

Export Sample Project

New York, NY

Job No. 12345

Architect

Archie Smith
123 Architect Street
New York,
NY 12345
Tel: 718-555-0123
Fax: 718-555-1234
E-Mail: archie@architect.com

Contractor

Connor Jones
234 Contractor Road
New York,
NY 12345
Tel: 718-555-2345
Fax: 718-555-3456
E-Mail: connor@contractor.net

Coordinator

Cody Johnson
345 Coordinator Avenue
New York,
NY 12345
11747
Tel: 718-555-4567
Fax: 718-555-5678
E-Mail: cody@coordinator.org

Designer

Desmond Jackson
456 Designer Way
New York,
NY 12345
Tel: 718-555-6789
Fax: 718-555-7890
E-Mail: desmond@designer.biz



AVAware Technologies
2897 Brighton Road
Oakville, ON, L6H 6C9

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SECTION 08110

STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies steel doors, steel frames and related components.
- B. Terms relating to steel doors and frames as defined in ANSI A123.1 and as specified.

1.2 WORK

- A. Frames fabricated of structural steel: Section 05500, METAL FABRICATIONS.
- B. Aluminum frames entrance work: Section 08410, ALUMINUM ENTRANCES AND STORE FRONTS.

1.3 TESTING

Performed by an independent testing laboratory.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01340, SAMPLES AND SHOP DRAWINGS.
- B. Manufacturers Literature and Data:
 - 1. Fire rated doors and frames, showing conformance with NFPA 80 and Underwriters Laboratory, Inc., or Inchcape Testing Services or Factory Mutual fire rating requirements // and temperature rise rating for stairwell doors. Submit proof of temperature rating //.
 - 2. Sound rated doors, including test report from Testing Laboratory.

1.5 SHIPMENT

- A. Prior to shipment label each door and frame to show location, size, door swing and other pertinent information.
- B. Fasten temporary steel spreaders across the bottom of each door frame.

1.6 STORAGE AND HANDLING

- A. Store doors and frames at the site under cover.
- B. Protect from rust and damage during storage and erection until completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Stainless Steel: ASTM A167, Type 302 or 304; finish, NAAMM Number 4.
- B. Sheet Steel: ASTM A366, cold-rolled, stretcher leveled degree of flatness for panels (face sheets) of doors and panels.
- C. Anchors, Fastenings and Accessories: Fastenings anchors, clips connecting members and sleeves from zinc coated steel.
- D. Insect Screening: ASTM D3656, 18 by 18 regular mesh.
- E. Aluminum Sheet: ASTM B209/209M.
- F. Aluminum, Extruded: ASTM B221/221M.
- G. Prime Paint: Paint that meets or exceeds the requirements of A250.8.
 - 1. Model designations used are as follows:

- Models 2: Full flush seamless design.
Model 3: Stile & Rail-Flush Panel.
2. Core constructions are as follows:
 - a. Kraft honeycomb
 - b. Polyurethane
 - c. Polystyrene
 - d. Unitized steel Grid
 - e. Mineral fiberboard
 - f. Vertical steel stiffeners

2.2 FABRICATION GENERAL

A. GENERAL:

1. Follow SDI A250.8 for fabrication of standard steel doors, except as specified otherwise. Doors to receive hardware specified in Section 08710, Door Hardware. Tolerances as per SDI A250.8. Thickness, 44 mm (1-3/4 inches), unless otherwise shown.
2. Close top edge of exterior doors flush and seal to prevent water intrusion.
3. When vertical steel stiffeners are used for core construction, fill spaces between stiffeners with mineral fiber insulation.

B. Standard Duty Doors: SDI A250.8, Level 1, Model 2 of size and design shown. Use for interior locations only. Do not use for stairwell doors, security doors and detention doors.

C. Heavy Duty Doors: SDI A250.8, Level 2, Model 2 of size and design shown. Core construction types a, d, or f, for interior doors, and, types b, c, e, or f, for exterior doors.

D. Extra Heavy Duty Doors: SDI A250.8, Level 3, Model 2 of size and design shown. Core construction type d or f, for interior doors, and, type b, c, e, or f, for exterior doors. Use for detention doors, stairwell doors and security doors. See additional requirements for detention doors, under paragraph "Custom Hollow Metal Doors.

E. Smoke Doors

1. Close top and vertical edges flush.
2. Provide seamless vertical edges.
3. Apply Steel astragal to the meeting stile at the active leaf of pair of doors or double egress doors.
4. Provide clearance at head, jamb and sill as specified in NFPA 80.

F. Fire Rated Doors (Labeled):

1. Conform to NFPA 80 when tested by Underwriters Laboratories, Inc., Inchcape Testing Services, or Factory Mutual for the class of door or door opening shown.
2. Fire rated labels of metal, with raised or incised markings of approving laboratory shall be permanently attached to doors.
3. Close top and vertical edges of doors flush. Vertical edges shall be seamless. Apply steel astragal to the meeting stile of the active leaf of pairs of fire rated doors, except where vertical rod exit devices are

specified for both leaves swinging in the same direction.

4. Construct fire rated doors in stairwell enclosures for maximum transmitted temperature rise of 230 °C (450 °F) above ambient temperature at end of 30 minutes of fire exposure when tested in accordance with ASTM E152.

G. Custom Metal Hollow Doors:

Provide custom hollow metal doors where nonstandard steel doors are indicated. At the Contractor's option, custom hollow metal doors may be provided in lieu of standard steel doors. Door size(s), design, materials, construction, gages and finish shall be as specified for of standard steel doors.

1. Dutch Doors:

- a. Construct with two leaves, of same construction as specified for flush doors.
- b. Fabricate shelves of not less than 1.3 mm (0.053 inch) thick // steel // stainless steel // of size shown.
- c. Stock type brackets fabricated of the same type metal used to fabricate shelves.
- d. Shelves and brackets may be either welded, bolted, or screw-attached in place.

2.3 METAL FRAMES

A. General:

1. SDI A250.8, 1.3 mm (0.053 inch) thick sheet steel, types and styles as shown or scheduled.
2. Frames for exterior doors: Fabricate from 1.7 mm (0.067 inch) thick galvanized steel conforming to ASTM A525.
3. Frames for labeled fire rated doors // and windows //.
 - a. Comply with NFPA 80. Test by Underwriters Laboratories, Inc., Inchcape Testing Services, or Factory Mutual.
 - b. Fire rated labels of approving laboratory permanently attached to frames as evidence of conformance with these requirements. Provide labels of metal, with raised or incised markings.
4. Frames for lead-lined doors.
 - a. Frames for doors 900 mm (3 feet) or less in width and having lead lining of 1 mm or less in thickness, and not shown to have structural steel supports: Minimum 1.7 mm (0.067 inch) thick.
 - b. Frames for doors over 900 mm (3 feet) in width or having lead-lining more than 1 mm in thickness shown to be supported by and attached to structural steel subframes: Minimum 1.3 mm (0.053 inch) thick.
 - c. Lead-lining and its application is specified in Section 13091, LEAD RADIATION SHIELDING.
5. Frames for detention door (Type 22): Minimum 2 mm (0.093 inch) thick.

6. Frames for doors specified to have automatic door operators; Security doors (Type 36); service window: minimum 1.7 mm (0.067 inch) thick.

7. Knocked-down frames are not acceptable.

B. Reinforcement and Covers:

1. SDI A250.8 for, minimum thickness of steel reinforcement welded to back of frames.

2. Provide mortar guards securely fastened to back of hardware reinforcements except on lead-lined frames.

//3. Where concealed door closers are installed within the head of the door frames, prepare frames for closers and provide 1 mm (0.042 inch) thick steel removable stop sections for access to concealed face plates and control valves, except when cover plates are furnished with closer. //

C. Terminated Stops: SDI A250.8.

D. Glazed Openings // and // Panel Opening //:

a. Integral stop on exterior, corridor, or security side.

b. Design rabbet width and depth to receive glazing material or panel shown or specified.

E. Two piece frames:

a. One piece unequal leg finished rough buck sub-frames as shown, drilled for anchor bolts.

b. Unequal leg finished frames formed to fit subframes and secured to subframe legs with countersunk, flat head screws, spaced 300 mm (12 inches) on center at head and jambs on each side.

c. Preassemble at factory for alignment.

F. Frame Anchors:

1. Floor anchors:

a. Where floor fills occur, provide extension type floor anchors to compensate for depth of fill.

b. At bottom of jamb use 1.3 mm (0.053 inch) thick steel clip angles welded to jamb and drilled to receive two 6 mm (1/4 inch) floor bolts. Use 50 mm x 50 mm (2 inch by 2 inch) 9 mm by (3/8 inch) clip angle for lead lined frames, drilled for 9 mm (3/8 inch) floor bolts.

c. Where mullions occur, provide 2.3 mm (0.093 inch) thick steel channel anchors, drilled for two 6 mm (1/4 inch) floor bolts and frame anchor screws.

d. Where sill sections occur, provide continuous 1 mm (0.042 inch) thick steel rough bucks drilled for 6 mm (1/4 inch) floor bolts and frame anchor screws. Space floor bolts at 50 mm (24 inches) on center.

2. Jamb anchors:

a. Locate anchors on jambs near top and bottom of each frame, and at

intermediate points not over 600 mm (24 inches) apart, // except for fire rated frames space anchors as required by labeling authority //.

- b. Form jamb anchors of not less than 1 mm (0.042 inch) thick steel unless otherwise specified.
- c. Anchors set in masonry: Use adjustable anchors designed for friction fit against the frame and for extension into the masonry not less than 250 mm (10 inches). Use one of following type:
 - 1) Wire loop type of 5 mm (3/16 inch) diameter wire.
 - 2) T-shape or strap and stirrup type of corrugated or perforated sheet steel.
- d. Anchors for stud partitions: Either weld to frame or use lock-in snap-in type. Provide tabs for securing anchor to the sides of the studs.
- e. Anchors for frames set in prepared openings:
 - 1) Steel pipe spacers with 6 mm (1/4 inch) inside diameter welded to plate reinforcing at jamb stops or hat shaped formed strap spacers, 50 mm (2 inches) wide, welded to jamb near stop.
 - 2) Drill jamb stop and strap spacers for 6 mm (1/4 inch) flat head bolts to pass thru frame and spacers.
 - 3) Two piece frames: Subframe or rough buck drilled for 6 mm (1/4 inch) bolts.
- f. Anchors for observation windows and other continuous frames set in stud partitions.
 - 1) In addition to jamb anchors, weld clip anchors to sills and heads of continuous frames over 1200 mm (4 feet) long.
 - 2) Anchors spaced 600 mm (24 inches) on centers maximum.
- g. Modify frame anchors to fit special frame and wall construction and provide special anchors where shown or required.

2.4 TRANSOM PANELS

- A. Fabricate panels as specified for flush doors.
- B. Fabricate bottom edge with rabbet stop to fit top of door where no transom bar occurs.

2.5 LOUVERS

- A. General:
 - 1. Sight proof type with stationary blades the full thickness of the door.
 - 2. Design lightproof louvers to exclude passage of light but permit free ventilation.
 - 3. Provide insect screen and wire guards at exterior doors, except where doors are located below completely enclosed areaways, the wire guard is not required.
- B. Fabrication:
 - 1. Steel louvers 0.8 mm (0.032 inch) thick for interior doors, and 1.3 mm (0.053 inch) inch thick for exterior doors.

2. Fabricate louvers as complete units Install in prepared cutouts in doors.
 3. Weld stationary blades to frames. Weld louvers into door openings.
- C. Screen frames:
1. Frame of either extruded aluminum or tubular aluminum.
 2. Fabricate frame to hold wire fabric in a channel with a retaining bar anchor and to mount on surface of door with screws.
 3. Do not lap frame over louver opening.
 4. Miter corners of frame members and join by concealed mechanical fastenings extending about 57 mm (2-1/4 inches) into ends of each member.
 5. Drill frame and doors for screw attachment. Space screws 50 mm (2 inches) from end of each leg of frame and not over 300 mm (12 inches) on center between end screws.
 6. Finish: Clear anodized finish, 0.4 mils thick.
 7. Insect screens: Fasten insect screens to interior side of doors with retaining bar against door and not exposed to view.
 8. Wire guards:
 - a. Wire fabric shall be wire guard screen as specified.
 - b. Fasten wire guard to exterior side of door with retaining bar against door and not exposed to view.

2.6 SHOP PAINTING

SDI A250.8.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Plumb, align and brace frames securely until permanent anchors are set.
1. Use triangular bracing near each corner on both sides of frames with temporary wood spreaders at midpoint.
 2. Use wood spreaders at bottom of frame if the shipping spreader is removed.
 3. Protect frame from accidental abuse.
 4. Where construction will permit concealment, leave the shipping spreaders in place after installation, otherwise remove the spreaders after the frames are set and anchored.
 5. Remove wood spreaders and braces only after the walls are built and jamb anchors are secured.
- B. Floor Anchors:
1. Anchor the bottom of door frames to floor with two 6 mm (1/4 inch) diameter expansion bolts. Use 9 mm (3/8 inch) bolts on lead lined frames.
 2. Power actuated drive pins may be used to secure frame anchors to concrete floors.
- C. Jamb Anchors:
1. Anchors in masonry walls: Embed anchors in mortar. Fill space between frame and masonry wall with grout or mortar as walls are built.
 2. Coat frame back with a bituminous coating prior to lining of grout filling

in masonry walls.

3. Secure anchors to sides of studs with two fasteners through anchor tabs. Use steel drill screws to steel studs.
4. Frames set in prepared openings of masonry or concrete: Expansion bolt to wall with 6 mm (1/4 inch) expansion bolts through spacers. Where subframes or rough bucks are used, 6 mm (1/4 inch) expansion bolts on 600 mm (24 inch) centers or power activated drive pins 600 mm (24 inches) on centers. Secure two piece frames to subframe or rough buck with machine screws on both faces.

D. Install anchors for labeled fire rated doors to provide rating as required.

E. Frames for Sound Rated Doors:

1. Coordinate to line frames for sound rated doors with insulation.

F. Overhead Bracing (Lead Lined Frames): Where jamb extensions extend to structure above, anchor clip angles with not less than two, 9 mm (3/8 inch) expansion bolts or power actuated drive pins to concrete slab. Weld to steel overhead members.

3.2 INSTALLATION OF DOORS AND APPLICATION OF HARDWARE

Install doors and hardware as specified in Section, INSTALLATION OF DOORS AND HARDWARE.

