SCOPE OF WORK

PERMIT #: _____

JOB SITE ADDRESS: 490 NW Lake Jeffery Rd. Lake City, l

BUILDING (INTERIOR) ■ No structural work being done.

1.
2.
3.

BUILDING (EXTERIOR) □ No structural work being done.

1. Renovation to existing storefront to meet ADA & FBC requirements
2. Renovation to existing entrance doors to meet ADA & FBC requirements
3.

MECHANICAL ■ No mechanical work being done.

1.
2.
3.

ELECTRICAL ■ No electrical work being done.

1.
2.
3.

PLUMBING ■ No plumbing work being done.

1.
2.
3.

GAS ■ No gas work being done.

1.
2.
3.

ROOF ■ No roof work being done.

1.
2.
3.

BID SET - February 11, 2022

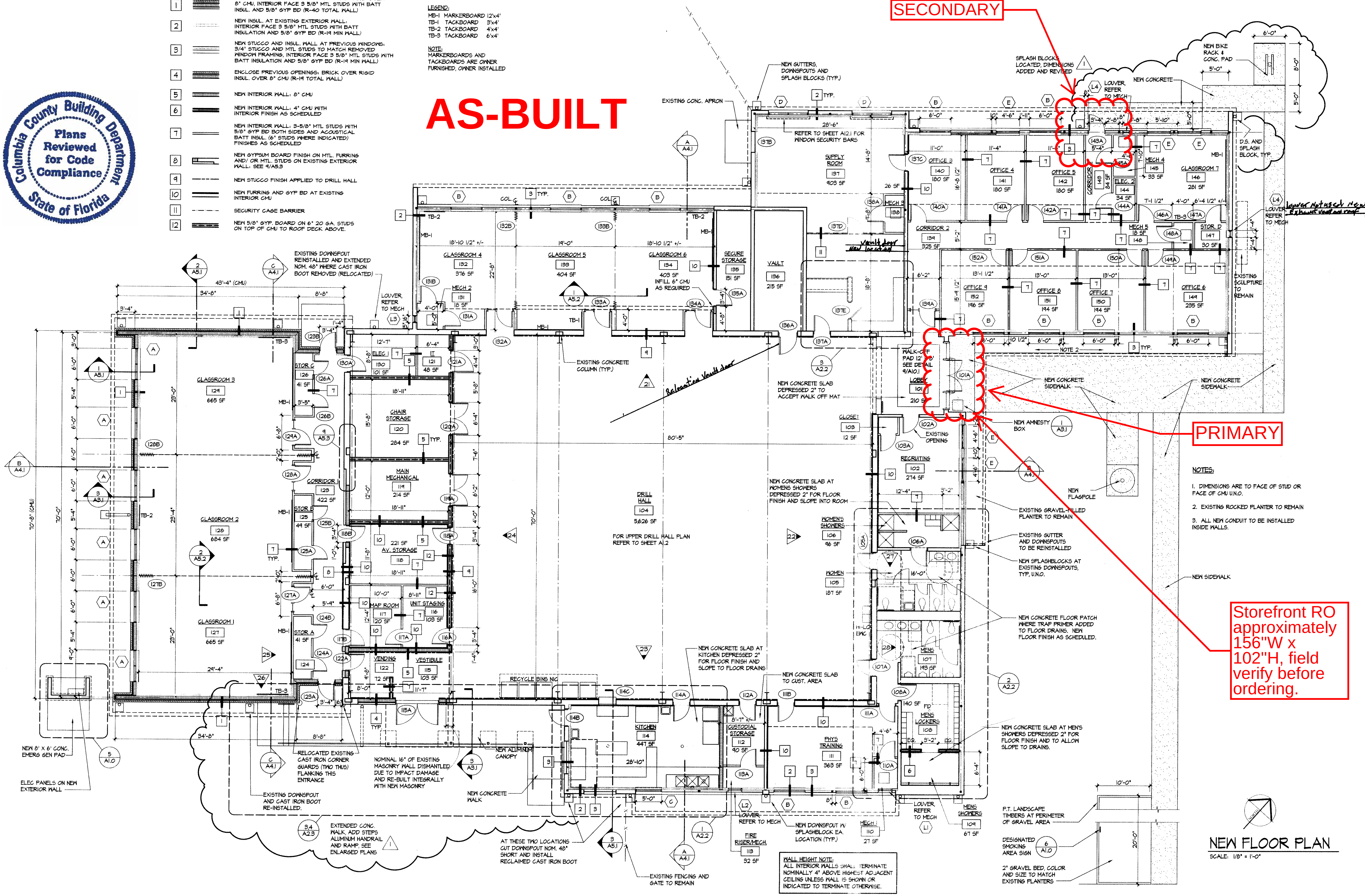
AS-BUILT

NEW WALLS LEGEND

1	NEW EXTERIOR WALL: BRICK OVER RIGID INSUL. OVER 8" CMU, INTERIOR FACE 3 5/8" MTL STUDS WITH BATT INSUL. AND 5/8" GYP BD (R-40 TOTAL WALL)
2	NEW INSUL. AT EXISTING EXTERIOR WALL: INTERIOR FACE 3 5/8" MTL STUDS WITH BATT INSULATION AND 5/8" GYP BD (R-19 MIN WALL)
3	NEW STUCCO AND INSUL. WALL AT PREVIOUS WINDOWS: 3/4" STUCCO AND MTL STUDS TO MATCH REMOVED WINDOW FRAMING, INTERIOR FACE 3 5/8" MTL STUDS WITH BATT INSULATION AND 5/8" GYP BD (R-19 MIN WALL)
4	ENCLOSE PREVIOUS OPENINGS: BRICK OVER RIGID INSUL. OVER 8" CMU (R-19 TOTAL WALL)
5	NEW INTERIOR WALL: 8" CMU
6	NEW INTERIOR WALL: 4" CMU WITH INTERIOR FINISH AS SCHEDULED
7	NEW INTERIOR WALL: 3-5/8" MTL STUDS WITH 5/8" GYP BD BOTH SIDES AND ACOUSTICAL BATT INSUL. (6" STUDS WHERE INDICATED) FINISHES AS SCHEDULED
8	NEW GYPSUM BOARD FINISH ON MTL. FURRING AND/ OR MTL. STUDS ON EXISTING EXTERIOR WALL; SEE 9/A5.3
9	NEW STUCCO FINISH APPLIED TO DRILL HALL
10	NEW FURRING AND GYP BD AT EXISTING INTERIOR CMU
11	SECURITY CAGE BARRIER
12	NEW 5/8" GYP. BOARD ON 6" 20 GA. STUDS ON TOP OF CMU TO ROOF DECK ABOVE.

LEGEND:
MB-1 MARKERBOARD 12'x4'
TB-1 TACKBOARD 3'x4'
TB-2 TACKBOARD 4'x4'
TB-3 TACKBOARD 6'x4'

NOTE:
MARKERBOARDS AND TACKBOARDS ARE OWNER FURNISHED, OWNER INSTALLED



NOTES:
1. DIMENSIONS ARE TO FACE OF STUD OR FACE OF CMU U.N.O.
2. EXISTING ROCKED PLANTER TO REMAIN
3. ALL NEW CONDUIT TO BE INSTALLED INSIDE WALLS.

WALL HEIGHT NOTE:
ALL INTERIOR WALLS SHALL TERMINATE NOMINALLY 4" ABOVE HIGHEST ADJACENT CEILING UNLESS WALL IS SHOWN OR INDICATED TO TERMINATE OTHERWISE.

BHIDE & HALL ARCHITECTS, P.A.
1329 KINGSLEY AVENUE, SUITE C ORANGE PARK, FLORIDA 32073 PH. (904) 264-1919 LIC. NO. AA C000560

CFMO FLARNG
LAKE CITY ARMORY RENOVATIONS
CFMO PN 211081
490 NW LAKE JEFFERY RD. LAKE CITY, FLORIDA

Architect: F. Wendell Hall — License No. AR0004951

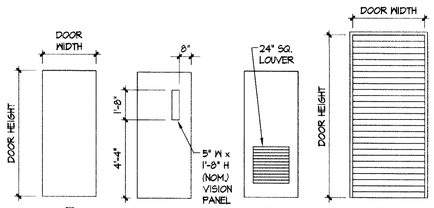
NEW FLOOR PLAN

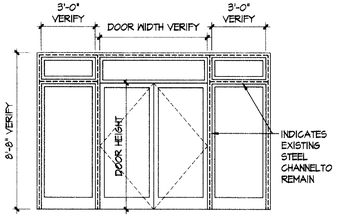
DATE	AUG 03, 2012
D.B.	MD
C.B.	FWH
JOB NO.	11033

BID ISSUE

A2.1

Storefront RO approximately 156"W x 102"H, field verify before ordering.

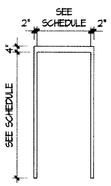


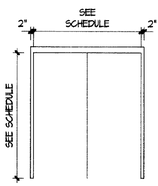


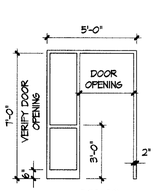
DOOR SCHEDULE LEGEND
HM = HOLLOW METAL
AL = ALUMINUM
P = PAINTED FINISH
SF = STOREFRONT

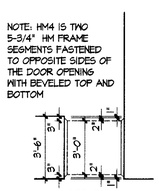
DOOR TYPES

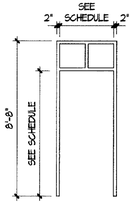
SCALE: 1/4"=1'-0"

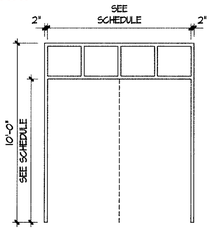






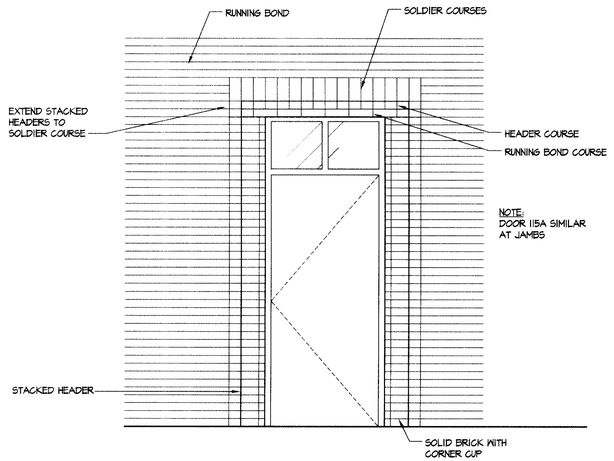






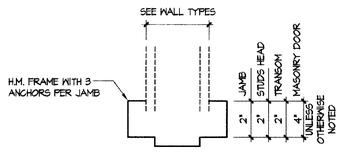
FRAME TYPES

SCALE: 1/4"=1'-0"



1 / A11.1 ENLARGED ELEVATION AT DOORS 123A & 123B

SCALE: 1-1/2"=1'-0"



A / A11.1 H.M. FRAME SIZES

SCALE: 3"=1'-0"

AS-BUILT

DOOR SCHEDULE

MARK	DOOR OPENING SIZE W	H	THK	DOOR TYP	DOOR MATL	DOOR FINISH	FRAME TYP	FRAME MATL	FRAME FINISH	DETAILS (SHEET A11.2 U.N.O.) HEAD	JAMB	SILL	HARDWARE SET	UNDERCUT	SPECIAL KEYING REQUIREMENTS	EDO (EXISTING DOOR OPENING)	ROOM NAME	NOTES: 1. FIELD VERIFY DIMENSIONS OF ALL EXISTING OPENINGS, BEING CAREFUL TO COORDINATE WITH NEW FLOOR FINISHES AND DOOR HTS. 2. NO FIRE RATINGS ON ANY DOORS OR FRAMES REQUIRED. * 2" FRAME HEIGHT AT HEAD
101A	PR 3'-0"	7'-0"	1 3/4"	SF	AL	•	SF	ALUM.	-	11	17	R	1			X	LOBBY	
102A	3'-0"	7'-0"	1 3/4"	L	HM	P	HM1	HM	P	2	2	M4	5	1"		X	RECRUITING	
103A	2'-8"	7'-0"	1 3/4"	L	HM	P	HM1	HM	P	1	1	-	6				CLOSET	
105A	3'-0"	7'-0"	1 3/4"	L	HM	P	HM1	HM	P	4A	4A	MB	10	1"		X	WOMEN	
106A	3'-0"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	4	4	MB	4	1"		X	WOMEN'S SHOWERS	
107A	3'-0"	7'-0"	1 3/4"	L	HM	P	HM1	HM	P	4A	4A	MB	10	1"		X	MEN	
108A	3'-0"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	4	4	MB	4	1"		X	MEN'S LOCKERS	
110A	3'-0"	7'-0"	1 3/4"	L	HM	P	HM1	HM	P	1	1	M2	6				MECHANICAL 1	
111A	3'-0"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	4B	4B	M4	4	1"		X	PHYSICAL TRAINING	*
111B	3'-0"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	4	4	M2	6	1"		X	PHYSICAL TRAINING	
112A	3'-0"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	2	2	-	6	1"			CUSTODIAL STORAGE	
113A	3'-0"	7'-0"	1 3/4"	L	HM	P	HM1	HM	P	1	1	M1	6				FIRE RISER & MECH.	
114A	3'-0"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	4B	4B	M4	6	1"		X	KITCHEN	*
114B	3'-0"	7'-0"	1 3/4"	F	HM	P	HMT1	HM	P	9	10	HM	2			X	KITCHEN	EXTERIOR DOOR
114C	3'-4"	3'-8"	-	-	-	-	-	-	-	3/A5.2			-			X	KITCHEN	COUNTER ROLLING SHUTTER IN FORMER DOOR OPENING, SEE SPECS.
115A	PR 4'-0"	8'-0"	1 3/4"	F	HM	P	HMT2	HM	P	5,7	8	HM	3				VESTIBULE	FIXED TRANSOM
116A	3'-0"	7'-10"	1 3/4"	F	HM	P	HM1	HM	P	3A	3A	M2	5	1"			UNIT STAGING	*
117A	3'-0"	7'-0"	1 3/4"	N	HM	P	HM1	HM	P	1	1	-	5	1"			MAP ROOM	
117B	3'-0"	7'-0"	1 3/4"	N	HM	P	HM1	HM	P	3A	3A	M2	5	1"			MAP ROOM	
118A	3'-0"	7'-10"	1 3/4"	F	HM	P	HM1	HM	P	4	4	M2	5	1"			AV. STORAGE	*
118B	3'-0"	7'-0"	1 3/4"	N	HM	P	HM1	HM	P	4	4	M2	5	1"			AV. STORAGE	
119A	PR 3'-0"	7'-10"	1 3/4"	L	HM	P	HM1	HM	P	3	3	M1	9				MAIN MECHANICAL	*
120A	PR 3'-0"	7'-10"	1 3/4"	F	HM	P	HM2	HM	P	3	3	-	9				CHAIR STORAGE	*
121A	4'-0"	7'-10"	1 3/4"	F	HM	P	HM1	HM	P	3	3	-	7				I.T.	*
122A	3'-0"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	4	4 SIM.	-	6	1"			VENDING	
123A	3'-0"	7'-0"	1 3/4"	F	HM	P	HMT1	HM	P	6,7	8	HM	2				CORRIDOR 1	EXTERIOR DOOR
123B	3'-0"	7'-0"	1 3/4"	F	HM	P	HMT1	HM	P	6,7	8	HM	2				CORRIDOR 1	EXTERIOR DOOR
124A	2'-8"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	1	1	-	6				STORAGE A	
124B	2'-8"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	1	1	-	6				STORAGE A	
125A	2'-8"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	1	1	-	6				STORAGE B	
125B	2'-8"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	1	1	-	6				STORAGE B	
126A	2'-8"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	1	1	-	6				STORAGE C	
126B	2'-8"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	1	1	-	6				STORAGE C	
127A	3'-0"	7'-0"	1 3/4"	N	HM	P	HMB	HM	P	1	1	M2	6	1"			CLASSROOM 1	
127B	33'-1"	10'-0"								2/A5.2		-	13				CLASSROOM 1	ACCORDION PARTITION
128A	3'-0"	7'-0"	1 3/4"	N	HM	P	HMB	HM	P	1	1	M2	6	1"			CLASSROOM 2	
128B	33'-1"	10'-0"								2/A5.2		-	13				CLASSROOM 2	ACCORDION PARTITION
129A	3'-0"	7'-0"	1 3/4"	N	HM	P	HMB	HM	P	1	1	M2	6	1"			CLASSROOM 3	
130A	3'-0"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	4	4 SIM.	M1	6				ELECTRICAL 1	
131A	3'-0"	7'-0"	1 3/4"	L	HM	P	HM1	HM	P	1	1	MB	6				MECHANICAL 2	
131B	3'-0"	7'-0"	1 3/4"	L	HM	P	HM1	HM	P	1	1	MB	6				MECHANICAL 2	
132A	3'-0"	7'-0"	1 3/4"	F	HM	P	HMB	HM	P	1	1	M2	6	1"			CLASSROOM 4	
132B	18'-8"	8'-8"								1/A5.2		-	13				CLASSROOM 4	ACCORDION PARTITION
133A	3'-0"	7'-0"	1 3/4"	F	HM	P	HMB	HM	P	1	1	M2	6	1"			CLASSROOM 5	
133B	18'-8"	8'-8"								1/A5.2		-	13				CLASSROOM 5	ACCORDION PARTITION
134A	3'-0"	7'-0"	1 3/4"	F	HM	P	HMB	HM	P	1	1	M2	6	1"			CLASSROOM 6	
135A	3'-0"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	4	4 SIM.	M2	7				SECURED STORAGE	OPENING RELOCATED
136A	3'-0"	7'-0"	-	-	-	-	-	-	-	-	-	-	-			X	VAULT	EXISTING DOOR & HARDWARE TO REMAIN
137A	3'-0"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	4B	4B	-	6			X	SUPPLY ROOM	
137B	4'-0" NOM	9'-0" NOM	-	OH	HM	P	HM1	HM	P	4/A5.2			-			X	SUPPLY ROOM	EXT. OVERHEAD ROLLING DOOR, SEE SPECS.
137C	3'-0"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	4	4	M2	7			X	SUPPLY ROOM	
137D	3'-0"	7'-0"	-	-	-	-	-	-	-	-	-	-	TA				SUPPLY ROOM	CAGE DOOR - SEE SPECS. SECTION 05400
137E	3'-0"	3'-0"	1 3/4"	F	HM	P	HM4	HM	P	1 SIM.	1 SIM.	-	14				SUPPLY ROOM 137	HALF-DOOR
138A	3'-0"	7'-0"	1 3/4"	L	HM	P	HM1	HM	P	1	1	M1	6				MECHANICAL 3	
139A	3'-0"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	1	1	-	11	1"			CORRIDOR 2	DOOR WITH FIXED SIDELITE
140A	3'-0"	7'-0"	1 3/4"	N	HM	P	HM1	HM	P	1	1	MB	5	1"			OFFICE 3	
141A	3'-0"	7'-0"	1 3/4"	N	HM	P	HM1	HM	P	1	1	MB	5	1"			OFFICE 4	
142A	3'-0"	7'-0"	1 3/4"	N	HM	P	HM1	HM	P	1	1	MB	5	1"			OFFICE 5	
143A	3'-0"	7'-0"	1 3/4"	F	HM	P	HMT1	HM	P	18,7	19,20	HM	2	1"		X	CORRIDOR 3	EXTERIOR DOOR
144A	3'-0"	7'-0"	1 3/4"	L	HM	P	HM1	HM	P	1	1	-	6	1"			ELEC. 2	
145A	3'-0"	7'-0"	1 3/4"	L	HM	P	HM1	HM	P	1	1	M1	6	1"			MECHANICAL 4	
146A	3'-0"	7'-0"	1 3/4"	N	HM	P	HM1	HM	P	1	1	M2	8	1"			CLASSROOM 7	
147A	3'-0"	7'-0"	1 3/4"	F	HM	P	HM1	HM	P	1	1	M2	6	1"			STORAGE	
148A	3'-0"	7'-0"	1 3/4"	L	HM	P	HM1	HM	P	1	1	M1	6				MECHANICAL 5	
149A	3'-0"	7'-0"	1 3/4"	N	HM	P	HM1	HM	P	1	1	M2	5	1"			OFFICE 6	
150A	3'-0"	7'-0"	1 3/4"	N	HM	P	HM1	HM	P	1	1	M2	5	1"			OFFICE 7	
151A	3'-0"	7'-0"	1 3/4"	N	HM	P	HM1	HM	P	1	1	M2	5	1"			OFFICE 8	
152A	3'-0"	7'-0"	1 3/4"	N	HM	P	HM1	HM	P	1	1	M2	5	1"			OFFICE 9	

BHIDE & HALL ARCHITECTS, P.A.
1234 KINGSLEY AVENUE, SUITE 4 ORANGE PARK, FLORIDA 32073 PH. (904) 264-1919 LIC. NO. AA C 000569

CFMO FLARNG
LAKE CITY ARMORY RENOVATIONS
CFMO PN 211081
490 NW LAKE JEFFERY RD. LAKE CITY, FLORIDA

Bhide & Hall Architects
1234 Kingsley Ave.
Jacksonville, FL 32073
(904) 264-1919

Architect	License No.
F. Wendell Hall	AR0004951

10/11/12

REVISIONS

DOOR SCHEDULE ELEVATIONS & DETAILS

DATE	AUG 03, 2012
D.B.	MD
C.B.	EWH
JOB NO.	11033

BID ISSUE

A11.1

The Submitted Glass Sample to be utilized at the following locations:

- Lake Wales
- Haines City
- Ft. lauderdale
- Arcadia
- Cocoa
- Crestview
- Jacksonville Cecil Bldg. 1822
- Lake City
- Palatka
- Palmetto
- St. Petersburg
- Wauchula

NOTE: This specific glass is the same glass that was approved and utilized for the previous Phase I Armory Projects as it relates to Hollow Metal Steel applications.

PRODUCT DATA SHEET

SMARTGARD BR5
BALLISTIC SECURITY GLAZING

PRODUCT #: BR5

DESCRIPTION:
A bullet resistant, no-spall asymmetrical laminate constructed with glass, and polycarbonate bonded together with adhesive interlayers and an abrasion resistant spall shield.

FEATURES:
- Bullet resistant
- No spall

CONSTRUCTION:	PERFORMANCE DATA:	
Attack side Proprietary BR5 Layers *Protection side*	Max Standard Dimension:	60" x 96" (larger sizes may be available -contact us)
	Nominal Thickness:	1.531"
	Thickness Tolerance:	1.480" to 1.582"
	Weight:	15.81 Lbs. / Square Foot
	Visual Light Transmittance:	74%
	Ballistic Rating:	UL752 Level 5 7.62mm – 1 shot No penetration / No spall

COMPLIANCES

- ASTM C1036 – Standard Specification – Flat Glass
- ASTM C1172 – Standard Specification for Laminated Architectural Flat Glass
- ANSI Z97.1 - Safety Materials Used in Buildings
- CPSC 16 CFR 1201

INSTALLATION SPECIFICATIONS

AIT strongly suggests the use of a suitable structural security framing with an appropriate protection rating. Allow for a minimum of a (1) inch edge engagement in the frame with sufficient rabbet depth to allow for expansion (approximately 1/16"/FT).

** ALWAYS INSTALL WITH SPALL SHIELD TO "PROTECTION" SIDE **

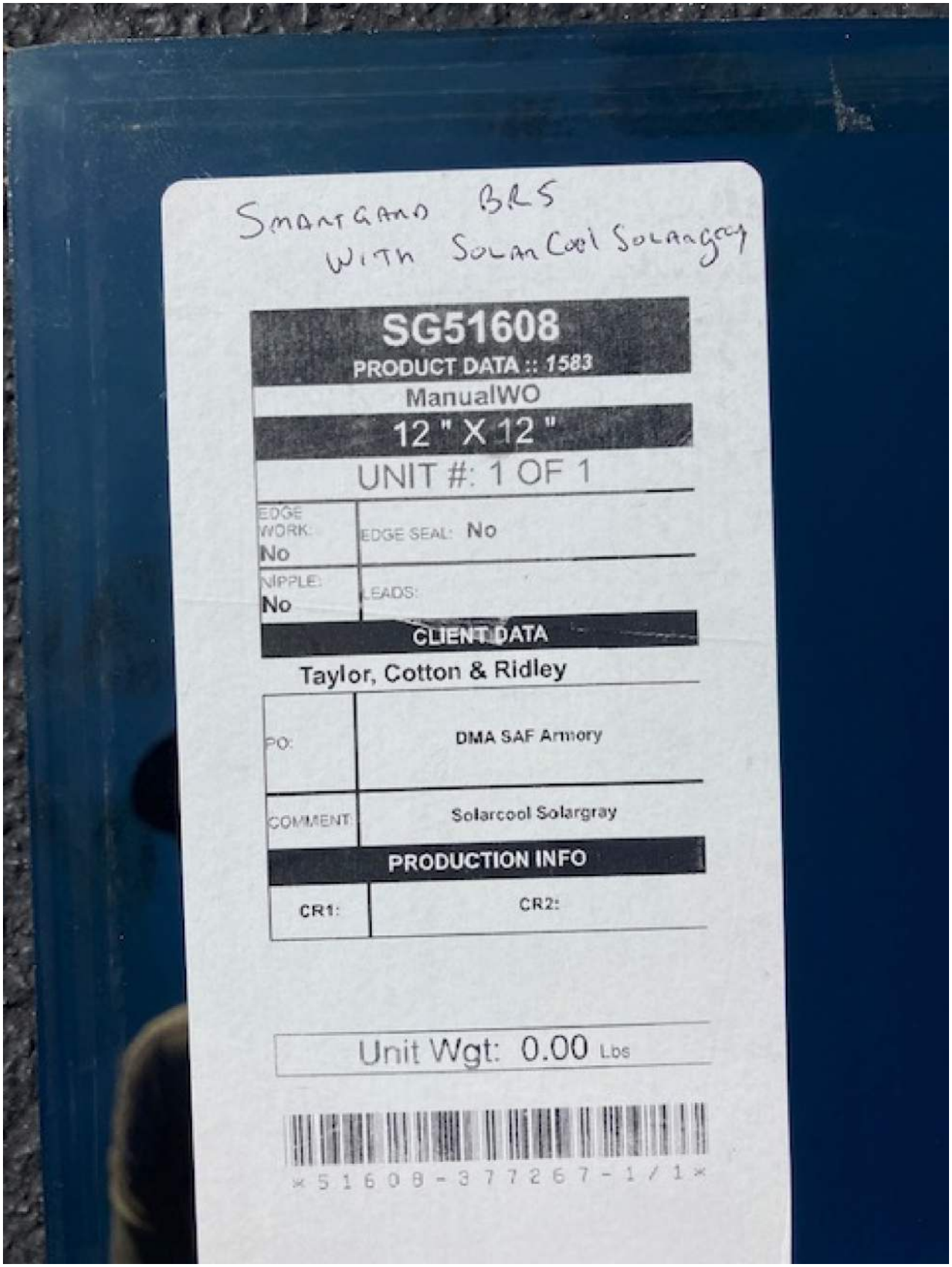
For applications that do not require no-spall, or where glass if preferred on both sides, use AIT GCP1 ballistic products.

Larger lites may require deeper edge engagements. It is imperative to the life and durability of certain composite types that compatible sealant or gasket material is used on both sides of the laminate. An appropriate sealant solution can be specified by AIT if required. The AIT Group produces the finest glass and composite laminates in the world, proper care during installation will ensure years of superior performance.

ADD-ON OPTIONS & ADDITIONAL INFO

Additional options include: Instantly switchable SmartGlass electronic privacy adds-on, Pilkington Mirropane®, Hard Coated Low E, Insulated Units, Tints, Fire resistant glass, Graphics or decorative Smart Designs, and more. Contact AIT for all available options or for a custom make-up design.

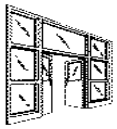
FOR MORE INFORMATION, PLEASE CONTACT:
Advanced Impact Technologies (AIT)
Tel: (727) 287-4620 • Fax: (727) 431-9834 • www.Advanced-Impact.com


SMARTGARD BRS
WITH SOLARCOOL SOLARGRAY
SG51608
PRODUCT DATA :: 1583
ManualWO
12 " X 12 "
UNIT #: 1 OF 1
EDGE WORK: No
EDGE SEAL: No
NIPPLE: No
LEADS:
CLIENT DATA
Taylor, Cotton & Ridley
PO: DMA SAF Armory
COMMENT: Solarcool Solargray
PRODUCTION INFO
CR1:
CR2:
Unit Wgt: 0.00 Lbs
×51608-377267-1/1×


Attack Side

Replacement

Replacement



HABERSHAM METAL PRODUCTS CO.

ENGINEERED STEEL DOORS AND FRAMES

MANUFACTURING
STAPLETON ROAD
P.O. BOX 739
CORNELIA, GA. 30531
PHONE: 706 778-2212
FAX: 706 778-2769

Reviewed and Approved by:

Shop Drawer: _____

Quality Inspector: _____

Date of Inspection: _____

NOTES:

1. THESE DIMENSIONS ARE NOT TO BE USED TO PRE-MORTISE DOORS, ORDER GLASS, OR ORDER MATERIALS TO BE USED WITH THESE OPENINGS.
2. THESE DRAWINGS HAVE BEEN PREPARED FOR THE USE OF HABERSHAM METAL PRODUCTS COMPANY ONLY. WE WILL NOT BE RESPONSIBLE FOR ANY ERRORS INCURRED THROUGH THEIR USE BY OTHER TRADES.
3. THESE DRAWINGS CONTAIN PROPRIETARY INFORMATION AND INTELLECTUAL AND INDUSTRIAL COPYRIGHTS THAT ARE THE PROPERTY OF HABERSHAM METAL PRODUCTS COMPANY. NO COPIES SHALL BE MADE WITHOUT APPROVAL. THESE DRAWINGS SHALL NOT BE USED BY ANY OTHER PARTY TO MANUFACTURE PRODUCTS, OR FOR ANY OTHER PURPOSE OTHER THAN THE PURPOSE INTENDED WITHOUT THE EXPRESS WRITTEN CONSENT OF HABERSHAM METAL PRODUCTS COMPANY.

Reserved for Stamp of Approval

JOB INFORMATION

JOB NUMBER: 9175-0556-23X

LAKE CITY

CUSTOMER REF. NO:
PO NO:
JOB: ARMORY DOOR UPGRADE
LOCATION: FLORIDA

CUSTOMER: TCR
PHONE:
FAX:
ADDRESS:
ADDRESS:
JOBSITE PHONE #:

ARCHITECT:
ADDRESS:
ADDRESS:

PROJECT MANAGER: COLIN MILLER
DRAWINGS BY:

TOTAL NO. OF DOORS: 1
TOTAL NO. OF FRAMES: 1
TOTAL NO. OF PANELS:
TOTAL NO. OF SHELVES:

NOTES

Complete all information for site specific project

Acceptance Criteria for these drawings are the Customer Requirements which may fall into the following categories in order of priority:

A: Architectural Plans and Specifications or
B: HMPCO standard construction subject to customer approval or
C: HMMA Specifications subject to customer approval or
D: Other customer specified standards or specifications.

JOB STATUS	BY	QTY	DATE
PLANS RECEIVED			
APPROVAL	CA	1	6/14/2022

Verify Jamb width prior to fabrication of door frame.

	Location Information									Frame Information								Door Information							General Information			
Seq	Tag	Int	From/Stop	To/Hinge	Des	LH	RH	Opng Width	Opng Height	HMPCO Elev	Hinge Jamb	Head Jamb	Lock Jamb	Jamb Width	Anchor Type	FR Ga	FR GL Type	HMPCO Elev	Dr GL Type	Dr GL Side	Dr GA	Nom Dr Thick	DR U/C	LBL	Hdw Set	Key Notes	Remarks
0001	LC143A				S	1		3	7	LC143A	1	T	1	ADVISE	EBS	12G	BR5	FVV	BR5	HINGE	12G	1.75				LEVEL 5 BR	
0002																											
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JOB: ARMORY DOOR UPGRADE
LOCATION: FLORIDA

FRAMES: DOORS: JOB NUMBER: 9175-0556-23X

Commercial (Non-Security) Hollow Metal Frame Specifications

Commerical (Non-Security) Specifications:

Interior Frames -

Exterior Frames - 12 GAUGE A60 Galvannealed

Frame Construction:

Corner Joints - Faces shall be mitered and stops butted.
Continuous Welding is required at faces and stops only.

Stop Heights - Door Openings - .625" minimum
Sidelights and Windows - 1.25"

Field Splices - Frames over 9'0" (108") tall shall be broken into sections small enough to meet shipping requirements. (see detail on pg.)

Anchors - Jamb Anchors - per jamb details and spaced 16" O.C. maximum. (see detail on pg.)
Floor Anchors - same gauge as frame. (see detail on pg.)

Spreader Bars - All door frames shall be provided with two(2) temporary spreader bars welded to the bottom of the jambs for bracing.

Hardware Reinforcements:

Hinge Reinforcements - 7 Gauge (.167") x 10" long projection welded to inside of frame.

Backup Angle - 7 Gauge (.167") x .875" x 1.25" long at top hinge reinforcement(s). (see detail on pg.)

Lock Tabs - 12 Gauge (.093")

Conduit - .75" EMT conduit run to the top.

Grout Guards - Metal grout guards at all hardware preparations which will provide protection for a 4" maximum slump consistency hand troweled in place. Grout guards shall be prepped with conduit fittings where required.

Silencers - Yes, (3) in lock jamb, (4) in Head at pair frame

Weather Stripping - Where weather stripping is called for in the hardware schedule, a 20 gauge channel will be applied to the throat of the frame for grout protection.

Hardware Locations - See locations on pg. .

Frame Loose stop

Removable Loose Stop - 1.25" x 1.25" x 10 Gauge (.123") angles.: Angles shall be butted. Channels shall be secured in place using 1/4-20 SAE grade #8 Torx Drive Security screws spaced 3" from ends and 9" O.C. maximum. (see detail on pg.)

Grout Guards - Grout Guards for loose stop screws shall be plastic caps. (see detail on pg.). Screws in mullions shall be protected by metal caps.

Primer:

Primer - Frames to get 3.0 to 4.0 mils of primer to meet bituminous coating results. See report at the end of this submittal.

Notes:

1) **ALL FRAMES LEVEL 5 BULLET RESISTANT**

Verify that frames meet Level 5 ballistics rating

NOTES:	1. THESE DIMENSIONS ARE NOT TO BE USED TO PRE-MORTISE DOORS, ORDER GLASS OR OTHER MATERIALS TO BE USED WITH THESE OPENINGS.	2. THESE DRAWINGS HAVE BEEN PREPARED FOR THE USE OF HABERSHAM METAL PRODUCTS COMPANY ONLY. WE WILL NOT BE RESPONSIBLE FOR ANY ERRORS INCURRED THROUGH THEIR USE BY OTHER TRADES.	JOB: LOCATION:	JOB NO. 9175-0556-23X	PAGE

Commercial (Non-Security) Hollow Metal Door Specifications

Commercial (Non-Security) Specifications:

Performance Grade -	Commercial (Non-Security)
Nominal Door Thickness -	1.75"
Interior Face Sheets -	
Exterior Face Sheets -	12 GAUGE A60 Galvannealed
Heat Rise Labels -	None Required

Door Construction :

Vertical Stiffeners -	22 Gauge (.026") Cold Rolled
Horizontal Spacing -	6" maximum
Stiffener Welding -	Spot welded to face sheets 5" O.C. maximum.
Insulation -	Voids between stiffeners shall be filled with 1 lb.fiberglass insulation.
End Channel -	14 Gauge (.067") channel spot welded to both face sheets 5" O.C. maximum.
Flushing Channel -	16 Gauge (.060") channel screw applied w/ # 6 sheet metal screws @ 16" O.C. maximum @ top of exterior doors only.

Hardware Reinforcements:

Hinge Reinforcements -	7 Gauge (.167") angle, 8" long, projection welded to the face of door in six(6) places.
Door Mounted Mechanical Locks -	12 Gauge (.093") minimum unitized lock box installed so cover plate is surface mounted on door when attached.
Strike Reinforcements -	12 Gauge (.093") minimum
Reinforcements -	14 Gauge (.067") minimum internal reinforcements for all surface applied hardware
Conduit -	.5" EMT conduit if required
Hardware Locations -	See locations on pg.

Fixed "C" or "Z" moldings and Loose stop

Stop Height -	1.25"
Fixed Molding -	12 Gauge(.093") "C" or "Z" molding (depending on thickness of glass) spot welded to face sheets 5" O.C. maximum.
Removable Loose stops -	12 Gauge (.093") 1.25" x 1.25" Angles with Butted corners secured in place using SAE grade #8 Torx Drive Button Head Security screws spaced 3" from ends and 9" O.C. maximum.

Note: See details for above on pg. .

Undercuts:

No Threshold -	.75"
Threshold -	.25" above threshold See detail on pg. .

Louver Construction:

Style of Louver -	None Required
Opening Size -	See Door Elevations on pg. .
Construction -	See detail on pg. .

Primer:

Primer -	HMPCO's Standard Primer w/ 1.0 - 1.5 mils dry film thickness.

Notes:

1) ALL DOORS LEVEL 5 BULLET RESISTANT

Verify that vertical stiffiners of door construction meet the White paper specification guidance (page 9) under Fabication 2.5(A)(2) "Weld 16 gauge rails and stilles to face plates with flush surface on all edges"

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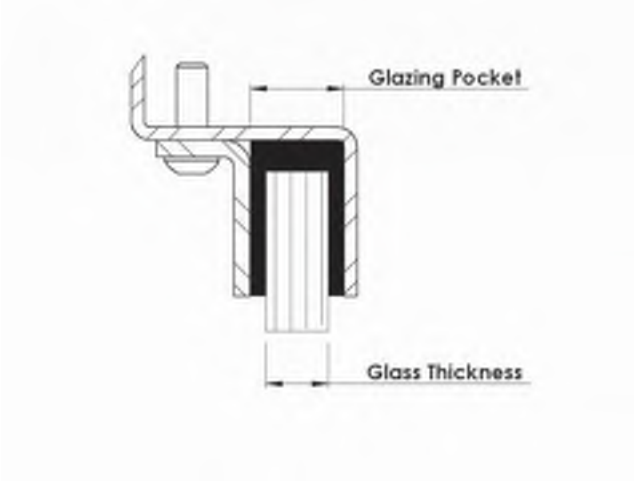
SECURITY GLASS TYPE CHART			
GLASS TYPE	GLASS THICKNESS	GLAZING POCKET*	REMARKS
BR5	1.540	1.790	
*Please verify glazing pocket dimensions			



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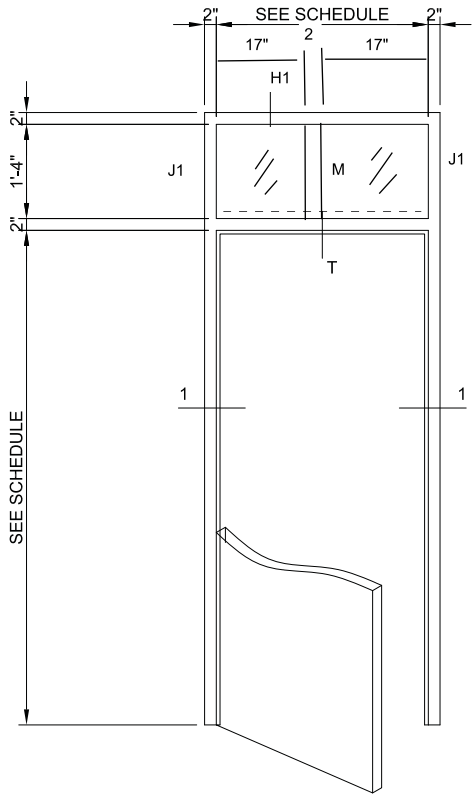
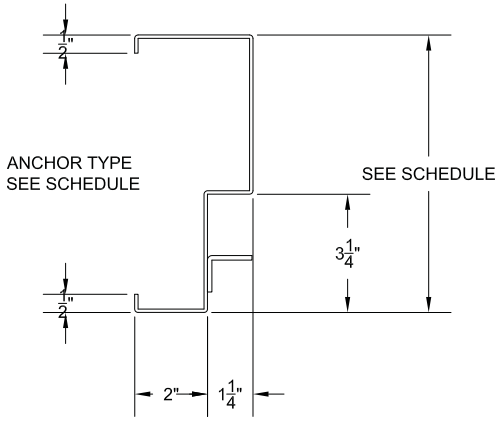


LC143A

NOTES:	1. THESE DIMENSIONS ARE NOT TO BE USED TO PRE-MORTISE DOORS, ORDER GLASS OR OTHER MATERIALS TO BE USED WITH THESE OPENINGS	2. THESE DRAWINGS HAVE BEEN PREPARED FOR THE USE OF HABERSHAM METAL PRODUCTS COMPANY ONLY. WE WILL NOT BE RESPONSIBLE FOR ANY ERRORS INCURRED THROUGH THEIR USE BY OTHER TRADES.	JOB: Armory Door Upgrades LOCATION: Florida National Guard	JOB NO. 9175-0556-23X	PAGE



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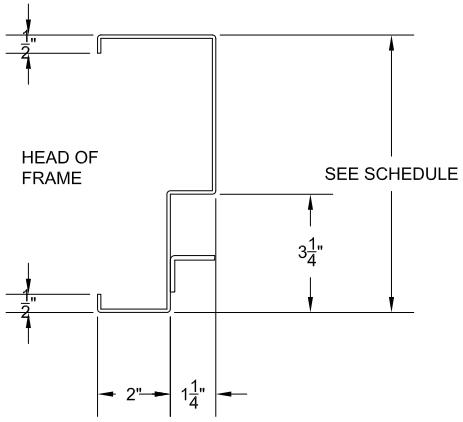
J1



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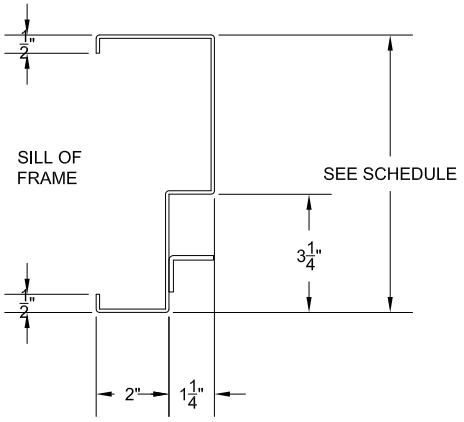

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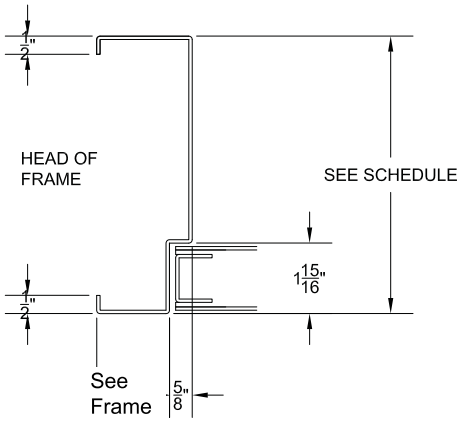

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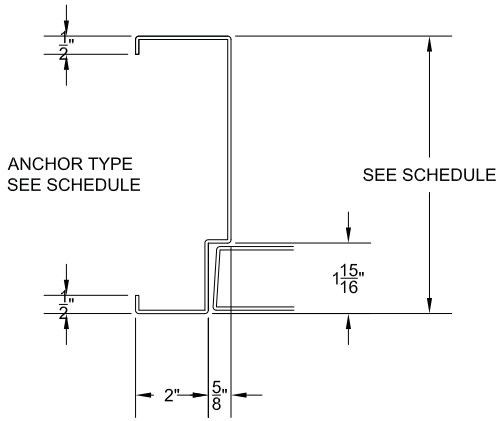

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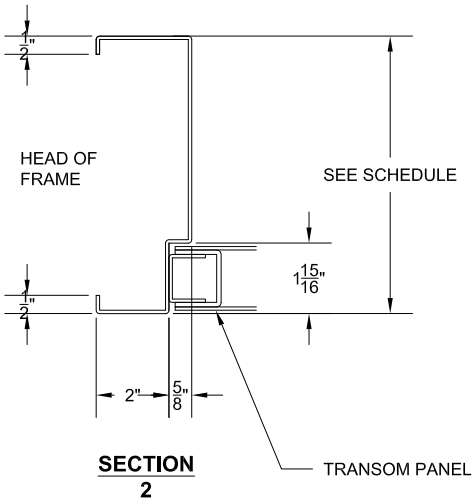

SECTION
2

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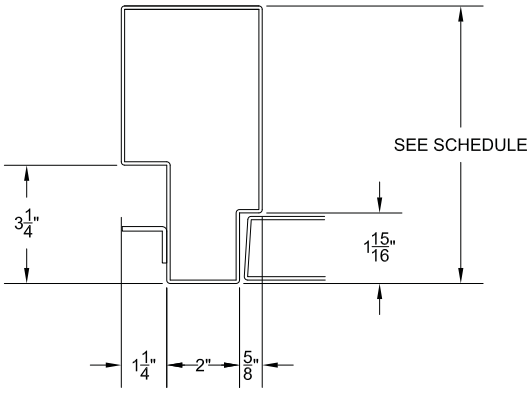

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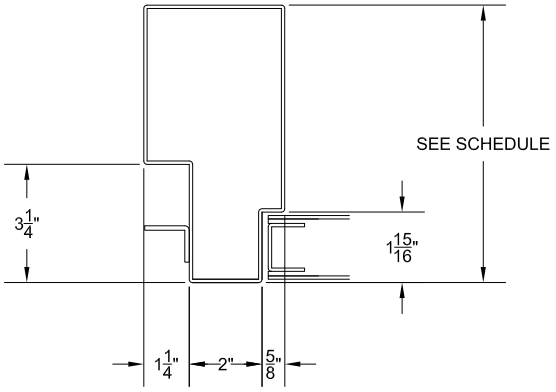

SECTION
T

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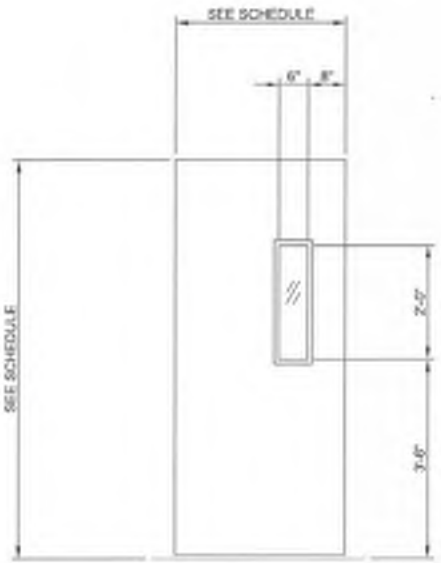

03

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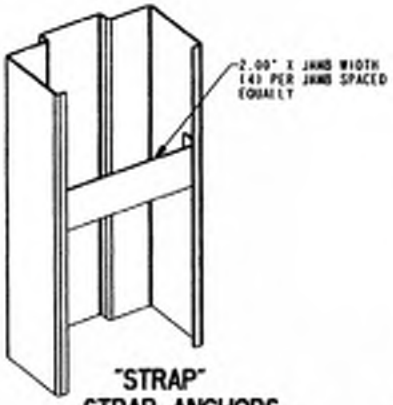
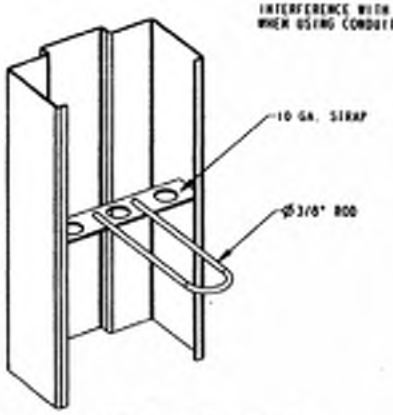
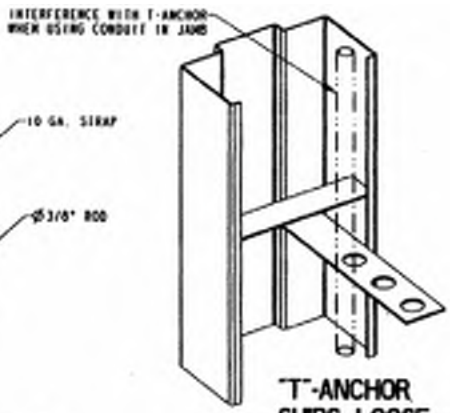


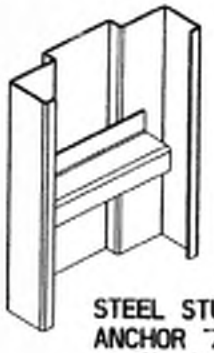
"STRAP"
STRAP ANCHORS
PRECAST/POURED IN
PLACE CONCRETE



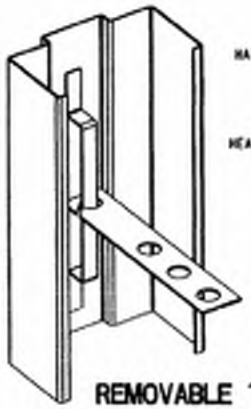
WIRE LOOP WITH "T" STRAP
SHIPS LOOSE



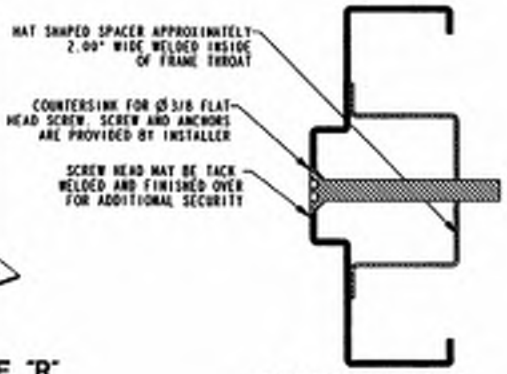
"T"-ANCHOR
SHIPS LOOSE
U/L APPROVED
4 EACH JAMB TO 90°



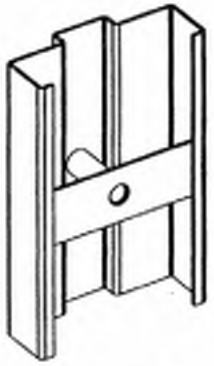
STEEL STUD
ANCHOR "Z"
U/L APPROVED
4 EACH JAMB TO 90°



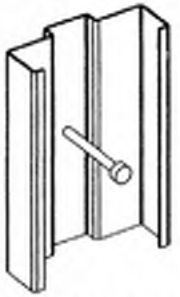
REMOVABLE "R"
YOKE ANCHORS
U/L APPROVED
4 EACH JAMB TO 90°



EXPANSION BOLT
HAT ANCHORS "EBH"
U/L APPROVED
4 EACH JAMB TO 90°



EXPANSION BOLT
STRAP "EBS"
12 GA. STRAP W/ PIPE SPACER
EXISTING CONCRETE/MASONARY



NELSON STUD
"NS"

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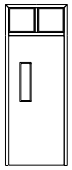
Door Hardware Schedule

Lake City DMA Armory Door Upgrades

Florida

Contractor
CPPI

Openings Schedule

Opening Number(s)	Qty	Nominal Width	Nominal Height	Elevation	Hand	Hardware Group	Remarks
LC143A	1	36"	84"	 LC143A	RHR	H01HS	SECONDARY HM BR5

Hardware Schedule

Heading #1 (Group: H01HS)

Item #1 1 Single door LC143A RHR

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

1		RIM CYLINDERS AS REQUIRED		
1	Continuous Hinge	Ives 112HD-83" US28 CUT EPT		US28
1	Exit Device	Von Duprin RXQELHH-98-NL-OP US32D 110MD NL-R US26D 0	x 84" Door	US26D/US32D
1	Surface Closer	LCN 4040XP EDA AL MC		AL
1	Accessory	Von Duprin EPT-10 SP28		SP28
1	Threshold	Pemko 272A36		A
1	Weatherstripping	Pemko 315SSN36 (MS25)		
1	Weatherstripping	Pemko S773BL17		BL

ALLEGION

VON DUPRIN

Electrical power transfer

Overview

Electric power transfer provides a means of transferring electrical power from a door frame to the edge of a swinging door. The units are completely concealed when the door is in the closed position, and are ideally suited for installations involving abuse or heavy traffic.

