

## Multi-Solution Opening: Blast and Hurricane Resistant

**Blast and Hurricane Resistant:**

- Blast Up To 6.16 psi Category I (12 gage door and frame construction)
- Blast Up To 9.74 psi Category II (14 gage door and frame construction)

The 3rd party tested Multi-Solution Opening meets UFC 4-010-01 DoD Minimum Anti-terrorism standards and ASTM 2927-12 Response Categories 1 (no damage) and 2 (damaged but operable) following a blast.

UL wind resistant building assemblies and components tested to the following windstorm or severe weather performance standards:

1. ASTM E330/E1886/E1996
2. TAS201, TAS202, TAS203
3. ANSI A250.13

Doors may also be classified as fire doors tested in accordance with UL10B or UL10C. Doors may be fire rated up to and including three hours, except as noted and may also be limited by gage, size, hardware, construction, etc.. All doors are impact resistant, passed large missile impact for missile level D. Only ASSA ABLOY prescriptive Corbin Russwin BL6600 series or Sargent BL7300 series +/-150 PSF multi-point locking hardware may be used.

**Door Opening Sizes:** All doors shall be 1 3/4" [44.5 mm] thick. The door opening width and height shall be as defined on the pages and illustrations that follow.

**Construction:** Special vertical lock edge stiffener and special lock reinforcements are required for the prescriptive +/-150 PSF doors. Special frame head reinforcements are required for multi-point lock head latching. Doors are 14 gage A60 face sheets or 12 gage A60 face sheets depending on what blast psi and category level is required.

**Glass Lights, Viewer or Louvers:** Not available.

**Windstorm Classification Label:** Each wind-resistant building assembly shall bear a classification mark of Underwriters Laboratories, LLC.

Frames may also be eligible to be listed as fire door frames tested in accordance with UL10B or UL10C. Frames may be eligible to be fire rated up to and including three hours where special reinforcements are installed. All frames are impact resistant, passed large missile impact for missile level D.

**Frame Sizes:** Listed sizes are defined in the pages that follow.

**Construction:** Each wind resistant building product shall be constructed as detailed in the pages that follow. Special head reinforcing channel and special hardware reinforcements required to be installed during manufacturing for the prescriptive +/- 150 PSF frame with concealed multi-point devices. Frames are constructed of 14 gage A60 standard and 12 gage A60 is optional, depending on what blast psi and category level is required. Frames must be factory welded.

**Frame Installation Instructions:** See Ceco's public website and ANSI A250.11 frame installation instructions.  
www.cecodoor.com

**For Further information: Call 218-828-6256**

**DOOR:** MIN. 2'8" X 6'8", MAX. 4'0" X 8'0" LEAF SIZE, 14 or 12 GAGE A60 GALVANNEALED FACE SHEETS, WITH STEEL STIFFENED AND FIBERGLASS CORE. 14 GAGE TOP AND BOTTOM CHANNELS, WELDED TOP CAP.

**SUGGESTED USE FOR COMBINATION HURRICANE & BLAST PRODUCTS:**

CRITICAL INFRASTRUCTURE, GOVERNMENT/MILITARY, PETRO CHEMICAL PLANTS, MUSEUMS, HURRICANE ENVIRONMENTS

**OPTIONAL FIRE RATING:**

UP TO AND INCLUDING 3 HRS IN ACCORDANCE WITH UL 10B, UL 10C, UL 1784, & NFPA 252.

