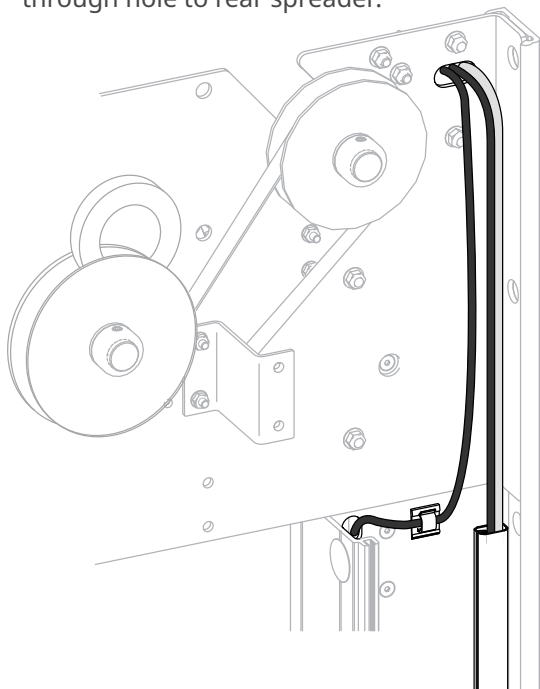
2 **Thread** cables through the rear spreader.

> ⚠ **CAUTION**
>
> Self-drilling screws that secure rear seal to rear spreader are exposed along spreader.
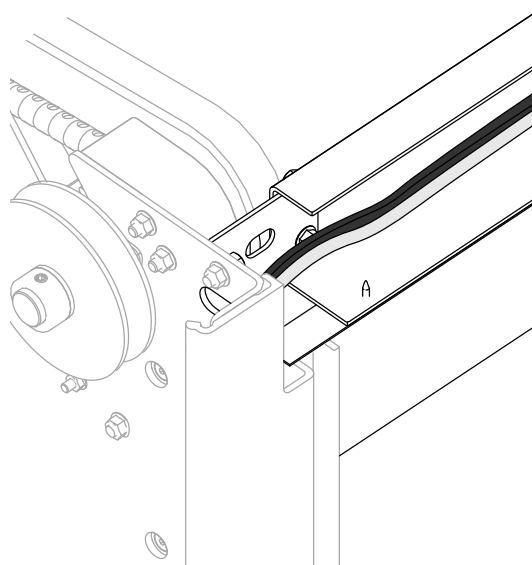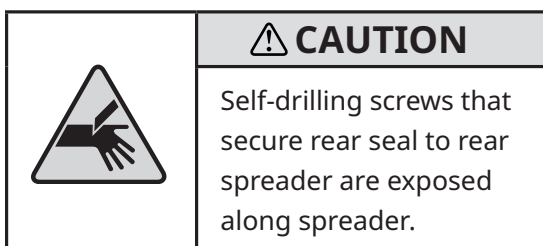
3 **Thread** cables through hole in drive side column. **Run cables together** with drive side cables.
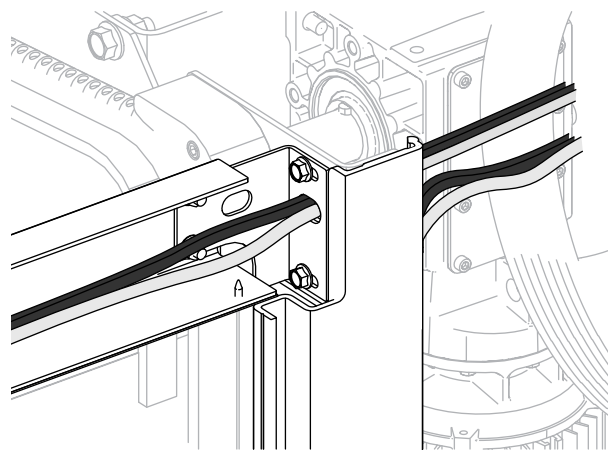
4 On the drive side, **remove** the motor tag ① and **install** the drive side end guard ②. This end guard has shorter flanges.
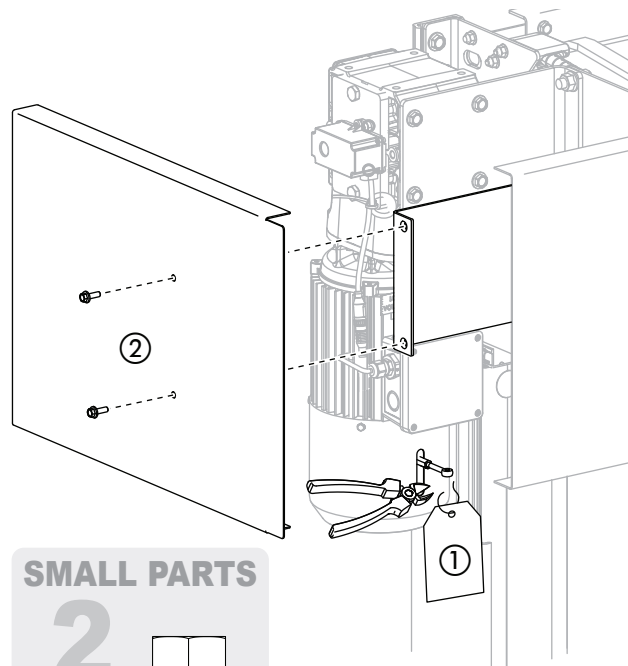
SMALL PARTS
2
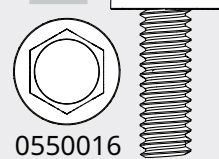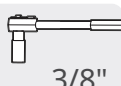
0550016   3/8"

How to install the counterweight

> *NOTICE*
>
> **Do not unspool or trim the counterweight strap.** The strap is pre-cut and pre-spooled to match the door height.

> *NOTICE*
>
> **Make sure door is in fully open position** before setting counterweight.

1 **Cut** tie to release strap.
Roll strap down side column.
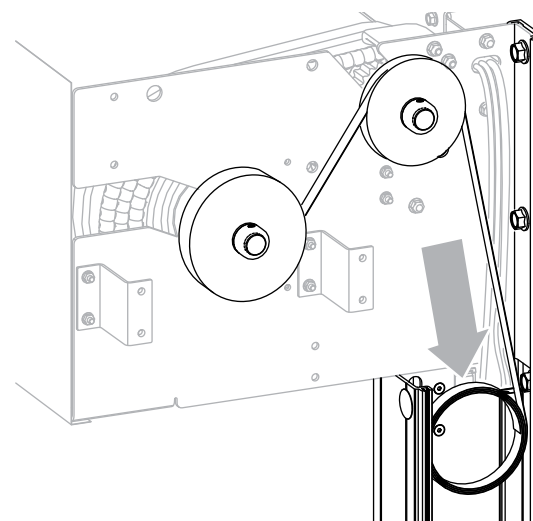
2 **Place** counterweight on 8-inch block of wood until strap is tightened.