Two models are available; EPT-2, two 18 gauge wires and EPT-10, ten 24 gauge wires.

Features and benefits

- UL Listed for use on fire doors
- UL listed as Miscellaneous Door Accessory
- Ball-and-socket joint construction provides cut and pinch protection for wiring
- Built for heavy traffic and high abuse openings

Door applications

- Up to 5" butt hinges – 180° swing.
- 5 ½" butt hinges – 130° swing.
- 6" butt hinges – 110° swing.
- ¾" offset pivots – 180° swing.

Not for use with swing clear hinges, center-hung pivots, pocket pivots or balanced doors.

Door applications shown are for 1 ¾" door thickness, for all other applications contact Technical Support to confirm compatibility.

Finishes

- SP28 (sprayed aluminum)
- SP313 (sprayed duranodic)

Dimensions	
Housing	9" X 1 ¼ X 1 ⅝ (229mm X 32mm X 38mm)
EPT-2	Two 18 gauge wires, up to 2 AMPS @ 24VDC, with a 16 AMPS maximum surge
EPT-10	Ten 24 gauge wires, up to 1 AMPS @ 24VDC, with a 16 AMPS maximum surge
PNT-1	5/32" tubing

To order, specify

- **EPT-2, EPT-10 or PNT-1.**
- **Finish, SP28 or SP313.**

About Allegion

Allegion (NYSE: ALLE) is a global pioneer in safety and security, with leading brands like CISA®, Interflex®, LCN®, Schlage® and Von Duprin®. Focusing on security around the door and adjacent areas, Allegion produces a range of solutions for homes, businesses, schools and other institutions. Allegion is a $2 billion company, with products sold in almost 130 countries. For more, visit **www.allegion.com.**

aptiQ ■ LCN ■ SCHLAGE ■ STEELCRAFT ■ VON DUPRIN

ALLEGION™

010106, Rev. 04/16
www.allegion.com/us

Electrical options

Power Supplies

Series PS902/914

Overview:

The PS900 Series is a consolidated line of power supplies and accessories that offer enhanced flexibility and functionality specific to the changing needs of the access control market. The PS900 Series can be used in a variety of applications to convert high voltage AC power into the low voltage DC outputs required by most access control devices. The PS900 Series protects devices downstream by providing Class 2*, filtered and regulated power. The full line is UL294 certified.

Note: PS906 can provide Class 2 rated outputs when used with 900-8P distribution board.

Features:

- Constant output rating at both 12 VDC and 24 VDC provides superior performance ; includes field selectable jumper
- Polarized connectors for option boards eliminate need for racks and side connectors
- Flat mounting of option boards provides easier access to terminal blocks for connection of electrified devices
- High voltage protective cover
- Battery back-up board auto-selects voltage
- Fire alarm relay can be configured to provide either switched or un-switched outputs from a power supply
- PS914 designed with high in rush current for powering electrified panic devices
- Universal 120-240 VAC input
- Low voltage DC, regulated and filtered
- Electronic power limiting foldback circuit for AC current overload protection
- Fused primary input
- AC status monitor- isolated SPDT contacts
- AC input and DC output LED status indicators
- Cover mounted AC input indication
- Hinged cover with lock down screws

Certifications:

- UL 294 certified—the standard for access control
- Class 2 rated*

* Except PS906, output rating exceeds Class 2 power limits

Once power is converted to low voltage DC, the PS900 Series offers a variety of distribution options, including basic fuse protection, simple relay, and advanced logic providing complex sequencing and timing functions.

* PS906 can provide Class 2 rated outputs when used with 900-8P distribution board.

******

	PS902	PS904	PS906	PS914
Number of connectors on power supply for the following:	2 amps	4 amps	6 amps	4 amps
Distribution boards	1	2	3	2
Battery back-up board	1	1	1	1

Note: One fire alarm board can be connected directly to the PS902. If a fire alarm board is desired for the PS904, PS906 or PS914 it can be connected to a distribution board.

Applications:

The PS900 Series of power supplies works with many electrified devices including Schlage electromagnetic locks, Schlage AD-Series hardwired locks, Schlage electrified mechanical locks, Von Duprin electrified strikes , Von Duprin exit devices, and many other brands.

Accessories:

The Schlage PS900 Series features seven option boards for use in a variety of applications. All Schlage PS900 Series power supplies option boards are UL 294 certified.

Option boards:

900-4R: 4 relay controlled output board to power multiple devices

900-4RL: 4 relay distribution board with logic is field configurable for time delay function, auto operator, security interlock

900-8F: Provides 8 individually fuse-protected outputs, giving the flexibility to power multiple devices and provide another layer of protection

900-FA: Emergency interface relay integrates with fire alarm and is used to cut power in case of emergency

900-BB: Battery backup

900-2RS: 2 relay EL panic device control board (PS914 only)

900-BBK: Battery backup kit includes two 7A/hr batteries and provides up to four hours of backup power when cycled every 5 minutes at full load

Ives Continuous Hinges are designed to last the life of the building. The unique design distributes the weight of the door along the entire length of the frame, reducing the high amount of stress normally associated at top of door and frame on butt hinge applications.

Not only does this reduce hinge failure, it also keeps your door in constant alignment, greatly reducing the chance of door sag. These characteristics make continuous hinges suitable for high use/high traffic doors.

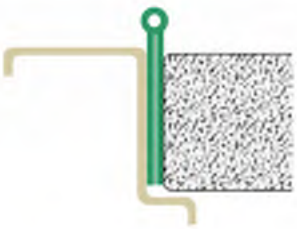
The design of a continuous hinge eliminates the gap between the door and the frame. The absence of gap also helps prevents finger from being pinched, making it a safer device than traditional hinges. These benefits result in higher efficiency and less maintenance, maximizing the value of your opening investment.

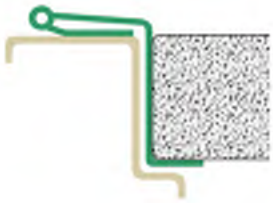
Continuous hinges are available in two styles; aluminum geared and pin and barrel in steel or stainless steel.

Aluminum geared

Geared continuous hinges utilize a single gear section for the leaf and a separate gear section for the frame side of the door. The two are held in place together by a full length cover channel and rotate on a series of bearings.

Ives provides two unique series of bearing designs. The HD model features a spread bearing design for lighter weight doors. The XY features a center load bearing design to help reduce frame issues and also has an available hospital tip cap and electric through wire panel with a continuous cover.





Pin and barrel

Pin and Barrel hinges share many of the same characteristics of a traditional hinge. Both have a center pin and rolled knuckles. However, a continuous Pin and Barrel hinge stretches along the entire length of the frame. IVES offers both stainless steel and primed steel to best match your specific application.

Ives also offers the CS series pin and barrel hinges which provides a patented solution that brings the clean aesthetic design of aluminum geared continuous hinge to the ruggedness and safety afforded by stainless pin and barrel continuous hinges.

Lifetime warranty

Ives continuous hinges carry a limited lifetime warranty, ensuring your opening will function to your satisfaction every time. Please refer to the price book for more detailed warranty information.

General hinge information

ANSI Certified
All Ives Aluminum geared hinges are certified to ANSI 156.26, Grade 1
XY Models.....Grade 1 150lb and 300lb door test
HD Models.....Grade 1 150lb door test

UL Listed
All Ives Aluminum geared hinges are tested and approved UL 10C (90 minutes).

Material
6063-T6 Aluminum

Hinge duty
All Ives Aluminum geared hinges are heavy duty(XY and HD models)

XY Model - Slot Adjustability

XY Model - Bearings

HD Model

XY Models:
- Rounded gear design for extended life and smoother operation.
- Patented, center loaded, interlocking bearing design which helps handle the opening and closing of the door better over time. All sizes have 37 Bearings.
- XY Mounting Slot Adjustability on all full and half surface models to help with installation.
- Frame guidance lip is extended further for retrofit applications to cover existing heavy weight architectural hinge preps.
- Improved aesthetics with a curved, articulating cover design which eliminates pinch points

HD Models
Features transmission gear design with bearings that are evenly spaced every 3" on center - Amount of bearings varies by size
- 83".....32 Bearings
- 85".....32 Bearings
- 95".....36 Bearings
- 120".....47 Bearings

Standard lengths
83", 85", 95", 119"(XY Models), 120"(HD Models) Custom lengths available up to 119", consult factory. Handing required for 224HD

Finishes

BHMA	US	Description	Base Material
628	US28	Clear aluminum anodized	Aluminum
710	313AN	Dark bronze anodized	Aluminum

Custom finishes available, consult factory.

Field modifications
Ives Aluminum geared continuous hinges can be cut to length from both ends during installation.

XY Models
The unique mounting pattern of the XY hinge allows it to be cut down to 69" while still having double row fastners regardless of the original length of the hinge. Requires the hinge to be cut from both ends. Example: A 119" hinge can have 25" removed from each end to make it a 69" long hinge.

HD Models
The unique mounting pattern allows to cut up to 6" from bottom while still having double row fasteners. If cut more than 13.5", other modifications may be necessary.

Door weight
For doors up to 200 lbs, no door reinforcement is required. For doors between 200 and 450 lbs a 16 gauge channel in the frame is required. For doors up to 600 lb, rivet nuts are required in the frame in addition to the frame reinforcement. Max door width of 4'0".

Hospital tips
Hospital tip (HT) for XY models
The new XY models features a new ligature resistant and tamper resistant Hospital Tip Cap. The new design provides a single uniform 45° angle surface with no exposed edges or openings.

Hospital tips (HT) for HD models
The standard hospital tip option includes an angle machined channel cover and bearing to provide a flush angled surface. Recommended for HT retrofit applications only.

How to order

112XY | HT | US28 | 83 | TWP CON

Model

026XY	Full mortise - narrow frame leaf, wide door leaf
027XY	Full mortise - wide door leaf
040XY	Full mortise - wide throw
041XY	Full mortise - swing clear
045XY	Half surface - narrow frame leaf, wide door leaf
046XY	Half surface - wide door leaf
053XY	Half surface - narrow frame leaf, narrow door leaf
054XY	Half surface - narrow door leaf
112XY	Full mortise - narrow frame and door leaf
---> 112HD	Full mortise - narrow frame and door leaf
114XY	Full mortise - narrow frame leaf, door edge protector
157XY	Full surface - center pivot
210XY	Full surface - swing clear
224XY	Full mortise - door edge protector
224HD	Full mortise - door edge protector

Option 1

HT	Hospital tip (XY models only) (Only available on 026XY, 027XY, 040XY, 112XY, 114XY, 224XY)

Finish

---> US28	Clear Anodized Aluminum
313AN	Dark Bronze Anodized Aluminum
315AN	Black Anodized Aluminum (XY only)

Custom finishes available, consult factory.

Length

83"
85"
95"
119"(XY) / 120"(HD)

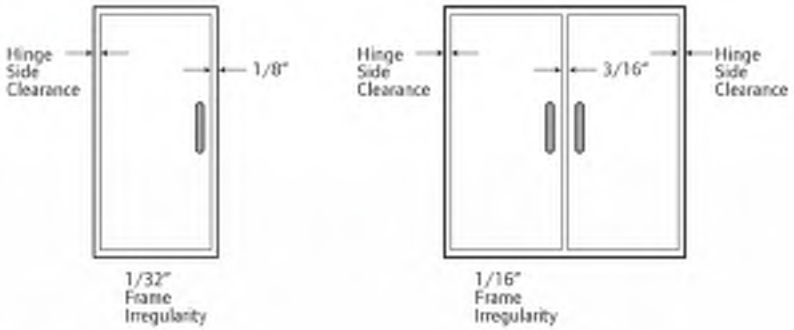
Custom lengths available up to 119", consult factory. When specifying length, handing required.

Option 2

-----> EPT	Electric power transfer prep (Only available on 026XY, 027XY, 112HD, 112XY, 114XY, 224HD, 224XY) Handing (LH and RH) Required for 026, 027, 114, and 224 models
TWP CON	Through Wire Panel with Allegion Connect Standard (Only Available on 026XY, 027XY, 112XY, 114XY, 224XY)
SECHM	Security fasteners - pin-in-socket
SECWDHM	Security fasteners - pin-in-socket (half wood, half hollow metal)
SECWDWD	Security fasteners - pin-in-socket (wood door and frame)
WD	Wood door fasteners
TEKWD	Half thread forming, half wood
TF	Thread forming screws (pilot hole required) (Only available with 112HD and 224HD)
TFWD	Half thread forming, half wood

Clearance requirements

Consult your local authority having jurisdiction for specific fire codes relating to fire rated doors.
The table below is only recommended for non fire related doors.



Single door

Model	Hinge-side clearance	Lock-side clearance	Frame irregularity	Beveled door clearance	Door under-sizing: Square edged	Door under-sizing: Beveled edge
026XY	5/16"	1/8"	1/32"	1/32"	15/32"	1/2"
027XY	5/16"	1/8"	1/32"	1/32"	15/32"	1/2"
040XY	5/16"	1/8"	1/32"	1/32"	15/32"	1/2"
041XY	5/16"	1/8"	1/32"	1/32"	15/32"	1/2"
045XY	5/32"	1/8"	1/32"	1/32"	5/16"	11/32"
046XY	5/32"	1/8"	1/32"	1/32"	5/16"	11/32"
053XY	5/32"	1/8"	1/32"	1/32"	5/16"	11/32"
054XY	5/32"	1/8"	1/32"	1/32"	5/16"	11/32"
112HD	5/16"	1/8"	1/32"	1/32"	15/32"	1/2"
112XY	5/16"	1/8"	1/32"	1/32"	15/32"	1/2"
114XY	5/16"	1/8"	1/32"	1/32"	15/32"	1/2"
157XY	1/16"	1/8"	1/32"	1/32"	7/32"	1/4"
210XY	1/16"	1/8"	1/32"	1/32"	7/32"	1/4"
224HD	5/16"	1/8"	1/32"	1/32"	15/32"	1/2"
224XY	5/16"	1/8"	1/32"	1/32"	15/32"	1/2"

Pair of doors

Model	Hinge-side clearance (2 doors)	Lock-side clearance	Frame irregularity (2 doors)	Beveled door clearance (2 doors)	Door under-sizing: Square edge total	Door under-sizing: Square edge each door	Door under-sizing: Beveled edge total	Door under-sizing: Beveled edge each door
026XY	5/8"	3/16"	1/16"	1/16"	7/8"	7/16"	15/16"	15/32"
027XY	5/8"	3/16"	1/16"	1/16"	7/8"	7/16"	15/16"	15/32"
040XY	5/8"	3/16"	1/16"	1/16"	7/8"	7/16"	15/16"	15/32"
041XY	5/8"	3/16"	1/16"	1/16"	7/8"	7/16"	15/16"	15/32"
045XY	5/16"	3/16"	1/16"	1/16"	9/16"	9/32"	5/8"	5/16"
046XY	5/16"	3/16"	1/16"	1/16"	9/16"	9/32"	5/8"	5/16"
053XY	5/16"	3/16"	1/16"	1/16"	9/16"	9/32"	5/8"	5/16"
054XY	5/16"	3/16"	1/16"	1/16"	9/16"	9/32"	5/8"	5/16"
112HD	5/8"	3/16"	1/16"	1/16"	7/8"	7/16"	15/16"	15/32"
112XY	5/8"	3/16"	1/16"	1/16"	7/8"	7/16"	15/16"	15/32"
114XY	5/8"	3/16"	1/16"	1/16"	7/8"	7/16"	15/16"	15/32"
157XY	1/8"	3/16"	1/16"	1/16"	3/8"	3/16"	7/16"	7/32"
210XY	1/8"	3/16"	1/16"	1/16"	3/8"	3/16"	7/16"	7/32"
224HD	5/8"	3/16"	1/16"	1/16"	7/8"	7/16"	15/16"	15/32"
224XY	5/8"	3/16"	1/16"	1/16"	7/8"	7/16"	15/16"	15/32"

Templates and installation instructions available on line at www.allegion.com/us

112HD Full mortise - narrow frame and door leaf

- For 1 3/4" doors
- Spread bearing design
- Non Handed for custom cut lengths
- Flush mounted, no inset
- 48" Maximum door width
- Beveled or square edge doors
- For doors weighing up to 450 pounds without reinforcing, 600 pounds with reinforcing

Certifications
- Meets ANSI 156.26 for 150lbs
- UL10C certified

Standard lengths
- 83", 85", 95", 120"

Provide Security Screws if Available.

Standard Mounting Hardware
- 12-24 x 3/4" Steel self drilling / self tapping phillips head screw

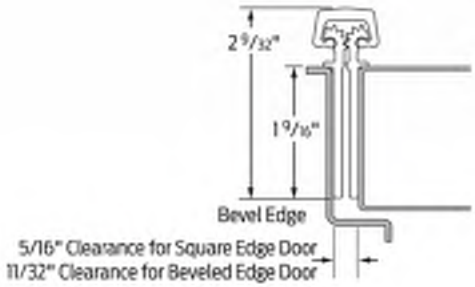
Finishes
- Clear Anodized (US28), Dark Bronze Anodized (313AN)

Custom anodizing and painting are available, consult factory.

Options:
- EPT .....Electric power transfer

Optional mounting hardware:
- SECHM.....Security screws - hollow metal door and frame
- SECWDHM.....Security screws - 1/2 wood, 1/2 hollow metal
- SECWDWD.....Security screws - wood door and frame
- TF.....Thread forming screws
- TEKWD .....1/2 self drill, self tap 1/2 wood
- WD.....Wood door and frame

For single door applications:
For pairs of doors see chart and general information



Push Plates – .050" Thick

Material: Aluminum, brass, bronze, stainless steel

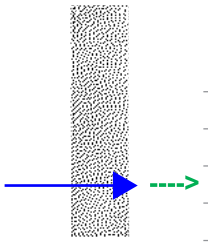
Finishes: Available in standard architectural finishes, US32D**MS**, and US32D**316** (see page 9)

Fastener: #6 x 5/8" OH SMS

Features: Four beveled edges

Ordering: Specify plate number followed by size designation and finish (70B US32D) or for non-standard size 70 Specify width x height and finish. Specify any additional options

Options:
- Custom sizes available upon request
- TEK – self-drilling screws
- TORX – security Torx screws
- SA – self-adhesive mounting: 1/16" double face foam tape (no screw holes on plate)
- Engraving on plates 4" wide or wider. Specify copy. See page B1 for standard engraving locations
- Cylinder cutouts (CFC) and turn knob cutouts (CFTT). See page B1 for standard locations and sizes
- Heavy bevel available on 70A to 70G, specify HVBEV



No. 70

No.	Standard Size	Weight	ANSI A156.6
70A	3" x 12"	0.7 lbs.	J301
70B	3 1/2" x 15"	0.9 lbs.	J301
70C-RKW	4" x 16"	.85 lbs..	J301
70E	6" x 16"	1.5 lbs.	J301
70F	8" x 16"	2.0 lbs.	J301
70G	4" x 20"	1.3 lbs.	J301

No. 70RC

No.	Standard Size	Weight	ANSI A156.6
70RCA	3" x 12"	0.7 lbs.	J301
70RCB	3 1/2" x 15"	0.9 lbs.	J301
70RCC	4" x 16"	1.0 lbs.	J301
70RCE	6" x 16"	1.5 lbs.	J301
70RCF	8" x 16"	2.0 lbs.	J301
70RCG	4" x 20"	1.3 lbs.	J301

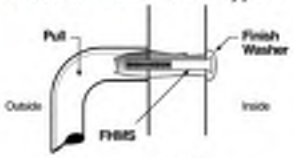
No. 70RE

No.	Standard Size	Weight	ANSI A156.6
70REA	3" x 12"	0.7 lbs.	J301
70REB	3 1/2" x 15"	0.9 lbs.	J301
70REC	4" x 16"	1.0 lbs.	J301
HG70C	4" x 16"	.85 lbs.	

800-458-2424 | www.assaabloydooraccessories.us
Check the web site for the up-to-date catalog

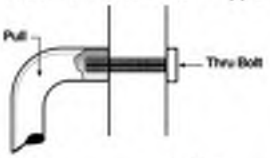
Thru Bolt

Wood or Metal Door – Type 1



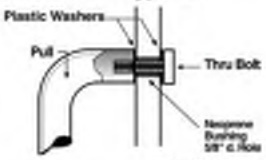
Type	Bolt Size	Drill Size Wood	Drill Size Metal
1	1/4 - 20	9/32	9/32
1HD	5/16 - 18	11/32	11/32
1XHD	3/8 - 16	13/32	13/32

Wood or Metal Door – Type 12



Type	Bolt Size	Drill Size Wood	Drill Size Metal
12	1/4 - 20	9/32	9/32
12HD	5/16 - 18	11/32	11/32
12XHD	3/8 - 16	13/32	13/32

Glass Door – Type 15

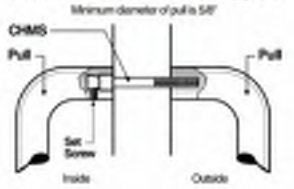


Type	Bolt Size	Drill Size Glass
15	1/4 - 20	5/8
15HD	5/16 - 18	5/8
15XHD	3/8 - 16	5/8

NOTE: Heavy Duty (HD/XHD) mounting features hex drive for positive tightening and large overall size for superior strength. Recommended for high frequency and rough service openings.

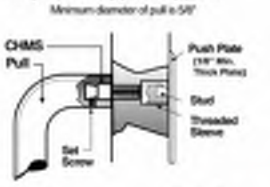
Back to Back

Wood or Metal Door – Type 5



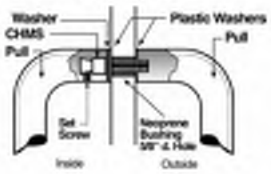
Type	Bolt Size	Drill Size Wood	Drill Size Metal
5	1/4 - 20	9/32	5/32
5HD	5/16 - 18	11/32	11/32

Any Door Type – Type 9



Type	Bolt Size	Drill Size Metal
9	1/4 - 20	N/A

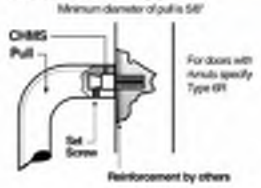
Glass Door – Type 13



Type	Bolt Size	Drill Size Glass
13	1/4 - 20	5/8
13HD	5/16 - 18	5/8

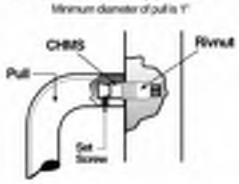
Surface Concealed

Metal Door – Type 6



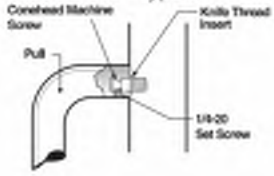
Type	Bolt Size	Drill Size Metal
6	1/4 - 20	1/4 - 20 tap
6HD	5/16 - 18	5/16 - 18 tap

Metal Door – Type 6R



Type	Bolt Size	Drill Size Metal
6R	1/4 - 20	N/A

Wood Door – Type 8

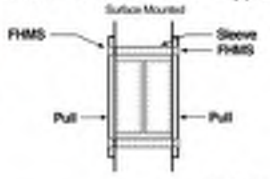


Type	Bolt Size	Drill Size Wood
8	1/4 - 20	2 33/64 x 5/16 dp
8HD	5/16 - 18	7/16 x 5/16 dp

Flush Pull Mounting

Type 10 Mounting applies to the 94 Series Flush Pulls

Wood or Metal Door – Type 10

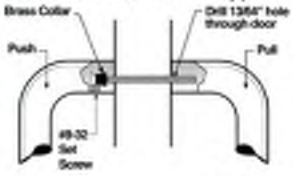


Type	Bolt Size	Drill Size Wood	Drill Size Metal
10	8 - 32	5/32	9/32

Wire or Small PostMount Pull Mounting

NOTE: This mounting should only be used on pulls with mounting points that are 1/2" in diameter.

Wood or Metal Door – Type 5S



Type	Bolt Size	Drill Size Wood	Drill Size Metal
5S	8 - 32	13/64	13/64

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Opening Solutions

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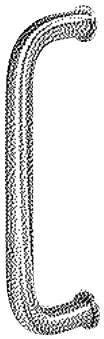


Door Pulls with Base Plates No. Y102, Y105, Y106, Y107, Y108, Y109

Material: Aluminum, brass, bronze, stainless steel

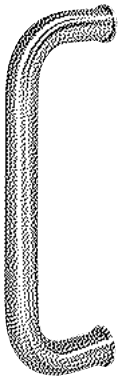
Finishes: Available in standard architectural finishes, US32D**MS**, US32D**316**, US32**316**, white (WPC), red (RPC), and black (BPC) powder coat finishes (see page 9)

Fastener: 1/4-20 x 2 1/2" thru bolt & finish washer (standard 1 3/4" door)

Features: 1/8" base plates improve stability on the door. Recommended for glass and wood doors

Options:
- Back to back mounting in pairs — use BTB suffix and mounting type number (Y107BTB5)
- Concealed mounting single pulls — use C suffix and mounting type number (Y107C6)
- Advise if door thickness is other than 1 3/4"
- See page B13 for mounting selection (standard duty 1/4-20)

No.	Material Size	CTC	Overall	Base	Projection	Clearance	Weight	ANSI A156.6
Y102	5/8" dia.	5 1/2"	6 1/8"	7/8"	2 1/8"	1 1/2"	0.6 lbs.	—
Y105	3/4" dia.	5 1/2"	6 7/8"	1 1/16"	2 3/8"	1 5/8"	1.2 lbs.	J401
Y106	3/4" dia.	6"	7 1/16"	1 1/16"	2 3/8"	1 5/8"	1.3 lbs.	J401
Y107	3/4" dia.	8"	9 1/16"	1 1/16"	2 3/8"	1 5/8"	1.6 lbs.	J401
Y108	3/4" dia.	10"	11 1/16"	1 1/16"	2 3/8"	1 5/8"	1.8 lbs.	J401
Y109	3/4" dia.	12"	13 1/16"	1 1/16"	2 3/8"	1 5/8"	2.1 lbs.	J401



Door Pulls with Base Plates No. Y110, Y111A, Y111, Y112, Y118

Material: Aluminum, brass, bronze, stainless steel

Finishes: Available in standard architectural finishes, US32D**MS**, US32D**316**, US32**316**, white (WPC), red (RPC), and black (BPC) powder coat finishes (see page 9)

Fastener: 1/4-20 x 2 1/2" thru bolt & finish washer (standard 1 3/4" door)

Features: 1/8" base plates improve stability on the door. Recommended for glass and wood doors.

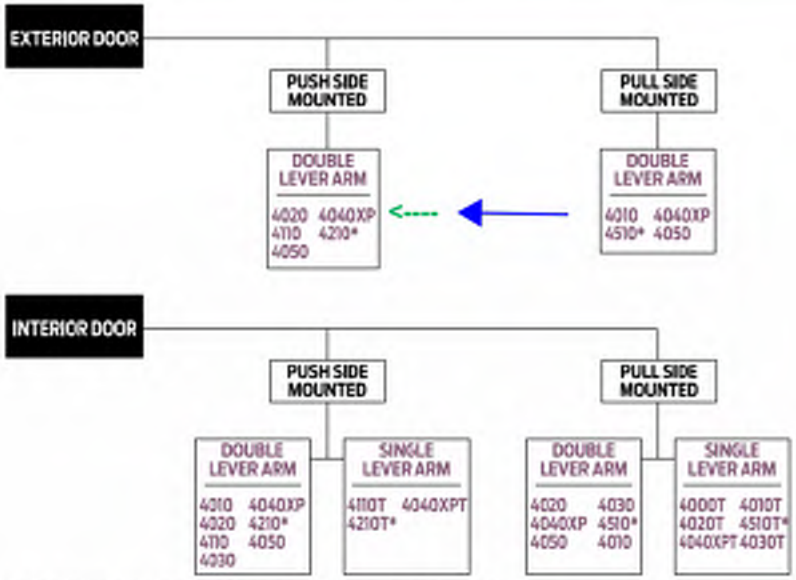
Options:
- Back to back mounting in pairs — use BTB suffix and mounting type number (Y112BTB5)
- Concealed mounting single pulls — use C suffix and mounting type number (Y112C6)
- Advise if door thickness is other than 1 3/4"
- Heavy duty versions of most fastening types available — use suffix HD to fastening type number (Y112BTB5HD)
- See page B13 for mounting selection (standard duty 1/4-20)

No.	Material Size	CTC	Overall	Base	Projection	Clearance	Weight	ANSI A156.6
Y110	1" dia.	8"	9 1/4"	1 1/4"	3 1/8"	2 1/8"	3.1 lbs.	J401
Y111A	1" dia.	9"	10 1/4"	1 1/4"	3 1/8"	2 1/8"	3.4 lbs.	J401
Y111	1" dia.	10"	11 1/4"	1 1/4"	3 1/8"	2 1/8"	3.6 lbs.	J401
Y112	1" dia.	12"	13 1/4"	1 1/4"	3 1/8"	2 1/8"	4.1 lbs.	J401
Y118	1" dia.	18"	19 1/4"	1 1/4"	3 1/8"	2 1/8"	5.5 lbs.	J401

4000 Series surface mounted closers

Product selection guide

Surface mounted 4000 Series LCN closers feature a modern design engineered for each application, easy installation, and superior performance. This guide is based on the desired mounting of the closer.



** INDICATES HIGH SECURITY CLOSER. REFER TO THAT SECTION OF THE CATALOG.*

Product comparison

This chart shows a basic comparison of 4000 Series closers. Refer to the specific closer chapter for complete details.

CLOSER SERIES	MOUNTING: HINGE (PULL SIDE)	MOUNTING: TOP JAMB (PULL)	MOUNTING: TOP JAMB (PUSH)	MOUNTING: PARALLEL ARM	MOUNTING: STOP FACE	FINISH: POWDER COAT	FINISH: PLATED	COVER: PLASTIC	COVER: METAL	CYLINDER: NON-HANDED	CYLINDER: NON-SIZED	CYLINDER: ACCESSIBILITY ♿	CYLINDER: DELAYED ACTION***	CYLINDER: AFB**	*ARM FUNCTION: REGULAR (DOUBLE)	*ARM FUNCTION: STANDARD (SHIELD)	*ARM FUNCTION: HOLD-OPEN	*ARM FUNCTION: FUSIBLE LINK	*ARM FUNCTION: EDA/REDA	*ARM FUNCTION: CUSH/HCUSH	*ARM FUNCTION: EGRESS/RHCUSH	*ARM FUNCTION: DOUBLE EGRESS
4010	●	○	○	○	○	●	●	●	●	○	●	♿	●	○	140°	○	140°	140°	○	○	○	○
4010T	●	○	○	○	○	●	●	●	●	○	○	♿	○	○	○	180°	120°	○	○	○	○	100°
4020	○	○	●	○	○	●	●	●	●	○	●	♿	●	○	180°	○	140°	140°	○	○	○	○
4020T	○	●	○	○	○	●	●	●	●	○	○	♿	○	○	○	180°	100°	○	○	○	○	○
4030	●	○	●	●	○	●	●	○	●	●	●	♿	○	○	180°	○	180°	○	110°	100°	100°	○
4030T	●	●	○	○	●	●	●	○	●	●	●	♿	○	○	○	180°	180°	○	○	○	○	○
4040XP	●	○	●	●	○	●	●	●	●	●	●	♿	●	○	120°	○	120°	○	180°	110°	110°	○
4040XPT	●	●	○	○	●	●	●	●	●	●	●	♿	○	○	○	120°	110°	○	○	○	○	95°
4050	●	○	●	●	○	●	●	●	●	●	●	♿	●	○	180°	○	180°	○	180°	110°	110°	○
4110	○	○	○	●	○	●	●	●	●	○	●	♿	●	●	○	○	180°	180°	180°	110°	110°	○
4110T	○	○	○	○	●	●	●	●	●	○	○	♿	○	○	○	110°	100°	○	○	○	○	○
4000T	●	○	○	○	○	●	●	●	●	●	○	○	○	○	○	90°	○	○	○	○	○	○

● AVAILABLE
○ NOT AVAILABLE

♿ *Closer available with less than 5.0 lbs. opening force on 36˝ door.*
* *Maximum opening/hold-open point with standard template. See individual closer series for degrees of opening per installation.*
** *Advanced Variable Backcheck.*
*** *Delay Action for 4040XP incorporates standard 4041 cylinder.*

4000 Series mounted closers

APPLICATIONS

- For aluminum, hollow metal, or wood swinging doors and frames.
- Can be used with hinge or pivot mounted door.
- Adapter plates and other installation accessories available for unusual conditions.

FEATURES COMMON TO 4000 SERIES

- Each closer (except 4050, 4040XP, 4040XPT, 4030, 4030T) is designed for a specific mounting: hinge side, top jamb, or parallel arm. 4040XP closer with regular or hold-open arm mounts hinge side or top jamb. 4030, 4040XP and 4050 regular parallel arm closers include 62PA SHOE required to parallel arm mount either regular or hold-open arm.
- Handed for right or left swinging doors, except for 4000T, 4030, 4030T, 4040XP, 4050 and 4040XPT.
- Closers to meet ADA reduced opening force requirements except 4000T.
- Adjustable hydraulic backcheck cushions opening swing prior to 90°.
- Separate regulation of general closing speed and latching speed.
- Joints in regular arm and shoe adapt to uneven trim.
- Reversible shoe to boost latching power on double lever arms.
- Available in a wide range of standard or optional custom powder coat finishes to blend with door and frame.
- Plated finishes available to accent door and frame.
- Not designed for exterior mounting or exposed to elements.

DESIGN ASSISTANCE

LCN has been providing reliable solutions to unique door control problems since 1925. Design and specification assistance are only a phone call away.

Contact LCN for assistance or technical information at **877-671-7011** or **FAX 800-248-1460 (Order Entry)**. Fax **815-879-1495** for Product Support.

WARRANTY

30 year limited warranty; 25 year limited warranty (4050). See General Information Section for complete warranty details.

SPECIFICATIONS

Refer to "SPECIFICATIONS" section for suggested architectural specifications.

MATERIALS

- High strength **cast iron** or **cast aluminum** (4050) cylinder.
- **Forged steel** main arms.
- One piece **forged steel** piston.
- **Double heat treated** pinion.
- LCN's **all weather "Liquid X" fluid** performs to temperature ranges from 120°F (49°C) to -30°F (-35°C) without any seasonal adjustment.
- LCN's standard **all weather fluid** performs to temperature ranges from 120°F (49°C) to -30°F (-35°C)..
- **High efficiency, full complement**, low friction bearings.
- Tamper resistant regulating screws.
- Full rack and pinion hydraulic action.
- Quiet, low friction track and roller combination for all single lever arm (track style) closers.

FINISHES

- Available in six standard or optional custom powder coat finishes to blend with door and frame.
- LCN's powder coat finishes surpass 100 hours of salt spray which is over four times the ANSI standard for corrosion resistance.
- For installations where a higher level of corrosive resistance is required, LCN offers an optional special rust inhibiting (SRI) pre-treatment. Closers that combine the exclusive LCN powder coat finish and the SRI pre-treatment exceed the ANSI standard for corrosion resistance even further.
- Plated finishes are available as an option to accent door and frame. (SRI not available with plated finishes).

LISTINGS & APPROVALS

UL listed for self-closing doors without hold-open under "SWINGING DOOR CLOSERS" (GVEV) file R1943.

Tested and certified under ANSI Standard A156.4 Grade One. Consult factory for details.

Consult factory for other listings such as: cUL, California State Fire Marshal, Bureau of Standards and Appeals.

POSITIVE PRESSURE

LCN closers have been certified for three hours by UL to be in compliance with UL 10C. Contact LCN for specific details on door closer fire ratings.

FASTENERS

4010, 4010T, 4020, 4020T, 4040XP, 4040XPT, 4050, 4110, 4110T Series closers are shipped with: A standard SELF-REAMING and TAPPING SCREW (SRT) pack that contains Philips head SRT screws to install the closer. 4000T series closers are shipped with: A standard WOOD and MACHINE SCREW (WMS) pack that contains Philips head wood and machine screws to install the closer. 4030, 4030T series closers are shipped with: A standard WOOD and SELF-TAPPING MACHINE SCREW (WMS) pack that contains Phillips head wood and self-tapping machine screws to install the closer.Standard LCN thru bolts (TB) can be installed on 1-3/4" (44 mm) thick doors with 1/4-20 machine screws. Optional thru bolt (TB) sizes are available for 1-5/8" (41 mm) or 1-3/8" (35 mm) door thickness, but this must be specified when ordering.

Notes:

1. For Thru Bolts, specify door thickness if other than 1-3/4" (44mm), represented in diagram as dimension "X".

2. Phillips head, metric machine screws are available, please specify.

3. LCN recommends the use of wood screws, available in optional WMS screw packs, for wood door applications.

MAINTENANCE

Closers mounted according to LCN installation instructions require no periodic maintenance or adjustments.

4040XP Series

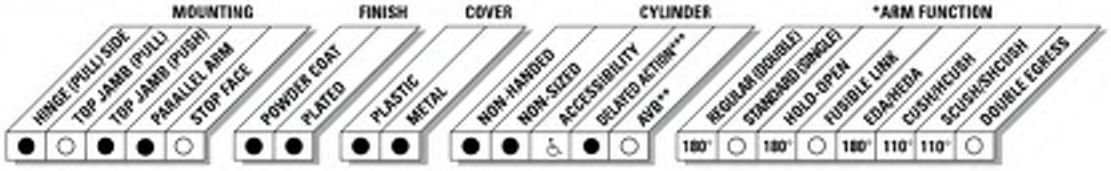
Features

The 4040XP is LCN's most durable and flexible heavy duty closer designed for institutional and other demanding high traffic applications.

Certifications	Grade 1 - ANSI A156.4, UL 10C, ADA, 100 Hour Salt Spray, Meets BAA - Buy American Act
Body Construction	▪ Cast Iron Body ▪ Full Complement Bearings ▪ 1-1/2" Diameter Piston ▪ 3/4" Diameter Double Heat Treated Pinion Journal
Fluid	All Weather Liquid X Fluid
Handing	Non-Handed
Templating	Peel-n-Stick templates - 2-1/4" x 5" Mounting Hole Pattern
Size	Adjustable Spring Size 1-6, includes Patented Green Dial
Warranty	30 years

Cover	▪ Plastic, Standard ▪ Metal, Optional
Fasteners	Self Reaming and Tapping Screws (SRT)
Mounting	Hinge (Pull Side), Top Jamb (Push Side), Parallel Arm (Push Side)
Arms	Regular Arm
Finishes/Colors/ Powder Coat	▪ Aluminum (689) ▪ Statuary Bronze (690) ▪ Light Bronze (691) ▪ Black (693) ▪ Dark Bronze (695) ▪ Brass (696) ▪ Custom colors optional
	▪ Optional SRI primer - powder coat only ▪ Optional plated finishes

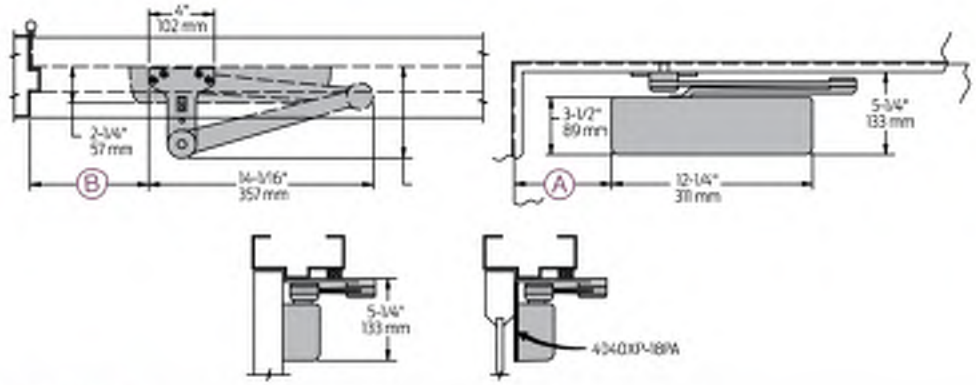
Special Templates | Customized installation templates or products may be available to solve unusual applications. Contact LCN Product Support for assistance.



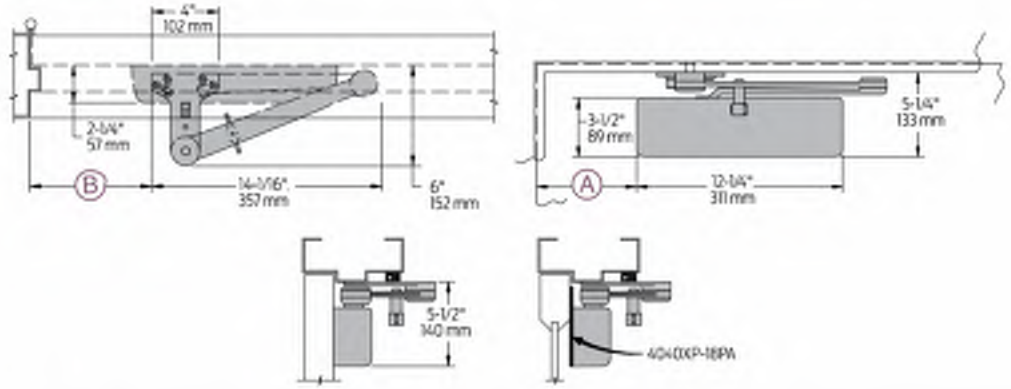
● AVAILABLE
○ NOT AVAILABLE

♿ *Closer available with less than 5.0 lbs. opening force on 36" door.*
* *Maximum opening/hold-open point with standard template.*
** *Advanced Variable Backcheck.*
*** *Delay feature incorporates standard 4040 cylinder (not XP).*

EDA mount



CUSH mount



Clearance	4040XP-62EDA is 5-1/2" (140 mm) from door face, 6" (152 mm) for CUSH	
Head Frame	Flush or rabetted requires CUSH FLUSH PANEL ADAPTER, 4040XP-419	
CUSH ARM	Requires SHOE SUPPORT, 4040XP-30 for fifth screw anchorage for narrow frames	
Delayed Action	▪ Incorporates standard 4041 cylinder, without XP cylinder. ▪ Delays closing from maximum opening to : 115° with 180° template, 95° with 110° template, 85° with 100° template, 75° with 90° template. Delay time adjustable up to approximately 1 minute.	
Maximum Opening	EDA arm can be templated for points at:	CUSH arms can be templated for opening/hold-open point at:
	110°: A = 6-3/8" (162 mm) B = 7-3/4" (197 mm)	85°: A = 7-15/16" (202 mm) B = 9-1/8" (232 mm)
	or 180°: A = 2-7/8" (73 mm) B = 4-1/4" (108 mm)	90°: A = 7-3/16" (183 mm) B = 8-1/2" (216 mm)
	Hold-open points up to maximum opening with HEDA arm	100°: A = 6-1/16" (154 mm) B = 7-1/4" (184 mm)
		or 110°: A = 5-1/16" (129 mm) B = 6-3/8" (162 mm)

Notes:

- *4040XP Series closers ordered with EDA or CUSH arms include 4040XP-201 FIFTH HOLE SPACER to support the shoe*
- *Spring Cush stop points are approximately 5° more than templated stop point*
- *Hold open at templated stop points*

PRODUCT DATA SHEET

SMARTGARD BR5
BALLISTIC SECURITY GLAZING

PRODUCT #: BR5

DESCRIPTION:

A bullet resistant, no-spall asymmetrical laminate constructed with glass, and polycarbonate bonded together with adhesive interlayers and an abrasion resistant spall shield.

FEATURES:

- Bullet resistant
- No spall

CONSTRUCTION:	PERFORMANCE DATA:	
Attack side Proprietary BR5 Layers *Protection side*	Max Standard Dimension:	60" x 96" (larger sizes may be available -contact us)
	Nominal Thickness:	1.531"
	Thickness Tolerance:	1.480" to 1.582"
	Weight:	15.81 Lbs. / Square Foot
	Visual Light Transmittance:	74%
	Ballistic Rating:	UL752 Level 5 7.62mm – 1 shot No penetration / No spall

COMPLIANCES

- ASTM C1036 – Standard Specification – Flat Glass
- ASTM C1172 – Standard Specification for Laminated Architectural Flat Glass
- ANSI Z97.1 - Safety Materials Used in Buildings
- CPSC 16 CFR 1201

INSTALLATION SPECIFICATIONS

AIT strongly suggests the use of a suitable structural security framing with an appropriate protection rating. Allow for a minimum of a (1) inch edge engagement in the frame with sufficient rabbet depth to allow for expansion (approximately 1/16"/FT).

** ALWAYS INSTALL WITH SPALL SHIELD TO "PROTECTION" SIDE **

For applications that do not require no-spall, or where glass if preferred on both sides, use AIT GCP1 ballistic products.

Larger lites may require deeper edge engagements. It is imperative to the life and durability of certain composite types that compatible sealant or gasket material is used on both sides of the laminate. An appropriate sealant solution can be specified by AIT if required. The AIT Group produces the finest glass and composite laminates in the world, proper care during installation will ensure years of superior performance.

ADD-ON OPTIONS & ADDITIONAL INFO

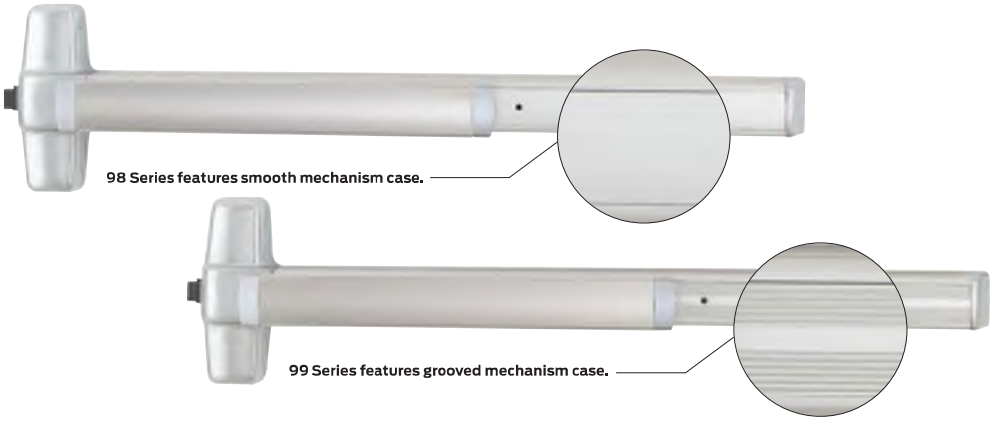
Additional options include: Instantly switchable SmartGlass electronic privacy adds-on, Pilkington Mirropane®, Hard Coated Low E, Insulated Units, Tints, Fire resistant glass, Graphics or decorative Smart Designs, and more. Contact AIT for all available options or for a custom make-up design.

FOR MORE INFORMATION, PLEASE CONTACT:
Advanced Impact Technologies (AIT)
Tel: (727) 287-4620 • Fax: (727) 431-9834 • www.Advanced-Impact.com

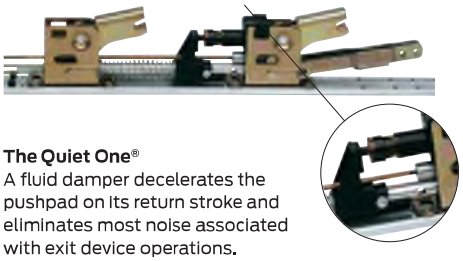
Introduction

Exit devices are a critical part of the fire and life safety egress system and will provide safe and reliable service when properly applied and maintained. Von Duprin designs and manufactures exit devices in accordance to ISO 9001 Quality Management System and meets or exceeds accepted U.S. domestic and International standards. All 98 and 99 Series exit devices are UL listed for panic hardware or fire hardware, and are certified to ANSI A156.3, 2008, Grade 1. Many models are also certified for Hurricane Resistant Applications. Consult your local Security & Safety consultant (SSC) or the Von Duprin factory for current listings.

It is intended that the information included in this publication, when properly used, will provide clear and reliable guidelines to the proper general selection and application. However, the scope of the information is necessarily limited.



Von Duprin exit devices are available in two external surface styles, designated 98 and 99 Series.



The Quiet One®
A fluid damper decelerates the pushpad on its return stroke and eliminates most noise associated with exit device operations. Furnished on all 98/99™ Series exit devices.

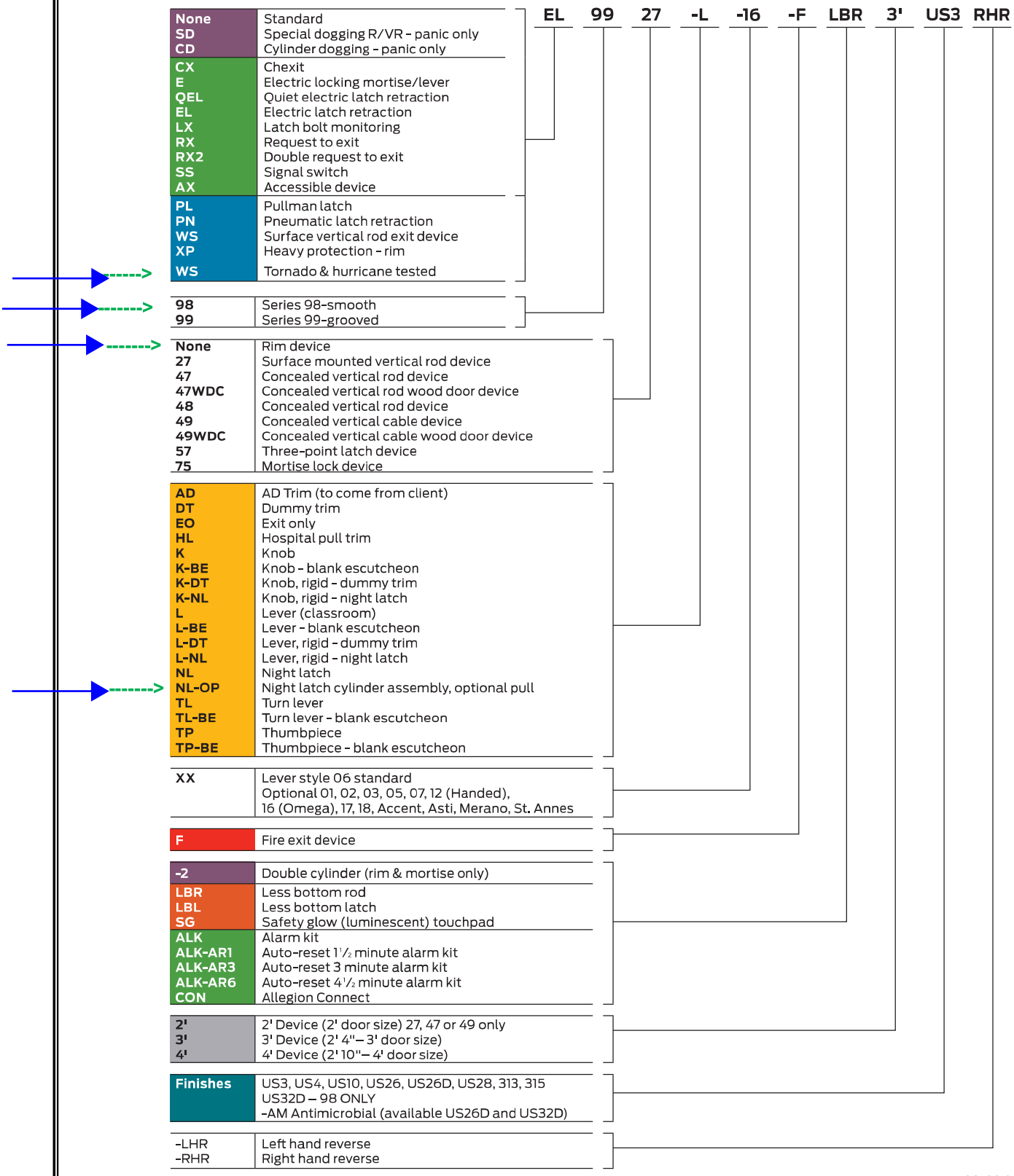
Latch bolt
Deadlocking latchbolt provides security and improved performance at standard device cost.