- - - E N D - - -

Index of Abbreviations

Anchor Type

AWA - Adjustable Wall Anchor
EOA - Existing Opening Anchor
WIRE - Masonry Wire Anchor

Door Core

HC - Honeycomb
P/S - Polystyrene
PART - Particle Core

Door Mat'l

CRS - Cold Rolled Steel
G-OAK - Golden Oak
R-OAK - Red Oak

Door Series

HM - Hollow Metal Doors
WD - Wood Doors

Door Type

F - Flush
F - Flush
FG - Full Glass
FG18 - Full Glass 3x6
G - Half Glass
G9 - Half Glass 3x3
N - Narrow Lite

Frame Construction

CN - Cut & Notch
KD - Knock-Down

Frame Mat'l

CRS - Cold Rolled Steel
G-OAK - Golden Oak
R-OAK - Red Oak

Frame Profile

APP - Applied Stop
D - Double Bend (Drywall)
S - Single Bend (Masonry)

Frame Series

HM - Hollow Metal Frames
WD - Wood Frames



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Oakville, ON, L6H 6C9

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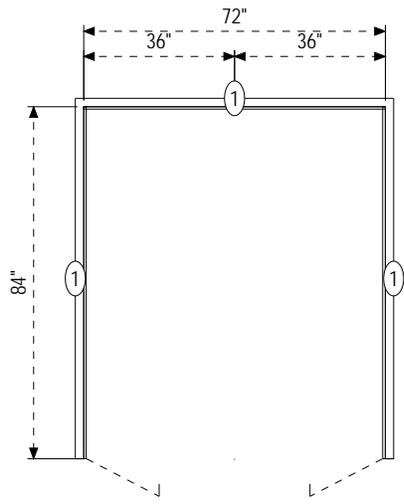
Openings Schedule

Opening Number(s)	Qty	Location 1	To/ From	Location 2	Elevation	Nominal Width	Nominal Height	Type	Hand	Label	Frame Catalog	Frame Series	Frame Matl	Frame Gauge	Frame Profile	Jamb Depth	Facing (Jamb, Hd)	Frame Construction	Section Num.	Anchor Type	Door Catalog	Door Series	Door Matl	Door Gauge	Door Thickness	Door Type	Lite Kit	Door Core	Door Seam	Door Edge	Door Finish	Hardware Group	Heading Num.	Remarks	
101	1	Exterior	From	Lobby	E-1	36", 36"	84"	Pair	RHRA		<Hollow Metal>	HM	CRS	16	S	5.3/4"	KD		1	EOA	<Hollow Metal>	HM	CRS	18	1.3/4"	F		PIS					Hdw Group 1	1	
102	1	Lobby	From	Foyer	E-1	36", 36"	84"	Pair	RHRA		<Hollow Metal>	HM	CRS	16	S	5.3/4"	KD		1	AWA	<Hollow Metal>	HM	CRS	18	1.3/4"	FG		HC					Hdw Group 1	1	
103	1	Foyer	To	Office 1		36"	84"	Single	LH		<Hollow Metal>	HM	CRS	16	D	6.1/8"	KD		2, 3, 4	AWA	<Hollow Metal>	HM	CRS	18	1.3/4"	G		HC					Hdw Group 2	2	
						E-2																													
103A	1	Office 1	To	Meeting Room 1	E-3	36"	84"	Single	LH		<Wood>	WD	G-OAK		APP	7.1/8"			5		<Wood>	WD	G-OAK		1.3/4"	G9		PART					Hdw Group 5	3	
104	1	Office 1	To	Storage	E-4	48"	84"	Single	RH		<Hollow Metal>	HM	CRS	16	D	5.3/4"			6	AWA	<Hollow Metal>	HM	CRS	18	1.3/4"	F		HC					Hdw Group 3	4	
105	1	Foyer	To	Office 2		36"	84"	Single	LH		<Hollow Metal>	HM	CRS	16	D	6.1/8"			2, 3, 4	AWA	<Hollow Metal>	HM	CRS	18	1.3/4"	G		HC					Hdw Group 2	2	
						E-2																													
105A	1	Office 2	To	Meeting Room 1	E-4	36"	84"	Single	RH		<Wood>	WD	G-OAK		APP	7.1/8"			5		<Wood>	WD	G-OAK		1.3/4"	G9		PART					Hdw Group 5	3	
106	1	Corridor 1	To	Office 3	E-3	36"	84"	Single	LH		<Hollow Metal>	HM	CRS	16	D	6.1/8"			2	AWA	<Hollow Metal>	HM	CRS	18	1.3/4"	G		HC					Hdw Group 2	2	
106A	1	Office 3	To	Meeting Room 1	E-4	36"	84"	Single	RH		<Wood>	WD	G-OAK		APP	7.1/8"			5		<Wood>	WD	G-OAK		1.3/4"	G9		PART					Hdw Group 5	3	
107	1	Corridor 1	To	Men's Washroom	E-4	36"	84"	Single	RH		<Hollow Metal>	HM	CRS	16	S	5.3/4"			7	WIRE	<Hollow Metal>	HM	CRS	18	1.3/4"	F		HC					Hdw Group 4	5	
108	1	Corridor 1	To	Women's Washroom	E-3	36"	84"	Single	LH		<Hollow Metal>	HM	CRS	16	S	5.3/4"			7	WIRE	<Hollow Metal>	HM	CRS	18	1.3/4"	F		HC					Hdw Group 4	5	
109	1	Corridor 1	To	Office 4	E-4	36"	84"	Single	RH		<Hollow Metal>	HM	CRS	16	D	6.1/8"			2	AWA	<Hollow Metal>	HM	CRS	18	1.3/4"	N		HC					Hdw Group 2	2	
109A	1	Office 4	To	Meeting Room 2	E-4	36"	84"	Single	RH		<Wood>	WD	R-OAK		APP	4.1/2"			8		<Wood>	WD	R-OAK		1.3/4"	G9		PART					Hdw Group 5	3	
110	1	Corridor 1	To	Office 5	E-4	36"	84"	Single	RH		<Hollow Metal>	HM	CRS	16	D	8.1/4"			9	AWA	<Hollow Metal>	HM	CRS	18	1.3/4"	FG		HC					Hdw Group 2	2	
110A	1	Office 5	To	Meeting Room 2	E-3	36"	84"	Single	LH		<Wood>	WD	R-OAK		APP	4.1/2"			8		<Wood>	WD	R-OAK		1.3/4"	G9		PART					Hdw Group 5	3	
111	1	Corridor 1	To	Meeting Room 1		36", 36"	84"	Pair	RHA		<Hollow Metal>	HM	CRS	16	D	7.1/8"			10, 11, 12, 13, 14	AWA	<Wood>	WD	G-OAK		1.3/4"	FG18		PART					Hdw Group 5	6	
						E-5																													
112	1	Corridor 1	To	Meeting Room 2		36", 36"	84"	Pair	RHA		<Hollow Metal>	HM	CRS	16	S	5.3/4"			15, 16, 17, 18, 19	AWA	<Wood>	WD	G-OAK		1.3/4"	FG18		PART					Hdw Group 5	6	
						E-5																													
113	1	Meeting Room 2	To	Unisex Washroom	E-3	36"	84"	Single	LH		<Wood>	WD	R-OAK		APP	4.1/2"			8		<Wood>	WD	R-OAK		1.3/4"	F		PART					Hdw Group 4	7	

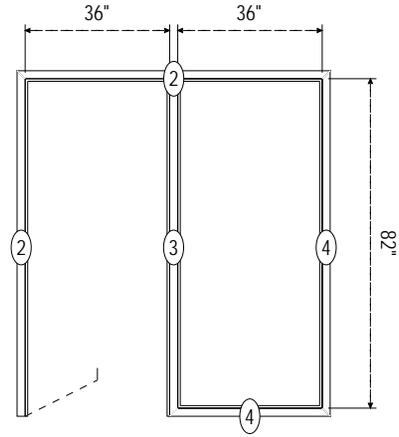


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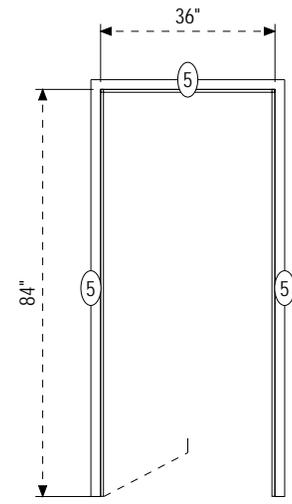
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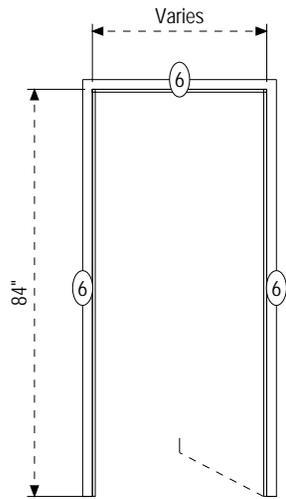
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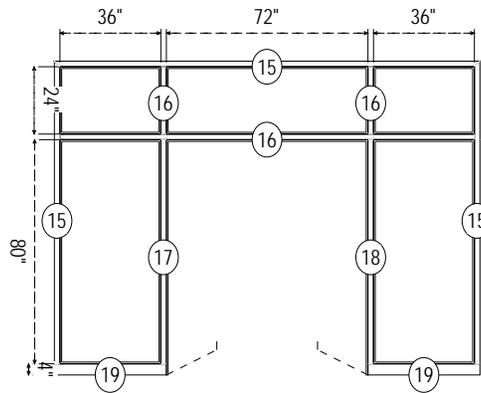
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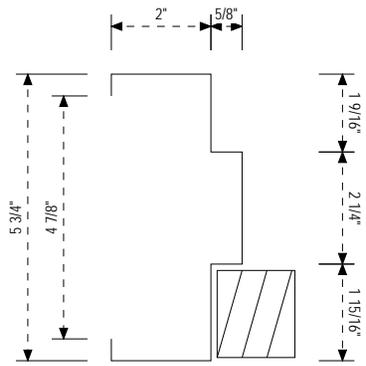


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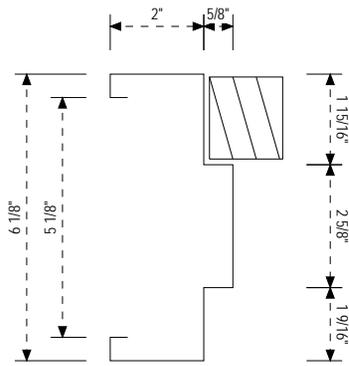


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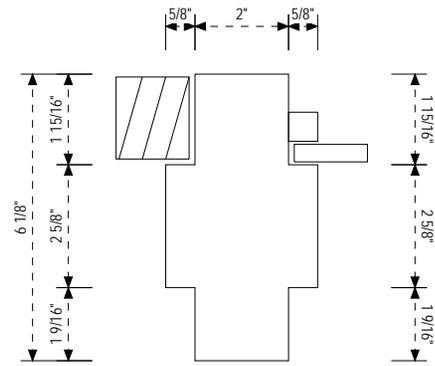
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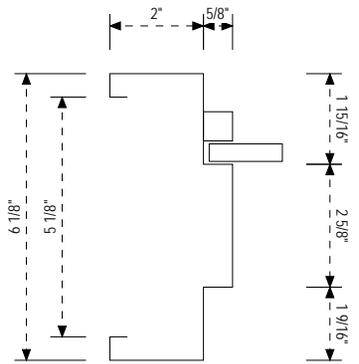
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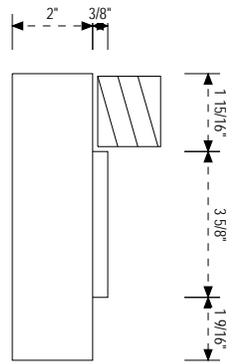
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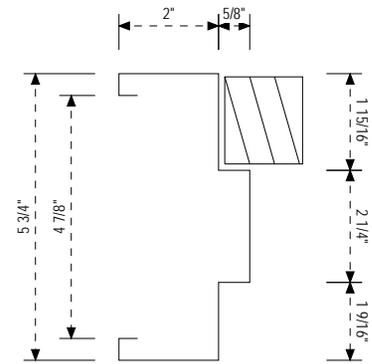
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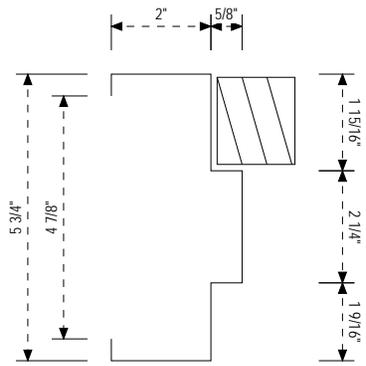


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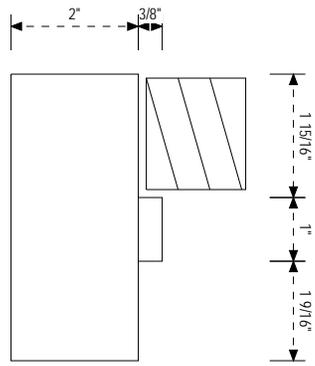


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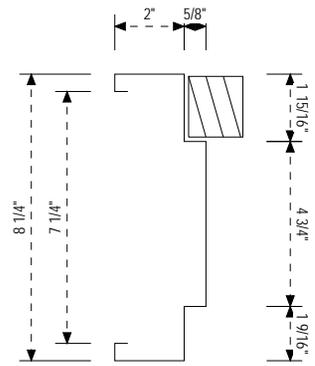
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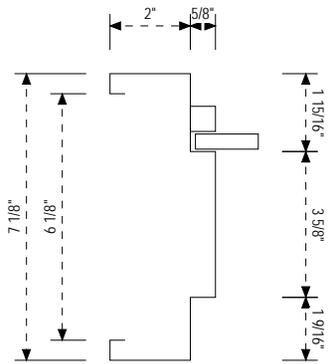
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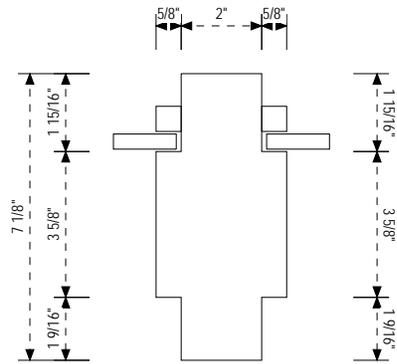
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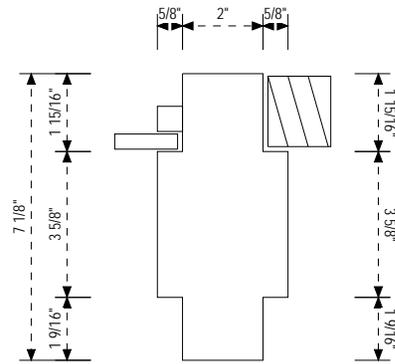
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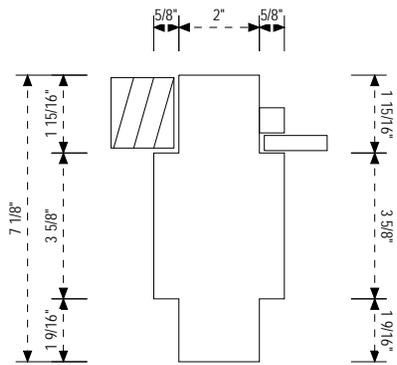