8"
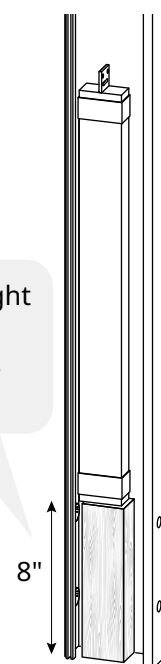
3 **Loosen and remove** bolts, nuts and retainers.

Thread strap through top bracket from front to back and **pull** strap tight.

Replace retainers, bolts and nuts and tighten to secure strap in place.

Fold and tape extra strap.

Do not cut.

Front of column

7/16"

11
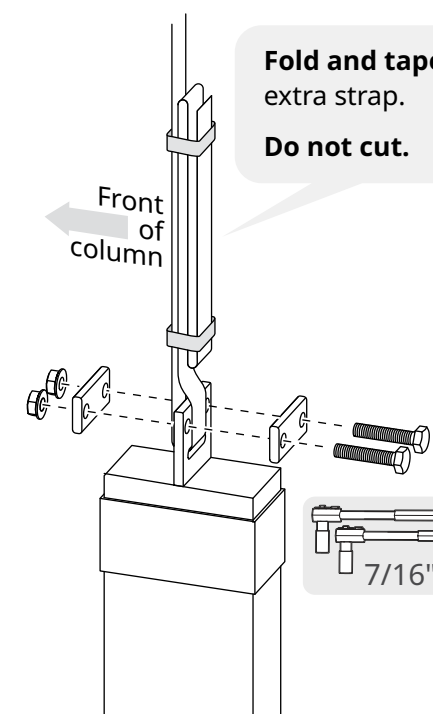
How to install the cover and motor cover/cap (optional)

(i) **NOTE: The configuration of the front spreader and cover change based on the width of the door.**

- The front spreader is 1-piece up to a production width of 121".
  It is 3-piece when the production width is greater than 121".
- The cover is 1-piece up to a production width of 97".
  It is 2-piece when the production width is greater than 97".
- The motor cover/cap are a separate option from the cover and may or may not be included. Check the object list.

How to install the cover

1 **If front spreader is 3-piece:** remove the top bolt and nut from both overlap points so the cover will lie flat.

1/2"
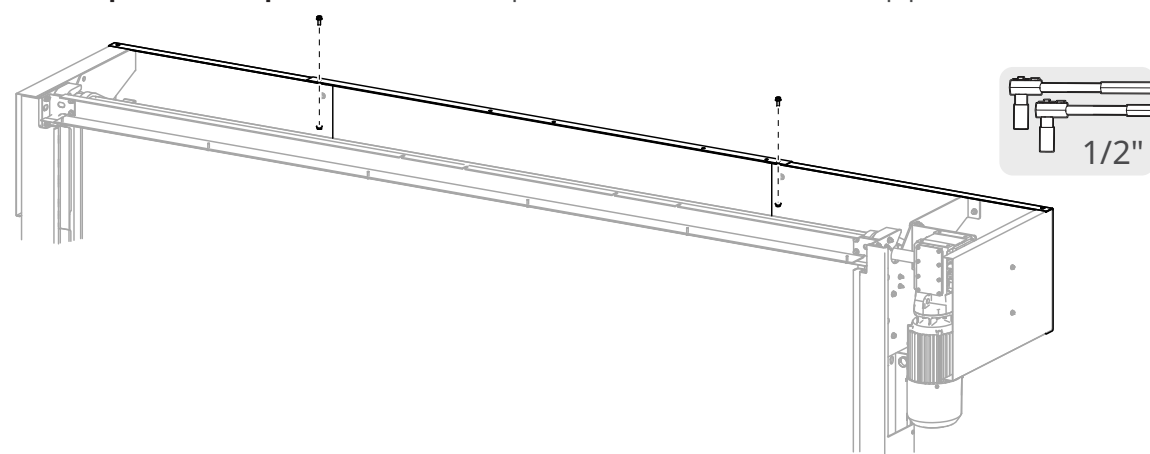
2 **Line up** the cover panel(s) so that the front lip overlaps the front spreader.
Install self-tapping screws through all holes in cover.

Depending on width of door, cover may be one piece or two piece.

SMALL PARTS
0551050

1-piece cover: **6**
2-piece cover: **12**

5/16"
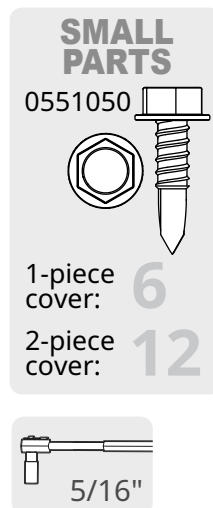
How to install the motor cover and cap

1

SMALL PARTS
0551050
4

5/16"

2

SMALL PARTS
0551050
2

5/16"

SMALL PARTS
0551050
2

5/16"