VON DUPRIN
Administrative Offices
2720 Tobey Dr.
Indianapolis, IN 46219

Customer Service
877-671-7011
800-999-0328 - Fax

Technical Support
877-671-7011

Nomenclature – how to order



98/99 Rim exit device

The 299 Strike ships standard, optional strikes available

98 and 99 Rim exit devices for all types of single and double doors with mullion, UL listed for panic exit hardware. Devices are ANSI A156.3 – 2014 Grade 1. The 98 device has a smooth mechanism case and the 99 device has a grooved case. The rim device is non-handed except when the following device options are used: SD (special dogging), -2 (double cylinder) or SS (signal switch). See Opposite page for available outside trim and device functions. Covers stock hollow metal doors with 86 or 161 cutouts on single doors (may cover cutouts on pairs – consult template).

Finishes – US3, US3A, US4, US4A, US10, US26, US26D, US26D-AM Antimicrobial, US28, 313, 315 & 643E. US15 and US32D available with 98 Series only.

Hex key dogging comes standard on 98/99 Rim exit devices

Specifications

Device functions	Device ships EO/DT/NL. Field selectable. For TP, K or L remove NL drive screw from device.	
Device lengths	3'	2'4" to 3' (711mm to 914 mm) Door size
	4'	2'10" to 4' (864 mm to 1219 mm) Door size
Device centerline from finished floor	39 13/16" (1011 mm) 39 11/16" (1008 mm) with mullion	
Center case dimensions	8" x 2 3/4" x2 3/8" (203mm x 70mm x 60mm)	
Mechanism case dimensions	2 1/4" x 2 1/4" (57mm x 57mm)	
Projection	Pushbar neutral – 3 13/16" (97 mm) Pushbar depressed – 3 1/16" (78 mm)	
Latch bolt	Deadlocking, 3/4" (19mm) throw	
Fasteners & sex bolts (SNB)	Includes screw pack for 1 3/4" (44mm) and 2 1/4" (57mm) thick metal or wood doors. Optional 425 SNB available, see page 9 for quantities.	
Electric options	**LX**	Latchbolt monitor switch
	RX	Pushpad monitor switch
	RX2	Double pushpad monitor switch
	E	Electric locking & unlocking trim
	EL	Electric latch retraction
	QEL	Quiet electric latch retraction
	SS	Signal switch
	CX	Chexit delayed exit
	ALK	Alarm exit kit
	WP-RX	Waterproof request to exit
	CON	Allegion Connect
Mechanical options	**-2**	Double cylinder
	AX	Accessible device
	GBK	Glass bead kit
	PN	Pneumatic latch retraction
	XP	Extra protection
	SNB	Sex bolts
	SEC	Security screws
Dogging feature	Hex key dogging standard	
Dogging options	**CD**	Cylinder dogging
	SD	Special center case dogging
	LD	Less dogging
	DI	Dogging indicator
	CI	Cylinder dogging indicator
Strikes	**299** – Dull black	

XP
Extra protection
- 90° latch-to-strike contact
- Force resistance of 2,000+ lbs.

CD
Cylinder dogging
- Replaces hex key dogging
- Requires 1 1/4" mortise cylinder with inverted cam

QEL
Quiet electric latch retraction
- Bolt retraction via switch
- Converts exit door to push-pull operation

RX
Pushpad monitor switch
- Signals use of an opening
- SPDT switch to monitor pushpad

CX
Chexit delayed exit
- Meets NFPA 101 requirements
- Self-contained controls, locking, alarm

AX
Accessible device
- UL certified to meet new 5 lb. maximum operating force requirement
- Exceeds ANSI/BHMA requirements

EL
Electric latch retraction
- Enables remote unlatching
- Alternative to manual dogging

ALK
Alarm exit kit
- Unauthorized opening triggers 85-decibel horn
- Set in armed or disarmed mode by key

PN
Pneumatic latch retraction
- For areas where electrical devices banned
- Special linkage for mechanical or pneumatic dogging

CON
Allegion Connectors
- Common connectors to connect various door hardware all the way to the power supply

Standard trim

	EO	DT	NL	NL-OP
	No outside trim Exit only	 **Dummy trim** Pull when dogged	 **Night latch** Key retracts latchbolt	 **Night latch** Key retracts latchbolt optional pull required
Product description	98EO 99EO	98DT 99DT	98NL 99NL	98NL-OP 99NL-OP
Trim description	—	990DT	990NL-R/V	110NL-MD 110NL-WD
Escutcheon plate size	—	3" x 14 13/16" x 3/32" (76x360x2mm)	3" x 14 13/16" x 3/32" (76x360x2mm)	—
Pull center to center	—	5 1/2" (140mm)	5 1/2" (140mm)	—
Projection	—	2" (51mm)	2" (51mm)	—
ANSI function	01	02	03	03
Cylinder type	—	—	Rim	Rim
Handing	—	—	—	—
Optional trim	x990EO x996EO	x996K-DT x996L-DT x696DT x697DT	x996K-NL x996L-NL x696NL x697NL	
Optional #425 SNB quantity for device	6	2	2	6

	L	L-NL	L-BE	L-DT
	 **Lever** Key locks & unlocks	 **Lever – night latch** Key retracts latchbolt	 **Lever – blank escutcheon** Always operable (no cylinder)	 **Lever dummy trim** pull when dogged
Product description	98L 99L	98L-NL 99L-NL	98L-BE 99L-BE	98L-DT 99L-DT
Trim description	996L-R/V*	996L-NL-R/V	996L-BE-R/V*	996L-DT
Escutcheon plate size	2 3/4" x 10 3/4" x 27/32" (70x273x21mm)	2 3/4" x 10 3/4" x 27/32" (70x273x21mm)	2 3/4" x 10 3/4" x 27/32" (70x273x21mm)	2 3/4" x 10 3/4" x 27/32" (70x273x21mm)
Pull center to center	—	—	—	—
Projection	2 7/8" (73mm)	2 7/8" (73mm)	2 7/8" (73mm)	2 7/8" (73mm)
ANSI function	08	03	14	02
Cylinder type	Rim	Rim	—	—
Handing	Handed/Reversible	Handed/Reversible	Handed/Reversible	Handed/Reversible
Optional #425 SNB quantity for device	2	2	2	2

* Electrified lever operation available

Notes

ANSI/BHMA

The following interprets ANSI/BHMA numbers which identify material and type of products. For products that meet ANSI/BHMA Standards, look for the BHMA certified logo next to the product in our catalog. For a complete listing refer to the BHMA Certified Products Directory on line at www.buildershardware.com.

American National Standard for Thresholds ANSI/BHMA A156.21 (2014)

1 Product Section "J" Designates Architectural Door Trim, Thresholds

2 Material	3 Configuration	4 Surface	5 Description	6 Description
1. Architectural Extruded Brass or Bronze 3. Aluminum 5. Stainless Steel 7. Rubber & similar nonmetallic 0. Other (ie: cast iron, safety abrasive, etc.)	1. Compressing top 2. Flat Saddle 3. Half Saddle 4. Interlocking 5. Rabbeted, Latching/Panic with Gasket 7. Plate 8. Ramped 9. Saddle for Floor Closer 0. None designated	1. Fluted 2. Fluted with abrasive 3. Smooth 4. Smooth with abrasive	1. Applied Stop 2. Applied Stop with gasket 3. Barrier Free 4. Carpet Separator 5. Ends Mitered 6. Expansion Assembly 7. Hook Strip Applied to door 8. Offset 9. Thermal Break 0. None Designated	1. Applied Stop 2 .Applied Stop with gasket 3. Carpet Separator 5. Ends Mitered 6. Expansion Assembly 7. Hook Strip applied to door 8. Offset 9. Thermal Break 0. None Designated

Suffix "-HD" designates thresholds meeting Heavy Duty requirements

American National Standard for Door Gasketing and Edge Seal Systems ANSI/BHMA A156.22 (2017)

1 Product Section "R" Designated Gasketing

2 Product Material	3 Gasketing Material		4 Product Type	5 Material Application	6 Gasketing Rating
1. Brass or Bronze 3. Aluminum 5. Stainless Steel 0. Optional material or none used	A. Brush B. Neoprene, solid C. Neoprene, closed cell D. Vinyl/Eco-V™ E. Silicone Rubber F. Pile G. Thermoplastic Elastomer (TPE) H. Thermoplastic Urethane (TPU) J. Thermoplastic Rubber K. Spring Metal L. Magnetic M. Felt N. Rubber Fabric P. Intumescent Q. Intumescent/Brush	R. Intumescent/ Neoprene, Solid S. Intumescent/ Neoprene Closed Cell T. Intumescent/Vinyl U. Intumescent/ Silicone Rubber V. Intumescent/Pile W. Intumescent/ Thermoplastic (TPE) X. Intumescent/ Thermoplastic Urethane (TPU) Y. Optional material or none used Z. Intumescent/ Thermoplastic Rubber	1. Head and Jamb 2. Head and Jamb, Adjustable 3. Automatic Door Bottom 4. Door Sweep or Shoe 5. Door Sweep or Shoe with Drip Cap 6. Astragal Overlapping 7. Astragal Split or Compensating 8. Astragal Adjustable 9. Rain Drip without gasket 0. Other	1. Door Edge 2. Door Edge, Mortise 3. Door Face 4. Door Face, Semi-Mortise 5. Frame Rabbet (surface or mortise) 6. Frame Soffit (H.M.) Frame Stop (W.D.) 7. Frame Face 8. Kerf 9. Stop (H.M.), Stop Face (W.D.) 0. Other	0. Smoke/Energy Performance/ Acoustic Rated 1. Smoke/Energy Performance Rated 2. Smoke/Acoustic Rated 3. Energy Performance/ acoustic Rated 4. Smoke Rated 5. Energy Performance Rated 6. Items not Rated 7. Acoustic Rated

American National Standard for Continuous Hinges ANSI/BHMA A156.26 (2017)

First letter denotes BHMA Product Section (A)

First Numeral- Product Material	Second Numeral- Type of Product	Third Numeral- Electrical Modifications	Fourth Numeral- Door Weight (lbs)	Fifth Numeral- Grade Classification	Second Letter- Hinge Type
1. Brass, Bronze 3. Aluminum 5. Stainless Steel 8. Steel	1. Edge Mounted Hinges 2. Half Edge Mounted Hinges 3. Full Surface Hinges 4. Half Surface Hinges 5. Swing Clear 6. Raised Barrel 7. Wide Throw 0. Other	0. None 1. Concealed Wire Transfer 2. Monitor 3. Power Transfer 4. Other	1. 150 2. 300 3. 600 4. 1200	1. Grade 1 2. Grade 2 3. Grade 3	B. Barrel G. Geared

Saddle Thresholds

- To use a saddle threshold in an offset condition, use an elevator (see page 135)

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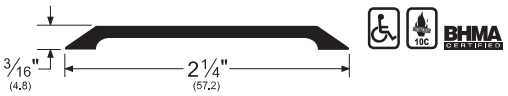
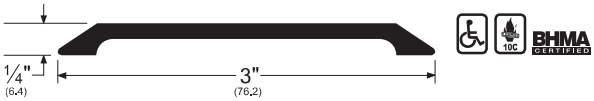
AVAILABLE FINISHES: **10BE, A, B, BSP, D, G, WSP**
ANSI (aluminum): **J32300, J32330**
ANSI (brass): **J12300, J12330**



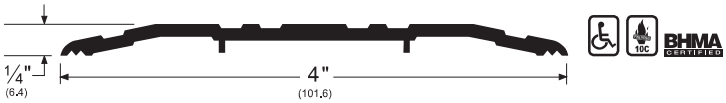
151_

AVAILABLE FINISHES: **10BE, A, B, BSP, D, G, WSP**
ANSI (aluminum): **J32300, J32330**
ANSI (brass): **J12300, J12330**



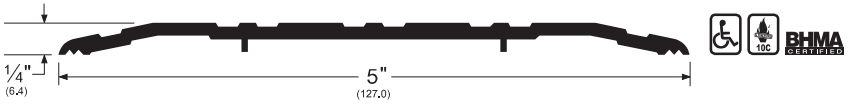
270_

AVAILABLE FINISHES: **10BE, A, B, BSP, D, G, WSP**
ANSI (aluminum): **J32100, J32130**
ANSI (brass): **J12300, J12330**



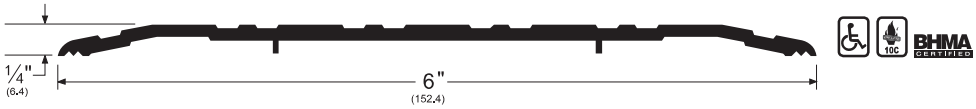
271_

AVAILABLE FINISHES: **10BE, A, B, BSP, D, G, SN, WSP**
ANSI (aluminum): **J32100, J32130**
ANSI (brass): **J12100, J12130**



272_

AVAILABLE FINISHES: **10BE, A, B, BSP, D, G, SN, WSP**
ANSI (aluminum): **J32100, J32130**
ANSI (brass): **J12100, J12130**



NOTE: Products shown in this section may not be drawn to scale.

AVAILABLE FINISHES FOR PRODUCTS SHOWN ON THIS PAGE (see General Information section for finish chart)
10BE (Stain Bronze Powder Coated Aluminum) **A** (Mill Finish Aluminum) **B** (Mill Finish Extruded Bronze [Brass])
BSP (Black Suede Powder Coated Aluminum) **D** (Dark Bronze Anodized) **G** (Gold Anodized)
SN (Satin Nickel Anodized) **WSP** (White Suede Powder Coated Aluminum)

NOTE: **G, SN** are available with limited inventory

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Check the web site for the up-to-date catalog

Door Bottom Sweeps

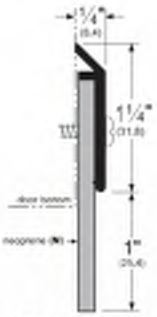
315_N

AVAILABLE FINISHES: **B, BSP, C, D, G, PW, SN**
REPLACEMENT INSERT: **E315 (BL)**
ANSI: **R3B434, R3B435**

- Currently being redesigned as a running change. Anodized finishes may be supplied in old style for a short time. Contact Customer Service with questions.

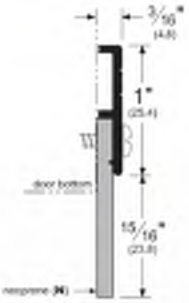
3151_N

AVAILABLE FINISHES: **BSP, C, D, G**
REPLACEMENT INSERT: **N9 (BL)**
ANSI: **R3B434**



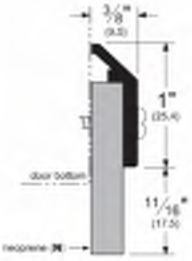
321_N

AVAILABLE FINISHES: **BSP, C, D, G**
REPLACEMENT INSERT: **N8 (BL)**
ANSI: **R3B434, R3B435**



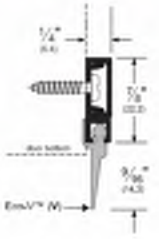
368_N

AVAILABLE FINISHES: **BSP, C, D, G**
REPLACEMENT INSERT: **N10 (BL)**
ANSI: **R3B434, R3B435**



29326_V

AVAILABLE FINISHES: **C, D, G**
REPLACEMENT INSERT: **EV65 (BL, GR, W)**
ANSI: **R3D434**



293100_V

AVAILABLE FINISHES: **C, D, G**
REPLACEMENT INSERT: **EV54 (BL, GR, W)**
ANSI: **R3D434**

NOTE: Products shown in this section may not be drawn to scale.

AVAILABLE FINISHES FOR PRODUCTS SHOWN ON THIS PAGE (see General Information section for finish chart)
B (Mill Finish Extruded Bronze [Brass]) **BDG** (Bright Dip Gold Anodized) **BSP** (Black Suede Powder Coated Aluminum)
C (Clear Anodized) **D** (Dark Bronze Anodized) **G** (Gold Anodized) **PW** (Painted White) **SN** (Satin Nickel Anodized)

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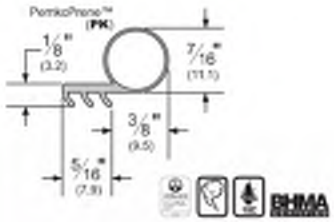
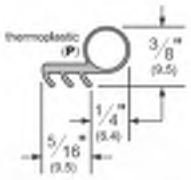
Kerf-In Weatherstrip (Cont.)

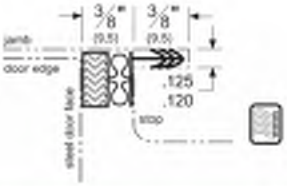
PK52_
AVAILABLE FINISHES: **BL, W**
ANSI: **R0G154**
AVAILABLE LENGTHS: **18', 20', 300'**
- Minimum space between the door face and the stop is 1/16"; maximum space is 1/8"



P50_
AVAILABLE FINISHES: **BL, W**
AVAILABLE LENGTHS: **17', 25', 250'**
- Minimum space between the door face and the stop is 1/16"; maximum space is 1/8".
- Thermoplastic elastomer formulation will not transmigrate; remains flexible to -60° F

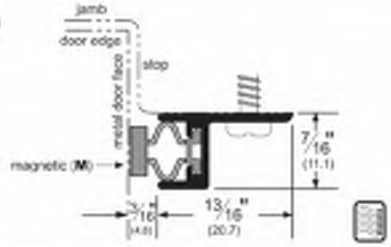


MAG349_
AVAILABLE FINISHES: **D, W**
AVAILABLE LENGTHS: **37", 85", 96", 121"**
- Minimum space between the door face and the stop is 1/16"; maximum space is 1/8"
- Magnetic kerf-in weatherstrip features a magnetic strip encased by a UV-stable TPE cover
- Use for steel-faced door and wood frame applications
- Can be trimmed in the field and corner-mitered



Magnetic Kerf-In Weatherstrip

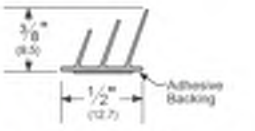
2815_M
AVAILABLE FINISHES: **C, D, G**
REPLACEMENT INSERT: **2815MAG**



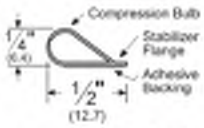
Adhesive Perimeter Gasketing

For more information on these perimeter gasketing products, please see the Adhesive Gasketing section.

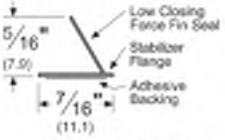
S773_
AVAILABLE FINISHES: **BL, D, GR, W**
AVAILABLE LENGTHS: **17', 18', 20', 21', 25', 30', 250', 500'**
ANSI: **R0E154, R0E155**
- Triple-fin design blocks light and sound from infiltrating a room
- Product designed as hospitality gasketing (see more hospitality products in the Hospitality Products section)
- Seal begins compressing at 1/16"; compresses to seal up to a 1/16" gap



S88_
AVAILABLE FINISHES: **BL, C, D, GR, TAN, W**
AVAILABLE LENGTHS: **17', 18', 20', 21', 25', 30', 204', 510'**
ANSI: **R0E154, R0E155**
- Seal begins compressing at 1/4"; compresses to seal up to a 1/16" gap
- Available with perforations for Behavioral Health applications. Substitute "P" in place of "S" to order this option.



S44_
AVAILABLE FINISHES: **BL, C, D, GR, W**
AVAILABLE LENGTHS: **17', 18', 20', 21', 25', 30', 204', 510'**
ANSI: **R0E154, R0E155**
- Designed for tighter frames.
- Demonstrates extremely low closing force.
- Seal begins compressing at 1/16"; compresses to seal up to a 1/16" gap
- Available with perforations for Behavioral Health applications. Substitute "P" in place of "S" to order this option.



NOTE: Products shown in this section may not be drawn to scale.
AVAILABLE FINISHES FOR PRODUCTS SHOWN ON THIS PAGE (see General Information section for finish chart)
Adhesive Gasketing Colors: BL (Black) C (Clear) D (Dark Brown) GR (Light Gray) TAN (Tan) W (White)

CUT SHEET

Rockwood 2672
2600 Series Door Coordinator

ROCKWOOD
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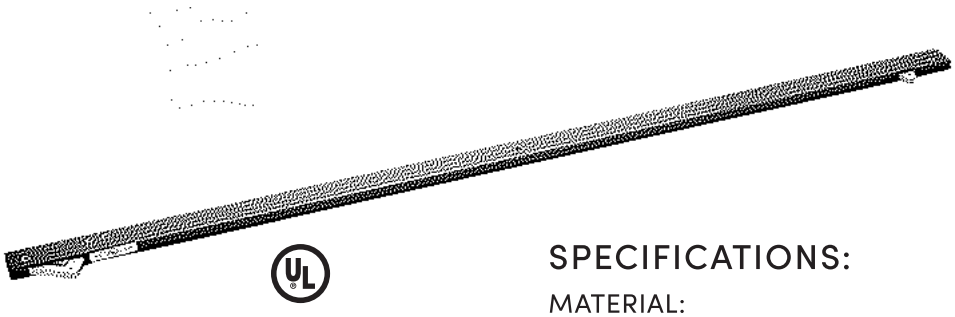

SPECIFICATIONS:

MATERIAL:
Steel

FASTENERS:
7 ea. #12-24 x 1 1/4" Truss Head Type C Tapping Screws

DETERMINING COORDINATOR ITEM NUMBER:

- Active door widths plus Inactive door width equals the last two or three digits of all 2600 Series coordinator item number (2680 is for 80" door openings).
- Less than 48" jamb widths - N2600 Series (N2644 = 44" opening).
- Larger sizes are available (XL, XXL), contact the factory.

OPTIONS:

Specify make and model of exit device for vertical rod preparation.

NOTES:

- Some panic hardware requires the coordinator to be factory prepped (Contact factory).
- Contact the factory for other available smaller or larger sizes.

FEATURES:

- Non-handed. Override protection to prevent damage in case of abnormal force on door. Mechanism and filler bar completely fill width of opening and when painted to match frame it becomes virtually invisible.
- Custom Sizes: The 2600 Series coordinators are manufactured in different housing lengths to coordinate the full range of door sizes including:
  - NX2600 Series: For jamb opening widths 48" - 54"; coordinator length 42"
  - 2600 Series: For jamb opening widths 54" - 96"; coordinator length 52".

AVAILABLE FINISHES:

- Black
- US28/628

Size:
5/8" x 1 5/8" x 52"
Opening: 72"

Weight: 8.0 lbs.

ANSI A156.3: Type 21A

Rockwood Manufacturing Company
300 Main St.
Rockwood, PA 15557
www.rockwoodmfg.com
1 800 458 2424

FL #	FL15843-R3
Application Type	Revision
Code Version	2020
Application Status	Approved
	*Approved by DBPR. Approvals by DBPR shall be reviewed and ratified by the POC and/or the Commission if necessary.
Comments	
Archived	☐
Product Manufacturer	Habersham Metal Products Company
Address/Phone/Email	264 Stapleton Road Cornelia, GA 30531 (706) 778-2212 Ext 224 ja.stapleton@habershammetal.com
Authorized Signature	James Stapleton ja.stapleton@habershammetal.com
Technical Representative	Jim Stapleton III, P.E.
Address/Phone/Email	264 Stapleton Road Cornelia, GA 30531 (706) 778-2212 Ext 224 jstapleton@habershammetal.com
Quality Assurance Representative	Jim Stapleton III, P.E.
Address/Phone/Email	264 Stapleton Road Cornelia, GA 30531 (706) 778-2212 Ext 224 jstapleton@habershammetal.com
Category	Exterior Doors
Subcategory	Swinging Exterior Door Assemblies
Compliance Method	Certification Mark or Listing
Certification Agency	Intertek Testing Services NA, Inc.
Validated By	Intertek Testing Services NA, Inc.

Referenced Standard and Year (of Standard)

Standard	Year
ASTM E1886	2013
ASTM E1996	2017
ASTM E330	2014
ASTM E331	2009
TAS 201	1994
TAS 202	1994
TAS 203	1994

Equivalence of Product Standards Certified By

Product Approval Method	Method 1 Option A
Date Submitted	02/23/2021
Date Validated	02/23/2021
Date Pending FBC Approval	
Date Approved	02/28/2021

Summary of Products

FL #	Model, Number or Name	Description
15843.1	HMPCO FBCPR1	Glazed Outswing Steel Pair Door and Frame
Limits of Use **Approved for use in HVHZ:** Yes **Approved for use outside HVHZ:** Yes **Impact Resistant:** Yes **Design Pressure:** +104/-104 **Other:**		**Certification Agency Certificate** FL15843_R3_C_CAC_SDReport_Listing_23696.pdf **Quality Assurance Contract Expiration Date** 01/01/2025 **Installation Instructions** FL15843_R3_II_Florida FL15843 Instruction Drawings 8-17-12.pdf Verified By: Intertek Testing Services NA, Inc. Created by Independent Third Party: **Evaluation Reports** Created by Independent Third Party:

Back Next

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LISTING INFORMATION OF

Habersham Metal Windstorm Pair Door and Frame Assembly

SPEC ID: 23696

Habersham Metal Products Company, Inc.
264 Stapleton Road
Cornelia, GA 30531
United States

LISTING INFORMATION

PRODUCT DESCRIPTION

Windstorm resistant steel stiffened hollow metal door and steel frame out-swinging pair door assembly with nominal maximum size 6-0" wide x 7'-0" tall.

WINDSTORM RATING

Test Standard	Maximum Pair Size	Rating	Latching Hardware
ASTM E330-14 ASTM E1886-13a ASTM E1886-19 ASTM E1996-17 ASTM E1996-20 TAS 201 TAS 203 TAS 202	Frame: 6' 4" wide x 7- 4" tall Frame Depth 7.5 in. Doors 3'0" x 7' 0" 1-3/4" thick doors	Design Pressure +104 PSF / -104PSF Large Missile Impact	Sargent HC8700/FM8700 2-point (top and bottom) Surface Vertical Rod Exit Device on each door.

AIR INFILTRATION RATING*

Test Standard	Test Type	Air Infiltration Rating
ASTM E283-04(R2012)	Air Infiltration	0.16 cfm / Sq. Ft.

*When installed assemblies include the required perimeter and meeting edge sealing gaskets.

WATER RESISTANCE RATING*

Test Standard	Test Type	Water
ASTM E331-00(R2009)	Water Resistance	10.5 PSF - pass

*When installed assemblies include the required perimeter and meeting edge sealing gaskets.

FLORIDA PRODUCT APPROVAL

Product	Florida Product Approval No.
Habersham Metal Windstorm Pair Door and Frame Assembly	FL15843

Attribute	Value
Criteria	ANSI A250.13 (2003)
Criteria	TAS 203
Criteria	TAS 201
Criteria	TAS 202
Criteria	ASTM E331 (2009)

Criteria	ASTM E330 (2014)
Criteria	ASTM E331 (2016)
Criteria	ASTM E283 (2004) R2012
Criteria	ASTM E1996 (2017)
Criteria	ASTM E1996 (2020)
Criteria	ASTM E1886 (2019)
Criteria	ASTM E1886 (2013a)
CSI Code	08 11 00 Metal Doors and Frames
CSI Code	08 11 13 Hollow Metal Doors and Frames
DP Rating (psf)	104
Intertek Services	Certification
Listed or Inspected	LISTED
Listing Section	WINDSTORM - SWING DOOR ASSEMBLIES
Report Number	3076273a, G104598306
Spec ID	23696
Swing	Out swing
Test Original Issue Date	2/2/2006
Verification Testing	No

Florida Building Commission Application #FL15643
Pair/ Single Outswing Door and Frame

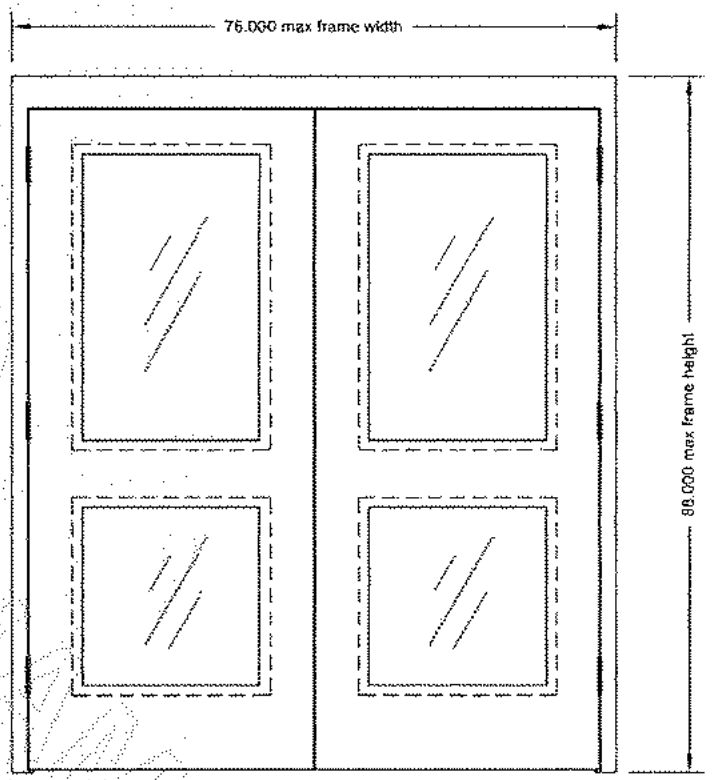
Habersham Metal Products Co., Inc
P.O. Box 739
264 Stapleton Road
Cornelia, GA 30531

Design Pressure Rating Where Water Requirements Is not Needed	Impact Rating
+ 104 psf . -104 psf with Masonry Straps + 104 psf . -104 psf Hilti Anchors and Nelson Studs	TAS 201 Large Missile Impact TAS 203 Cyclic Loading Rating is in Accordance with ITS Test Report #3076273, Dated January 13, 2006, Signed and Sealed by Mr. Rick Curkeet, P.E. Florida Registration #60450

Where Water Infiltration Requirements is Needed	Where Water Infiltration Requirements is not Needed
+70 psf TAS 202 Paragraph 5.2.6	+104 psf TAS 202

Rating is in Accordance with ITS Test Report #3076273, Dated January 13, 2006, Signed and Sealed by Mr. Rick Curkeet, P.E. Florida Registration #60450

Drawing Index



Drawn By	Checked by
JSIII	JSIII
Date	Page
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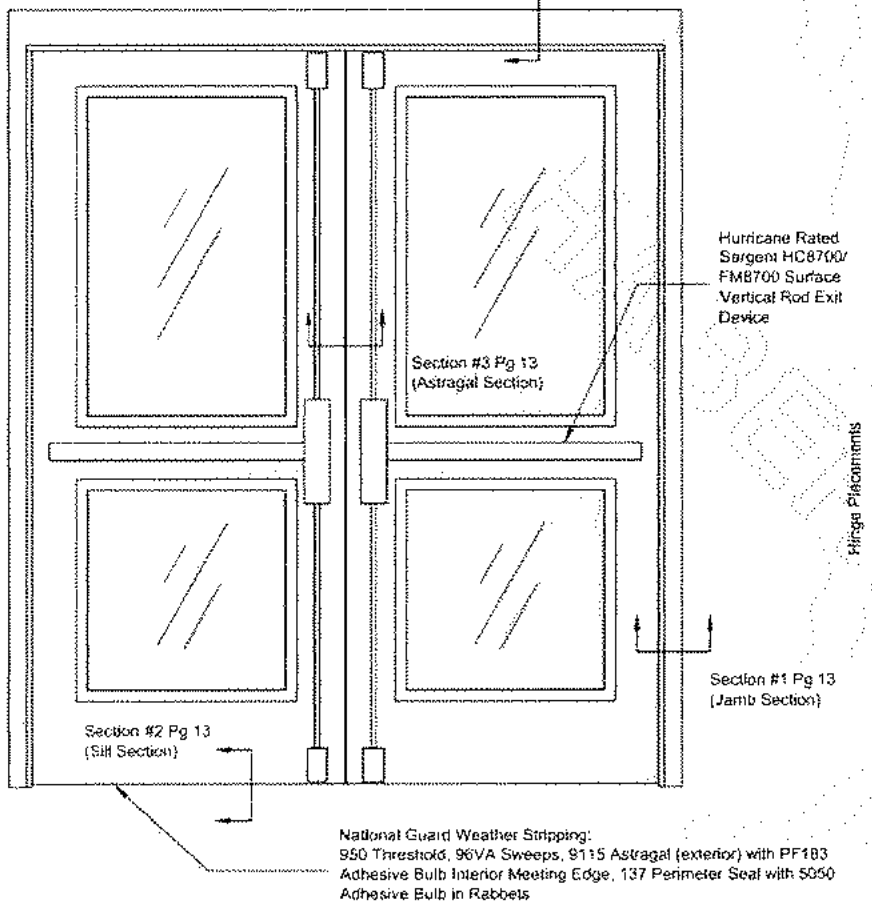
Scale	

Habersham Metal Products Co., Inc.
Engineered Steel Doors and Frames
264 Stapleton Rd
Cornelia, GA 30531
(706)778-2212 FX: (706)778-2769
e-mail: hmpco@habershamMetal.com

Project Name
Florida Building Commission
Pair- Single Outswing Door and Frame

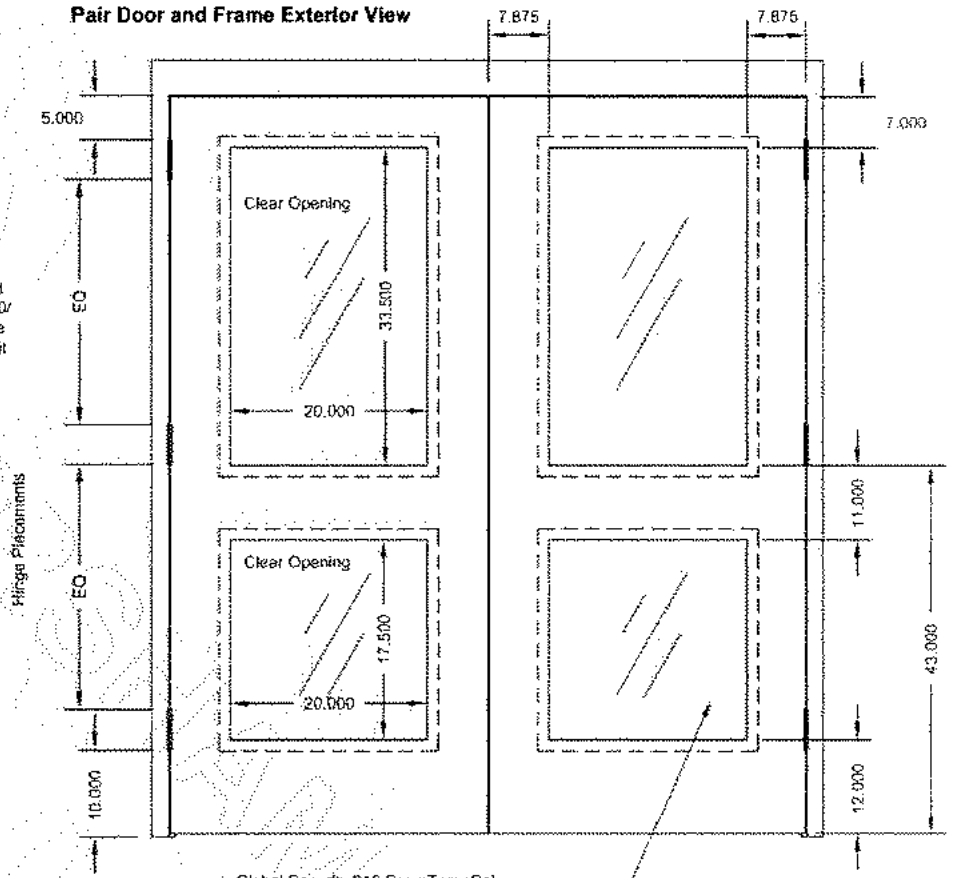
Job Number
FBC Application # FL15643

Pair Door and Frame Interior View



National Guard Weather Stripping:
950 Threshold, 96VA Sweeps, 9115 Astragal (exterior) with PF183
Adhesive Bulb Interior Meeting Edge, 137 Perimeter Seal with 5050
Adhesive Bulb in Rabbets

Pair Door and Frame Exterior View



Drawn By: JSIII	Checked By: JSIII	
Date: 8-17-12	Page: 2 of 13	
Scale:		

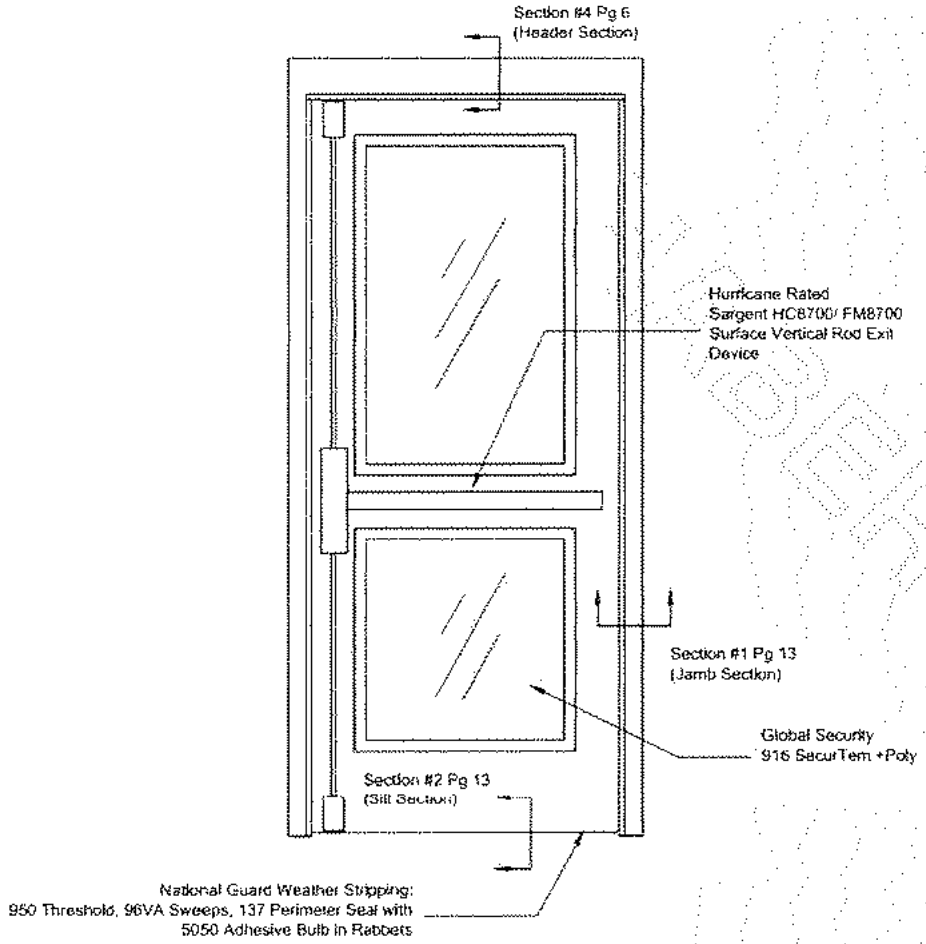
Habersham Metal Products Co., Inc.

Engineered Steel Doors and Frames
264 Stapleton Rd
Cornelia, GA 30531
(706)778-3211 FAX (706)778-2789
e-mail: bmpco@habershammetal.com

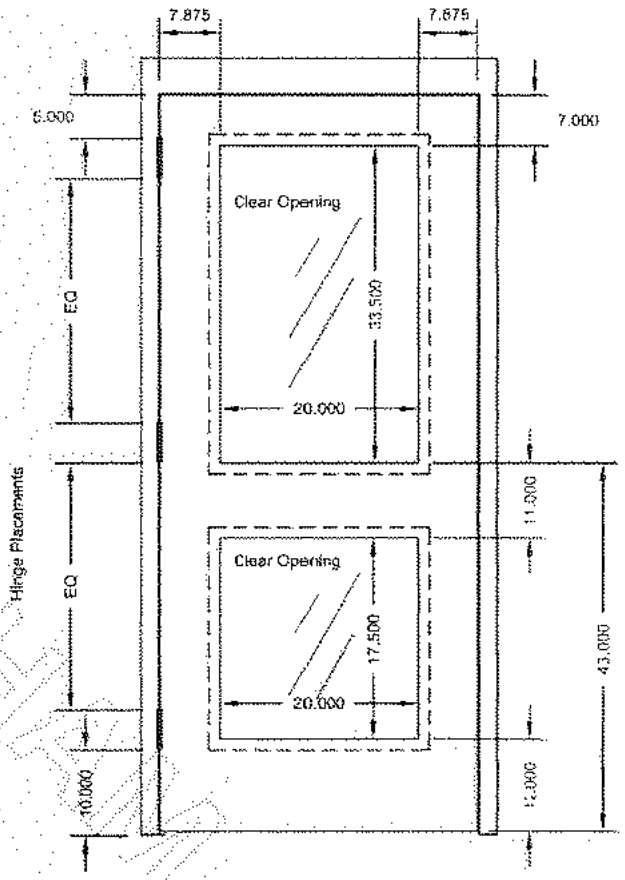
Project Name:
Florida Building Commission-
Page Single Outswing Door and Frame

Job Number:
FBC Application # FL15843

Single Door and Frame Interior View



Single Door and Frame Exterior View



Drawn by: JSIII	Checked by: JSIII
Date: 6-17-12	Page: 3 of 13
Scale:	

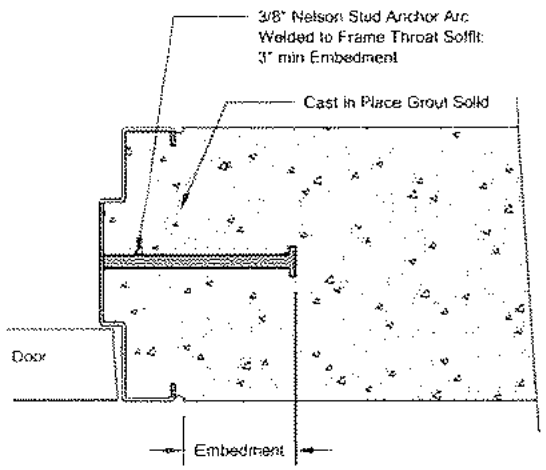
Habersham Metal Products Co., Inc.
Engineered Steel Doors and Frames
264 Stapleton Rd
Cornelia GA 30531
(706)776-2212 FX (706)776-2762
e-mail: hmpco@habershammetal.com

Project Name:
Florida Building Commission-
Pair- Single Outswing Door and Frame

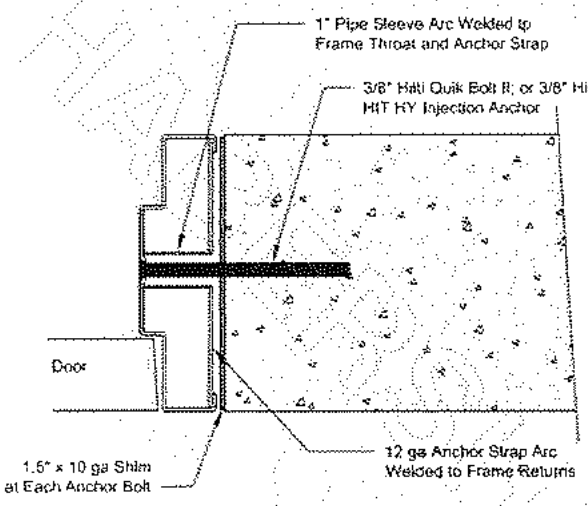
Job Number:
FBC Application # 13 15n43

Frame Anchor Details

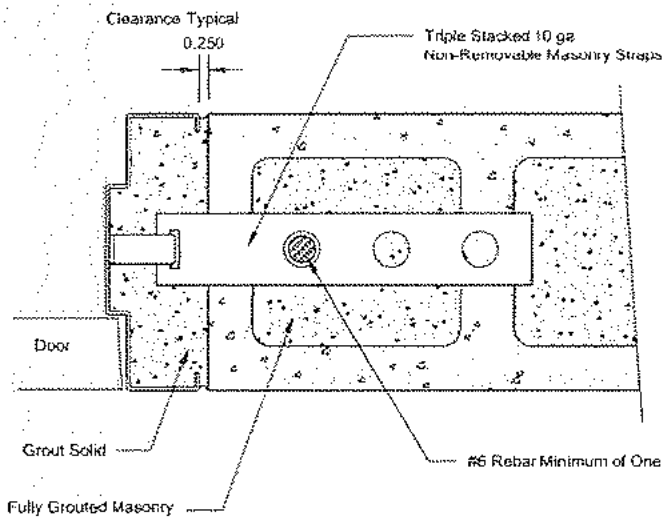
Nelson Stud Anchor for Cast In Place Masonry
(No Head Anchors)



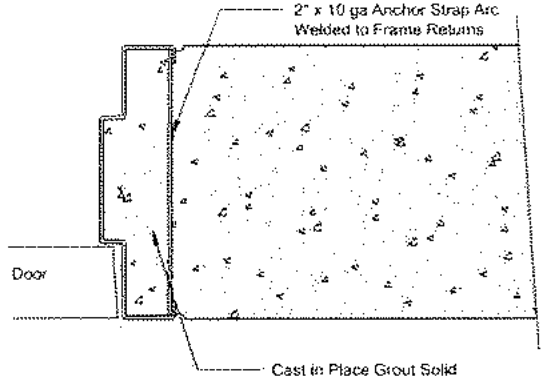
Expansion Bolt Anchor for Existing Masonry
(No Head Anchors)



Non- Removable Masonry Yoke and Strap
(No Head Anchors)



Strap Anchor for Cast In Place Masonry
(No Head Anchors)



- ⅜" Hilti HIT HY 150 MAX Injection Anchor- 3.5" Min Embedment
- ⅜" Hilti Carbon Steel Kwik Bolt 3 Expansion Anchor -1.625" Minimum Embedment

Anchor Spacing per HMMA 861-06 Commercial Hollow Metal Doors and Frames: Two Plus One for Each 18" over 36"; 16" From Floor Max

Drawn by: JSHJ	Checked by: JSHJ
Date: 8-17-12	Page: 11 - 13
Scale:	

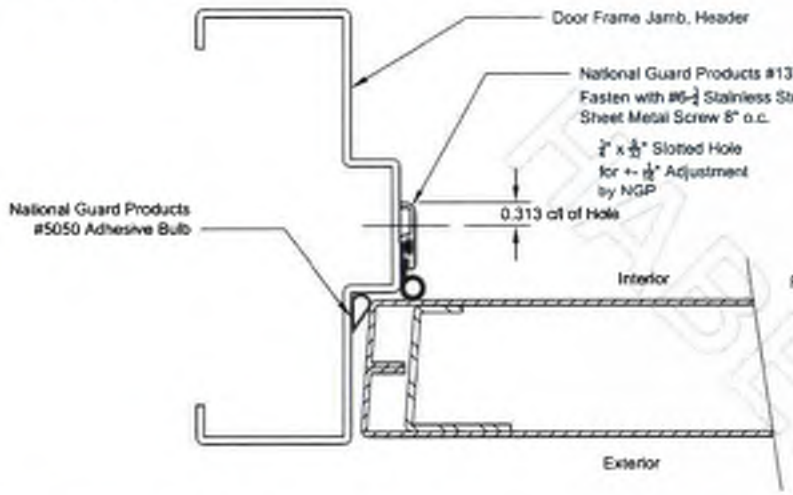
Habersham Metal Products Co., Inc.
Engineered Steel Doors and Frames
264 Stapleton Rd
Cornelia, GA 30531
(706)778-2217 FX (706)778-7749
e-mail: hmpco@habershammetal.com

Project Name:
Florida Building Commission:
Pair Single Glazing Door and Frame

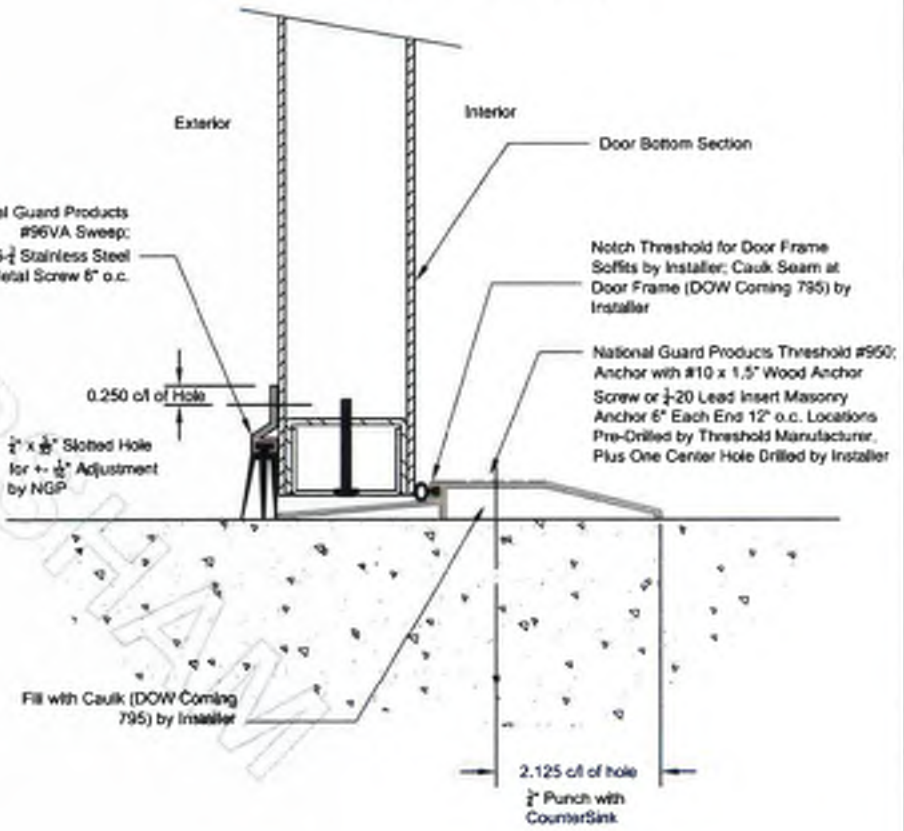
Job Number:
FBC Application # 11-5843

Weather Stripping Details- Pair and Single Door and Frame

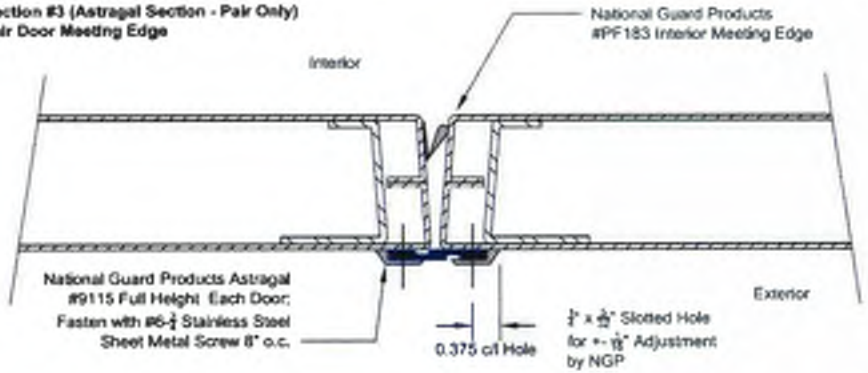
Section #1 (Jamb Section)
Perimeter Seal-
Single and Pair Door Opening



Section #2 (Sill Section)
Door Bottom Seal-
Single and Pair Door Opening



Section #3 (Astragal Section - Pair Only)
Pair Door Meeting Edge



Note: Weather Stripping Typically Provided and Installed by Others

Drawn By: JSIII	Checked By: JSIII
Date: 8-17-12	Page: 13 - 13
Scale:	

Habersham Metal Products Co., Inc.
Engineered Steel Doors and Frames
264 Stapleton Rd
Cornelia, GA 30531
(706)778-2212 FX: (706)778-2769
e-mail: hmpco@habershammetal.com

Project Name
Florida Building Commission-
Pair Single Outswing Door and Frame

Job Number
FBC Application # FL15843

264 Stapleton Road, Cornelia, GA 30531
Phone (706) 778-2212 ▪ Fax (706) 778-2769
www.habershammetal.com.com

Habersham Metal Products Company
Windstorm Rated Doors Frames and Window Frames
Friday, July 31, 2020

W/N 20541; Intertek/WH Windstorm Rated Door Assemblies and Window Frames;
The Windstorm Pressure Rating is stamped on to the Label when assigned to the Individual Tag assigned to Door or Window Frame
ASTM E1886/E1996, ASTM E330, ASTM E331, ASTM E283, TAS 201, 202, 203

CNSV.BP4470 - Bullet-resisting Devices, Miscellaneous

Bullet-resisting Devices, Miscellaneous

See General Information for Bullet-resisting Devices, Miscellaneous

HABERSHAM METAL PRODUCTS CO
264 Stapleton Rd
Cornelia, GA 30531 USA

BP4470

	Rating						
Device	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 7**	**Level 8**
Door/Frame	BR-38	BR-357	BR-44	BR-3006	BR-762	BR-556	BR-762A
Door/Frame(Pairs)	BRP-38	BRP-357	BRP-44	BRP-3006	BRP-762	BRP-556	BRP-762A
Vision Window	BR-38	BR-357	BR-44	BR-3006	BR-762	BR-556	BR-762A
Paper Pass	BRPP	BRPP	BRPP	—	—	—	—
Vision Window	—	—	—	FEVW-762A	FEVW-762A	FEVW-762A	FEVW-762A

Last Updated on 2013-04-04

264 Stapleton Road, Cornelia, GA 30531
Phone (706) 778-2212 ▪ Fax (706) 778-2769
www.habershammetal.com.com

Habersham Metal Products Company
Bullet Resistant Door Assemblies
Wednesday, November 04, 2020

BP 4470; DL-10; UL Number 89M8; Bullet Resistant Type Door Assemblies;
The Bullet Resistant Rating is stamped on to the Label when assigned to the Individual Tag assigned to Door Panel
UL 752 Levels 1-3, 4, 5, 7, and 8

APPLIED TECHNICAL SERVICES, INCORPORATED

1190 Atlanta Industrial Drive, Marietta, Georgia 30066 • (770) 423-1400 Fax (770) 424-6415

ACCELERATED ENVIRONMENTAL TEST REPORT

Ref. D71071, Rev. 2 **Date** October 1, 2010 **Page** 1 **of** 7

Jim Stapleton III
Habersham Metal Products
264 Stapleton Road
P.O. Box 739
Cornelia, Georgia 30531

Purchase Order #: 105810

Procedure

Test Performed	Method
Salt Spray	ASTM B 117-03 ASTM D 714-02 (Blister Rating)
Test Material	**Requirements**
Coated Metal Panels	Less than 1/8-inch creep and no blisters
Exposure Period	
120 Hours	

Results

Test Material Identification	Sample	Designation	Creep, in	Blister Rating	Results
Frame Primer Sherwin Williams Kem Kromik B50AV1001	1	Cold Rolled	0	10	Pass
	2	Cold Rolled	0	10	Pass
	3	A60	1/32	10	Pass

Rev. 1 - Report was revised to include additional test data and sample information on pages 1 and 2. This new testing was completed on November 1, 2006 for ATS Job # D107310.