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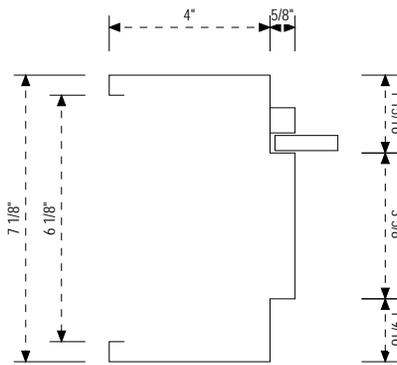


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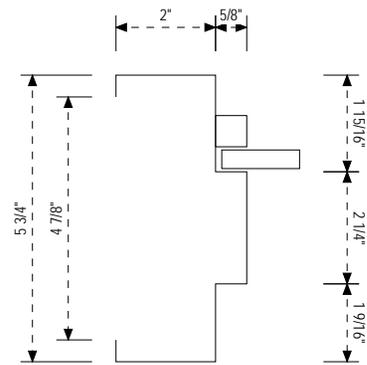
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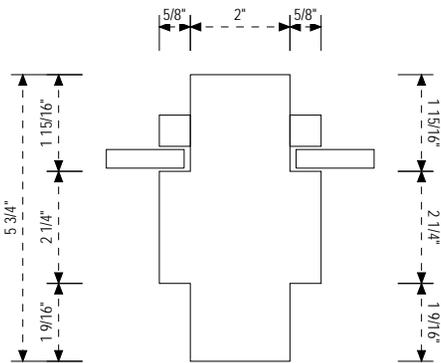
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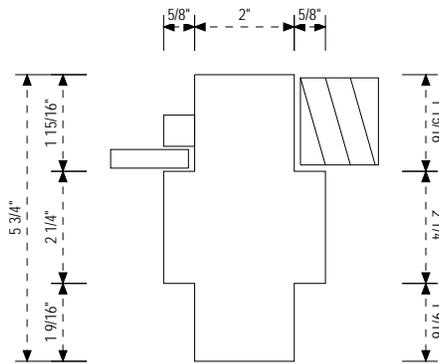
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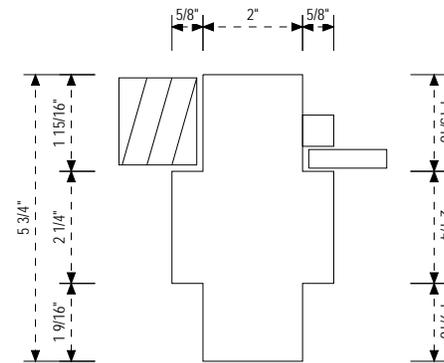
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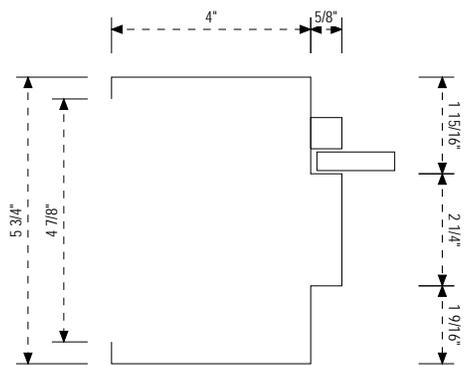


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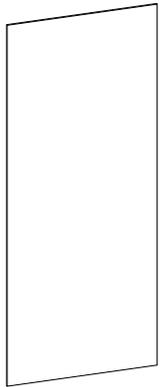


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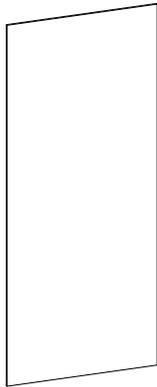


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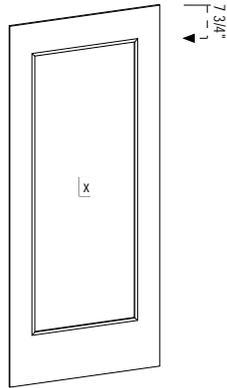
Export Sample Project
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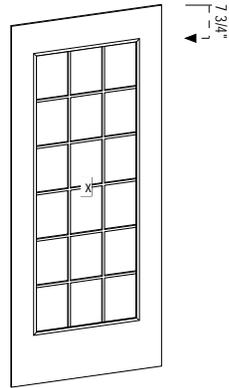
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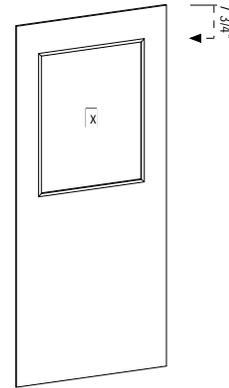
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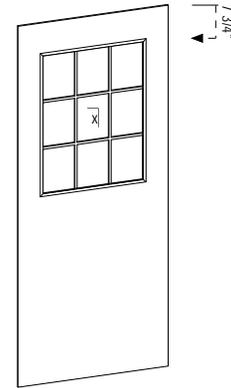
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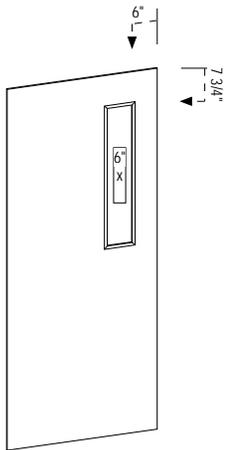
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G9



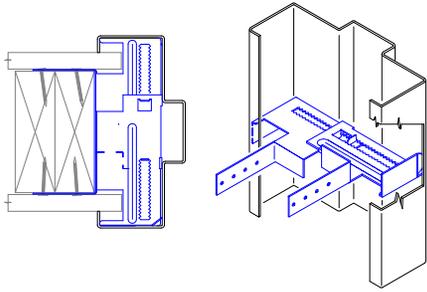
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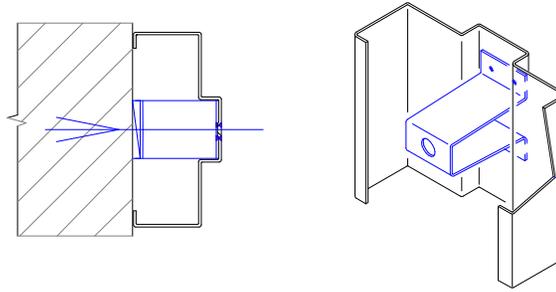
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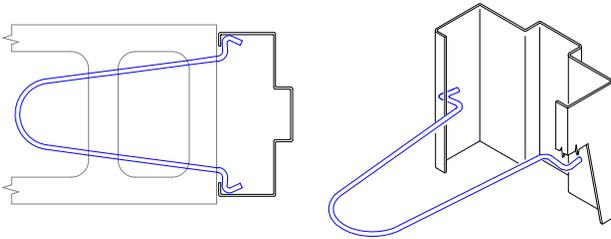
Anchor Type



Adjustable Wall Anchor (AWA)



Existing Opening Anchor (EOA)



Masonry Wire Anchor (WIRE)

Hardware Schedule

Heading #1 (Group: Hdw Group 1)

Item #1	1 Pair of doors 101, Exterior From Lobby	RHRA
Item #2	1 Pair of doors 102, Lobby From Foyer	RHRA

36", 36" x 84" x 1 3/4" - HM DR x HM FR

12	Standard Hinge	Hager BB1279 4 1/2" x 4 1/2" US26D NRP	US26D
2	Exit Device	Sargent MD8606 ETL US32D LHR	US32D
2	Exit Device	Sargent MD8606 ETL US32D RHR	US32D
2	Surface Closer	Sargent 1431 P9 EN LHR	EN
		Mount arm on weatherstrip.	
2	Surface Closer	Sargent 1431 P9 EN RHR	EN
		Mount arm on weatherstrip.	
4	Kick Plate	Ives 8400 CUSTOM US32D 8" x 34 1/2"	US32D
2	Weatherstripping	Hager 858S MIL N x 72"	MIL
4	Weatherstripping	Hager 858S MIL N x 84"	MIL

Heading #2 (Group: Hdw Group 2)

Item #3	1 Single door 103, Foyer To Office 1	LH
Item #4	1 Single door 105, Foyer To Office 2	LH
Item #5	1 Single door 106, Corridor 1 To Office 3	LH
Item #6	1 Single door 109, Corridor 1 To Office 4	RH
Item #7	1 Single door 110, Corridor 1 To Office 5	RH

36" x 84" x 1 3/4" - HM DR x HM FR

15	Standard Hinge	Hager BB1279 4 1/2" x 4 1/2" US3	US3
3	Lockset	Sargent 28-10G05 LL US3 LH	US3
2	Lockset	Sargent 28-10G05 LL US3 RH	US3
3	Surface Closer	Sargent 1431 UO EAB LH TB	EAB
2	Surface Closer	Sargent 1431 UO EAB RH TB	EAB
5	Kick Plate	Ives 8400 CUSTOM US3 3" x 12"	US3



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Heading #3 (Group: Hdw Group 5)

Item #8	1 Single door 103A, Office 1 To Meeting Room 1	LH
Item #9	1 Single door 105A, Office 2 To Meeting Room 1	RH
Item #10	1 Single door 106A, Office 3 To Meeting Room 1	RH
Item #11	1 Single door 109A, Office 4 To Meeting Room 2	RH
Item #12	1 Single door 110A, Office 5 To Meeting Room 2	LH

36" x 84" x 1 3/4" - WD DR x WD FR

15	Standard Hinge	Hager BB1279 4 1/2" x 4 1/2" US3	US3
5	Door Pull	Hager 11E x US3	US3
5	Push Plate	Hager 100T - 3" x 12" - US3	US3
2	Surface Closer	Sargent 1431 UO EAB LH TB	EAB
3	Surface Closer	Sargent 1431 UO EAB RH TB	EAB
5	Kick Plate	Ives 8400 CUSTOM US3 3" x 12"	US3

Heading #4 (Group: Hdw Group 3)

Item #13	1 Single door 104, Office 1 To Storage	RH
----------	--	----

48" x 84" x 1 3/4" - HM DR x HM FR

3	Standard Hinge	Hager BB1279 4 1/2" x 4 1/2" US3	US3
1	Lockset	Sargent 28-10G04 LL US3 RH	US3
1	Surface Closer	Sargent 1431 UO EAB RH TB	EAB

Heading #5 (Group: Hdw Group 4)

Item #14	1 Single door 107, Corridor 1 To Men's Washroom	RH
Item #15	1 Single door 108, Corridor 1 To Women's Washroom	LH

36" x 84" x 1 3/4" - HM DR x HM FR

6	Standard Hinge	Hager BB1279 4 1/2" x 4 1/2" US3	US3
1	Latchset	Sargent 28-10U65 LL US3 LH	US3
1	Latchset	Sargent 28-10U65 LL US3 RH	US3
1	Surface Closer	Sargent 1431 UO EAB LH TB	EAB
1	Surface Closer	Sargent 1431 UO EAB RH TB	EAB



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Heading #6 (Group: Hdw Group 5)

Item #16	1 Pair of doors 111, Corridor 1 To Meeting Room 1	RHA
Item #17	1 Pair of doors 112, Corridor 1 To Meeting Room 2	RHA

36", 36" x 84" x 1 3/4" - WD DR x HM FR

12	Standard Hinge	Hager BB1279 4 1/2" x 4 1/2" US3	US3
4	Door Pull	Hager 11E x US3	US3
4	Push Plate	Hager 100T - 3" x 12" - US3	US3
2	Surface Closer	Sargent 1431 UO EAB LH TB	EAB
2	Surface Closer	Sargent 1431 UO EAB RH TB	EAB
4	Kick Plate	Ives 8400 CUSTOM US3 3" x 12"	US3

Heading #7 (Group: Hdw Group 4)

Item #18	1 Single door 113, Meeting Room 2 To Unisex Washroom	LH
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36" x 84" x 1 3/4" - WD DR x WD FR

3	Standard Hinge	Hager BB1279 4 1/2" x 4 1/2" US3	US3
1	Latchset	Sargent 28-10U65 LL US3 LH	US3
1	Surface Closer	Sargent 1431 UO EAB LH TB	EAB



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Job No. 12345

Division-10 Schedule

Room #101

1	Toilet Partition	Bobrick 1032.63 AC - 72" D354, Barrier-Free Alcove Layout	D354
2	Hardware	Jacknob 15300, Alcove Clip Pak- Four #8340 & Screws	

Architectural Hinges



General Information

DETERMINE TYPE OF HINGE

- What is the door material (wood, stainless steel, fiberglass, or hollow metal)?
- What is the frame material (wood, stainless steel, channel iron, or hollow metal)?

Hinges are manufactured in accordance with ANSI/BHMA A156.1. Self-closing hinges and pivots are in accordance with ANSI/BHMA A156.17 using three hinges per opening on a 3'0" x 7'0" x 1³/₄" (91x 213 x 4.4 cm) door.

Round corners are available in 1/4" (standard) or 5/8" radius.

Full Mortise — Both leaves are mortised, one leaf in the door and one leaf in the frame (wood door or hollow metal door with wood frame or hollow metal frame).

Example — BB1279, 4¹/₂" x 4¹/₂" (114 x 114 mm), US26D

Half Mortise — One leaf is mortised in the door and the other is surface applied to the frame (hollow metal door with channel iron frame).

Example — BB1109, 4¹/₂" (114 mm), US26D

Full Surface — Both leaves are applied to the surface, one to the door and the other to the frame (metal core door or hollow metal door with channel iron frame).

Example — BB2171, 5" (127 mm), USP

Half Surface — One leaf is mortised in the frame and the other is surface applied to the face of the door (wood door with wood frame or metal core door with hollow metal frame).

Example — BB1163, 5" (152 mm), US26D

SELECT THE PROPER WEIGHT AND BEARING STRUCTURE

Because of the variety of door sizes and weights, hinges are placed into three groups:

Heavy Weight — Ball Bearing

Example — BB1199, 5" x 5" (127 x 127 mm), US32D

Standard Weight — Ball Bearing

Example — BB1279, 4¹/₂" x 4¹/₂" (114 x 114 mm), US26D

Standard Weight — Plain Bearing

Example — 1279, 4" x 4" (102 x 102 mm), US10

There are two factors that determine the weight and structure of the hinge: weight of the door and frequency of use. It is advisable to include the approximate weight of additional hardware that will be installed on the door.



Underwriter's Laboratories does not specifically apply UL listings to hinges. Instead, their Builder's Product Directory refers to NFPA80 Standard for Fire Doors and Fire Windows 1999 Edition, listed below.

Doors up to 60" (1.52 m) in height shall be provided with two hinges and an additional hinge for each additional 30" (0.76 m). Where spring hinges are used, at least two shall be provided.