12
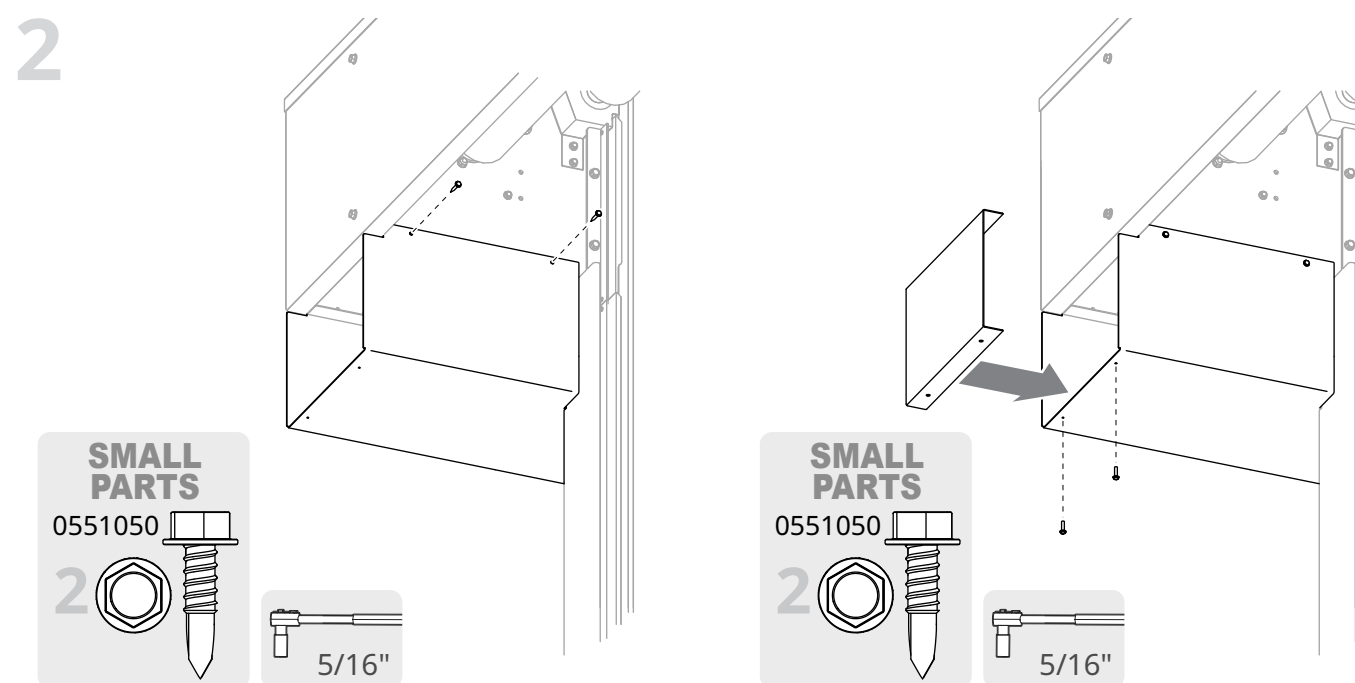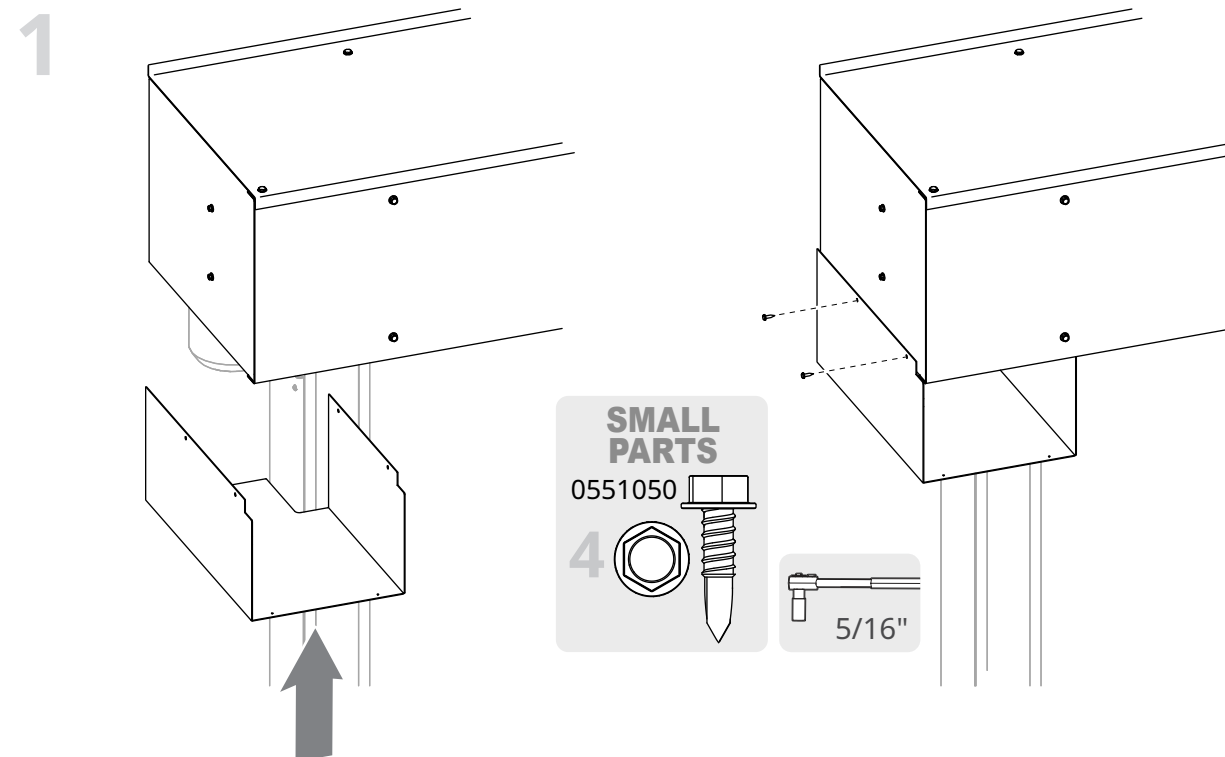
How to finish the installation

1 **Install** the non-drive side end guard. This end guard has wider flanges.

SMALL PARTS
2

3/8" 0550016
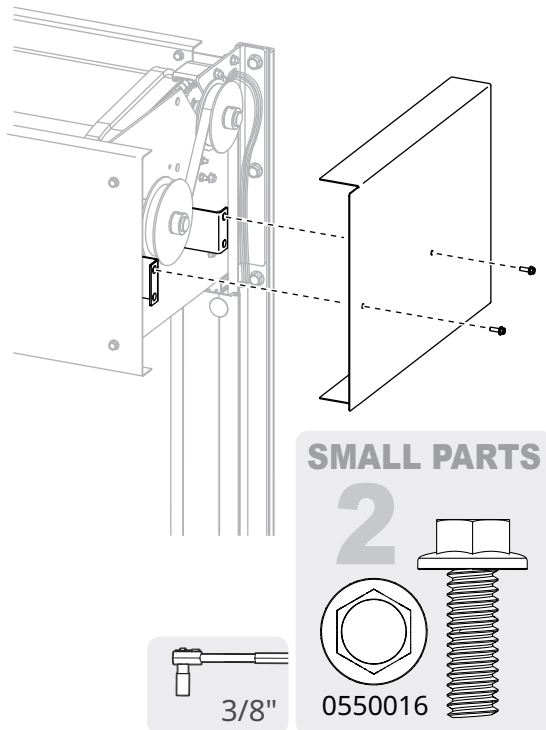
2 **Insert** a 12-point 15mm socket into the bottom of the motor ① and engage the manual axle.

