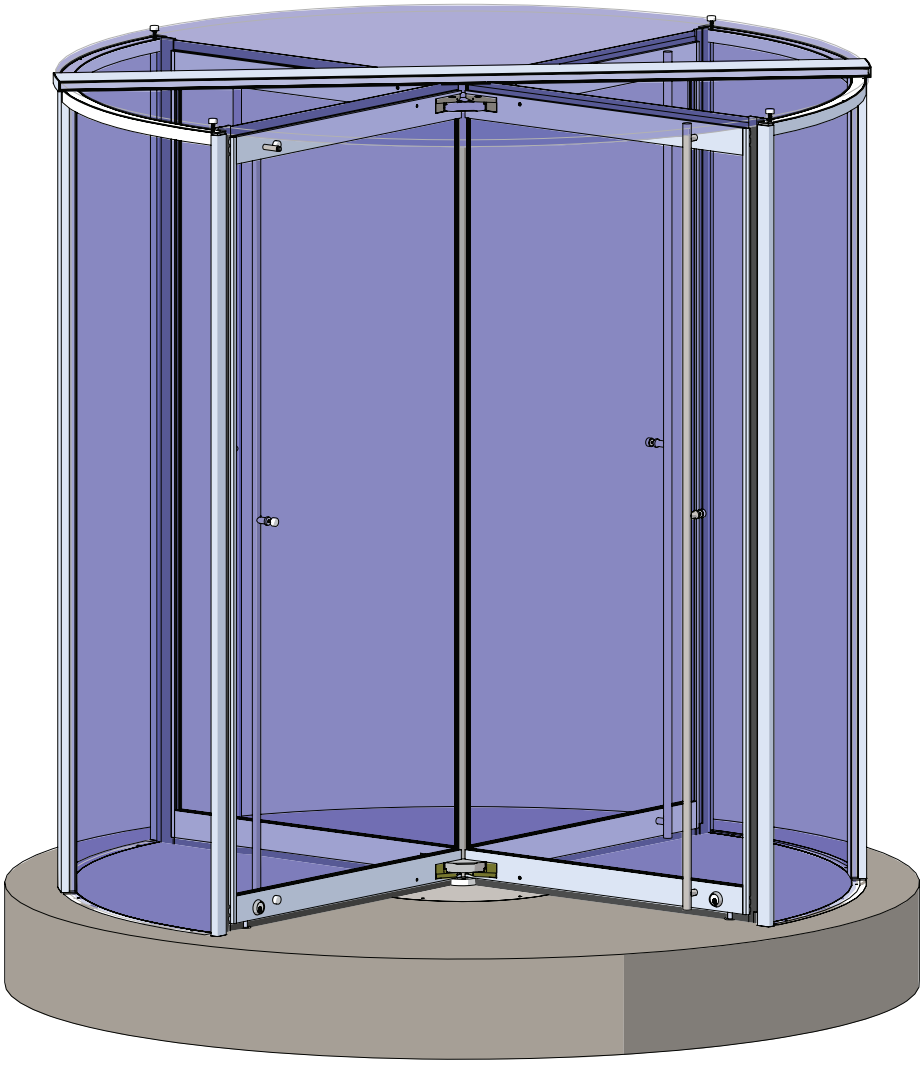


Crane 4000-M

Manual revolving door
In-ground speed control

Installation Manual

RL6000-012 – 07-2022

| EN |

Crane
dormakaba Group

dormakaba

Table of contents

1 General information

1.1 Installation instructions

This document contains important instructions for installation and operation of Crane 4000-M series revolving doors with in-ground speed control.

Review these instructions, along with the Crane Shop Drawings, thoroughly prior to installation. Follow them carefully during installation, commissioning, troubleshooting and maintenance.

NOTICE

Crane Shop Drawings.

- Refer to the Crane Shop Drawings for revolving door design and installation requirements for job.

1.2 Manual storage

This document must be kept in a secure place, and accessible for reference as required.
If the door system should be transferred to another facility, insure that this document is transferred as well.

1.3 dormakaba.us website

Manuals are available for review, download, and printing on the dormakaba.us website.

1.4 Symbols used in these instructions.

⚠ WARNING

This symbol warns of hazards which could result in personal injury or threat to health.

NOTICE

Draws attention to important information presented in this document.

CAUTION

This symbol warns of a potentially unsafe procedure or situation.

TIPS AND RECOMMENDATIONS

Clarifies instructions or other information presented in this document.

1.5 Dimensions

Unless otherwise specified, all dimensions are given in inches (").

1.6 Environment

Crane 4000-M revolving doors are designed to operate on a building interior or exterior application..

NOTICE

Revolving door order custom requirements.

- Installation instructions may need to be modified or replaced.
- Installation illustrations may not reflect assembly or part customization.

Revolving door optional equipment.

- Installation instructions and illustrations may not reflect installed optional equipment.

2 Product description

2.1 Crane 4000-M series

Table 2.1.1 Crane 4000-M assemblies and parts

#	Description
1	Center shaft assembly
2	Wing assembly
3	Center post
4	Quarter post/end wall
5	Canopy assembly with muntin
6	Wing glass
7	Enclosure glass
8	In-ground speed control assembly

2.1.1 Curved enclosure walls.

1. Extruded aluminum, formed stainless steel, formed bronze.
2. Post and base: recessed below finished floor connected with steel mounting clips set in floor of finished concrete.
3. Curved enclosure glass panels:

- 9/16" laminated glass.
- 7/16" laminated glass (AL4000 with center post).

2.1.2 Door wings.

1. Herculite, formed stainless steel, formed bronze.
2. Patch fitting extruded aluminum cladded in formed stainless steel, formed bronze formed aluminum custom cladded in factory.
3. Cladded herculite, aluminum, formed stainless steel, formed bronze custom cladded and finished in factory.

2.1.3 Canopy

1. All glass.

- 13/16" laminated float glass.
- PVB interlayer depending on application.

Fig. 2.1.1 4 wing 4000-M revolving door

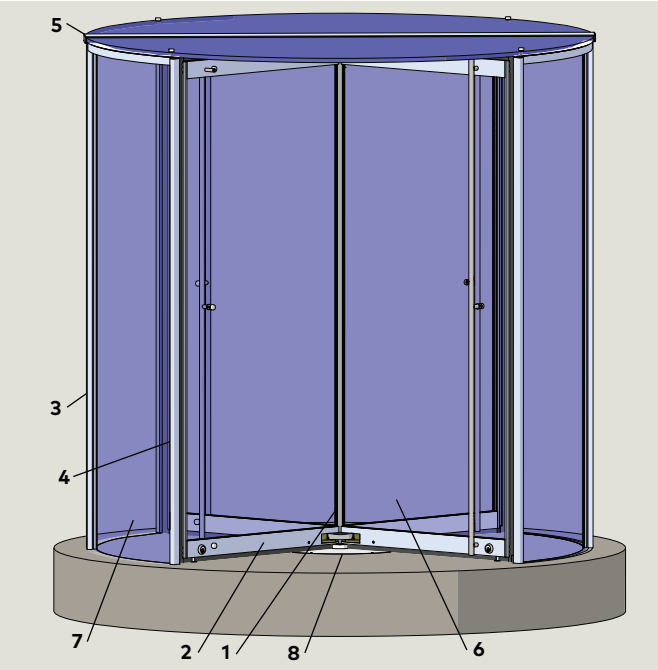
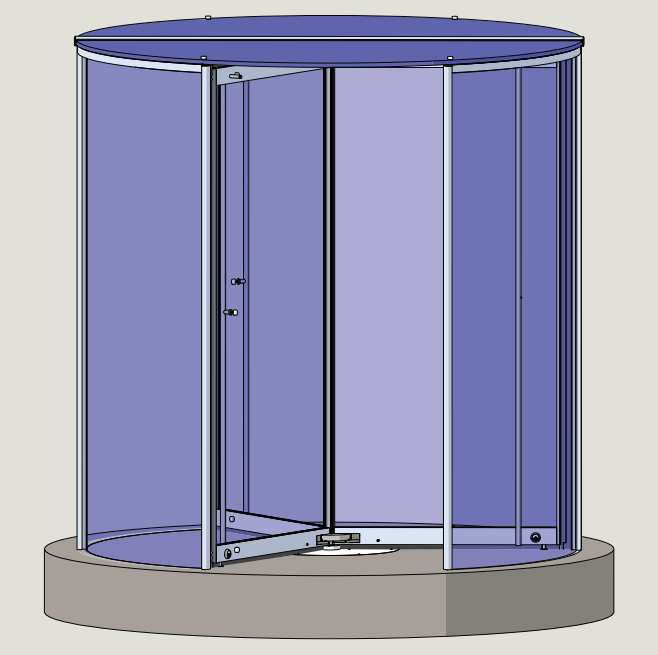


Fig. 2.1.2 3 wing 4000-M revolving door



2.2 Available options

2.2.1 4000-M available options.

Reference Chapter 7.

- Welded floor grills.
- Custom push bars.

3 Safety information

3.1 General safety information

3.1.1 Safety instructions.

Observe safety warnings as they are presented in this manual.

3.1.2 Safety warnings.

⚠ WARNING

Damage to equipment or incorrect equipment operation may result from an incorrect installation.

⚠ WARNING

Hazard to mechanical processes by use of control settings, elements, or procedures not documented in this manual!

⚠ WARNING

Electric shock hazard!
By use of control elements, settings, or procedures not documented in this manual!

⚠ WARNING

Work on electrical equipment and 115 Vac wiring installation must be performed only by qualified personnel!

⚠ WARNING

Metallic doors must be grounded per national and local codes!

⚠ WARNING

Hand pinch point and crushing hazards!

⚠ WARNING

Crushing hazards!

3.1.3 Residual hazards

⚠ WARNING

After installation, hazards such as minor crushing, impact with limited force, and risk to unsupervised children may exist depending on structural design of door area, type of door, and any safeguards that have been implemented.

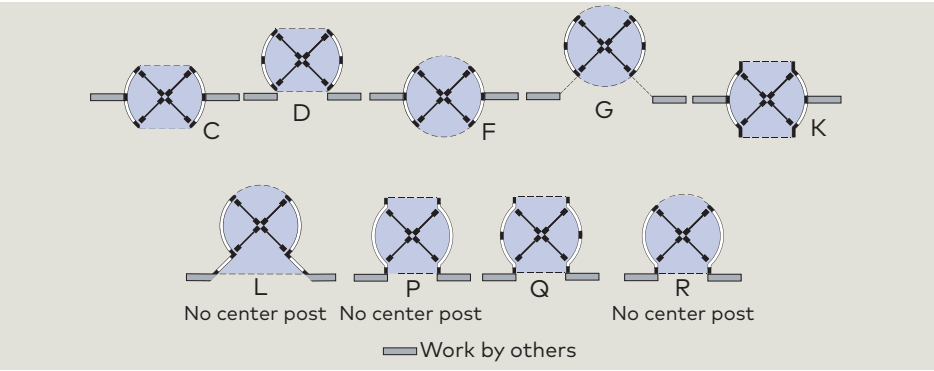
4 4000-M Series Models

4.1 4000-M series model comparison and door attachment types

Table 4.1.1 Crane 4000-M series model comparison

	AL4000		SS4000		BZ4000
Header	Two piece aluminum		Formed stainless steel		Formed bronze
Recessed base	Formed stainless steel				
Wing configuration	3 wing		4 wing		
Enclosure diameter	Minimum ID: 7' 7 3/4"	Maximum OD: 8'	Minimum ID: 6' 6"	Maximum OD: 8'	ANSI/BHMA A156.27-2019: To limit door mass, the inside diameter added to the height shall not exceed 17ft [5182 mm].
Door opening height	Minimum 7'	Maximum: 10'	Minimum: 7'	Maximum: 10'	
Maximum total wing assembly and center shaft assembly weight	1075 pounds aluminum 1200 pounds SS		Total weight may vary depending on application.		
Finish	• Clear anodized • Custom anodized • Dark bronze anodized • Painted		• #4 satin • #6 fine satin • Mirror • Non-directional "Jitterbug" • Custom		• Satin and lacquered • Satin no lacquer • Mirror and lacquered • Statuary and lacquered • Custom
Operation	Manual, mechanical speed adjuster to limit speed. To be adjusted to comply with ANSI/BHMA 156.27.				
Attachment Types	C, D, F, G, K, L, P, Q, R as indicated on the drawings. Reference Chapter 5.				
Enclosure material	• Glass • Aluminum panels		• Glass • SS panel		• Glass • Bronze panel
Enclosure glass	• 9/16" bent laminated float glass. • 7/16" bent laminated float glass (AL4000 with center post).				
Wing glass	• 9/16" tempered laminated float glass. • 1/2" tempered if patch fit.				
Canopy glass	13/16" laminated float glass.				
Speed Control	In-ground manual speed control (Para. 6.10). • Uses 100:1 gear ratio • Centrifugal force brake slowly engages as the door reaches the maximum allowable RPM set by code.				

Fig. 4.1.1 Crane 4000-M attachment types



5 Revolving door assemblies

5.1 Glass canopy with muntin assembly

NOTICE

Refer to Crane Shop drawings for canopy design for specific job!

Fig. 5.1.1 Canopy glass with muntin, top view

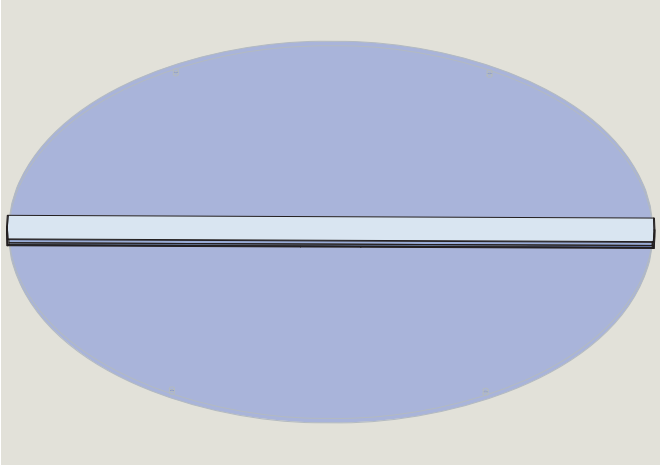
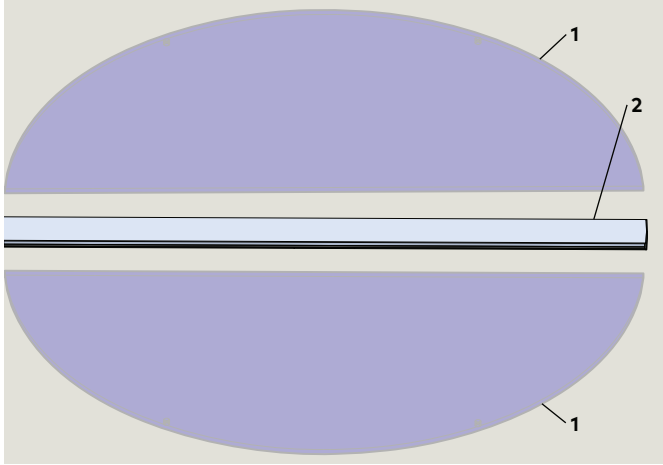


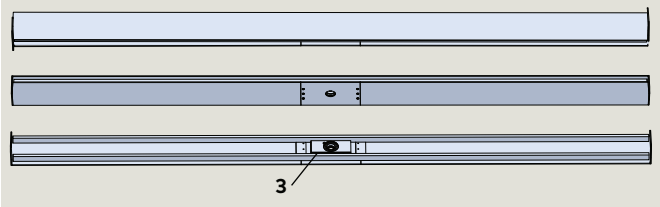
Fig. 5.1.2 Canopy glass with muntin, top view



1 Canopy glass
2 Muntin

5.2 Muntin and bearing assembly

Fig. 5.2.1 Muntin top, bottom and cover removed views



3 Bearing assembly

Fig. 5.2.2 Bearing assembly RS6064

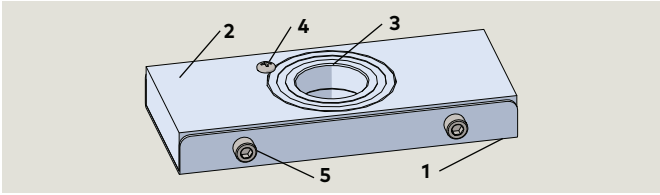


Table 5.2.1 RS6064 Bearing assembly

Part / Assembly		Description
1	RC6244-0X0	Bearing mounting bracket
2	RC6234-010	Bearing block
3	RF6109-01G	Ball bearing
4	RF7021-01G	8-32 x 1/2" Phillips pan head screw
5	DF1152-01C	1/4-20 x 5/8" SHMS

5.3 Glass canopy with bearing assembly

Fig. 5.3.1 Canopy glass with bearing assembly, top view

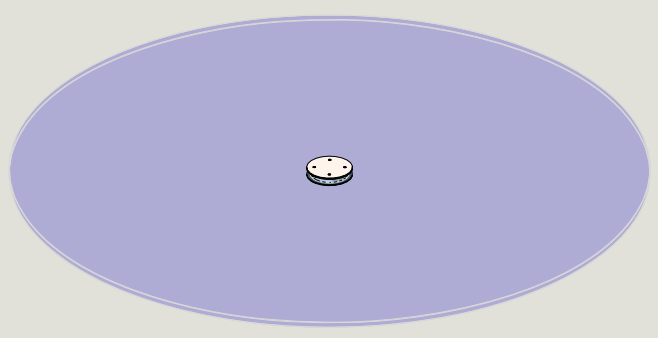
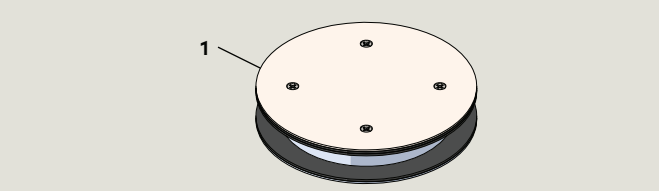


Fig. 5.3.2 Bearing assembly



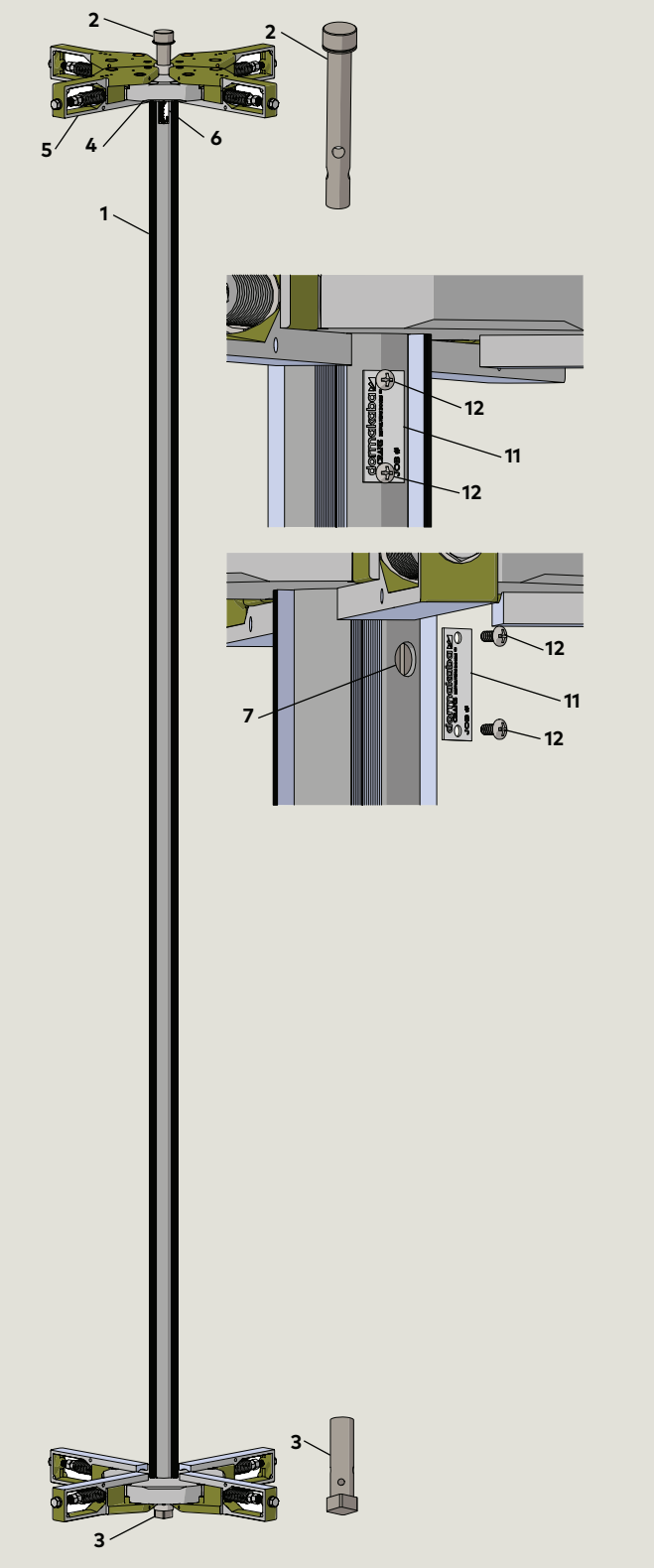
1 Bearing assembly RS6029-001

NOTICE

Refer to Crane Shop drawings for canopy design for specific job!

5.4 4 wing steel shaft assembly, floor drive/speed control RS6053-001

Fig. 5.4.1 Four wing center shaft



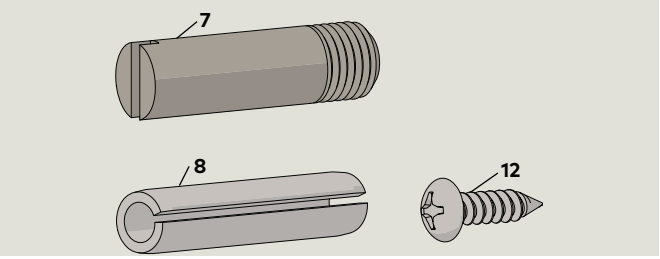
NOTICE

Refer to Crane Shop drawings for center shaft design for specific job!

Table 5.4.1 RS6053-001 assemblies and parts

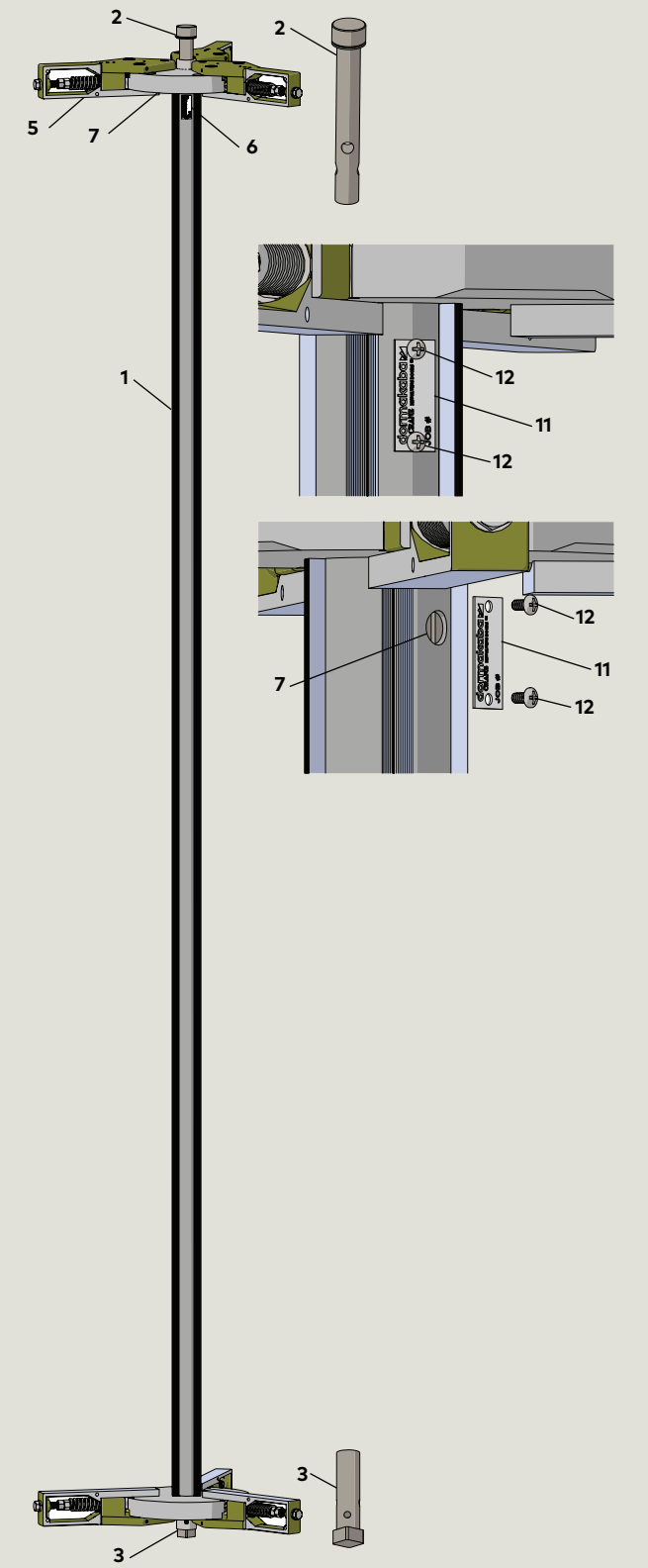
Part / Assembly		Description
1	RC6084-001	Steel shaft cover 4 wing, floor speed control
2	RC6081-001	Top plug, steel shaft, ground speed control, 7" length
6	RC6082-001	Bottom plug, steel shaft, floor speed control,
4	RS6043-001	4 wing disc assembly
5	RS6045-0X0	Hanger assembly
7	RF6052-010	Steel shaft cross pin, 7/16 x 1 1/2" long
8	RF6053-01G	.25 OD x 1 1/4" spring pin slotted
11	RD6001-001	Shaft nameplate/job ID tag
12	RF6008-01G	#6 x 1/2 SS Phillips pan head screw

Fig. 5.4.2 Center shaft fasteners



5.5 3 wing steel shaft assembly, floor drive/speed control RS6054-001

Fig. 5.5.1 Three wing center shaft



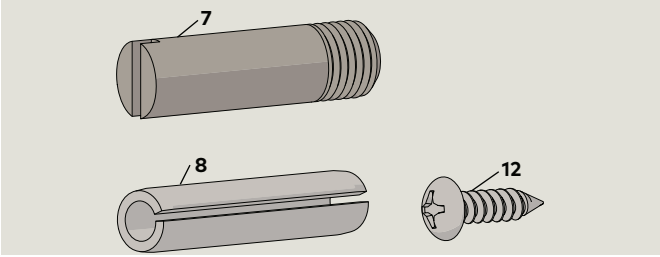
NOTICE

Refer to Crane Shop drawings for center shaft design for specific job!