Table 2-4.3.1 Builders Hardware Mortise, Surface, and Full Length Hinges, Pivots or Spring Hinges for Swinging Doors

Door Rating (hr)	Maximum Door Size		Minimum Hinge Size		Type Hinge
	Width	Height	Height	Thickness	
	ft. (m)		in. (mm)		
	For 1 ³ / ₈ " (44.5 mm) or thicker doors				
3, 1 ¹ / ₂ , 1, 3/4, 1/2, 1/3	4 (1.22)	10 (3.05)	4 ¹ / ₂ (114.3)	0.180 (4.57)	Steel, mortise or surface
3, 1 ¹ / ₂ , 1, 3/4, 1/2, 1/3	4 (1.22)	8 (2.44)	4 ¹ / ₂ (114.3)	0.134 (3.40)	Steel, mortise or surface
1 ¹ / ₂ , 3/4, 1/2, 1/3	3 ¹ / ₁₆ (0.96)	8 (2.44)	6 (152.4)	0.225 (5.72)	Steel, olive knuckle or paumelle
3, 1 ¹ / ₂ , 1, 3/4, 1/2, 1/3	4 (1.22)	10 (3.05)	4 (101.6)	0.225 (5.72)	Steel pivots (including top, bottom, and intermediate)
1 ¹ / ₂ , 1, 3/4, 1/2, 1/3	3 (0.91)	5 (1.52)	4 (101.6)	0.130 (3.30)	Steel, mortise or surface
1 ¹ / ₂ , 1, 3/4, 1/2, 1/3	2 (0.61)	3 (0.91)	3 (76.2)	0.092 (2.34)	Steel, mortise or surface
3, 1 ¹ / ₂ , 1, 3/4, 1/2, 1/3	3 (0.91)	7 (2.13)	4 ¹ / ₂ (114.3)	0.134 (3.40)	Steel, mortise or surface (labeled, self-closing, spring type)
3, 1 ¹ / ₂ , 1, 3/4, 1/2, 1/3	3 (0.91)	7 (2.13)	4 (101.6)	0.105 (2.67)	Steel, mortise or surface (labeled, self-closing, spring type)
	For 1 ³ / ₈ " (44.5 mm) doors				
3, 1 ¹ / ₂ , 3/4, 1/2, 1/3	3 (0.91)	7 (2.13)	3 ¹ / ₂ (89.9)	0.123 (3.12)	Steel, mortise or surface
3, 1 ¹ / ₂ , 1, 3/4, 1/2, 1/3	3 ² / ₃ (0.81)	7 (2.13)	3 ¹ / ₂ (89.9)	0.105 (2.67)	Steel, mortise or surface (labeled, self-closing, spring type)

NOTES:

1. All hinges or pivots, except spring hinges, shall be of the ball bearing type. Hinges or pivots employing other anti-friction bearing surfaces shall be permitted if they meet the requirements of ANSI A156.1, Standard for Butts and Hinges. Spring hinges shall be labeled.
2. Hinges 4¹/₂" (114mm) high, 0.180" (4.57mm) thick shall be permitted for use on wide and heavy doors or doors that are subjected to heavy use or unusual stress.
3. Some manufacturers can provide fire doors with hinges of lighter weight that are not of the ball bearing type where they are part of a listed assembly and meet the requirements of ANSI A156.1, Standard for Butts and Hinges, and have been tested to a minimum of 350,000 cycles.
4. Pivot sets made up of components that are smaller or of a lighter gauge than shown in this table shall be permitted to be used, provided they meet the requirements of ANSI A156.4, Door Controls (Closers) and are in accordance with the manufacturer's label service procedures.



Architectural Hinges

General Information

DETERMINE THE SIZE OF HINGE

The first thing to find is the height of the hinge. Follow the examples below. These are only examples. Job situations will offer many more variables.

Only on the Full Mortise hinges are there two dimensions, such as a 4 1/2" x 4 1/2" (114 x 114 mm). The first dimension indicates the height and the second dimension indicates the width when the hinge is in the open position.

HEIGHT OF HINGE		
THICKNESS OF DOOR	WIDTH OF DOOR	HEIGHT OF HINGE
1 3/8" (35 mm) Door	To 32" (81 cm)	3 1/2" (89 mm)
1 3/8" (35 mm) Door	32" to 36" (81 to 91 cm)	4" (102 mm)
1 3/4" (45 mm) Door	To 36" (91 cm)	4 1/2" (114 mm)
1 3/4" (45 mm) Door	36" to 48" (91 to 122 cm)	5" (127 mm)
1 3/4" (45 mm) Door	Over 48" (122 cm)	6" (152 mm)
2", 2 1/4" & 2 1/2" Door (51, 57 & 64 mm)	To 42" (107 cm)	5" Heavy Weight (127 mm)
2", 2 1/4" & 2 1/2" Door (51, 57 & 64 mm)	Over 42" (107 cm)	6" Heavy Weight (152 mm)

There are three dimensions to know in order to determine the minimum width of the hinge: door thickness, backset and clearance required.

1. When figuring the calculations for a wood door and wood frame, the door is flush with the casing or face of the frame. When figuring the calculations for a wood or metal door with a hollow metal frame, the door is inset approximately 1/8" (3.2 mm).
2. For doors up to 2 1/4" (57 mm) thick, the hinge is set back 1/4" (6.4 mm) from the back face of the door.
3. For doors over 2 1/4" (57 mm) thick, the hinge is set back 3/8" (9.5 mm) from the back face of the door.

Once these dimensions are known, the formula can then be applied.

Take the door thickness, minus the backset, times two, plus the clearance required. If the hinge size is not standard, then go to the next larger hinge width. If the width of the hinge is greater than the height of the hinge (example: 4 1/2" x 6" (114 x 152 mm)) this is referred to as a Wide Throw Hinge. This would apply only to full mortise hinges.

MINIMUM WIDTH OF HINGE			
DOOR THICKNESS	STANDARD BACKSET	MAX. CLEARANCE PROVIDED	WIDTH OF HINGE
1 3/8" (35 mm)	1/4" (6.4 mm)	1 1/4" (32 mm)	3 1/2" (89 mm)
		1 3/4" (45 mm)	4" (102 mm)
		2" (51 mm)	5" (127 mm)
1 3/4" (45 mm)	1/4" (6.4 mm)	1" (25 mm)	4" (102 mm)
		1 1/2" (38 mm)	4 1/2" (114 mm)
		2" (51 mm)	5" (127 mm)
2" (51 mm)	1/4" (6.4 mm)	3" (76 mm)	6" (152 mm)
		1" (25 mm)	4 1/2" (114 mm)
		1 1/2" (38 mm)	5" (127 mm)
2 1/2" (64 mm)	3/8" (9.5 mm)	2 1/2" (64 mm)	6" (152 mm)
		1" (25 mm)	5" (127 mm)
		2" (51 mm)	6" (152 mm)

DETERMINE THE NUMBER OF HINGES

The next determination is the number of hinges per door leaf. A general rule of thumb: one hinge for every 30" (762 mm) of door height or fraction thereof.

Door Height	Number of Hinges
Up to 60" (152 cm)	2 Hinges
Over 60" (152 cm) and not over 90" (229 cm)	3 Hinges
Over 90" (229 cm) and not over 120" (305 cm)	4 Hinges

For doors with a width greater than 37" (940 mm) to 48" (122 mm), an extra hinge could be used for additional strength. The extra hinge helps support the additional weight and tension applied to the frame created by the wider door width.

Architectural Hinges



General Information

HINGE TYPE				
FULL MORTISE HINGE LENGTH	FREQUENCY OF USE	MAXIMUM DOOR WEIGHT	MAXIMUM DOOR WIDTH	TYPE
4 1/2" (114 mm)	Low	75	36" (914 mm)	1279
4 1/2" (114 mm)	Medium	150	36" (914 mm)	BB1279
4 1/2" (114 mm)	High	150	36" (914 mm)	BB1168
5" (127 mm)	Low	100	36" (914 mm)	1279
5" (127 mm)	Medium	175	36" (914 mm)	BB1279
5" (127 mm)	High	175	36" (914 mm)	BB1168
6" (152 mm)	Low	125	36" (914 mm)	1279
6" (152 mm)	Medium	230	36" (914 mm)	BB1279
6" (152 mm)	High	230	36" (914 mm)	BB1168
MINIMUM CYCLE REQUIREMENTS				
	Plain Bearing		350,000	
	Standard Weight Ball Bearing		1,500,000	
	Heavy Weight Ball Bearing		2,500,000	

DETERMINE TYPE OF MATERIAL

Steel — This has great strength but it is a corrosive material. If the atmosphere that steel is used in is not stable, steel will begin to rust. The best application for steel is in a controlled environment, such as inside a building where the temperature and humidity are controlled.

Stainless Steel — This also has great strength. It is rust resistant and can be polished to a satin or bright finish. For highly corrosive areas, 316 grade or clear coat over 304L may be recommended. Hager Companies standard grade stainless steel is 304L.

Brass — This material is noncorrosive, rust resistant, and very decorative. However, it has less strength than the steel or stainless steel material. Brass is often used where appearance is of great concern as it may be polished and plated in various finishes.

Both steel and stainless steel hinges may be used on listed fire rated or labeled door openings. Brass material may not be used on fire rated or labeled openings because of the low melting point.

DETERMINE TYPE OF FINISH

All steel and brass material hinges can be plated to match the available finishes that are listed in the American National Standards Institute, standard ANSI/BHMA A156.18 Materials and Finishes.

Special Rust-Resisting Finishes

When using steel base material hinges, special finishing processes can be provided that will afford additional protection to the product. A nickel undercoat may be applied prior to plating. Although this will give added protection and is considered rust-resistant, it is not to be considered rust-proof. If a true rust-resisting hinge is needed, consider using a non-ferrous metal such as brass or stainless steel.

Note: Hager Companies only warrants US10B finish over brass base material. If steel base is necessary, Hager Companies recommends US10A lacquer finish.

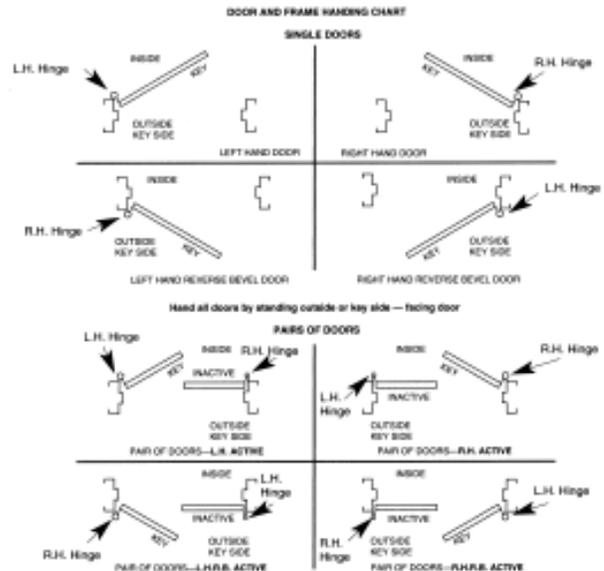
Antimicrobial Protection

Hager Companies' full line of US32D Stainless Steel Architectural Grade Hinges are available with AgION™ antimicrobial protection.

Hager Companies uses a powder coat process to apply the antimicrobial treated coating to guarantee durability and protection. Antimicrobial resistance on products is affected by moisture in the air. Silver ions interact with humidity and are released creating a cleaner surface.

DETERMINE HANDING

On some applications it will be necessary to order hinges that are handed. Most manufacturers use the suffix RH (right hand) and LH (left hand). Another general rule of thumb, most manufacturers make the Half Surface, Half Mortise and Full Surface hinges for right hand use. Conversion from right hand to left hand is very simple; take the pin out of the knuckle, remove the bottom plug, turn the hinge over, replace the plug in the bottom and the pin in the top of the knuckle, and the handing is reversed.



- The hand of a hinge is determined from the outside of the door to which it is applied. This is usually the locked side.
- When standing outside, if the door opens away (into the area) to the right, it takes a right hand hinge (also referred to as RH). If it opens to the left, it takes a left hand hinge (also referred to as LH).
- When standing outside, if the door opens toward (out of the area) the right, it takes a left hand hinge (also referred to as right hand reverse bevel – RHRB). If it opens to the left, it takes a right hand hinge (also referred to as a left hand reverse bevel – LHRB).



Architectural Hinges

General Information

DETERMINE PIN AND TIP STYLE

- The standard in the industry is the Flat Button Tip for 5-knuckle hinges.
- The flush/concealed tip is standard on 3-knuckle. If button tip is required, specify Exposed Tip (ET).
- Hospital tips (HT) are used primarily for security areas in hospitals and in prisons. This tip prevents hanging any objects on the tip of the hinge. Hager provides all hospital tipped hinges with an NRP set screw in the center of the knuckle, two cross pins, stainless steel hinge pin, and an oil port for lubrication purposes. If the hinge is ball bearing, the components used for the bearing are made of stainless steel.
- Decorative tips such as Acorn, Ball, Steeple and Urn are used in highly decorative areas of offices and residences.
- Fast riveted pins (FRP) are spun on both ends, making the pin permanent.



Flat Button Tip
(ET - 3 Knuckle)



Tri-Con Flush Pin



Hospital Type
(HT)



Acorn Tip



Ball Tip



Steeple Tip



Urn Tip



Fast Riveted Pin
(FRP)

ELECTRIC HINGES

The electrified hinge provides an easy means to monitor the opening as well as transferring power from the frame into the door.

Electric hinge modifications can be either exposed on the surface of the hinge or concealed in the hinge. When concealed, the modifications are not visible and normally go undetected by personnel using the openings.

All of the Hager Companies' electric hinges have been tested through UL in order that our products can be used on fire rated or labeled openings.

Another important point to remember, an electrically modified hinge is for **low voltage power transfer only (48 volts or under)**. Higher voltages are not allowed because of the potential dangers. Also a consideration is the Amperage rating of the power transfer hinges. Hager hinges include amperage ratings of 3.5 AMPS/continuous duty and 16.0 AMPS/intermittent duty (pulse).

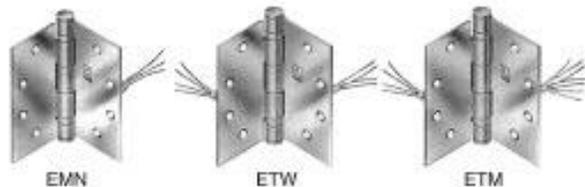
Normally modifications are made to full mortise hinges. For other applications, consult Hager Engineering for availability.

It is recommended that the **CENTER HINGE LOCATION** be used with all electrically modified hinges.

Hager Companies recommends the use of a mortar box or jamb box in order to protect the wire terminations on the inside of the frame. If this box is not used, the grout that may be poured into the frame will destroy the wiring and usually void the warranty on the product.



Exposed Electric Hinge Modification



Concealed Electric Hinge Modification

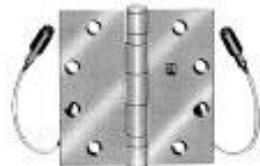
Architectural Hinges



General Information

AIR TRANSFER HINGE

One other product that can be used for a power transfer hinge is an air or pneumatic transfer hinge. This is used to transfer as much as 120 pounds of air pressure through the hinge in order to operate an air modified lock or exit device. Pneumatic power may be used in explosion-proof areas or where electric power is not sufficient to perform the necessary job.