Rev. 2 – Report revised to include photographs of samples 1,2, 3, and 4 from page 2 of 7 after the exposure. Photos provided by Habersham Metals.

ISO 9001

Prepared by: 2010.10.01 10:47:30 -04'00' F. Lopez
Materials Testing

Approved by: Date: 2010.10.01 10:49:57 -04'00' E. W. Sproat
Materials Testing

APPLIED TECHNICAL SERVICES, INCORPORATED

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ACCELERATED ENVIRONMENTAL TEST REPORT

Jim Stapleton III
Habersham Metal Products
264 Stapleton Road
P.O. Box 739
Cornelia, Georgia 30531

Purchase Order #: 105810

Procedure

Test Performed	Method
Salt Spray	ASTM B 117-03 ASTM D 610-01 (Corrosion Rating)
Test Material	**Requirements**
Coated Metal Panels	Rust grade shall be 6 or better
Exposure Period	
150 Hours	

Results

Test Material Identification	Sample	Rust Grade	Results
Frame Primer Sherwin Williams Kem Kromik B50AV1001	1	10	Pass
	2	10	Pass
	3	10	Pass
	4	10	Pass

Rev. 1 - Report was revised to include additional test data and sample information on pages 1 and 2. This new testing was completed on November 1, 2006 for ATS Job # D107310.

Rev. 2 – Report revised to include photographs of samples 1,2, 3, and 4 from page 2 of 7 after the exposure. Photos provided by Habersham Metals.

ISO 9001

Prepared by: 2010.10.01 10:47:57 -04'00' F. Lopez
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Approved by: Date: 2010.10.01 10:50:14 -04'00' E. W. Sproat
Materials Testing

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ACCELERATED ENVIRONMENTAL TEST REPORT

Figure 1: Frame Primer Sherwin Williams Kem Kromik B50AV1001, Sample 1 and Sample 2 from page 2 of 7, after 150 Hours of Salt Spray exposure. (Photo provided by Habersham Metals)

Figure 2: Frame Primer Sherwin Williams Kem Kromik B50AV1001, Sample 1 and Sample 2 from page 2 of 7, after 150 Hours of Salt Spray exposure. (Photo provided by Habersham Metals)

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ACCELERATED ENVIRONMENTAL TEST REPORT

Jim Stapleton III
Habersham Metal Products
264 Stapleton Road
P.O. Box 739
Cornelia, Georgia 30531

Purchase Order #: 105810

Procedure

Test Performed	Method
Water Resistance of Coatings - Water Fog	ASTM D 1735-02 ASTM D 714-02 (Blister Rating)
Test Material	**Requirements**
Coated Metal Panels	No more than Few #8 blisters
Exposure Period	
200 Hours	

Results

Test Material Identification	Sample	Blister Grade	Results
Frame Primer Sherwin Williams Kem Kromik B50AV1001	1	No Blistering	Pass
	2	No Blistering	Pass
	3	No Blistering	Pass
	4	No Blistering	Pass

Rev. 1 - Report was revised to include additional test data and sample information on pages 1 and 2. This new testing was completed on November 1, 2006 for ATS Job #D107310.

Rev. 2 – Report revised to include photographs of samples 1,2, 3, and 4 from page 2 of 7 after the exposure. Photos provided by Habersham Metals.

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ACCELERATED ENVIRONMENTAL TEST REPORT

Jim Stapleton III
Habersham Metal Products
264 Stapleton Road
P.O. Box 739
Cornelia, Georgia 30531

Purchase Order #: 105810

Procedure

Test Performed	Method
Water Resistance of Coatings - Condensation	ASTM D 4585-99 ASTM D 714-02 (Blister Rating)

Test Material	Requirements
Coated Metal Panels	No more than Few #6 blisters

Exposure Period
240 Hours

Results

Test Material Identification	Sample	Blister Grade	Results
Frame Primer Sherwin Williams Kem Kromik B50AV1001	1	No Blistering	Pass
	2	Few #6	Pass
	3	No Blistering	Pass
	4	Few #6	Pass

Rev. 1 - Report was revised to include additional test data and sample information on pages 1 and 2. This new testing was completed on November 1, 2006 for ATS Job #D107310.

Rev. 2 – Report revised to include photographs of samples 1,2, 3, and 4 from page 2 of 7 after the exposure. Photos provided by Habersham Metals.

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ACCELERATED ENVIRONMENTAL TEST REPORT

Jim Stapleton III
Habersham Metal Products
264 Stapleton Road
P.O. Box 739
Cornelia, Georgia 30531

Purchase Order #: 105810

Procedure

Test Performed	Method
Impact Resistance	ASTM D 2794-93 (99)

Test Material	Requirements
Coated Metal Panels	Impact of 20 in·lbf with 0.5" diameter ball indenter

Results

Test Material Identification	Sample	Results
Frame Primer Sherwin Williams Kem Kromik B50AV1001	1	Pass- No evidence of cracking
	2	Pass- No evidence of cracking

Rev. 1 - Report was revised to include additional test data and sample information on pages 1 and 2. This new testing was completed on November 1, 2006 for ATS Job # D107310.

Rev. 2 – Report revised to include photographs of samples 1,2, 3, and 4 from page 2 of 7 after the exposure. Photos provided by Habersham Metals.

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Approved by: Date: 2010.10.01 10:51:17 -04'00' E. W. Sproat
Materials Testing

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ACCELERATED ENVIRONMENTAL TEST REPORT

Ref. D71071, Rev. 2 **Date** October 1, 2010 **Page** 7 **of** 7

Jim Stapleton III
Habersham Metal Products
264 Stapleton Road
P.O. Box 739
Cornelia, Georgia 30531

Purchase Order #: 105810

Procedure

Test Performed	Method
Coating Adhesion by Tape Test	ASTM D 3359-02

Test Material	Requirements
Coated Metal Panels	Adhesion grade of 3B or better

Results

Test Material Identification	Sample	Location	Adhesion Grade	Results
Frame Primer Sherwin Williams Kem Kromik B50AV1001	1	1	3B	Pass
		2	3B	Pass
		3	3B	Pass
	2	1	4B	Pass
		2	3B	Pass
		3	3B	Pass

Rev. 1 - Report was revised to include additional test data and sample information on pages 1 and 2. This new testing was completed on November 1, 2006 for ATS Job # D107510.

Rev. 2 – Report revised to include photographs of samples 1,2, 3, and 4 from page 2 of 7 after the exposure. Photos provided by Habersham Metals.

ISO 9001

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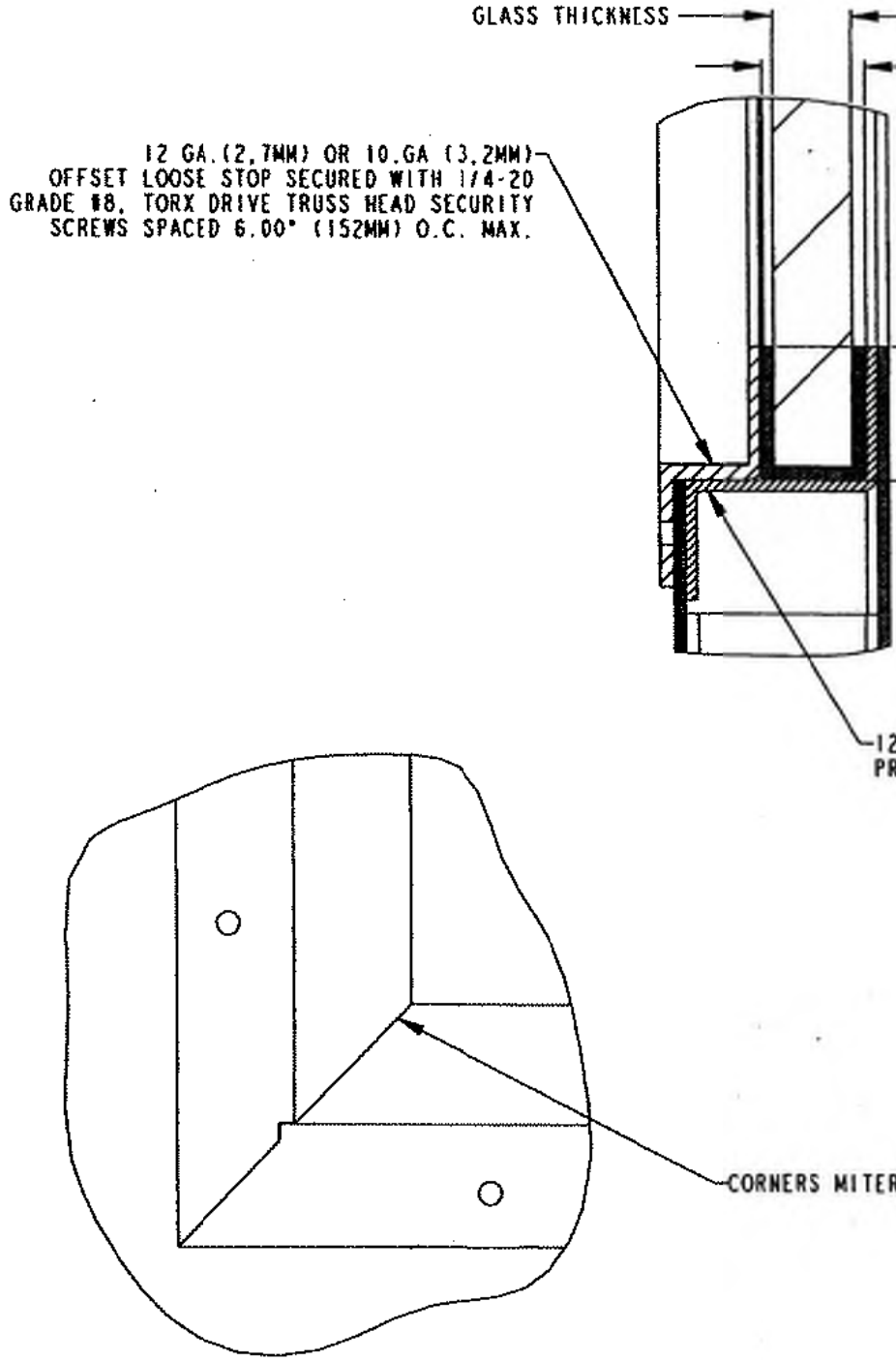
Materials Testing

Approved by: Date: 2010.10.01 10:51:39 -04'00' E. W. Sproat
Materials Testing


GLASS THICKNESS
12 GA.(2,7MM) OR 10.GA (3,2MM)
OFFSET LOOSE STOP SECURED WITH 1/4-20
GRADE #8, TORX DRIVE TRUSS HEAD SECURITY
SCREWS SPACED 6.00" (152MM) O.C. MAX.
CORNERS MITER

APPLIED TECHNICAL SERVICES, INCORPORATED

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ACCELERATED ENVIRONMENTAL TEST REPORT

Ref. D71071, Rev. 2 **Date** October 1, 2010 **Page** 1 **of** 7

Jim Stapleton III
Habersham Metal Products
264 Stapleton Road
P.O. Box 739
Cornelia, Georgia 30531

Purchase Order #: 105810

Procedure

Test Performed	Method
Salt Spray	ASTM B 117-03 ASTM D 714-02 (Blister Rating)
Test Material	**Requirements**
Coated Metal Panels	Less than 1/8-inch creep and no blisters
Exposure Period	
120 Hours	

Results

Test Material Identification	Sample	Designation	Creep, in	Blister Rating	Results
Frame Primer Sherwin Williams Kem Kromik B50AV1001	1	Cold Rolled	0	10	Pass
	2	Cold Rolled	0	10	Pass
	3	A60	1/32	10	Pass

Rev. 1 - Report was revised to include additional test data and sample information on pages 1 and 2. This new testing was completed on November 1, 2006 for ATS Job # D107310.

Rev. 2 – Report revised to include photographs of samples 1,2, 3, and 4 from page 2 of 7 after the exposure. Photos provided by Habersham Metals.

ISO 9001

Prepared by: 2010.10.01 10:47:30 -04'00' F. Lopez
Materials Testing

Approved by: Date: 2010.10.01 10:49:57 -04'00' E. W. Sproat
Materials Testing

APPLIED TECHNICAL SERVICES, INCORPORATED

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ACCELERATED ENVIRONMENTAL TEST REPORT

Jim Stapleton III
Habersham Metal Products
264 Stapleton Road
P.O. Box 739
Cornelia, Georgia 30531

Purchase Order #: 105810

Procedure

Test Performed	Method
Salt Spray	ASTM B 117-03 ASTM D 610-01 (Corrosion Rating)
Test Material	**Requirements**
Coated Metal Panels	Rust grade shall be 6 or better
Exposure Period	
150 Hours	

Results

Test Material Identification	Sample	Rust Grade	Results
Frame Primer Sherwin Williams Kem Kromik B50AV1001	1	10	Pass
	2	10	Pass
	3	10	Pass
	4	10	Pass

Rev. 1 - Report was revised to include additional test data and sample information on pages 1 and 2. This new testing was completed on November 1, 2006 for ATS Job # D107310.

Rev. 2 – Report revised to include photographs of samples 1,2, 3, and 4 from page 2 of 7 after the exposure. Photos provided by Habersham Metals.

ISO 9001

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Materials Testing

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ACCELERATED ENVIRONMENTAL TEST REPORT

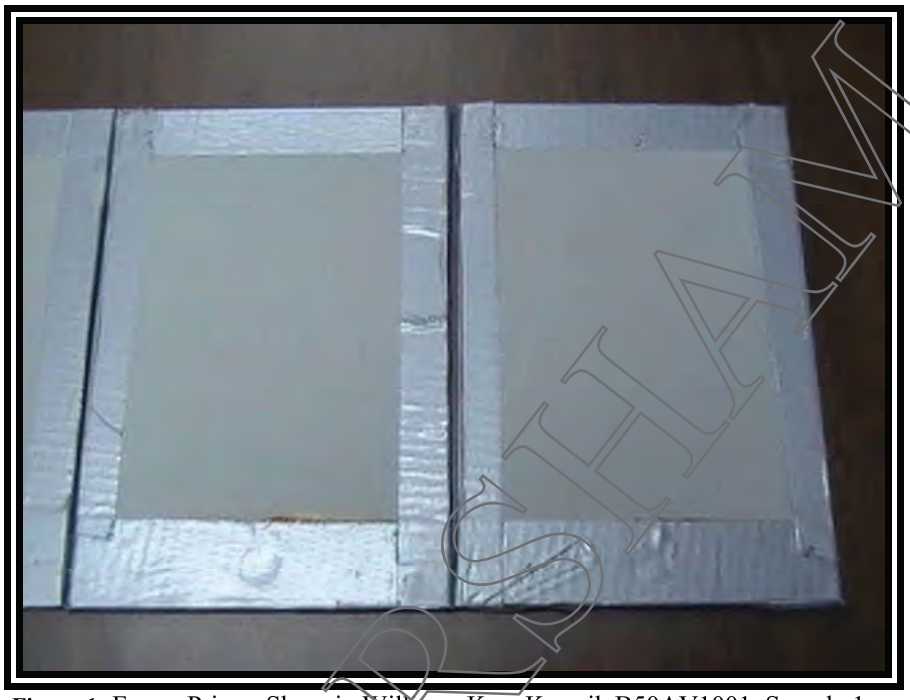

Figure 1: Frame Primer Sherwin Williams Kem Kromik B50AV1001, Sample 1 and Sample 2 from page 2 of 7, after 150 Hours of Salt Spray exposure. (Photo provided by Habersham Metals)

Figure 2: Frame Primer Sherwin Williams Kem Kromik B50AV1001, Sample 1 and Sample 2 from page 2 of 7, after 150 Hours of Salt Spray exposure. (Photo provided by Habersham Metals)

APPLIED TECHNICAL SERVICES, INCORPORATED

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ACCELERATED ENVIRONMENTAL TEST REPORT

Jim Stapleton III
Habersham Metal Products
264 Stapleton Road
P.O. Box 739
Cornelia, Georgia 30531

Purchase Order #: 105810

Procedure

Test Performed	Method
Water Resistance of Coatings - Water Fog	ASTM D 1735-02 ASTM D 714-02 (Blister Rating)
Test Material	**Requirements**
Coated Metal Panels	No more than Few #8 blisters
Exposure Period	
200 Hours	

Results

Test Material Identification	Sample	Blister Grade	Results
Frame Primer Sherwin Williams Kem Kromik B50AV1001	1	No Blistering	Pass
	2	No Blistering	Pass
	3	No Blistering	Pass
	4	No Blistering	Pass

Rev. 1 - Report was revised to include additional test data and sample information on pages 1 and 2. This new testing was completed on November 1, 2006 for ATS Job #D107310.

Rev. 2 – Report revised to include photographs of samples 1,2, 3, and 4 from page 2 of 7 after the exposure. Photos provided by Habersham Metals.

ISO 9001

Prepared by: 2010.10.01 10:48:26 -04'00' F. Lopez
Materials Testing

Approved by: Date: 2010.10.01 10:50:38 -04'00' E. W. Sproat
Materials Testing

APPLIED TECHNICAL SERVICES, INCORPORATED

1190 Atlanta Industrial Drive, Marietta, Georgia 30066 • (770) 423-1400 Fax (770) 424-6415

ACCELERATED ENVIRONMENTAL TEST REPORT

Jim Stapleton III
Habersham Metal Products
264 Stapleton Road
P.O. Box 739
Cornelia, Georgia 30531

Purchase Order #: 105810

Procedure

Test Performed	Method
Water Resistance of Coatings - Condensation	ASTM D 4585-99 ASTM D 714-02 (Blister Rating)

Test Material	Requirements
Coated Metal Panels	No more than Few #6 blisters

Exposure Period
240 Hours

Results

Test Material Identification	Sample	Blister Grade	Results
Frame Primer Sherwin Williams Kem Kromik B50AV1001	1	No Blistering	Pass
	2	Few #6	Pass
	3	No Blistering	Pass
	4	Few #6	Pass

Rev. 1 - Report was revised to include additional test data and sample information on pages 1 and 2. This new testing was completed on November 1, 2006 for ATS Job #D107310.

Rev. 2 – Report revised to include photographs of samples 1,2, 3, and 4 from page 2 of 7 after the exposure. Photos provided by Habersham Metals.

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ACCELERATED ENVIRONMENTAL TEST REPORT

Jim Stapleton III
Habersham Metal Products
264 Stapleton Road
P.O. Box 739
Cornelia, Georgia 30531

Purchase Order #: 105810

Procedure

Test Performed	Method
Impact Resistance	ASTM D 2794-93 (99)

Test Material	Requirements
Coated Metal Panels	Impact of 20 in·lbf with 0.5" diameter ball indenter

Results

Test Material Identification	Sample	Results
Frame Primer Sherwin Williams Kem Kromik B50AV1001	1	Pass- No evidence of cracking
	2	Pass- No evidence of cracking

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ACCELERATED ENVIRONMENTAL TEST REPORT

Ref. D71071, Rev. 2 **Date** October 1, 2010 **Page** 7 **of** 7

Jim Stapleton III
Habersham Metal Products
264 Stapleton Road
P.O. Box 739
Cornelia, Georgia 30531

Purchase Order #: 105810

Procedure

Test Performed	Method
Coating Adhesion by Tape Test	ASTM D 3359-02

Test Material	Requirements
Coated Metal Panels	Adhesion grade of 3B or better

Results

Test Material Identification	Sample	Location	Adhesion Grade	Results
Frame Primer Sherwin Williams Kem Kromik B50AV1001	1	1	3B	Pass
		2	3B	Pass
		3	3B	Pass
	2	1	4B	Pass
		2	3B	Pass
		3	3B	Pass

Rev. 1 - Report was revised to include additional test data and sample information on pages 1 and 2. This new testing was completed on November 1, 2006 for ATS Job # D107510.

Rev. 2 – Report revised to include photographs of samples 1,2, 3, and 4 from page 2 of 7 after the exposure. Photos provided by Habersham Metals.

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Approved by: Date: 2010.10.01 10:51:39 -04'00' E. W. Sproat
Materials Testing

CNSV.BP4470 - Bullet-resisting Devices, Miscellaneous

Bullet-resisting Devices, Miscellaneous

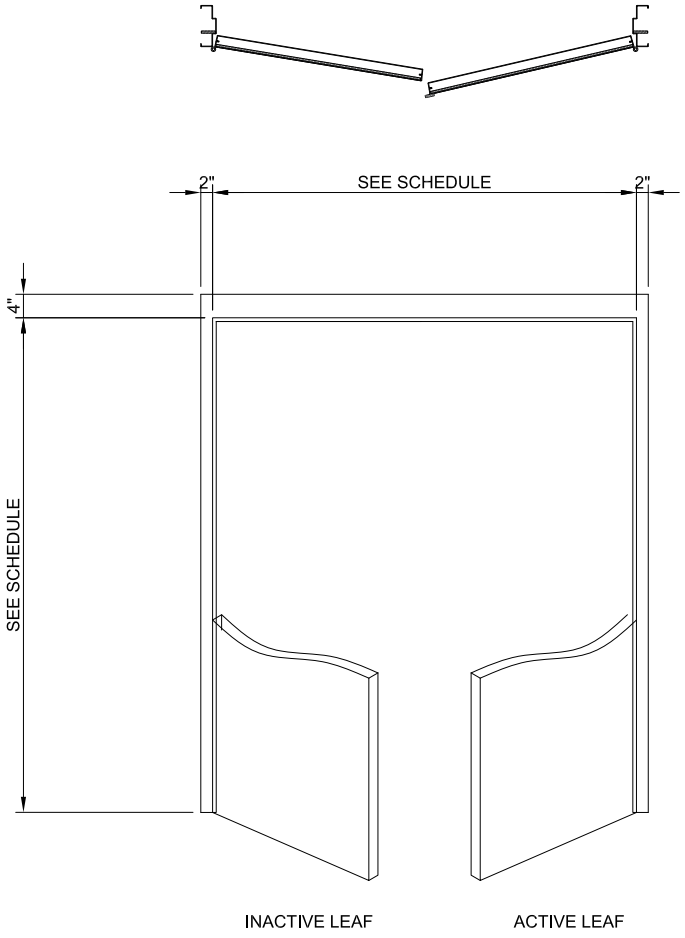
See General Information for Bullet-resisting Devices, Miscellaneous

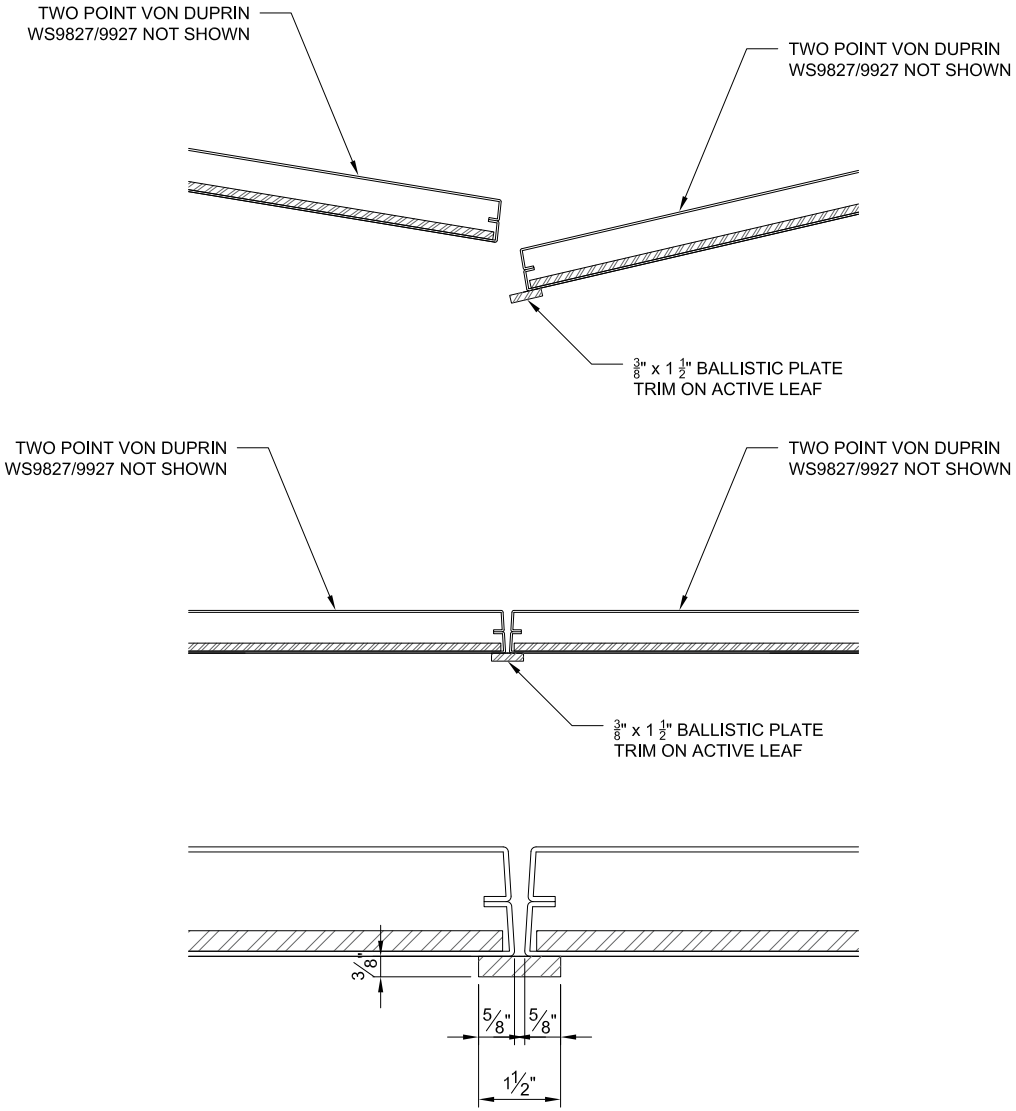
HABERSHAM METAL PRODUCTS CO BP4470
264 Stapleton Rd
Cornelia, GA 30531 USA

	Rating						
Device	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 7**	**Level 8**
Door/Frame	BR-38	BR-357	BR-44	BR-3006	BR-762	BR-556	BR-762A
Door/Frame(Pairs)	BRP-38	BRP-357	BRP-44	BRP-3006	BRP-762	BRP-556	BRP-762A
Vision Window	BR-38	BR-357	BR-44	BR-3006	BR-762	BR-556	BR-762A
Paper Pass	BRPP	BRPP	BRPP	—	—	—	—
Vision Window	—	—	—	FEVW-762A	FEVW-762A	FEVW-762A	FEVW-762A

Last Updated on 2013-04-04

UL 752 LEVEL 5 BULLET RESISTANT ASTRAGAL TYPICAL FOR PAIRS





NOTES:	1. THESE DIMENSIONS ARE NOT TO BE USED TO PRE-MORTISE DOORS, ORDER GLASS OR OTHER MATERIALS TO BE USED WITH THESE OPENINGS	2. THESE DRAWINGS HAVE BEEN PREPARED FOR THE USE OF HABERSHAM METAL PRODUCTS COMPANY ONLY. WE WILL NOT BE RESPONSIBLE FOR ANY ERRORS INCURRED THROUGH THEIR USE BY OTHER TRADES.	JOB: Armory Door Upgrades LOCATION: Florida National Guard	JOB NO. 9175-0556	PAGE

UL Product iQ™

CNSV.GuideInfo - BULLET-RESISTING DEVICES, MISCELLANEOUS

[Bullet-resisting Materials] Bullet-resisting Devices, Miscellaneous

See General Information for Bullet-resisting Materials

USE

This category covers bullet-resisting devices, such as gun ports, deal trays, package passers, voice panels and the like, designed to be assembled in bullet-resisting enclosures. These devices are provided as complete enclosures or assemblies as indicated in the individual certifications.

PRODUCT IDENTITY

One of the following product identities appears on the product:

Package Receiver

Sliding Door

Swinging Door

Vision Window

Other product identities or designations may be used as shown in the individual certifications.

The appropriate rating is included with the product identity as indicated in the individual certifications: "Level 1," "Level 2," "Level 3," "Level 4," "Level 5," "Level 6," "Level 7," "Level 8," "Level 9" or "Level 10."

For products that qualify for supplementary shotgun rating, the suffix "-SG" is included in the Level marking (e.g., Package Receiver, Level 1-SG).

ADDITIONAL INFORMATION

For additional information, see Bullet-resisting Materials (CNEX) and Security Equipment (ALOV).

REQUIREMENTS

The basic standard used to investigate products in this category is ANSI/UL 752, "Bullet-Resisting Equipment."

UL MARK

The Certification Mark of UL on the product or on the smallest unit container in which the product is packaged is the only method provided by UL to identify products manufactured under its Certification and Follow-Up Service. The Certification Mark for these products includes the UL symbol, the words "CERTIFIED," "SAFETY" and "SECURITY," the geographic identifier(s), and a file number.

Alternate UL Mark

The Security Listing Mark of UL on the product or on the smallest unit container in which the product is packaged is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Security Listing Mark for these products includes the UL symbol with the word "SECURITY" above the UL symbol and the word "LISTED" below the UL symbol (as illustrated in the Introduction of this Directory), a control number, the appropriate product name or designation as shown in the individual Listings, and the appropriate rating: "Level 1,""Level 2,""Level 3,""Level 4,""Level 5,""Level 6,""Level 7,""Level 8,""Level 9" or "Level 10" as indicated in the individual Listings.

For materials that qualify for supplementary shotgun rating, the suffix "-SG" is included in the Level marking.

* *

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

Last Updated on 2013-05-16

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.

STATE OF FLORIDA
Department of Military Affairs
Office of the Adjutant General

St. Francis Barracks, P.O. Box 1008
St. Augustine, Florida 32085-1008

January 12, 2023

Mr. Calvin H. Peterson III
Project Director
Charles Perry Partners, Inc.
8200 NW 15th Place
Gainesville, Florida 32606

RE: Department of Military Affairs (DMA)
Construction & Facility Management Office
Florida Stand Alone Facilities Statewide Projects

Dear Mr. Peterson:

Pursuant to the requirements of the Florida Product Approvals and Miami-Dade Notice of Acceptance (NOA), DMA has waived this compliance due to the following reasons:

1. The Secretary of Defense issued the Chattanooga directive, which ordered the hardening of military facilities that are protected by an installation perimeter and force protection assets. These National Defense requirements should take precedence. Note this Federal Requirement exceeds the State and Municipality requirements.
2. Installation of Level 5 Ballistic Rated doors and frames are tested by third party certifiers, UL-752, FEMA-361, and will have delegated engineering (complying with the Florida Building Code) with specified attachment of framing system, which applies to the following storefront system components:
    A. Manufacturer: U.S. Bullet Proofing
        i. Framing System: USAW400 Bullet/Blast Resistant Fixed Aluminum Window System
        ii. Door System: USAD1000 Forced Entry/Bullet/Blast Resistant
        iii. Glazing System: US Bullet Proofing SBG513 Line #1 Solarcool SolarGray 1 9/16" thickness UL Level 5-Glass-Clad-Polycarbonate UL Standard 752 – Level 5

CPPI is required to install the doors and frames in accordance with the manufacturer's recommendations and as outlined within their contractual obligations for the following Florida Stand Alone Facility Armory project locations:

1. 217211 Lake Wales SAF Armory
2. 217220 Wauchula SAF Armory
3. 217218 St. Petersburg SAF Armory
4. 217243 Chipley SAF Armory
5. 217245 Lake City SAF Armory
6. 217261 Jacksonville Cecil Field Building 1822 SAF Armory
7. 217262 Jacksonville Cecil Field Building 858 SAF Armory
8. 217260 Palatka SAF Armory
9. 217207 Ft. Lauderdale SAF Armory

The point of contact for this letter is Bill Freeman, (904) 823-0280 or William.h.freeman143.civ@army.mil.

Sincerely,

DIZ.JOANNE.E.1397838826 Digitally signed by DIZ.JOANNE.E.1397838826
Date: 2023.01.19 13:06:50 -05'00'

Joanne Diz
Deputy Construction & Facility Management Office
Cc: file CPPI

CPPI
CHARLES PERRY PARTNERS, INC
construction management | design build | general contracting

CPPI Project#	DMA Project#	Facility Location
01-11-22066	217207	Ft. Lauderdale
01-11-22064	217211	Lake Wales
01-11-22076	217218	St. Petersburg
01-11-22077	217220	Wauchula
01-11-22068	217243	Chipley
01-11-22073	217245	Lake City
01-11-22074	217260	Palatka
01-11-22071	217262	Jax Cecil Bldg. 858
01-11-22072	217261	Jax Cecil Bldg. 1822

Product submitted is acceptable for use at the following DMA SAF Armory Locations:

217207 - Ft. Lauderdale
217211 - Lake Wales
217218 - St. Petersburg
217220 - Wauchula
217243 - Chipley
217245 - Lake City
217260 - Palatka
217262 - Jax Cecil 858
217261 - Jax Cecil 1822

Letter of Transmittal

Date: September 1, 2022

To: Kimberly Spain & Krystal Sheeley
State of Florida
Department of Military Affairs
Construction and Facilities Management Office
2305 State Road 207
Saint Augustine, FL 32086

From: Charles Garrett
Charles Perry Partners, Inc.
8200 NW 15th Place
Gainesville, FL 32606

	WE ARE SENDING		SUBMITTED FOR		ACTION TAKEN
	Shop Drawings		Approval		Approved as Submitted
	Letter		Your Use		Approved As Noted
	Prints		As Requested		Returned After Loan
	Change Order	X	Review & Comment		Resubmit
	Plans				Submit
X	Samples		Sent Via:		Returned
	Closeout CD's		Attached		Returned for Corrections
	Closeout Manuals		Separate Cover via:		Due Date:

Item No	Copies	Date	Item	Rev. No.	Status
1	1	09/01/2022	SBG Glass Sample Line #1		
2	1	09/01/2022	SBG Glass Sample Line # 2		

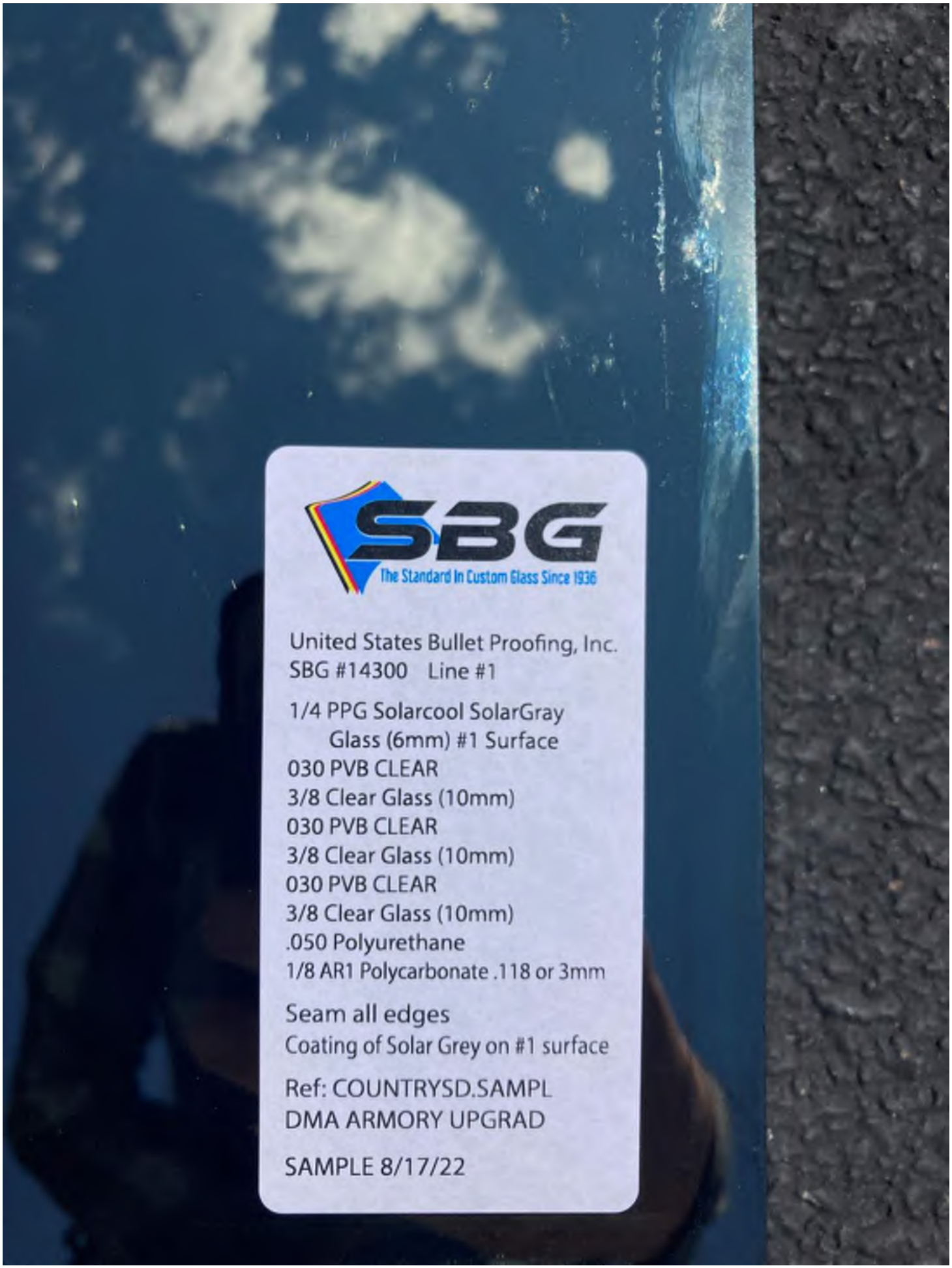
Owner's Representative Name: Kimberly Spain

Owner's Signature: Kimberly A Spain

Armory's
-Ft. Lauderdale
-Lake Wales
-St. Petersburg
-Wauchula
-Chipley
-Lake City
-Palatka
-Jax Cecil Bldg. 858
-Jax Cecil Bldg 1822

- These locations have storefront to be installed by Countryside Glass.

1-9/16" Sample


SBG
The Standard In Custom Glass Since 1936
United States Bullet Proofing, Inc.
SBG #14300 Line #1
1/4 PPG Solarcool SolarGray
Glass (6mm) #1 Surface
030 PVB CLEAR
3/8 Clear Glass (10mm)
030 PVB CLEAR
3/8 Clear Glass (10mm)
030 PVB CLEAR
3/8 Clear Glass (10mm)
.050 Polyurethane
1/8 AR1 Polycarbonate .118 or 3mm
Seam all edges
Coating of Solar Grey on #1 surface
Ref: COUNTRYSD.SAMPL
DMA ARMORY UPGRAD
SAMPLE 8/17/22

Specification Sheet

PRODUCT NAME: UL Level 5 – Glass-Clad Polycarbonate

PRODUCT CODE: SBG513

PERFORMANCE TESTING:

Ballistic: UL Standard 752 – Level 5
7.62mm Rifle Lead Core Full Metal Copper Jacket
Military Ball (.308 Caliber) One (1) Shot
No Spall, No Penetration

CONSTRUCTION: Product construction is proprietary. This product is glass-clad polycarbonate and contains an exposed polycarbonate surface with an abrasion resistant coating on the witness (safe) side.

THICKNESS: 1 5/16" Nominal (1.312")

THICKNESS TOLERANCE: 1.276" / 1.463"

WEIGHT: 15.89 Lbs. / Square Foot

SIZE:

60"	x	96"	Maximum
12"	x	12"	Minimum

OPTIONS: Tinted glass, translucent interlayers, transparent mirror, Low Iron glass.

TECHNICAL DATA:

U-Value-	.80
Shading Co-efficient-	.70
Light Transmission-	.70

APPLICABLE STANDARDS:
ANSI Z97.1
CPSC 16 CFR 1201 (Category I and II)
ASTM C 1036
ASTM C 1349

INSTALLATION: Glass must be installed in a UL Level 5 Bullet Resistant frame system. Holes must be covered with a UL listed device. All glass should be installed in accordance with the guidelines set forth in the current edition of the Glass Association of North America (GANA) Glazing and Sealant Manuals. Glazing systems should incorporate a weep system to allow moisture and water to escape the glazing channel.

Recommended Clearance:

Face:	1/8" per side
Edge:	1/4"
Bite:	1"

PO BOX 469 • BUTLER, PA 16003
(800) 634-9252 • FAX (724) 283-9836 - www.standardbent.com

GUARDIAN GLASS | PERFORMANCE CALCULATOR

29.August.2022
By Swigart, Denise
dswigart@standardbent.com 800-634-9252 ext. 103

SBG The Standard In Custom Glass Since 1936

COUNTRY SIDE

Make-up Name	Make-up Icon	Glass 1 & Coating	Glass 2 & Coating	Visible Light			Solar Energy			Thermal Properties	
				Transmittance	Reflectance		Transmittance	Reflectance	Solar Heat Gain Coefficient (SHGC)	U-Value	
				Visible (τ_V %)	ρ_V % out	ρ_V % in	Solar (τ_e %)	ρ_e % out		Winter Night (Btu/hr·ft²·F)	Summer Day (Btu/hr·ft²·F)
1 9/16" LEVEL 5 W/SOLARCOOL SOLAR GREY		**Vitro Solarcool® (IGDB) on Vitro Solargray® glass (IGDB)**	**Guardian Clear Glass (North America)**	**15**	**36**	**9**	**10**	**30**	**0.24**	**0.759**	**0.706**

Calculation Standard: NFRC 2010

1 9/16" LEVEL 5 W/SOLARCOOL SOLAR GREY

Outdoors

GLASS 1	Vitro Solargray® glass (IGDB) Thickness = 1/4" (6mm)	#1 Vitro Solarcool® (IGDB) #2 ——
INTERLAYER 1	0.030" (0.76mm) Saflex® R Clear PVB	
GLASS 2	Guardian Clear Glass (North America) Thickness = 3/8" (10mm)	#3 —— #4 ——
INTERLAYER 2	0.030" (0.76mm) Saflex® R Clear PVB	
GLASS 3	Guardian Clear Glass (North America) Thickness = 3/8" (10mm)	#5 —— #6 ——
INTERLAYER 3	0.030" (0.76mm) Saflex® R Clear PVB	
GLASS 4	Guardian Clear Glass (North America) Thickness = 3/8" (10mm)	#7 —— #8 ——
INTERLAYER 4	0.050" (1.27mm) AG8451 Clear PU	
GLASS 5	Makrolon® AR A00-Clear Polycarb (IGDB) Thickness = 1/8" (3mm)	#9 —— #10 ——

Total Unit (Nominal) = 1 5/8 in Slope = 90° Window Height = 1 meter

Estimated Nominal Glazing Weight: 19.1 lb/ft²

Indoors

Important Notes

Calculations and terms in this report are based on NFRC 2010. The performance values shown above represent nominal values for the center of glass with no spacer system or framing.

Laminated products:
The Performance Calculator allows the user to model a wide variety of laminated glass makeups using different float glass substrates, coatings and interlayer material, including those makeups where the coating faces the interlayer. It is the user's responsibility to assess whether the laminated glass makeup meets relevant regional standards and complies with applicable laminated glass safety regulations.

In addition, when the laminated glass makeup includes a coating facing the interlayer material, there may be a loss of thermal insulation performance and a color change compared to non-embedded coated class.

Non-specular products (translucent or diffuse):
The performance measurement for non-specular (translucent or diffuse) materials such as translucent interlayers or acid etched glass surface, or surface with ceramic frit is limited by the current experimental technologies. Since measurements capture physically only a part of the resulting radiation, calculated performance results provided herein and based on such measurements are not compliant

with any standard (including EN 410) and may only be used as a general reference. Actual values may vary significantly based upon exact fabrication process, as well as type, thickness and color of used non-specular material.

Please note that the Thermal Stress Guideline is only a general guide to the thermal safety of a glazing, and it is not a replacement for detailed thermal stress analysis.

Explanation of Terms

Visible Light Transmittance (Tv, %) is the percentage of incident light in the wavelength range of 380 nm to 780 nm that is transmitted by the glass.

Ultraviolet (UV) Transmittance (Tuv, %) is the percentage of the incident solar radiation transmitted by the glazing in the 300 nm to 380 nm range.

Solar Energy Direct Transmittance (Te, %) is the percentage of incident solar energy in the wavelength range of 300 nm to 2500 nm that is directly transmitted by the glass.

Visible Light Reflectance Outdoors/Indoor (Rv out/in, %) is the percentage of incident visible light directly reflected by the glass.

Solar Direct Reflectance Outdoors/Indoors (Re out/in, %) is the percentage of incident solar energy directly reflected by the glass.

Solar Energy Absorptance (Ae, %) is the percentage of the sun's energy that is absorbed by glass.

U-Value is the glazing parameter that characterizes the heat transfer through the central part of the glazing, i.e. without edge effects, and expresses the steady-state density of heat transfer rate per temperature difference between the environmental temperatures on each side. US Standard units are Btu/hr·ft²·F and SI / Metric units are W/m2 K.

Relative Heat Gain (RHG) is the total net heat gain to the indoors due to both the air-to-air thermal conductance and the solar heat gain. US Standard units are Btu/hr.ft² and SI / Metric units are W/m².

Shading Coefficient (sc) is Solar Factor divided by 0.87. It is a measure of the solar heat gain referenced to 3 mm clear glass which has the designated value of 1.00.

Solar Heat Gain Coefficient (SHGC) is the sum of the solar direct transmittance and the secondary heat transfer factor of the glazing towards the inside, the latter resulting from heat transfer by convection and longwave IR-radiation of that part of the incident solar radiation which has been absorbed by the glazing.

Light-to-Solar Gain (LSG) is the ratio of visible light gain to solar gain. LSG = (Visible Transmittance) / (SHGC)

Color Rendering Index in transmission, D65 (R_a) is the change in color of an object as a result of the light being transmitted by the glass.

Weighted Sound Reduction Index (Rw) is a single-number quantity which characterizes the airborne sound insulation of a material or building element over a range of frequencies.

Sound Transmission Class (STC) is a single-number quantity which characterizes the airborne sound insulation of a material or building element over a range of frequencies.

Disclaimer

This performance analysis is provided for the limited purpose of assisting the user in evaluating the performance of the glass products identified on this report.

Spectral data for products manufactured by Guardian reflect nominal values derived from typical production samples or CE Initial Type Testing and subject to variations due to manufacturing and calculation tolerances. Spectral data for products not manufactured by Guardian were derived from the LBNL International Glazing Database and have not been independently verified by Guardian. Guardian recommends a full-size mock-up be approved.

The values provided herein are generated according to established engineering practices and applicable calculation standards. Many factors may affect glazing characteristics, including glass size, building orientation, shading, wind speed, type of installation, production process and others. The applicability and results of the analysis are directly related to user inputs and any changes in actual conditions can have a significant effect on the results. It is the responsibility of the users of the analysis to ensure that the intended application is appropriate and complies with all relevant laws, regulations, standards, codes of practices, processing guidelines and other requirements. Guardian makes no guarantee that any glazing modeled herein is available from Guardian or any other manufacturer. The user has the responsibility to check with the manufacturer regarding availability of any glass type or

make-up.

While Guardian has made a good faith effort to verify the reliability of the tools used for this analysis, they may contain unknown programming errors that could result in inaccurate results. The user assumes all risk relating to the results provided and is solely responsible for selection of appropriate products for user's application. Guardian makes no express or implied warranty of any kind with respect to the tools used by Guardian and this analysis. There are no warranties of merchantability, non-infringement or fitness for a particular purpose with respect to the tools used by Guardian and this analysis and no warranty shall be implied by operation of law or otherwise. The only warranties applicable to Guardian products are those separately provided in writing for each product. In no event shall Guardian be liable for direct, indirect, special, consequential or incidental damages of any kind relating to or resulting from use of Guardian tools and analyses.