Table 5.5.1 RS6054-001 assemblies and parts

Part / Assembly		Description
1	RC6085-001	Steel shaft cover 4 wing, floor speed control
2	RC6081-001	Top plug, steel shaft, ground speed control, 7" length
6	RC6082-001	Bottom plug, steel shaft, floor speed control,
4	RS6044-001	3 wing disc assembly
5	RS6045-0X0	Hanger assembly
7	RF6052-010	Steel shaft cross pin, 7/16 x 1 1/2" long
8	RF6053-01G	.25 OD x 1 1/4" spring pin slotted
11	RD6001-001	Shaft nameplate/job ID tag
12	RF6008-01G	#6 x 1/2 SS Phillips pan head screw

Fig. 5.5.2 Center shaft fasteners



5.6 Hanger assembly, steel shaft RS6045-0X0

Fig. 5.6.1 Shaft hanger assembly

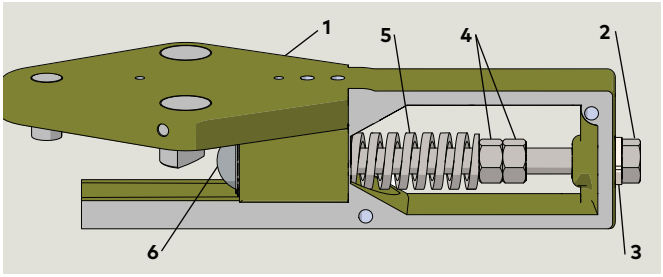
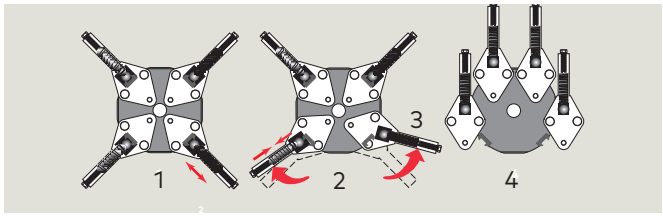


Table 5.6.1 RS6045 shaft hanger assemblies and parts

Part / Assembly		Description
1	RC6369-0X0	Hanger body
2	RC6156-01G	Hex bolt, 0/375"- 16 x 4"
3		Lock washer, 3/8"
4		Hex nut, 0.375"-16
5		Spring
6		Ball, 7/8" diameter

5.7 Bookfold mechanism

Fig. 5.7.1 Bookfold mechanism



5.7.1 Bookfold mechanism operation.

1. During normal operation, hanger spring tension holds wings in radial position by means of steel balls in hangers engaging in detent blocks in center shaft top and bottom discs.
2. Excess pressure on wing compresses spring (to breakout force), ball is rotated from detent block in disc.
4. Minimal pressure is then required to continue bookfolding. Wings bookfold either way, providing a clear passage on both sides.

5.8 Enclosure posts

Fig. 5.8.1 Quarter post/end wall RE6019-010

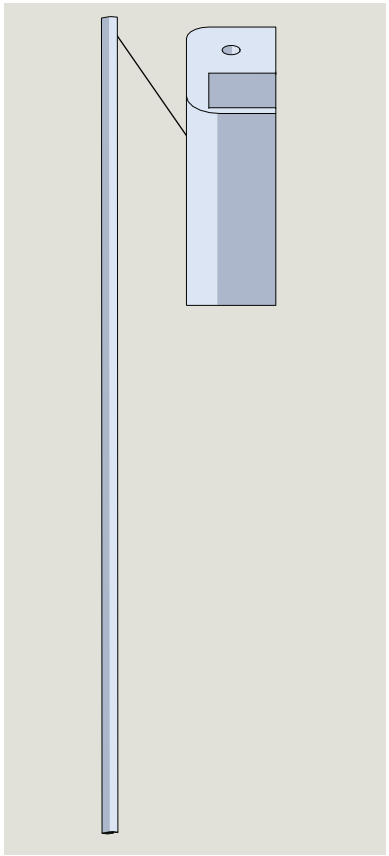
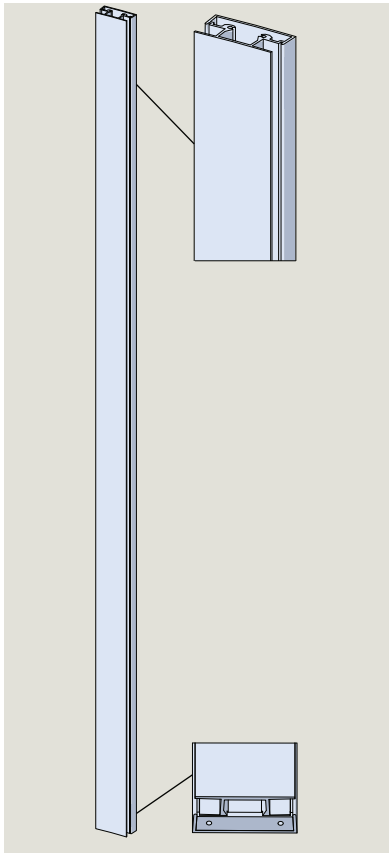


Fig. 5.8.2 Center post RE6007-0X0

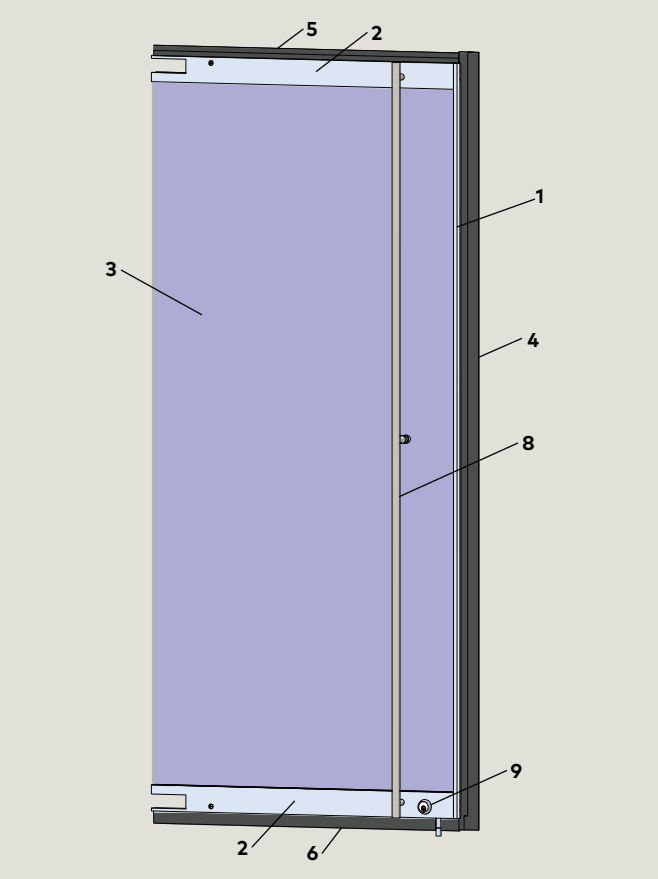


NOTICE

Refer to Crane Shop drawings for quarter post/end wall and center post design for specific job!

5.9 4000-M door wing assembly example

Fig. 5.9.1 Wing assembly, 4 wing door



NOTICE

Refer to Crane Shop drawings for wing detail for specific job!

Table 5.9.1 Door wing assembly and part examples

Part / Assembly		Description
1	RE6038-0X0	Front stile, Herc, AL Blk
2	RE6026-0X0	Rail end, Herc
3		Wing glass
4	RC6389	Sweep felt vertical
5		Sweep felt top
6		Sweep felt bottom
7	RF2961	Wing bumper assembly (not shown)
8		Wing push bar Push bars ordered job specific for each order
9	76019184	Cylinder assembly

5.10 Door wing types

Fig. 5.10.1 Patch fitting type wing

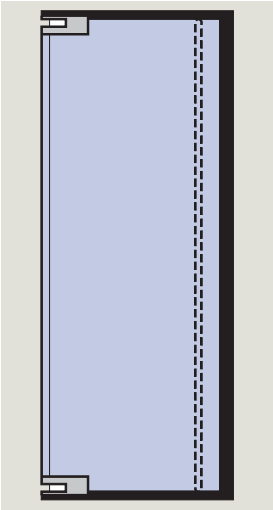
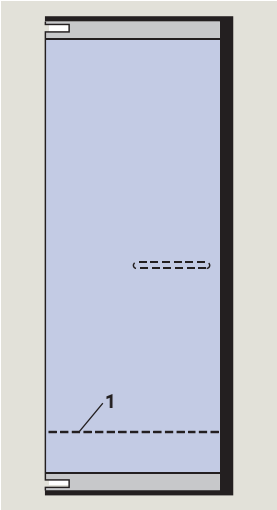


Fig. 5.10.2 Herculite type wing



1 Optional tall bottom rail

5.11 Header bar assembly

NOTICE

Refer to Crane Shop drawings for header bar design for specific job!

Fig. 5.11.1 Header bar assembly

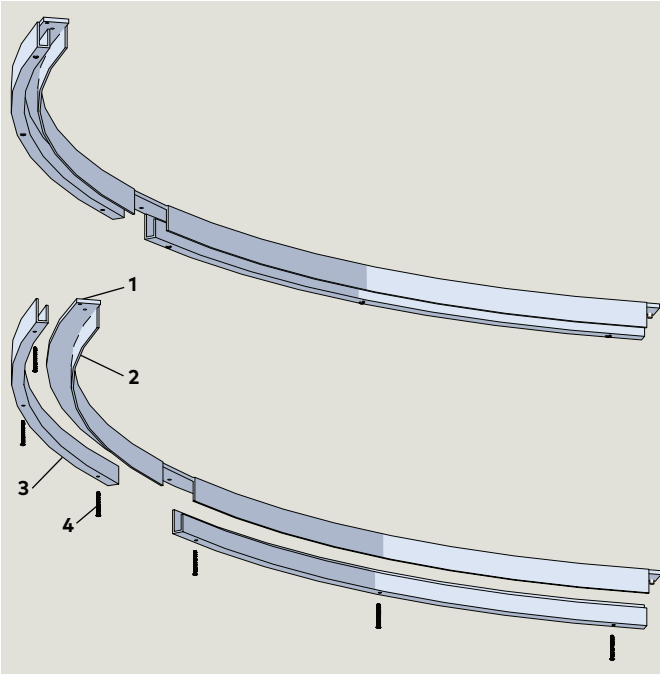
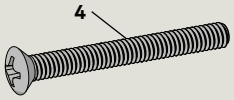


Table 5.11.1 Header bar assembly

Part / Assembly	Description
1	Header bar
2	Header bar inner plate
3	Header bar outer angle
4 RF6123-01G	8-32 x 1 1/2" Phillips oval head MS

Fig. 5.11.2 P OVHMS



5.12 Floor bar assembly and base clips

NOTICE

Refer to Crane Shop drawings for floor bar design for specific job!

Fig. 5.12.1 Floor bar assembly and floor base clips

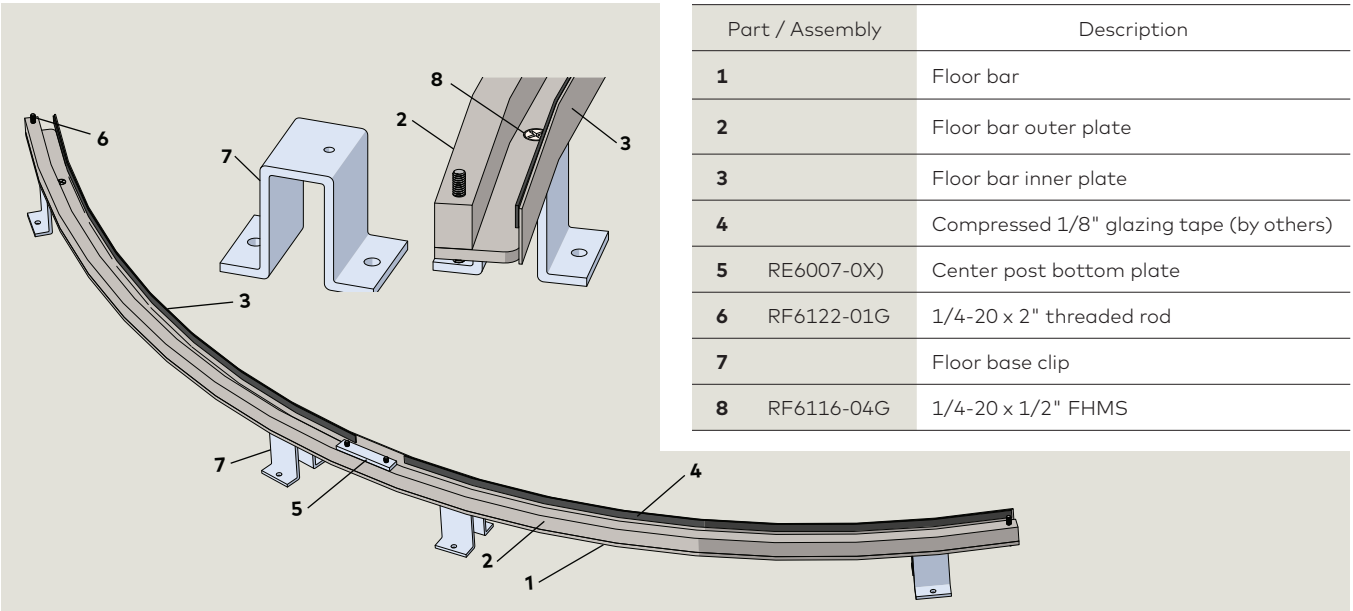


Table 5.12.1 Floor bar assembly

Part / Assembly	Description
1	Floor bar
2	Floor bar outer plate
3	Floor bar inner plate
4	Compressed 1/8" glazing tape (by others)
5 RE6007-0X)	Center post bottom plate
6 RF6122-01G	1/4-20 x 2" threaded rod
7	Floor base clip
8 RF6116-04G	1/4-20 x 1/2" FHMS

5.13 In-ground speed control assembly

Fig. 5.13.1 Floor speed control assembly

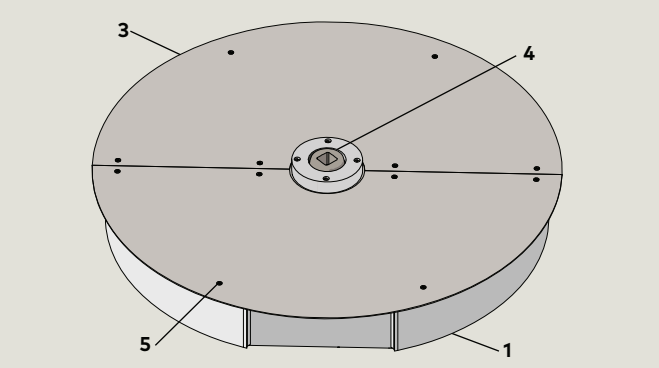


Fig. 5.13.2 Round cement box and floor speed control assembly

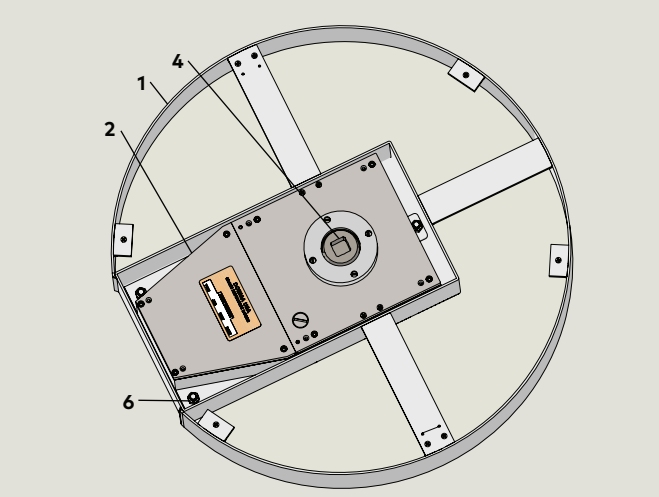


Fig. 5.13.3 Round cement box

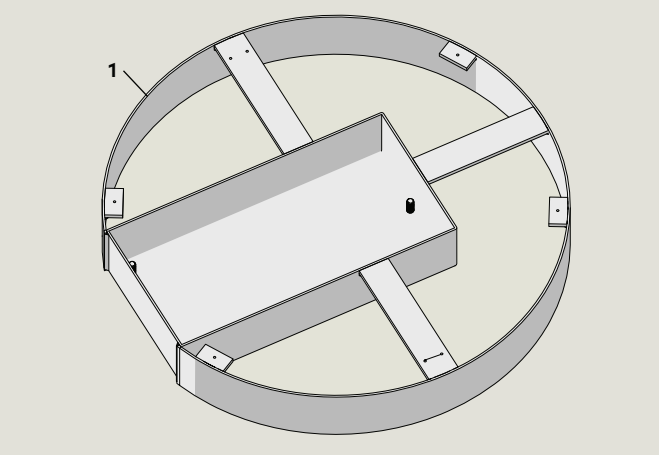


Table 5.13.1 Door wing assembly and part examples

Part / Assembly		Description
1	RC6186-010	Round cement box
2	RS6074-010	Floor speed control assembly
3	RC6195-0XX	Cover plate, in-ground speed control, 26 1/2" diameter
4		Floor speed control drive shaft
5		10-24 x 1/2" Phillips undercut FH screw, SS
6	DF0587-00G	3/8-16 nut

Fig. 5.13.4 Floor speed control assembly

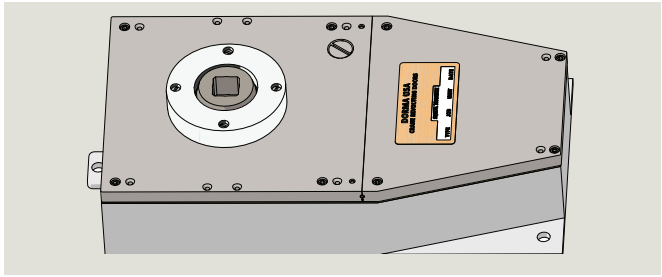
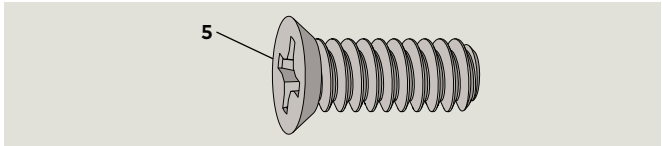


Fig. 5.13.5 10-24 x 1/2" undercut FHMS



5.14 Bookfold mechanism

Fig. 5.14.1 Bookfold mechanism

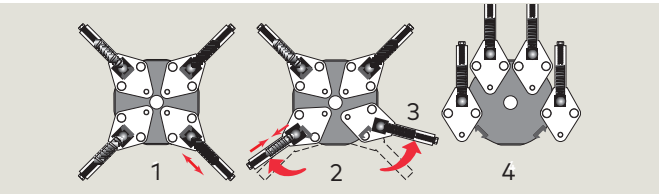
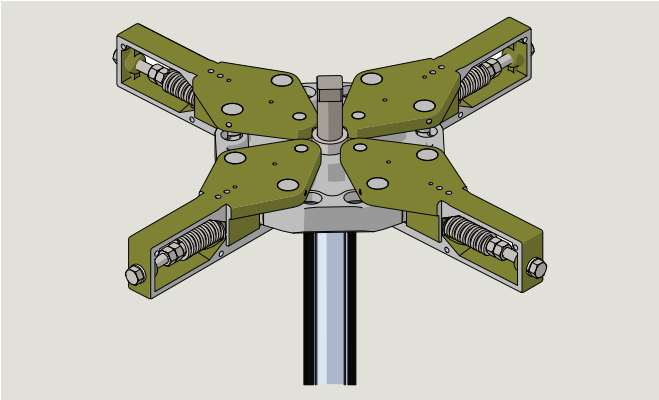


Fig. 5.14.2 4 wing hanger assembly



6.11.1 Bookfold mechanism operation

1. During normal operation, hanger spring tension holds wings in radial position by means of steel balls in hangers engaging in detent blocks in center shaft top and bottom discs.
2. Spring tension is field adjusted to meet breakout force requirements as specified in ANSI/BHMA A156.27, Standard for Power and Manual Operated Revolving Pedestrian Doors.
3. Breakout force is adjustable in pressure from 60 to 180 lbs [265 to 800 N].
4. Excess pressure on wing compresses spring (to breakout force), ball is rotated from detent block.
5. Minimal pressure is then required to continue bookfolding. Wings bookfold either way, providing a clear passage on both sides.

5.15 Wing lock and floor strike

Fig. 5.15.1 Concealed lock wing installation

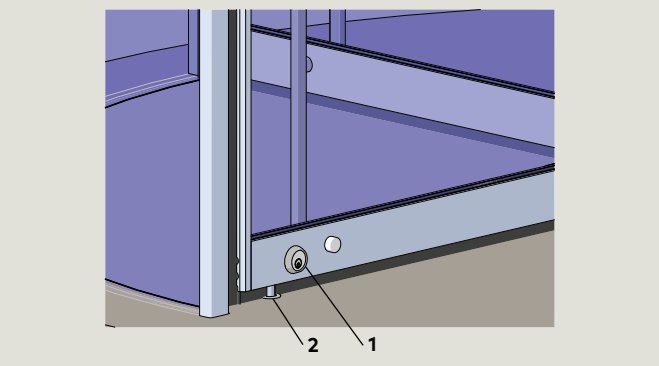
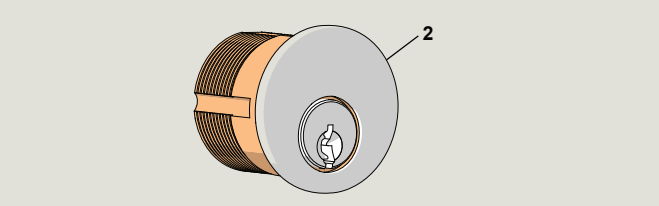


Fig. 5.15.2 Concealed lock



5.15.1 Type of wing lock.

1. Concealed lock.(Fig. 5.15.1).

5.15.2 Factory installed.

- Locks are factory installed.

TIPS AND RECOMMENDATIONS

Rehab kits with surface mounted locks.
Locks are shipped loose. AL500, SS500 and BZ500.

5.15.3 Number of wing locks and location.

- Two wing locks are supplied, one located in adjacent wing bottom rails for interior locking into floor.
- Locks are factory installed.
- Doors over 7' high, locks installed in bottom rails unless otherwise specified.

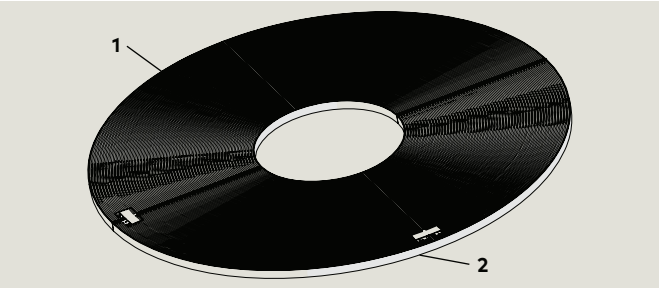
Table 5.15.1 Wing lock and floor strike

Part / Assembly		Description
1		Concealed lock 76019185
2	RC6265-0X0	Floorstrike, dust proof

6 Optional assemblies

6.1 Floor grill and pan assembly

Fig. 6.1.1 Floor grill and pan assembly



1 Floor grill
2 Pan

6.2 Wing push bars

6.2.1 Customized wing push bars.

- Reference shop drawings for push bar installation for specific job.

6.1.1 Welded floor grilles

- Fabricated from concentrically rolled bars of 1/4" x 1" stainless steel.
- Integrated into revolving door design.
- Recessed grille pan welded from 12 ga. stainless steel, a drainage fitting can be added.