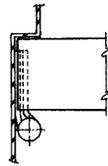
ATH
Air Transfer Hinge

SPECIAL HINGES

Raised Barrel

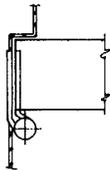
This option is used when the door is set back into the frame. The hinge knuckle is offset to allow it to clear the obstruction of the frame. There are three different types of applications:

On the **Jamb Surface Mount (JSM)** application, the door is mortised to accommodate both hinge leaves; it is sometimes referred to as double mortised. The Jamb Surface Mount may be applied to either a square or beveled edged door.

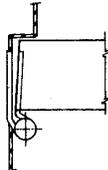


Jamb Surface Mount

The **Raised Barrel for Square Edged door (RBS)** and the **Raised Barrel for Beveled Edged (RBB)** door applications are mortised into the frame and door as a standard full mortise hinge. Standard offset is $\frac{3}{8}$ ". Depending on the depth of the frame, all three of these applications may restrict the degree of opening.



Raised Barrel Square



Raised Barrel Beveled

SPECIAL HINGES (cont.)

Swing Clear

This is used when the passage area must be the full width of the opening. Swing clear hinges are designed to swing the door completely clear of the opening when the door is opened 95°.



Spring

NFPA 80 has restricted the use of architectural grade spring hinges to fire rated doors of a maximum size of 3'0" x 7'0" (91 x 213 cm). Hager spring hinges are fire rated up to a 4'0" x 8'0" (122 x 244 cm) when 4 springs are used. Spring hinges must be used with ball bearing hinges. Do not use plain bearing hinges with spring hinges.



Detention

Investment cast full mortise hinges (IHTHB953 Series) are the standard 4 $\frac{1}{2}$ " x 4 $\frac{1}{2}$ " (114 x 114 cm) size with a mortise depth of 0.187" (4.7 mm). These hinges can carry doors weighing up to 600 pounds.

Anchor

The anchor hinges are intended for use on heavy wood or hollow metal doors in high frequency applications such as hospitals, schools, and public use buildings. These hinges are especially designed for use on doors where additional hardware (door closers or holders) may cause excessive strain or abuse to the door, frame, and/or hinges.

Anchor plates may be attached to either the frame and/or door. Their screws are placed in shear to the screws from the normal hinge plate. With the screws in shear, this prevents the hinges from pulling loose on the door or the frame.

There are two variations of the reinforcing/anchor hinge: one has a single extension leaf which is mortised into the frame only; the second has two extension leaves. One leaf is mortised into the frame and the other leaf is mortised into the top edge of the door. It will be necessary to know if the doors are square edged or beveled edged.





Architectural Hinges

General Information

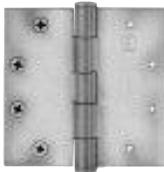
SPECIAL HINGES (cont.)

Aluminum Entrance

A slip-in hinge, plain bearing or ball bearing, is used with aluminum doors and frames. These hinges are manufactured for low to average frequency and medium weight aluminum doors and frames.

1277 or BB1277 – Both leaves are drilled and tapped for insertion into a slot in the door and the frame.

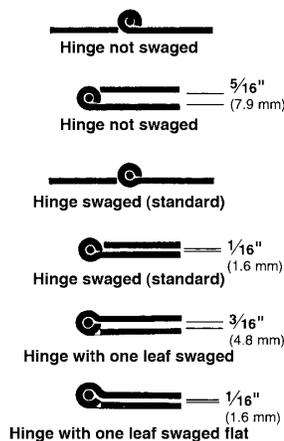
1278 or BB1278 – One leaf has the standard template hole punch and countersinking and the other leaf is drilled and tapped for insertion into a slot in the door or frame.



SWAGING

Swaging is a slight offset of the hinge leaf at the barrel. This offset permits the leaves to come closer together when the door is in the closed position. If the hinge were to be left in the natural state after the knuckle was rolled, the hinge would be referred to as a “flatback”. A flatback hinge has a gap between the leaves of approximately $\frac{5}{16}$ " (7.9 mm). This would allow heat and air-conditioning to escape, not to mention the unsightly gap between the door and frame.

The swaging on standard weight and heavy weight full mortise hinges provides $\frac{1}{16}$ " (1.6 mm) clearance between the leaves when the leaves are in the closed position. Full mortise hinges used on beveled doors will affect lockside clearance, especially for wide throw applications.



SECURITY FEATURES

Three additional features that are commonly used are: Non-removable Pin (NRP), Safety Stud (SH), and Reverse Security Stud (RSS).

These features are intended as deterrents only.

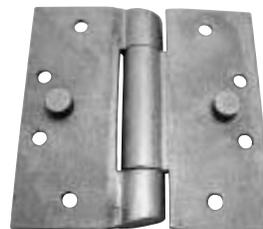
The non-removable pin (NRP) has a small set screw in the body of the barrel. This set screw is tightened down against the pin. The pin has a groove in the position where the set screw makes contact, allowing the set screw to seat. The set screw is positioned so it cannot be reached unless the door is opened. If pin removal is necessary, the set screw is merely removed and the pin tapped from the bottom in the usual manner.



The safety stud (SH) $\frac{3}{16}$ " (4.8mm) projection is a feature that places a stud on one leaf and a locking hole on the other leaf. When the door is closed, the stud is anchored into the opposite leaf. Even if the hinge pin is removed, the door is secure because the leaves are locked together.



The reverse security stud (RSS) $\frac{7}{16}$ " (11.1mm) projection is a feature that has a stud projecting from the back of both leaves into the reinforcing plate of both the frame and the door. It is intended to keep the hinge locked in place from abuse of battering or trying to shear the hinge and screws. This feature is primarily used in prisons and psychiatric areas.





Thresholds & Weatherstripping

General Information

New and existing fire doors are classified/labeled by one of the following designation systems:

- Hourly rating designation
- Alphabetical letter designation
- A combination of both

Common Applications for Hager Positive Pressure Edge Sealing & Smoke Seal Systems



Wall Rating	Door and Frame Rating	Door Application and Use	Door Types		Fire Doors Edge Sealing System	Smoke Doors "S" Label Smoke Seal	Fire & Smoke Doors Combination Seal
4 Hr.	3 Hour (A Label) 180 Minute	Openings in fire walls and walls that divide a single building into fire areas	Hollow Metal Hollow Metal	Pairs Singles	— —	721, 726, 736 721, 726, 736	— —



2 Hr.	1 1/2 Hour (B Label) 90 minute	Openings to stairwells and elevator shafts; vertical communication or egress through a building, including 2-hr. rated partitions providing horizontal fire separations	Wood Composite Hollow Metal Wood Composite Hollow Metal	Pairs Pairs Singles Singles	724, 729 — 724, 729 —	721, 726, 736 721, 726, 736 721, 726, 736 721, 726, 736	719, 720, 722, 734 — 719, 720, 722, 734 —
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2 Hr.	1 1/2 Hour (D Label) 90 minute	Opening where there is a chance of severe fire exposure from the exterior of the building	Hollow Metal Hollow Metal	Pairs Singles	— —	721, 726, 736 721, 726, 736	— —
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1 Hr.	*1 Hour (B Label) 60 Minutes	Doors that divide occupancies in a building (building less than 4 stories tall)	Wood Wood	Pairs Singles	724, 729 724, 729	721, 726, 736 721, 726, 736	719, 720, 722, 734 719, 720, 722, 734
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*Currently rating only applies to wood doors.



1 Hr.	3/4 Hour (E Label) 45 Minute	Opening in an exterior wall with the potential to be exposed to moderate to light fire from the outside of the building	Hollow Metal Hollow Metal	Pairs Singles	— —	721, 726, 736 721, 726, 736	— —
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1 Hr.	3/4 Hour (C Label) 45 Minute	Openings in walls or partitions between rooms and corridors	Wood Composite Wood Composite	Pairs Singles	724, 729 724, 729	721, 726, 736 721, 726, 736	719, 720, 722, 734 719, 720, 722, 734
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1 Hr.	*1/3 Hour 20 Minute	Openings in corridors where smoke and draft control is required *Does not have letter designation	Wood/Particle Core Wood/Particle Core	Pairs Singles	724, 729 724, 729	721, 726, 736 721, 726, 736	719, 720, 722, 734 719, 720, 722, 734
-------	------------------------	--	--	------------------	----------------------	--------------------------------	--

*All of the labels listed above have the capability of being both fire and smoke barrier openings. However, not all openings require a smoke label under UBC 7-2 (1997). Openings requiring smoke labels are detailed either by the fire authority having jurisdiction, local code, NFPA 101 or NFPA 5000.



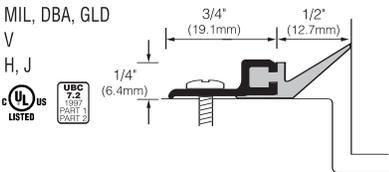
Weatherstripping

Jamb

- Fasteners: #6 x 5/8" Pan head sheet metal screws
- Notes:
- MIL finish weatherstripping is supplied with zinc plated screws
 - Brass weatherstripping is supplied with brass screws
 - Color anodized weatherstripping is supplied with screws plated to match
 - Stainless steel weatherstripping is supplied with stainless steel screws

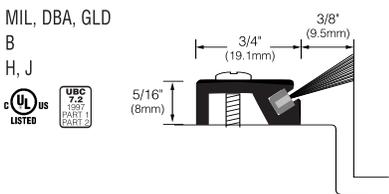
785S

Finishes: MIL, DBA, GLD
 Inserts: V
 Category: H, J
 Certifications:



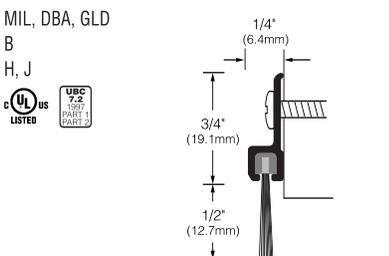
800S

Finishes: MIL, DBA, GLD
 Inserts: B
 Category: H, J
 Certifications:



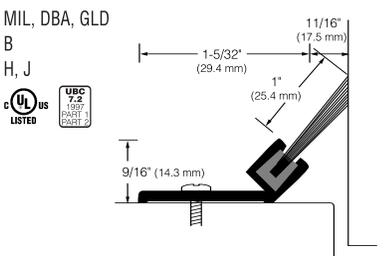
802S

Finishes: MIL, DBA, GLD
 Inserts: B
 Category: H, J
 Certifications:



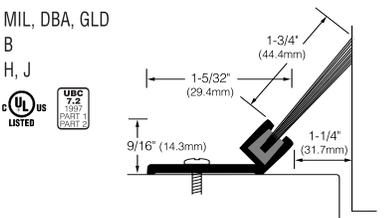
803S

Finishes: MIL, DBA, GLD
 Inserts: B
 Category: H, J
 Certifications:



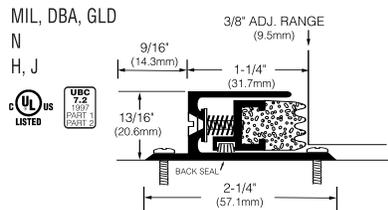
808S

Finishes: MIL, DBA, GLD
 Inserts: B
 Category: H, J
 Certifications:



858S

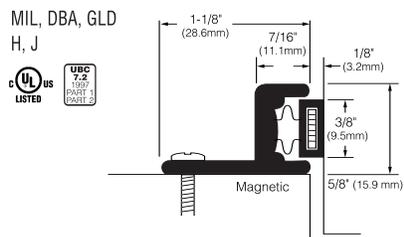
Finishes: MIL, DBA, GLD
 Inserts: N
 Category: H, J
 Certifications:



- Notes:
- Use with stopless frames only
 - Spring adjustable

859S

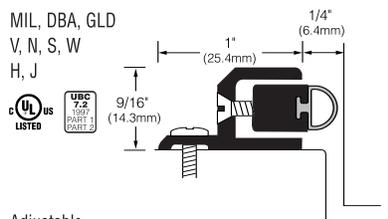
Finishes: MIL, DBA, GLD
 Category: H, J
 Certifications:



Note: Magnetic

860S

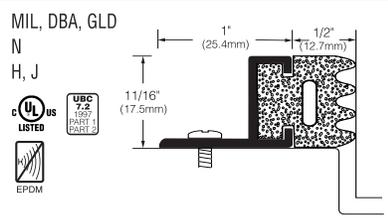
Finishes: MIL, DBA, GLD
 Inserts: V, N, S, W
 Category: H, J
 Certifications:



Note: Adjustable

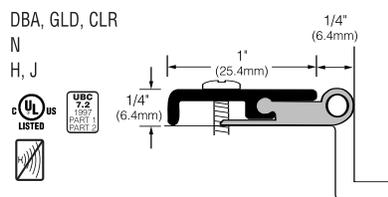
861S

Finishes: MIL, DBA, GLD
 Inserts: N
 Category: H, J
 Certifications:



862S

Finishes: DBA, GLD, CLR
 Inserts: N
 Category: H, J
 Certifications:



Finish Codes • MIL - mill finish aluminum • DBA - dark bronze anodized • GLD - gold anodized
 CLR - clear anodized

Insert Codes • V - Vinyl • N - Neoprene, EPDM, or TPE • S - Silicone • W - Pile • B - Nylon Brush



MANUFACTURING OPTIONS

Hager Companies can deliver custom door pulls made to your specifications, or choose from our collection of pull designs. Hager Companies' comprehensive selection of door pull hardware includes standard push/pull bars or multiple push bar combinations with center-to-centers made to order.

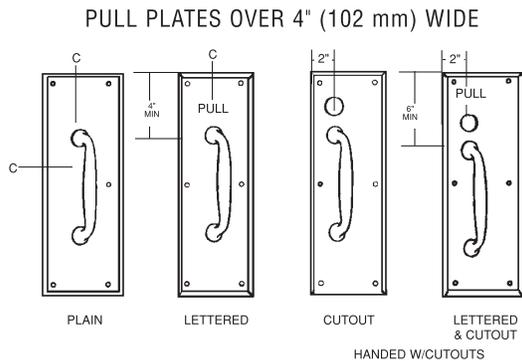
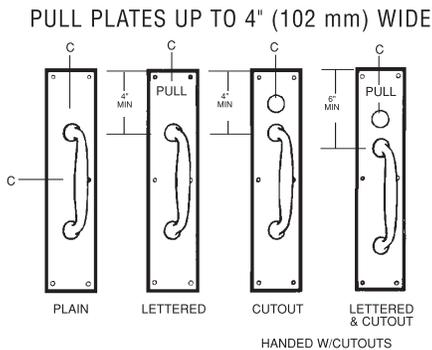
PUSH/PULL PLATE DETAILS

Standard Grip Positions

Pulls are centered vertically or lowered when necessary to meet minimum top spacing requirement. Be certain the pull selected will fit on specified plate under these conditions.