Program Version: 4.1.0.9402
Database Version: 20220829

Charles Garrett

From: Spain, Kimberly A NFG NG FLARNG (USA) <kimberly.a.spain2.nfg@army.mil>
Sent: Wednesday, September 14, 2022 10:55 AM
To: Charles Garrett
Cc: Nicolosi, Margaret W NFG NG FLARNG (USA); Sheeley, Krystal R NFG NG FLARNG (USA)
Subject: RE: Sample Glazing

Follow Up Flag: Follow up
Flag Status: Flagged

Charles,

Please proceed with the 1 9/16" glazing as per the sample provided for the remaining projects.

Thanks,
Kimberly

From: Nicolosi, Margaret W NFG NG FLARNG (USA) <margaret.w.nicolosi.nfg@army.mil>
Sent: Wednesday, September 14, 2022 10:53 AM
To: Spain, Kimberly A NFG NG FLARNG (USA) <kimberly.a.spain2.nfg@army.mil>; Sheeley, Krystal R NFG NG FLARNG (USA) <krystal.r.sheeley.nfg@army.mil>
Subject: RE: Sample Glazing

Kimberly, I agree with you. I'm fine with the data and the color.

Margaret

PS: Are you feeling ok?

From: Spain, Kimberly A NFG NG FLARNG (USA) <kimberly.a.spain2.nfg@army.mil>
Sent: Wednesday, September 14, 2022 7:53 AM
To: Sheeley, Krystal R NFG NG FLARNG (USA) <krystal.r.sheeley.nfg@army.mil>; Nicolosi, Margaret W NFG NG FLARNG (USA) <margaret.w.nicolosi.nfg@army.mil>
Subject: RE: Sample Glazing

Margaret/ Krystal,

Have you had opportunity to review the information Charles sent on the glazing? I haven't seen anything go back to him yet. My vote is on the 1 9/16" glazing since it is the closest to the original glazing.

From: Charles Garrett <Charles.Garrett@CPPI.com>
Sent: Friday, September 2, 2022 10:48 AM
To: Spain, Kimberly A NFG NG FLARNG (USA) <kimberly.a.spain2.nfg@army.mil>; Sheeley, Krystal R NFG NG FLARNG (USA) <krystal.r.sheeley.nfg@army.mil>; Nicolosi, Margaret W NFG NG FLARNG (USA) <margaret.w.nicolosi.nfg@army.mil>; Watkins, Mark K NFG NG FLARNG (USA) <mark.k.watkins2.nfg@army.mil>
Cc: Calvin Peterson <Calvin.Peterson@CPPI.com>; Denise Swigart <dswigart@standardbent.com>; Kyle Frankman <Kyle.Frankman@countrysideglass.com>; James Contic <jcontic@usbp.com>
Subject: [URL Verdict: Neutral][Non-DoD Source] Sample Glazing

---

Good Morning Kimberly,

I just finished speaking with Denise Swigart from Standard Bent Glass (SBG) who provided the samples, her responses to the questions from your email are in red below.

Margaret and I reviewed the glazing and supplied product data and have a couple of concerns as it appears the samples are not the correct items. Perhaps you could get with the manufacture on these and let us know.

1. Label on the samples indicate SBG#14300. Label on the product data Specification Sheet is SBG513. The website (Caution-www.standardbent.com < Caution-http://www.standardbent.com >) indicates SBG513 as the UL Level 5 glazing. We need the correlating SBG14300 Specification Sheet and Product Data, or the SBG513 sample.The SBG14300 listed on the samples are for internal production identification. The SBG513 listed on the specification sheet is the product code for the UL Level 5/UL Standard 752 – Level 5 as indicated on the specification sheet which is for the sample that was received.

2. Sample thicknesses are 2’ and 1- 9/16”, thickness indicated on the Specification Sheet is 1- 5/16”. We need the correlating SBG14300 Specification Sheet and Product Data, or the SBG513 sample.When requesting the solar cool solar gray this adds a layer to the threat/attack side of the make-up which changes the overall thickness from 1-5/16 to the stated 1-9/16” as the solar cool solar gray is an additional layer added to the standard make up of 1-5/16” UL-752 Level 5 glass. This is the same scenario with the 2” sample layers are being added to the threat/attack side of the UL Standard 752 glass make up.

3. The SBG513 Product Specification Sheet does indicate that the associate UL compliance is UL572 which agrees with our directive White Paper for the Stand-Alone Facilities (SAF) Door Upgrade Guidance dated 29Jun2017, however the Country Side information Sheet does not speak to the UL compliance.The SBG Sheet that is labelled as Countryside for identification is for indicating the solar calculations regarding each sample supplied.

If you are going to email them perhaps you could simply copy us and if they are not direct in responding to you then if the answer comes next week we could still get it and hopefully move from there.

I have also copied the following individuals so they may add to any further conversation regarding these products.

Denise Swigart – Standard Bent Glass
James Contic – US Bullet Proofing
Kyle Frankman – Countryside Glass

Let me know if you have any other questions

Thank You

Charles Garrett, OSHA 30
Project Manager
CHARLES PERRY PARTNERS, INC.
GENERAL CONTRACTOR | CONSTRUCTION MANAGER | DESIGN-BUILD

< Caution-https://cppi.com/ >

○ **(352) 333-9292** | M **(352) 316-1036**

GAINESVILLE | **CPPI.COM** **< Caution-https://cppi.com/ >**
8200 NW 15th Place, Gainesville, Florida 32606

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< Caution-https://www.instagram.com/cppi_news/ > < Caution-https://www.facebook.com/CPPIConstruction/ > < Cau

Frame and Caulking Color Selection – Countryside Glass and Mirror

*Owner to select one of the following product options:

CPPI Project #	DMA Project #	Project Location	Frame Color Selection*	Metal to Metal Color Selection*	Metal to Glass Color Selection*	Metal to Substrate Color Selection*
01-11-22073	217245	Lake City	Smooth Dark Bronze	Bronze	Black	Special Bronze

Frame Color Option (Images Attached):

- Dark Bronze – Smooth
- Dark Bronze – Textured
- Clear – Smooth
- Clear – Textured

Caulk Color Options:

- Metal to Metal – Color Chart Attached
- Metal to Glass – Data Sheet Attached
- Metal to Substrate – Color Chart Attached

DMA Project# - 217245
CPPI Project# - 01-11-22073
Location: Lake City

Existing Storefront to be replaced

Dark Bronze - Smooth

Dark Bronze - Textured

Clear - Smooth

Clear - Textured

Dow Corning® 795 Silicone Building Sealant

Sealant Color Selection Guide

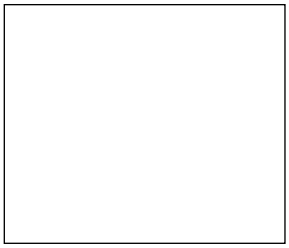
795

STANDARD COLORS

- Please check the availability of the different colors.
- Custom colors are available on request.
- Please refer to product literature for application and technical information.

Metal To Metal

The colors shown are a close approximation of the actual sealant colors. However, for best results, submit color samples or swatches to our lab for color testing and matching.


White


Limestone


Champagne


Natural Stone


Anodized Aluminum


Gray


Black


Bronze


Sandstone


Adobe Tan


Dusty Rose


Rustic Brick


Blue Spruce


Charcoal

DOW CORNING

High Performance Building Solutions

Form No. 62-1733-01 AGP13026

Product Information
Silicone
Sealants

Metal To Glass

DOW CORNING

Dow Corning® 995 Silicone Structural Glazing Sealant

FEATURES & BENEFITS

- Odorless, non-corrosive cure system
- Cures to form an extremely tough elastomeric rubber ensuring a durable, flexible, watertight bond
- Excellent weatherability and high resistance to ultraviolet radiation, heat and humidity, ozone and temperature extremes
- Excellent mechanical properties
- Successfully tested for use in protective glazing applications
- Excellent unprimed adhesion to wide range of substrates including coated, enameled, and reflective glasses; anodized and polyester coated or painted aluminum profiles including most fluoropolymer-based paints such as Kynar™
- Meets global standards for structural glazing (American, Chinese, European)

COMPOSITION

- One-part, neutral-cure elastomeric sealant

High ultimate tensile strength sealant ideally suited for structural bonding and protective glazing applications

APPLICATIONS

- Silicone structural glazing and protective glazing applications

TYPICAL PROPERTIES

Specification Writers: These values are not intended for use in preparing specifications. Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

Test[1]	Property	Unit	Result
As Supplied			
	Color		Black, gray, white
ASTM C679	Tack-Free Time, 50% RH	minutes	65
	Curing Time 25°C (77°F) at 50% RH	days	7–14
	Full Adhesion	days	14–21
ASTM C639	Flow, Sag, or Slump	inches	0.1
	Working Time	minutes	10–20
	Specific Gravity		1.339
	Volatile Organic Content[2] (VOC)	g/L	30
As Cured – After 7 days at 25°C (77°F), 50% RH			
ASTM 2240	Durometer Hardness, Shore A	points	40
ASTM D412	Ultimate Tensile Strength	Psi (MPa)	350 (2.41)
	Ultimate Elongation	%	525
ASTM D624	Tear Strength, die B	ppi	49
ASTM C794	Peel Strength	ppi	40
As Cured – After 21 days at 25°C (77°F), 50% RH			
ASTM C1135	Tensile at 25% Elongation	psi (MPa)	43 (0.30)
ASTM C1135	Tensile at 50% Elongation	psi (MPa)	65 (0.43)
	Ultimate Tensile Strength	psi (MPa)	170 (1.17)
ASTM C719	Joint Movement Capability	%	±50

[1]ASTM: American Society for Testing and Materials.
[2]Based on South Coast Air Quality Management District of California. Maximum VOC is listed both inclusive and exclusive of water and exempt compounds. For a VOC datasheet for a specific sealant color, please send your request to product.inquiry@dowcorning.com.

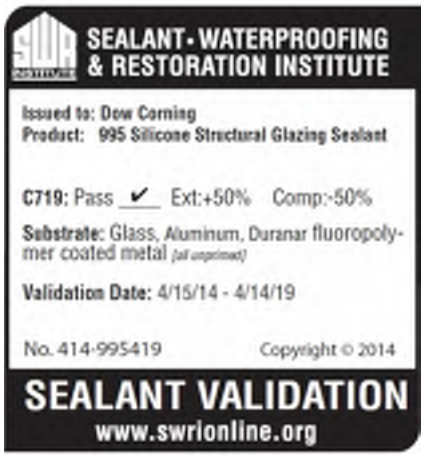
DESCRIPTION

Dow Corning® 995 Silicone Structural Glazing Sealant is a one-component neutral-curing silicone sealant designed specifically for structural bonding applications of glass and metal in factory or field situations.

The rate of surface cure and cure-in-depth of most one-component RTV silicone sealants is affected by the temperature and humidity of the environment. However, an environment of high temperatures in combination with high humidity may slow the surface cure rate of *Dow Corning* 995 Silicone Structural Glazing Sealant.

Colors

This product is available in black, gray, and white. Please contact your local Dow Corning Sales Application Engineer for availability.



APPROVALS/ SPECIFICATIONS

Dow Corning 995 Silicone Structural Glazing Sealant has been internally tested and is designed to meet or exceed the test requirements of:

- Federal Specification TT-S-001543A (COM-NBS) Class A for silicone building sealant
- Federal Specification TT-S-00230C (COM-NBS) Class A for one-component building sealant
- ASTM Specification C-920 Type S, Grade NS, Class50, Use NT, G and A
- ASTM C1184 Standard Specification for Structural Silicone Sealant
- Chinese specification GB 16776 for structural glazing
- SNJF VEC

SGBP 2014-393

Dow Corning 995 Silicone Structural Glazing Sealant exhibits a high level of physical properties and adhesive performance, which are retained even after aging as detailed by EOTA ETAG 002 and prEN 13022 European Standards.

HOW TO USE

Complete design and installation guidelines are contained in the *Dow Corning Americas Technical Manual*, Form No.62-1112. Specific advice is available from your local Dow Corning Sales Application Engineer.

Preparation

Clean all joints and glazing pockets, removing all foreign matter and contaminants such as grease, oil, dust, water, frost, surface dirt, old sealants, or glazing compounds and protective coatings.

Application Method

Install back-up material or joint filler, setting blocks, spacer shims, and tapes. Mask areas adjacent to joints to ensure neat sealant lines. Primer is generally not required on non-porous surfaces, but may be necessary for optimal sealing of certain porous surfaces. A test placement is always recommended.

Apply *Dow Corning* 995 Silicone Structural Glazing Sealant in a continuous operation using a positive pressure. (The sealant can be applied using many types of air-operated guns and most types of bulk dispensing equipment.) Before a skin forms (typically within 10 minutes), tool the sealant with light pressure to spread the sealant against the backing material and joint surfaces. Remove masking tape as soon as the bead is tooled.

HANDLING PRECAUTIONS

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND MATERIAL SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE MATERIAL SAFETY DATA SHEET IS AVAILABLE ON THE DOW CORNING WEBSITE AT DOWCORNING.COM, OR FROM YOUR DOW CORNING SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CORNING CUSTOMER SERVICE.

USABLE LIFE AND STORAGE

When stored at or below 30°C (86°F) in the original unopened containers, this product has a usable life of 18 months from the date of manufacture.

PACKAGING INFORMATION

This product is available in 10.3 ounce cartridge, a 20 ounce sausage pack, 2 gallon pail, 4.5 gallon pail, and a 228.1 kg drum, depending on location of purchase. Please contact your local Dow Corning Sales Application Engineer for packaging availability.

LIMITATIONS

Dow Corning 995 Silicone Structural Glazing Sealant should not be applied:

- To building materials that bleed oils, plasticizers, or solvents– materials such as impregnated wood, oil-based caulks, green or partially vulcanized rubber gaskets or tapes
- In totally confined spaces as the sealant requires atmospheric moisture for cure
- When surface temperatures exceed 60°C (140°F)
- Where painting of the sealant is required, as the paint film may crack and peel
- To surfaces in contact with food– this sealant does not comply with Federal Food and Drug Administration food-additive regulations
- In below-grade applications
- For use as an interior penetration fire stop sealing system
- In horizontal floor joints where abrasion and physical abuse are likely to be encountered
- To frost-laden or damp surfaces
- For continuous immersion in water

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

Dow Corning shall not be held liable for any possible claims arising from structural glazing use of this product for projects that have not been specifically approved by Dow Corning.

HEALTH AND ENVIRONMENTAL INFORMATION

To support customers in their product safety needs, Dow Corning has an extensive Product Stewardship organization and a team of Product Safety and Regulatory Compliance (PS&RC) specialists available in each area.

For further information, please see our website, dowcorning.com or consult your local Dow Corning representative.

LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that our products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

Dow Corning's sole warranty is that our products will meet the sales specifications in effect at the time of shipment.

Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.

TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, DOW CORNING SPECIFICALLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY.

DOW CORNING DISCLAIMS LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

We help you invent the future.™

dowcorning.com

2015, April 23
Form No. 62-1260H-01

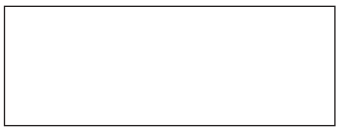
MASTER® BUILDERS SOLUTIONS

BASF We create chemistry

MasterSeal® NP 1™

Metal To Substrate

Standard Color Portfolio


White

Stone


Limestone


Black


Medium Bronze


Aluminum Gray

Tan


Off White


Special Bronze


Redwood Tan

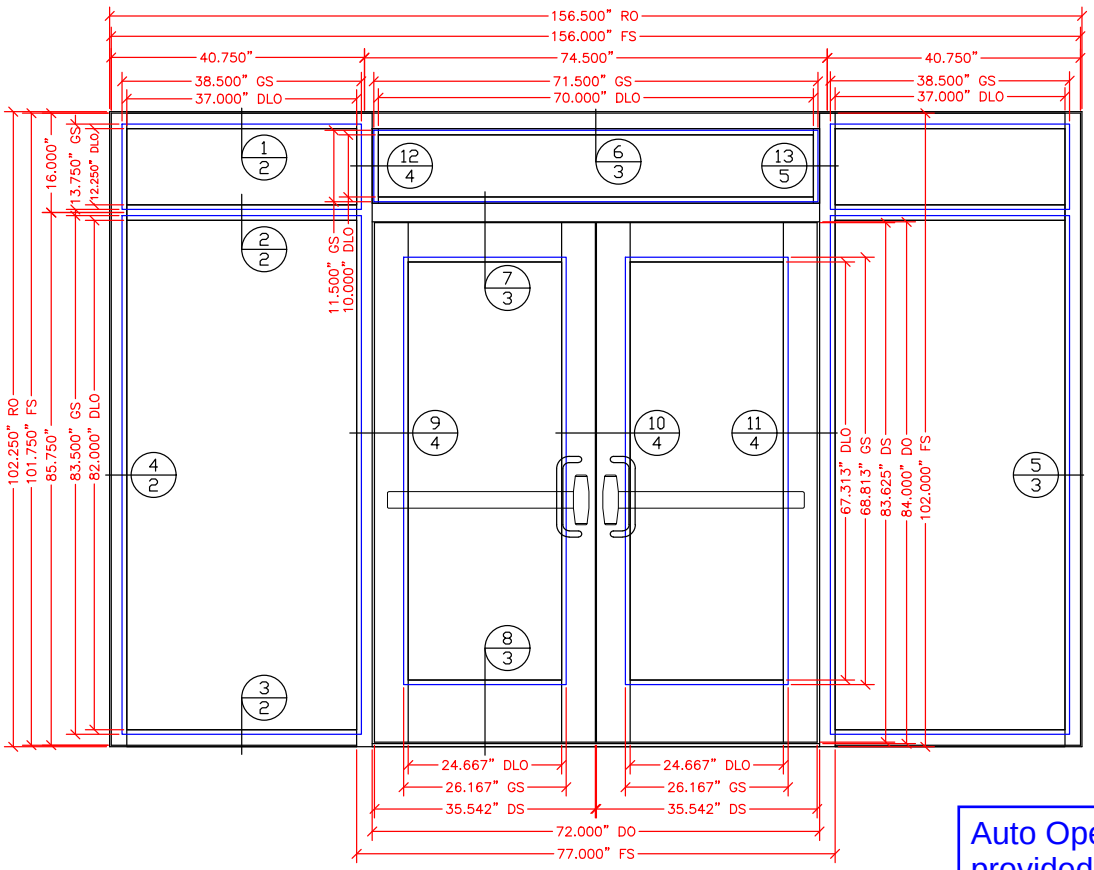

Gray

Note:

- Colors are approximate; actual applications of MasterSeal NP1 may vary from colors shown. This color card is intended as a guide only. See your BASF Construction Systems dealer for actual color samples.
- Please refer to the technical data guide for application and technical information.

Existing Opening to be Replaced

Glass thickness not approved.



~~GLASS: LEVEL 5 GCP IG UNIT W/ 1/2" AIR SPACE (SOLARCOOL SOLARGREY EQUAL)(WINDOW)~~

~~THICKNESS: 2.06"~~

GLASS: LEVEL 5 GCP (SOLARCOOL SOLARGREY EQUAL)(DOOR)

Refer to approved glass sample submittal.

THICKNESS: 1.56"

DOOR HARDWARE:

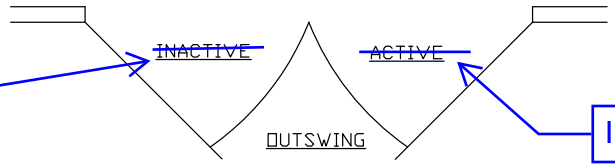
2 – SELECT CONTINUOUS HINGE (DARK)
1 – USBP THRESHOLD
1 – LCN 4040 XP DOOR CLOSURE WITH LCN 18 DROP PLATE (BRONZE)
2 – ROCKWOOD BF–158 12" CTC TYPE C17 HD MOUNT OFFSET PULL (US10–B)
1 – VD QEL RX 9847 NL OP 3' (US10–B)(ACTIVE)
1 – VD QEL RX 9847 E.O. 3' (US10–B)(INACTIVE)
1 – VON DUPRIN EPT–10 (SP 313)
1 – ARROW 16RCR27 RIM CYLINDER (US10–B)(ACTIVE)
1 – VON DUPRIN 4954 REMOVEABLE MULLION (SP28) W/ 1/2" X 1 1/2" STEEL BAR MAINTAINING UL752 BR RATING

NOTE: AUTO OPERATOR BY OTHERS

EL 1 ELEVATION LAKE CITY DOOR 101A
SCALE : 1" = 20" QTY : 1

Auto Operator provided by CSG.

No dogging on hardware



ACTIVE

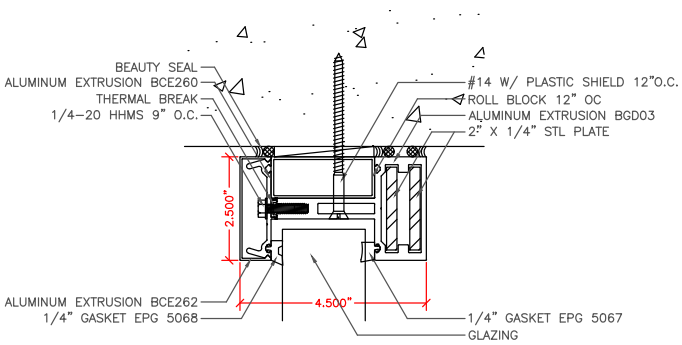
INACTIVE

PROPRIETARY MATERIAL
UNITED STATES BULLET PROOFING
1 800-363-8328

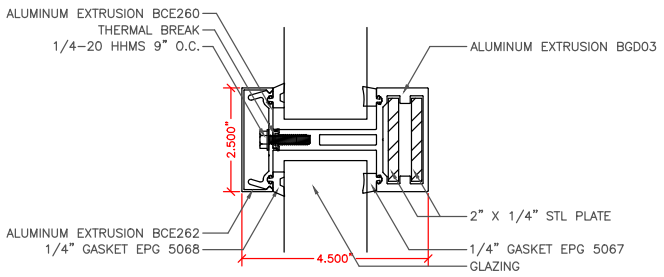
*ALL WINDOWS, DOORS, AND GLAZING TO MEET UL752 LEVEL5

CUSTOMER: COUNTRYSIDE GLASS & MIRROR PROJECT NO.: 199–2022 DATE: 05/10/2022 SCALE: 1:20 DRAWN BY: KH CHECKED BY: JC FILENAME: CGM 101E	REVISIONS: A 05/25/22 B 08/02/22	PROJECT/DRAWING	USB MODEL: USAW400/USAD1000 LV5 DOS MODEL: N/A DOS CODE: UL752 LVL5 SHW GROUP: N/A FINISH: DARK BRONZE VISION TYPE: ~~SOLARCOOL GREY~~	DO DOOR OPENING FS FRAME SIZE RO ROUGH OPENING CO CONCRETE OPENING DLO DAY LIGHT OPENING SIM SIMILAR TYP TYPICAL OPP OPPOSITE GCD GAP COVER DIMENSION	USBP U.S. BULLET PROOFING 16201 BRANCH COURT UPPER MARLBORO, MD 20774 PHONE: 1–800–363–8328 PHONE: 301–218–7920 FAX: 301–218–7925 http://www.usbulletproofing.com	1 OF 5

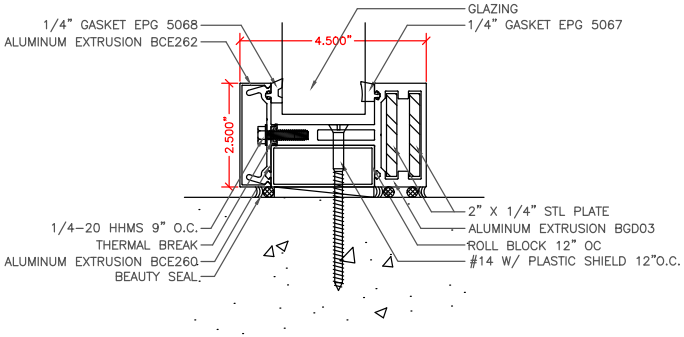
Solarcool Solargrey



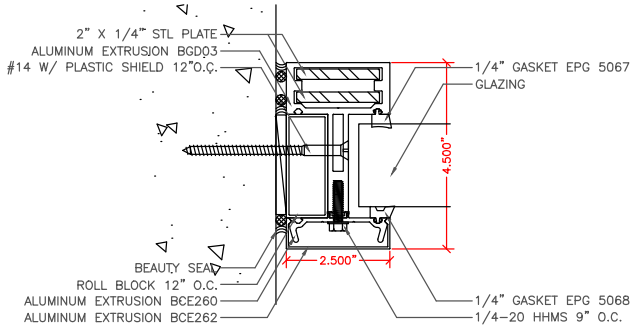
IMPACT 1 HEAD DETAIL
SCALE : 1" = 3"



IMPACT 2 MULLION DETAIL
SCALE : 1" = 3"



IMPACT 3 SILL DETAIL
SCALE : 1" = 3"



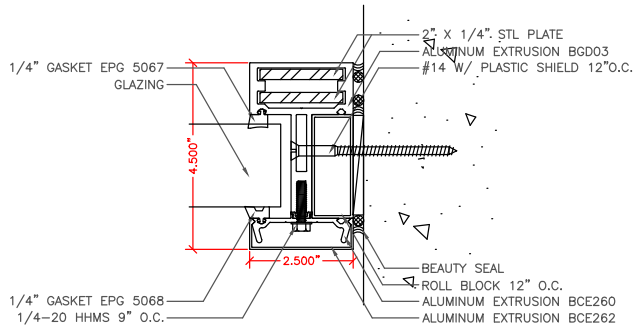
IMPACT 4 JAMB DETAIL
SCALE : 1" = 3"

PROPRIETARY MATERIAL
UNITED STATES BULLET PROOFING
1 800-363-8328

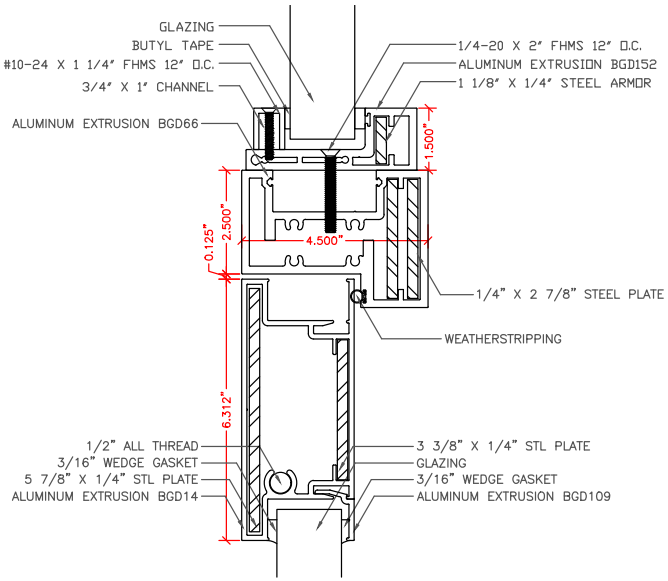
CUSTOMER: COUNTRYSIDE GLASS & MIRROR PROJECT NO.: 199-2022 DATE: 05/10/2022 SCALE: 1:3 DRAWN BY: KH CHECKED BY: JC FILENAME: CGM 201D	REVISIONS: A 05/25/22 B 08/02/22	PROJECT/DRAWING	USB MODEL: USAW400/USAD1000 LV5 DOS MODEL: N/A DOS CODE: UL752 LVL5 SHW GROUP: N/A FINISH: DARK BRONZE VISION TYPE: ~~SOLARCOOL GREY~~	DO DOOR OPENING FS FRAME SIZE RO ROUGH OPENING CO CONCRETE OPENING DLO DAY LIGHT OPENING SIM SIMILAR TYP TYPICAL OPP OPPOSITE GCD GAP COVER DIMENSION	USBP U.S. BULLET PROOFING 16201 BRANCH COURT UPPER MARLBORO, MD 20774 PHONE: 1-800-363-8328 PHONE: 301-218-7920 FAX: 301-218-7925 http://www.usbulletproofing.com

2 OF 5

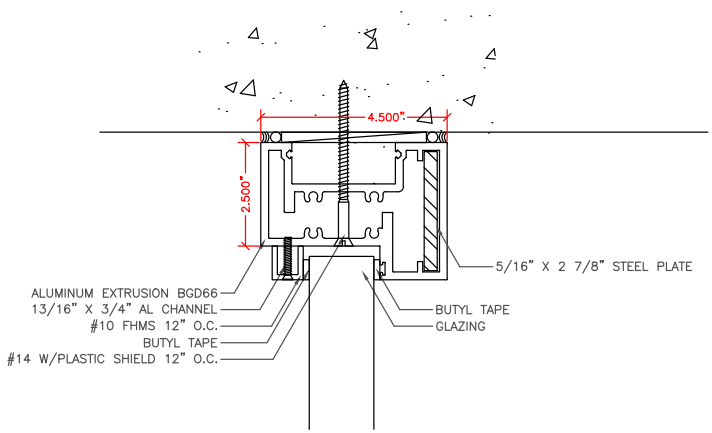
Solarcool Solargrey



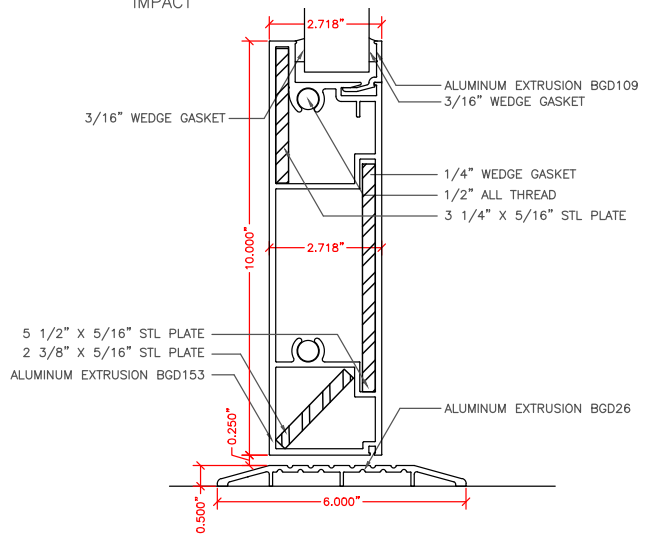
IMPACT 5 JAMB DETAIL
SCALE : 1" = 3"



IMPACT 7 TRANSOM DETAIL
SCALE : 1" = 3"



IMPACT 6 HEAD DETAIL
SCALE : 1" = 3"



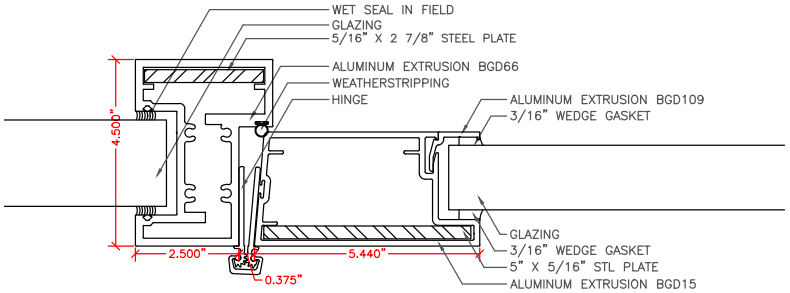
IMPACT 8 THRESHOLD DETAIL
SCALE : 1" = 3"

PROPRIETARY MATERIAL
UNITED STATES BULLET PROOFING
1 800-363-8328

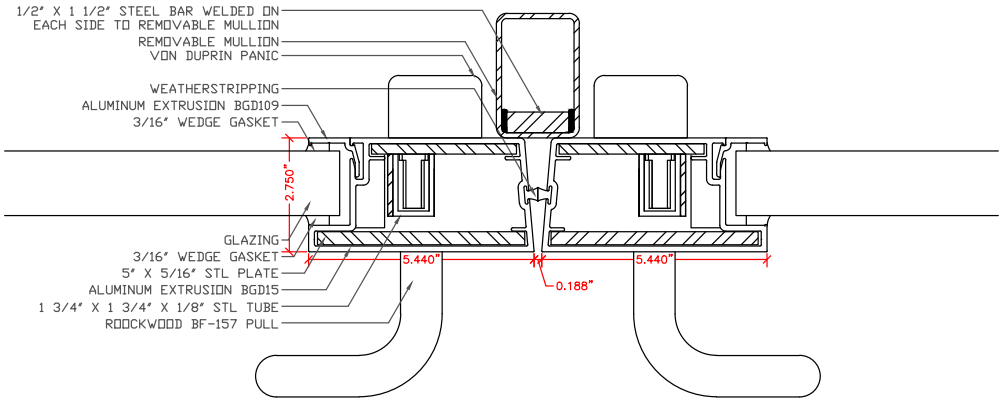
CUSTOMER: COUNTRYSIDE GLASS & MIRROR PROJECT NO.: 199-2022 DATE: 05/10/2022 SCALE: 1:3 DRAWN BY: KH CHECKED BY: JC FILENAME: CGM 202D	REVISIONS: A 05/25/22 B 08/02/22	PROJECT/DRAWING	USB MODEL: USAW400/USAD1000 LV5 DOS MODEL: N/A DOS CODE: UL752 LVL5 SHW GROUP: N/A FINISH: DARK BRONZE VISION TYPE: ~~SOLARCOOL GREY~~	DO DOOR OPENING FS FRAME SIZE RO ROUGH OPENING CO CONCRETE OPENING DLO DAY LIGHT OPENING SIM SIMILAR TYP TYPICAL OPP OPPOSITE GCD GAP COVER DIMENSION	USBP U.S. BULLET PROOFING 16201 BRANCH COURT UPPER MARLBORO, MD 20774 PHONE: 1-800-363-8328 PHONE: 301-218-7920 FAX: 301-218-7925 http://www.usbulletproofing.com

3 OF 5

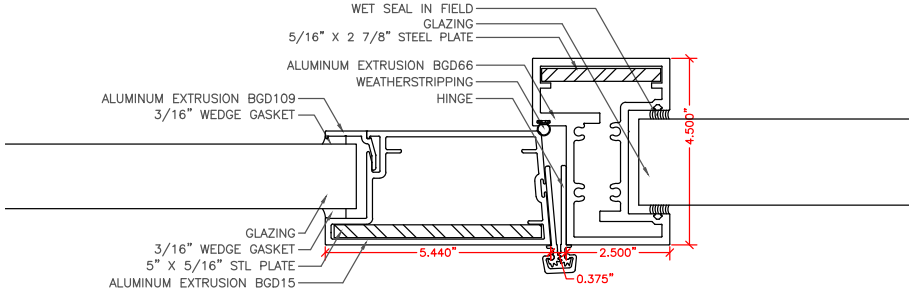
Solarcool Solargrey



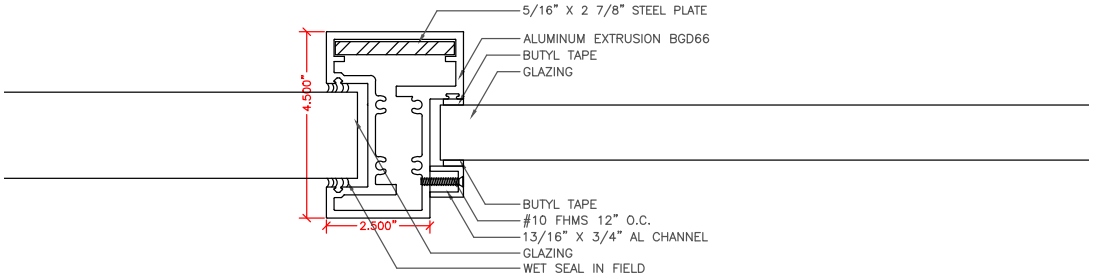
IMPACT 9 HINGE DETAIL
SCALE : 1" = 3"



IMPACT 10 MEETING STILE DETAIL
SCALE : 1" = 3"



IMPACT 11 HINGE DETAIL
SCALE : 1" = 3"



IMPACT 12 MULLION DETAIL
SCALE : 1" = 3"

PROPRIETARY MATERIAL
UNITED STATES BULLET PROOFING
1 800-363-8328

CUSTOMER: COUNTRYSIDE GLASS & MIRROR PROJECT NO.: 199-2022 DATE: 05/10/2022 SCALE: 1:3 DRAWN BY: KH CHECKED BY: JC FILENAME: CGM 203D	REVISIONS: A 05/25/22 B 08/02/22	PROJECT/DRAWING	USB MODEL: USAW400/USAD1000 LV5 DOS MODEL: N/A DOS CODE: UL752 LVL5 SHW GROUP: N/A FINISH: DARK BRONZE VISION TYPE: ~~SOLARCOOL GREY~~	DO DOOR OPENING FS FRAME SIZE RO ROUGH OPENING CO CONCRETE OPENING DLO DAY LIGHT OPENING SIM SIMILAR TYP TYPICAL OPP OPPOSITE GCD GAP COVER DIMENSION	USBP U.S. BULLET PROOFING 16201 BRANCH COURT UPPER MARLBORO, MD 20774 PHONE: 1-800-363-8328 PHONE: 301-218-7920 FAX: 301-218-7925 http://www.usbulletproofing.com

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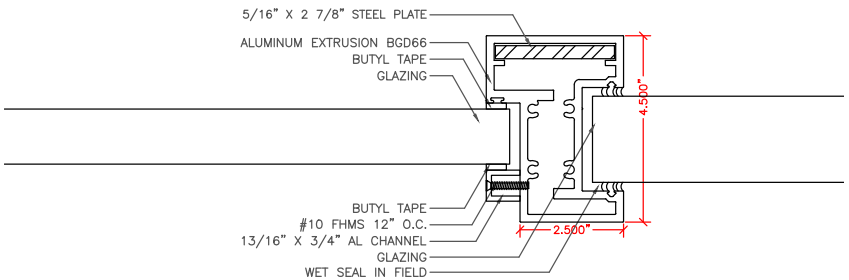
Solarcool Solargrey



IMPACT

13 MULLION DETAIL

SCALE : 1" = 3"

PROPRIETARY MATERIAL

UNITED STATES BULLET PROOFING

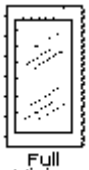
1 800-363-8328

CUSTOMER: COUNTRYSIDE GLASS & MIRROR PROJECT NO.: 199-2022 DATE: 05/10/2022 SCALE: 1:3 DRAWN BY: KH CHECKED BY: JC FILENAME: CGM 204D	REVISIONS: A 05/25/22 B 08/02/22	PROJECT/DRAWING	USB MODEL: USAW400/USAD1000 LV5 DOS MODEL: N/A DOS CODE: UL752 LVL5 SHW GROUP: N/A FINISH: DARK BRONZE VISION TYPE: SOLARCOOL GREY	DO DOOR OPENING FS FRAME SIZE RO ROUGH OPENING CO CONCRETE OPENING DLO DAY LIGHT OPENING SIM SIMILAR TYP TYPICAL OPP OPPOSITE GCD GAP COVER DIMENSION	USBP U.S. BULLET PROOFING 16201 BRANCH COURT UPPER MARLBORO, MD 20774 PHONE: 1-800-363-8328 PHONE: 301-218-7920 FAX: 301-218-7925 http://www.usbulletproofing.com

Model USAD1000

Forced Entry/Bullet/Blast Resistant Aluminum Door

UL Levels 1 – 8, NIJ I, II, IIIA, III, IV
GSA Levels C & D
Installation Instructions



1. Remove door from crate and place on two sawhorses, doorstop side up. Saw horses should be approximately 30" long for a standard 36" door opening. All locks should be unlocked. Open frame to approximately 105 degrees. Remove the screws attaching the hinge to the frame. You do not have to remove screws from the door.
2. Check opening, making sure it is approximately one-half inch wider and one-quarter inch taller that the frame. Adjust opening if necessary.
3. Set the frame in the opening. Note: Shims are not provided to take up space between the rough opening and the frame.
4. Raise the hinge or lock jamb to obtain a square point at the header to the hinge connection.
5. Plumb the hinge jamb both in and out, and back and forth. The jamb MUST be plumb for the door to swing properly.
6. Drill a 1/4" hold through the center anchor hole deep enough to accept a ¼" x 4" anchor. Check the jamb for plumb before securing a second anchor. At this point you only have 3 more anchors to secure if adjustment is needed.
7. Check the header to hinge jamb angle, making sure it is square. Raise or lower lock jamb until this is accomplished. Leave the lock jamb unsecured at this point.
8. Hang the door and hinge it to the frame.
9. Block lock jamb plumb, making sure that all locks engage.
10. Anchor the lock jamb straight (equal clearance between the lock jamb and door).
11. If a threshold is present, it needs to be custom fitted. Cut to the length and notch for your desired installation. Before installing the threshold, remove the temporary spreader welded to the frame. Drill two ¼" holes in the threshold to accept the anchors.
12. If electric hardware is present, attach the power source to the terminal block as per wiring diagram located on the transom access panel. The access panel is a panel is a formed piece of channel attached to the header doorstop. The diagram only identifies which wires are attached to which terminal. Refer to the manufacturer's schematics for proper wiring connections or paths.

Revised Mar. 09

United States Bullet Proofing, Inc.
16201 Branch Court
Upper Marlboro, MD 20774
www.usbulletproofing.com

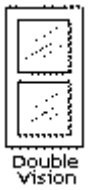
(800)363-8328 Toll Free
(301)218-7920 Local
(301)218-7925 Fax
info@usbulletproofing.com

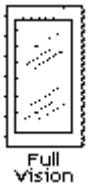
Model USAD1000

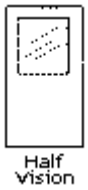
Forced Entry/Bullet/Blast Resistant Aluminum Door

Fema 361 certified

Specifications







1. **Quality Assurance:** Drawings and specifications are based on U.S. Bullet Proofing Model USAD1000 ballistically improved door system. Whenever substitute products are to be considered, supporting technical literature, samples, drawings and performance data must be submitted ten days prior to bid in order to make a valid comparison of products involved. Test reports by an independent test laboratory will be made available upon request.

2. **Materials:** All aluminum extrusion shall be 6063-T6 alloy (door framing) and 6063-T5 alloy (door leaf) and temper or equal or with a minimum tensile strength (minimum 22.0 ksi ultimate, 16.0 ksi yield).

   All fasteners shall be zinc coated. There shall be no exposed fasteners. The interior glazing gaskets shall be a composition of Thermoplastic Elastomer (TPE 65AB) and Polyolefin Foam Concentrate. (Resulting in a 55 to 65 Shore "A" durometer). Setting blocks shall be solid neoprene (80-90 shore "a" durometer). All neoprene shall be in strict compliance with ASTM C-509-00 Type II Option 1 and C- 864-99.

3. **Description:** The USAD1000 door is shipped completely assembled. All joints and connections shall be tight providing hairline joints and true alignment of adjacent members.
   Frame profile shall be 2 ½" x 4 ½" standard. Frame size is 3' x 7' standard or 39 ½" x 85 ¾" (custom sizes available).
   Glazing or retrofit glazing shall be performed from the interior, providing minimal disturbance of the occupants. The glazing system can be capable of accepting various thickness, ranging from ¼" to 2 3/8".

4. **Ballistic Certification:** All Aluminum members shall be ballistically improved so as to provide complete protection against penetration of a projectile as described by the UL 752 bullet-resisting test requirements from Level 1 through Level 8. A recognized independent testing laboratory shall conduct ballistic testing. Proof of certification will be made available upon request.

5. **Blast certification Meets all DOD & GSA Blast Requirements** Unit shall be blast approved in accordance with GSA or DOD blast criteria by an independent blast testing facility. Proof of certification will be made available upon request. In some cases, independent blast analysis must be performed prior to window approval.

6. **FEMA361 Certified**

7. **Finish:** Available in most anodized and Kynar painted finishes. Please specify finish desired.

Revised July 09

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Upper Marlboro, MD 20774
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Model USAD1000

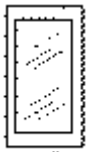
Forced Entry/Bullet/Blast Resistant Aluminum Door

Fema 361 certified

UL Levels 1 – 8, NIJ I, II, IIIA, III, IV

GSA Levels C & D

- The USAD1000 Door Series is shipped pre-hung and factory assembled. The unit is available as a swinging or sliding door, interior or exterior application.
- The USAD1000 Door Series is constructed as a full-flush type unit. Construction consists of heavy-duty aluminum extrusion and 1/8" minimum wall thickness. The extrusions allow for the insertion of armor consistent with specified threat level. The door framing is constructed from extruded aluminum with ballistic inserts. Transparent and opaque panels are interchangeable to provide necessary design flexibility. Complimentary window construction allows for aesthetically uniform security application that is available in many style and finish options.
- Standard door hardware: Heavy-Duty Continuous Hinge, Deadbolt Lockset with Medeco High Security Cylinder, LCN Closer, Threshold and Push/Pull Handles. Numerous hardware options are available to meet access and security needs; please consult factory for further information.
- Style options: Full-Vision, Double-Vision, Half-Vision, Opaque, Sidelites, Transoms and Man-Trap Configuration.
- Standard door size: 3' x 7' or 39 ½" x 85 ¾" (custom sizes available)
- Standard frame: 2 ½"W x 4 ½"D (custom sizes available)
- Monumental stile (5 5/16") and narrow stile (3") available. Monumental stile will accept a wide range of hardware in commercial mortise locksets and rim-mounted exit devices.
- Door Weight: Varies per application
- Standard finish: Clear or Bronze Anodized (Custom Kynar Paint, Brass Cladding, Stainless Steel Cladding available)



It is recommended that the door be used in conjunction with protected wall and window areas.

Each end user should determine the ballistic and forced entry threat to ensure the correct product selection to meet and exceed security needs.

Revised Apr. 09

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info@usbulletproofing.com

TRANSPORT

Boxing: U.S. Bullet Proofing doors are carefully packed in plywood boxes with internal wood 2" x 4" bracing. Each unit is cushioned throughout with Styrofoam packing to prevent movement inside the box. Each box is marked with the identification of the unit and the shipping address. The weight and cubic feet are indicated. Each box is further marked with "Up" arrows, indicating how the box is to be transported and stored.

Shipping: Each box should be visually inspected from the outside for any damages that may have occurred during shipping. A damaged box will often result in a damaged door, especially in overseas shipping. In the event of damages, photograph the box and notify the factory and the freight company. This must be done within 30 days after receipt of the unit.

Storage: It is not desirable to store units for long periods of time. However, this is often unavoidable due to construction schedules. If the units must be stored, they should be placed in a dry warehouse with moderate temperatures. High temperatures and humidity can cause formation of vapor inside the wrapping, thus causing oxidation or corrosion of parts.

All boxes are to be placed in the upright position as indicated by the up arrows. They should not lean against a wall. The boxes should not be placed in proximity of new cement or plaster walls.

If water penetrates the storage space, it is recommended that the units be unboxed to prevent internal damage. They should be stored in an upright manner, as if still in the box.

Unpacking: Care should be taken when opening the door box to prevent damage to the unit. Also, persons unpacking the box should be aware that there are loose pieces contained in the box. Care should be exercised not to lose these parts (door closer, lock cylinders with keys, shims, mounting hardware, caulking, instructions, and technical data for associated components).

MAINTENANCE and CLEANING

Transparencies: The protected side of the transparency in some instances is polycarbonate and susceptible to scratching. Care should be taken when cleaning these surfaces. Use a mixture of liquid soap and water and clean, soft clothes or sponges for cleaning. The following cleaning agents have been found to be compatible with polycarbonate: Joy (US Manufactured), Palmolive Liquid (US Manufactured), Windex (AMMONIA FREE – US Manufactured).

Fresh paint splashes, grease and smeared glazing compounds can be easily removed before drying by rubbing lightly with a good grade of VM&P Naphtha Grade Isopropyl Alcohol or Butyl Cellosolve (2-butoxy ethanol). Do not use butyl cello solve in direct sunlight.

Using a mild automobile polish can minimize scratches and minor abrasions. Three such products that tend to polish and fill scratches are: Johnson's Paste Wax, Novus Plastic Polish #1 & #2 (Novus Inc., Minneapolis, MN), and Mirror Glaze Plastic Polish M.G.M10 (Mirror-Brite Polish Co., Pasadena, CA). It is suggested that a test be made of a sample with the product selected and that the polish manufacturer's instruction be followed.

Important Don'ts:

- DO NOT use abrasive or highly alkaline cleaners on polycarbonate.
- Never scrape or scrub polycarbonate with squeegees, brushes, razor blades, or other sharp instruments.
- Taping notices, etc to this surface should be avoided. The tape adheres to the mar resistant coating and peels the coating off when the tape is removed.
- DO NOT use benzene, gasoline, acetone or carbon tetrachloride on polycarbonate.
- DO NOT clean polycarbonate in hot sun or at elevated temperatures.

In cleaning glass, it is recommended that Windex (AMMONIA FREE), or other compatible household window cleaners be used to minimize streaking.

Aluminum: The aluminum trim can be cleaned similar to the transparent surfaces. Isopropyl alcohol can be used for tougher spots. Care should be taken not to scratch the aluminum surface.

Hardware: Maintenance of hardware devices should be in accordance with the manufacturer's specifications. A common cause of failures in electrical devices is improper electrical connections to a power supply at the job-site. Power spikes and fluctuations can also cause damage. Improper grounding in some countries aggravates this situation. Closely follow hardware manufacturer's instructions.

Mechanical failures are most often caused by excessive amounts of dirt accumulating inside the mechanism. The use of lubricants such as WD40 and the like should be avoided. They act as a magnet in attracting dirt and sand. Another common cause of mechanical malfunctions is when devices are manhandled far beyond the manufacturer's tolerances. If the locks are in proper adjustment, there is no need to use excessive force to open or close a device.

REPAIRS

The most common cause for door malfunctioning is improper installation. The door frames must be plumb and square. Misalignment is easily detected by observing if the locks function freely without hanging up or causing friction binds.

Another point to look for is inconsistency of the closure gap. If the gap is wider at the top than the bottom, the unit is misaligned. However, if the door and locks function freely then no further adjustment is recommended. With the door closer disconnected and the door opened at a 45-degree angle, the leaf should remain in one place. If the door drifts open or closed, then the frame is not level (vertical alignment).

The best way to re-adjust the door frame for lock adjustment is to remove the door stops, thus exposing the mounting bolts. Loosen the bolts and physically move or change the shims to be located between the wall and the outside edge of the frame. Removing shims for one side or adding to the other side will bring the frame in closer or spread further apart. Retighten all bolts upon completion. Re-install the door stops.
If the frame is not vertical, then it is recommended that the mounting bolts be removed one at a time and the hole elongated in the direction that the door must be moved. If the door leaf is dragging, then elongate the mounting holes vertically. Gently pry the door frame up until sufficient clearance is obtained. Retighten all bolts upon completion.

The hinges should be checked periodically to ensure that all the screws are tight. Loosening the hinge screws, repositioning the door, and retightening the screws may accomplish some minor adjustment.

Another cause for door misalignment (assuming the installation was correct) is settlement of the building and/or the wall not being capable of sustaining the weight and constant movement of the door.

Warranty: All necessary replacement of parts and adjustments not occasioned by accident or misuse shall be made at the vendor's expense when notified within 30 days after customer receipt of product. All products are warranted for a period of one year from the date of customer receipt. During warranty period, all defects not caused by attack, accident or misuse through fault or negligence by the customer shall be adjusted or replaced at the vendor's expense (excluding transportation costs).