**LOCK:**

CORBIN RUSSWIN BL6600 SERIES OR SARGENT BL7300 SERIES

**HINGES:**

SEE PAGE D20-07

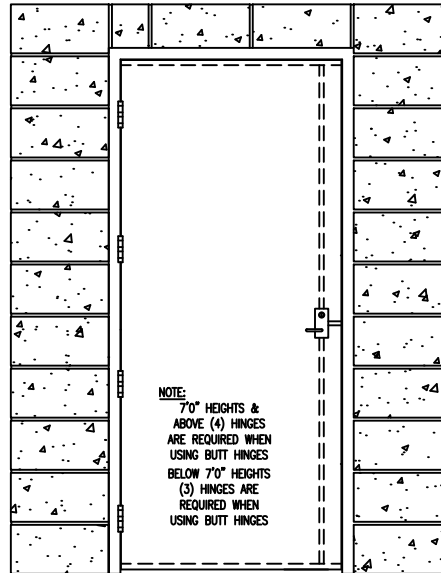
**CLOSER:**

SEE PAGE D20-07

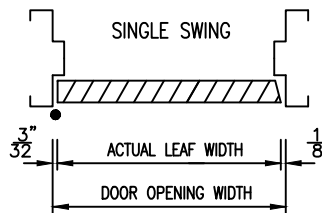
**OPTIONAL HARDWARE & ACCESSORIES**

**NOT PROVIDED BY CECO:**

SEE PAGE D20-08



**HORIZONTAL SECTION**



- Corbin Russwin BL6600 & Sargent BL7300 concealed vertical rods, top & bottom bolts, & mortise lock body cassette must be factory installed in a CECO Multi-Solution door. All other hardware components are shipped directly from Sargent or Corbin Russwin & must be installed by a factory trained installer.
- **IMPORTANT: DO NOT REMOVE ANY HARDWARE BLOCKING OR FILLER PLATES IN DOOR & THE FRAME UNTIL THE MORTISE LOCK IS READY TO BE INSTALLED.**

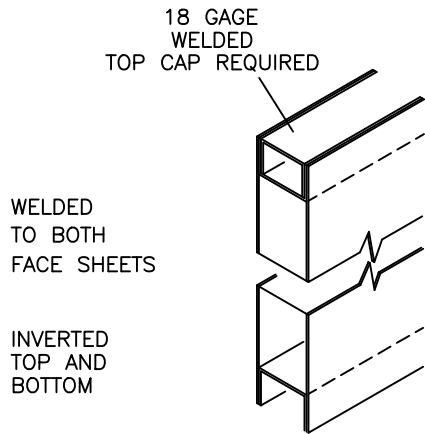
- 3/8" DOOR UNDERCUT
- 3/8" MAX. BETWEEN BOTTOM OF DOOR AND TOP OF STRIKE
- BOTTOM STRIKE MUST BE ATTACHED TO CONCRETE OR STRUCTURAL STEEL AND ALLOW BOTTOM BOLT TO PROPERLY ENGAGE STRIKE.
- FLOORS MUST BE POURED LEVEL AND FRAMES MUST BE INSTALLED SQUARE AND PLUMB TO ALLOW DOORS TO FUNCTION PROPERLY.
- DOORS AND FRAMES MUST BE ORDERED AT THE SAME TIME.

**SWING: THE COMBINATION OF BLAST AND HURRICANE RATED ASSEMBLIES MUST BE SEATED. SEATED IS DEFINED AS THE BLAST PRESSURE ACTING TO PUSH THE DOOR AGAINST THE STOPS OF THE FRAME.**

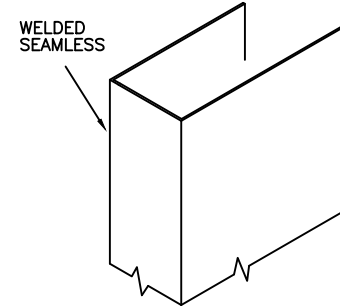
**For Further information: Call 218-828-6256**

(Conversion: 1" = 25.4 mm, e.g., 1-3/4" = 44.45 mm)

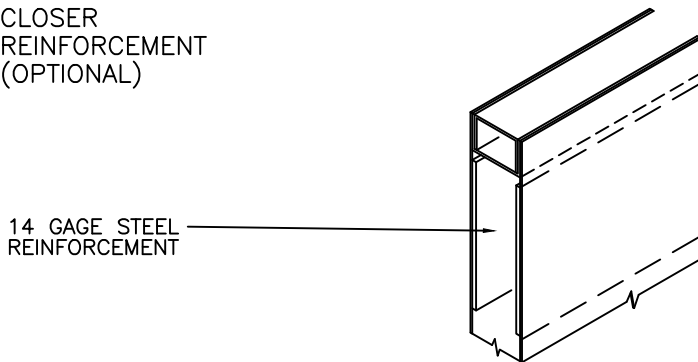
14 GAGE STEEL  
END CHANNELS



VERTICAL EDGES

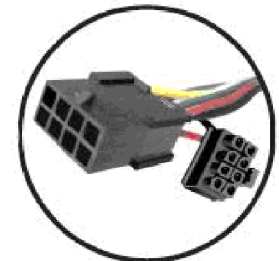


CLOSER  
REINFORCEMENT  
(OPTIONAL)