Special Pull Positions

Where pairs of doors are involved and active leaf pull plate is lettered



or has a cutout, order pull plate for inactive leaf **Grip To Align (WOC)**. This will assure horizontal alignment of pull on both plates.

Always furnish complete details when ordering non-standard pull positions.

Cut Outs

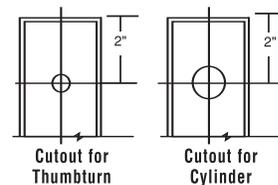
Standard cutout sizes: Cut for Cylinder (CFC) – 1 1/4" (32 mm) diameter; Cut for Thumbturn (CFT) – 3/8" (10 mm) diameter.

All plates may be ordered with cutout option by adding the appropriate suffix (i.e., 30S-CFC).

Standard cutouts are positioned 2" (51 mm) from top of plate where this option has been ordered. Cutouts are centered on plates up to 4" (102 mm) wide or 2" (51 mm) from edge of plates over 4" (102 mm) wide. The latter are "handed" with cutouts. Furnish hand of door when ordering.

Provide complete details for all non-standard cutouts.

Flush Back Mounting



Pull plates using #3, 4, or 10 pull types can be furnished with a flush back (no projections). Specify code FB, (i.e., 33E-FB).

Note: Use thru-bolts supplied with mountings for best security.

Back-To-Back Mounting



Many pulls may be ordered back-to-back (BTB) and availability will be noted on each particular product page (refer to product page). Specify the correct part number and center-to-center unless already specified.

Handicap Option

Pulls that must meet the 2 1/2" (64 mm) clearance for ADA requirements are available. Must specify part number with prefix "H" (i.e., H2E). Please refer to each individual part number for availability.

Engraving

Typical engraved lettering is in Helvetica style and colored black. On push or pull plates, standard position is horizontal on a line 2" (51 mm) from top of plate.



Note: Unless specified in product details, all catalog units are reversible-usable with any door swing. However, the method of fastening or engravings usually "hand" an otherwise reversible unit and require the "hand of door" when ordering.



Trim & Auxiliary

General Information

Fasteners

Illustrated below are various types of fasteners that can be furnished by Hager Companies. Please specify type of fastening desired. All types of fastening cannot be used with all items of hardware. If specified method is not possible, we reserve the right to furnish whatever type we feel is best suited for the installation. When used with tempered glass doors specify thickness of glass and hole diameter.



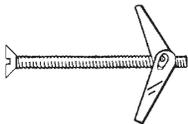
SEX BOLT and machine screws
Various sizes



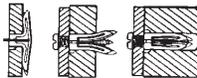
LEAD EXPANSION SHIELD
When specified, used with floor stop



PLASTIC SHIELD
and full threaded screw



TOGGLE BOLT



TOGLER furnished with wall bumpers
Supplied with #6-13/4" screw



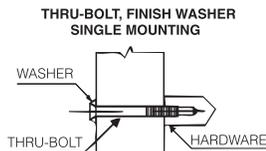
THRU-BOLT and countersink washer
Flat head; size as required



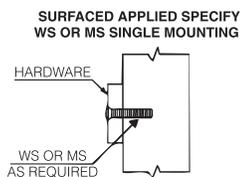
SPANNER HEAD machine screws
Various sizes furnished at extra charge



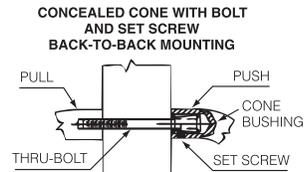
TORX HEAD machine screws
Various sizes furnished at extra charge



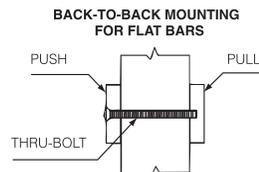
TYPE 1



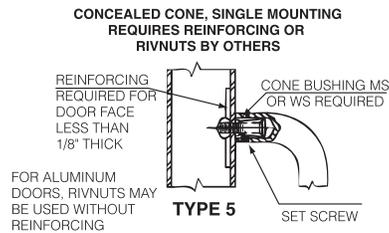
TYPE 2



TYPE 3

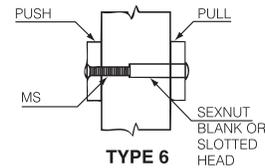


TYPE 4



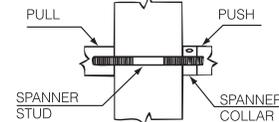
TYPE 5

**SEX BOLT SETS
BACK-TO-BACK MOUNTING**



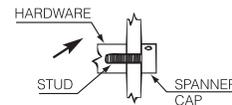
TYPE 6

**CONCEALED SPANNER, COLLAR & STUD
BACK-TO-BACK MOUNTING SETS
WITH ROUND BASES ONLY**



TYPE 7

**SPANNER CAP, SINGLE MOUNTING FOR
ROUND BASES ON TEMPERED GLASS DOORS**



TYPE 8

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Pulls, Plates and Trim

Pulls	page
8102 Door PullB2
8103 Door PullB2
8103EZ Door PullB3
8105 Door Pull .....	.B3
8111-5 Door Pull .....	.B4
8112-5 Door PullB4
8121 Door PullB5
8190 Offset Door PullB5

Push and Pull Plates

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8300 Pull Plate (less pull)B6
8302 Pull PlateB7
8303 Pull PlateB7
8305 Pull Plate (with 8105)B7
8311 Pull Plate (with 8111-5)B8

Push Bars

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9103EZ Pushbar & PullB9
9190 Pushbar & PullB9

Vandal Resistant Trim

VR810-DT, VR814DT Vandal Resistant TrimB10
VR810-NL, VR814-NL Vandal Resistant Trim .....	.B10
VR900, VR904 Vandual Resistant Trim .....	.B11
VR900LLP, VR904LLP Vandual Resistant Trim .....	.B11
VR910-DT, VR914-DT Vandual Resistant Trim .....	.B12
VR910-NL, VR914-NL Vandual Resistant Trim .....	.B12
VR910M-DT, VR914M-DT Vandual Resistant trim .....	.B12
VR910M-NL, VR914M-NL Vandual Resistant Trim .....	.B12

Protection Plates

8400 Protection Plate .....	.B13-14
8402 Protection Plate (UL)B13-14

Mounting Detail

Special Mounting DetailB15-17
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A
Hinges & Pivots

B1
Pulls & Plates

C
Flush Bolts & Coordinators

D
Latches, Catches & Bolts

E
Stops

F
Exterior Hardware

G
Miscellaneous Hardware

B1

8400 Series Protection Plates

- Door protection plates are available in .050" thick brass, stainless steel or aluminum; and 1/8" thick high impact polyethylene in clear or black.
- Bevel edge options; specify B4E for all four edges.
- Mounting screw pack furnished standard, 16 screws per pack. Optional screw packs are available for TEK or TORK screw heads. Refer to the following chart for ordering.
- Specify NMH for no mounting holes.
- Specify NMH-A for no mounting holes with adhesive.
- Specify CS for counter sunk mounting holes.
- Specify ERS prepped with extra row of screws.

Kickplate Gasket Tape Tape is recommended when using a brass plate on a metal door to reduce tarnishing from electrolytic oxidation. One tape pack will cover on the perimeters of a 8" x 34" kickplate. Order 8401 Gasket Tape.



8400 Protection Plate
8402 (UL)* Protection Plate

*UL mark appears in upper right corner.

Number of screw packs required by plate size (specify TEK Screws or TORK screws).

	22"-25"	26"-33"	34"-41"	42"-48"
4"-8"	1	1	1	1
9"-16"	1	1	1	1
17"-24"	1	1	1	2
25"-32"	1	1	2	2
33"-40"	1	2	2	2
41"-48"	2	2	2	2

Finishes brass

US Number	US3	US4	US10	US10B	US15	US26	US26D
BHMA	605	606	612	613	619	625	626

Finishes stainless steel

US Number	US32	US32D
BHMA	629	630

Finishes aluminum

US Number	US28
BHMA	628

Finishes plastic

Clear and Black

A
Hinges & Pivots

B13
Pulls & Plates

C
Flush Bolts & Coordinators

D
Latches, Catches & Bolts

E
Stops

F
Exterior Hardware

G
Miscellaneous Hardware

10 Line Lever Lock Specifications



SARGENT

1-800-727-5477

www.sargentlock.com

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Features, Benefits & Applications 1
 Lever & Rose Designs 2
 Functions 3-4
 Electromechanical 5
 Prefixes & Strikes 6
 How to Order, Finishes, Packaging, Architectural Specifications 7

Specifications

For Doors	1-3/4" (44mm) thick door adjusts to 2" (51mm) standard
Backsets	2-3/4" (70mm) standard 3-3/4" (95mm) backset available (23- prefix) 5" (127mm) backset available (25- prefix)
Cylindrical Housing	Steel, zinc dichromate finish
Front	Wrought brass, bronze and stainless steel 2-1/4" (57mm) x 1-1/8" (29mm) 1/8" (3mm) in 2" (51mm) Fixed Bevel
Strike	Wrought brass, bronze and stainless steel 800 curved lip strike – standard 808 curved lip ANSI strike (28- prefix) Wrought box strike available (WBS suffix)
Hand	Non-handed – B, L, J and P lever designs Handed – G and Y Coastal lever designs
Roses	Heavy wrought brass and bronze
Latch	Stainless steel 1/2" (13mm) throw Brass 3/4" (19mm) throw for pairs of doors (41- prefix)
Cylinder	Brass, 6 pin, LA keyway standard
Keys	Two, nickel silver
Masterkeying	Can be master keyed or grand master keyed Construction key systems available
Finishes	3, 4, 9, 10, 10B, 10BL, 15, 20D, 26, 26D
Options	For detailed information see "Prefixes"
Door Prep	ANSI A115.2 (161) Modified
Minimum Stile	4-1/2" (114mm)

Certification Compliance

ANSI/BHMA	Meets and exceeds ANSI A156.2 Series 4000 - Grade 1
UL	UL listed to U.S.A. and Canadian safety standards Listed for 3 hour doors (double doors require 41 - prefix)
Positive Pressure	Meets UL 10C and UBC 7-2 (1997)
ADA	All levers conform to ADA requirement for barrier-free accessibility.
California Code	Levers (L, J & P) conform to California Administrative Code Title 19 and 24.
Hurricane Code	All individual components of a total door opening are required to comply with each code. Refer to the SARGENT Website (www.sargentlock.com) for specific code compliance listings for both the lock hardware and other door components.



Look for the LYNX™

As part of their promise to provide innovative, fast and effective, and higher security solutions to their customers, ASSA ABLOY Group companies offer ElectroLynx, a universal quick-connect system that simplifies the electrification of the door opening.

ElectroLynx™ is a registered trademark of ASSA ABLOY North America, Inc.



SARGuard Coating

- Revolutionary finish coating available on all SARGENT product lines, utilizes a silver-based antimicrobial compound from AgION Technologies
- As an integral part of the finish coating, SARGuard lasts for the life of the hardware
- SARGuard coating permanently suppresses the growth of bacteria, algae, fungus, mold and mildew. It is effective against a broad spectrum of bacteria.
- Non-toxic and completely safe. The AgION antimicrobial compound is EPA and NSF approved and FDA listed for use in medical and food preparation equipment.
- Applications: Anywhere there is need for a clean environment (hospitals, laboratories, schools, medical centers, daycare, food processing etc.)



The AgION antimicrobial is not intended as a substitute for good hygiene. Coated products must still be cleaned to insure the surfaces will be free of destructive microbes. SARGENT makes no representations or warranties, express or implied, as to the efficacy of the AgION antimicrobial. A copy of the AgION warranty is available upon request.

On The Cover

- 10G05 X GL

5/25/04

An ASSA ABLOY Group company

ASSA ABLOY

10 Line Lever Lock Features, Benefits & Applications



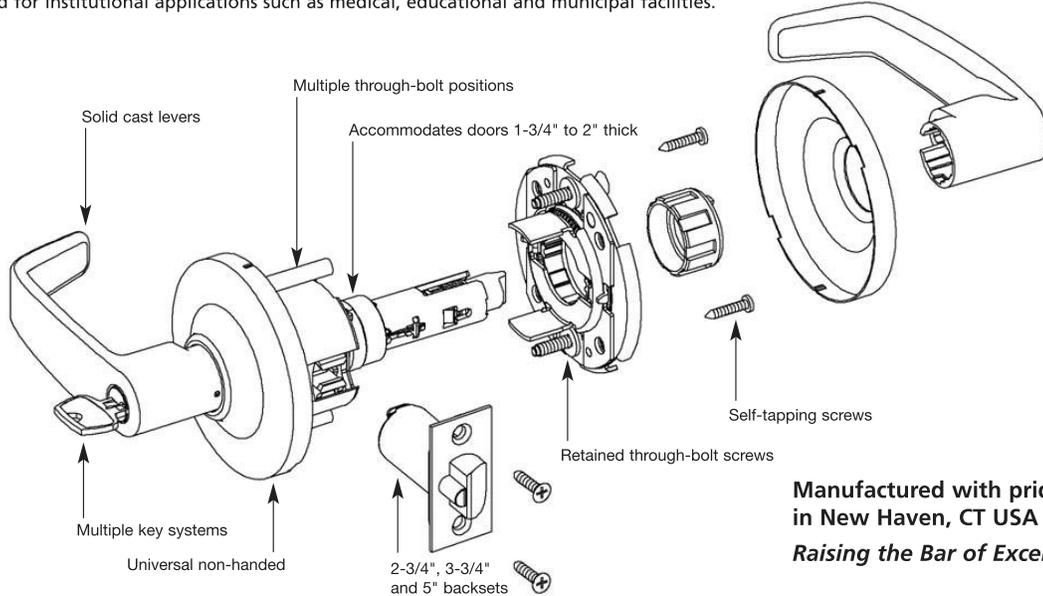
SARGENT

1-800-727-5477

www.sargentlock.com

Features & Benefits

A heavy duty cylindrical key-in-lever lock designed to exceed the requirements of ANSI 156.2 Series 4000 Grade 1. The 10 Line is the standard for institutional applications such as medical, educational and municipal facilities.