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Bullet/Blast Resistant Fixed Aluminum Window System

Fema 361 Certified

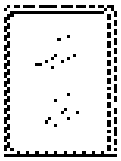
Specification

1. Quality assurance Drawings and specifications are based on U.S. Bullet Proofing Model USAW400 ballistic/blast window wall system. Whenever substitute products are to be considered, supporting technical literature, samples, drawings and performance data must be submitted ten days prior to bid in order to make a valid comparison of products involved. Test reports by an independent test laboratory will be made available upon request.

2. Materials All aluminum extrusion shall be 6063-T5 alloy and temper or equal or with a minimum tensile strength (minimum 22.0 ksi ultimate, 16.0 ksi yield.

   All fasteners shall be zinc coated. There shall be no exposed fasteners. The interior glazing gaskets shall be a composition of Thermoplastic Elastomer (TPE 65AB) and Polyolefin Foam Concentrate (resulting in a 55 to 65 Shore "A" durometer) or wet glazed as needed. Setting blocks shall be solid neoprene (80-90 shore "a" durometer).

   All neoprene shall be in strict compliance with ASTM C-509-00 Type II Option 1 and C-864-99.

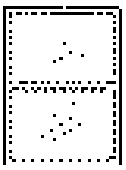


Single Lite

3. Description The USAW400 Window System is designed to accept ballistic/blast glazing materials that are to be UL 752 Level 1 – 8 and independently tested for blast resistance.

   All joints and connections shall be tight providing hairline joints and true alignment of adjacent members.

   Frame size shall be 2 ½" x 4 ½" standard.
   Other sizes available.

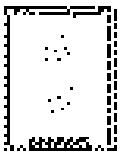


Multi Lite

   Glazing or retrofit shall be performed from the exterior.

   The glazing system can be capable of accepting various thickness, ranging from ¼" to 2 3/8".

4. Ballistic certification All aluminum members shall be ballistically improved so as to provide complete protection against penetration of a projectile as described by the UL 752 bullet-resisting test requirements from Level 1 through Level 8. A recognized independent testing laboratory shall conduct ballistic testing. Proof of certification will be made available upon request.



Transaction

5. Blast certification Meets all DOD & GSA Blast Requirements Unit shall be blast approved in accordance with GSA or DOD blast criteria by an independent blast testing facility. Proof of certification will be made available upon request. In some cases, independent blast analysis must be performed prior to window approval.

6. Finish Available in most anodized and Kynar painted finishes. Please specify finish desired.

7. Performance Air filtration shall not exceed .06 cfm per square foot with a pressure differential of 6.24 psf, equal to 50 mph wind (ASTM E283). No uncontrolled water penetration shall occur when subjected to both a static and dynamic water penetration test with a pressure differential of 8 psf, equal to 56 mph wind (ASTM E331 and AAMA 501.1).

Revised Aug. 09

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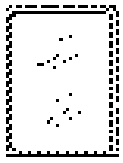
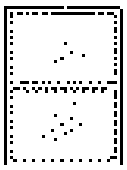
Bullet/ Blast Resistant Fixed Aluminum Window System

Installation Instructions

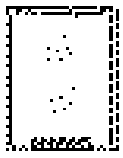
1. Uncrate framing.
2. Remove pressure plates from frame by removing screws as shown.
3. Insert frame into opening.
4. Shim frame level and plum to fit snug into opening.
5. Drill through pre-drilled holes in nosing into wall.
6. Insert anchors into walls on all four sides.
   Note: shim channel should be placed at each anchor.
7. Insert inner and outer rubber or tape and setting blocks.
8. Install spacer tube if applicable.
9. Set glass in frame.
10. Apply pressure plate with screws.
11. Install snap-on cover plates.
12. Caulk as needed around framing.



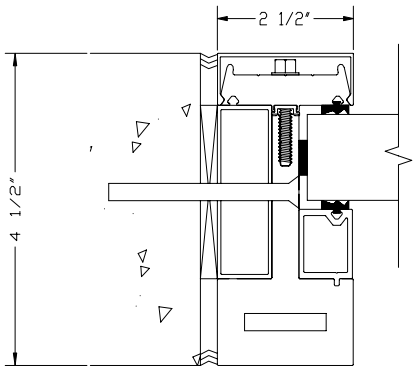
Single Lite



Multi Lite



Transaction



Revised July 09

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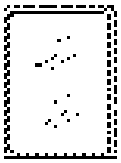
Model USAW400

Bullet/Blast Resistant Fixed Aluminum Window System

Fema 361 Certified

UL Levels 1 – 8

- The USAW400 Window Series is shipped factory assembled. Thermal barrier design allows for insulating against temperature changes in extreme weather conditions.
- The USAW400 is available as a **curtain wall system**, **store front**, a single lite, multi lite or transaction window.
- The USAW400 Window Series construction consists of heavy-duty aluminum extrusion and 1/8" minimum wall thickness. The extrusions allow for the insertion of armor consistent with specified threat level. Level 1 - 3 is a all aluminum system, requiring no steel inserts. Level 4 - 8 requires steel inserts. Complimentary door construction allows for aesthetically uniform security application that is available in many style and finish options.
- Glass components are easily replaceable.
- FEMA361 certified.
- Ballistic protection UL levels 1-8
- Blast protection available: GSA C & D 1 PSI thru 40 PSI
  DOD UFC-4-10 1 PSI to 45 PSI
- Standard finish: Clear or bronze anodized (custom Kynar paint, brass cladding, stainless steel cladding available)



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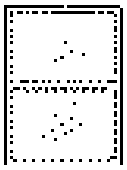
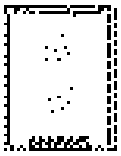


Multi Lite



Transaction

It is recommended that the window system be used in conjunction with protected wall and door areas.

Each end user should determine the blast, ballistic and forced entry threat level to ensure the correct product selection to meet and exceed security needs.

Warranty: All necessary replacement of parts and adjustments not occasioned by accident or misuse shall be made at the vendor's expense when notified within 30 days after customer receipt of product. All products are warranted for a period of one year from the date of customer receipt. During warranty period, all defects not caused by attack, accident or misuse through fault or negligence by the customer shall be adjusted or replaced at the vendor's expense (excluding transportation costs).

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TRANSPORT

Boxing: U.S. Bullet Proofing windows are carefully packed in plywood boxes. Each unit is cushioned throughout with styrene packing to prevent movement inside the box. Each box is marked with the identification of the unit and the shipping address. The weight and cubic feet are indicated. Each box is further marked with "Up" arrows, indicating how the box it to be transported and stored.

Shipping: Each box should be visually inspected from the outside for any damages that may have occurred during shipping. A damaged box will often result in a damaged window, especially in overseas shipping. In the event of damages, if possible, photograph the box and notify the factory or the freight company. This must be done within 30 days after receipt of the unit.

Storage: It is not desirable to store units for long periods of time. However, this is often unavoidable due to construction schedules. If the units must be stored, they should be placed in a dry warehouse with moderate temperatures. High temperatures and humidity can cause formation of vapor inside the polyethylene wrapping, thus causing oxidation or corrosion of parts.
All boxes are to be placed in the upright position as indicated by the up arrows. They should not lean against a wall. The boxes should not be placed in proximity of new cement or plaster walls.
If water penetrates the storage space, it is recommended that the units be unboxed to prevent internal damage. They should be stored in an upright manner, as if still in the box.

Unpacking: Care should be taken when opening the door box to prevent damage to the unit. Also, persons unpacking the box should be aware that there are loose pieces contained in the box. Care should be exercised not to lose these parts (door closer, lock cylinders with keys, shims, mounting hardware, caulking, instructions, and technical data for associated components).

MAINTENANCE and CLEANING

Transparencies: The protected side of the transparency in some instances is polycarbonate and susceptible to scratching. Care should be taken when cleaning these surfaces. Use a mixture of liquid soap and water and clean, soft clothes or sponges for cleaning. The following cleaning agents have been found to be compatible with polycarbonate: Joy (US Manufactured), Palmolive Liquid (US Manufactured), Windex (AMMONIA FREE – US Manufactured).
Fresh paint splashes, grease and smeared glazing compounds can be easily removed before drying by rubbing lightly with a good grade of VM&P Naphtha, Isopropyl Alcohol or Butyl Cello solve (2-butoxy ethanol). Do not use butyl cello solve in direct sunlight.

Using a mild automobile polish can minimize scratches and minor abrasions. Three such products that tend to polish and fill scratches are: Johnson's Paste Wax, Novus Plastic Polish #1 & #2 (Novus Inc., Minneapolis, MN), and Mirror Glaze Plastic Polish M.G.M10 (Mirror Brite Polish Co., Pasadena, CA). It is suggested that a test be made of a sample with the product selected and that the polish manufacturer's instruction be followed.

Important Don'ts:

- DO NOT use abrasive or highly alkaline cleaners on polycarbonate.
- Never scrape or scrub polycarbonate with squeegees, brushes, razor blades, or other sharp instruments.
- Taping notices, etc to this surface should be avoided. The tape adheres to the mar resistant coating and peels the coating off when the tape is removed.
- DO NOT use benzene, gasoline, acetone, or carbon tetrachloride on polycarbonate.
- DO NOT clean polycarbonate in hot sun or at elevated temperatures.

When cleaning glass, it is recommended that Windex with Ammonia D or other compatible household window cleaners be used to minimize streaking.

Aluminum: The aluminum trim can be cleaned similar to the transparent surfaces. Isopropyl alcohol can be used for tougher spots. Care should be taken not to scratch the aluminum surface.

REPAIRS

Consult with factory.

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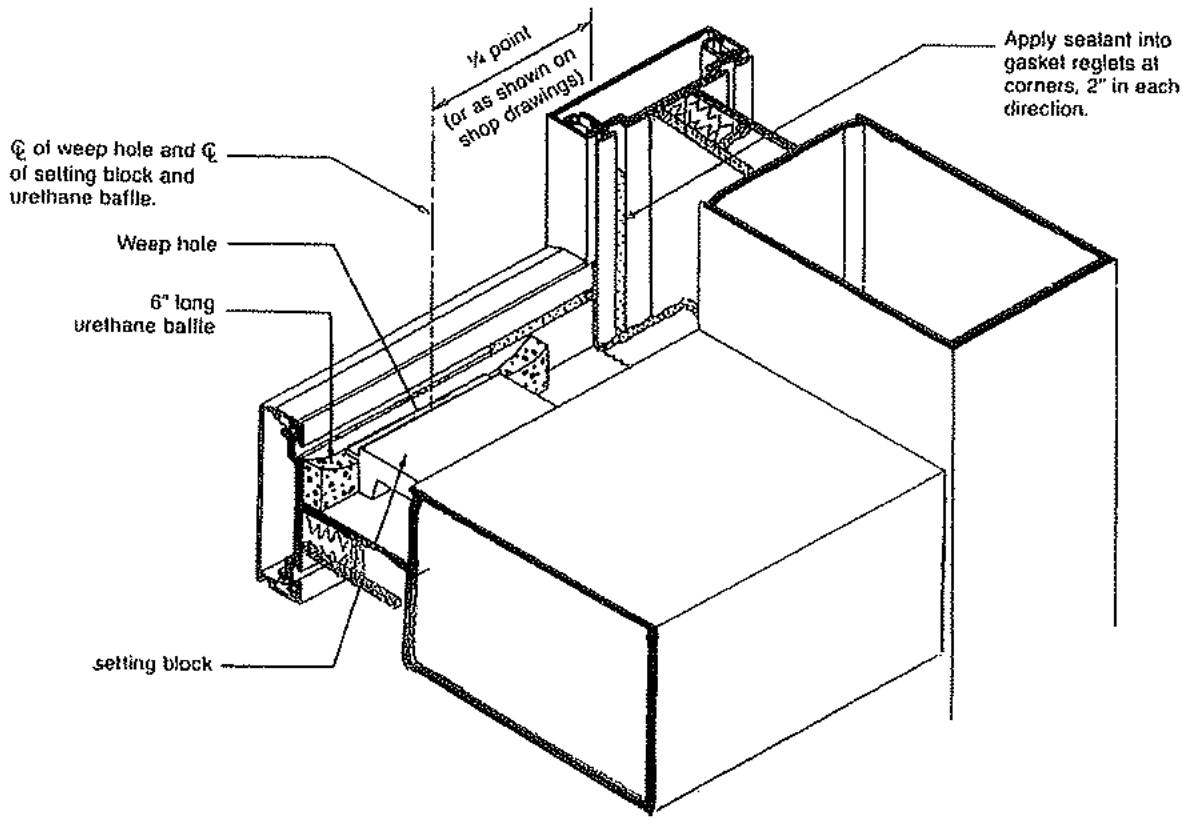
U.S. Bullet Proofing
HIGH SECURITY PRODUCTS

"Protecting People and Property"

Important sealant instruction
USAW400

1. Cut glazing gaskets ⅛" larger per foot of extrusion to allow for shrinkage. Vertical gaskets run through.
2. Clean all gutters in horizontal members.
3. Install 6" urethane baffles and setting blocks at weep holes locations.
4. Apply sealant into exterior glazing gasket reglets at corners, 2" in each direction.



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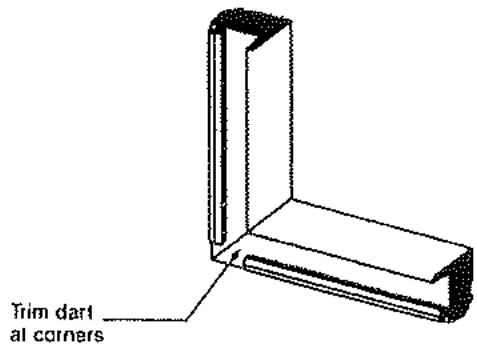
Important sealant instruction
USAW400

5. Install exterior gaskets. Do not cut or splice gaskets; gaskets should require some crowding; they should never be stretched to fit. Horizontal gaskets butt against verticals.

   MOLDED CORNERS (Optional)

   Start installation from corners and work toward center, making sure that corners are true and square and gasket darts are fully engaged. Dart needs to be trimmed at corner.



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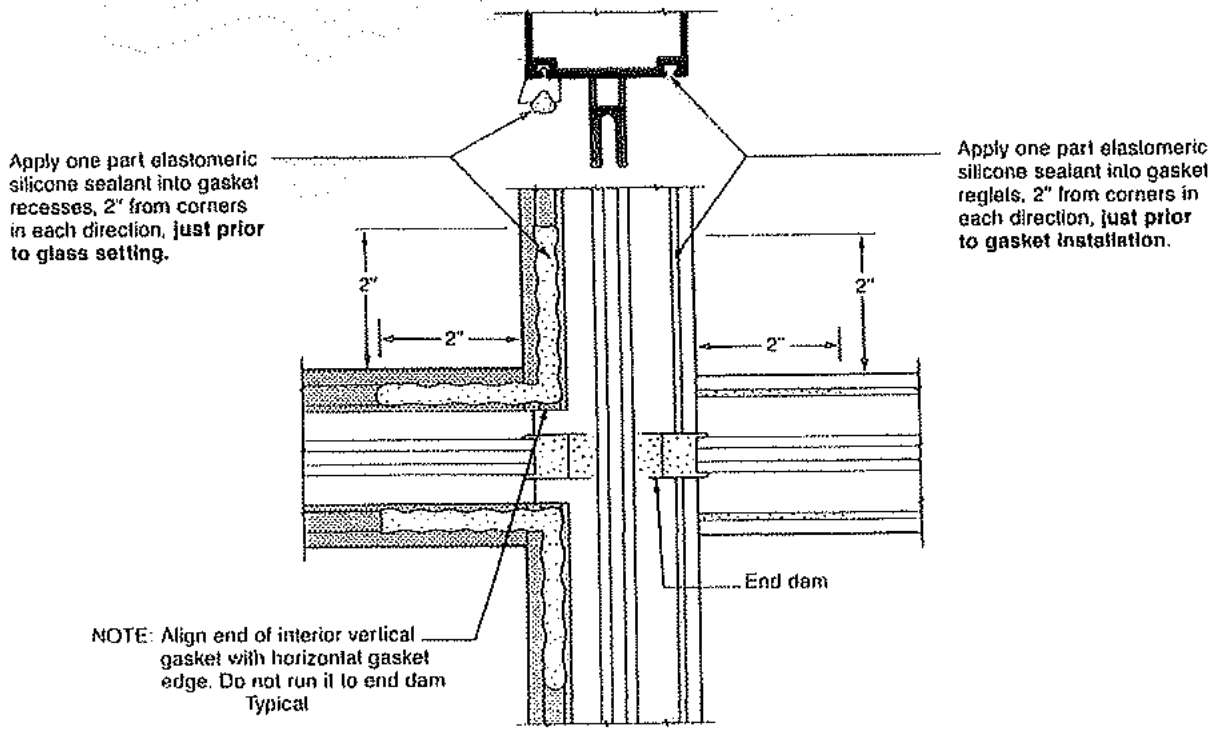
Important sealant instruction
USAW400

INTERIOR GLAZING GASKETS INSTALLATION



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Cylinders and IC Products

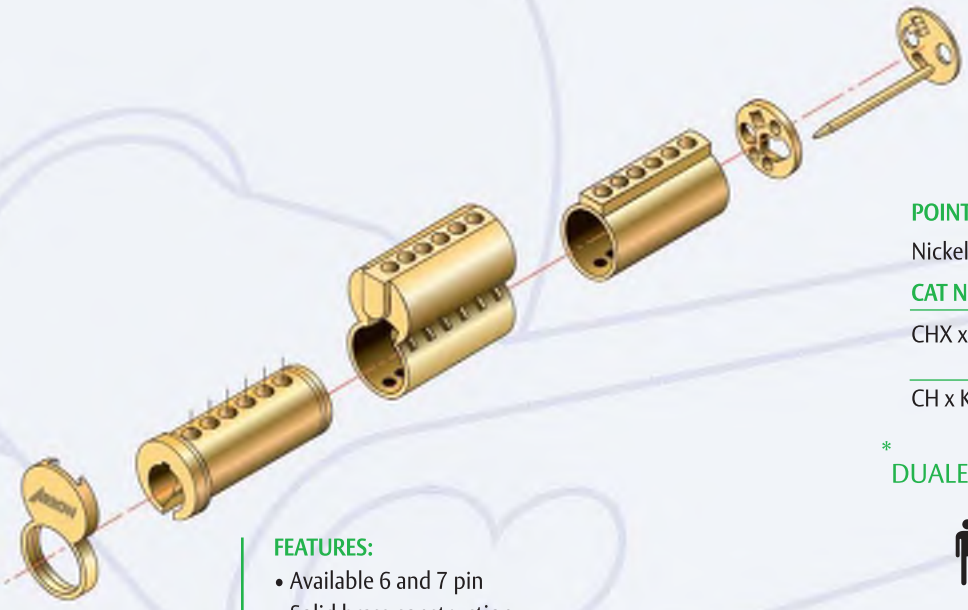
Pointe, Pointe Flex

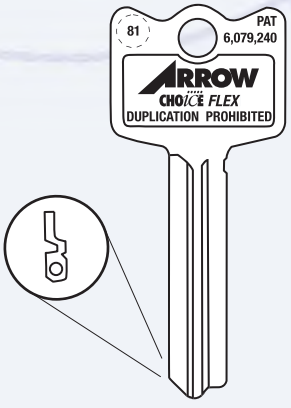
ASSA ABLOY, the global leader
in door opening solutions

ARROW™
LOCK & DOOR HARDWARE
ASSA ABLOY

The Pointe Flex System offers a totally new concept in interchangeable core key control. The system employs a unique core security feature and patented key design. The unique feature is the pin assembly which runs through the center of the core keyway preventing standard competitive interchangeable core keys from entering the lock cylinder. Only the patented Pointe Flex key can operate locks with the Pointe Flex cylinder. All keyways are restricted and will be issued on a contractual basis, determined by geographical availability. Pointe Flex enables you to create a high/low system, by incorporating core with and without the pin assembly, greatly enhancing flexibility.

7 PIN INTERCHANGEABLE CORE & PATENTED KEY





FEATURES:

- Available 6 and 7 pin
- Solid brass construction
- Reinforced sleeve design
- Combinated or Uncombinated
- US26D or US4 finish

ARROW KEYWAYS:

Restricted keyways–consult factory for availability.

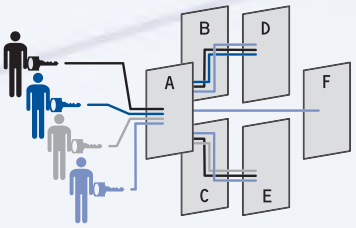
CAT NO.	DESCRIPTION
X1CR	6 Pin Core Combinated
X71CR	7 Pin Core Combinated
X1CR-UC	6 Pin Core Uncombinated
X71CR-UC	7 Pin Core Uncombinated

POINTE FLEX KEY BLANKS

Nickel Silver

CAT NO.	DESCRIPTION
CHX x Keyway	6 or 7 Pin Key Blank, with hole in blade
CH x Keyway	6 or 7 Pin Key Blank without hole in blade

* DUALEVEL MASTERKEYING CAPABILITIES.



† Door "F" uses Flexcore within masterkey system.

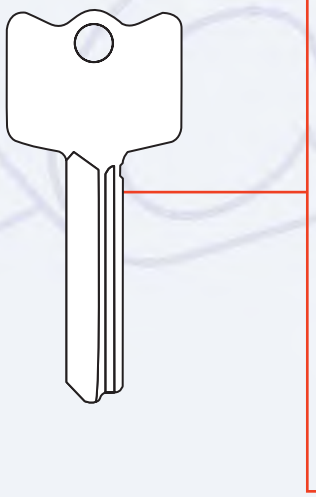
- Maintenance (A, B, C, D, E)
- Supervisor A (A, B, D)
- Supervisor B (A, C, E)
- General Manager (All doors)†

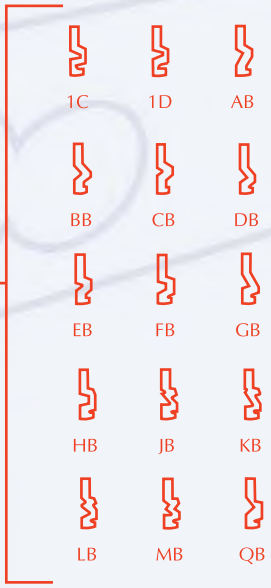
Arrow Pointe interchangeable core products offer dealers unlimited flexibility and keying options. Available in standard 6 and 7 pin format in Arrow and competitive keyways, dealers can install Arrow Pointe in new or existing key systems. Arrow's unique manufacturing process gives Arrow Pointe interchangeable cores unmatched strength and durability. The core features four main components: The plug, shell, sleeve and faceplate. Our precision engineering design, keying capability and availability make Arrow Pointe interchangeable cores our most specified brand for commercial, industrial and institutional applications.

7 PIN
INTERCHANGEABLE CORE

6 PIN
INTERCHANGEABLE CORE

ECONOMICALLY REPLACES
IC CORES A-Q AND MAINTAINS
CURRENT KEY SYSTEM





ARROW POINTE
INTERCHANGEABLE CORE

POINTE KEY BLANKS

Nickel Silver

CAT NO.	DESCRIPTION
C x Keyway	6 or 7 Pin Key Blank
CP x Keyway	6 or 7 Pin Key Blank, Plain Bow

FEATURES:

- Solid Brass Construction
- Reinforced Sleeve Design
- Combinated or Uncombinated
- US26D or US4 finish

ARROW KEYWAYS:

1C & 1D Standard keyways or
restricted keyways–consult factory for availability.

COMPETITIVE KEYWAYS:

AB, BB, CB, DB, EB, FB, GB, HB, JB, KB, LB, MB, QB

CAT NO.	DESCRIPTION
100CR	6 Pin Core Combinated
7100CR	7 Pin Core Combinated
100CR-UC	6 Pin Core Uncombinated
7100CR-UC	7 Pin Core Uncombinated

Mortise Cylinder Housings

- Body–Brass, 1-5/32" diameter
- Furnished–with cam, cylinder collar
- Length–1-1/8" 6 pin only; 1-1/4" 6 or 7 pin

Rim Cylinder Housing

- Body–Brass, 1-5/32" diameter; 6 or 7 pin tumbler
- Furnished–with backplate, cylinder collar 2 screws, tailpiece

Mortise Cylinder Housing

16CR-16x (Cam)

Tapered Mortise Cylinder Housing

16CRT-16xAR18

Rim Cylinder Housing

16RCR-16

Rear Staked on Cam

16CR-16xAM2

IC Housings

Mortise Housings

Description (16CR-001 cam supplied unless otherwise specified)		Part No.
6-pin housings, 1-1/8"	Standard	16CR-16X (cam)
	Tapered	16CRT-16XAR18
	Hotel (1-1/4")	16CRH-16XAM2
7-pin housings, 1-1/4"	Standard	16CR-27X (cam)
	Tapered	16CRT-27XAR18

Rim Housings

Cylinders	Part No.
6-pin housing	16RCR-16
7-pin housing	16RCR-27

Front ChoICe Plus Housing C16CR-27x (Cam)

Rear ChoICe Plus Housing Screw-on Cam C16CR-27x001

Choice Plus Housings

Mortise Housings

Description (001 cam supplied unless otherwise specified)		Part No.
6-pin housings, 1-1/8"	Standard	C16CR-16X (cam)
	Tapered	C16CRT-16XAR18
7-pin housings, 1-1/4"	Standard	C16CR-27X (cam)
	Tapered	C16CRT-27XAR18
6-pin housings, drill resistant, 1-1/8"	Standard	C16CR-16DX (cam)
	Tapered	C16CRT-16DAR18
7-pin housings, drill resistant, 1-1/4"	Standard	C16CR-27DX (cam)
	Tapered	C16CRT-27DAR18

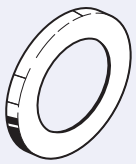
Rim Housings

Cylinders	Part No.
6-pin housing	C16RCR-16
7-pin housing	C16RCR-27
6-pin housing, drill resistant	C16RCR-16D
7-pin housing, drill resistant	C16RCR-27D

Spacers

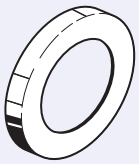
CAT NO.	DESCRIPTION
16CR-123-1	1/8" Spacer - Blocking Ring
16CR-123-2	1/4" Spacer - Blocking Ring
16CR-123-3	3/8" Spacer - Blocking Ring
16-113A	Cylinder Collar & Spring

1/8" Spacer



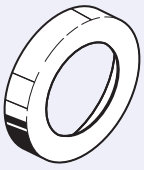
16CR-123-1

1/4" Spacer



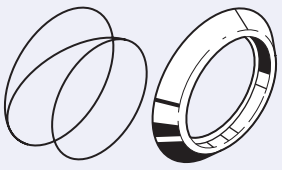
16CR-123-2

3/8" Spacer



16CR-123-3

Collar & Spring



16-113A

Cams

• Staked cams for mortise cylinder housing for use with Pointe, ChoICe Base, & ChoICe Flex IC Cores

CAT NO.	FUNCTIONS & APPLICATION
16CR-001	12, 17, 22, 23, 24, 27, 32 I/S, 33, 37
16CR-AM2	11, 13, 15, 16, 19, 20, 21, 31, 32 O/S, 34, 41, 42, 44
16CR-004	N Series, Exit Device, Exit Alarms
16CR-006	Schlage
16CR-AR18	Adams Rite

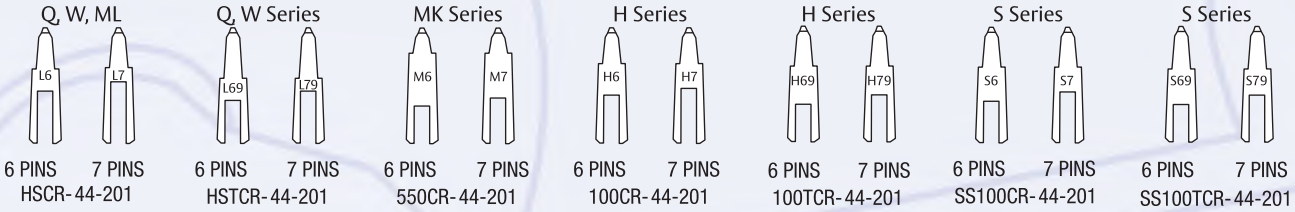
16CR-001 16CR-AM2 16CR-004 16CR-006 16CR-AR18

• Screw on Cams for ChoICe Plus IC Housings

CAT NO.	FUNCTIONS & APPLICATION
001	12, 17, 22, 23, 24, 27, 32 I/S, 33, 37
AM2	11, 13, 15, 16, 19, 20, 21, 31, 32 O/S, 34, 41, 42, 44
004	N Series, Exit Device, Exit Alarms
006	Schlage
AR18	Adams Rite

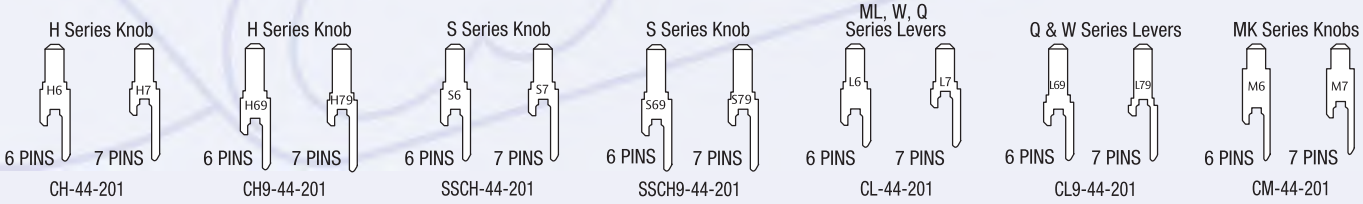
001 AM2 004 006 AR18

Tailpieces



• For ChoICe Base, Pointe, ChoICe Flex IC cores

CAT NO.	DESCRIPTION
HSCR-44-201	Q, W, & ML Series (Except 19 & 15 Functions)
HSTCR-44-201	Q & W Series (19 Function only)
550CR-44-201	MK Series
100CR-44-201	H Series (Except 19 & 15 Functions)
100TCR-44-201	H Series (19 Function only)
HS100CR-44-201	S Series (Except 19 & 15 Functions)
HS100TCR-44-201	S Series (19 Function only)



• Tailpieces for use with ChoICe Plus IC cores only

CAT NO.	DESCRIPTION
CH-44-201	H Series Knob - 6, 7 pin (Except 15 & 19 Functions)
CH9-44-201	H Series Knob - 6, 7 pin (19 Function only)
SSCH-44-201	S Series Knob - 6, 7 pin (Except 15 & 19 Functions)
SSCH9-44-201	S Series Knob - 6, 7 pin (19 Function only)
CL-44-201	ML, W, Q, Series levers - 6, 7 pin (Except 19 & 15 Functions)
CL9-44-201	Q & W Series levers - 6, 7 pin (19 & all Overdrive Functions)
CM-44-201	MK Series Knob - 6, 7 pin

Tailpiece is not required for 15 function
All 6 and 7 pin tailpieces sold together as kit

Mortise Cylinders

General Specifications

Body – Brass, 1-5/32" (29.37mm) diameter. Six pin tumbler cylinder.
Furnished – Standard with cylinder collar.
Length–1-1/8" (28.57mm), 1-1/4" (31.75mm), 1-1/2" (38mm), 2" (51mm)
Scalp – Brass, Bronze
Keyway – "A" keyway standard. Arrow sectional keyways available. Consult factory for competitive keyway availability.

Finish

US3, US4, US10, US10B, US26, US26D

Rim Cylinders

General Specifications

Body – Brass, 1-5/32" (29.37mm) diameter. Six pin cylinder.
Furnished – With back plate, 2 Screws (2" door max.), tailpiece and cylinder collar.
Scalp – Brass, Bronze
Keyway – "A" keyway standard. Arrow sectional keyways available. Consult factory for competitive keyway availability.

Finish

US3, US4, US10, US10B, US26, US26D

Cylindrical Lock Cylinders

General Specifications

Body – Solid brass pin tumbler 6 chambers. Pinned 5 for Grade 2 Locksets. Pinned 6 for Grade 1 locksets and all hotel locksets.
Keyway – "A" keyway standard. Arrow sectional keyways available. Competitive keyways available.

Finish

US4, US26D

Deadlock Cylinders

General Specifications

Body – Solid brass pin tumbler, 6 chambers for E & D series deadlocks. E series pinned 5. D series pinned 6.
Keyway – "A" keyway standard. Competitive keyways available.

Finish

US4, US26D

	LOCK / CYLINDER	AM/BM	CK	CL	D	E	H	J	K	L	MK	ML	N	Q	RK	RL	S	W	Alarms	Exits
ARROW	MC61xCam	Std											Std						I/S	Std
	96C (single cylinder)				Opt	Std		Std												
	96DC (double cylinder)				Opt	Std														
	692C (single cylinder)				Std	Opt		Opt												
	692DC (double cylinder)				Std	Opt														
	600HD						Std			Std		Std		Std		Std		Std		
	S600HD																Std			
	100C		Std	Std							Std				Std					
	RC62																		O/S	Std
	RC63								Std											
	C16CR-16/C16CR-27xCam	Std																	I/S	O/S
	C16RCR-16/C16RCR-27																		O/S	I/S

ALLEGION

VON DUPRIN

Electric Power Transfer

Electronic locks

Fire Rated: Tested on fire door assemblies in accordance with Australian Standards, refer fire door manufacturer for specific approval details

The Von Duprin electric power transfer device provides a means of transferring electrical power from a door frame to the edge of a swinging door. The units are completely concealed when the door is in the closed position, and are ideally suited for installations involving abuse or heavy traffic.

The Von Duprin EPT cannot be used for:

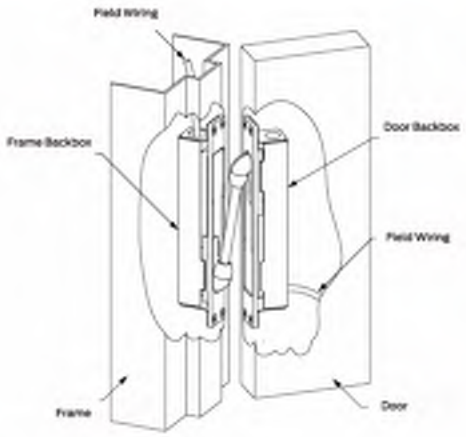
- Doors less than 44mm thick
- 38mm offset pivots
- Butt hinges larger than 152mm
- Pocket pivots
- Swing clear hinges
- Centre hung door (centre pivot)
- Balanced door

July 2016

Specification guide

Prefix	Model	
VDE	EPT 2	10077
	EPT 10	10083

1. Prefix
   All codes are prefixed with ..... VDE
2. Model
   Select the desired model - e.g. EPT 2 ..... VDE10077

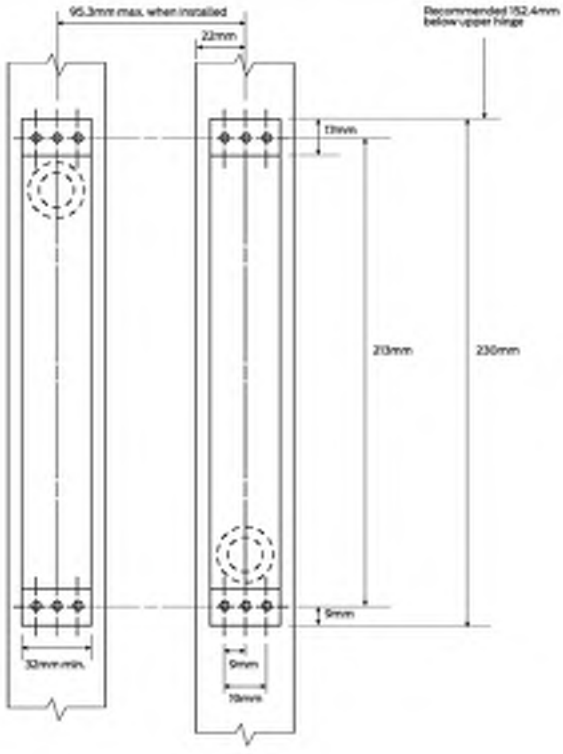


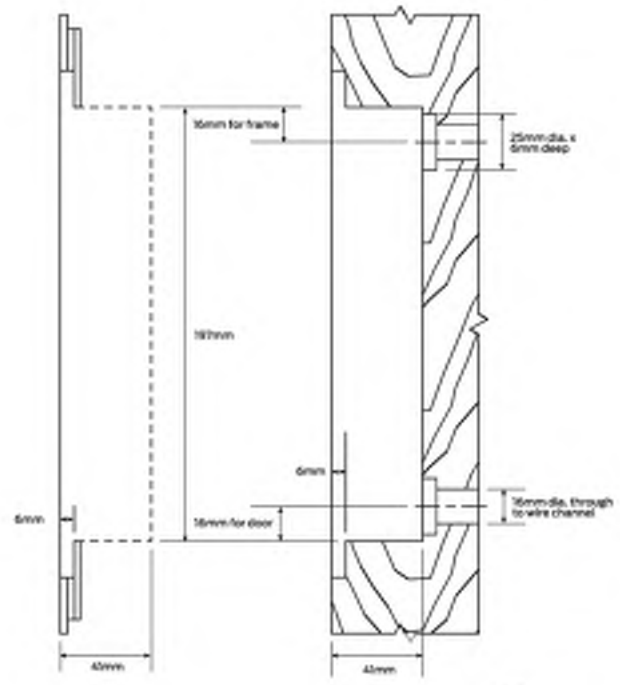
- EPT 2 - two 18 gauge wires
- EPT 10 - ten 24 gauge wires

The following allowances apply to a 44mm thick door:

- 0-180°opening with up to 127mm butt hinges
- 0-180°opening with up to 19mm offset pivots
- 0-130°opening with 140mm butt hinges
- 0-110°opening with 152mm butt hinges

Specifications	
Housing	229mm x 32mm x 38mm
Electrical ratings	EPT 2 Two 18 gauge wires up to 2 amps @ 24VDC, with a 16 amps maximum surge EPT 10 Ten 24 gauge wires, up to1 amp @ 24VDC, with a 16 amps maximum surge
Door thickness	44mm minimum
Warranty	1 year





4040XP Series

Features

The 4040XP is LCN's most durable and flexible heavy duty closer designed for institutional and other demanding high traffic applications.

Certifications	Grade 1 - ANSI A156.4, UL 10C, ADA, 100 Hour Salt Spray, Meets BAA - Buy American Act
Body Construction	▪ Cast Iron Body ▪ Full Complement Bearings ▪ 1-1/2" Diameter Piston ▪ 3/4" Diameter Double Heat Treated Pinion Journal
Fluid	All Weather Liquid X Fluid
Handing	Non-Handed
Templating	Peel-n-Stick templates - 2-1/4" x 5" Mounting Hole Pattern
Size	Adjustable Spring Size 1-6, includes Patented Green Dial
Warranty	30 years

Cover	▪ Plastic, Standard ▪ Metal, Optional
Fasteners	Self Reaming and Tapping Screws (SRT)
Mounting	Hinge (Pull Side), Top Jamb (Push Side), Parallel Arm (Push Side)
Arms	Regular Arm
Finishes/Colors/ Powder Coat	▪ Aluminum (689) ▪ Statuary Bronze (690) ▪ Light Bronze (691) ▪ Black (693) ▪ Dark Bronze (695) ▪ Brass (696) ▪ Custom colors optional ▪ Optional SRI primer - powder coat only ▪ Optional plated finishes

Special Templates | Customized installation templates or products may be available to solve unusual applications. Contact LCN Product Support for assistance.

MOUNTING					FINISH		COVER		CYLINDER			*ARM FUNCTION							
HINGE (PULL) SIDE	TOP JAMB (PULL)	TOP JAMB (PUSH)	PARALLEL ARM	STOP FACE	POWDER COAT	PLATED	PLASTIC	METAL	NON-HANDED	NON-SIZED	ACCESSIBILITY	DELAYED ACTION***	AVB**	REGULAR (DOUBLE)	STANDARD (SINGLE)	HOLD-OPEN	FUSIBLE LINK	EDA/HEDA	CUSH/HCUSH	SCUSH/SHCUSH	DOUBLE EGRESS
●	○	●	●	○	●	●	●	●	●	●	♿	●	○	120°	○	120°	○	180°	110°	110°	○

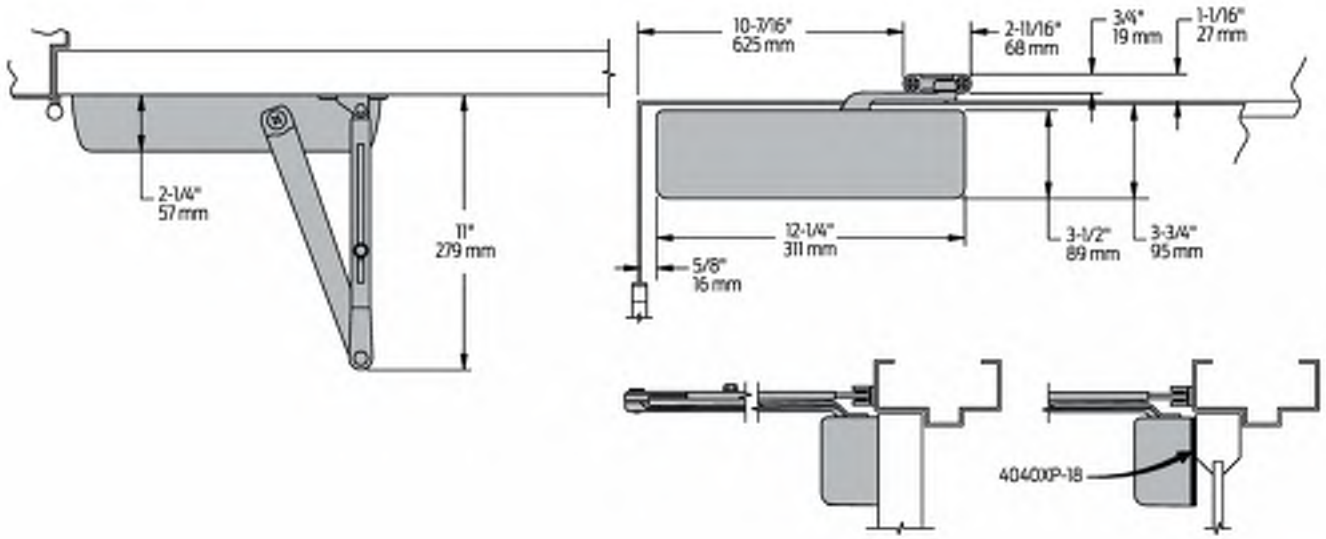
● AVAILABLE
○ NOT AVAILABLE

♿ *Closer available with less than 5.0 lbs. opening force on 36" door.*
* *Maximum opening/hold-open point with standard template.*
** *Advanced Variable Backcheck.*
*** *Delay feature incorporates standard 4040 cylinder (not XP).*

4040XP Series

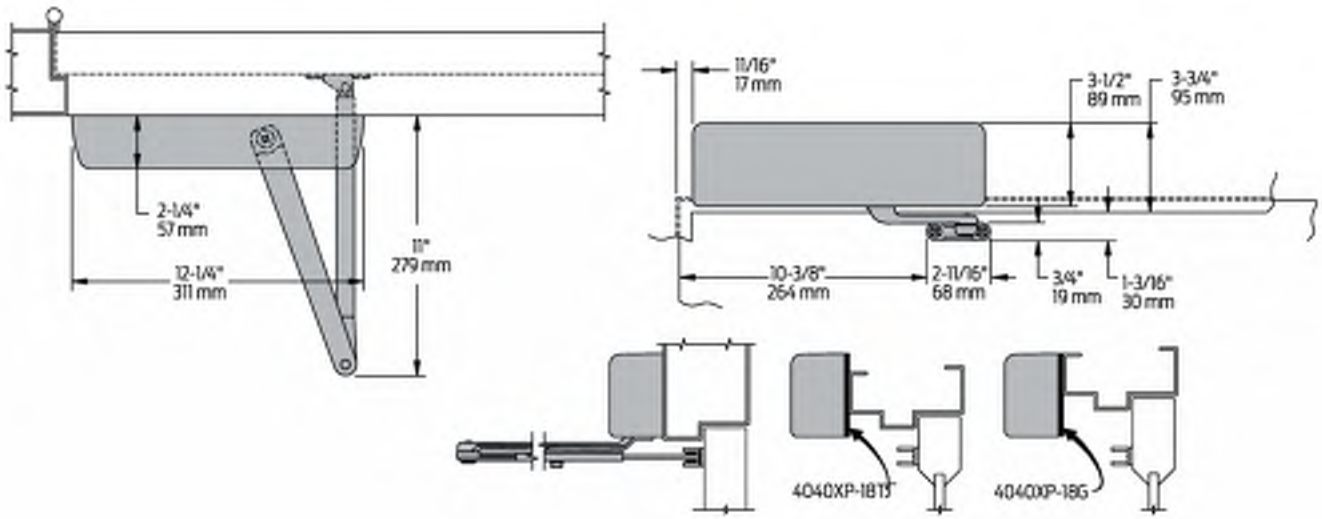
Mounting details

Hinge (Pull Side) Mounting



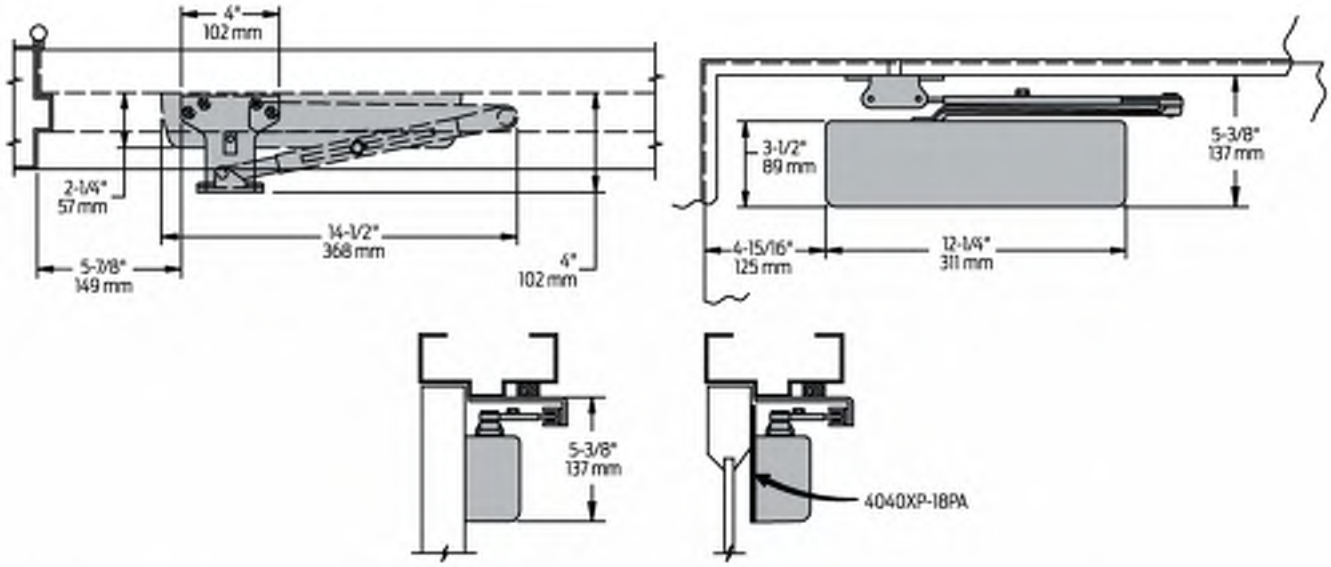
Butt Hinges	▪ Should not exceed 5" (127 mm) in width
Auxiliary Stop	▪ Recommended at hold-open point or where a door cannot swing beyond 120°
Reveal	▪ Should not exceed 3/4" (19 mm) for regular arm or hold-open arm
Top Rail	▪ Less than 3-3/4" (95 mm) requires PLATE, 4040XP-18. Plate requires 2" (51 mm) minimum
Clearance	▪ 2-3/8" (60 mm) behind door required for 90° installation
Delayed Action	▪ Incorporates standard 4041 cylinder, without XP cylinder ▪ Delays closing from 120° to 70° ▪ Delay time adjustable up to approximately 1 minute
Maximum Opening	▪ Templating allows up to 120°. ▪ Hold-open points 90° up to 120° with hold-open arm.

Top Jamb (Push Side) Mounting



Butt Hinges	Should not exceed 5" (127 mm) in width		
Auxiliary Stop	Recommended at hold-open point or where a door cannot swing beyond 120°		
Reveal	Arm Type	Reveal	Max Opening
	Regular Arm	2-9/16"	Up to 120°
	Long	4-13/16"	Up to 120°
	Hold-Open	2-9/16"	Up to 120°
	Long Hold-Open Arm	8"	Up to 120°
Top Rail	▪ Requires 1-1/4" (32 mm) minimum ▪ 2-1/4" (57 mm) minimum with closer on PLATE, 4040XP-18TJ ▪ 3" (76 mm) minimum with closer on PLATE, 4040XP-18G		
Head Frame	▪ Less than 3-1/2" (89 mm) requires PLATE, 4040XP-18TJ ▪ With flush ceiling, use PLATE, 4040XP-18G. Either plate requires 1-3/4" (44 mm) minimum		
Maximum Opening	▪ Templating allows up to 120°. ▪ Hold-open points 85° up to 120° with hold-open arm.		
Delayed Action	▪ Incorporates standard 4041 cylinder, without XP cylinder ▪ Delays closing from 120° to 70° ▪ Delay time adjustable up to approximately 1 minute		

Parallel Arm (Push Side) Mounting



Butt Hinges	Should not exceed 5" (127 mm) in width
Auxiliary Stop	Recommended at hold-open point, where the door cannot swing 180°, or where CUSH-N-STOP arm is not used
Reveal	Should not exceed 7/32" (6 mm)
Top Rail	Less than 5-3/8" (137 mm) measured from the stop requires PLATE, 4040XP-18PA. Plate requires 2" (51 mm) minimum from the stop
Head Frame	Flush or rabetted requires PA SHOE ADAPTER, 4040XP-419
Stop Width	Minimum 1" (25 mm). CUSH arm requires minimum 1-1/2" (38 mm)
Blade Stop	Clearance requires 1/2" (13mm) BLADE STOP SPACER, 4040XP-61.
Clearance	▪ 4040XP-62PA shoe is 4" (102 mm) from door face. ▪ EDA shoe projects 5-1/2" (140 mm) from door face. ▪ CUSH shoe projects 6" (152 mm) from door face
Delayed Action	▪ Incorporates standard 4041 cylinder, without XP cylinder ▪ Delays closing from 120° to 70°. ▪ Delay time adjustable up to approximately 1 minute.
Maximum Opening	▪ 180° opening/hold-open points with all except CUSH arms ▪ 110° opening/hold-open with CUSH arms

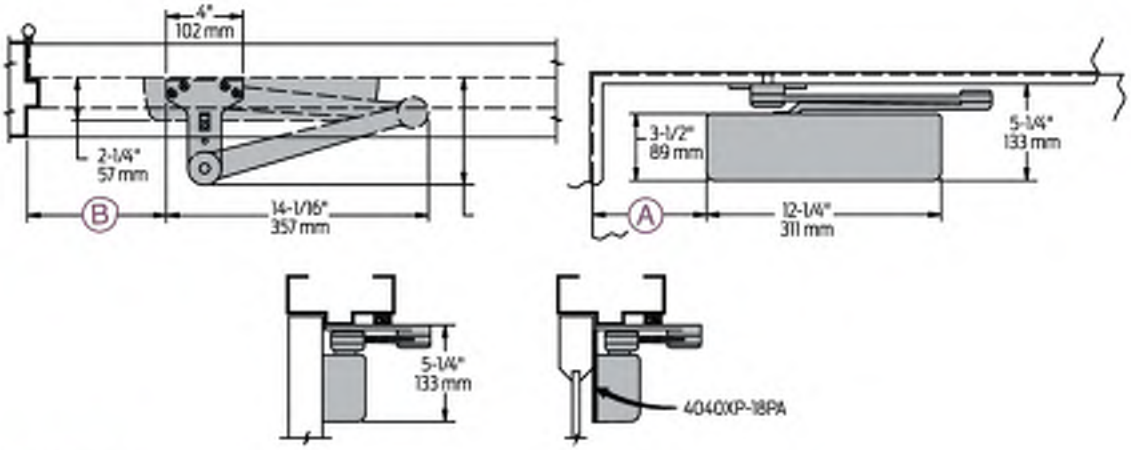
Notes:

• Optional mounting requires PA SHOE, 4040XP-62PA for regular or HOLD-OPEN arms

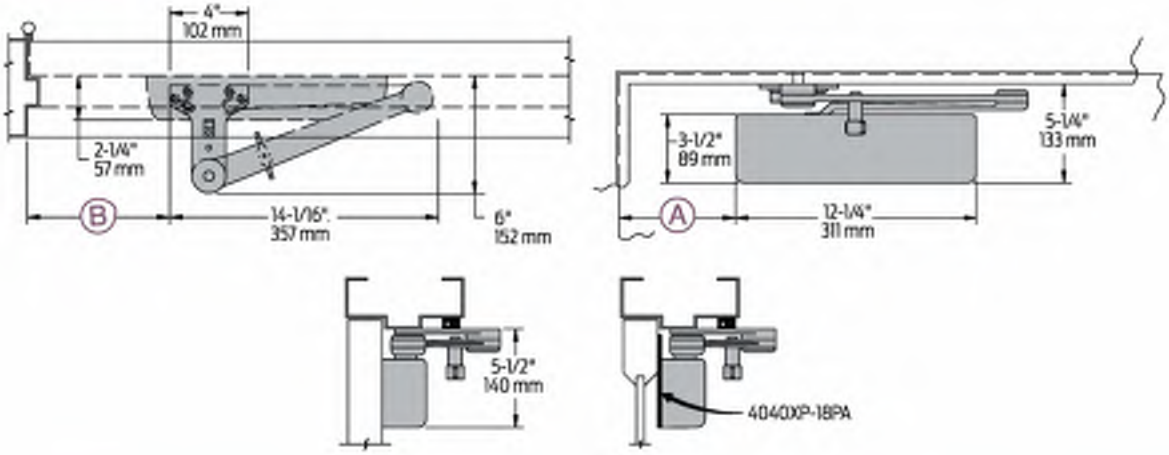
• Add prefix "P" to closer description (eg. P4040XP)

• P4040XP closer includes 4040XP-201 FIFTH HOLE SPACER to support PA SHOE

EDA mount



CUSH mount



Clearance	4040XP-62EDA is 5-1/2" (140 mm) from door face. 6" (152 mm) for CUSH
Head Frame	Flush or rabetted requires CUSH FLUSH PANEL ADAPTER, 4040XP-419
CUSH ARM	Requires SHOE SUPPORT, 4040XP-30 for fifth screw anchorage where reveal is less than 3-1/16" (78 mm)
Delayed Action	▪ Incorporates standard 4041 cylinder, without XP cylinder. ▪ Delays closing from maximum opening to ; 115° with 180° template, 95° with 110° template, 85° with 100° template, 75° with 90° template. Delay time adjustable up to approximately 1 minute.