Pull down on the brake release lever ②
to release the brake.

Turn the wrench counterclockwise to lower the door panel two feet below head assembly, then **release** the brake release lever.

②

①

2'

Down

15mm
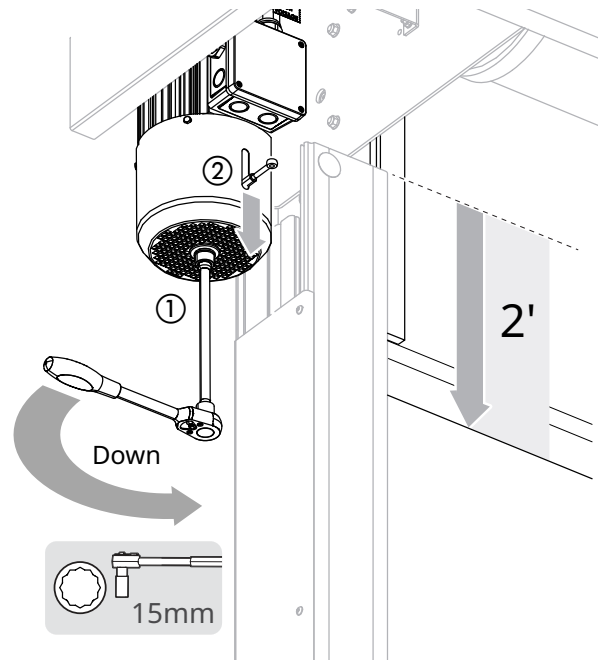
3 Both side columns

5/32"

KEEP REUSE
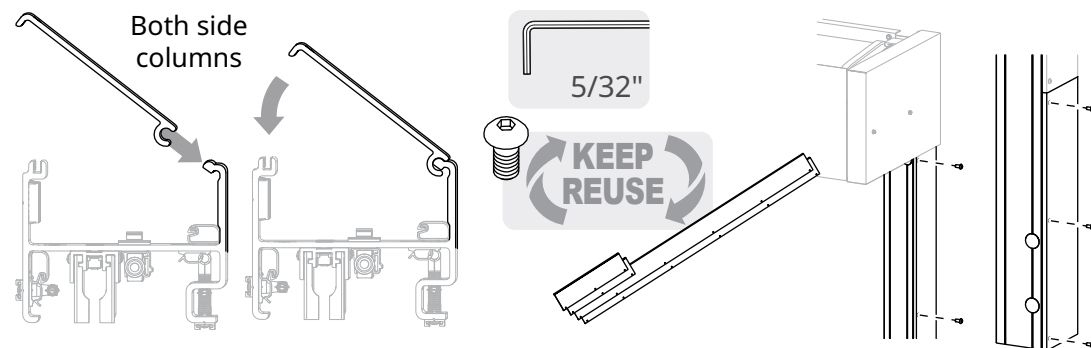
4 **Caulk** head assembly and side columns.

Install dome plugs from small parts box.

SMALL PARTS
8

0550088

13
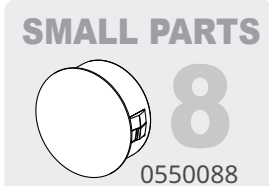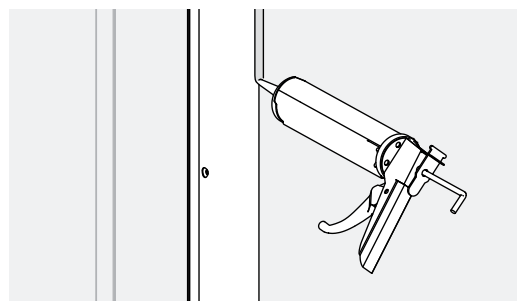
How to install the System 4 controller and wire the door

<table>
<tr><td rowspan="4"></td><td>⚠ WARNING</td></tr>
<tr><td>All electrical work must meet all applicable local, state and national codes.
It is recommended that all electrical work be done by a certified electrician.

Failure to wire the door correctly could result in shock, burns or death to the people who install, use or service the door.</td></tr>
</table>

<table>
<tr><td rowspan="2"></td><td colspan="3">⚠ WARNING</td></tr>
<tr><td colspan="3">The high-voltage power to the controller must be properly grounded.

Improper grounding could result in shock, burns or death to the people who install, use or service the door, as well as catastrophic motor failure.

- If the service is floating, ungrounded or open delta type power, an isolation transformer must be installed.

- Metal conduit entering the bottom left of the control box contacts the metal protection ground plate inside the controller. If non-metallic conduit is used, a protection ground conductor must be used.</td></tr>
</table>
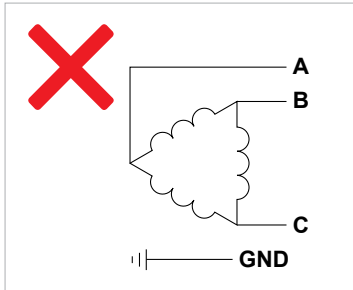
NOTICE

The System 4 installation must meet all of the standards and follow all of the steps shown in these instructions. Failure to do so voids the warranty for the door.

- **The high-voltage and low-voltage conduits must be separated** by a distance that meets all applicable federal, state and local codes and regulations.

- **Wires must be cut to length.** Do not loop wires or leave excess length untrimmed.

- **Use shielded wiring** where indicated in these instructions.

- **If you splice wires:**

  - **You must use** the same gauge wire for the entire length. Gauge is listed in the steps in these instructions.

  - **All spliced field wiring** must maintain the voltage and temperature rating supplied by Rytec.

Contract Rytec Technical support at 800-628-1909 or email helpdesk@rytecdoors.com before starting the installation if you cannot meet any of these standards or have questions about how to implement them.

Before you begin

1 **Make sure** you have all supplies and tools.

Supplies that you provide
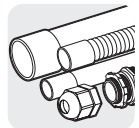
| Conduit for high-voltage wiring | Conduit for low-voltage wiring | Mounting hardware for controller (3 anchors) |
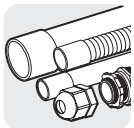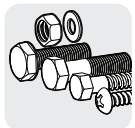
Tools you will need
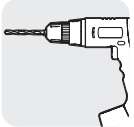
| Power drill | Step drill bit | #2 Phillips | T20 Torx | Precision screwdriver | Wire tool | Cement drill (if needed to mount controller) |
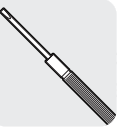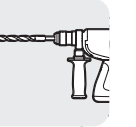
2 **Check** the job site.