OPTIONAL WIRING  
HARNESS

ELECTROLYNX CABLE  
PROVIDED IN DOOR  
FOR PLUG & PLAY  
APPLICATION



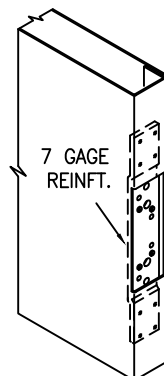
(THRU-BOLT MOUNTING OF BODY TO DOOR ONLY)

HINGE  
PREPARATION

HINGE EDGE IS HANDED  
AND SQUARE

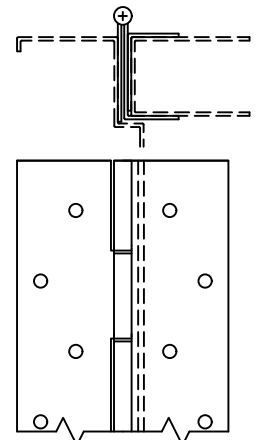
7'0" HEIGHTS & ABOVE (4) HINGES ARE  
REQUIRED WHEN USING BUTT HINGES.  
BELOW 7'0" HEIGHTS (3) HINGES ARE  
REQUIRED WHEN USING BUTT HINGES.

ANSI A156.7  
TEMPLATE



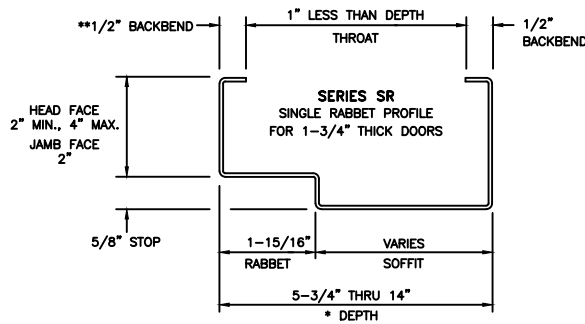
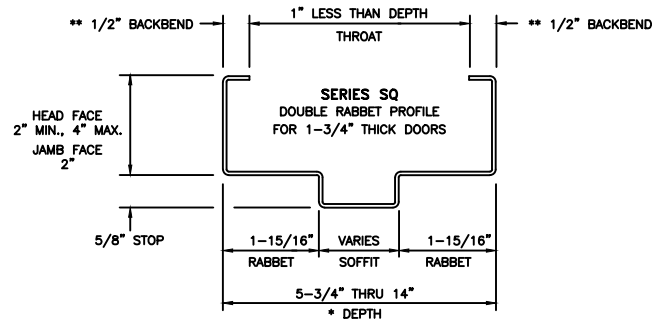
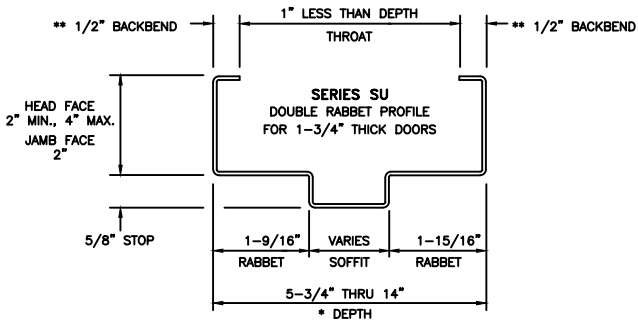
OPTIONAL CONTINUOUS HINGE  
PREPARATION

NOTE: A CONTINUOUS HINGE REQUIRES  
A CONTINUOUS HINGE REINFORCEMENT  
IN DOOR AND FRAME.



(Conversion: 1" = 25.4 mm, e.g., 1-3/4" = 44.45 mm)

**D20-03**  
04/02/20



\*FRAME DEPTHS AVAILABLE IN 1/8" INCREMENTS

\*\*BACKBENDS FOR 5-3/4" DEPTH MAY BE 7/16", WHICH MEANS THE THROAT WOULD BE 4-7/8".