Maximum Opening

EDA arm can be templated for points at:	CUSH arms can be templated for opening/hold-open point at:
110°: A = 6-3/8" (162 mm) B = 7-3/4" (197 mm)	85°: A = 7-15/16" (202 mm) B = 9-1/8" (232 mm)
or 180°: A = 2-7/8" (73 mm) B = 4-1/4" (108 mm)	90°: A = 7-3/16" (183 mm) B = 8-1/2" (216 mm)
Hold-open points up to maximum opening with HEDA arm	100°: A = 6-1/16" (154 mm) B = 7-1/4" (184 mm)
	or 110°: A = 5-1/16" (129 mm) B = 6-3/8" (162 mm)

Notes:

- *4040XP Series closers ordered with EDA or CUSH arms include 4040XP-201 FIFTH HOLE SPACER to support the shoe*
- *Spring Cush stop points are approximately 5° more than templated stop point*
- *Hold open at templated stop points*

Provide all extensions and accessories as required for a fully functional door.

Cylinders

4040XP-3071
Cast Iron Cylinder Assembly

- Non-handed
- Heavy duty

4041-3071 DEL
Cast Iron Cylinder Assembly

- Used for delayed action closing
- Non-handed
- Heavy duty

Covers

4040XP-72
Plastic Cover

- Includes 4040XP-54 snap-on cover clip
- Non-handed
- Standard

4040XP-72MC
Metal Cover

- Handed
- Required for plated finishes and custom powder coat finishes
- Optional

Installation Accessories

4040XP-18
Plate

- Required for hinge side mount where top rail is less than 3-3/4" (95 mm)
- Requires minimum 2" (51 mm) minimum top rail

4040XP-18G
Plate

- Locates top jamb mounted closer flush with top of head frame face in flush ceiling condition
- Requires 1-3/4" (44 mm) minimum head frame

4040XP-18TJ
Plate

- Centers top jamb mounted closer vertically on head frame where face is less than 3-1/2" (89 mm). Plate requires 1-3/4" (44 mm) minimum head frame

4040XP-18PA
Plate

- Required for parallel arm mounting where top rail is less than 5-1/2" (140 mm), measured from the stop
- Requires 2" (51 mm) minimum top rail

4040XP-62PA
PA Shoe

- Required for parallel arm mounting

Arms

4040XP-3077
Regular Arm

- Non-handed
- Mounts pull side or top jamb with shallow reveal P4041 closer includes PA SHOE, 4040XP-62PA required for parallel arm mounting

4040XP-3077L
Long Arm

- Non-handed
- Includes LONG ROD AND SHOE, 4040XP-79LR for top jamb mount
- Optional

4040XP-3077ELR
Extra Long Arm

- Non-handed
- Includes EXTRA LONG ROD AND SHOE, 4040XP-79ELR for top jamb mount with deep reveal
- Optional

4040XP-3049
Hold-Open Arm

- Non-handed
- Mounts pull side or top jamb with shallow reveal, hold-open adjustable shoe
- 4040XP closer includes 4040XP-62PA shoe required for parallel arm mounting
- Optional

4040XP-3049L
Long Hold-Open Arm

- Non-handed
- Includes LONG HEAD AND TUBE, 4040XP-3048L for top jamb mount
- Optional

4040XP-3077EDA
Extra Duty Arm

- Non-handed
- Features forged, solid steel main and forearm for potentially abusive installations
- Optional

4040XP-3049EDA
Hold-Open Extra Duty Arm

- Handed
- Parallel arm features forged, solid steel main and forearm for potentially abusive installations
- Hold-open function is adjusted at the shoe
- Optional

4040XP-3077EDA/62G
Extra Duty Arm with 62G

- Non-handed
- Features forged, solid steel main and forearm for potentially abusive installations
- 62G shoe provides additional blade stop clearance
- Optional

4040XP-3049EDA/62G
Hold-Open Extra Duty Arm with 62G

- Handed
- Features forged, solid steel main and forearm for potentially abusive installations
- 62G shoe provides additional blade stop clearance. Hold-open function is adjusted at the shoe
- Optional

4040XP-3077CNS
Cush-N-Stop® Arm

- Non-handed
- Features solid forged steel main arm and forearm with stop in soffit shoe.
- Optional

4040XP-3049CNS
HCUSH Arm

- Non-handed
- Hold-open function with templated stop/hold-open points
- Handle controls hold-open function
- Optional

4040XP-3077SCNS
Spring CUSH Arm

- Non-handed
- For abusive applications features solid forged steel main arm and forearm with spring loaded stop in the soffit shoe
- Optional

4040XP-3049SCNS
Spring HCUSH Arm

- Non-handed
- For abusive applications features solid forged steel main arm and forearm with spring loaded stop in the soffit shoe
- Handle controls hold-open function
- Optional

Provide all extensions as required for fully functional doors at their designated locations.

Installation Accessories cont.

4040XP-30
CUSH Shoe Support

- Provides anchorage for fifth screw used with CUSH arms, where reveal is less than 3-1/16" (78 mm)
- Optional

4040XP-61
Blade Stop Spacer

- Required to lower parallel arm shoe to clear 1/2" (13 mm) blade stop
- Optional

4040XP-419
PA Flush Panel Adapter

- Provides horizontal mounting surface for parallel arm shoe on single rabetted or flush frame
- Optional

4040XP-62A
Auxiliary Shoe

- Requires a top rail of 7" (178 mm)
- Shoe replaces -62PA for parallel arm mounting of regular arm with overhead holder/stop
- Optional

4040XP-54
Snap-On Cover Clip

- Used to secure 4040XP-72 Plastic Cover to cylinder body

How-to-order 4040XP Series closers

1. Select finish

☐ Standard Powder Coat _____
Aluminum, Dark Bronze, Statuary, Light Bronze, Black, Brass.

Closer will be shipped with:
- Standard cylinder
- Standard cover
- Regular arm
- Self-reaming and tapping screws

unless options listed below are selected.

Closer options

Cylinder
☐ Delayed Action (4041 DEL)

Cover
☐ Metal (specify right or left hand) (MC)

Finish
☐ Custom Powder Coat (RAL) _____
(handed metal cover required)
☐ Plated Finish, US _____
(handed metal cover required)
☐ SRI primer (use with powder coat finishes only)

Arm
☐ Regular (REG)
☐ Regular w/62PA (Rw/PA)
☐ Regular w/62A (R/62A)
☐ Long (LONG)
☐ Extra Long (XLONG)
☐ Hold-Open (H)
☐ Hold-Open w/62PA (Hw/PA)
☐ Long Hold-Open (HLONG)
☐ Extra Duty Arm (EDA)
☐ Extra Duty Arm with 62G (EDA/62G)
☐ Hold Open Extra Duty Arm (HEDA) (Handed)
☐ Hold Open Extra Duty Arm with 62 (HEDA/62G) (Handed)
☐ Cush-N-Stop (CUSH)
☐ HCush-N-Stop (HCUSH)
☐ Spring Cush (SCUSH)
☐ Spring HCush (SHCUSH)

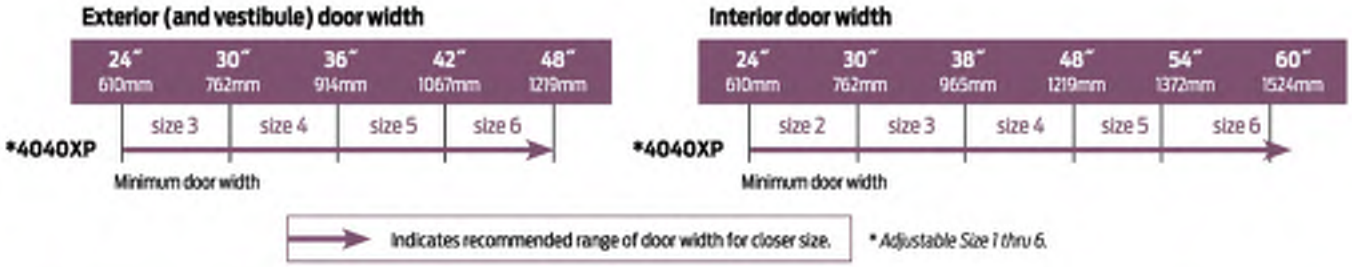
Optional Screw Packs
☐ TB* w/Self-Reaming and Tapping (TBSRT)
☐ Wood & Machine Screw (WMS)
☐ TB*, Wood & Machine Screw (TBWMS)
☐ TORX Machine Screw (TORX)
☐ TB* & TORX Machine Screw (TBTRX)
* Specify door thickness if other than 1-3/4".

Installation Accessories
☐ Plate, 4040XP-1B
☐ Plate, 4040XP-1BTJ
☐ Plate, 4040XP-1BG
☐ Plate, 4040XP-1BPA
☐ CUSH Shoe Support, 4040XP-30
☐ Blade Stop Spacer, 4040XP-61
☐ Auxiliary Shoe, 4040XP-62A
☐ PA Flush Panel Adapter, 4040XP-419

Special Template
☐ ST-_____

Table of sizes

- 4040XP cylinders are adjustable from size 1 through size 6 and is shipped set to size 3
- Closing power of 4040XP Series closers may be adjusted 50%



Reduced opening force 4040XP Series closers

CAUTION ! Any manual door closer, including those certified by BHMA to conform to ANSI Standard A156.4, that is selected, installed and adjusted based on ADA or other reduced opening force requirements may not provide sufficient power to reliably close and latch a door.

Refer to POWER OPERATORS section for information on systems that meet reduced opening force requirements without effecting closing power.

DOOR WIDTH	36"	42"	48"
8.5* lbs.	4040XP	4040XP	4040XP
5.0* lbs.	4040XP	4040XP	4040XP

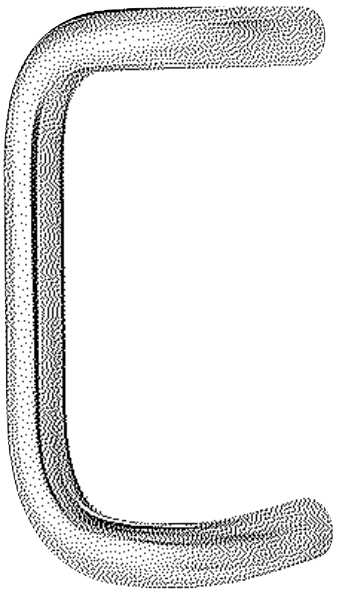
*Maximum opening force.

Architectural Door Accessories

ASSA ABLOY

The global leader in door opening solutions

Rockwood BF158 - 90° Offset Door Pulls



Specifications:

MATERIAL:
Aluminum, Brass, Bronze, Stainless Steel

FASTENER:
1/4"-20 x 2 1/4" thru bolt & finish washer (standard 1 3/4" door)

FEATURES:
Recommended for ADA openings

OPTIONS:
- Back to back mounting in pairs — use BTB suffix and mounting type number (BF158BTB16)
- Concealed mounting single pulls — use C suffix and mounting type number (BF158C17)
- Advise if door thickness is other than 1 3/4"
- Heavy duty versions of most fastening types available — use suffix HD to fastening type number (BF158BTB16HD)

Available Finishes:

- US28/628
- 313/710
- 315/711
- Powder Coat
- US3/605
- US4/606
- US10/612
- US10B/613
- US10BE/613E
- US26/625
- US26D/626
- US32D/630
- US32/629
- US32DMS
- US32D316
- US32316

MATERIAL SIZE:
1" dia.

CTC:
12"

OVERALL:
13"

BASE:
1"

PROJECTION:
3 1/2"

CLEARANCE:
2 1/2"

OFFSET:
4"

WEIGHT:
4.8 lbs.

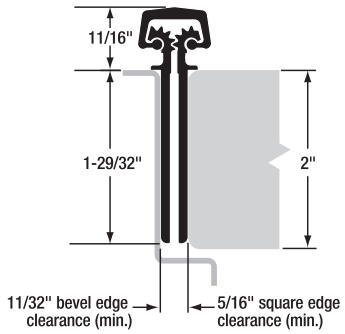
ANSI A156.6: J402

300 Main Street
Rockwood, Pennsylvania 15557
P: 800.458.2424 • F: 800.922.9212
www.rockwoodmfg.com • orders.rockwood@assaabloy.com

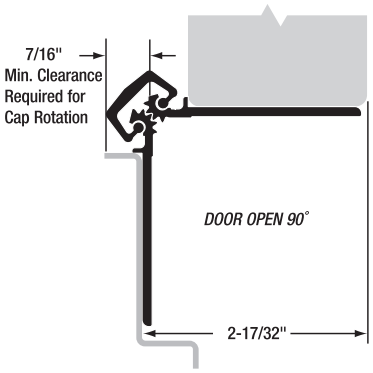
SELECT HINGES™

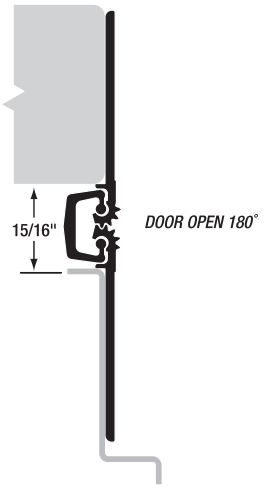
SPECIFICATIONS

SL27 Concealed Geared Continuous Hinge



DOOR CLOSED





MATERIAL: Extruded 6063 T6 aluminum alloy with self-lubricating polyester thrust bearings.

LENGTHS: 83", 85", 95" and 120" lengths standard for nominal door heights. Custom lengths are available.

LOAD/FREQUENCY RATING: For 2" to 2-1/4" doors. 48" max. door width in 16 gauge hollow metal (min.) or 1/8" aluminum (min.).

Heavy Duty (LL) - For low-frequency doors up to 1,000 lb., including most lead-lined doors. Rivnuts are recommended in the frame and door on extremely tall, extremely heavy or wide doors.

FINISHES: All SL27 hinges are stocked in Clear and Dark Bronze anodized aluminum. Custom anodized or painted finishes are available. Product painted or anodized in the field voids the SELECT hinge warranty.

CLOSERS: Conventional overhead surface, concealed sliding arm overhead or floor closers may be used with SELECT hinges. Pivot-type floor closers (with a fixed, conflicting center pivot) must be replaced.

ORDER: Specify length, finish and heavy duty with additional fastener holes (LL). Also, specify door and frame screw applications. 12-24 x 3/4" self-drilling, thread-forming 410SS Phillips undercut flathead screws are provided as a standard pack unless otherwise specified. Wood and thread-forming screws also available. Security screws optional at extra cost.

AVAILABLE ELECTRIC PREPS: EPT, ATW, EMS, CTW4, CTW5, CTW8, CTW10, CTW12, CMG, AP and RP. For CTW12 prep, please consult factory for engineering approval.

BHMA CERTIFICATION: SL27LL geared continuous hinges conform to BHMA Standard ANSI/ BHMA A156.26-2006 Grade 1.

SL27 HINGE SCREW COUNT

HINGE LENGTH & DUTY RATING	DOOR SCREWS	FRAME SCREWS
83" LL	25	25
85" LL	25	25
95" LL	29	29
120" LL	33	33

Information subject to change without notice.

Ph: 800-423-1174 | Fax: 800-423-7107 | www.select-hinges.com

SPECIFICATIONS

SL27 Concealed Geared Continuous Hinge

SELECT Advantages

PAIR-MATCHED™ HINGE LEAVES

Manufactured together, machined together and anodized together, making SELECT hinges fit your doors better and last longer. *An exclusive SELECT benefit.*

LIFETIME LUBRICATION

Eliminates the need for periodic maintenance. Quiet performance. Fights gear cap wear. *An exclusive SELECT benefit.*

ANODIZED AFTER MACHINING

Delivers superior wear, durability and life. Inhibits corrosion. Few hinge makers follow SELECT's lead in using this superior manufacturing process.

MEETS LEED REQUIREMENTS

Made from recycled aluminum. Reduces environmental impact and qualifies for LEED points. *An exclusive SELECT benefit.*

PATENTED 3-HR. FIRE RATING

Most SELECT hinges are fire rated for **90 minutes**. **3-Hr. fire rating**, optional at extra cost, approved for positive/negative pressure. No fire pins or studs required. Patented design innovation. *An exclusive SELECT benefit.*

CONSISTENT TEMPLATING

Hole pattern is identical on both Standard and Heavy Duty models, so SELECT hinges line up precisely for easier and faster installation. *An exclusive SELECT benefit.*

COATED FASTENERS

Provide additional corrosion protection with either self-drilling, thread-forming (SDTF) or thread-forming (TF) screws. *An exclusive SELECT benefit.*

CUSTOM COLORS

Match any paint color on the gear cap or the entire hinge and fasteners, including our always-in-stock Bone White gear caps. Anodized colors also available.

SELECT Hinge Performance

- A SELECT geared continuous hinge has been tested in accordance with ANSI 250.4-1994 test procedure and acceptance criteria for physical endurance for steel doors and hardware and has surpassed 25,000,000 cycles during testing by an independent laboratory. On a door cycling 400,000 times per year, a SELECT hinge will be performing for over 62 years.
- SELECT geared continuous hinges are built to handle abuse from high-traffic applications. They are applied to the surface on the edge of the frame and door. No machining or reinforcement is required.
- The revolutionary SELECT geared continuous hinge puts an end to costly and irritating hinge failure problems, the most common cause of entrance failure.
- On conventional hinges, opening and "kick-back" energy concentrate on a few inches of fastened reinforcing plate — with the top hinge handling 100% of the force. Pinless SELECT hinges bond the door and frame into an integrated, sag-free unit. "Kick-back" energy dissipates along the entire length of the door and frame. (Compare this to a conventional hinge's 4-1/2" to 5" at the top of the door and frame).
- SELECT geared continuous hinges eliminate the gap between the door and frame, providing a weatherproof, rust-proof, tamper-proof barrier. When the door is closed, there are no accessible screws, bolts or pins.
- SELECT SL27 geared continuous hinges are listed and tested by Underwriters Laboratories to meet the Positive and Negative pressure requirements of UL10B and UL10C, and are in accordance with UBC 7.2 (1997). SELECT SL27 geared continuous hinges are for use on swinging single fire doors (max. door opening of 4'x10') or pairs of fire doors (max. door opening of 8'x10'), including double egress, installed in masonry or drywall. SELECT SL27 geared continuous hinges are rated for up to 1-1/2 hours for wood composite and wood core type fire doors. A special patented process can be added to increase the fire rating to 3 hours (NO FIRE PINS OR STUDS REQUIRED) for hollow metal or steel covered composite type doors.

Geared to ship in 48 HOURS™

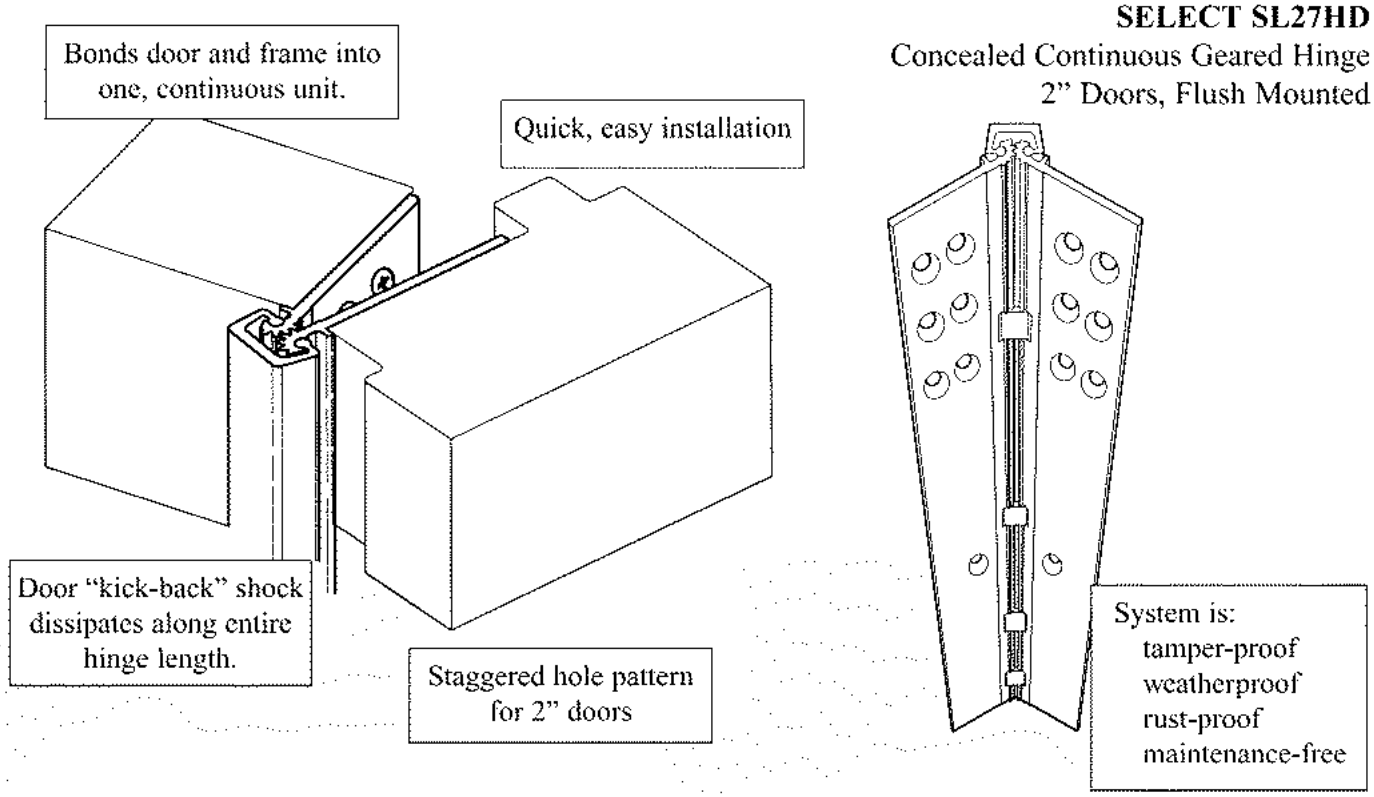
Tested to last 60+ years CONTINUOUS WARRANTY™

c UL us LISTED

Ph: 800-423-1174 | Fax: 800-423-7107 | www.select-hinges.com

Information subject to change without notice.

SELECT SL27HD
Concealed Continuous Geared Hinge
2" Doors, Flush Mounted



Hinge failure is the most common cause of entrance failure. The **SELECT** Continuous Geared Hinge is a revolutionary development that puts an end to the costly and irritating problems associated with hinge failure.

With conventional hinges, door opening and "kick-back" energy is concentrated on a few inches of bolted or screwed-down reinforcing plate – the top hinge handles 100% of the force. The pinless SL27HD bonds the door and frame into an integrated, sag-free unit. "Kick-back" energy is dissipated along the length of the door and frame (compared to 4-1/2" to 5" at the top of the door and frame with conventional hinges).

SELECT Continuous Geared Hinges eliminate the gap between the door and the frame, providing a weatherproof, tamper-proof barrier. When the door is closed, there are no accessible screws, bolts or pins.

The SL27HD hinge hole pattern is templated; the same hole pattern will be found within the same length. This feature of **SELECT** hinges makes multiple installations fast, easy and economical.

The vital components of **SELECT** hinges are anodized after machining, leaving a hardened aluminum oxide surface that resists wear.

The SL27HD is tested and listed by Underwriters Laboratories Inc. to standards UL10B, UL10C and UBC7.2 (positive pressure). Hinges are fire-rated for up to 1-1/2 hours or a special patented process can be added to increase the fire rating to 3 hours (NO PINS REQUIRED). Contact manufacturer for more information.

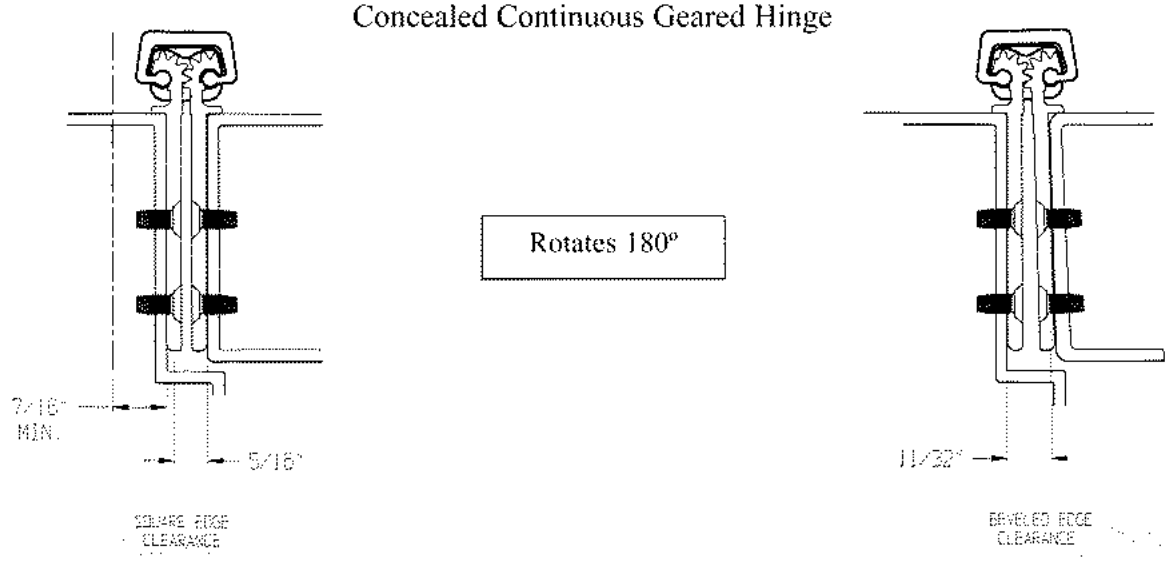
APPLICATIONS: The SL27HD hinge is specifically designed for 2" thick, security/bullet proof doors. In combination with a heavy-duty closer, the SL27HD is recommended for heavy doors and/or very high-traffic entrances. The hole pattern is staggered for additional holding strength and to clear protective barriers in some doors. The SL27HD mounts flush with no door inset. **SELECT** hinges are surface applied to the frame and door—no machining or reinforcement is required.

SELECT PRODUCTS LIMITED
9770 Shaver Road • Portage MI 49024 PH: (800)423-1174 • FX: (800)423-7107

c UL us LISTED

SELECT SL27HD

Concealed Continuous Geared Hinge



SPECIFICATIONS

MATERIAL: Extruded 6063 T6 aluminum alloy with polyester thrust bearings.

LENGTHS: 83", 85", 95" and 120" lengths are standard for nominal door heights. The SL27HD can be ordered in special lengths or cut in the field.

RATING: SL27HD for doors up to 2" thick, weighing up to 1000 pounds.

FINISHES: The SL27HD is stocked in 204R1 clear and .7 mil dark bronze anodized aluminum. Custom anodized or painted finishes are available. Product painted in the field voids the **SELECT** hinge warranty.

NOTES: Conventional overhead surface, concealed sliding arm overhead or floor closers may be used with **SELECT** hinges. Pivot-type floor closers (with a fixed, conflicting center pivot) must be replaced.

The SL27HD is non-handed. Use the same model for both right and left hand openings. After cutting, the hinge must be installed with the cut end on the bottom. The SL27HD mounts flush with no door inset.

For single door installations, allowing 1/8" lock side clearance, the net size of the door must be 15/32" (square edge) or 1/2" (bevel edge) narrower than the rabbet to rabbet dimension of the frame. For double doors without mullions, allow 3/16" (for both square and bevel edge) between the leaves, plus 5/16" (square edge) or 11/32" (bevel edge) and 1/32" for each hinge, for a total of 7/8" (square edge) or 15/16" (bevel edge) between the net dimension of both doors and the rabbet to rabbet dimension of a double frame.

ORDER: Specify length and finish. Also specify door and frame screw applications. 12–24 x 1/2" thread-forming, 410SS, flathead Phillips, undercut screws are provided as standard pack unless otherwise specified. Wood, security and self-drilling, thread-forming screws also available.

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U.S. Bullet Proofing
HIGH SECURITY PRODUCTS

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BULLET, BLAST, AND FORCED ENTRY RESISTANT SYSTEMS

WINDO-PILE®

Meets industry demands for vinyl and aluminum windows & doors.

Total polypropylene construction provides good air control and operating ease on all types of windows. The stiff polypropylene backing aids pile insertion and retains position without shrinkage or shifting. Recommended compression of polypropylene pile is 15% to 20%. Available with or without adhesive.

Windo-Pile® Numbering System

Part Number: 25035075BKWP

1	2	3	4	5	6
25	0187	45	WH	WP	-------
Pile Height	Base Width	Density	Color	Product Type	Special Instructions

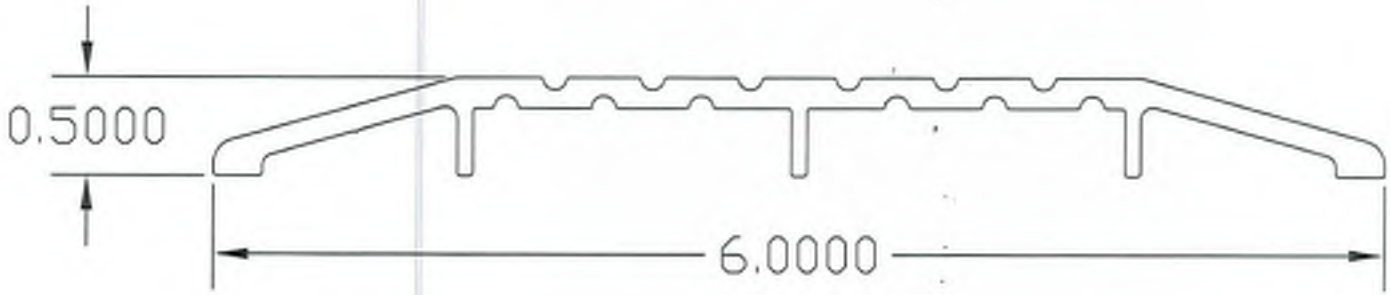
**Pile height starts at .110" to .600" in .010" increments. For Example...*

1. Pile Height		2. Base Width		3. Density				4. Color		5. Product Type		6. Special Instructions	
Pile Height	Code	Base Width	Code	Pics	Ends	Density	Code	Color	Code	Product	Code	Instruction	Code
.130"	13	.187"	0187	28	2	Standard	30	Gray	GY	Window Pile	WP	Special instructions assigned at factory	S
.200"	20	.270"	0270	28	2	Premium	45	Black	BK	Window Pile - single row	WPSR		
.250"	25	.350"	0350	*28*	*2*	**High (.270, .350 & .437)*	*75*	White	WH	Window Pile w/adhesive backing	AB		
.500"	50	.437"	0437					Beige	BG				

**Only available in Gray and Black*

United States Bullet Proofing, Inc.
16201 Branch Court
Upper Marlboro, MD 20774
www.usbulletproofing.com

(800) 363-8328 Toll Free
(301) 218-7920 Local
(301) 218-7925 Fax
info@usbulletproofing.com



1

USBP STANDARD THRESHOLD (MILL FINISH)

SCALE : 1" = 2"

CUSTOMER:

PROJECT NO.: N/A
DATE: N/A
SCALE: 1:2
DRAWN BY: BT
CHECKED BY: N/A
FILENAME: N/A

REVISIONS:

PROJECT/DRAWING

USB MODEL: N/A
DOS MODEL: N/A
DOS CODE: N/A
SHW GROUP: N/A
FINISH: MILL FINISH
VISION TYPE: N/A

DO	DOOR OPENING
FS	FRAME SIZE
RO	ROUGH OPENING
CO	CONCRETE OPENING
DLO	DAY LIGHT OPENING
SIM	SIMILAR
TYP	TYPICAL
OPP	OPPOSITE
GCD	GAP COVER DIMENSION

U.S. Bullet Proofing
HIGH SECURITY PRODUCTS
U.S. BULLETPROOFING INC.
4925 LAWRENCE STREET
HYATTSVILLE, MD 20781
PHONE: 1-800-363-8328
PHONE: 301-454-0155
FAX: 301-454-0199
http://www.usbulletproofing.com

OF

VON DUPRIN®

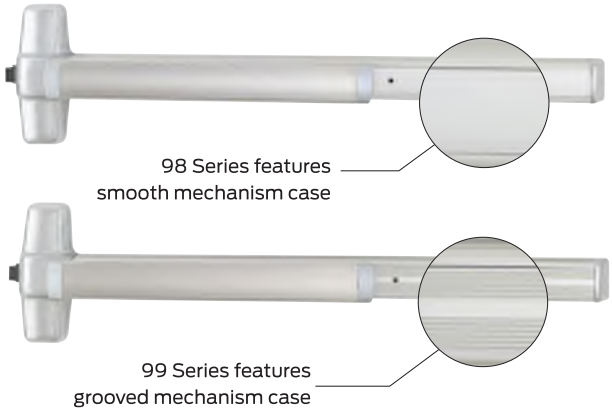
No Dogging

Exit device

98/99 Series

Overview

The 98/99 Series devices are heavy-duty push pads. The 98 Series has a smooth mechanism case, while the 99 Series has a grooved mechanism case. The 98/99 Series has been certified to the highest industry standards and are used in schools, hospitals and government buildings.



Device types

Rim device

75 Mortise lock device

27 Surface mounted vertical rod device [1]

47 Concealed vertical rod device, 5/16" throw [1]

48 Concealed vertical rod device, 5/8" top, 1 1/2" bottom throw

47WDC Concealed vertical rod wood door device [1]

49 Concealed vertical cable device [2]

50WDC Concealed vertical cable wood door device

57 Three-point latch device

[1] Also available less bottom rod (LBR)
[2] Also available less bottom latch (LBL)

ALLEGION™

VON DUPRIN®

Exit device
98/99 Series

Finishes


605
Bright Brass


606
Satin Brass


612
Satin Bronze


619
Satin Nickel


622
Matte Black

625
Bright Chrome


626
Satin Chrome

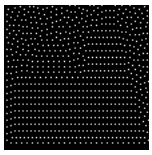

626AM
Satin Chrome, Antimicrobial


628
Aluminum, Clear Anodized

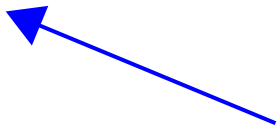

630
Satin Stainless


630AM
Satin Stainless, Antimicrobial


643e
Aged Bronze


693
Black

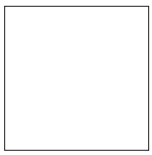

710
Dark Brown, Anodized



Due to the many variations in monitors and printers, color samples may appear different than the physical product. Contact your local sales representative for a physical color sample.

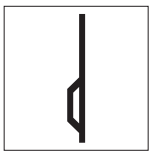
ALLEGION™

Trim functions



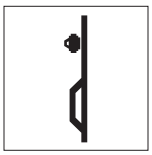
EO **No outside trim**

- Exit only



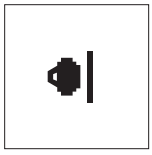
DT **Dummy trim**

- Pull when dogged (not recommended for fire device)



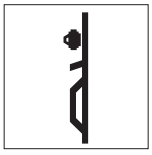
NL **Night latch**

- Key retracts latchbolt
- Rim and 1 ¼" mortise cylinder



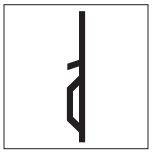
NLOP **Night latch**

- Key retracts latchbolt, pull required



TP **Thumbpiece**

- Key locks and unlocks
- Rim and 1 ¼" mortise cylinder



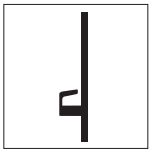
TPBE **Thumbpiece, blank escutcheon**

- Blank escutcheon always operable (no cylinder, use with DT trim)

L **Lever**

K **Knob**

- Key locks and unlocks
- Rim and 1 ¼" mortise cylinder
- Handed, reversible lever
- Electrified lever operation available



LDT **Lever, dummy trim**

KDT **Knob, dummy trim**

- Pull when dogged

LNL **Lever, night latch**

KNL **Knob, night latch**

- Key retracts latchbolt
- Rim and 1 ¼" mortise cylinder
- Handed, reversible lever

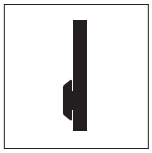
LBE[1] **Lever, blank escutcheon**

KBE **Knob, blank escutcheon**

- Always operable (no cylinder)

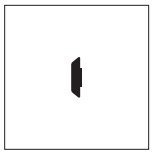
TL **Turn lever**

- Key locks and unlocks (use with DT trim)
- 1 ¼" mortise cylinder



TLBE **Turn lever, blank escutcheon**

- Blank escutcheon always operable (no cylinder, use with DT trim)



TLOP **Turn lever, optional pull**

HL **Hospital latch**

- Key locks and unlocks
- 1 ¼" mortise cylinder

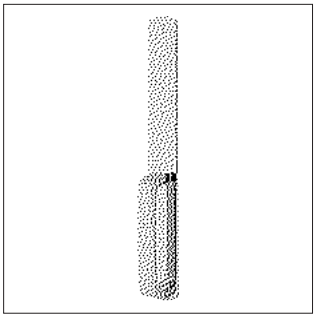
VON DUPRIN®

Exit device
98/99 Series

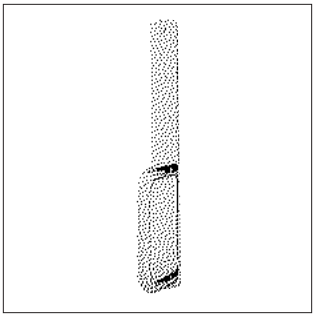
Trim styles

990

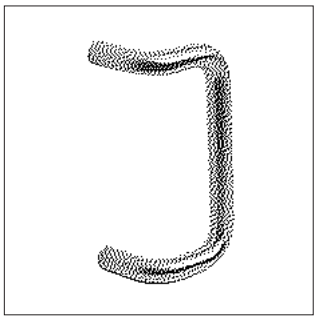
996



696



697
3/4" (19mm) diameter pull



392-7

HL

374

VR910

VR914

Dimensions

Trim style	Width	Height	Thickness	Projection
990	3"	14 3/16"	3/32"	2"
996 Knob	2 3/4"	10 3/4"	27/32"	3 1/4"
996 Lever	2 3/4"	10 3/4"	27/32"	2 7/8"
696	1 5/8"	13 1/2"	3/16"	2 1/6"
697	1 5/8"	13 1/2"	3/16"	3"
392-7	3/4" inch round stainless steel with 7" center to center that matches the 98/99 center case. 3 1/2" offset with 1 1/2" clearance.			
HL	2 9/16"	7 7/8"	-	2 5/8"
374	2 3/4"	10 3/4"	27/32"	
VR910/914 with RIM/verticals	5 1/2"	11"	-	
VR910/914 with mortise	7 1/4"	11"	-	

ALLEGION™

Lever styles

Decorative levers

M51
- Knurling available

M52
- Knurling available

M53

M54

M55

M56

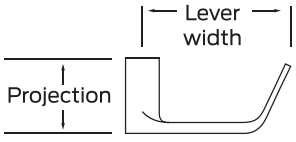
M57[1]

M61
- Handed

M62[1]
- Handed

Dimensions

Lever	Width	Projection
M51	4.5"	2.5"
M52	4.5"	2.4"
M53	4.4"	2.4"
M54	4.4"	2.3"
M55	4.4"	2.7"
M56	4.5"	2.3"
M57	4.5"	2.7"
M61	4.5"	2.7"
M62	4.6"	2.4"



[1] Available in stainless steel substrate only

Lever styles

Decorative levers

M63
- Handed

M81
- Knurling available

M82

M83

M84

M85
- Handed

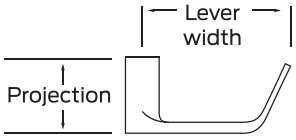
ME1[1]
- Handed

ME2[1]
- Handed

ME3[1]

Dimensions

Lever	Width	Projection
M63	4.6"	2.6"
M81	4.8"	2.5"
M82	4.9"	2.5"
M83	4.7"	2.25"
M84	5.1"	2.2"
M85	4.9"	2.7"
ME1	5.4"	2.6"
ME2	5.2"	2.4"
ME3	5"	2.8"



[1] Designed with Gensler as product design consultant

VON DUPRIN®

Exit device
98/99 Series

Lever styles

Standard levers

01

02
- Knurling available

03
- Knurling available

05

06
- Default lever
- Suites with Schlage Rhodes
- Knurling available

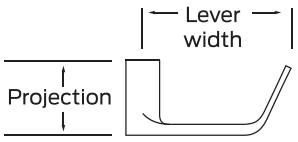
07
- Suites with Schlage Athens

12
- Handed

16
- Suites with Schlage Omega

Dimensions

Lever	Width	Projection
01	4.0"	2.1"
02	4.75"	2.3"
03	4.75"	2.813"
05	3.75"	2.8"
06	4.7"	2.1"
07	4.6"	2.3"
12	4.3"	2.9"
16	5.05"	2.66"



ALLEGION™

Lever styles

Standard levers

17
- Suites with Schlage Sparta
- Knurling available

18

Accent (ACC)
- Handed

Asti (AST)
- Handed

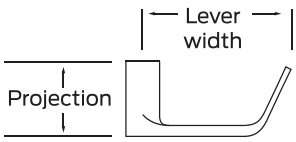
Merano (MER)
- Handed

Latitude (LAT)

Longitude (LON)

Dimensions

Lever	Width	Projection
17	4.7"	2.3"
18	4.75"	2.4"
Accent (ACC)	4.4"	3.1"
Asti (AST)	4.2"	2.5"
Merano (MER)	4.1"	2.5"
Latitude (LAT)	4.6"	2.3"
Longitude (LON)	4.9"	2.3"



Electromechanical device options

Switches

LX **Latchbolt monitoring**

LX-LC **Latchbolt monitoring, low current**
- Signals use of an opening
- SPDT switch to monitor latch bolt
- 2 A maximum @ 24VDC; below 50 mA @ 24VDC for low current option

RX **Request to exit**

RXLC **Request to exit - low current**

RX2 **Double request to exit - 2 RX switches**

WP-RX **Waterproof request to exit**

RX-AUX **RX to RX-2 conversion**
- Signals use of an opening
- SPDT switch to monitor pushpad
- 2 A maximum @ 24VDC; below 50 mA @ 24VDC for low current option

LX-RX **Request to exit/latchbolt monitoring combination**

LX-RX-LC **Request to exit/latchbolt monitoring combination, low current**
- 2 A maximum @ 24VDC; below 50 mA @ 24VDC for low current option

SS **Signal switch**
- Monitors pushpad and latchbolt
- Signals unauthorized use of an opening
- Switch makes latch bolt tamper-resistant
- Up to 2.0 A @ 24VDC

Latch retraction

EL **Electric latch retraction**

SD-EL **Electric latch retraction with special center case dogging**
- Enables remote unlatching
- Alternative to manual dogging
- Voltage: 24VDC (continuous duty)
- Current: 16.0 A inrush / 0.3 A holding

QEL **Quiet electric latch retraction**

HD-QEL **Quiet electric latch retraction with hex dogging**

SD-QEL **Quiet electric latch retraction with special center case dogging**
- Bolt retraction via switch
- Converts exit door to push-pull operation
- Voltage: 24VDC
- Current: 1.0 A inrush (0.5 sec.) / 0.14 A holding

Delayed egress

CX **Chexit delayed exit**
- Meets NFPA 101 requirements
- Self-contained controls, locking, alarm
- Input voltage: 24VDC
- Input current inrush: 1.25 A
- Input current holding: 390 mA
- Alarm relay and secure relay contact ratings: 24 VDC, 1 A

CX-RCM **Chexit remote module**
- Chexit for smaller doors that can not accommodate a standard Chexit device
- Size: 3.75” x 5.57” x 2.50”
- Input voltage: 24VDC
- Input current inrush: 1.25A
- Input current holding: 390mA
- Alarm relay and secure relay contact ratings: 24 VDC, 1 A

Miscellaneous

ALK **Alarm exit kit**
- Unauthorized opening triggers 85-decibel horn
- Set in armed or disarmed mode by key
- Assembly includes both a 24VDC input and external inhibit

Electromechanical device options

CON — **Allegion Connect**

- Common connectors to connect various door hardware all the way to the power supply

E996 — **Electric locking and unlocking trim**

- Remains latched while unlocked
- Remote electrical control
- Voltage: 24VDC (Continuous Duty)
- Current: 0.22 amps

E7500 — **Electric mortise lock device**

- Voltage: 12 or 24VDC
- Current: 0.60 amps @ 12VDC, 0.30 amps @ 24VDC

Electromechanical device options

Matrix shows available options per device type but does not represent compatibly across multiple options.

	Switches									Latch retraction					Delayed egress		Misc			
	LX	LX-LC	RX	RXLC	RX2	WP-RX	LX-RX	LX-RX-LC	SS	EL	SD-EL	QEL	HD-QEL	SD-QEL	CX	CX-RCM	ALK	CON	E996	Mortise
98 99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
98F 99F	■	■	■	■	■	■	■	■	■	■		■			■	■	■	■	■	
XP98 XP99		■	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■	■	
XP98-F XP99-F		■	■	■	■	■	■	■		■		■			■	■	■	■	■	
9875 9975			■	■	■	■			■	■	■	■	■	■	■	■	■	■	■	■
9875-F 9975-F			■	■	■	■			■	■		■			■	■	■	■	■	■
9827 9927	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
9827-F 9927-F	■	■	■	■	■	■	■	■	■	■		■			■	■	■	■	■	
9857 9957	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
9857-F 9957-F	■	■	■	■	■	■	■	■	■	■		■			■	■	■	■	■	
9847 9947	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
9847-F 9947-F	■	■	■	■	■	■	■	■	■	■		■			■	■	■	■	■	
9848 9948	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
9848-F 9948-F	■	■	■	■	■	■	■	■	■	■		■			■	■	■	■	■	
9849 9949	■[1]	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
9849-F 9949-F	■[1]	■	■	■	■	■	■	■	■	■		■			■	■	■	■	■	
9847WDC 9947WDC	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
9847WDC-F 9947WDC-F	■	■	■	■	■	■	■	■	■	■		■			■	■	■	■	■	
9850WDC 9950WDC	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
9850WDC-F 9950WDC-F	■	■	■	■	■	■	■	■	■	■		■			■	■	■	■	■	

[1] For 98/9949 devices, LX switch monitors trim input or electric dogging of EL/QEL devices. LX switch does not monitor latchbolt condition.

Mechanical device options

Dogging

CD — **Cylinder dogging, panic only**

CD-CX — **Center case cylinder dogging for Chexit devices**

CI — **Cylinder dogging indicator**
- Battery-operated dogging indicator in cylinder format with red light visible from over 75 feet away

DI — **Dogging indicator**
- Battery-operated dogging indicator in hex format with red light visible from over 75 feet away

LD — **Less dogging**

SD — **Special center case dogging**
- Center case cylinder dogging

Classroom security

-2 — **Double cylinder**
- Inside key cylinder locks/unlocks outside trim

-2SI — **Double cylinder with security indicator**
- Inside key cylinder locks/unlocks outside trim with visible indicators that provide status of door

CDSI — **Cylinder dogging with indicator**
- Provides visible lock/unlock indicators showing whether device is dogged or undogged

HDSI — **Hex dogging with indicator**
- Provides visible lock/unlock indicators showing whether device is dogged or undogged

Environmental

PN — **Pneumatic latch retraction**
- For areas where electrical devices banned
- Special linkage for mechanical or pneumatic dogging

QM — **Quiet mechanical option**
- Provides damper-controlled relatching of device

INS — **Insulclad kits**
- Kits with longer fasteners or parts for Insulclad doors

AM — **Anti-microbial finish**

Weatherized

WH — **Weep holes**
- Drainage (weep) holes in mechanism case

WS — **Windstorm**
- Severe weather certified/tested
- FEMA and ICC compliant
- Tornado and hurricane tested

California code

AX — **Accessible device**
- UL certified to meet new 5 lb. maximum operating force requirement
- Exceeds ANSI/BHMA requirements

Latches

PL — **Pullman latch**
- Latches are always extended
- Most commonly used in conjunction with electric strikes and LBR-less bottom rod application

Mechanical device options

Touch bar trim

RSS — **Red silk screen**
- Red silk-screened lettered touchbar trim

PUSH — **PUSH**
- Touchbar trim embossed PUSH

SG — **Safety glow**
- Self-illuminating touchpad
- Glows brightly during low or no light conditions

KN — **Knurled touchbar**
- Tactile warning applied to device

BRAILLE — **Braille**
- Vision impaired touchpad
- Raised letter and Braille

Mechanical device options

Matrix shows available options per device type but does not represent compatibly across multiple options.