7 Recommended Tools And Materials

7.1 Recommended tools

Fig. 7.1.1 Recommended tools

Table 7.1.1 Recommended tools

1	Plumb bob with string.
2	Tape measure
5	Screwdriver, flat blade
6	Screwdriver, Phillips #2, #3
7	Socket wrench and extensions
8	Open end wrench, 9/16"
9	Small insulated flat blade screwdriver
10	Spirit level, 72"
11	Rubber hammer
12	Needle nose pliers
13	Bent glass 9" suction cups (Wood's Pwr-Grip N5450 or equivalent) ASIN# B007IAB3TM
14	Hammer drill
15	Rotary hammer core bit, 5", Bosch or equivalent
16	Cordless drill with drill bit and socket set
17	Razor knife or box cutter
18	Angle grinder with 5" grinding wheel, ASIN# B00EMFOKSC
19	Masonry drill bits, 1 1/4" required for floor strike
20	Manual deburring tool
21	Digital multimeter
22	Force gauge for breakout, Chatillon DG-200, 0 - 200 lbf, or equivalent
23	Portable work lights
24	Wire strippers, 16 AWG to 22 AWG
25	Pin holding pin insertion tool, 1/4"

7.2 Recommended installation materials and installation hardware

Fig. 7.2.1 Recommended installation materials

Fig. 7.2.2 Recommended installation hardware

Table 7.2.1 Recommended installation Materials

	Description
1	Neoprene setting block assortment, 1/16" to 1/2", CRL, ASIN# B001G0UG1Q
2	Backer rod, 5/8" diameter, 100' roll, CRL
3	Silicone building sealant, 6 cartridges per door. Dow Corning 795 or equivalent. ASIN# B000NY76MI
4	Glazing tape. 1/8" x 3/8", black, single sided, CRL, ASIN# B000WRZCZE
5	Wedgit 5/16" glass centering springs, CRL W516, ASIN# B006JFMQUM
6	White lithium grease - for center shaft assembly, ASIN# B06XY6QK57
7	Posi-Twist Bundle kit, ASIN# B000JP3GB6
8	Rockite quick drying cement, ASIN# B000BO9JRK

Table 7.2.2 Recommended installation hardware

	Description
10	Metaltech wall hauler 2000 series drywall cart, ASIN# BMD2131YGR
11	Genie Hoist, GH-3.8 Portable lift, 300 pound capacity, lift height 12', ASIN# B004QTPJHU
12	Genie material lift, GL-8, 400 pound capacity, lift height 10', 5"
13	Extension ladder, 13'

*ASIN: Amazon numbers

9 Entrance opening and sub floor

9.1 Entrance opening

9.1.1 Entrance opening requirements.

1. Documentation:
- Crane shop drawings detailing revolving door attachment plan to building and required dimensions (elevation and plan views).
- Contractor or architect drawings detailing revolving door entrance opening.

2. Verify entrance opening dimensions and associated framing with documentation in (1).

NOTICE

Refer to Crane Shop Drawings for job!

9.2 Crane shop drawing examples: elevation and plan views

Fig. 9.2.1 AL4000 2 piece aluminum with Herc wings

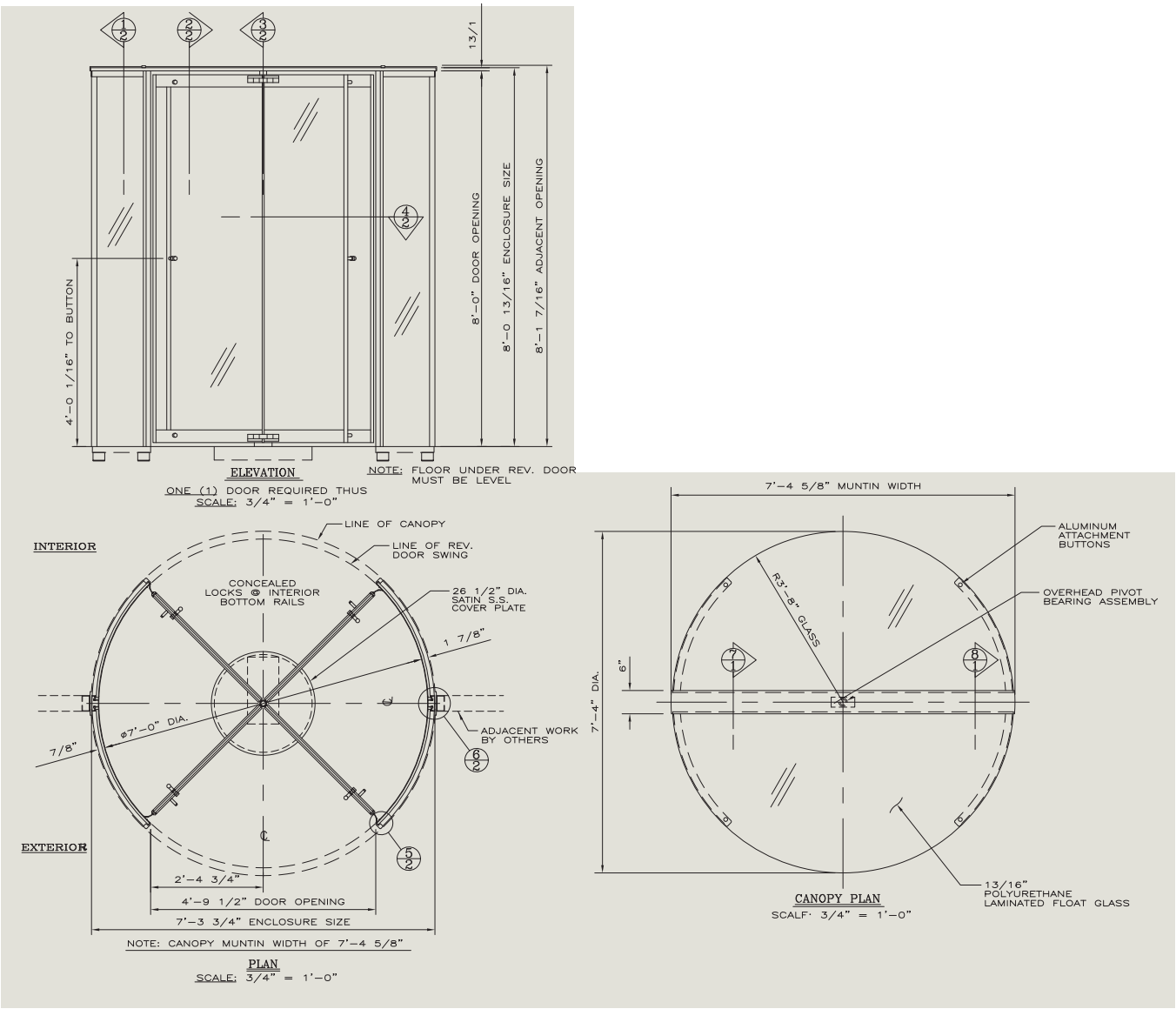
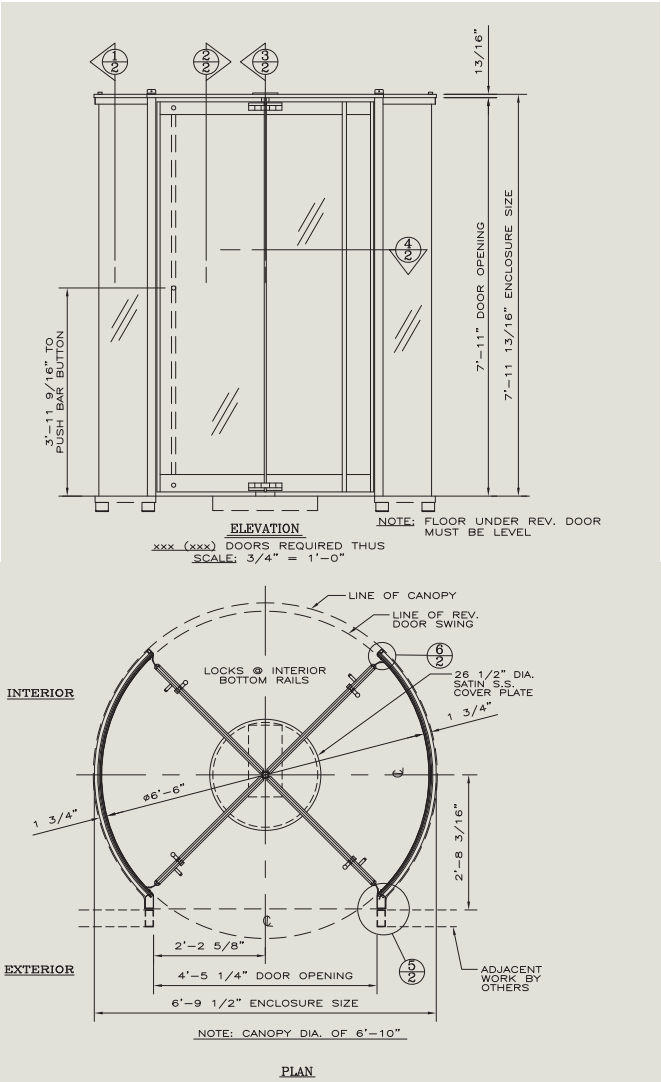


Fig. 9.2.2 SS4000 clipped round clad with Herc wings



Addition notes on Shop drawings.

NOTICE

Refer to Crane Shop Drawings for job!

10 Mark revolving door location on sub floor, install base rail assemblies

10.1 Locate installation template

10.1.1 Locate full size installation template.

1. Locate full size template.
   - Template shipped in canopy shipping crate.
2. Reference Crane shop drawing for template orientation at building attachment.

TIPS AND RECOMMENDATIONS

Templates for canopy diameters greater than 6'6" I.D. are custom made and cut out of Masonite material to match door conditions.

10.2 Mark door centerpoint

10.2.1 Locate and mark door centerpoint.

1. Use contractor/architect drawings to determine door centerpoint.
2. Use plumb bob with string or a laser plumb bob to mark door centerpoint location on subfloor.

Fig. 10.2.1 Crane shop drawing example

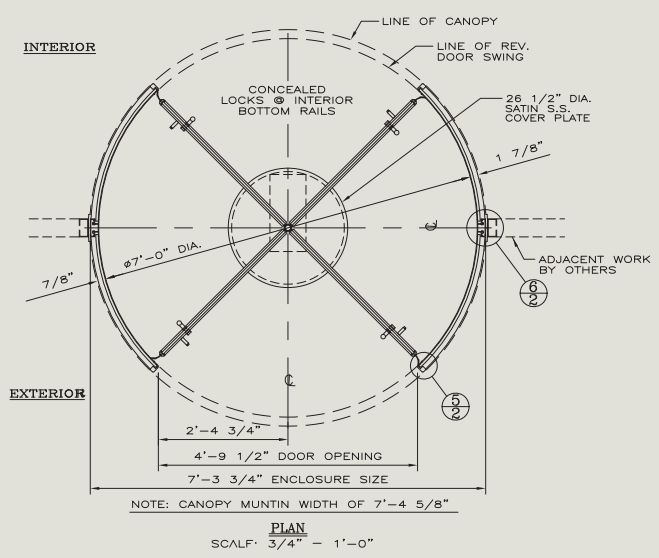
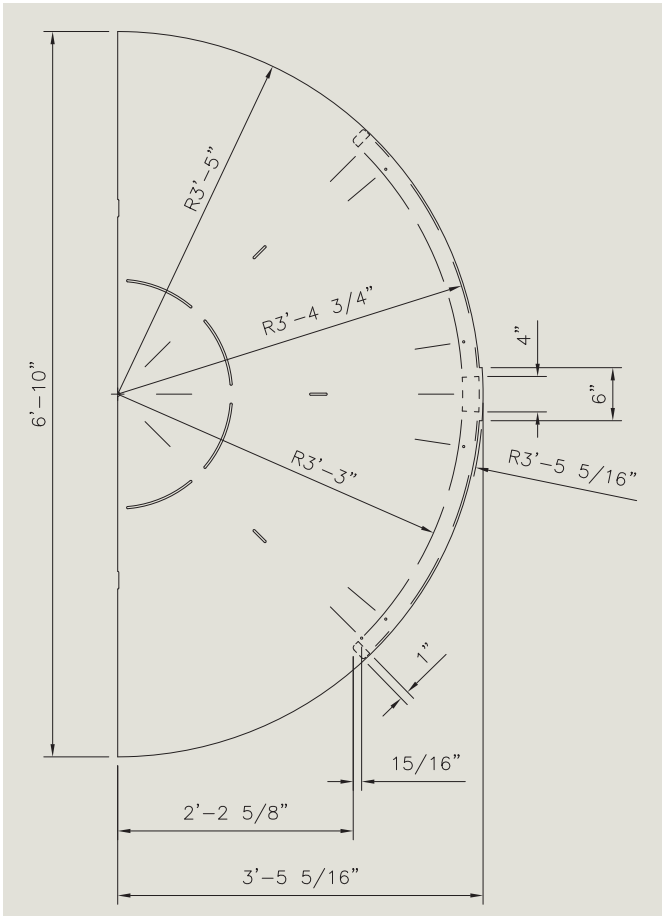


Fig. 10.2.2 Full size template, AL4000-M example



10.3 Mark door base rail locations, install base rail assemblies

10.3.1 Floor template.

1. Use template to mark the following from the door centerpoint:

NOTICE

Building interface.
Reference Crane shop drawings.
Insure door centerpoint has been marked in relation to the building interface.

Base rail locations are marked in relation to the door centerpoint and building interface.

- Enclosure radius from door centerpoint.
- Base rail outer radius.
- Base rail inner radius.
- Base rail ends.

10.3.2 Place base rail and floor clip assemblies on subfloor.

CAUTION

Place base rail based on post numbering.
Refer to Para. 12.9 for post numbering locations.

1. Locate base rail assemblies (Fig. 10.4.1) on subfloor.

- Check that base rails are square and are aligned to door centerpoint.
- Check base rail outer diameter as shown on shop drawing.

10.3.3 Shim floor clips and fasten to subfloor.

1. Floor base clip installation hardware.

NOTICE

Reference Para. 10.4 and 10.5 for base floor clip hardware and installation.

2. Shim base rails to obtain top of base rail height flush with top of finished floor.

NOTICE

Base rail top surface must be level with finished floor top surface.

10.3.4 Anchor base rails to subfloor.

1. Anchor base clips to floor using concrete anchors (by installer).

Fig. 10.3.1 Floor template dimensions

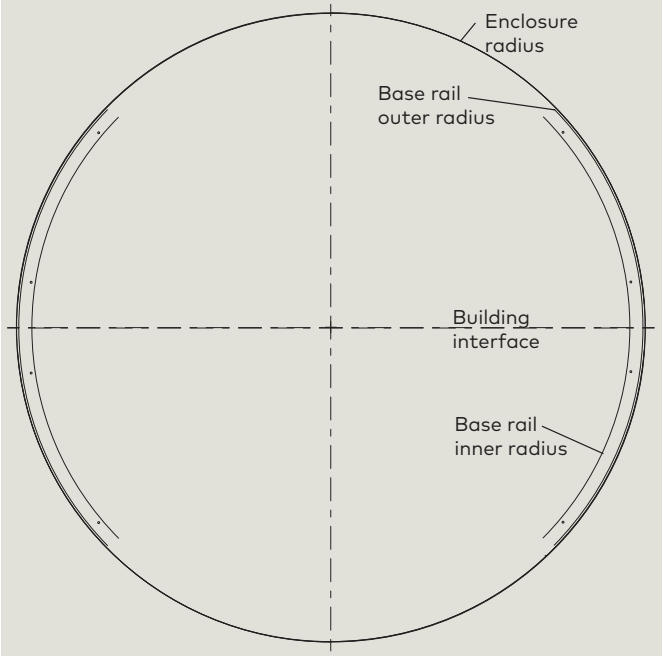
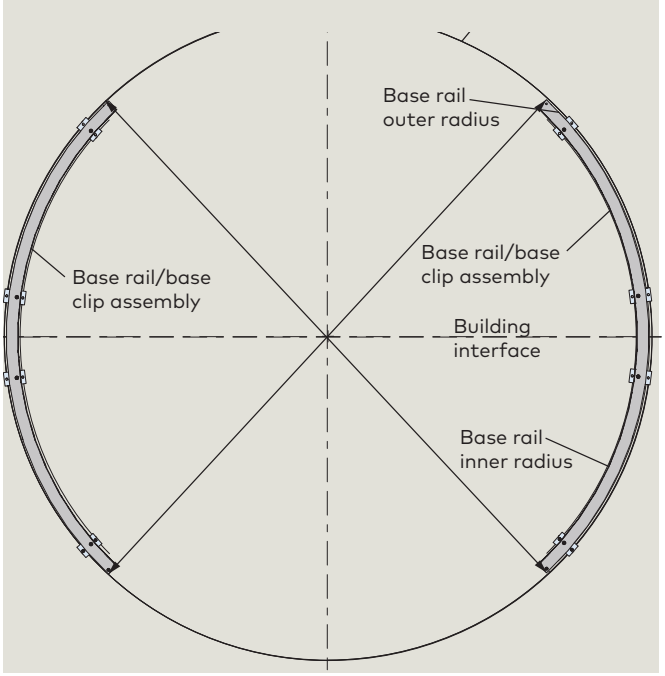


Fig. 10.3.2 Base rail assemblies placed on subfloor



10.4 Floor base clips and rail assembly – mounting to sub floor

10.4.1 Floor base clips and base rails.
Floor base clips and base rail assembly (Fig. 10.4.1) mounted to sub floor / structural slab.

10.4.2 Floor surface, sub floor or structural slab.

NOTICE

Sub floor or structural slab depth.
Must be a minimum of 4" below finished floor surface at revolving door.

NOTICE

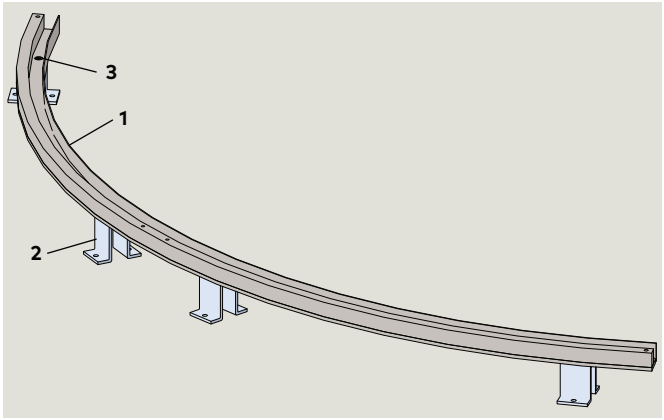
Sub floor or structural slab flat and level.
Sub floor / slab should be flat and level.

10.4.3 Base rail floor clip shims.
Reference Para. 10.5 for floor clip shimming for various slab depths.

NOTICE

Base rail flush with finished floor surface.
Floor base clips must be shimmed so that base rail top surface is flush with finished floor surface

Fig. 10.4.1 Floor base clips and base rail assembly



1 Base rail assembly
2 Floor base clip
3 1/4-20 x 1/2" FHMS

10.5 Floor clip shimming

10.5.1 3 3/4" to 4" slab depth to finished floor (Fig. 10.5.1)**.**

NOTICE

0 to 1/4" allowable shimming below floor clip.

- 1/4"-20 x 1/2" FHMS by Crane.
- Installer must select appropriate length floor clip concrete fastener.

10.5.2 3 3/4" to 5" slab depth to finished floor (Fig. 9.4.2)**.**

NOTICE

- **0 to 1" allowable shimming above floor clip.**
- **0 to 1/4" allowable shimming below floor clip.**
- 1/4"-20 x 1 1/2" FHMS by installer.
- Installer must select appropriate length floor clip concrete fastener.

10.5.3 4" to 6" slab depth to finished floor (Fig. 10.5.3)**.**

NOTICE

- **0 to 1" allowable shimming above floor clip.**
- **0 to 1" allowable shimming below floor clip.**
- 1/4"-20 x 1 1/2" FHMS by installer.
- Installer must select appropriate length 1/4-20 concrete fastener.
- 5"x 5" x 1/4" steel plate by installer.

10.5.4 Additional plates welded to floor clips (Fig. 10.5.3)**.**

NOTICE

Additional plates.
- Plates increase floor clip overall footprint and mounting hole spacing.
- Additional plates may be provided by the installer and welded to bottom of floor clips.

Fig. 10.5.1 3 3/4" to 4" slab depth to finished floor

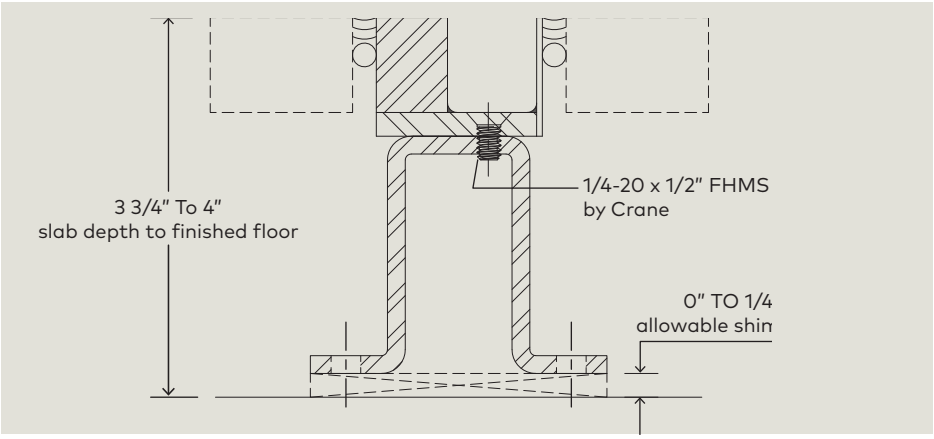


Fig. 10.5.2 3 3/4" to 5" slab depth to finished floor

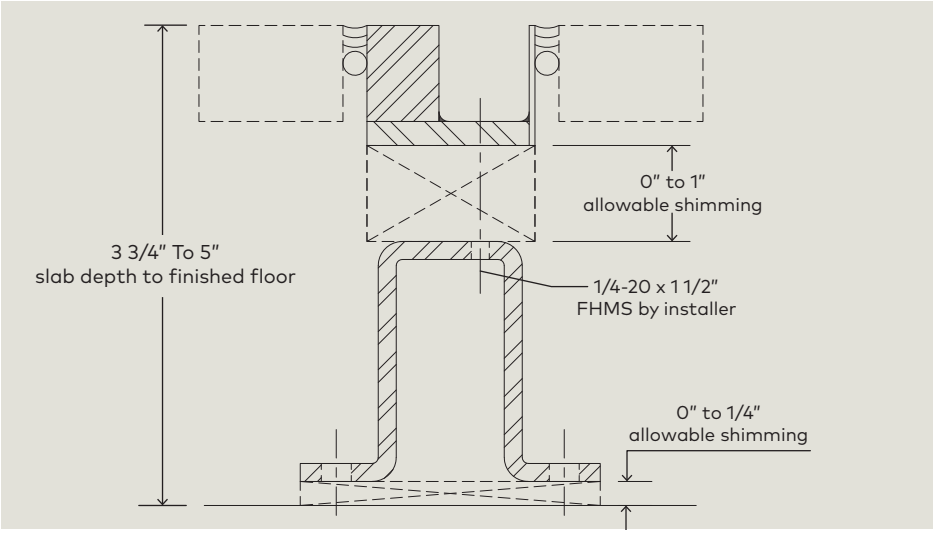
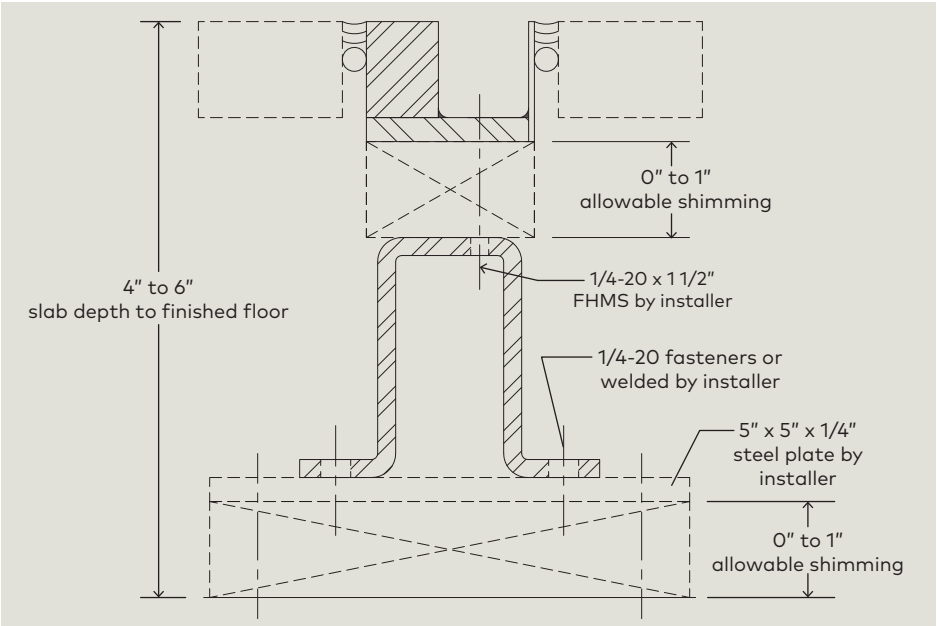


Fig. 10.5.3 4" to 6" slab depth to finished floor



11 Install in-ground speed control

11.1 Install in-ground speed control

11.1.1 Verify floor cutout location and dimensions.

1. Verify floor cutout location in floor .
   Reference Crane shop drawings.

11.1.2 Set cement case height, center speed control drive shaft at door centerpoint.

2. Shim cement case in floor cutout until top of case is flush with finished floor surface. Position in-ground speed control collar at door centerpoint location

CAUTION

- **Cement case must be level, plumb and flush with finished floor surface.**
- **Speed control drive shaft must be positioned at door centerpoint.**

11.3.3 Fill floor cutout with non-shrink grout.

1. Fill floor cutout with non-shrink grout to finished floor surface.

CAUTION

Use non-shrink grout.

NOTICE

Recheck speed control drive shaft is at door centerpoint.