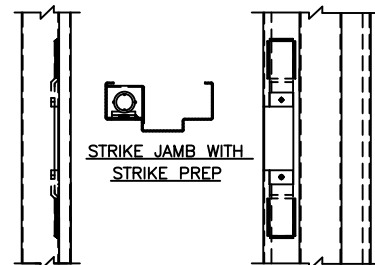
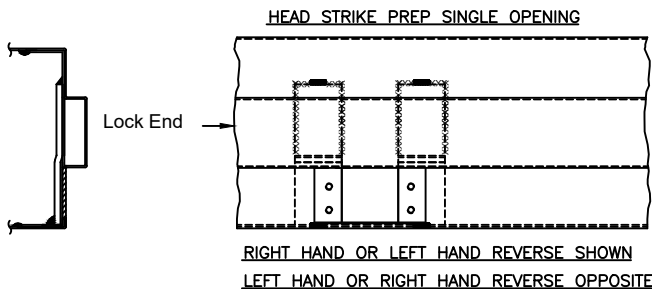
FRAMES REQUIRE FACTORY WELDED CORNERS.

FRAMES ARE CONSTRUCTED OF 14 GAGE A60 FOR BLAST Up To 9.74 PSI Category II.

FRAMES ARE CONSTRUCTED OF 12 GAGE A60 FOR BLAST Up To 6.16 CATEGORY I.

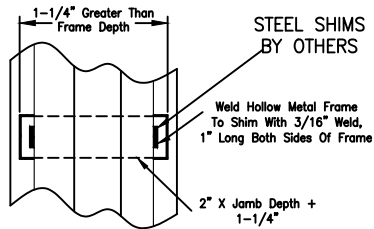
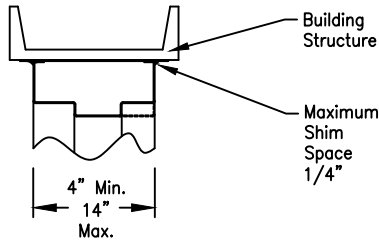
7'0" HEIGHTS & ABOVE (4) HINGES ARE REQUIRED WHEN USING BUTT HINGES.

BELOW 7'0" HEIGHTS REQUIRE (3) HINGES WHEN USING BUTT HINGES.



**ANCHORING BY WELDING TO BUILDING STRUCTURE**

18 ga. min. -1/4" max. thick A-36 steel  
shims centered under frame. Weld perimeter of 5/8" x 2" x 5/8" ends of shims to structural building member with fillet welds sized as follows using E6018 electrodes. Fillet weld size same as shim thickness for 0.053" to 0.125" shim thickness. Weld size 1/8" for 0.125" to 1/4" shim thickness.



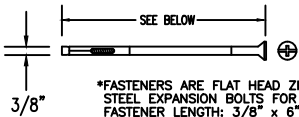
Frame Head Anchor Locations

| Opening Size                                       | Anchor Type                      | Anchor Spacing   |
|--|----------------------------------|--|
| Single openings<br>2'8" x 6'8" thru<br>4'0" x 8'0" | Welded to the Building Structure | Minimum of 2 weld locations required. Locations are 6" from each jamb rabbet. Must weld on both faces of the frame head & sill at each location. |

Jamb Anchor Locations

| Opening Size                           | Anchor Type                      | Anchor Spacing   |
|--|----------------------------------|--|
| Single<br>2'8" x 6'8" thru 4'0" x 8'0" | Welded to the Building Structure | Weld locations, maximum of 12" from the sill, max. 10" from the head rabbet and 24" max. on center. Must weld on both faces of the frame at each location. |

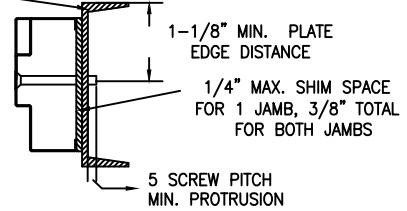
FRAMES ARE NOT REQUIRED TO BE GROUTED WHEN WELDED TO BUILDING STRUCTURE



\*FASTENERS ARE FLAT HEAD ZINC PLATED CARBON STEEL EXPANSION BOLTS FOR MASONRY. FASTENER LENGTH: 3/8" x 6" STEEL BOLT

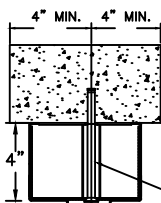
1/4" MIN. STEEL (A36) EMBEDMENT PLATE or HOST STRUCTURE

3/8" SMS/SELF DRILLING SCREW/ UNC BOLT (BY OTHERS)



SCREW ATTACHMENT THROUGH EXISTING EMBEDMENT PLATE PROVIDED THAT DRILLING THROUGH PLATE IS PERMISSIBLE AS VERIFIED BY OTHERS.