- **The ambient temperature** must be between **-4°F** and **149°F** at all times.
NOTE: for freezer doors, the controller and fused disconnect must be mounted on the warm side of the door.
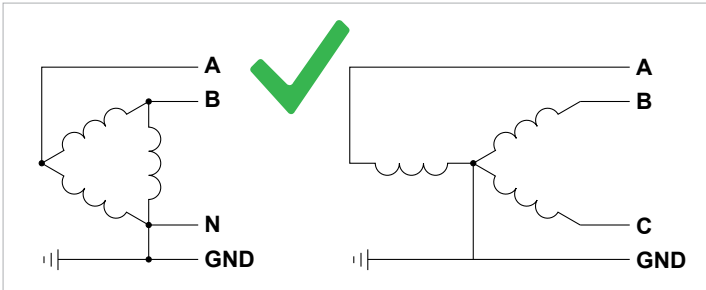
- **The mounting surface** for the System 4 controller and fused disconnect must be structurally sound and free of mechanical shock and vibration.

3 **Install** the high-voltage power supply.

- **Provide a high-voltage power supply** that matches the electrical spec for the System 4 controller.

- **A fused disconnect is recommended.** Fuses must meet NEC code for FLA listed on the electrical spec for the System 4 controller.

14

How to install the System 4 controller

1 **Open** the System 4 controller box and get the controller and ferrite filters.
Loosen screws on the control box and **open** the cover panel.

#2

POWER SUPPLY: 460v +/- 10% 3 PH, 60Hz@ 7.1 FLA

LARGEST MOTOR LOAD: 2.0 Hp
ENVIRONMENTAL PROTECTION TYPE: 4x
SHORT CIRCUIT CURRENT: 5kA RMS SYMMETRICAL

D0079721-010

Sample electrical specs and serial number shown

RYTEC
HIGH PERFORMANCE DOORS
ONE CEDAR PARKWAY
JACKSON, WI 53037

D00**79721-010**

ALWAYS MAKE SURE NUMBER MATCHES THE SERIAL NUMBER ON THE DOOR.
SCHEMATIC WIRING DIAGRAM: D0079721-010

Electrical specs   Serial number

- Ferrite filters
- System 4 controller

Verify that the serial number and electrical specs for the controller match the door.

2 **Install** the control box onto the wall using the hardware you have supplied.

3 **Drill** holes through the bottom of the control box for conduit.

ONLY drill holes and **install conduit** through the **bottom** of the control box.

DO NOT drill through the front, back, top or sides of the box.

- High voltage   - Low voltage
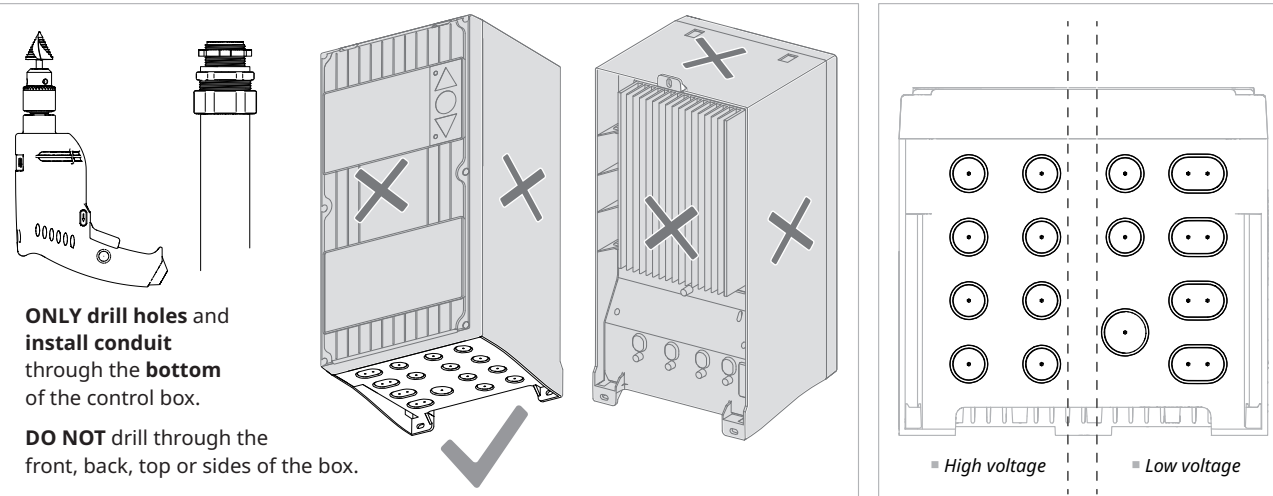
NOTICE

- **Conduit must enter through the bottom of the control box.**
  Drilling holes in the front, back top or sides of the control box voids the warranty.
- **High-voltage wires** must enter through the left side of the box bottom.
- **Low-voltage wires** must enter through the right side of the box bottom.
- **Holes must be drilled.** The indentations in the box bottom are not knockouts.

How to install the high-voltage wiring

⚠ WARNING

Set the disconnect switch to the OFF position and perform a lockout/tagout of the high-voltage disconnect before installing wiring to the controller. Do not set the disconnect switch to the ON position until the wiring installation is complete and the controller is fully earth grounded per instructions.

Failure to comply could result in shock, burns or death.

1 **Connect** the supply voltage wiring from the disconnect.

12 AWG

DO NOT use power tools

For ground bar
#2

For terminals

Do not try to remove the green terminal block from the circuit board.

It is fixed in place and will break.

Maximum torque for all screws is **2.5 in-lbs.**

Place one large ferrite filter around all three wires, and **one small filter** around each individual wire.

L1 L2 L3

Power source and disconnect

BROWN
ORANGE
YELLOW
GREEN

Wire colors shown are for a 460V power source.

Wire colors for 230V power are L1=red, L2=black, L3=blue.

15

2 **Connect** the high-voltage wiring from the motor.