**Manufactured with pride
in New Haven, CT USA**
Raising the Bar of Excellence.

Strength, Durability and Security

- Cycle Test: Exceeds 5 times A156.2 Grade 1 requirements
- Abusive Locked Lever Torque- without entry gained: Exceeds 1.5 times A156.2 Grade 1 requirements
- **7 YEAR LIMITED WARRANTY** – no service required to maintain warranty

Convenience

- Installs in 1 minute or less
- Quickly adapts to fit multiple through-bolt positions
- User Friendly Packaging
- User Friendly Instruction Sheets
- Convenient Installation diagram on box

Design

- Solid feel and precise lever action
- Slim Rose design available
- Decorative Levers — Coastal Series designs – Gulfport and Yarmouth
- Levers are solid one piece cast construction, except "J" lever

Flexibility

- Fits a variety of door preparations with adaptable through-bolt positioning
- Accommodates retrofit applications with optional 3-3/4" and 5" backset latches
- 6 ADA lever styles to complement a wide array of design applications
- Levers (B, L, J & P) are non-handed for efficient warehousing and for ease of installation
- 10 Architectural grade finishes
- 22 Functions
- SARGENT uses engineered solutions and flexible manufacturing processes to accommodate special applications

Security

- Torx® and spanner screws optional
- Classroom security and multiple locking functions available
- Vandal resistant trim optional (FW- prefix)
- Security key systems available (V-10, Signature, Keso, XC)

Applications

- Designed to conform to national & state fire and handicapped requirements
- Grade 1 Lock
- Heavy duty commercial and institutional interior and exterior doors
- Offices
- Schools/Universities
- Hospitals
- Manufacturing facilities

Innovation

- SARGENT's revolutionary SARGuard™ available. This antimicrobial silver-based finish coating permanently suppresses the growth of bacteria, algae, fungus, mold and mildew. EPA and NSF approved and FDA listed
- Broad offering of electro-mechanical configurations offer higher security for the most demanding access/egress control applications
- SARGENT's revolutionary SARGuard™ available. This antimicrobial silver-based finish coating permanently suppresses the growth of bacteria, algae, fungus, mold and mildew. EPA and NSF approved and FDA listed



- ElectroLynx™ is a plug-in universal connector system that allows users to simply link together the wired components of a doorway, without cumbersome soldering or wire nuts
- As part of their promise to provide innovative, fast and effective, and higher security solutions to their customers, ASSA ABLOY Group companies offer ElectroLynx, a universal quick-connect system that simplifies the electrification of the door opening
- ElectroLynx™ is a registered trademark of ASSA ABLOY North America, Inc.



10 Line Lever Lock Lever & Rose Designs



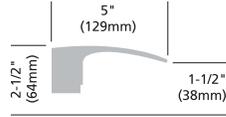
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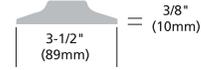
B Lever Design

- Lever: B-Solid Cast



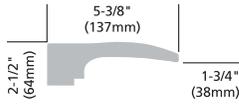
G Rose Design

- Rose G - Heavy Wrought



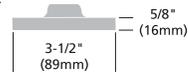
Y Lever Design - Coastal Design - Yarmouth

- Lever: Y-Solid Cast
- Handed



L Rose Design

- Rose L - Heavy Wrought



J Lever Design

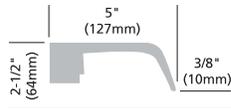
- Lever: J-Wrought



J lever – not available with Freewheeling or Interchangeable Core

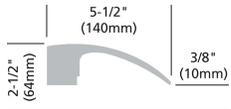
L Lever Design

- Lever: L-Solid Cast



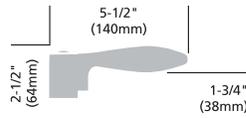
P Lever Design

- Lever: P-Solid Cast



G Lever Design - Coastal Design - Gulfport

- Lever: G-Solid Cast
- Handed



NOTE: Any rose or lever on this page can be combined to suit individual taste.

NOTE: All lever height measurements represent total distance from door face.

10 Line Lever Lock Functions



SARGENT

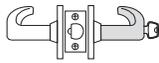
1-800-727-5477

www.sargentlock.com

Single Cylinder Functions

04 Storeroom or Closet

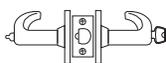
10G04



- Deadlocking latch
- Latch by lever inside or key outside
- Outside lever rigid at all times
- ANSI F86

05 Entrance or Office

10G05



- Deadlocking latch
- Latch by either lever unless outside lever is locked by push/turn button in inside lever
- Push button released by key outside or lever inside
- Turn button must be released manually
- Key retracts latch when outside lever is locked
- ANSI F81

24 Entrance or Office

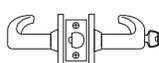
10G24



- Deadlocking latch
- Latch by either lever unless outside lever is locked by push button in inside lever
- Push button released by key or turning inside lever
- Closing door does not unlock outside lever or release button
- Key in outside lever retracts latch when outside lever is locked and releases inside push button
- ANSI F82

37 Classroom

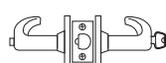
10G37



- Deadlocking latch
- Latch by either lever unless outside lever is locked by key
- Key in outside lever locks or unlocks outside lever and retracts latch
- Inside lever always operative
- ANSI F84

44 Service Station

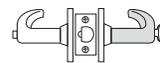
10G44



- Deadlocking latch
- Latch by either lever unless outside lever is locked by push button in inside lever
- Key retracts latch when outside lever is locked
- Push button released by turning inside lever, closing door, or by key in outside lever unless push button is fixed in locked position by turning coin slot in inside lever
- Slotted inside button must be manually released
- ANSI F92

50 Hotel, Dormitory or Apartment

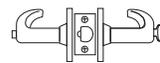
10G50



- Deadlocking latch
- Latch by key outside and lever inside
- Outside lever always rigid
- Depressing push button when door is closed shuts out all keys except emergency key and projects visual occupancy indicator in cylinder face
- Push button released by turning inside lever automatically reactivating all keys and retracting visual occupancy indicator
- Lock out key fixes push button in locked position, shutting out all keys except emergency
- Push button fixed by lockout key must be released manually
- Lock out key provided
- See prefix page for restrictions to 50 function
- ANSI F93

54 Corridor, Dormitory

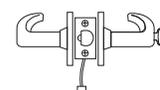
10G54



- Deadlocking latch
- Latch by either lever unless outside lever is locked by push button inside or key outside
- Rotating inside lever or closing door releases inside button only, but does not unlock the outside lever if locked by key
- Key outside locks or unlocks outside lever and also retracts latchbolt when locked
- ANSI F90

70 Electromechanical (Fail Safe)

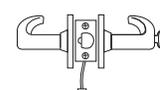
10G70



- Power on locks outside lever
- Deadlocking latch
- Latch retracted by key outside when locked electrically
- Inside lever always free

71 Electro mechanical (Fail Secure)

10G71



- Power off locks outside lever
- Deadlocking latch
- Latch retracted by key outside when locked electrically
- Inside lever always free

Freewheeling Locked Lever Option

- Available on all locking functions except 10G26, 10G38, 10G70, and 10G71
- Provides protection from vandalism and added security
- Stops in the rose prevent the lever from traveling beyond 60° in either direction
- Not available in "J" Lever Design and some prefixes

NOTE: Shaded lever indicates it is rigid at all times.

1430/1431 Series Powerglide® Door Closers How to Select the Proper Closer

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Analyze all door requirements as follows:

1. Size and weight of door

The door closers in this catalog are non-sized so that closing force can be adjusted in the field to accommodate various door sizes and weights.

2. Interior application

Where possible the standard application should be used. This mounting is the most efficient in terms of door control and provides the most closing power.

3. Exterior application

Handicapped closers should not be used on exterior doors.

Exterior doors require greater closing forces because of draft and wind conditions. To place the closer out of the weather on exterior doors, the top jamb, corner bracket or parallel arm application should be used.

4. Degree of opening

A closer should permit the door to open the maximum degree of swing permitted by door trim and wall conditions. This permits proper traffic flow and alleviates unnecessary stress to the door, the frame and the hardware.

5. Function

Closers can be equipped with special arms such as hold-open, positive stop or fusible link hold-open where necessary.

6. Special conditions

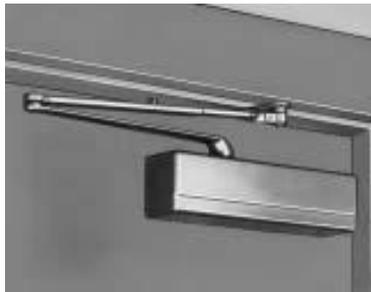
The Template Book should be consulted when using special hinges, door pivots, overhead holders or other specialized hardware. When not found in the Template Book, custom templates are available. Consult the factory!



Standard Application
1430/1431 Series



Push Side Track Type Application
1430 Series



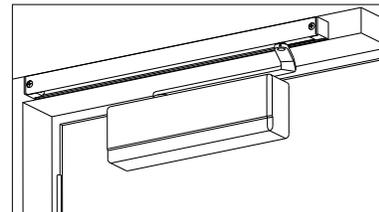
Parallel Arm Application
1430/1431 Series



Pull Side Track Type Application
1430 Series



Top Jamb Application
1430/1431 Series



Double Egress Application
1430 OD Arm Shown

The selection of the proper door closer, its arm and its application position on the door are important considerations. Allowing the maximum degree of door opening minimizes excessive force on the entire door opening, extending its life!

1430/1431 Series Powerglide® Door Closers ADA Compliance

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1430/1431 Designed to Aid the Physically Challenged



The 1431 door closer is designed to meet the opening force requirements of the Americans with Disabilities Act. A special lighter spring affording easier access is used. Various field conditions that exist may make the use of the lighter spring product ineffective. The 1431 is not recommended for use where excessive draft and pressure conditions exist or when extra heavy doors are used. Under those conditions, meeting ADA requirements can be achieved with the use of the standard 1430 door closer. Refer to the closer selection chart for assistance in selecting the proper product. The 1430 series meets ANSI A117.1.

Closer Selection Chart to meet Americans with Disabilities Act

In selecting the correct closer, normal draft conditions and frequency of usage should be considered. The hardware specifier's judgment should be relied upon where abnormal conditions prevail. When door closers are used on fire doors, they shall have the minimum opening force allowable by the authority having jurisdiction.

Door Width	Standard Application		Parallel Application		Top Jamb Application	
	120° Mtg	180° Mtg	120° Mtg	180° Mtg	120° Mtg	180° Mtg
2/8	1431	1431	1431	1431	1431	1431
3/2	1431	1431	1431	1430	1431	1431
3/8	1431	1431	1430	1430	1431	1431
4/0	1431	1430	1430	1430	1431	1430
Over 4/0	1430	1430	1430	1430	1430	1430

Factors to Consider

- Door Weight
- Door Width
- Excessive Draft Pressure
- Sound & Smoke Seal

Note

- 1431 closers are not for use on exterior doors
- 1431 track applications are not available

1430/1431 Series Powerglide® Door Closers

General Information

Controlling Door Operation

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Door Opening Cycle

The door opening cycle compresses the springs and positions the fluid to control the other cycles.

Backcheck

The backcheck cycle is controlled by the backcheck valve. This cycle enables the closer to slow the opening swing of the door. This is a standard feature of all SARGENT 1430/1431 Series Closers. It should be stopped by a wall, floor or SARGENT overhead stop.

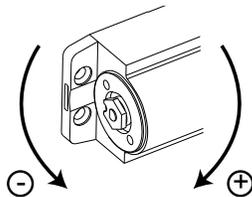
Delayed Action Cycle

The delayed action cycle is controlled by the delayed action valve. This is an option that slows the speed of the closer through the cycle arc to an almost imperceptible movement. This allows more time for those with walkers or wheel chairs to pass through the opening. The delayed action feature is furnished with backcheck as standard.

To order: Suffix DA to the closer 1430 DA x O x EN

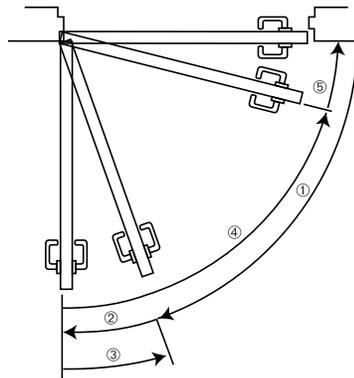
Adjustable Spring Feature

The 1430/1431 Series Closers provide adjustable spring power to accommodate various installations.



Door Closing and Latching Cycles

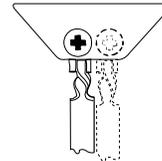
Two separate valves control the door closing and latching speeds. The closing cycle controls the speed of door closing from the full opened position to approximately five inches from the closed position. The latching cycle controls this last five inches.



1. Opening Cycle
2. Backcheck Cycle
3. Delayed Action Cycle
4. Closing Cycle
5. Latching Cycle

Arm Leverage Adjustments

The 1430/1431 Series Door Closers have the provision to adjust the leverage of the "O", "RO", "OLC", "OZ", "OZA", "F", "FZ" and "FZA" arms by changing the pivot position of the arm in the foot. The foot itself does not have to be removed from the door or jamb.



ANSI Specifications

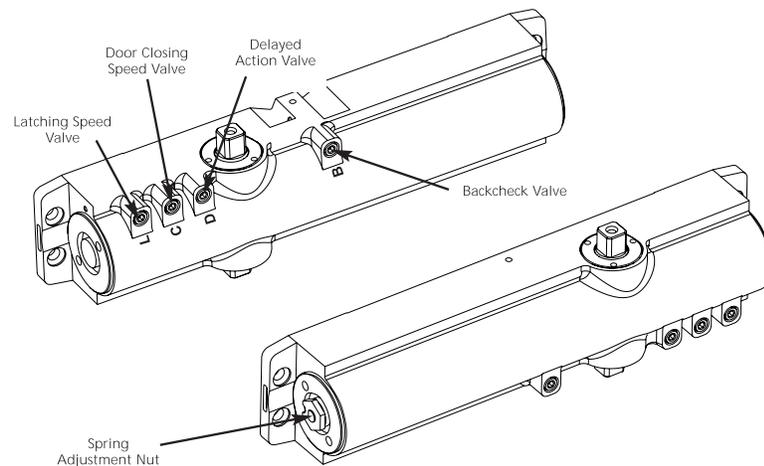
The 1430/1431 Series Door Closers are certified in accordance to ANSI/BHMA Standard A156.4 Grade 1.

Underwriters Laboratories and "UL Listed to Canadian safety standards" Listing SARGENT 1430/1431 Series Door Closers have been listed by the Underwriters Laboratories, Inc. as follows:

"For Self-Closing Doors without hold-open feature"

"For automatic doors with hold-open arm embodying fusible link release."