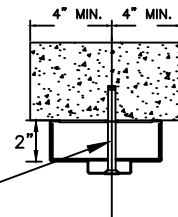
**4" FACE FRAME HEAD ANCHORING**



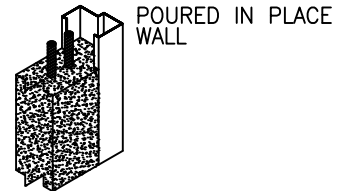
NOTE: MINIMUM PRECAST OR CMU WALL EDGE DISTANCE 4" TO CENTER OF BOLT HOLE @ HEAD OR HEAD & JAMBS.  
NOTE: 1-1/4" MINIMUM BOLT EMBEDMENT

3/8" EXPANSION BOLT (SHIPS LOOSE FOR FIELD INSTALLATION)

**2" FACE FRAME HEAD & JAMB ANCHORING**

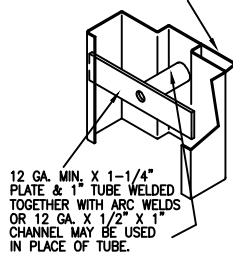


VINYL CAP PLUG  
VINYL CAP PLUG (BAG OF 10) PART # 6111049  
VINYL CAP PLUG (BAG OF 100) PART # 6111050  
(SHIPS LOOSE FOR FIELD INSTALLATION)

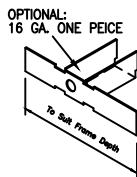


EXISTING OPENING - PIPE & PLATE FRAME NOT REQUIRED TO BE GROUTED

ALTERNATE PROFILE



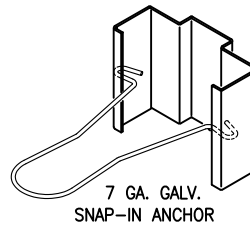
12 GA. MIN. X 1-1/4" PLATE & 1" TUBE WELDED TOGETHER WITH ARC WELDS OR 12 GA. X 1/2" X 1" CHANNEL MAY BE USED IN PLACE OF TUBE.



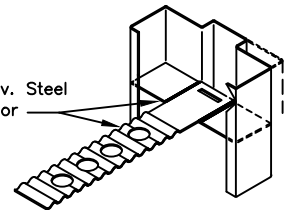
MASONRY - WIRE ANCHORS

MASONRY T ANCHORS

THE THROAT OF THE FRAME JAMBS MUST BE FULLY GROUTED WITH MIN. 1800 PSI GROUT.



12 Ga. Galv. Steel Strap Anchor



(Conversion: 1" = 25.4 mm, e.g., 1-3/4" = 44.45 mm)

### HEAD ANCHOR LOCATIONS

|                | Opening Size                                | Anchor Type   | Anchor Spacing   |
|----------------|---|---|--|
| Single Opening | 2'8" x 6'8" up to and including 4'0" x 8'0" | Existing Wall Anchors Powers 3/8" Lock-Bolt AS Sleeve Expansion Bolt or 3/8" SMS/Self Drilling Screw/UNC Bolt | Minimum of 2 anchors required. Locations are 6" from each door jamb rabbet. When anchors are located in the door rabbet, the anchor at the lock jamb side will be located at 9". |

ANCHORS MAY BE INSTALLED THROUGH EXISTING EMBEDMENT PLATES, PROVIDED THAT DRILLING THROUGH EXISTING EMBEDMENT PLATES IS PERMISSIBLE AS VERIFIED BY OTHERS. ANY EXISTING EMBEDMENT PLATES SHALL BE DESIGNED AND VERIFIED BY OTHERS.