2. Allow grout to set before proceeding.

Fig. 11.1.1 In-ground speed control shipped installed in cement case

1 Collar
2 Drive shaft

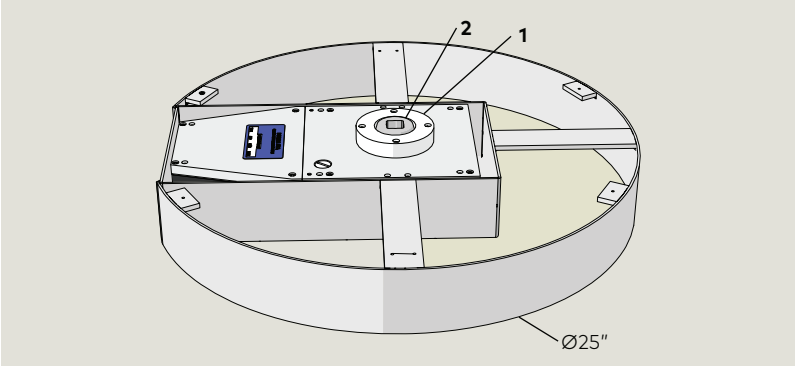


Fig. 11.1.2 Crane shop drawing speed control detail

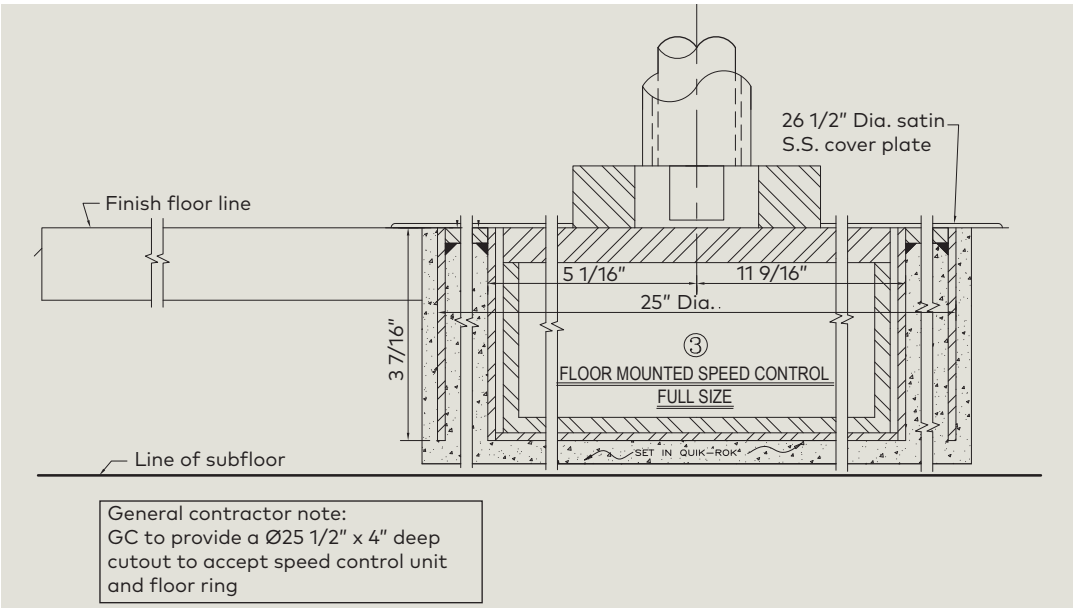
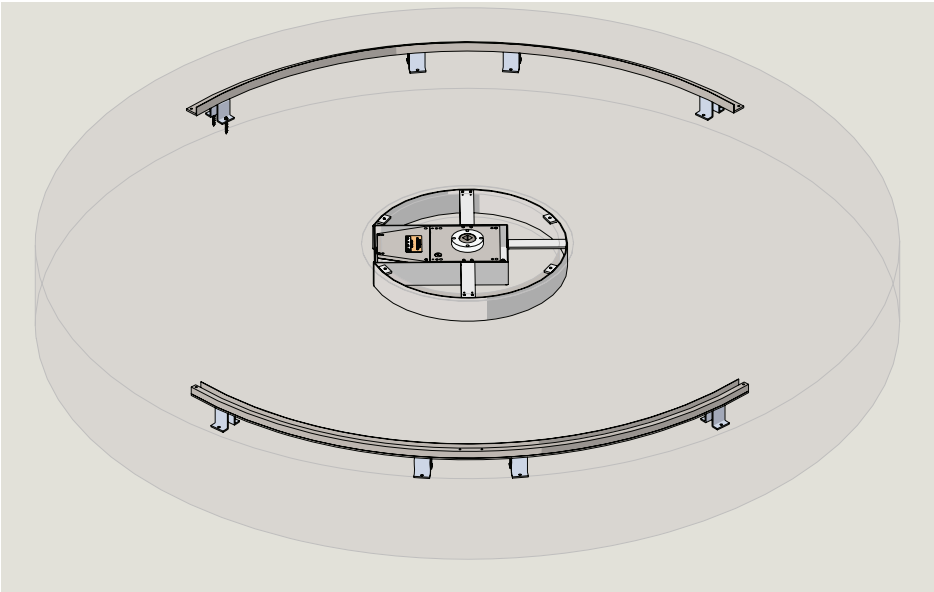
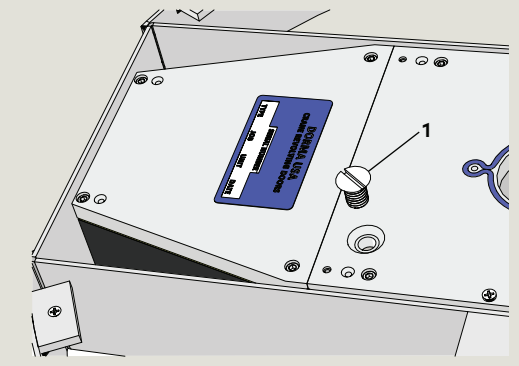


Fig. 11.1.3 In-ground speed control installation



11.2 Add oil to speed control gearcase

Fig. 11.2.1 Oil fill hole



1 1/2" slotted flat head machine screw - undercut

11.2.1 Add oil to speed control gearcase.

1. Oil fill hole: remove 1/2" slotted flat head machine screw (4) from sub plate.
2. Pour entire contents of bottle into oil fill hole.
3. Replace machine screw.

CAUTION

Oil must be added to floor speed control. 22 oz. bottle of multigrade synthetic oil is supplied.
Part number RC6175-010.

12 Enclosure post installation

12.1 Enclosure posts

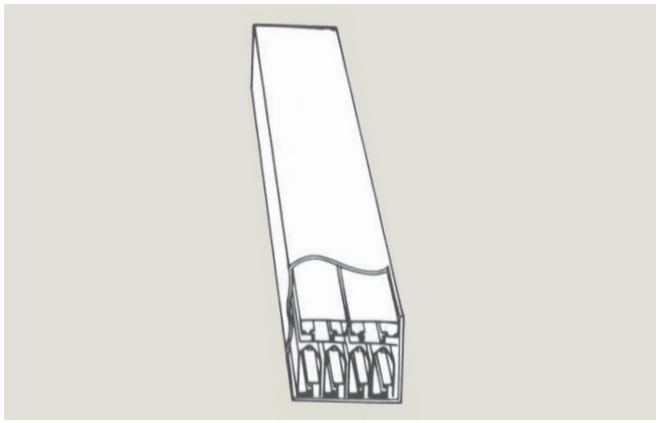
12.1.1 Crane shop drawings.

NOTICE

Refer to Crane shop drawings for specific post and post installation detail for job!

12.2 Open post shipping crate

Fig. 12.2.1 Post shipping crate



12.2.1 Center posts and quarter posts.

1. Uncrate center posts and quarter posts/end walls from their shipping crate .

CAUTION

Refer to warning tag on shipping crate regarding unpacking procedure.

2. Center post and quarter post/end wall numbering.

- Each post's wrapping material is marked with numbers indicating where the center posts and quarter posts/end walls are to be located in the door installation.
- Insure post is marked with its location number on the top and bottom of the post.

TIPS AND RECOMMENDATIONS

Refer to Para. 12.9 for enclosure post and base numbering example.

12.3 Quarter post/end wall and center post assemblies

12.3.1 Quarter post/end wall and center post aluminum extrusion.

1 Quarter post/end wall RE6019-010
5 Center post RE6007-0X0
6 Center post bottom plate RF6007-010

Fig. 12.3.1 Quarter post/end wall

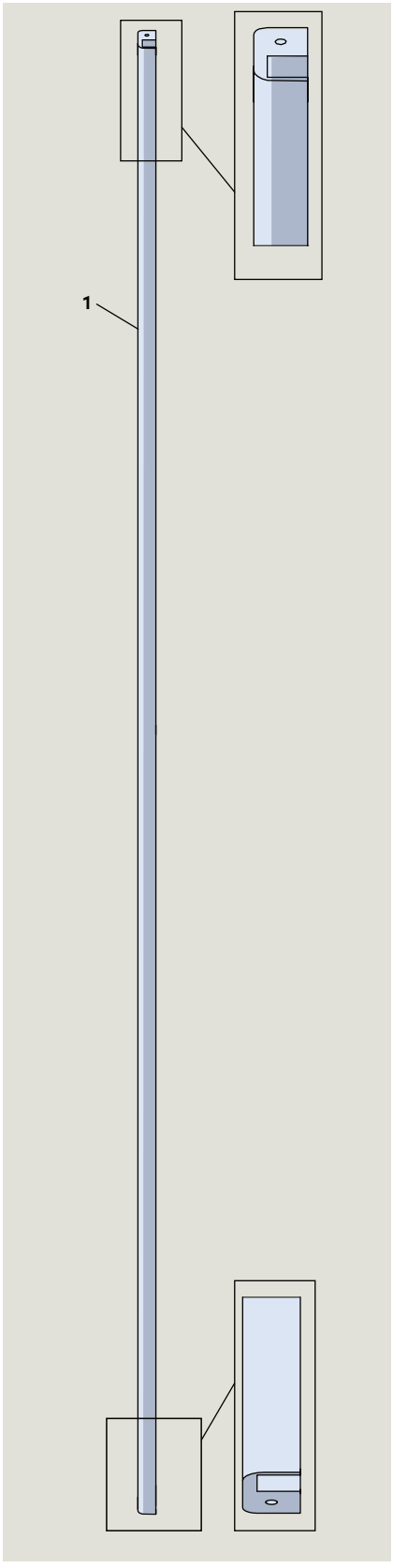
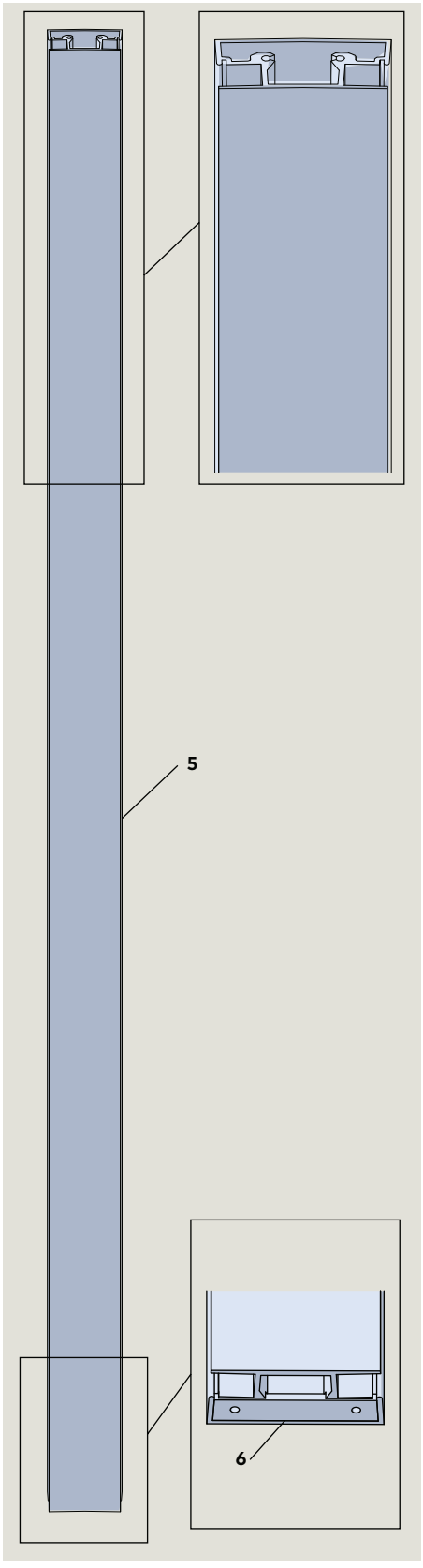


Fig. 12.3.2 Center post



12.4 Place center posts on base rails

12.4.1 Center post placement on base rails.

NOTICE

Refer to Crane shop drawings for center post placement.

CAUTION

Place center post based on post numbering.
Refer to Para. 12.9 for post numbering locations.

WARNING

Use caution while working with the posts !

Table 12.4.1 Center post and hardware

1	RF6122-01G	1/4-20 x 2" threaded rod
2	RF6007-010	Center post bottom plate
3	RE6007-0X0	Center post

Fig. 12.4.1 Threaded rod

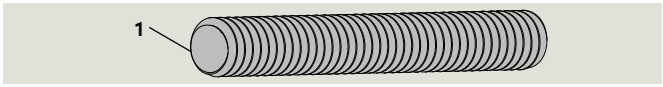


Fig. 12.4.2 Center post threaded rods installed

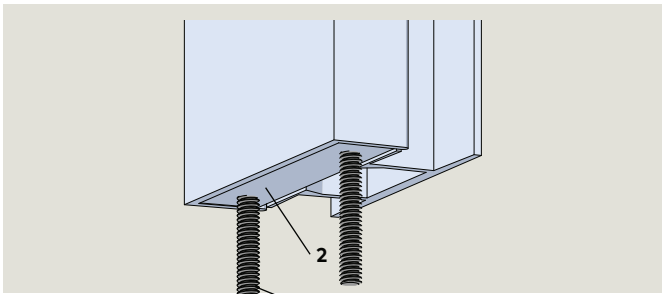
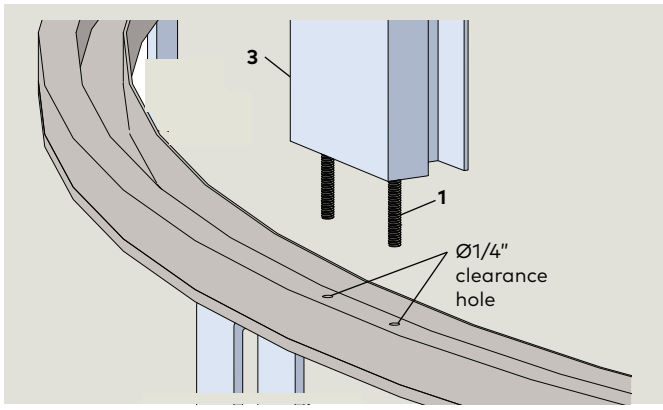


Fig. 12.4.3 Center post positioned above bottom plate



12.4.2 Shop preparation, center post installation.

1. Center post bottom plate welded into place in bottom of center post.
2. Center post bottom plate is drilled and tapped for 1/4-20 threaded rod.
3. Holes on he 1/4" floor bar and 1 x 3/4" outer bar opened to allow clearance for the 1/4-20 threaded rod.

12.4.3 Install threaded rods into center post bottom plate.

1. Thread rods into 1/4-20 tapped holes in center post bottom plate.

12.4.4 Install center post onto floor bar.

1. Raise center post vertically then lower center post onto floor bar (Fig. 12.4.3, 12.4.4).

12.4.5 Install second center post.

1. Install second center post.

Fig. 12.4.4 Center post placed on floor bar assembly

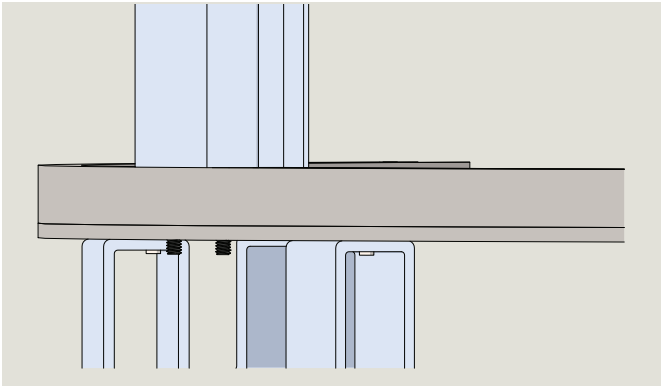
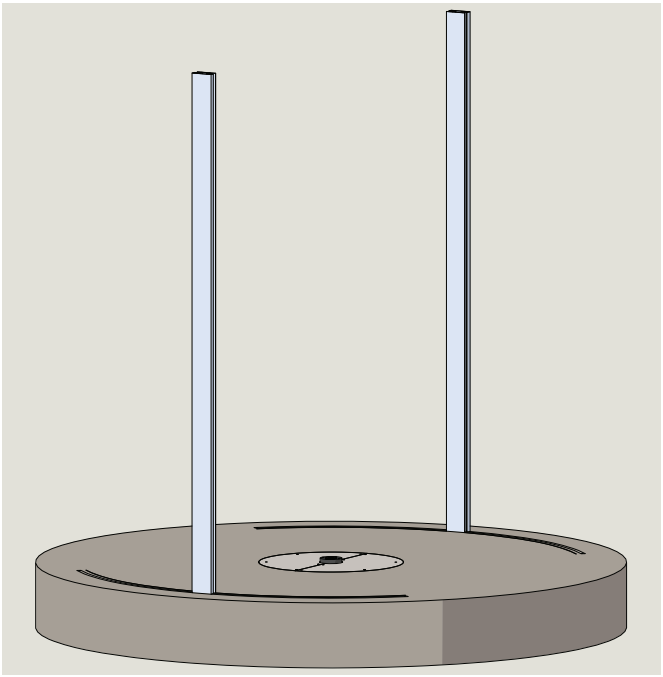


Fig. 12.4.5 Center posts on floor bars



12.5 Place quarter post/end wall on base rails

12.5.1 Quarter post placement on base rails.

NOTICE

Refer to Crane shop drawings for quarter post placement.

CAUTION

Place post based on post numbering.
Refer to Para. 12.9 for post numbering locations.

WARNING

Use caution while working with the posts !

Table 12.5.1 Center post and hardware

1	RF6122-01G	1/4-20 x 2" threaded rod
2	RE6019-010	Quarter post
3		1" x 3/4" floor bar

Fig. 12.5.1 Threaded rod

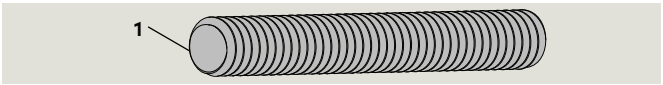


Fig. 12.5.2 Quarter post with threaded rod

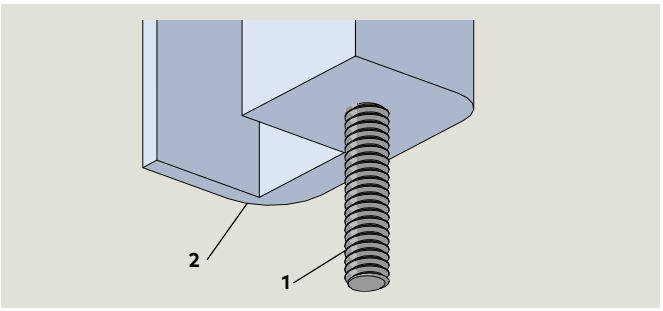
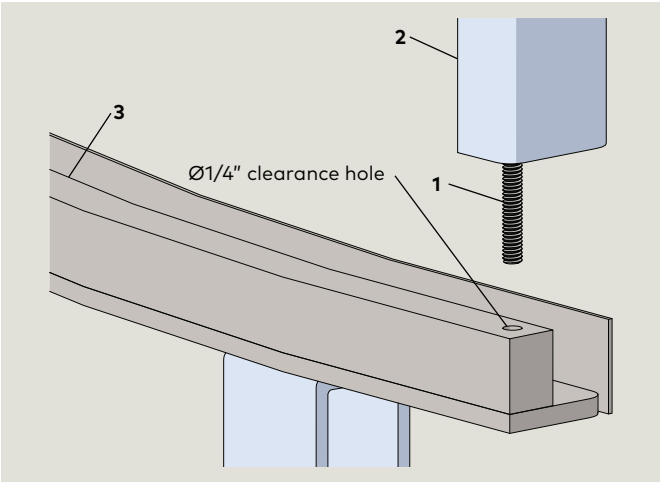


Fig. 12.5.3 Quarter post above floor bar assembly



12.5.2 Install threaded rod into quarter post.

1. 1/4-20 x 2" threaded rod serves to align quarter post with base.
2. Thread 1/4-20 by 2" threaded rod into bottom hole in quarter post.

12.5.3 Place quarter post on base rails.

1. Raise quarter post vertically, place threaded rod into floor bar and lower assembly onto floor bar.

Fig. 12.5.4 Quarter post placed on floor bar assembly

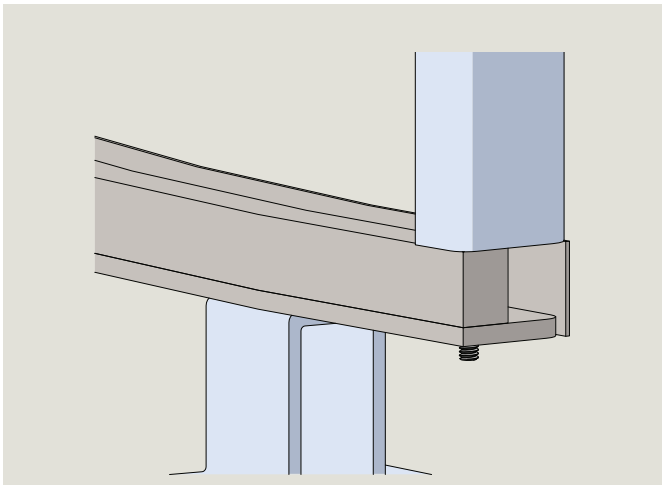
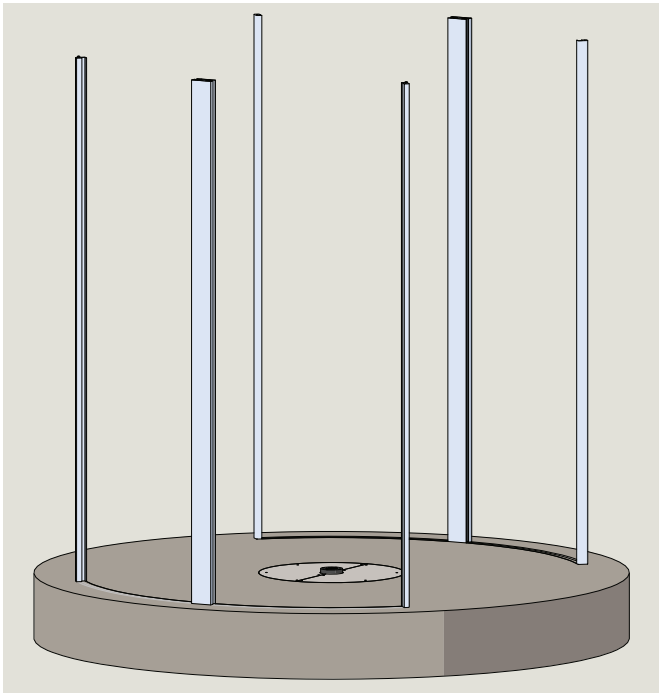


Fig. 12.5.5 Center posts and quarter posts on floor bars



12.6 Attach header bars to quarter posts

Table 12.6.1 Header bar and hardware

1	RE6019-010	Quarter post
2		Header bar assembly
5	RF6116-03G	1/4-20 x 1" Phillips FHMS

Fig. 12.6.1 1/4-20 x 1" FHMS

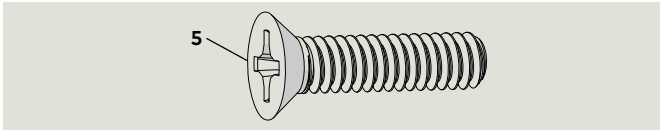
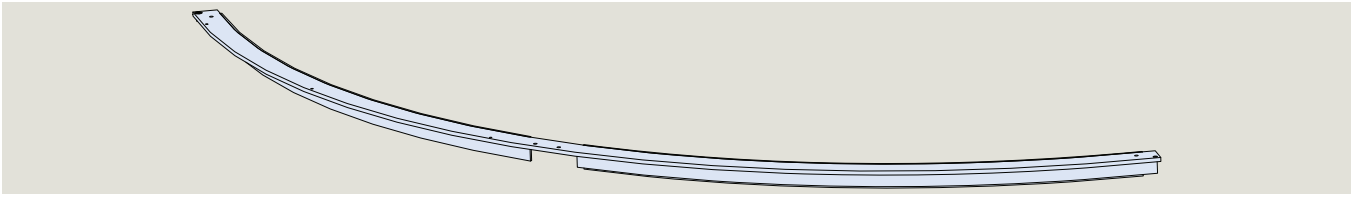


Fig. 12.6.2 Header bar assembly



NOTICE

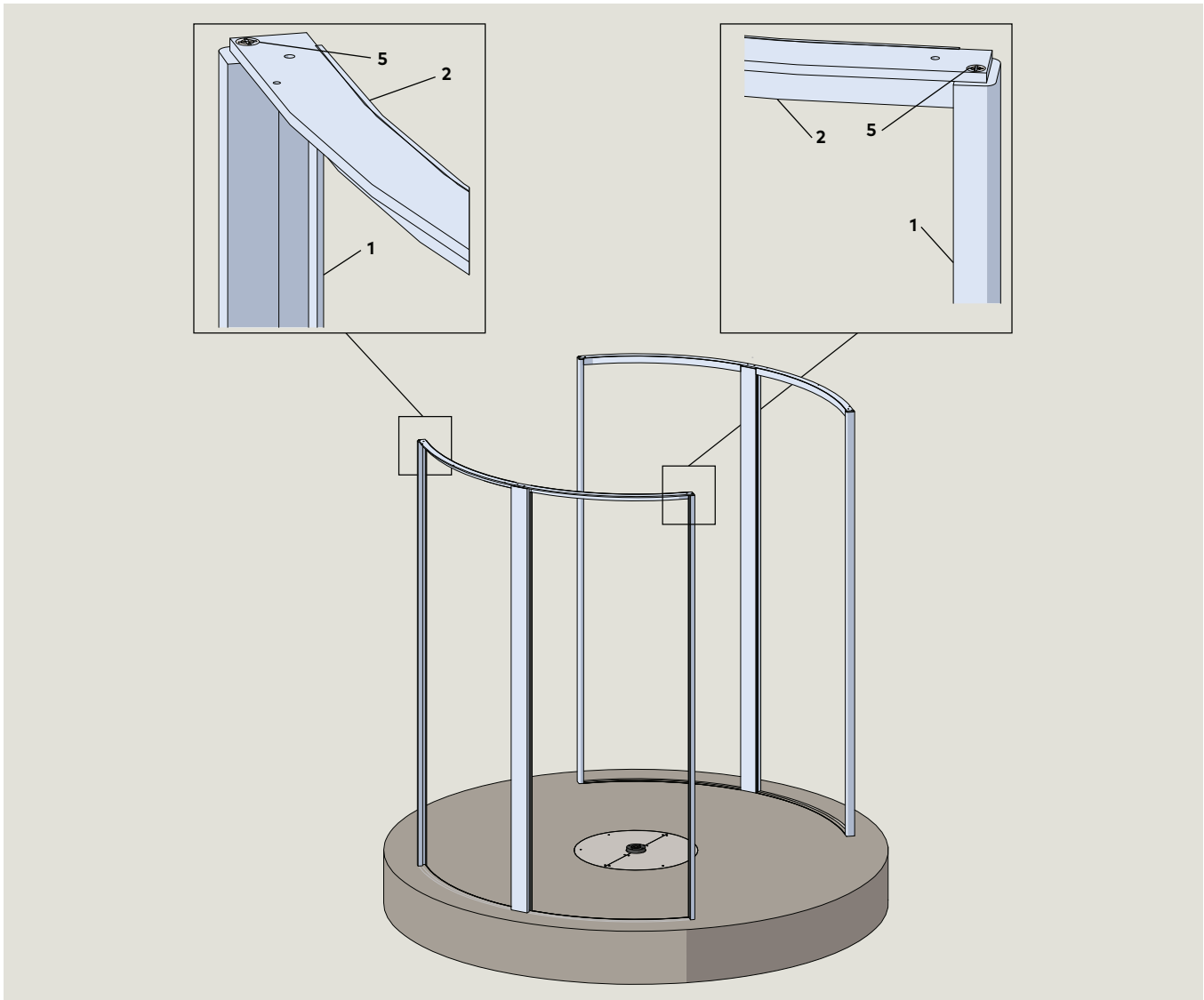
Refer to Crane shop drawings for quarter post attachment.