Shielding: braided copper mesh and drain wire

16 AWG

DO NOT use power tools

For P-clip
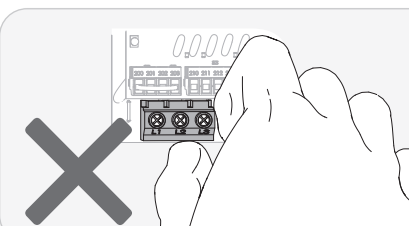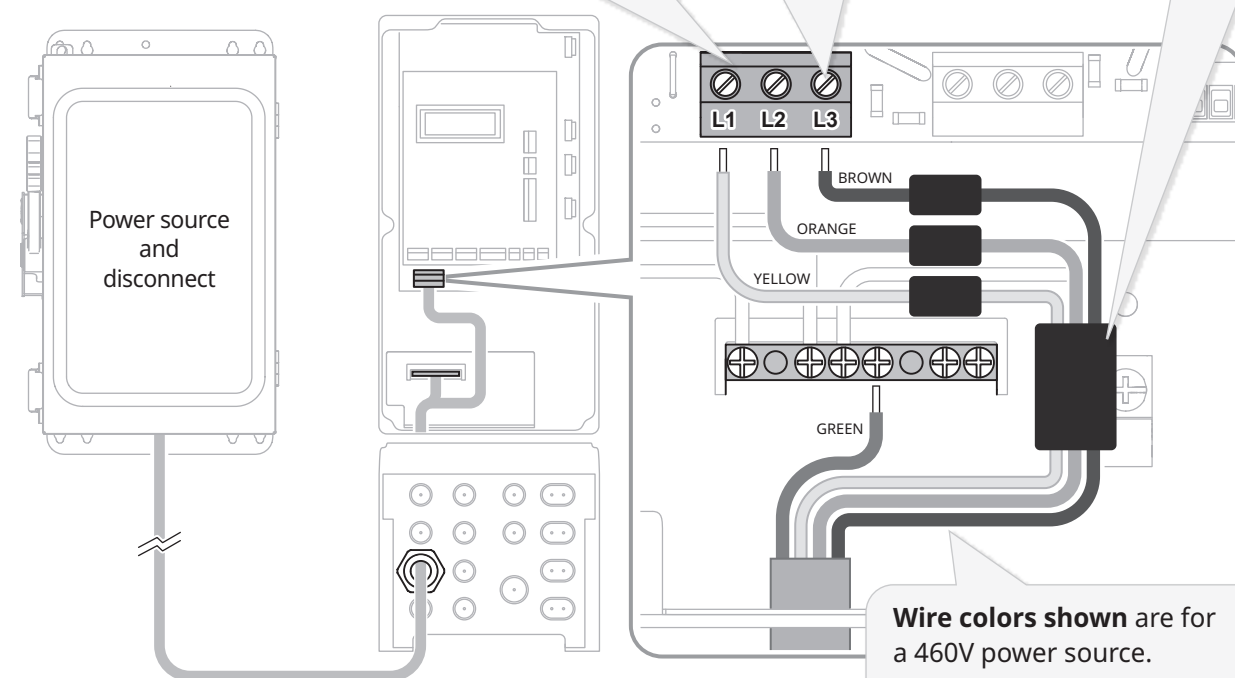**T20**

For ground bar
#2

For terminals

Do not try to remove the green terminal block from the circuit board.

It is fixed in place and will break.
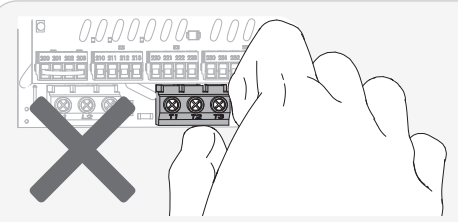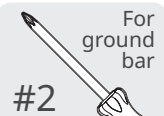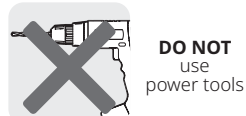
Maximum torque for all screws is **2.5 in-lbs.**

T1 T2 T3

RED
BLACK
WHITE

Place one large ferrite filter around all three wires.

HIGH VOLTAGE

LOW VOLTAGE

GREEN

Maximum wire length between motor and controller: **100′ (one hundred feet).**
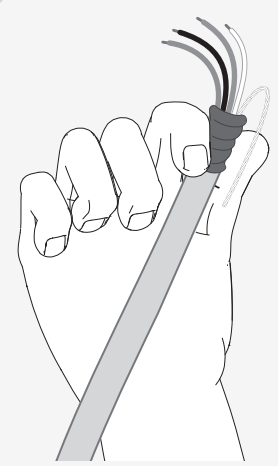
The **shield** (braided copper mesh) and **drain wire** (bare metal) must be in contact with the **P-clip**.

To ensure a tight contact:

1. Loosen the P-clip.
2. Strip high-voltage cable jacket to expose braided shield, then pull back shield and wrap drain wire around it.
3. Run wires, shield and wrapped drain wire under clip.
4. Tighten clip.
5. Trim excess drain wire.

How to install the low-voltage wiring

IMPORTANT
- Low-voltage wires can be run in the **same conduit.**
- All low-voltage wiring must be 24 VDC+ only, installed per NEC to Class II power supply requirements.
- Maximum torque for all System 4 controller screws is **2.5 in-lb. DO NOT use power tools.**

1 **Connect** the brake wiring from the motor.
Shielding: unshielded

18 AWG

LOW VOLTAGE

150 151

BLACK   WHITE
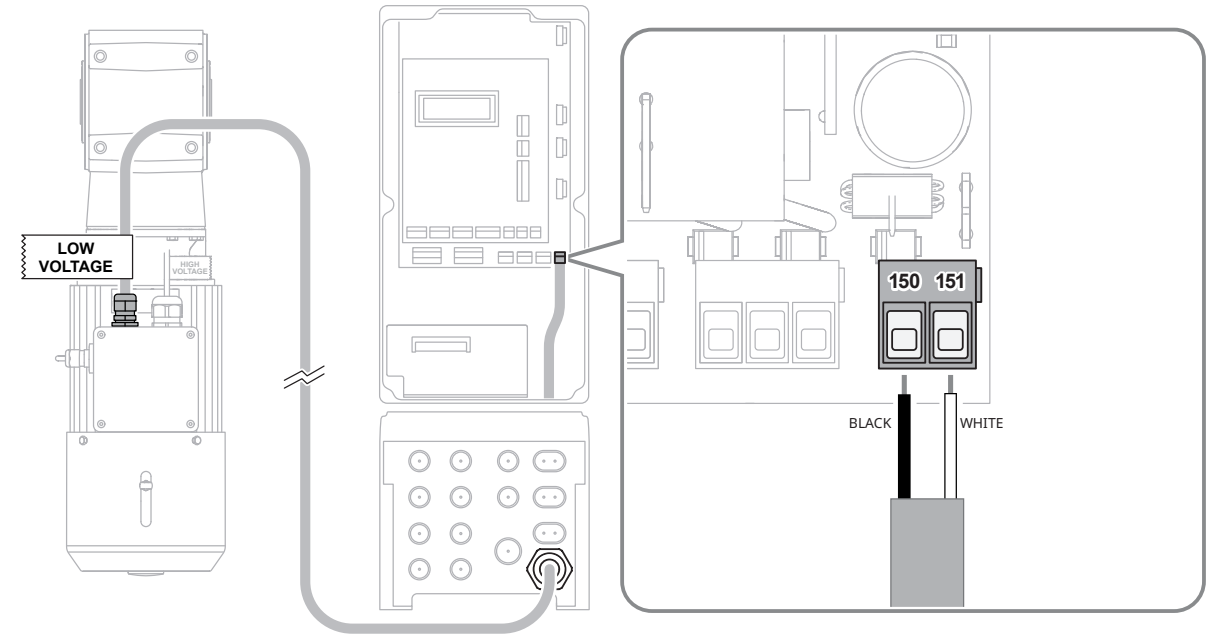
2 **Connect** the wiring from the Pathwatch LED strips.
Shielding: unshielded