FRAMES ARE NOT REQUIRED TO BE GROUTED WHEN USING EXISTING WALL JAMB ANCHORS.

### JAMB ANCHOR LOCATIONS

#### Existing Opening Bolt or Screw Fastened Jamb Anchor Locations

|                | Opening Size   | Anchor Type  | Anchor Spacing  |
|----------------|--|--|---|
| Single Opening | 2'8" x 6'8" up to & including 3'0"x7'0"                      | Existing Wall Anchors Powers 3/8" Lok-Bolt AS Sleeve Anchor or 3/8" SMS/ Self Drilling Screw/ UNC Bolt | Maximum of 8" from the sill, maximum of 4" from the head rabbet, and 21" maximum on center. |
|                | Greater than 3'0" x 7'0" and up to and including 4'0" x 8'0" | Existing Wall Anchors Powers 3/8" Lok-Bolt AS Sleeve Anchor or 3/8" SMS/ Self Drilling Screw/ UNC Bolt | Maximum of 8" from the sill, maximum of 4" from the head rabbet, and 18" maximum on center. |

FRAMES ARE REQUIRED TO BE GROUTED WHEN USING MASONRY T OR WIRE MASONRY WALL JAMB ANCHORS.

#### 12 Gage Masonry "T" Jamb Anchor Locations

|                | Opening Size                                | Anchor Type                | Anchor Spacing   |
|----------------|---|----------------------------|--|
| Single Opening | 2'8" x 6'8" up to and including 4'0" x 8'0" | 12 Ga. Masonry "T" Anchors | Max. of 8" from the sill, max. 6" from the head rabbet, and 24" on center max. |

#### Wire Masonry Jamb Anchor Locations

|                | Opening Size   | Anchor Type          | Anchor Spacing   |
|----------------|--|----------------------|--|
| Single Opening | 2'8" x 6'8" up to & including 3'0"x7'0"                      | Wire Masonry Anchors | Max. of 12" from the sill, max. 10" from the head rabbet, and 18" on center max. |
|                | Greater than 3'0" x 7'0" and up to and including 4'0" x 8'0" | Wire Masonry Anchor  | Max. of 12" from the sill, max. 10" from the head rabbet, and 12" on center max. |

### CONTINUOUS HINGES

- MARKAR HG305 CONTINUOUS HINGE
- MARKAR FM300 CONTINUOUS HINGE (OUTSWING SEATED ONLY)
- MARKAR CONTINUOUS HINGES WITH OR WITHOUT EL OPTION

**NOTE:** A CONTINUOUS HINGE REQUIRES A CONTINUOUS HINGE REINFORCEMENT IN DOOR AND FRAME.

### WIDE THROW CONTINUOUS HINGES

- MARKAR HG305WT10 WIDE THROW HINGE WITH OR WITHOUT EL OPTION
- MARKAR FM300WT WIDE THROW HINGE (WT10 THRU WT50) OUTSWING SEATED ONLY WITH OR WITHOUT EL OPTION

**NOTE:** A CONTINUOUS HINGE REQUIRES A CONTINUOUS HINGE REINFORCEMENT IN DOOR AND FRAME.

### HEAVY WEIGHT STANDARD AND WIDE THROW FULL MORTISE BUTT HINGES

- McKINNEY SP3786 (4-1/2" x 4-1/2" x .180 OR 5" x 4-1/2" x .190)
- McKINNEY SP3386 (4-1/2" x 4-1/2" x .180 OR 5" x 4-1/2" x .190)
- McKINNEY SP3386 & SP3786 (4-1/2" x 5", 4-1/2" x 6", 4-1/2" x 7", 4-1/2" x 8", 5" x 4-1/2", 5" x 5", 5" x 6", 5" x 7" & 5" x 8")
- McKINNEY SP3386 & SP3786 WITH OR WITHOUT QC OPTION.
- McKINNEY SP3386 & SP3786 WITH OR WITHOUT NRP

### DOOR CLOSERS

- CORBIN RUSSWIN DC8000 SERIES DOOR CLOSER (THRU-BOLT MOUNTING OF BODY TO DOOR ONLY)
- NORTON 7500 SERIES DOOR CLOSER (THRU-BOLT MOUNTING OF BODY TO DOOR ONLY)
- SARGENT 281 SERIES DOOR CLOSER (THRU-BOLT MOUNTING OF BODY TO DOOR ONLY)
- YALE 4400 SERIES DOOR CLOSER (THRU-BOLT MOUNTING OF BODY TO DOOR ONLY)