Conforms to standards UL 10C and UBC 7-2 (1997). Positive Pressure Fire Test



1430/1431 Series Powerglide® Door Closers Top Jamb Application

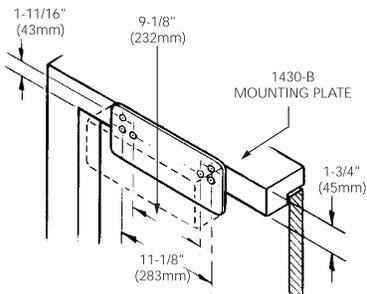
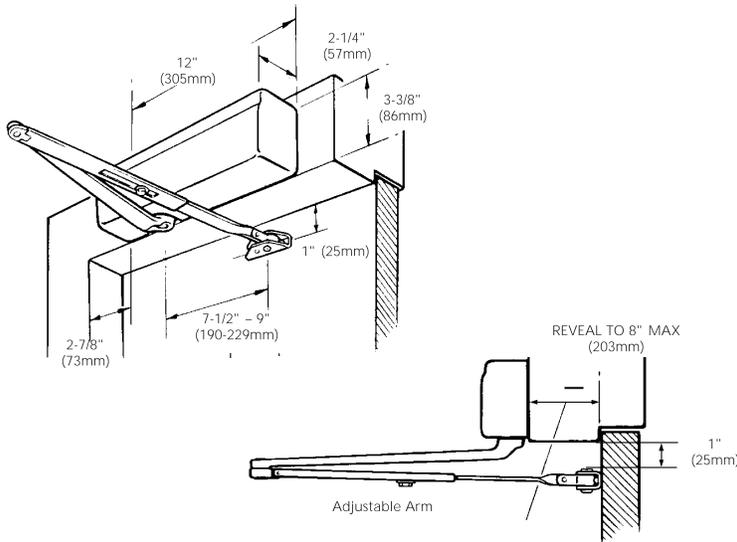
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Closer is mounted inverted on the frame face above stop side of door. As door opens, closer arm swings with the door.



For General Use on

- Interior Doors – opening either in or out
- Exterior Doors – opening out

Covers

- High impact non-corrosive, flame retardant cover standard
- Standard cover projects 2-5/16" (59mm) from door face
- Optional metal covers use the same templating and projects 2-7/16" (62mm) from door face
- All covers secured by machine screws

Mounting

For reveals to 2" (51mm) maximum

- Maximum door opening with "O" Arm -180°
- Hold open range with "H" Arm- 80° - 180°
- Hold open range with "F" Arm- 80° - 130°

For reveals from 2-1/8" (54mm) to 5" (127mm) maximum

- Maximum door opening with "OZ" Arm -140°
- Hold open range with "HZ" Arm- 80° - 140°
- Hold open range with "FZ" Arm- 80° - 130°

For reveals from 5-1/8" (130mm) to 8" (203mm) maximum

- Maximum door opening with "OZA" Arm-140°
- Hold open range with "HZA" Arm- 80° - 130°
- Hold open range with "FZA" Arm - 80° - 130°

Backcheck

- Backcheck is designed to start at approximately 70° door opening. Not to be used as a positive stop

Minimum Door Rail Required to Mount Closer Foot

- 1-7/8" When auxiliary overhead door holders are used, dimension will vary depending on type and make of holder

Minimum Frame Face Required to Mount Closer Body

- 1-3/4" Minimum frame face required to mount closer body

1430 B Mounting Plate



- Fits right and left hand doors
- Accommodate most auxiliary overhead door holders (top jamb application). Also required for low ceiling conditions
- Plate mounting screw included

Thru Bolts and Mortise Nuts

- Available on request for 1-3/4" thick doors as standard. Use Suffix TB
- Available for 1-3/8" thick doors, specify

80 Series Exit Devices MD8600, 12-MD8600 Concealed Vertical Rod Exit Device for Metal Doors

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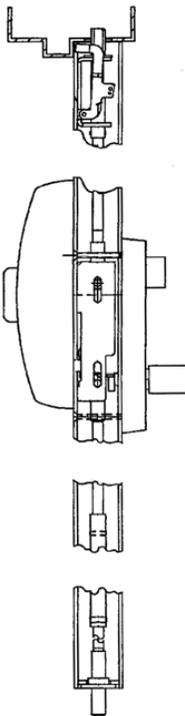
Features

- Designed for standard width stile applications on hollow metal and aluminum doors
- Concealed rods for security and aesthetics
- Single and double door applications
- UL Fire and Panic listed

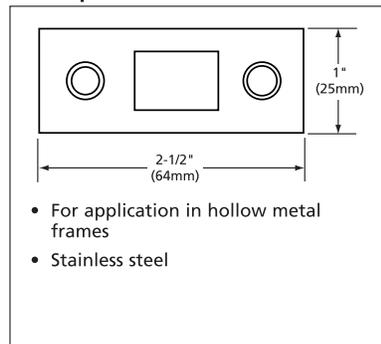


Specifications

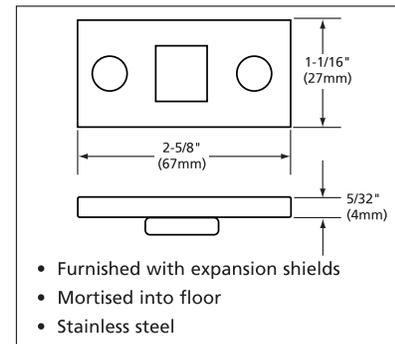
For Doors	Hollow metal or aluminum. 1-3/4" (44mm) minimum thickness. 4-1/2" (114mm) minimum stile width
Mounting	Supplied with machine screws
Chassis Cover	Cold drawn brass, bronze or stainless steel
Chassis	Nonferrous alloy
Hand	Field reversible
Dogging Feature Non 12- only	Allen-type dogging furnished standard. Available with cylinder dogging (16- prefix)
Top and Bottom Bolts	Stainless steel. Top and bottom bolt travel 7/16" (11mm). Projection adjustable up to 1" (25mm)
Fire Exit Hardware	See chart page 2
Trim	See Trim Designs section
Strikes	650 top and 606 bottom standard
Electric Functions	See Product Systems Manual
Rail Height	Specify door opening and mounting height of center line of rail when ordering any vertical rod exit device
Opening Height	96" (2438mm) Standard



650 Top Strike



606 Bottom Strike



80 Series Exit Devices Coastal Series™ Decorative Levers



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www.sargentlock.com

ET Lever Controls

Can be used with all SARGENT 80 Series exit devices. Easy operating lever handle allows convenient one hand operation.

ETC - Coronado™

ETR - Rockport™

ETY - Yarmouth™

- Specify hand when ordering

ETG - Gulfport™

- Specify hand when ordering

ETS - Sanibel™

- Specify hand when ordering

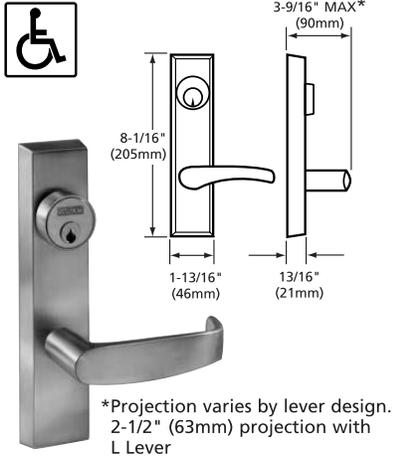
- All Coastal Series™ levers are interchangeable with all 700 Series ET Trims
- All levers – solid cast brass
- All standard functions available
- Finishes available 3, 4, 9, 10, 10B, 10BL, 20D, 26, 26D
- 5 year limited warranty

Important: Consult installation templates for control mounting heights when used on pairs of doors.

80 Series Exit Devices Trim Designs

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www.sargentlock.com

ET Lever Controls



*Projection varies by lever design.
2-1/2" (63mm) projection with
L Lever

Can be used with all SARGENT 80 Series exit devices. Easy operating lever handle allows convenient one hand operation.

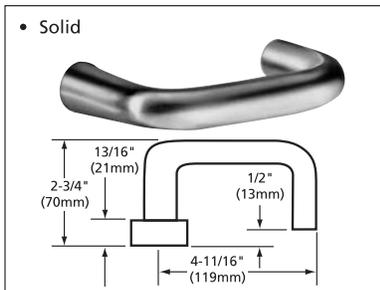
ET not available in 32, 32D. Lever available in 32, 32D as option add.

All levers are brass or bronze. Stainless steel is available, consult factory.

Important: Consult installation templates for control mounting heights when used on pairs of doors.

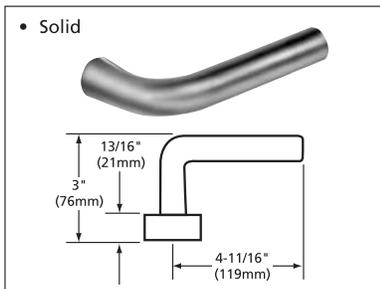
ETJ

- Solid



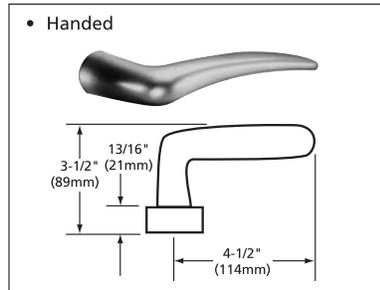
ETW

- Solid

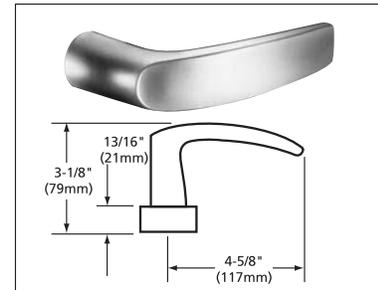


ETA

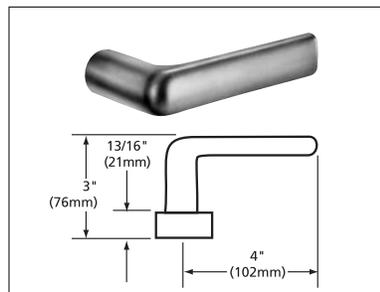
- Handed



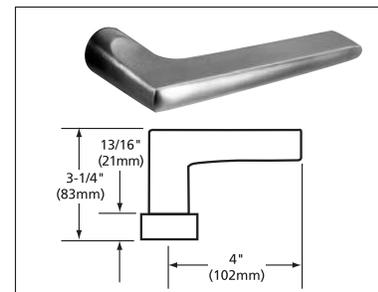
ETB



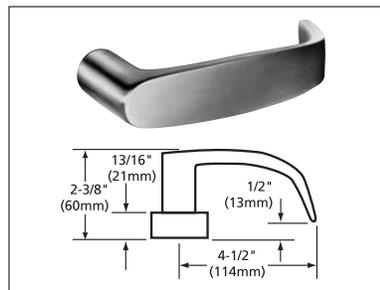
ETE



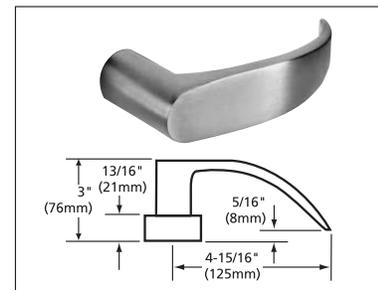
ETF



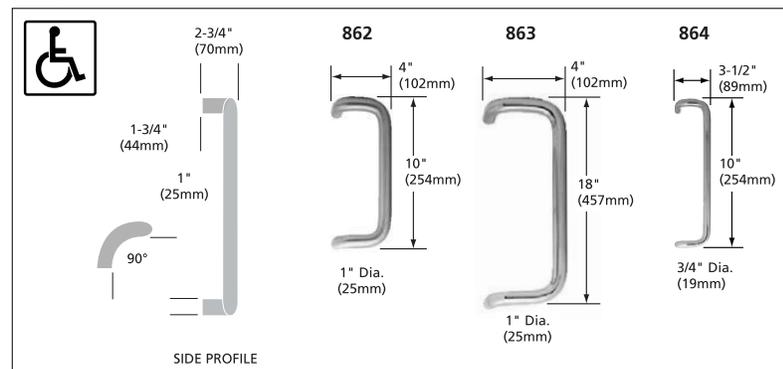
ETL



ETP



Pulls



8/29/03

22

An ASSA ABLOY Group company

ASSA ABLOY

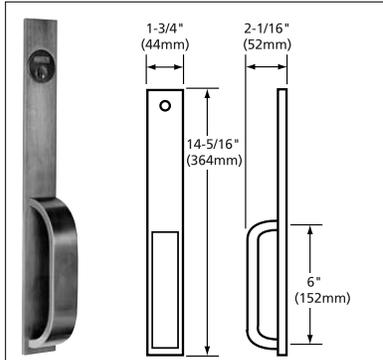
80 Series Exit Devices Trim Designs

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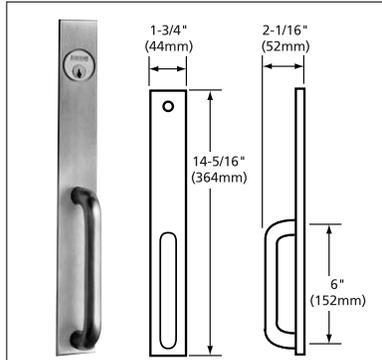
FLL



Trim Number	Function
874FLL	04
874FLLDT	10
884FLL	28
894FLL	62, 63, 66, 70 & 71

04 Function Shown

FLW

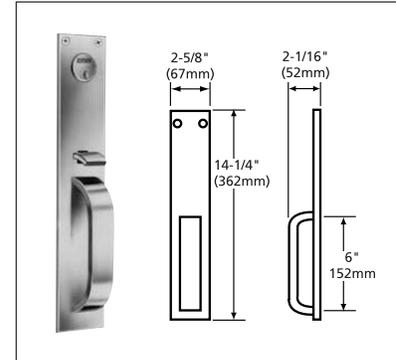


Trim Number	Function
813FLW	04
813FLWDT	10
843FLW	28
833FLW	62, 63, 66, 70 & 71

Not available in 32, 32D

04 Function Shown

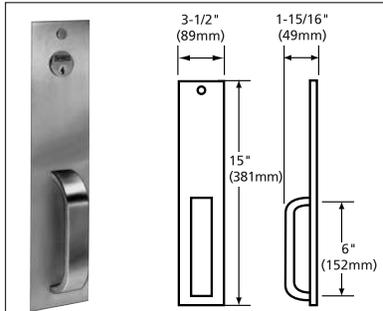
MAL



Trim Number	Function
818MAL	04
818MALDT	10
828MAL	28
838MAL	62, 63, 66, 70 & 71

63 Function Shown

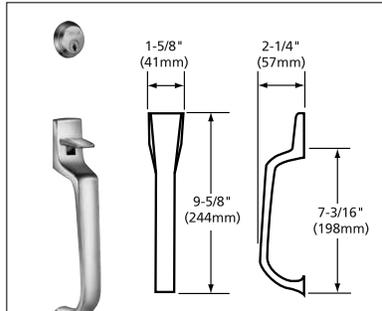
PTB



Trim Number	Function
812PTB	04
812PTBDT	10
842PTB	28
832PTB	62, 63, 66, 70 & 71

04 Function Shown

STS



Trim Number	Function
876STS	04
876STS DT	10
886STS	28
896STS	62, 63, 66, 70 & 71

63 Function Shown

Pulls above are thru-bolted

Thru-bolting of trim allows for perfect alignment of thumbpieces, cylinders and spindles. Thru-bolts pass through the chassis of the devices and are bolted directly to the trim piece.

FSL, FSW, MSL and PSB pulls are used with 12-8804 and 8804 only and are the same as FLL, FLW, MAL and PTB pulls except for cylinder hole located 3/8" (9mm) lower.