12.6.1 Place header bar on first set of quarter posts and center post.

1. Place header bar on first set of posts.
2. Secure header bar to each quarter post using a 1/4-20 x 1" FHMS.

12.6.2 Repeat steps 1 and 2 in Para. 14.6.1 for second header bar and quarter posts.

Fig. 12.6.3 Quarter post attachment to header bar assembly



12.7 Attach center posts to header bars

Table 12.7.1 Header bar and hardware

1	RE6019-010	Quarter post
2		Header bar assembly
4	RE6007-0X0	Center post
5	RF6116-03G	1/4-20 x 1" Phillips FHMS

Fig. 12.7.1 1/4-20 x 1" FHMS

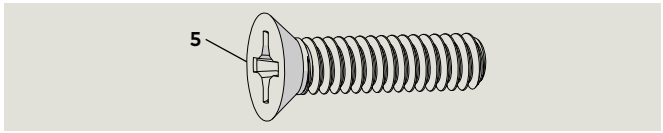
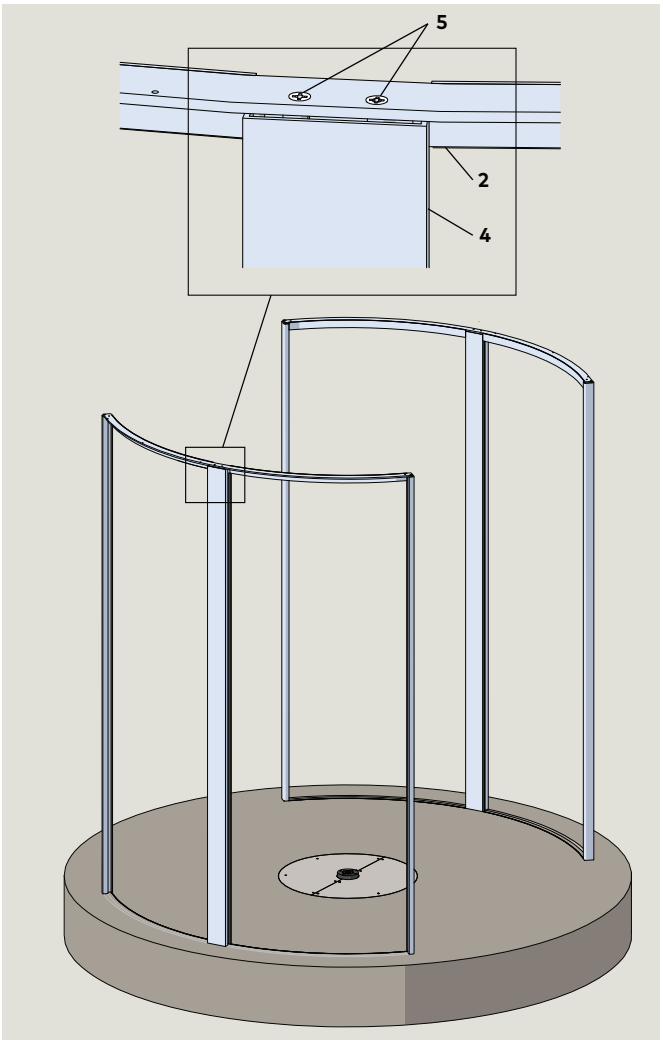


Fig. 12.7.2 Center post attachment to header bar assembly



NOTICE

Refer to Crane shop drawings for center post attachment.

12.7.1 Attach center post to header bar.

1. Attach center post to header bar using two 1/4-20 x 1" FHMS.

12.7.2 Repeat Para. 12.7.1 for second header bar and center post.

12.8 Attach Muntin assembly to header bars

Fig. 14.8.1 Muntin top, bottom and cover views

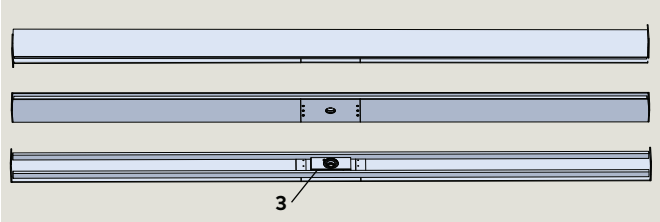


Fig. 12.8.2 Bearing assembly

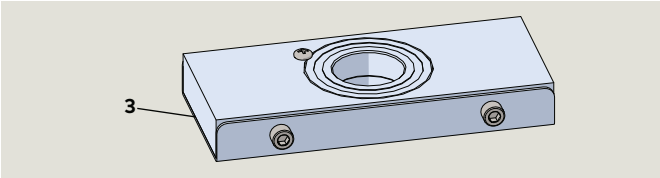
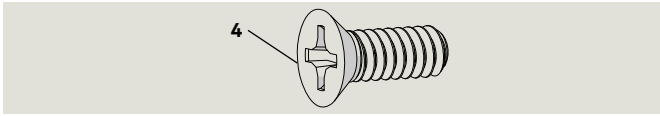


Fig. 12.8.3 10-24 x 1/2: FHMS



NOTICE

Refer to Crane shop drawings for muntin attachment to header bars.

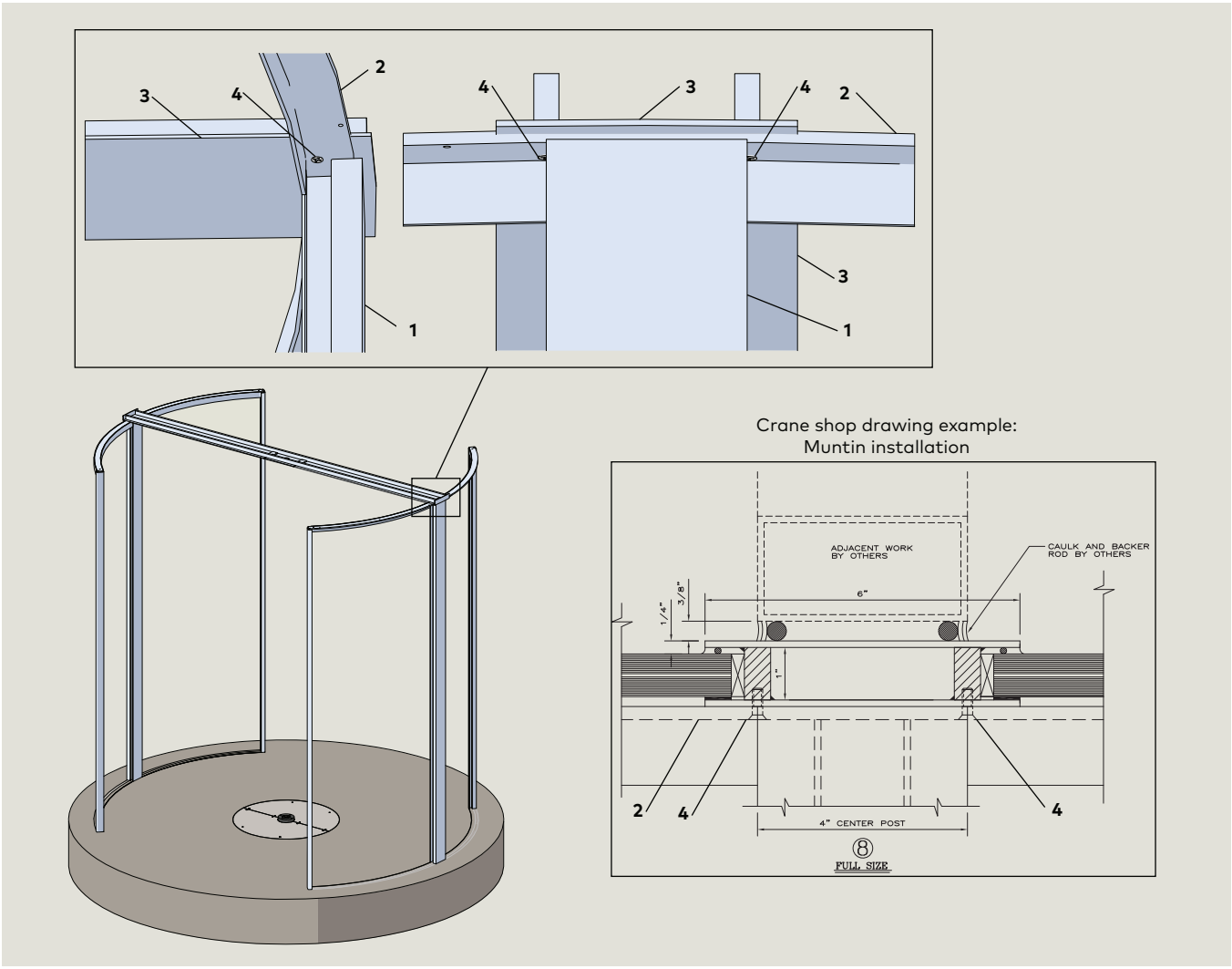
12.8.1 Attach muntin assembly to header bars.

1. Attach muntin to header bars using two 10-24 x 1/2" FHMS on each header bar (Fig. 12.8.4).

Table 12.8.1 Muntin assembly and hardware

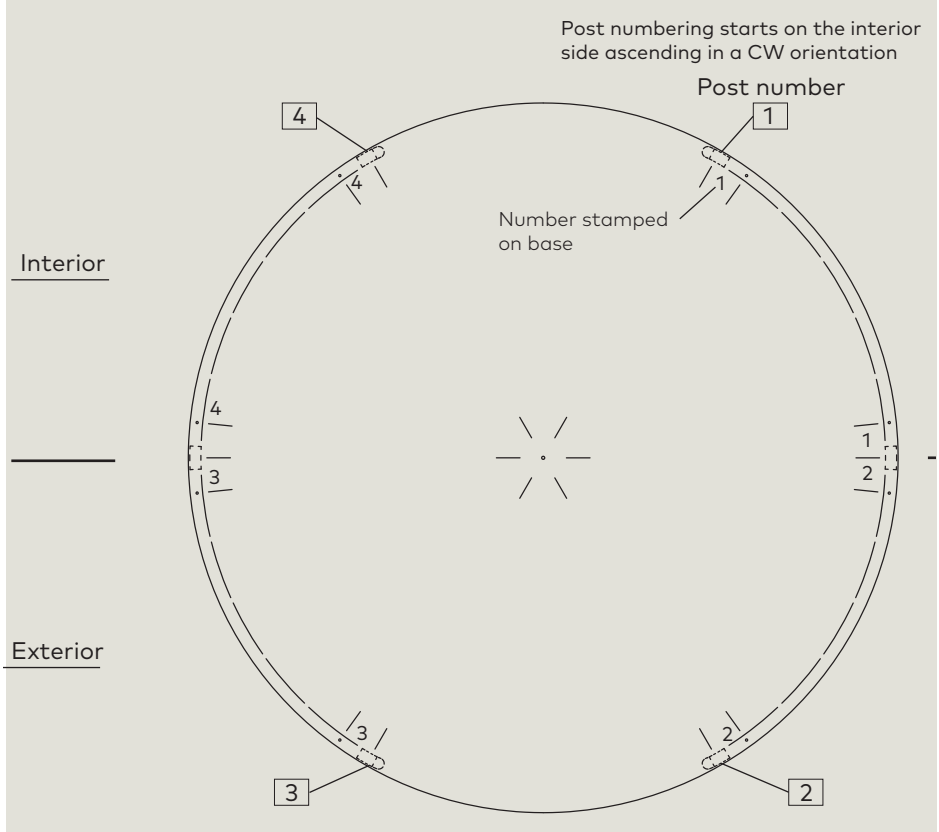
2		Muntin
3	RS6064-001	Bearing assembly
4	RF6115-03G	10-24 x 1/2" Phillips FHMS, SS

Fig. 12.8.4 Muntin attachment to header bar assembly



12.9 Enclosure base and post numbering

Fig. 12.9.1 Standard post installation numbering



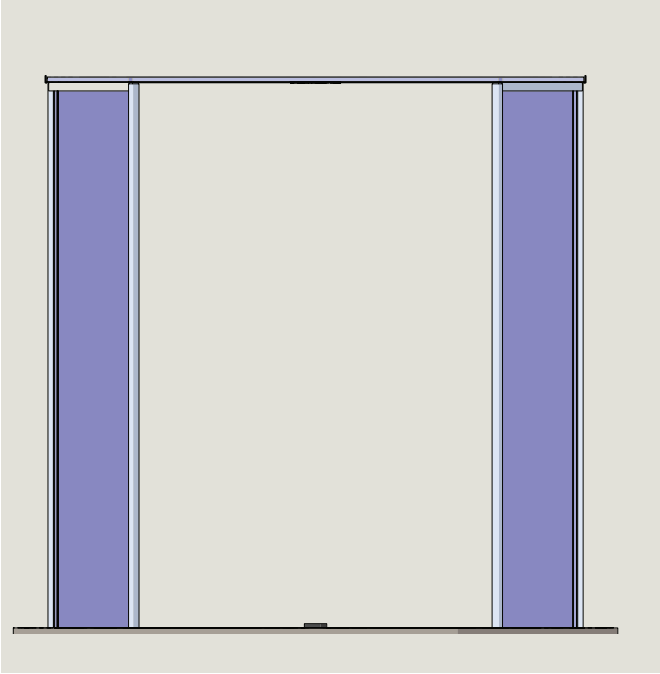
12.9.1 Post numbering, multiple revolving door installation.

Table 12.9.1 Post numbering

Door 1	Post numbers			
	1	2	3	4
Door 2	Post numbers			
	5	6	7	8
Door 3	Post numbers			
	9	10	11	12
Door 4	Post numbers			
	13	14	15	16

12.10 Set enclosure level, square and plumb

Fig. 12.10.1 Enclosure, check for level, square and plumb



12.10.1 Check enclosure level, square and plumb.

CAUTION

Enclosure must be level, square and plumb

CAUTION

Check revolving door to building interface!

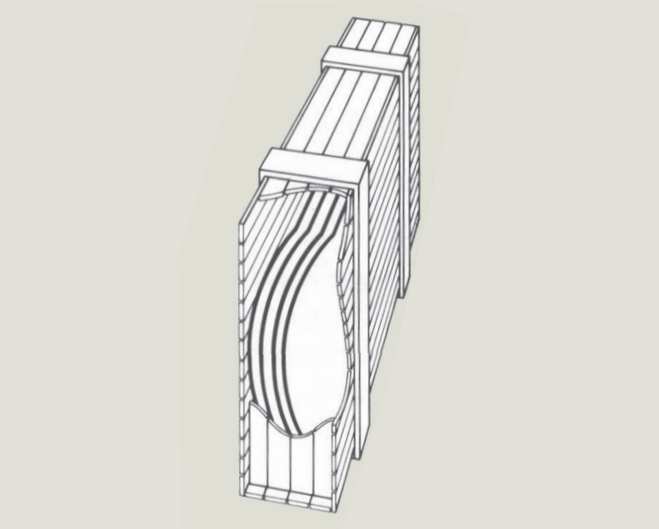
⚠ WARNING

Using plumb bob with string, verify canopy bearing centerpoint is plumb with floor in-ground speed control shaft centerpoint.

13 Install enclosure glass

13.1 Unpack enclosure glass shipping crate

Fig. 13.1.1 Enclosure glass shipping crate



13.1.1 Crane shop drawings.

NOTICE

Refer to Crane shop drawings for specific enclosure glass and glass installation details for job!

13.1.2 Unpack shipping crate.

1. Uncrate enclosure glass from shipping crate.

CAUTION

Refer to warning tag on shipping crate regarding unpacking procedure.

CAUTION

Use caution when handling glass to prevent scratching or damage to glass surfaces.

CAUTION

Handle curved glass with care. Do no exert force on the glass pieces.

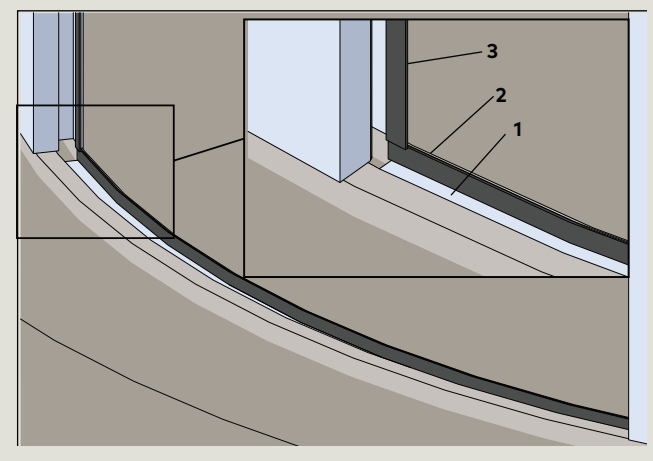
WARNING

Use caution while working with enclosure glass!

- Clean glass surfaces prior to transporting.
- Always lift and transport glass with aid of vacuum suction cup lifting tools.
- A minimum of two people are required to lift and transport glass.

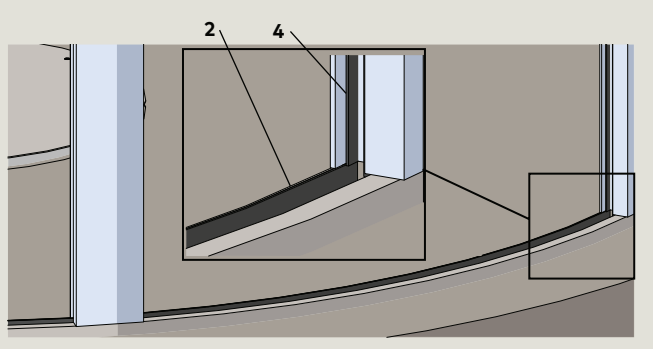
13.2 Install glazing tape for enclosure glass

Fig. 13.2.1 Enclosure base glazing block and glazing tape, center post glazing tape



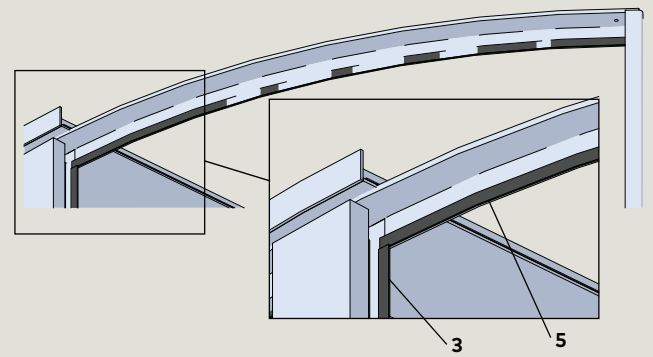
1 Gazing block
2 Glazing tape, enclosure base
3 Glazing tape, center post

Fig. 13.2.2 Enclosure base and quarter post glazing tape



2 Glazing tape, enclosure base
4 Glazing tape, quarter post

Fig. 13.2.3 Header bar glazing tape



2 Glazing tape, center post
5 Glazing tape, header bar

NOTICE

Refer to Crane shop drawings for specific enclosure base glazing details for job!

TIPS AND RECOMMENDATIONS

Glazing block (glass thickness) and 1/8" thick glazing tape supplied by installer.

13.2.1 Install glazing tape and glazing blocks in enclosure bases.

1. Install glazing block.
2. Install compressed 1/8" glazing tape.

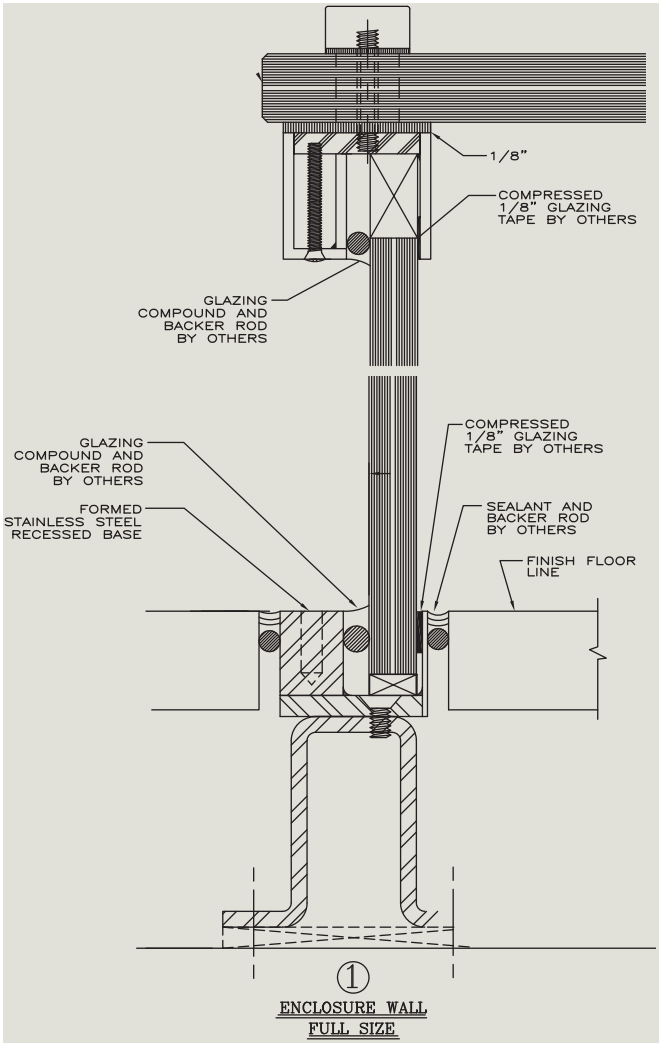
13.2.2 Install glazing tape in enclosure posts.