### DOOR CLOSERS/HOLDERS

- SARGENT 2409 CLOSER/HOLDER (THRU-BOLT MOUNTING OF BODY TO DOOR ONLY)
- SARGENT 351 EHT CLOSER/HOLDER (THRU-BOLT MOUNTING OF BODY TO DOOR ONLY)
- NORTON 7700PT ELECTRIC DOOR CLOSER (THRU-BOLT MOUNTING OF BODY TO DOOR ONLY)

### OVERHEAD STOP/HOLDERS

- RIXSON 9 SERIES OVERHEAD STOP/HOLDER (THRU-BOLT MOUNTING OF BODY TO DOOR ONLY)

### MECHANICAL HOLDERS

- ROCKWOOD 491S OR 494S MECHANICAL HOLDERS (THRU-BOLT MOUNTING OF BODY TO DOOR ONLY)

### ELECTROMECHANICAL HOLDERS

- RIXSON 998, 998M, 999M, 980M, 990M, 991M, 996M OR 997M ELECTROMECHANICAL HOLDERS (THRU-BOLT MOUNTING OF DOOR ARMATURE TO DOOR ONLY)
- SARGENT 1560, 1561 OR 1562 ELECTROMECHANICAL HOLDERS (THRU-BOLT MOUNTING OF CONTACT PLATE TO DOOR ONLY)

PEMCO PERIMETER SEALS:

- S773 OR 305 PERIMETER SEAL
- 346 RAIN DRIP (THREAT SIDE MOUNTING ONLY)
- 345 DOOR BOTTOM (THREAT SIDE MOUNTING ONLY)
- S771 OR S772 ASTRAGALS
- 2715 THRESHOLD

ELECTRONIC POWER TRANSFER:

CEPT, HANCHETT ENTRY SYSTEMS, DBA SECURITRON MAGNALOCK CORP.

DOOR POSITION SWITCH:

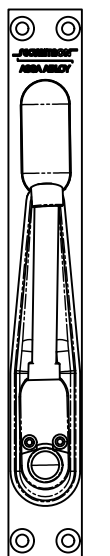
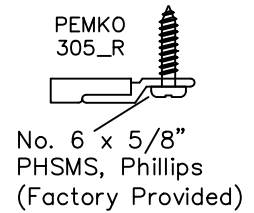
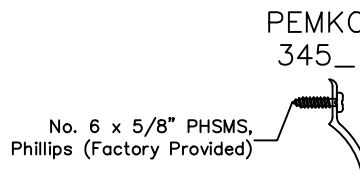
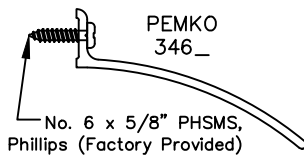
DPS-M, SECURITRON MAGNALOCK CORP.

KICK PLATE:

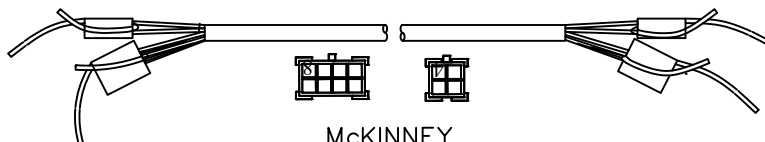
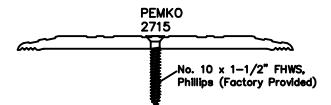
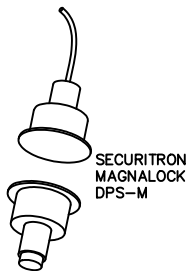
ROCKWOOD K1050 (MUST BE SCREW APPLIED FOR FIRE RATED ASSEMBLIES)  
 NOTE: KICK PLATES MUST BE INSTALLED ON THE THREAT SIDE OF THE OPENING.

WIRE HARNESS:

QC-C1500P ELECTROLYNX WIRE HARNESS



FACE OF ONE SIDE



(Conversion: 1" = 25.4 mm, e.g., 1-3/4" = 44.45 mm)