18 AWG

140 141 142

WHITE BLACK RED

WHITE
BLACK
RED

RED
BLACK
WHITE

16

3 **Connect** the wiring from the encoder.
Shielding: metal foil and drain wire

24 AWG

Mark controller end of cable as **"Encoder"**

The **drain wire** (bare metal) must be in contact with the **P-clip**.

To ensure a tight contact:

1. Loosen the P-clip.
2. Strip encoder cable jacket to expose wires.
3. Trim and bend red, pink, gray and blue wires. Tape to jacket.
4. Wrap drain wire around jacket and unused wires.
5. Slide cable under P-clip and tighten. **Make sure there is maximum contact** between clip and drain wire.
6. Trim excess drain wire.

NOTICE

Encoder wiring must not be spliced unless you have consulted with Rytec technical support at **800-628-1909**.

4 **Connect** the wiring from the light curtain.
Shielding: metal foil and drain wire

Receiver: 24 AWG
Transmitter: 22 AWG

Receiver *8-pin*   Transmitter *4-pin*

Light Curtain Receiver

Light Curtain Transmitter

Receiver *8-wire*   Transmitter *4-wire*   Interface board

Mark controller end of receiver cable (8-wire, yellow connector) as **"Light curtain receiver"**

Mark controller end of transmitter cable (4-wire, black connector) as **"Light curtain transmitter"**

17

Before powering up the door

⚠ WARNING

It is recommended that this pretest be done by a certified electrician.

1 **Make sure** the power to the door is correct.

- **Open** the System 4 control box and check the power supply listed on the label inside.
- **Test** the voltages at the disconnect. Test leg to leg and leg to ground.
- If power is correct, **power up** the door and start the set limits sequence.

#2

Multimeter

Sample electrical specs shown

POWER SUPPLY: 460v +/- 10% 3 PH, 60Hz@ 7.1 FLA

LARGEST MOTOR LOAD: 2.0 Hp
ENVIRONMENTAL PROTECTION TYPE: 4x
SHORT CIRCUIT CURRENT: 5kA RMS SYMMETRICAL

D0079721-010

How to set limits and test the door

⚠ CAUTION

Make sure that people and vehicles do not pass through the open doorway until the automatic calibration is complete. The door can open or close unexpectedly, resulting in injury.

The Controller Display

Access level

O = Operator level

S = Service level
Accesses more parameters

R = Rytec level
Accesses all parameters
Requires password from technical support

Parameter name

P: Password   0
001=   1979 Cyc

Parameter number
All three digits are hexadecimal

Parameter value

? = value being changed

✓ = change saved

Blinking cursor
On left side of display: *press arrows to change parameter number*
On right side of display: *press arrows to change paramter value*

The Controller Controls

UP Arrow
- **Press** to increase a value or parameter number
- **Press and hold** to increase values or parameter numbers quickly

OPEN OPEN

RESET Button
- **Press** to toggle the flashing cursor between parameters and values
- **Press and hold** to save changes to a value

RESET RESET

DOWN Arrow
- **Press** to decrease a value or parameter number
- **Press and hold** to decrease values or parameter numbers quickly

CLOSE CLOSE

ℹ **NOTE: The System 4 display uses hexadecimal numbers to number parameters and for some values.**

The display uses the ten numeric characters (0-9), plus six letters (A-F), which represent the values from 11 through 16.

In some cases it will be necessary to press the UP arrow sixteen times to change a value from 0000 to 0010.

Icon key

Press

Press and hold

Press UP or DOWN arrow, as needed

Make sure the protective film has been removed from both light curtains before turning on power to the door.

Do This   *Result*

1 ON / OFF

Turn on power to controller

! Syncron. !
_0 Press Reset

The sequence starts. Scrolling message:
Press Reset button to begin

2 1x to start sequence

>⬍ To Open Pos.
_0 Hold Reset

Scrolling message:
Hold Reset button if position OK

3 until open height is correct

>⬍ To Open Pos.
_0 Hold Reset

The bottom of the loop seal should line up with the lintel (top of the door opening).

Do This   *Result*

4 until "Open Limit Set" screen displays

Open Limit Set
_0   _

when quality check is complete, you see these screens:

LGx Qual. Check
_0

! Syncron. !
_0 Press Close

Scrolling message:
Press Close button to begin

5 1x to lower the door panel

Search Edge
_330_Auto Close

the door panel stops when it reaches the bottom of the light curtain, then you see:

!Auto Calibrate!
Press Open butto

6 1x to start auto-calibration

Ac11   = 4Sec
Object   232

Door Is Closing
I515 Limit Corr.

Spiral
[xxx] Cycles

- The door opens and closes automatically **up to 12 times**.
- The controller automatically sets the close limit position while the door calibrates.
- When calibration is complete, the door switches to Run mode.

IMPORTANT **The door may not open or close completely** during automatic calibration. This is normal.

When calibration is complete, the door will open and close correctly.

You can now **test the door.**

How to manually reset the close limit (optional)

First: set the controller to Parameter mode and access Service level parameters

Do This   *Result*

1   △ until the parameter screen displays

```
P: Password      0
001=   [xxx] Cyc
```

You are in Parameter mode. Go to parameter 999.

2   2x to reach parameter P:999

```
P: Password      0
999=      0000 #
```

The Password parameter P:999 screen displays.