1. Install compressed 1/8" glazing tape in center post (Fig. 13.2.1) and quarter post (Fig. 13.2.2).

13.2.3 Install glazing tape in header bars.

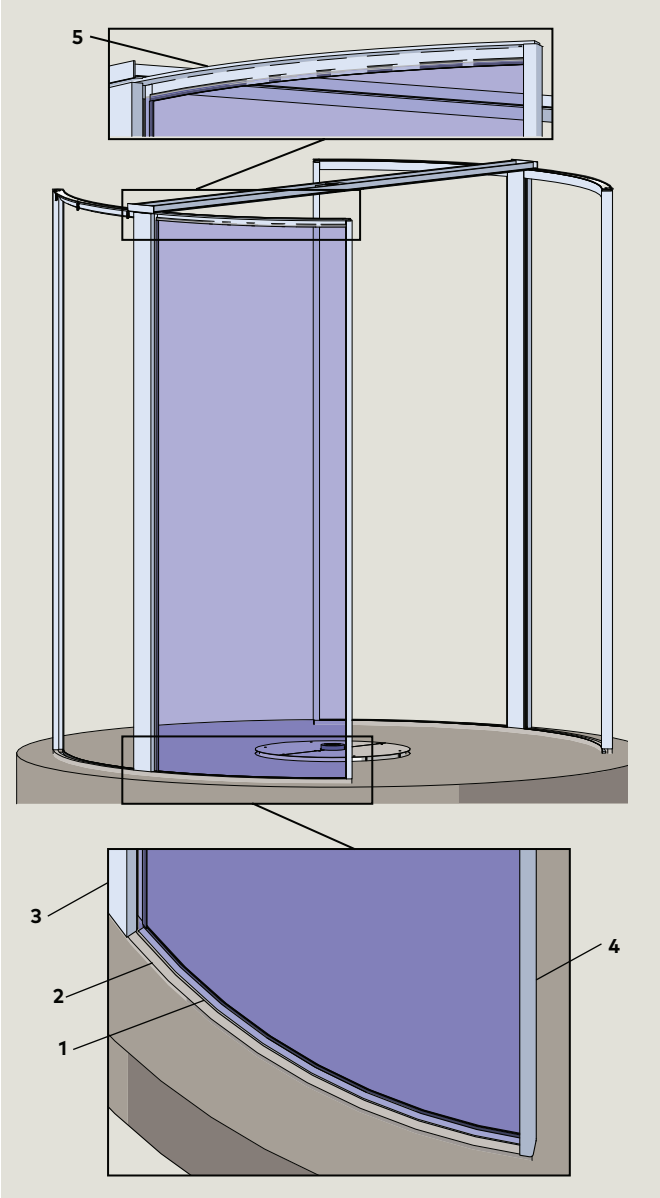
1. Install compressed 1/8" glazing tape in header bars (Fig. 13.2.3)

Fig. 13.2.4 Crane shop drawing glazing tape example



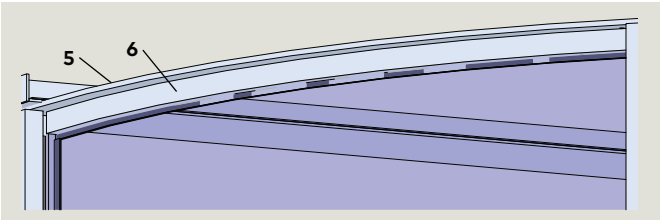
13.3 Install enclosure glass

Fig. 13.3.1 Enclosure glass installation



1 Glazing block
2 Enclosure base
3 Center post
4 Quarter post
5 Header bar

Fig. 13.3.2 Header bar glazing block



5 Header bar
6 1" glazing block

TIPS AND RECOMMENDATIONS

Glazing block (glass thickness) and backer rods supplied by installer.

NOTICE

Refer to Crane shop drawings for specific glazing block, backer rod and enclosure glass glazing details for job!

WARNING

Use caution while working with the glass !

13.3.1 Install glazing block in base.

1. Install glazing block in base.

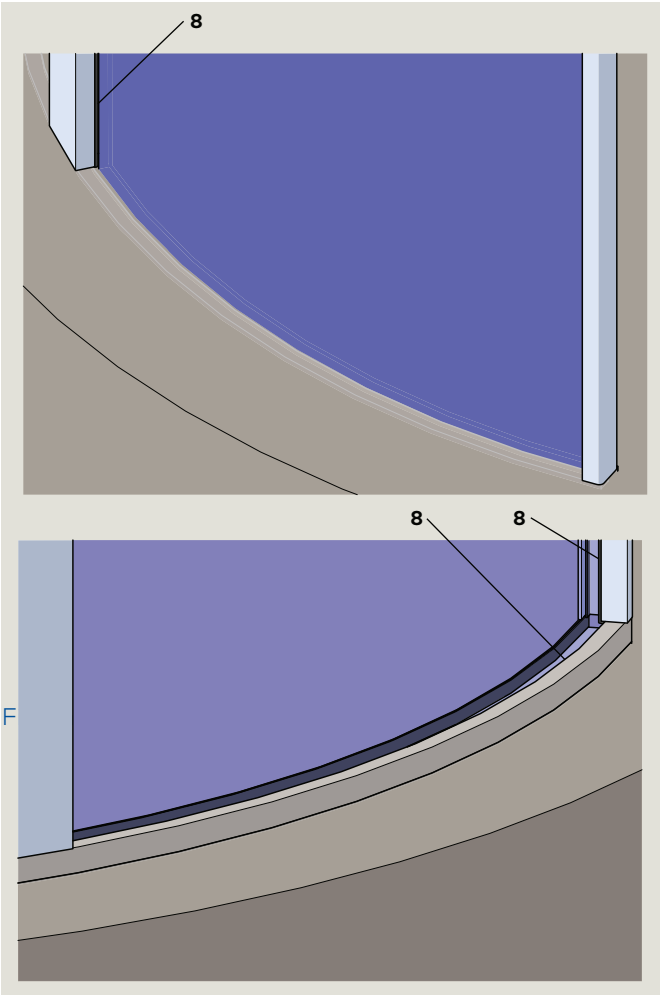
13.3.2 Set first enclosure bent glass into place.

1. Set enclosure glass into place, centering the glass between the vertical posts.

13.3.3 Install glazing block in header bar.

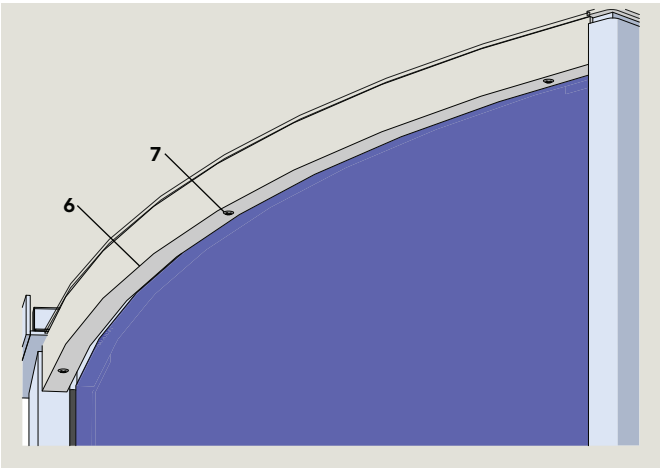
1. Install 1" glazing block between header bar and glass.

Fig. 13.3.3 Post and base backer rod installation



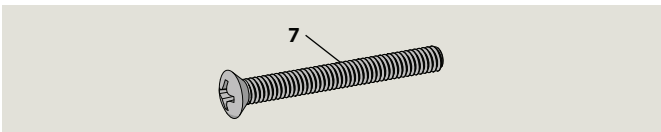
F

Fig. 13.3.4 Header cover installation



6 Header cover
7 8-32 x 1 1/2" Phillips oval machine screws.

Fig. 13.3.5 Phillips OVHMS



13.3.4 Install backer rods in posts and base.

1. Install backer rods in posts and enclosure base.

- Insure posts are vertical before inserting backer rods.

13.3.5 Install header cover.

1. Install header cover using three 8-32 x 1 1/2" oval machine screws.

13.3.6 Install header backer rod.

1. Install backer rod between header cover and glass.

13.3.7 Install remaining enclosure glass.

1. Install remaining enclosure glass per paragraphs 13.3.1 through 13.3.6

13.3.8 Complete glazing of enclosure glass.

1. Finish enclosure glazing.

- Enclosure glazing per Crane shop drawings.

14 Glass canopy installation with muntin

14.1 Glass canopy and hardware

Fig. 14.1.1 Glass canopy assembly top view

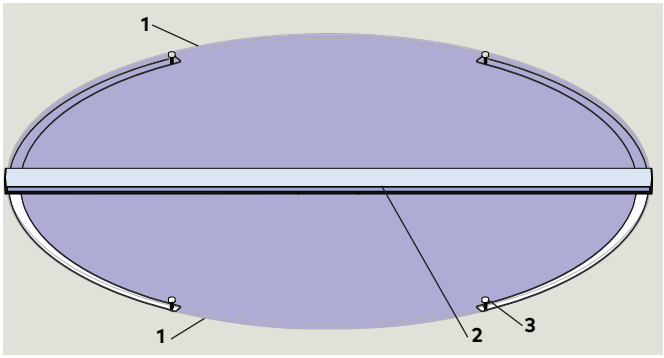


Fig. 14.1.2 Glass canopy assembly bottom view

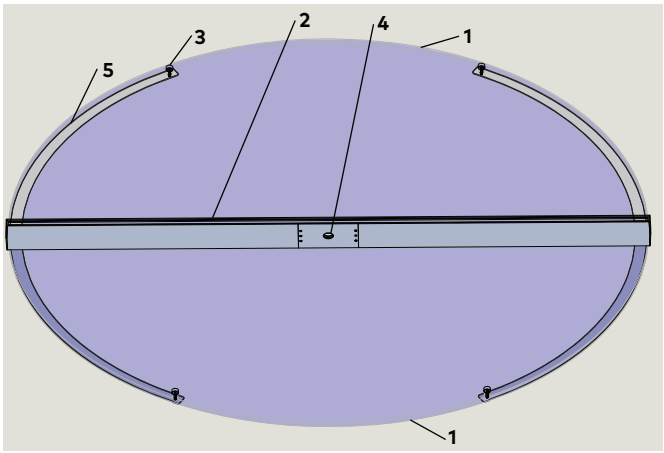


Fig. 14.1.3 Header gasket

Fig. 14.1.4 Button with rod and gasket

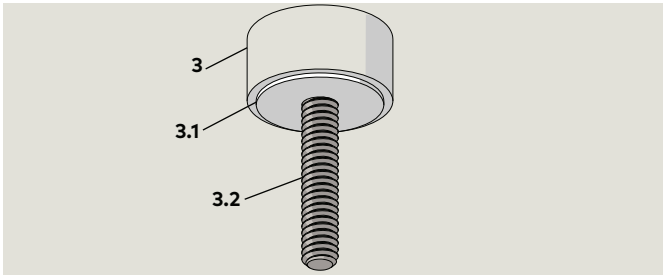
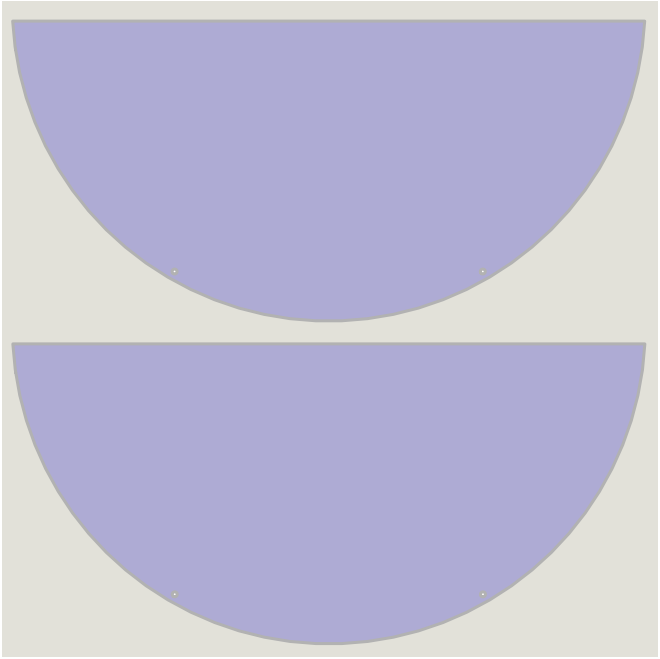


Table 14.1.1 Glass canopy and hardware

1		13/16" polyurethane laminted float glass
2		Canopy muntin assembly
3		1" diameter attachment button
3.1		Gasket
3.2		1/4-20 x 1 5/8" threaded rod
4	RS6064-001	Bearing assembly
5		Header gasket

Fig. 14.1.5 Glass canopy sections

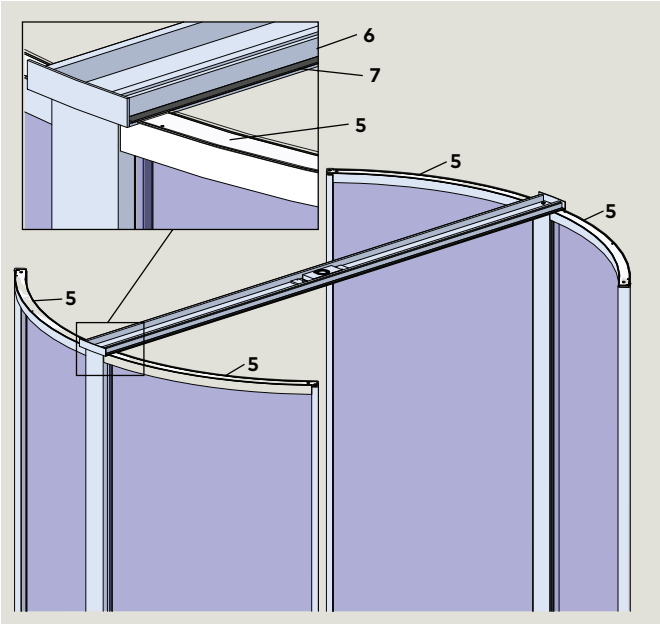


14.2 Install header gaskets, muntin glazing tape and backer rods

Table 14.2.1 Muntin backer rod, glazing tape

5	Header gasket
6	Muntin backer rod
7	Muntin glazing tape

Fig. 14.2.1 Muntin backer rod and glazing tape; header bar gasket



14.2.1 Crane shop drawings.

NOTICE

Refer to Crane shop drawings for specific canopy and canopy installation detail for job!

14.2.2 Uncrate canopy shipping crate.

1. Uncrate canopy shipping crate.

CAUTION

Refer to warning tag on shipping crate regarding unpacking procedure.

CAUTION

Place glass canopy sections on elevated smooth surfaces.

- Prevents damage to glass surfaces.

14.2.3 Install header gaskets.

1. Install four header gaskets; two on each header bar.

TIPS AND RECOMMENDATIONS

Muntin installation.
Refer to Para. 12.8 for muntin installation.

14.2.4 Install muntin backer rods.

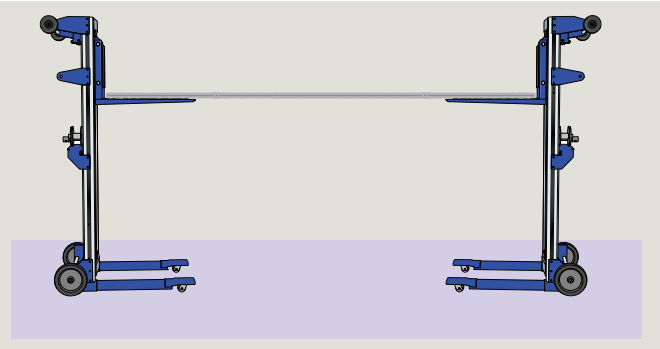
1. Install backer rod (by installer) on each side of muntin.

14.2.5 Install muntin glazing tape

1. Install glazing tape (by installer) on each side of muntin.

14.3 Canopy glass lift requirements

Fig. 14.3.1 Canopy glass on lift equipment example



WARNING

Lift equipment requirements:

- Load capacity: 300 lb [136 kg]minimum.
- Lifting height: Based on canopy installation height.
- Wheel brakes

WARNING

A minimum of two persons are required when handling canopy glass!

WARNING

Use caution when handling canopy glass!

14.4 Install canopy glass

Fig. 14.4.1 Canopy glass installation

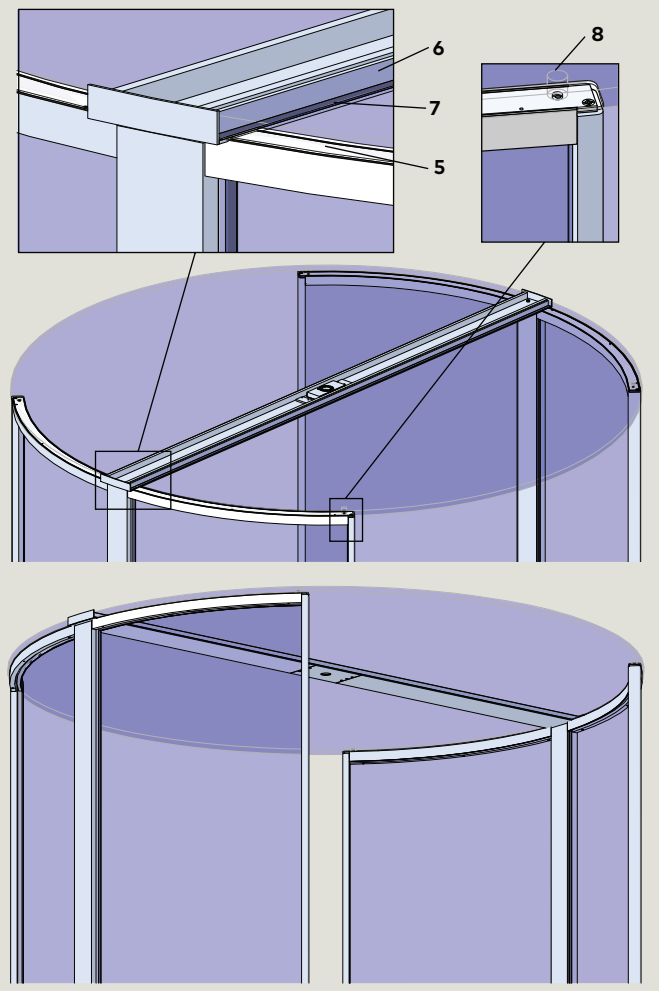


Fig. 14.4.2 Button head screws and muntin backer rods

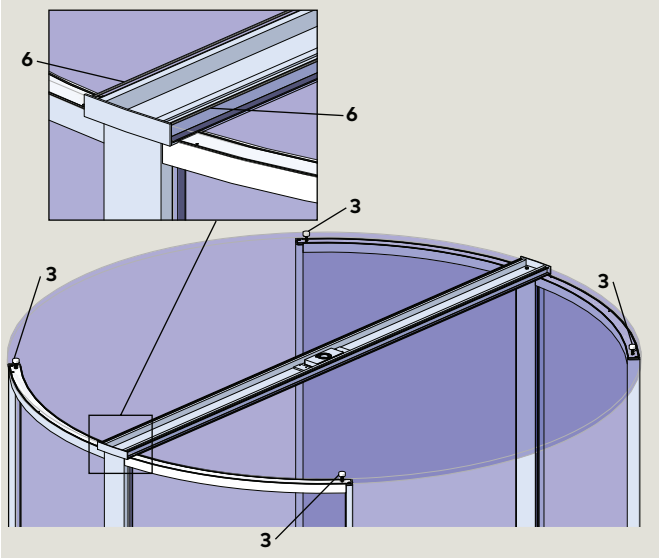


Table 14.4.1 Muntin backer rod, glazing tape

3	Button head screw
5	Header gasket
6	Muntin backer rod
7	Muntin glazing tape
8	Glass, mounting hole for button head screw

14.4.1 Install canopy glass.

NOTICE

Refer to Crane shop drawings for specific canopy glass installation detail for job!

NOTICE

Installer note:
Ceiling glass must be installed with thicker glass layer on bottom.

1. Raise first canopy glass section to installation height.
2. Position canopy glass over header bar gaskets and muntin glazing tape.
3. Lower canopy glass onto header bar gaskets and muntin glazing tape.
   - Glass must be against muntin backer rod.
   - Glass mounting holes for button head screws must be lined up with header bar mounting holes.
4. Repeat steps 1 through 4 for second canopy glass section.
5. Install button head screws; twp per glass section.
6. Install muntin backer rods (Fig. 14.4.2).

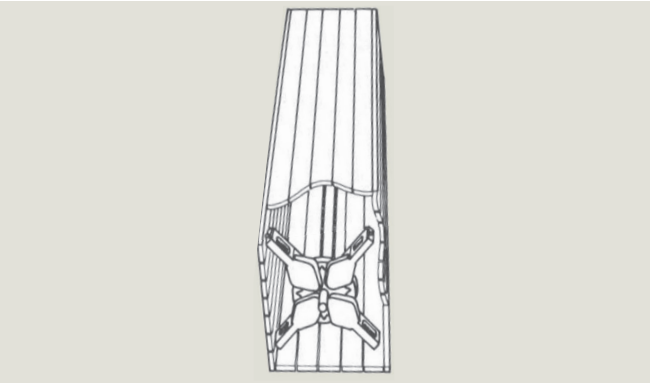
NOTICE

Refer to Crane shop drawings for glazing requirements at muntin.

15 Center shaft installation

15.1 Unpack center shaft shipping crate

Fig. 15.1.1 Center shaft shipping crate



15.1.1 Unpack center shaft assembly from shipping crate.

CAUTION

Refer to warning tag on shipping crate regarding unpacking procedure

15.1.2 Unpack center shaft assembly.

- 4 wing center shaft assembly.
- 3 wing center shaft assembly

Fig. 15.1.2 3 wing center shaft assembly

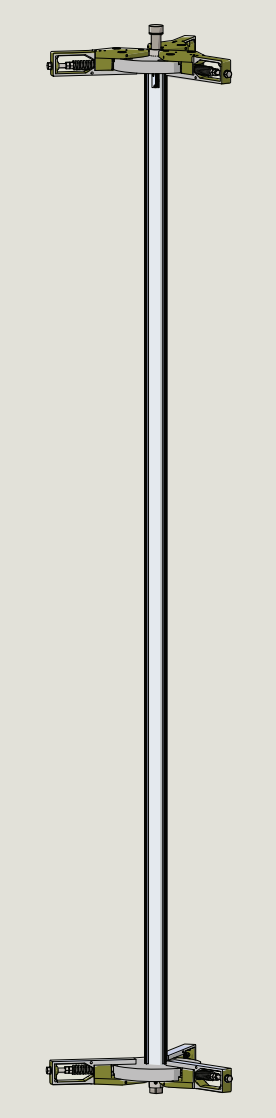
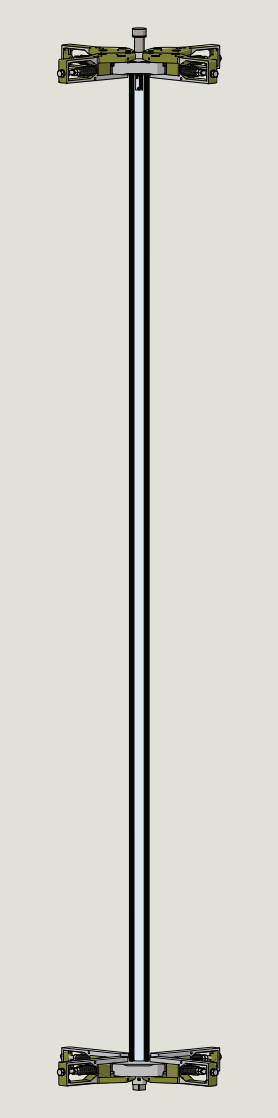


Fig. 15.1.3 4 wing center shaft assembly



15.2 Retract center shaft top plug

Fig. 15.2.1 Center shaft assembly

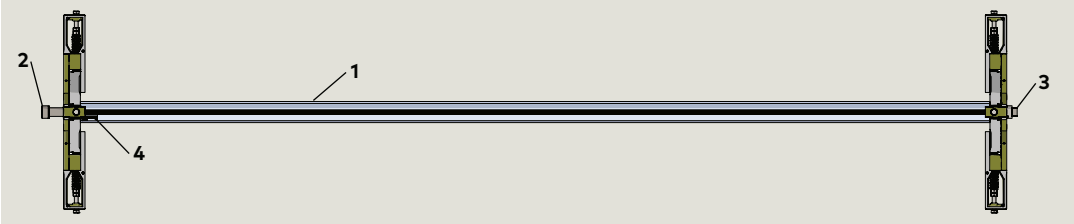


Fig. 15.2.2 Nameplate, job number tag

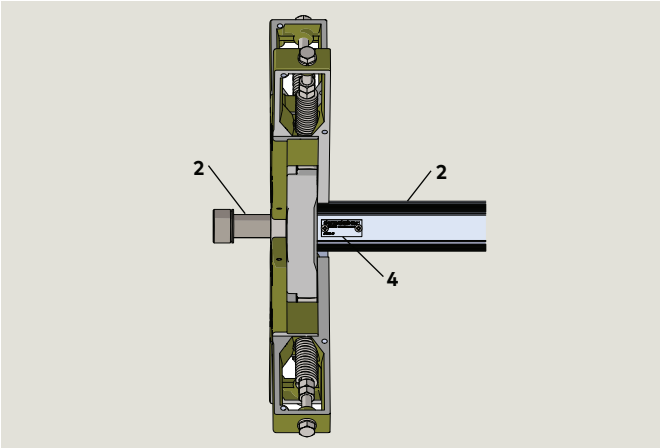


Fig. 15.2.3 Nameplate, job number tag removed

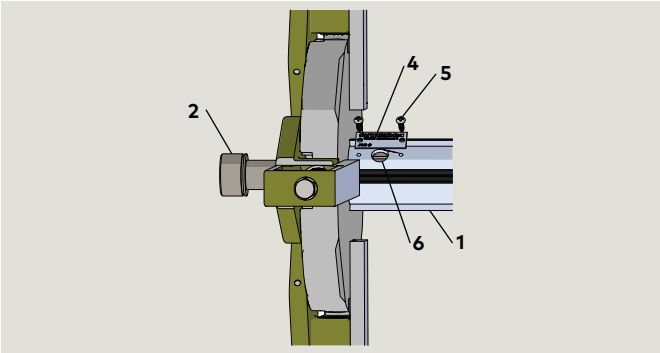
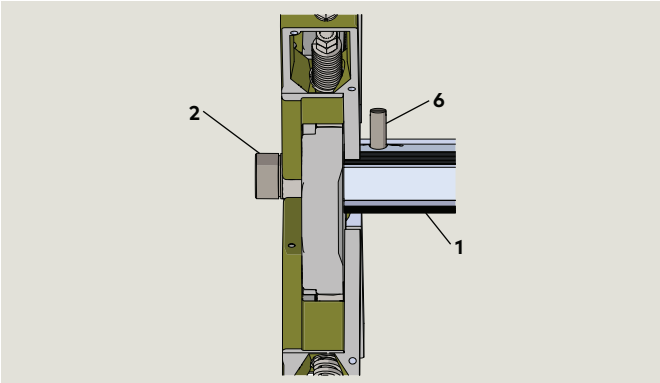


Fig. 15.2.4 Top plug retracted



NOTICE

Installation procedure same for both 3 wing and 4 wing center shaft assemblies.

Table 15.2.1 Center shaft top plug and job tag hardware

Part / Assembly		Description
1	RE6030-0X0	Center shaft cover
2	RC6081-001	Top plug, steel shaft
3	RC6082-001	Bottom plug, steel shaft
4	RD6001-001	Nameplate/Job number tag
5	RF6008-01G	#6 x1/2" SS Phillips pan head screw
4	RF6052-010	Steel shaft cross pin

15.2.1 Remove nameplate.

1. Remove two 6-32 x 1/4" Phillips machine screws securing nameplate and job number tag.
2. Remove tag and set aside screws and tag.

CAUTION

Nameplate and job number tag must be retained and reinstalled after installation of center shaft.
Refer to Para. 15.4

15.2.2 Retract top plug

1. Loosen 7/16 x 1 1/2" set screw in4 wing machine casting (Fig. 15.2.3).
2. Retract top plug.

TIPS AND RECOMMENDATIONS

Apply lubricating oil to top plug if it does not move freely.

3. Snug set screw against top plug.

15.3 Install center shaft bottom plug into speed control drive shaft

Table 15.3.1 Center shaft top plug and job tag hardware

Part / Assembly		Description
1	RE6030-0X0	Center shaft cover
2	RC6082-001	Bottom plug, steel shaft
3		In-ground speed control drive shaft

Fig. 15.3.1 Center shaft bottom plug above speed control drive shaft

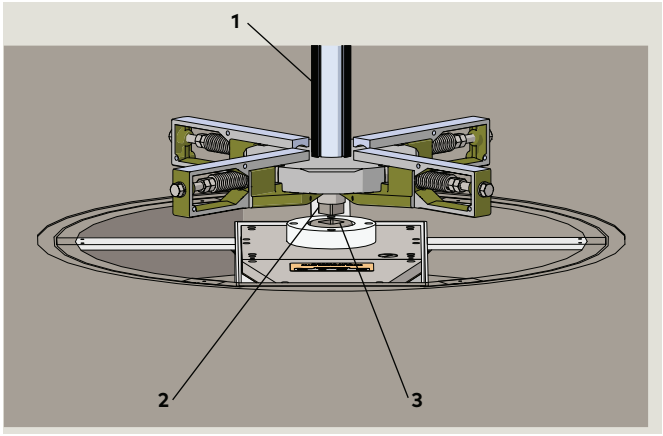
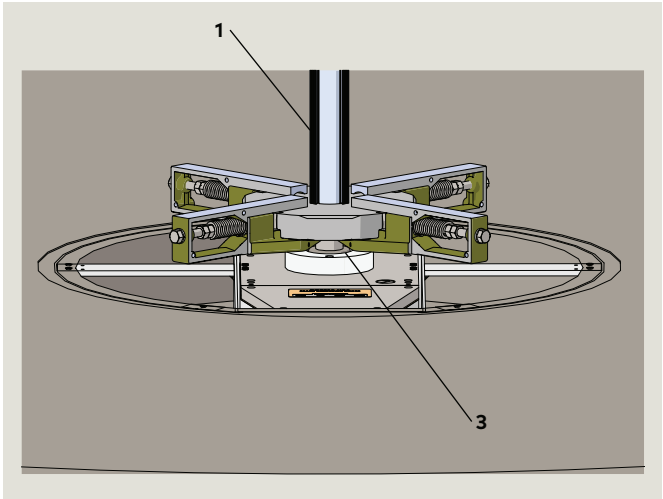


Fig. 15.3.2 Center shaft bottom plug installed in speed control drive shaft



15.3.1 Raise center shaft to vertical position.

WARNING

Use caution when lifting and positioning center shaft assembly!

WARNING

Risk of injury from heavy loads!
The center shaft is lifted and moved during assembly. Improper lifting and transport operations may cause accidents with serious injuries and material damage.

- A minimum of two persons are always required to lift or move the center shaft assembly.

CAUTION

Drive shaft top plug must be retracted to install center shaft assembly in door (Para. 15.2).

TIPS AND RECOMMENDATIONS

Prior to installation, lubricate center shaft bottom plug with a multipurpose grease.

1. Raise center shaft assembly and position bottom plug over floor speed control drive shaft.

15.3.2 Lower bottom plug into speed control drive shaft.

WARNING

Damage to the floor bearing due to incorrect insertion of the center shaft bottom plug!
Incorrect insertion of center shaft bottom plug can damage speed control floor bearing.

- Always insert the floor bearing vertically.

1. Rotate center shaft assembly as required to orient bottom plug to floor speed control drive shaft.
2. Lower center shaft bottom plug into floor speed control drive shaft.

15.4 Install center shaft top plug into canopy bearing assembly

Fig. 15.4.1 Align center shaft with top bearing

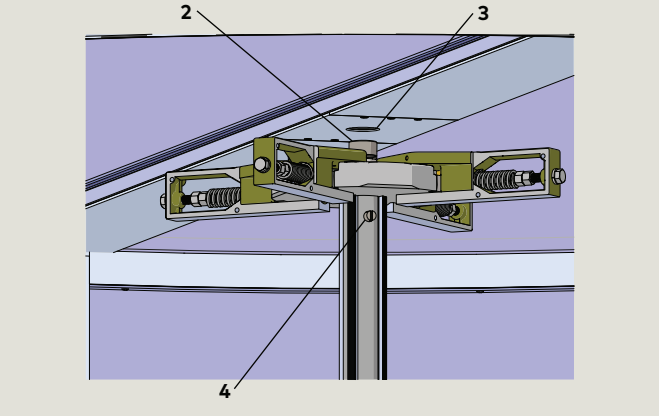


Fig. 15.4.2 Top plug inserted into bearing assembly

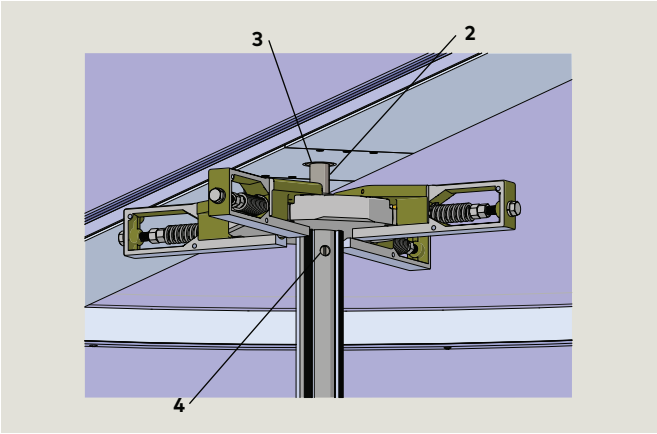


Fig. 15.4.3 Nameplate installed

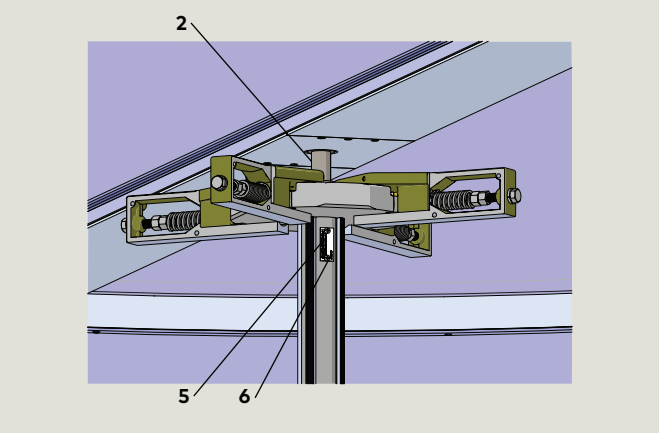


Fig. 15.4.4 6-32 x 1/2" Phillips pan head screw

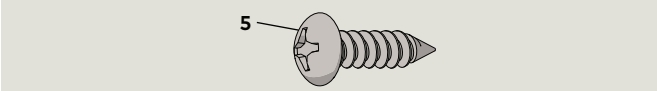


Table 15.4.1 Center shaft top plug and job tag hardware

Part / Assembly		Description
2	RC6081-001	Top plug, steel shaft
3	RF6109-01G	Top bearing assembly
4	RF6052-010	Steel shaft cross pin
5	RD6001-001	Nameplate/job ID tag
6	RF6008-01G	6-32 x 1/4" Phillips

15.4.1 Install center shaft assembly top plug into bearing.

1. Align center shaft top plug with top bearing assembly ball bearing.
2. Loosen set screw and extend top plug into top bearing.
3. Tighten set screw.

- If set screw was removed, align set screw mounting holes to install set screw.

15.4.2 Install nameplate, job number tag.

1. Place nameplate, job number tag over set screw and secure with two 6-32x1/4" Phillips machine screws.

CAUTION

Nameplate and job number tag must be reinstalled. Tag job number is important reference number for any future service work.

15.4.3 Set hanger initial bookfold tension.

Go to Chapter 16, Set hanger initial bookfold tension.

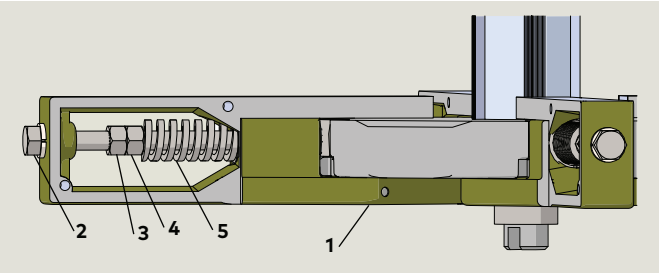
16 Set initial hanger breakout tension

16.1 Set hanger initial hanger breakout tension

Table 16.1.1 Hanger assembly

Part / Assembly		Description
1	RS6045-020	Hanger assembly
2	RC6156-01G	H bolt, 3/8 x 4"
3		3/8-16 hex nut
4		3/8-16 hex nut
5		Spring

Fig. 16.1.1 Hanger breakout tension adjustment



16.1.1 Breakout tension.

CAUTION

Breakout tension is not preset. Breakout tension:

- Must be checked by installers once wings are installed.
- Must be set to meet building conditions to conform to ANSI/BHMA A156.27 breakout force requirements.

Reference: Chapter 19.

16.1.2 Initial breakout hanger tension.

1. Loosen hex nut (3) and hex nut (4) away from spring.
2. Turn hex nut (4) so that it is finger tight against spring.
3. Using open end 9/16" box wrench, turn hex nut (4) four turns CW to tension spring.
4. Turn hex nut (3) until it is against (4).
5. Use 9/16" wrenches to lock hex nuts in place.

NOTICE

Reference Chapter 19 for breakout force check after wings are installed.
Further adjustment of spring tension on all hangers may be required to achieve required wing breakout force.

16.1.3 Remaining hangers.

1. Repeat hanger tension adjustment for remaining seven hangers.

17 Wing installation

17.1 Unpack wing shipping crate

Fig. 17.1.1 Wing shipping crate

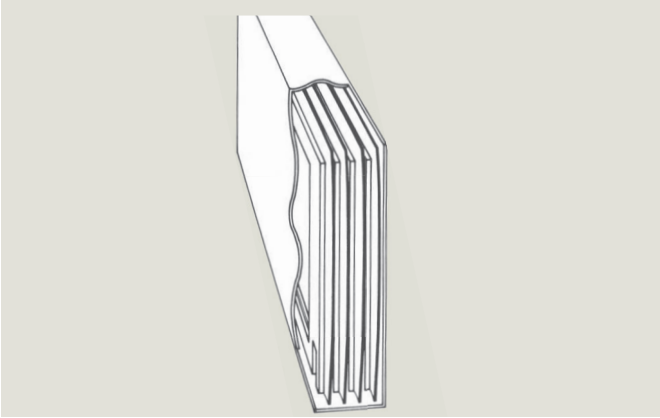


Fig. 17.1.2 Wing assembly example

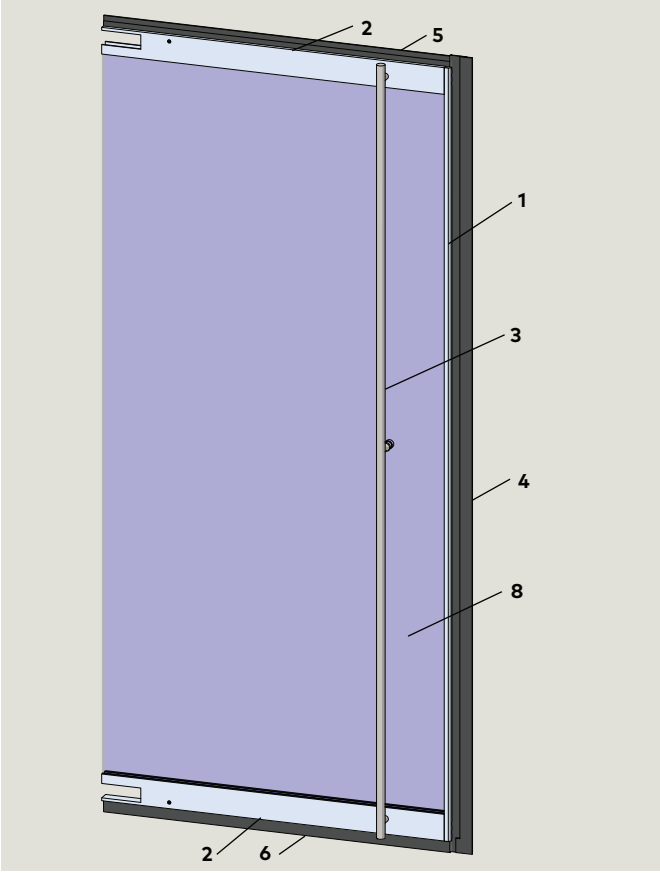


Table 17.1.1 Door wing assembly and part examples

Part / Assembly		Description
1	RE6038-0X0	Front stile, Herc, AL Blk
2	RE6026-0X0	Rail end, Herc
3		Wing glass
4	RC6389	Sweep felt vertical
5		Sweep felt top
6		Sweep felt bottom
7	RF2961	Wing bumper assembly (not shown)
8		Wing push bar Push bars ordered job specific for each order
9	76019184	Cylinder assembly

17.1.1 Crane shop drawings.

NOTICE

Refer to Crane shop drawings for specific wing and wing installation details for job!

17.1.2 Unpacking shipping crate.

1. Uncrate wing assemblies from shipping crate.

CAUTION

Refer to warning tag on shipping crate regarding unpacking procedure.

CAUTION

Use caution when handling wing assemblies to prevent scratching or damage to wing or glass surfaces.

WARNING

Use caution while working with wing assemblies!

WARNING

Risk of injury due to improper handling of wing assemblies!

- A minimum of 2 people are required to lift and transport wing assemblies!

17.2 Install wings onto center shaft hangers

Fig.17.2.1 First wing installation

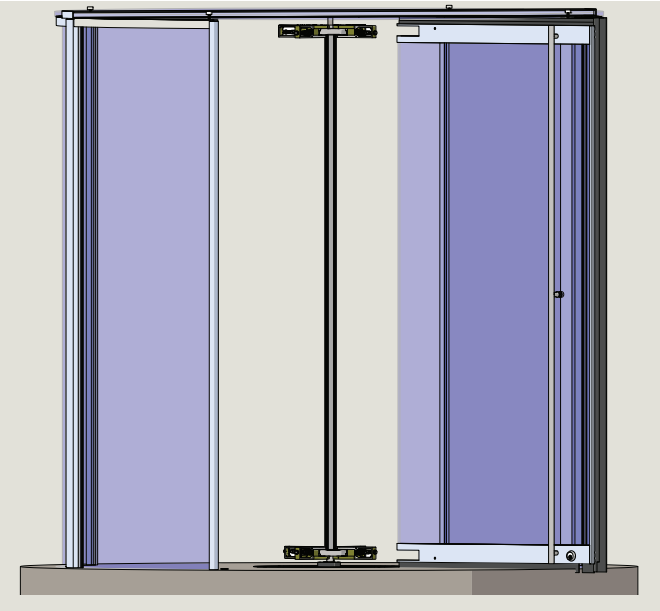


Fig. 17.2.2 Wing and hanger mounting holes

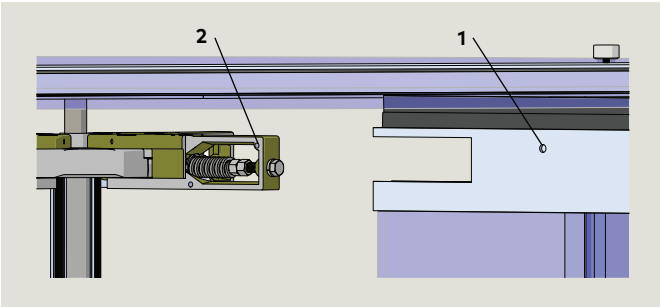


Fig. 17.2.3 Wing installation on hanger

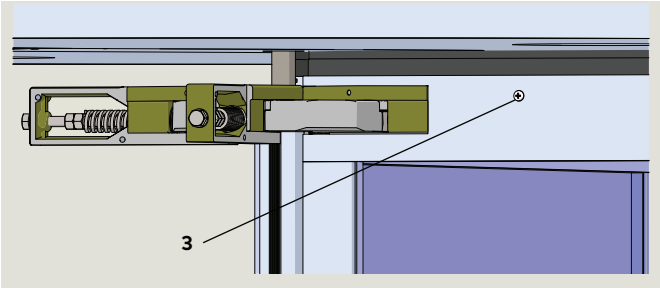


Fig. 17.2.4 Truss head machine screw

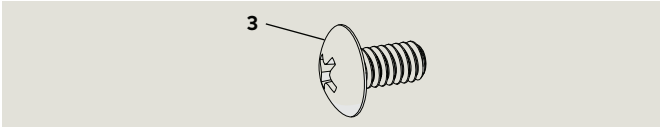


Table 17.2.1 Wing mounting holes and hardware

Part / Assembly		Description
1		Wing mounting hole, both sides
2		Hanger mounting hole, both sides
3	RF6119-01G	1/4-20 x 1/2" Truss head machine screw

17.2.1 Install first wing on center shaft hangers.

CAUTION

Use caution when handling wing assemblies to prevent scratching or damage to wing or glass surfaces.

WARNING

Use caution installing wing assemblies!

WARNING

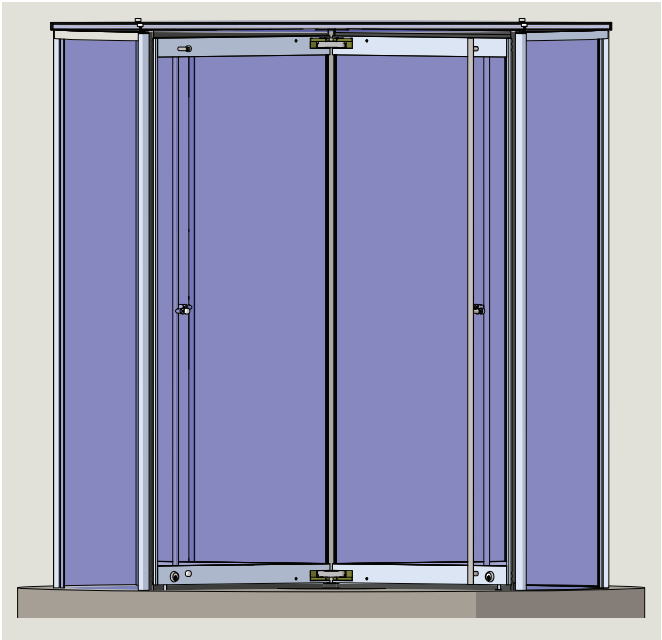
Risk of injury due to improper handling of wing assemblies!
A minimum of two people are required to lift and transport wing assemblies.

1. Slide wing over top and bottom hangers.
2. Secure wing to top hanger with two truss head machine screws.
3. Secure wing to bottom hanger with two truss head machine screws.

17.2.2 Install remaining wings on center shaft hangers.

1. Install remaining wings.

Fig. 17.2.5 4 wing door –wings installed on hangers



18 Install floor strikes

18.1 Install floor strikes

Table 18.1.1 Wing locks and floor strikes

Part / Assembly		Description
1		Wing lock
2	RC6265-0X0	Floor strike

Fig. 18.1.1 Floor strike RC6265-0X0

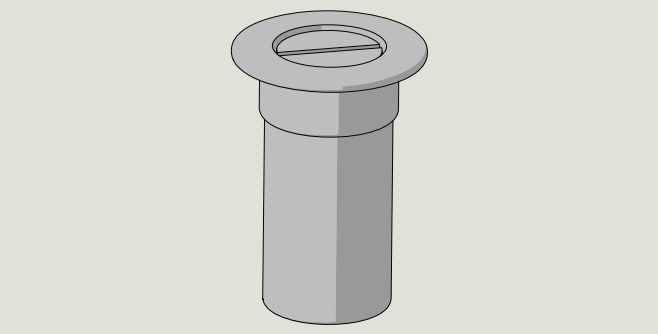


Fig. 18.1.2 4 wing door, wing locks

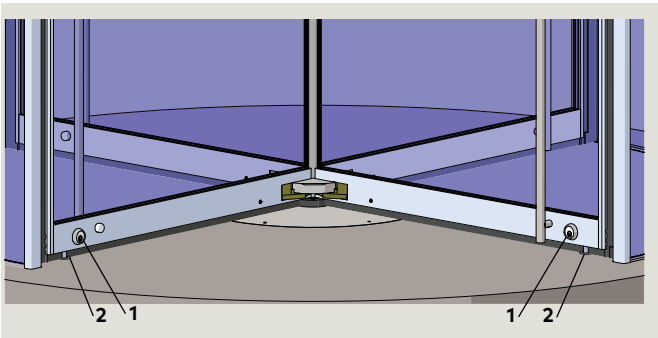
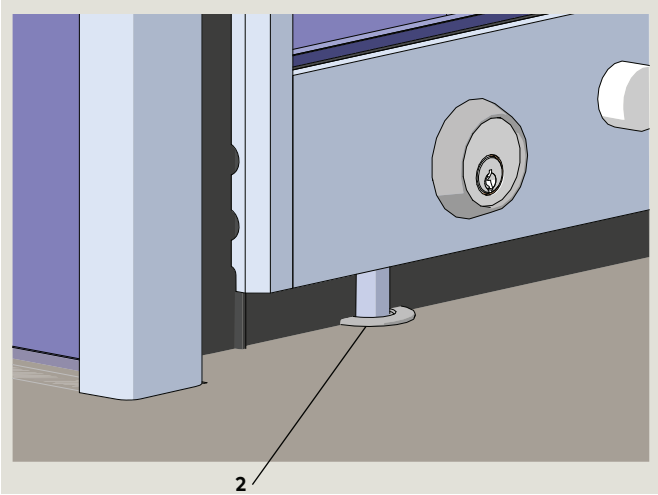


Fig. 18.1.3 Floor strike installed



18.1.1 Home position.

1. Rotate wings to home position.

18.1.2 Mark floor strike hole locations.

1. Move wing lock handle down until wing lock pin contacts floor surface.
2. Mark circumference of pin on floor.

- Wing lock pin diameter: 5/8"

3. Raise wing lock handle.
4. Mark centerpoint of wing lock pin on floor.
5. Repeat steps 1 through 4 for second wing lock.

18.1.3 Drill floor strike holes in floor.

1. For concrete floors, drill 1 inch diameter hole in floor to a depth of 2".

- Use hammer drill with masonry bit.

CAUTION

Drill must be perpendicular to floor.

2. Repeat step 1 for second floor strike.

18.1.4 Clean any dirt and debris from floor strike holes.

CAUTION

Insure floor strike holes are clear of dirt and debris.

1. Use a vacuum or blower to remove any debris inside each hole.

18.1.5 Install floor strikes.

1. Fill hole with grout.

- Use a grout such as QUIKRETE® FastSet™ non-shrink grout.

2. Place floor strike in hole.
3. Tap floor strike into place using wood block or other material to prevent surface damage to strike.
4. Clean excess grout from floor area around strike.

CAUTION

Note manufacturer's cure time for grout before walking on strikes or using wing locks.