3   1x to move cursor to the right (edit value)

```
P: Password      0
999=      0000✓#
```
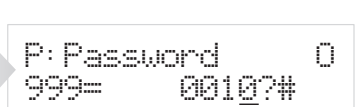
You can now change the value of parameter P:999.

Do This   *Result*

4   16x to set value to hexadecimal 10

```
P: Password      0
999=      0010?#
```

Set the value to 10 (Service level password).

5   △ until question mark changes to checkmark (value saved)

```
P: Password      S
999=      0010✓#
```

The Service level password is saved.

6   1x to move cursor to left (parameters)

```
P: Password      S
999=      0010 #
```

You can now go to parameter 275.

Next: navigate to parameter P:275 and change the value

Do This   *Result*

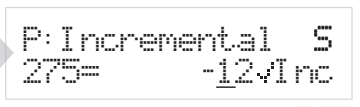**1**   △ until parameter displays

```
P:Incremental   S
275=      -12 Inc
```

The default value is -12 (default at.

2   1x to move cursor to the right (edit value)

```
P:Incremental   S
275=      -12✓Inc
```
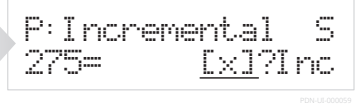
You can now change the value.

- **The UP arrow** increases the value and raises the close limit position for the door.
- **The Down arrow** decreases the value and lowers the close limit for the door.
- Each press of an arrow changes the limit by a fraction of an inch, which gives you precise control of the value.
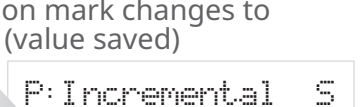
Do This   *Result*

3   △ until new value displays

```
P:Incremental   S
275=      [x]?Inc
```

IMPORTANT Do not change the value by more than 10 increments. Then test the door.

4   △ until question mark changes to checkmark (value saved)
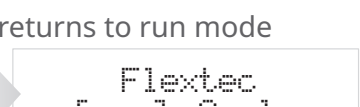
```
P:Incremental   S
275=      [x]✓Inc
```

The new value is saved.

5   △ until door returns to run mode

```
    Flextec
  [xxx] Cycles
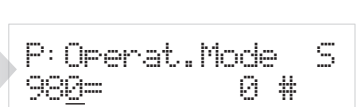```

---

# How to test the door and the safety features

## Navigate to parameter P:980 and set the value to 4 so the door will cycle continuously
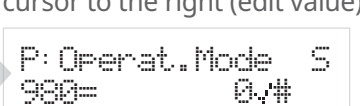
*Do This*     *Result*

**1**   △ until parameter displays

```
P:Operat.Mode   S
980=        0 #
```

The default value is 0.

2   1x to move cursor to the right (edit value)

```
P:Operat.Mode   S
980=        0✓#
```
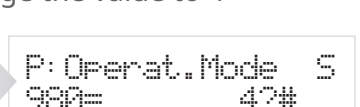
You can now change the value.
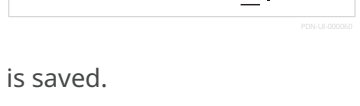
3   4x to change the value to 4

```
P:Operat.Mode   S
980=        4?#
```

4   △ until question mark changes to checkmark (value saved)

```
P:Operat.Mode   S
980=        4✓#
```

The new value is saved.

5   △ until door returns to run mode

```
    Flextec
  [xxx] Cycles
```

6   △ press either arrow to start cycling

```
Acl 1        5 Sec
```

---

1   **Watch** the door as it cycles.

- **Make sure** the door panel rises to the fully open position, remains in place for the standard time, then closes to the fully closed position.
- **Make sure** the fully open and fully closed positions remain at the set limits.
- **Make sure** the reversing edge is level when the door is fully closed.

IMPORTANT   - **Let the ACL timer** hold the door open through each cycle. Shortening the timer while the door is cycling can cause the motor to overheat.

2   While the door cycles, **look and listen** for:

- **Unusual noises** such as grinding, whining or excessive motor noise
- **Excess movement** by the motor, drive or drum.
- **Unexpected delay** in activation or unusually long time period before automatically closing.

3   **Make sure** the Pathwatch LED strips operate correctly as the door opens and closes:

- **Continuous red light** while the door closes.
- **Three-second sequence** of yellow light before the door closes.
- **If the door also has a Pathwatch II** warning light at the top of the door:
  - There is also a continuous red light **while the door opens.**
  - The three-second sequence before the door closes is **red instead of yellow.**

4 **Test the light curtain** by placing your hand flat across the light curtain in the path of the door at the top ①, middle ② and bottom ③ of the light curtain while the door panel closes.

Make sure the door panel returns to the fully open position each time the light curtain is activated.

Make sure the door panel stops immediately when you place your hand at the top a of the light curtain, and gradually when you place your hand in the middle b or at the bottom c.

⚠ WARNING

Make sure you are standing clear of the door panel while performing this test.
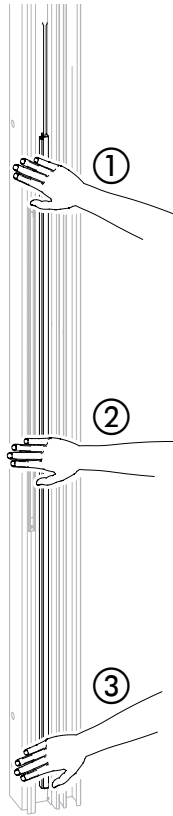
5 **Test the reversing edge** by placing your arm in the path of the door while it is closing.

IMPORTANT **Make sure** you place your arm above the light curtains.

The door panel should stop, then reverse direction and rise to the fully open position.
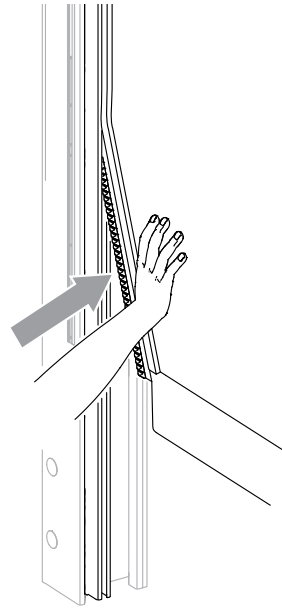
6 **IMPORTANT**

Set the controller to parameter mode.

Set Parameter 980 back to 0 to take the door out of continuous cycle.

Return to run mode.

7 **Activate** the door using each activating system at least three times per system.