5. Repeat steps 1 through 4 for second floor strike.

19 Check wing breakout force, bookfold operation

19.1 Check breakout force

Table 19.1.1 Hanger assembly

Part / Assembly		Description
1	RS6045-020	Hanger assembly
2	RC6156-01G	H bolt, 3/8 x 4"
3		3/8-16 hex nut
3.1		3/8-16 hex nut
4		Spring

Fig. 19.1.1 Wing in bookfold position

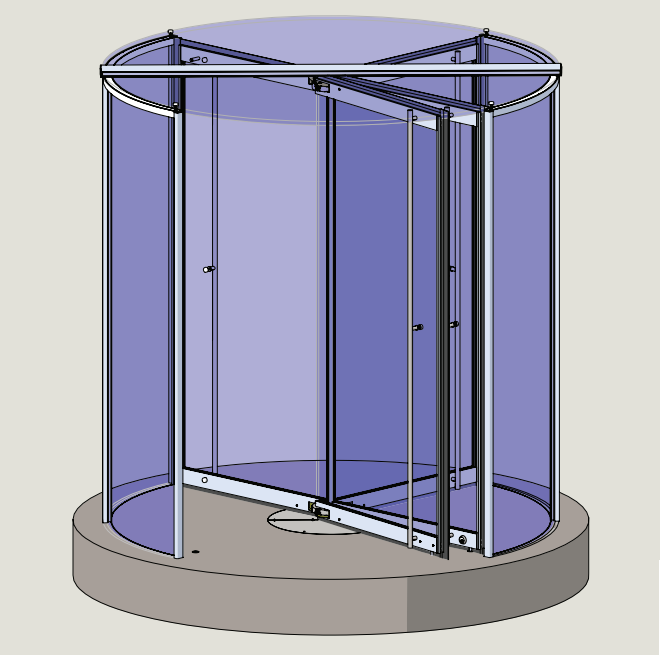
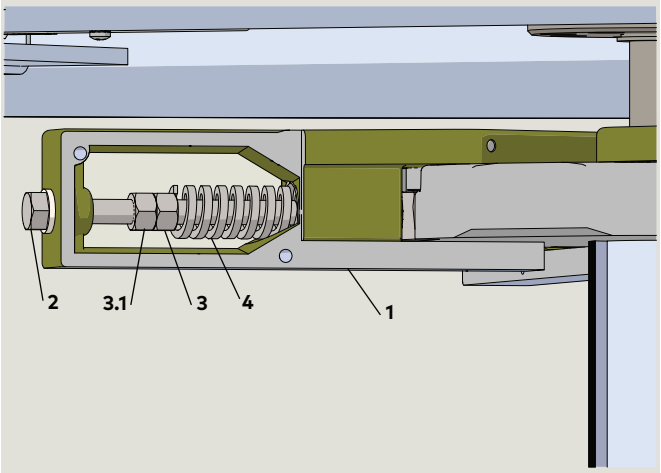


Fig. 19.2.2 Hanger tension adjustment



19.1.1 Breakout force.

NOTICE

ANSI/BHMA A15.27 Para. 10 Breakout force requirements.
Each revolving door wing shall be capable of breakout when a force of 130 lb. [570 N] is applied at a point 3 inches [76 mm] from the outer edge of the outer wing stile and 40 inches above the floor.

19.1.2 Initial breakout hanger tension.

- Initial hanger bookfold tension set in Chapter 16.

19.1.3 Check breakout force on first wing..

1. Block one door wing. Push an adjacent wing with a force gauge until breakout occurs. Note breakout force.
2. If hanger breakout force adjustment is required, refer to Para. 19.1.4.

19.1.4 Hanger breakout force adjustment.

1. Remove wing from hangers.

CAUTION

Make the same tension adjustment to both upper and lower hangers .

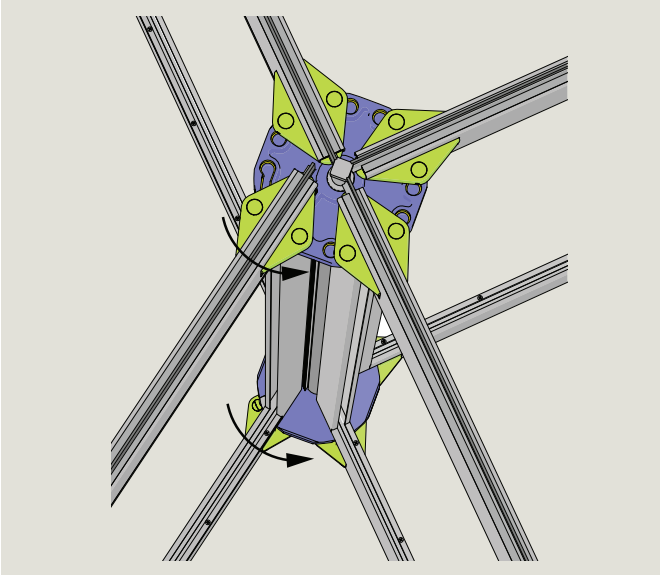
- Use open end 9/16" box wrench for tension adjustment.
- Monitor number of hex nut turn adjustments made so that the same number of adjustments can be made on the lower hanger.

- **Increase hanger tension:**
- Turn hex nut (6) CW to tension spring.
- Use two 9/16" wrenches to both lock hex nuts in place.
- Repeat same tension adjustment on lower hanger.

- **Decrease hanger tension:**
- Turn hex nut 6.1 CCW to allow reduced tension adjustment.
- Turn hex nut (6) CCW to reduce decrease tension on spring.
- Use two 9/16" wrenches to both lock hex nuts in place.
- Repeat same tension adjustment on lower hanger.

2. Reinstall wing and repeat breakout force test.
3. Repeat tension adjustment until breakout force requirements in Para. 19.1.1 are met.

Fig. 19.1.3 Door wing in breakout position

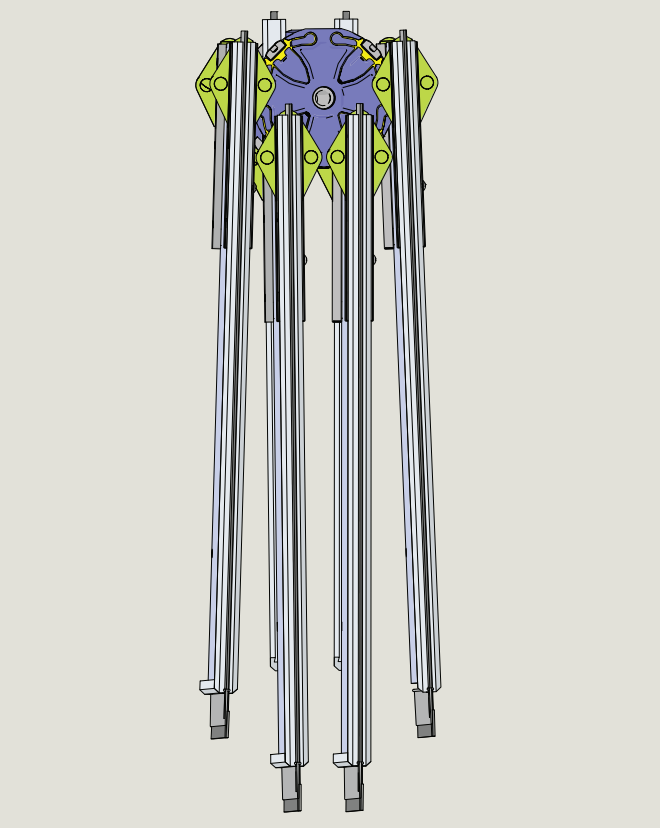


19.1.5 Breakout force, remaining wings.

1. Check breakout force on each of the remaining wings.
2. Adjust breakout force as required on hangers for each wing to meet requirements in Para. 19.1.1.

19.2 Check bookfold operation

Fig. 19.2.1 Door wings in bookfold position



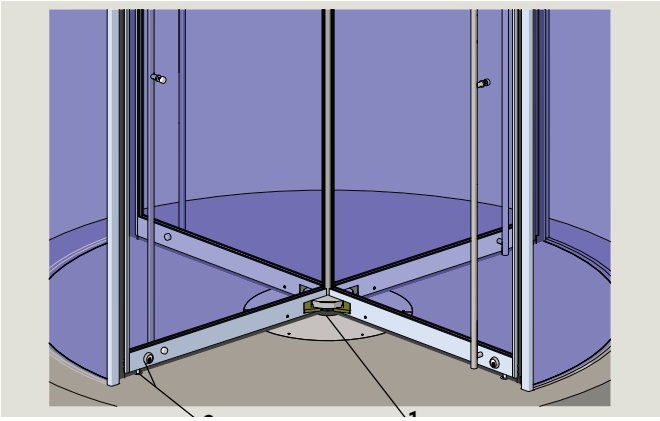
19.2.1 Check wing bookfold operation

1. Check bookfold operation on all wings.

20 Maintenance

20.1 Revolving door enclosure floor area

Fig. 20.1.1 Floor pivot bearing maintenance



1 In-ground speed control
2 Wing lock and floor strike

20.1.1 Floor surface.

1. Keep revolving door floor surface clean.

20.1.2 Floor speed control and center shaft.

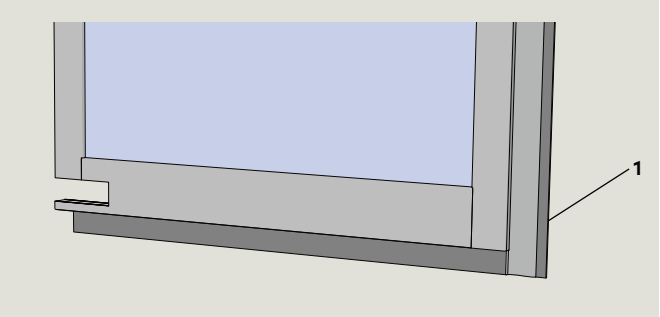
1. Clean surface area at floor speed control and center shaft.

20.1.3 Wing locks and floor strikes.

1. Clean wing locks.
2. Clean floor strikes of all dirt and debris.

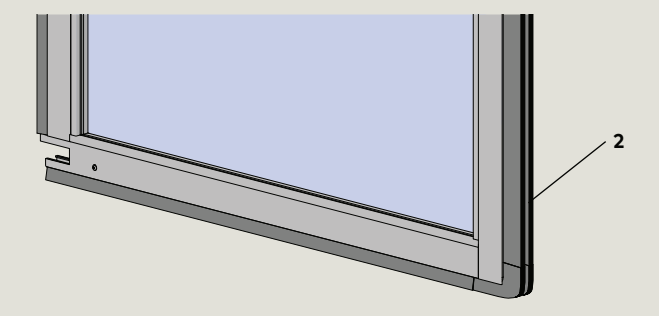
20.2 Weathersweeps

Fig. 20.2.1 T-style weathersweep



1 T-style weathersweep

Fig. 20.2.2 Horsehair weathersweep



2 Horsehair weathersweep

20.2.1 Weathersweep maintenance.

NOTICE

Reducing or trimming the size of the bottom sweep makes the sweep more rigid and voids all warranties.

1. Inspect condition of sweeps.

- Recondition horsehair sweeps if possible using conditioner.

2. Replace weathersweeps as required.

- Contact the Crane company for replacement weathersweeps.

20.3 Manual speed control

Table 20.3.1 Maximum allowable door RPM

Maximum inside diameter	6 ft, 6 in. [1980 mm]	7 ft [2135 mm]	7 ft, 6 in. [2285]	8 ft [2438 mm]
Manual speed control RPM	12	11	11	10
Time for one door revolution (s)	5	5.5	5.5	6

Fig. 20.3.1 In-ground speed control, cover removed

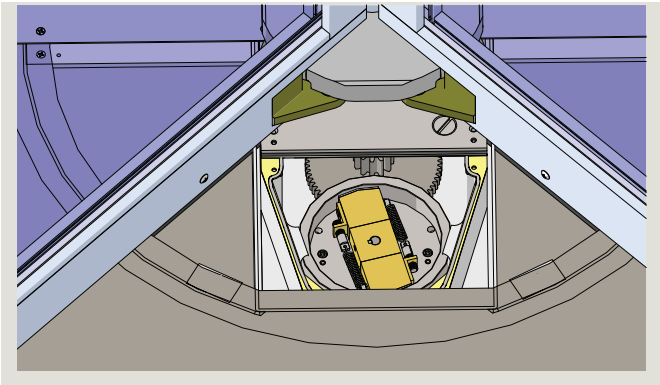
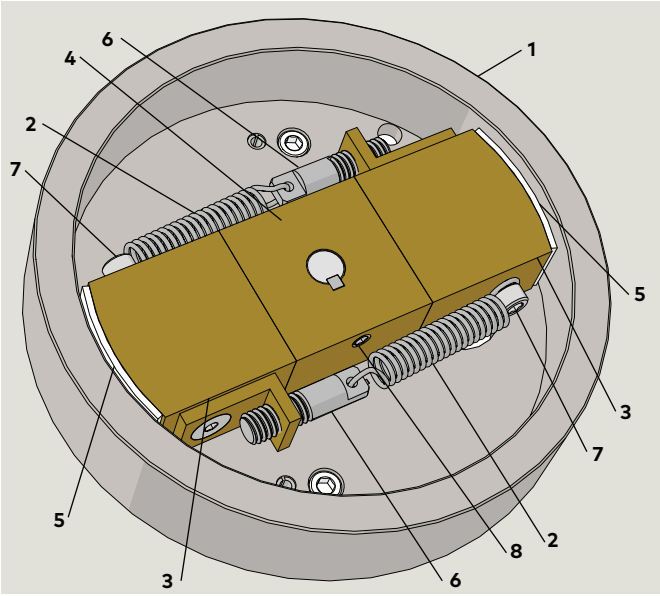


Fig. 20.3.2 Brake housing assembly



1 Brake housing assembly
2 Brake spring
3 Left-right brake shoe holder
4 Center brake block
5 Brake shoe
6 Brake screw
7 10-25 x 1/2" SHCS
8 .25-20 .50" cup point set screw

CAUTION

Manual speed control maintenance must be done by dormakaba service personnel.

20.3.1 Adjust brake engaging pressure.

1. Increase tension on brake springs:
- Remove SHCS (**7**) securing brake spring to brake shoe holder.
- Turn brake screw (**6**) CW to increase spring tension.
- Reinstall SHCS.
- Repeat for second brake spring.

20.3.2 Replacement of brake shoes.

1. Remove center brake block/left-right brake shoe holder assembly to replace brake shoes.

20.4 Manual speed control oil

20.4.1 Addition of oil to manual speed control.

1. Reference Para. 11.2 for manual speed control oil fill.

CAUTION

Manual speed control maintenance must be done by dormakaba service personnel.

20.5 Cleaning surfaces

20.5.1 Aluminum

1. Dust and grime can be removed by regular cleaning.
- Use a mild, non-abrasive soap or cleaning solution and water.
- After cleaning, surfaces should be wiped dry with a clean absorbent material.

2. Tar and built-up dirt can be removed with solvent cleaners such as turpentine if followed by a soap and water cleaning and fresh water rinse.

NOTICE

Avoid acid or alkali cleaners; they may attack the anodized finish.

- After cleaning, surfaces should be wiped dry with a clean absorbent material.

20.5.2 #4 stainless steel.

1. For routine cleaning, use soap, ammonia, or detergent and water.
- Always working in the direction of the grain, rub with a sponge or rag.
- Rinse with water, wipe dry.

2. Stubborn dirt or grime can be removed with a quality commercial stainless steel cleaner.

20.5.3 Mirror finish stainless steel.

NOTICE

Mirror finishes require very special care. Abrasive cleaners and cloths should never be used.

1. Use only mild soap and water or glass cleaner.
- After cleaning, surfaces should be wiped dry with a clean absorbent material.

20.5.4 Bronze

NOTICE

To insure proper maintenance, consult a professional bronze finisher and establish a regular metal cleaning program.

1. Bronze finishes are protected during shipping and installation by a shop coat of lacquer.

NOTICE

Lacquer can be damaged by ammonia in window cleaners, or by acids from masonry cleaners. Protect doors from these cleaners.

NOTICE

Doors must be inspected and worked after installation by a qualified bronze finisher.

20.5.5 Painted finishes.

1. Any mild non-abrasive soap or mild solvent can be used for cleaning.

NOTICE

Strong solvents may dissolve paint. Test any solvent first.

2. Wax can be used to protect the finish.

20.6 Hanger maintenance

Fig. 20.6.1 4 wing door assembly example

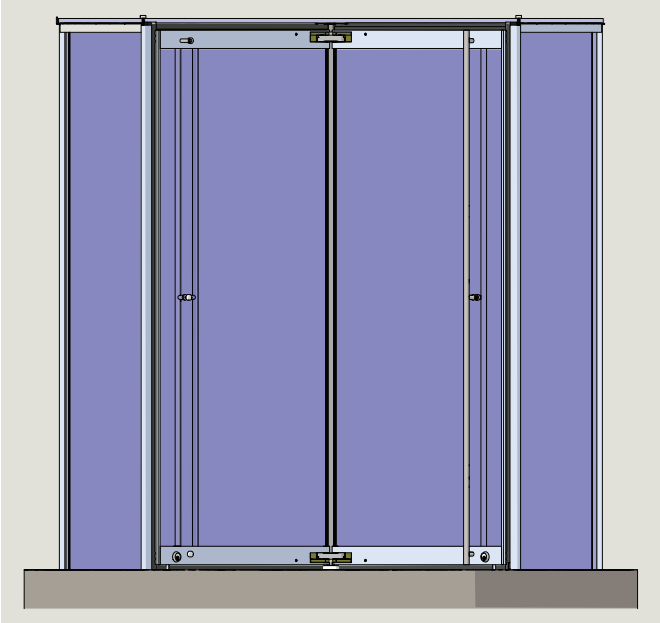
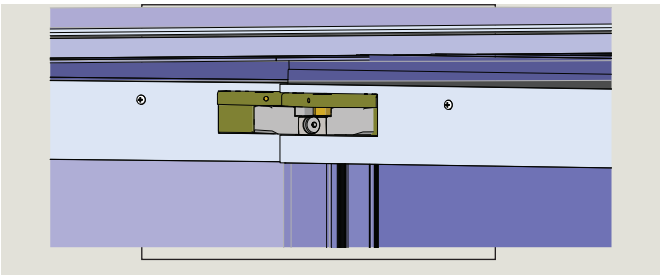


Fig. 20.6.2 4 wing door assembly wing bookfold example



20.6.1 Hanger / hanger disc maintenance.

TIPS AND RECOMMENDATIONS

Bookfold wings for the following procedures.

1. Check for dirt and debris and clean as required at.
- Hanger assemblies.
- Hanger disc assemblies.

2. Check for lubrication on hanger disc and at hangers.
- Lubricate as necessary.

Fig. 20.6.3 Upper and lower hanger assemblies

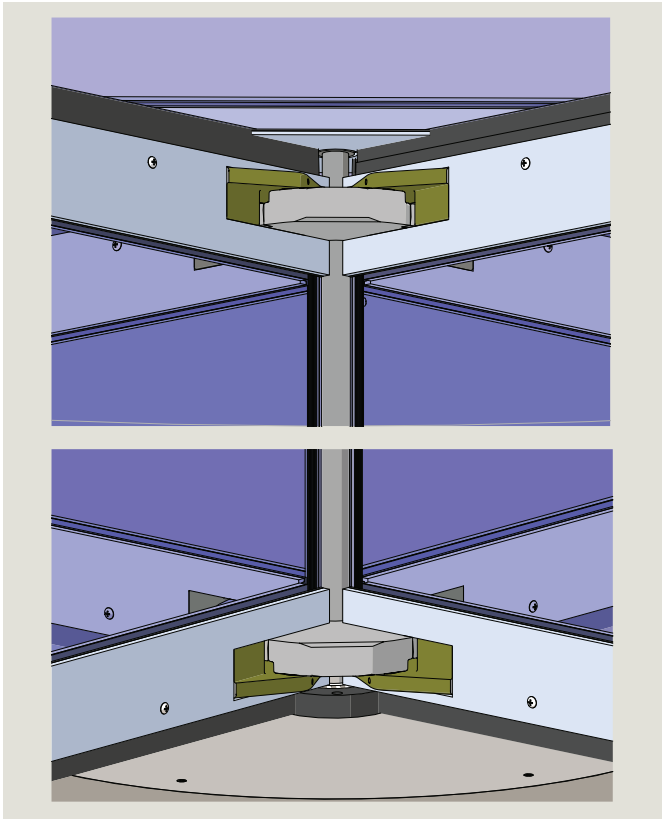
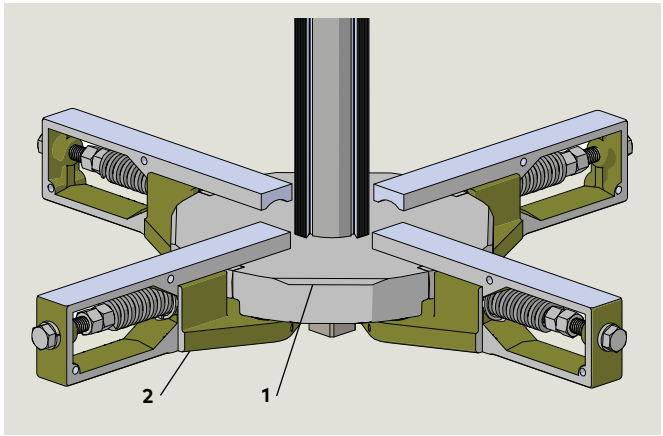


Fig. 20.6.4 4 wing center shaft hanger assembly



1 4 wing disc assembly
2 Hangar assembly

Appendix A - Definitions

A.1 Revolving door definitions, from ANSI/BHMA A156.27 appendix

A1.1 **Active area** - An area where sensors detect the presence of motion

A1.2 **Automatic door operator** - A power operated door mechanism that is attached to a revolving door for the purpose of mechanically opening the door upon receipt of an activating signal (also called a power door operator).

A1.3 **Automatic home positioning** - Manual revolving doors with automatic home positioning are small 3 or 4 wing revolving doors that utilize a low energy operator or mechanism to return the doors to the home position once a person exits the door and the door stops rotating.

A1.4 **Automatic door speed** - The rate at which an automatic revolving door rotates measured in revolutions per minute (RPM). The three classifications are:

Standard speed- the maximum allowable RPM for a revolving door.

Slow speed- One half of standard speed.

Low energy speed- Door speed resulting in maximum of 2.5 lbf-ft of kinetic energy.

A1.5 **Bookfold position** - When each wing has been released from its fixed position permitting wings to pivot in the direction of egress

A1.6 **Bottom rail** - The lower horizontal member of the door wing.

A1.7 **Breakout** - A process whereby wings and/or door panels can be pushed open manually for emergency egress.

A1.8 **Canopy**- A he area above the wings and enclosure comprised of a ceiling (soffit), fascia (cladding), and roof (cover).

A1.9 **Center shaft** - The rotating center, 12 inches [305 mm] or less in diameter, of revolving doors to which the wings are attached.

A1.10 **Clearance** - The minimum gap around the wing to the ceiling, enclosure, and floor, not including the weather stripping, at any point in its rotation.

A1.11 **Control** - A unit containing electrical components for automatic control of door operation and overload protection.

A1.12 **Control mat** - A presence sensing device that detects pressure from people or objects to give an activating signal to the automatic revolving door.

A1.13 **Core** - The rotating central portion, greater than 12 inches [305 mm] in diameter of a large diameter revolving door to which the wings are attached.

A1.14 **Enclosure** - The walls in which the wings operate. Also known as Drum.

A1.15 **Entry point sensor** - A presence sensor designed to detect a person in the area between the outer leading edge of the enclosure wall and the approaching outer leading edge of the wing

A1.16 **Fascia** - The vertical surfaces of the canopy.

A1.17 **Home position** - The desired at-rest position for a revolving door.

- Home position "X" - the (4 wing) stops in the (X) position with all four wings in contact with the entrance wall posts.
- Home position "Y" - the (3 wing) stops in the (Y) position with two wings in contact with the entrance wall posts and one wing in contact with the wall center mullion.

A1.18 **Knowing act** - Consciously activating a switch with the knowledge of what will happen such as starting, slowing or stopping a revolving door. Switching devices may include wall or jamb-mounted contact switches such as push plates, fixed contact switches and controlled access devices such as keypads, card readers, and key switches.

A1.19 **Manual operation** - The capability of rotating the revolving door by a person applying a force to a door wing.

A1.20 **Manual speed control** - A device used to regulate manual revolving door speed by making it difficult to push the door beyond the maximum allowed RPM.

A1.21 **Motion sensor** - A sensor designed to detect the movement of a person or equivalent a the point of entry to the door that gives an activating signal to the power operated door.

A1.22 **Obstruction force** - The maximum static force the door is allowed to apply to a person or object measured at the outside edge of the rotating wing.

A1.23 **Power operated door** - A revolving door with a power operated mechanism that is attached to it for the purpose of mechanically opening the door upon receipt of an activating signal (also called Automatic Door).

A1.24 **Peripheral speed** - The rotating speed of a revolving door measured at the outer edge of the wing.

A1.25 **Presence sensor** - A sensor designed to detect the presence of a stationary person in the vicinity of the doorway and give a signal to the power operated door.

A1.26 **Push bar** - A bar attached to the wing upon which pressure is applied to set a manual revolving door in motion. A push bar is not required on automatic doors.

A1.27 **Push to slow device** - A knowing act switch used to create an activating signal to cause reduction of speed of the revolving door.

A1.28 **Safety glass** - Comprised of either fully tempered or laminated glass or other safety rated glazing to prevent injuries from breakage.

A1.29 **Sensor** - A device that detects motion or presence of a person or object.

A1.30 **Small vehicular** - Carts used to transport persons or objects.

A1.31 **Stile** - A vertical edge member of the door wing.

A1.32 **Throat opening** - The width between the enclosure side walls that creates the entry point.

A1.33 **Trained traffic** - People trained in the safe use and operation of a particular automatic door installation.

A1.34 **Weather stripping** - The material used to fill a clearance.

A1.35 **Wing** - A panel which rotates within and seals the enclosure. (Sometimes called a Leaf).

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