	Dogging						Classroom security				Environmental				Weatherized		CA code
	CD	CD-CX	CI	DI	LD	SD	-2	-2SI	CDSI	HDSI	PN	QM	INS	AM	WH	WS	AX
98 99	■	■	■	■	■	■	■	■	■	■	■	■		■	■		■
98F 99F							■	■			■	■		■	■		■
XP98 XP99	■	■	■	■	■	■	■	■	■	■				■	■		■
XP98-F XP99-F							■	■						■	■		■
9875 9975	■	■	■	■	■	■	■		■	■	■			■	■		
9875-F 9975-F							■				■			■	■		
9827 9927	■	■	■	■	■	■			■	■	■	■		■	■	■	■ LBR
9827-F 9927-F											■	■		■	■	■	■ LBR
9857 9957	■	■	■	■	■	■			■	■	■			■	■	■	
9857-F 9957-F											■			■	■	■	
9847 9947	■	■	■	■	■	■			■	■	■		■	■	■		■ LBR
9847-F 9947-F											■			■	■		■ LBR
9848 9948	■	■	■	■	■	■			■	■	■			■	■		
9848-F 9948-F											■			■	■		
9849 9949	■	■	■	■	■	■			■	■	■		■	■	■		■ LBL
9849-F 9949-F											■			■	■		■ LBL
9847WDC 9947WDC	■	■	■	■	■	■			■	■	■			■	■		
9847WDC-F 9947WDC-F											■			■	■		
9850WDC 9950WDC	■	■	■	■	■	■			■	■	■			■	■		■ LBL
9850WDC-F 9950WDC-F											■			■	■		■ LBL

Mechanical device options

Matrix shows available options per device type but does not represent compatibly across multiple options.

	Latches	Touch bar trim				
	PL	RSS	PUSH	SG	KN	BRAILLE
98 99		■	■	■	■	■
98F 99F		■	■	■	■	■
XP98 XP99		■	■	■	■	■
XP98-F XP99-F		■	■	■	■	■
9875 9975		■	■	■	■	■
9875-F 9975-F		■	■	■	■	■
9827 9927	■	■	■	■	■	■
9827-F 9927-F		■	■	■	■	■
9857 9957		■	■	■	■	■
9857-F 9957-F		■	■	■	■	■
9847 9947	■	■	■	■	■	■
9847-F 9947-F		■	■	■	■	■
9848 9948		■	■	■	■	■
9848-F 9948-F		■	■	■	■	■
9849 9949		■	■	■	■	■
9849-F 9949-F		■	■	■	■	■
9847WDC 9947WDC		■	■	■	■	■
9847WDC-F 9947WDC-F		■	■	■	■	■
9850WDC 9950WDC		■	■	■	■	■
9850WDC-F 9950WDC-F		■	■	■	■	■

VON DUPRIN®

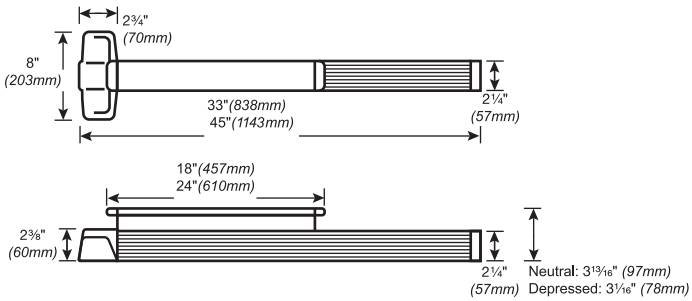
Exit device

98/99 Series

Specifications

Accessibility	▪ Force to depress push pad – AX device: 5 lbs – Standard device: 15 lbs ▪ Push pad projection – Neutral: 3 13/16" (97 mm) – Depressed: 3 1/16" (78 mm)
Certifications/ approvals	All Von Duprin 98/99 exit devices are ANSI/BHMA Certified. Please refer to the BHMA Certified Products Directory for specific listings.
Mounting height	39 13/16" (1011 mm) 39 11/16" (1008 mm) with mullion
Warranty	36 months from the date of placing the product in operation

Dimensions



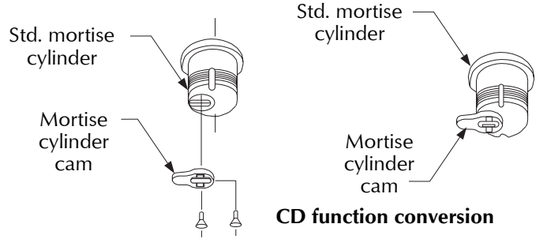
013139, Rev. 11/2019
www.allegion.com/us

ALLEGION™

OPTIONAL EQUIPMENT - CONTINUED

CD (CYLINDER DOGGING)

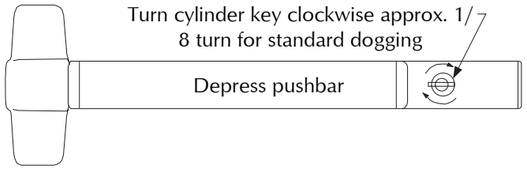
1. Remove mortise cylinder cam and reinstall in reverse (Figure 6).
2. Insert key and rotate cam to install the cylinder to the cover plate (Figure 7).
3. Remove key to slide cover plate in position in the mechanism case.



CD function conversion

Figure 6

Dogging procedure



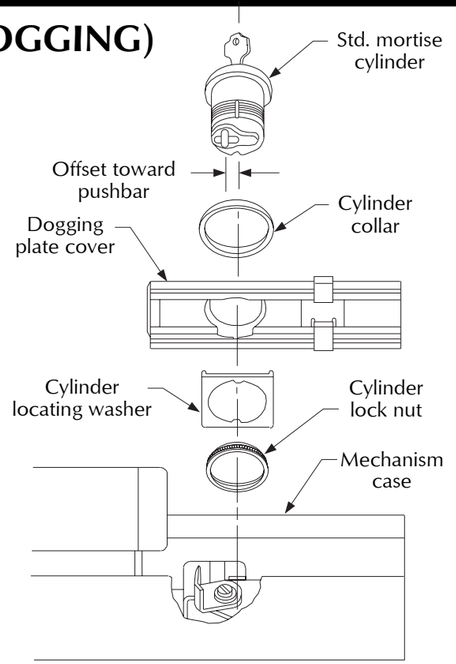
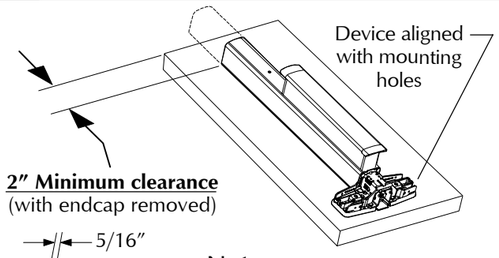


Figure 7

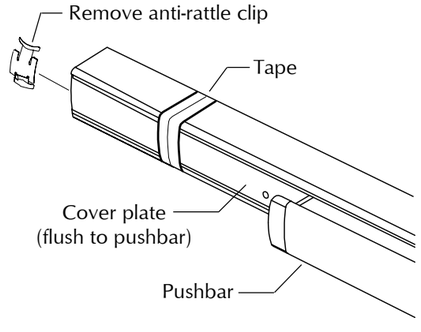
CUT DEVICE

1 **Measure amount to cut off device.**

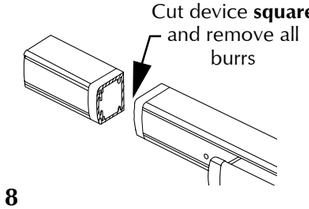


Note
If 5/8" diameter wire access hole has been predrilled in door, cut device 5/16" from center of hole.

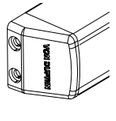
2 **Tape and mark area being cut.**



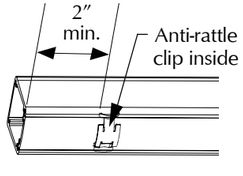
3 **Cut device square.**



NOTE: Device must be cut **square** for proper end cap fit



4 **Slide anti-rattle clip into device.**



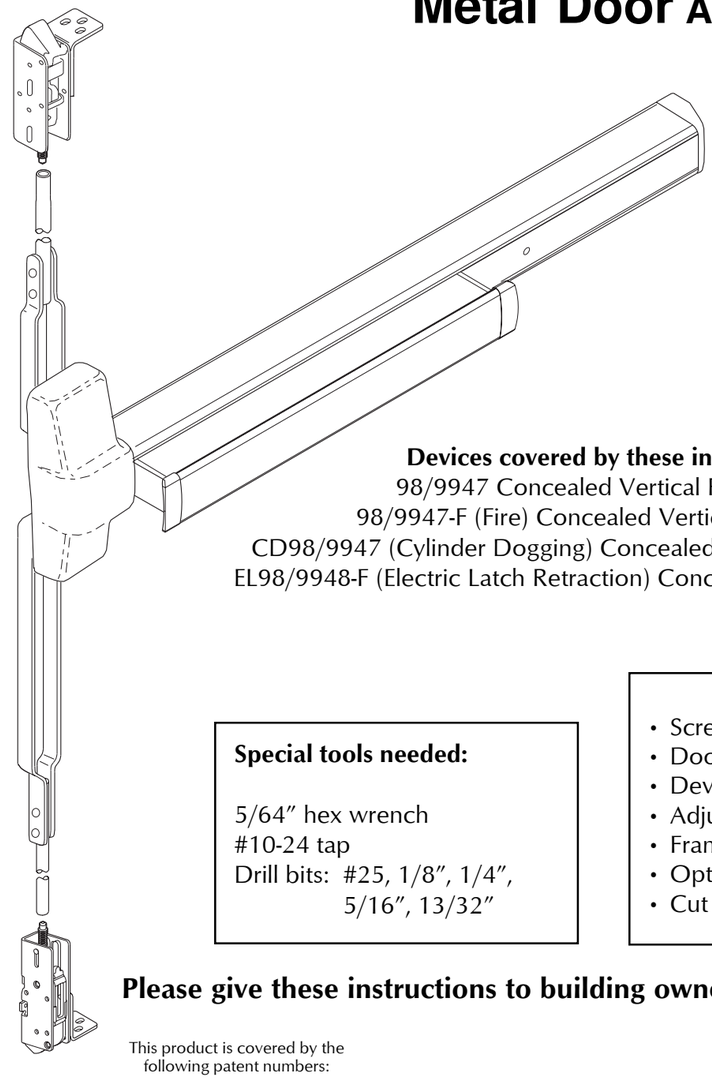
911376-00

VON DUPRIN®

Installation Instructions

The Quiet One® **98/9947 Concealed Vertical Rod Exit Device**

Metal Door Applications



Devices covered by these instructions:
98/9947 Concealed Vertical Rod Exit Device
98/9947-F (Fire) Concealed Vertical Rod Exit Device
CD98/9947 (Cylinder Dogging) Concealed Vertical Rod Exit Device
EL98/9948-F (Electric Latch Retraction) Concealed Vertical Rod Exit Device

Special tools needed:

5/64" hex wrench
#10-24 tap
Drill bits: #25, 1/8", 1/4", 5/16", 13/32"

Index:

Please give these instructions to building owner after device is installed

This product is covered by the following patent numbers:

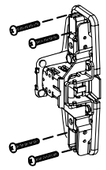
3,767,238 4,427,223
3,854,763 4,466,643
4,167,280 4,741,563

911376-00(4)

Ingersoll Rand Security Technologies

SCREW CHART

A



#10-24 x 1″ — Surface mount or Sex bolts (1-3/4″ door)

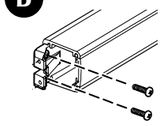
#10-24 x 1-1/2″ — Sex bolts (2-1/4″ door)

- Packaged with trim -

#10-24 x 1-3/8″ — 990 trims (1-3/4″ door)

#10-24 x 1-7/8″ — 990 trims (2-1/4″ door)

B



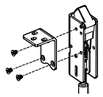
#10-24 x 3/4″ — Surface mount or Sex bolts (1-3/4″ door)

#10-24 x 1-1/8″ — Sex bolts 2-1/4″ door

C

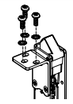
#10-16 X 3/8″ Thread cutting — End cap

D



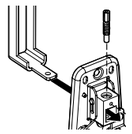
#10-32 X 1/4″ — Bracket to latch

E



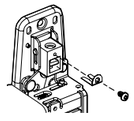
#10-24 X 1/2″ — Bracket to door

F



Rod adjusting screw — Retaining clip

G



#8-32 X 5/16″ — Retaining clip

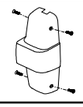
H

#10-24 X 1/2″ — 338 strike

I

#10-24 X 1-1/2″ — Ratchet release

J



#8-18 x 3/8″ Thread cutting — Center case cover

OPTIONAL EQUIPMENT - CONTINUED

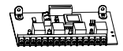
EL WIRING

12 AWG required for distances up to 200′
14 AWG permitted for distances 0-100′

EL Solenoid — Potted circuit board — Black — Black

Solenoid draws 16 A inrush current from PS873. Solenoid must be wired to a PS873 logic board:

If 871-2 logic board, refer to Von Duprin instructions 941352.



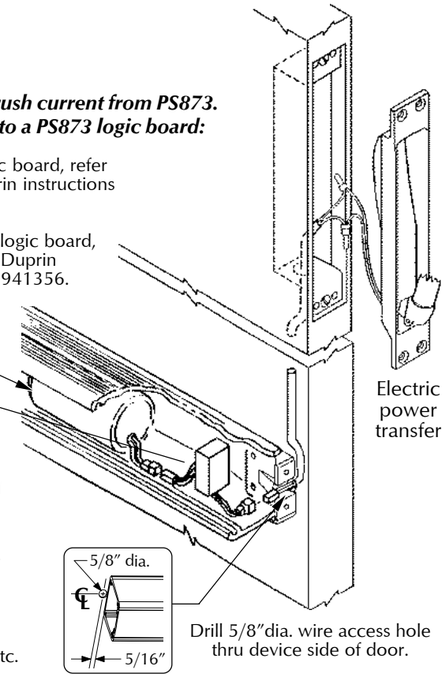
If other 873 logic board, refer to Von Duprin instructions 941356.

ELECTRICAL SPECIFICATIONS

Voltage:	24 VDC
Current:	16 A inrush (0.3 sec.)
	0.25 A holding

NOTE

When power is applied to the **potted circuit board**, the solenoid receives a momentary signal to retract and a separate signal to hold as long as power is applied. When attempting to retract solenoid again, power must be removed from the circuit and reapplied.



Troubleshooting solenoid operation

If the solenoid fails to retract the latch bolt when power is applied, recheck wiring for proper connections.

If solenoid retracts latch bolt momentarily but will not remain in energized position:
1. Check wiring for proper connections, guage, and distances.
2. Check for latch bolt binding caused by improper strike installation, warped door, etc. Also check adjustment of vertical rods.

EL ADJUSTMENT PROCEDURE

A. Check for proper function:
1. Make sure device is not dogged.
2. Depress pushbar and make sure latch bolts retracts and extends fully (see page 6 Figures 1 & 3).
3. Electrically energize solenoid and hold.
4. Check latch bolt(s) for full retraction (must clear strike (see page 6 Figures 1 & 3).
5. Release solenoid and check latch bolt extension (see page 6 Figures 1 & 3).
6. Continue to Section B if device does not function electrically.

B. Determine if dogging rod adjustment is too long or short:
1. The dogging rod adjustment is too **long** if latch bolt does not retract and clear strike (see Section C for adjustment).
2. The dogging rod adjustment is too **short** if latch bolt does not fully extend **or** latch bolt fully retracts but solenoid releases while energized (see Section D for adjustment).

C. Adjust solenoid if dogging rod is too **long** (see Figure 5):
1. Remove end cap ① and dogging cover ②.
2. Loosen cap screw ③.
3. Hold plunger ⑤ depressed in solenoid housing ⑥.
   Note: Push hard against plunger ⑤ to overcome an internal spring in solenoid housing ⑥.
4. Turned threaded bushing ④ in to shorten dogging rod ⑦ so latch bolt fully retracts.
5. Tighten cap screw ③.
   Note: Cap screw ③ must be tightened against flat on threaded bushing ④. Apply a few drops of Loc-Tite 222 to threads of cap screw ③.
6. Replace dogging cover ② and end cap ①.
7. Return to Section A to check for proper function.

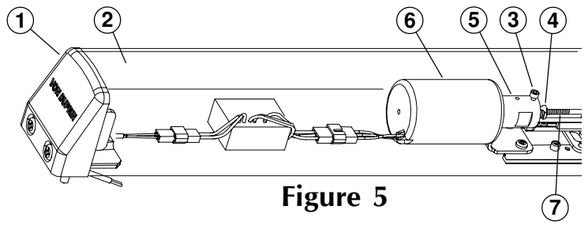


Figure 5

D. Solenoid adjustment if dogging rod adjustment is too **short** (see Figure 5):
1. Remove end cap ① and dogging cover ②.
2. Loosen cap screw ③.
3. Hold plunger ⑤ depressed in solenoid housing ⑥.
4. Turn threaded bushing ④ out to lengthen dogging rod ⑦ so plunger ⑤ just bottoms in solenoid housing ⑥ and latch bolt is fully retracted.
   Note: Push hard against plunger ⑤ to overcome an internal spring in solenoid housing ⑥.
5. Tighten cap screw ③.
   Note: Cap screw ③ must be tightened against flat on threaded bushing ④. Apply a few drops of Loc-Tite 222 to threads of cap screw ③.
6. Replace dogging cover ② and end cap ①.
7. Return to Section A to check for proper function.

ADJUST RODS

1. Open door and release top latch bolt as shown (Figure 1).

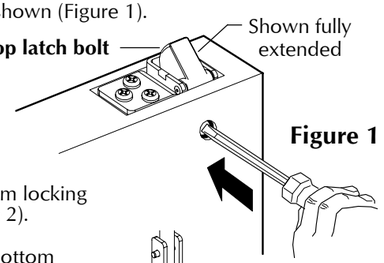


Figure 1

2. Loosen bottom locking screw (Figure 2).
3. Disconnect bottom vertical rod by removing bottom adjusting screw.
4. Loosen top locking screw.
5. Rotate top adjusting screw clockwise until top latch bolt is fully extended (Figure 1).
6. Check top latch bolt for deadlocking (latch bolt should not push in).
7. Turn top locking screw in. Do not over-tighten

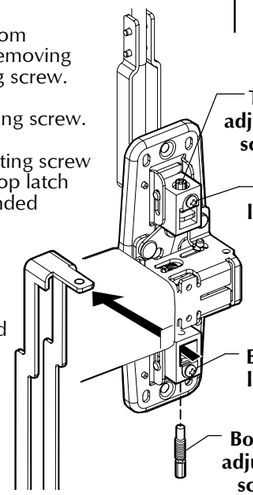


Figure 2

8. Depress pushbar and release.
9. Make sure top latch bolt stays retracted as shown.

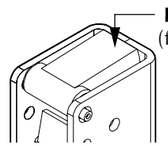


Figure 3

10. Install bottom adjusting screw through bottom rod (Figure 2).
11. With top latch bolt still retracted, adjust bottom rod so latch bolt clears floor and bottom strike.

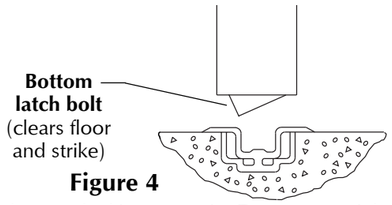


Figure 4

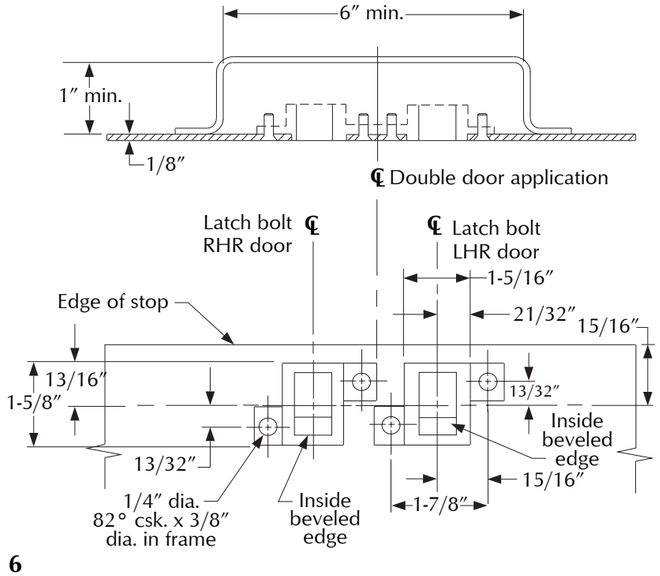
12. Turn bottom locking screw in. Do not over-tighten.
13. check device operation by opening and closing door several times from the outside.

Redo adjustment procedure if :

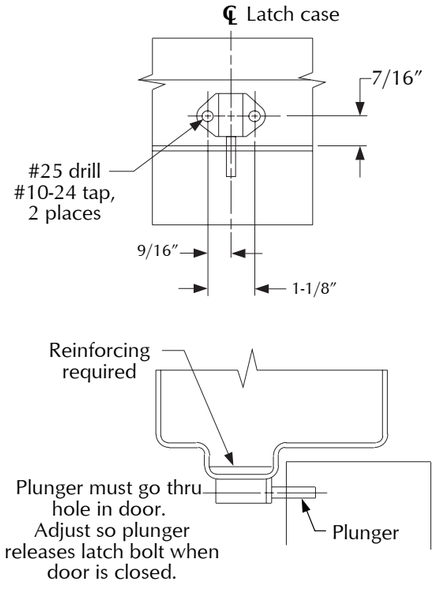
- Top latchbolt is not held retracted
- Bottom latchbolt does not clear floor and bottom strike

FRAME PREPARATION

TOP STRIKE

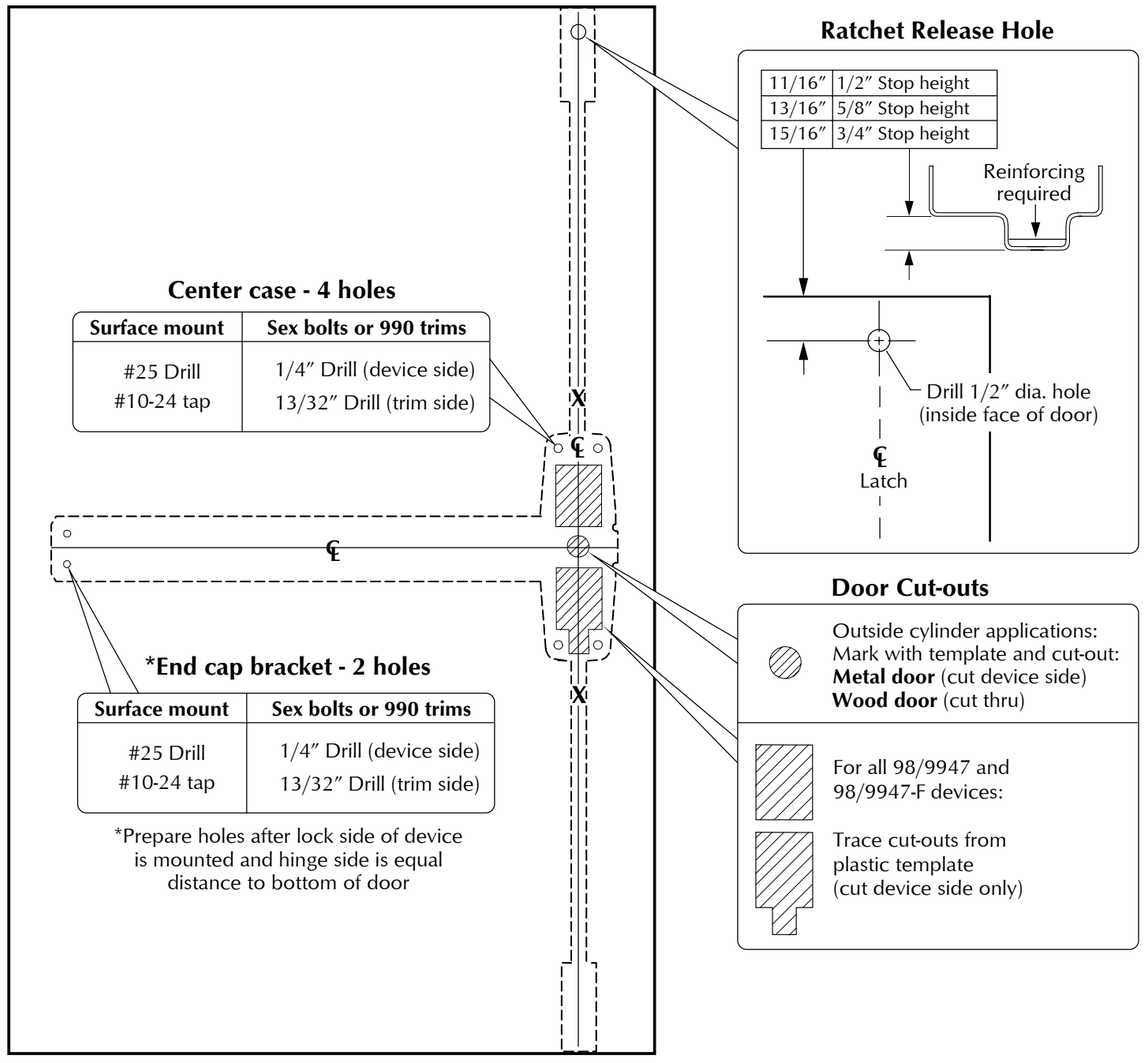


RATCHET RELEASE



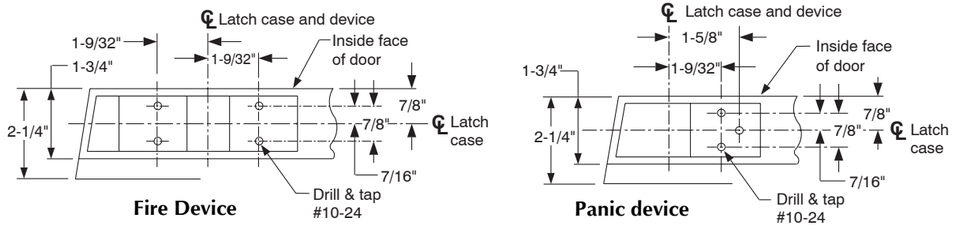
DOOR PREPARATION CHART

Go to instructions on next page before using preparation chart

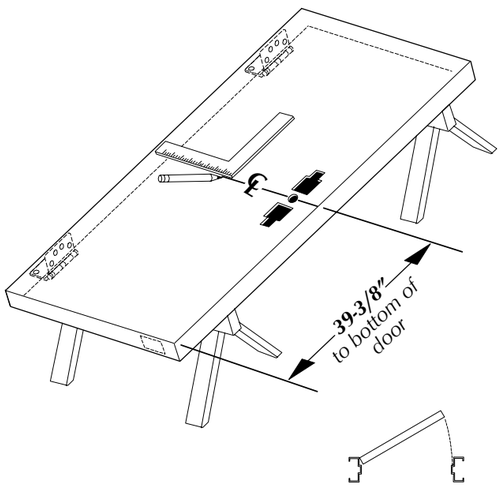


Latch Cases

(Drill top and bottom of door)

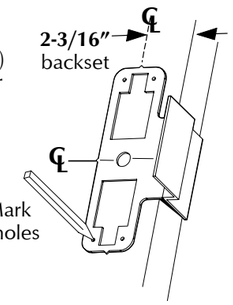


1 Draw horizontal device center line (℄).

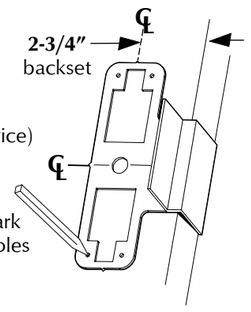


2 Determine correct backset, then mark 4 holes for device center case using template.

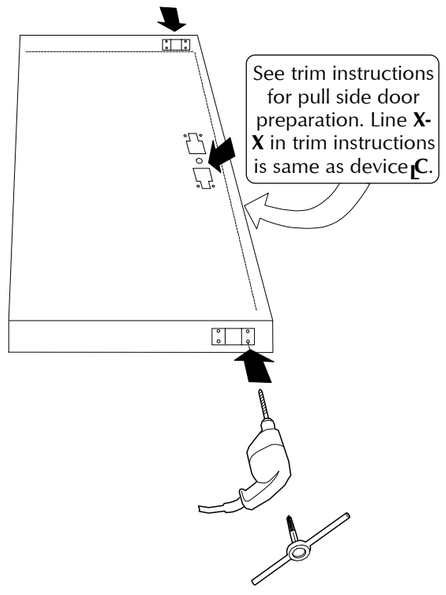
98/9947
(non-fire rated device)
single or double door



98/9947-F
(fire rated device)
or **98/9947**
double door with
98/9975 (mortise device)
on opposite door

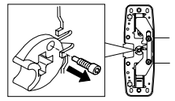


3 Prepare door per preparation chart on page 3.



4 If using an outside cylinder, check NL drive screw and install tailpiece guide.

NL drive screw

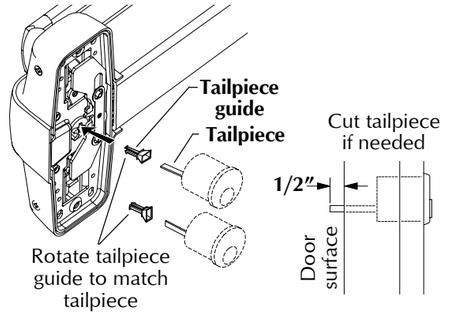


Note: When the NL drive screw is left in back of device, the outside cylinder will function only as a Night Latch.

When installing trim that has a functional lever, knob, or thumb piece AND an outside cylinder to lock and unlock the trim, remove NL drive screw from back of device.

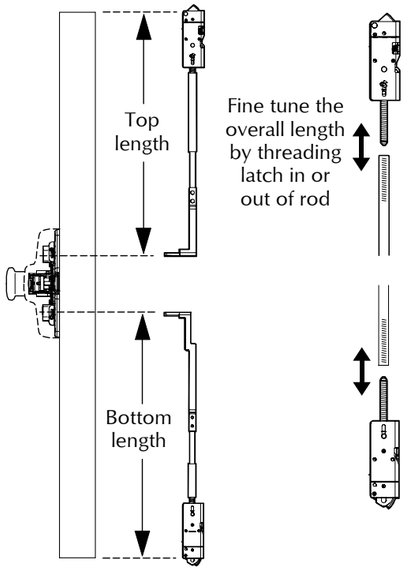
DO NOT remove NL drive screw for the following trims: **NL, EO, DT, TP-2, L-2, and K-2.**

With **"BE"** trim, device may need rehanded. Look for instructions on back of trim.



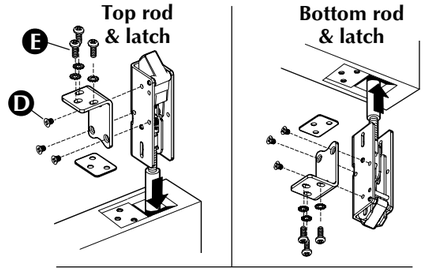
5 Assemble rods and latches and adjust length for proper door height.

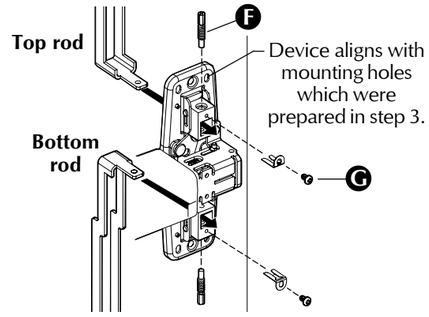
Follow red and blue instruction cards on rods to set initial rod length



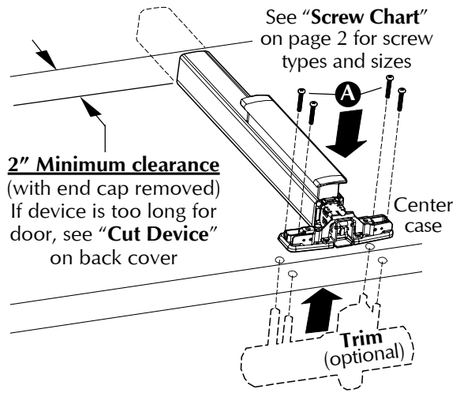
6 Install rods and latches as shown.

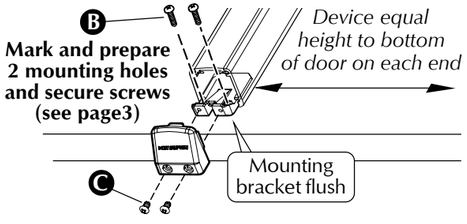
Note: Fire devices use brackets on both sides of latches





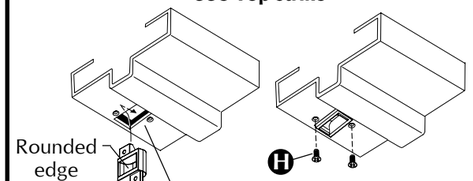
7 Secure device to door as shown, then hang door on frame.



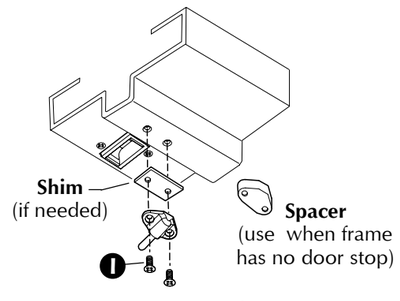


8 Install top strike and ratchet release.

338 Top strike



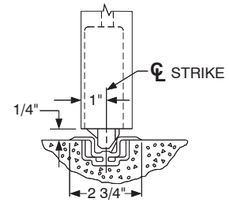
Ratchet release



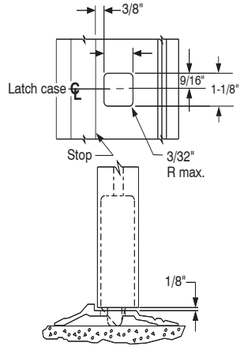
See "**Frame Preparation**" on page 6 for holes

9 Install bottom strike or prepare threshold.

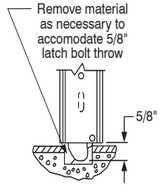
385-A bottom strike



Threshold application

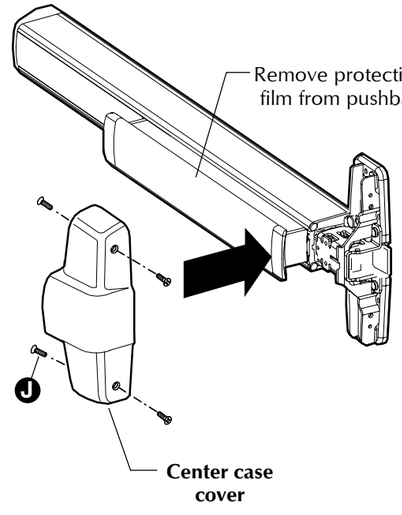


Flat threshold application



10 Adjust rods and install center case cover.

See "**Adjust Rods**" on page 6 for adjustment procedure



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VON DUPRIN®

Electrical Options Booklet

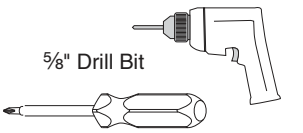
Table of Contents

QEL Wiring & Configuration (page 1 of 3)

⚠DANGER:

To avoid risk of electric shock, turn off AC power to power supply before installing or wiring option board

Tools for Installation



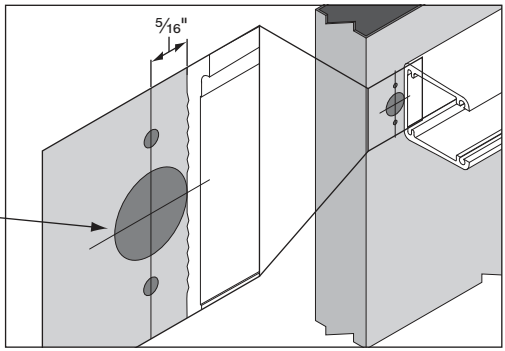
1 Confirm Equipment Compatibility

The QEL is compatible with the following equipment (refer to individual instructions as needed):

- PS900-Series power supplies - PS902, PS904, PS906, PS914
- 900-Series option boards - 900-2RS, 900-4R, 900-4RL, 900-2Q
- PS873 power supply plus 871-2, 871-2Q, 873-4TD/AO option boards

2 Drill Wire Access Hole

Drill 5/8" dia. access hole through device side of door.



3 Route Two Wires from QEL Exit Device to Power Supply

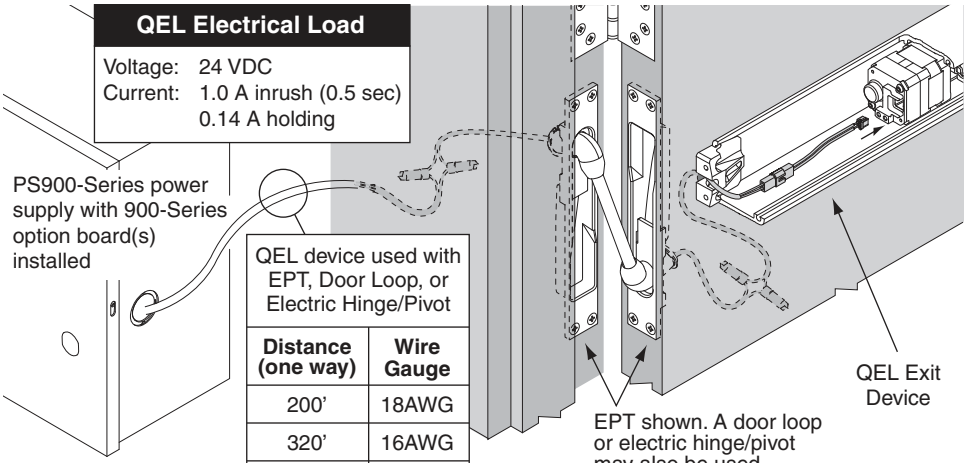
QEL Electrical Load

Voltage: 24 VDC
Current: 1.0 A inrush (0.5 sec)
0.14 A holding

PS900-Series power supply with 900-Series option board(s) installed

QEL device used with EPT, Door Loop, or Electric Hinge/Pivot

Distance (one way)	Wire Gauge
200'	18AWG
320'	16AWG
500'	14AWG
800'	12AWG

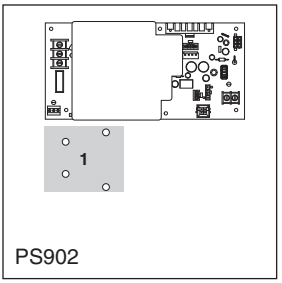


Note: Power wires to QEL are not polarized

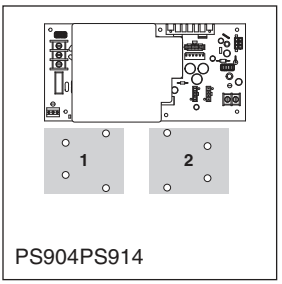
QEL Wiring & Configuration (page 2 of 3)

4 Install 900-2RS, 4RL, or 4R option board(s) into power supply

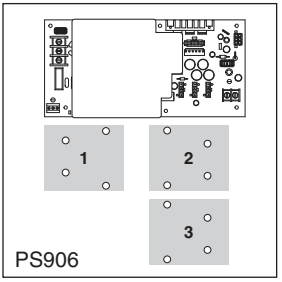
a Review Available 900 series Option Board Mounting Locations (Gray)



PS902

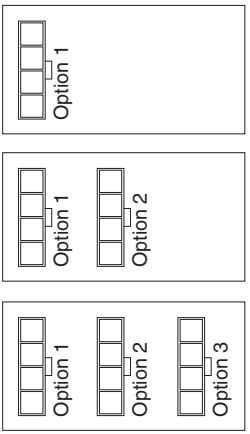


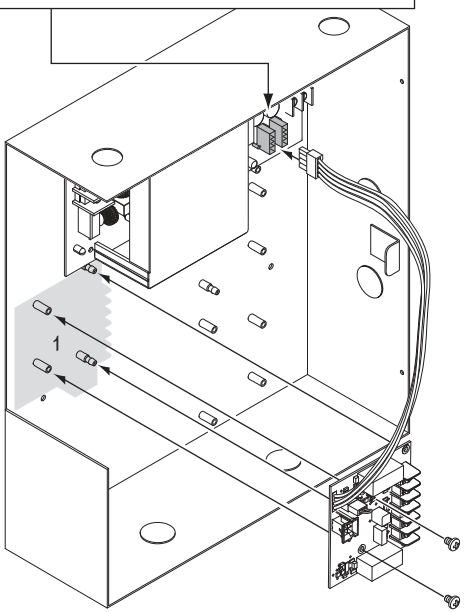
PS904PS914



PS906

b Plug Option Board Cable into any Available Option Connector





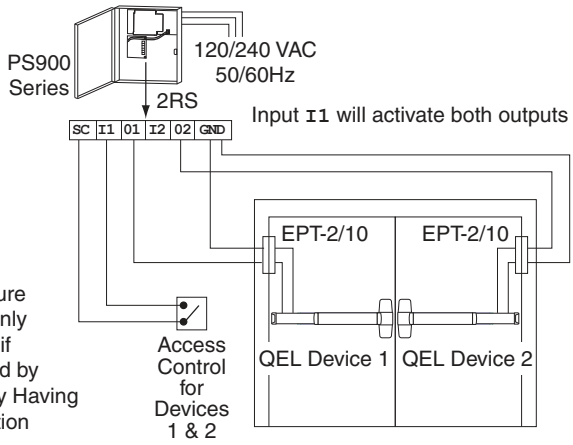
c Secure Board(s) with Screws

Notes: 1. 24VDC output setting required when QEL device connected.
2. If installing board in location 2 or 3, rotate board 180˚
3. The QEL is compatible with an existing 900-2Q board if currently installed.
4. Latchbolt retraction of (2) sequenced QEL's requires more than 1 second to complete.
5. When powering multiple components, verify that the amperage requirements of all components combined does not exceed the power supply output rating.

QEL Wiring & Configuration (page 3 of 3)

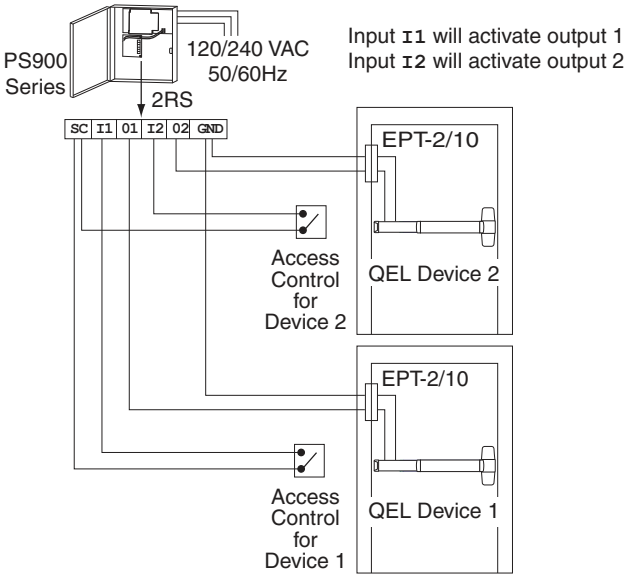
5 Connect Input and Output Wires to Option Board (2RS Shown)

Sequential Mode - Typical Wiring



Note:
Fail secure output only allowed if approved by Authority Having Jurisdiction

Individual Mode - Typical Wiring



6 Check Operation

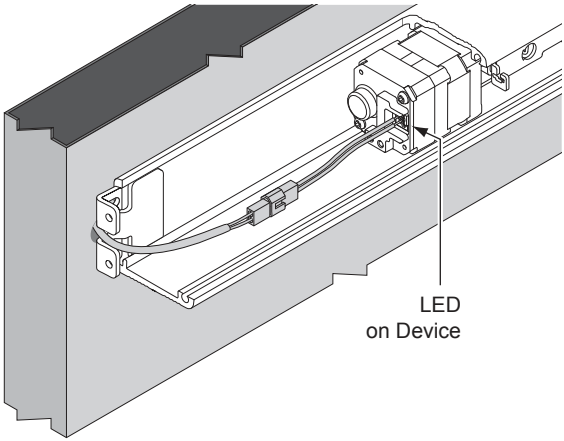
A. Activate each input and verify all QEL devices operate properly.
B. If any device does not operate properly, see step 7 for troubleshooting.

QEL Troubleshooting (page 1 of 2)

7 If Necessary, Troubleshoot Operation (LED is only visible with the mechanism cover removed)

Power at the QEL	QEL Response	Condition/Solution
24VDC	LED - Solid green Latchbolt - retracted	Operation normal, latch retracted immediately
	LED - Solid red after latchbolt attempts to retract multiple times	Latchbolt cannot fully retract mechanically Verify mechanical adjustment (on vertical rod or mortise lock devices if used). Remove and reapply input voltage to reset this condition.* See *Check Mechanical Operation* on page 6 as needed.**
	LED - Flashing green/red Latchbolt - not retracted	Excessive tamper (while power applied, the push-pad was pulled out at least 3 time) Wait 15 seconds and latchbolt will retract again OR remove and reapply power to clear condition
24VDC low	LED - Flashing green Latchbolt - retracted	Voltage low during latchbolt retraction (latchbolt retracts at reduced force) Wire length is too long, wire gauge is too small or power supply has poor regulation
29VDC or greater	LED- Flashing red Latchbolt - will not retract	Input voltage is too high for proper operation Wrong power supply, power supply defective.
13VDC or lower		Input voltage is too low for proper operation Wrong power supply, power supply defective or not set to the proper output voltage. To set, remove AC power from power supply, change power supply setting from 12 to 24VDC, then reapply AC power and verify proper operation.
0VDC	LED - off Latchbolt - not retracted	No input voltage Problem with the power supply, control switch or wiring
0VDC	LED - off Latchbolt - retracted	No input voltage Mechanical dogging is engaged

**For information about adjusting exit devices, you can find their installation instructions in the support area at www.allegion.com/us or call Technical Services at 1-877-671-7011*



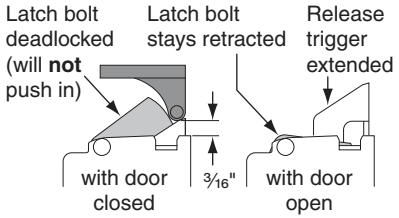
QEL Troubleshooting (page 2 of 2)

Check Mechanical Operation

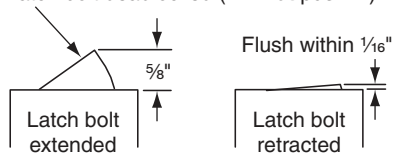
33A/3527A	98/9927	98/9947WDC
33A/3547A	98/9947	98/9957
		98/9975

1. Make sure device is not dogged for SD-QEL/HD-QEL.
2. Depress pushbar and make sure latch bolt retracts and extends fully (see Figure 1).
3. If latch bolt does not retract or extend fully, adjustments may be required per the device installation instructions.

33A/3527A, 98/9927, 98/9957



33A/3547A, 98/9947, 98/9947WDC



98/9975

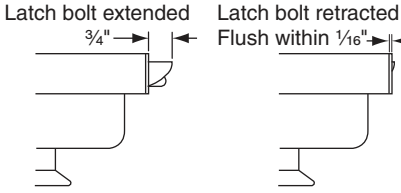


Figure 1

33/3549A	98/9949	
33/3550A-WDC	98/9949WDC	
	98/9950WDC	

1. Make sure device is not dogged for SD-QEL/HD-QEL.
2. Depress pushbar. Door should begin to open with pushbar depressed halfway.
3. Close door. Top latch should be secure. If two point latch, bottom latch should be secure as well.
4. If device does not function as described in steps 2 and 3, adjustments may be required per the device installation instructions.

Any HD Device

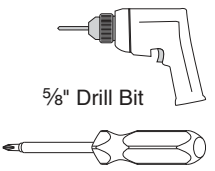
1. Fully depress pushbar.
2. Insert hex dogging key and turn clockwise.
3. Release pushbar and verify latchbolt remains retracted.
4. Fully depress pushbar.
5. Insert hex dogging key and turn counter clockwise.
6. Release pushbar and verify latchbolt extends fully.

EL Wiring (page 1 of 2)

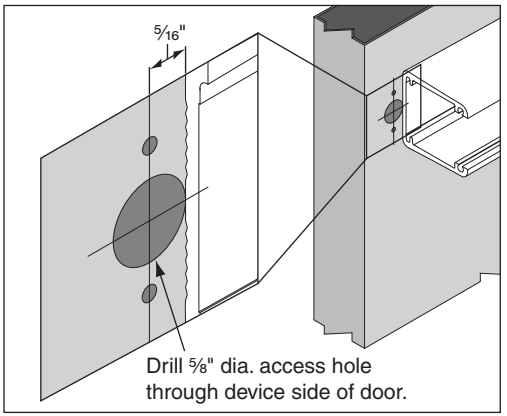
⚠DANGER:

To avoid risk of electric shock, turn off AC power to power supply before installing or wiring option board

Tools for Installation



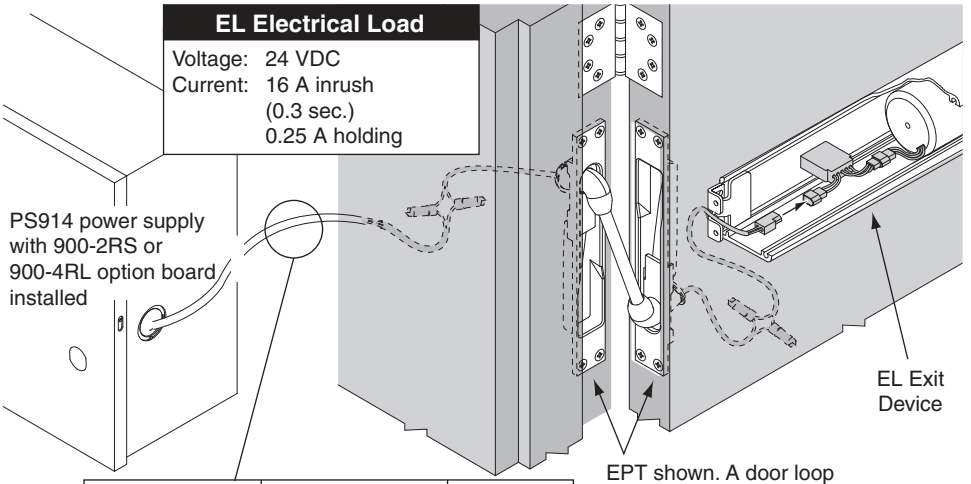
1 Drill Wire Access Hole



2 Route Two Wires from EL Exit Device to Power Supply

EL Electrical Load

Voltage: 24 VDC
Current: 16 A inrush
(0.3 sec.)
0.25 A holding



	Wire length (feet)[1]	Wire gauge
EL 98/99	0-500	12
EL 33A/35A	0-300	14
	0-200	16
All other EL 98/99	0-250	12
and EL 33A/35A	0-150	14
device types	0-100	16

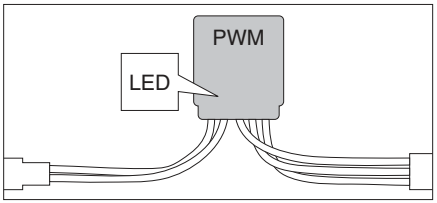
1 Wire lengths include an EPT, door loop, electric hinge or pivot and are measured one way between the PS914/option board and the device.

EL Wiring (page 2 of 2)

3 Review LED Functions

(For devices purchased after 8/15/12)

Normal Operation	LED will flash "ON" briefly when +24V DC is applied. This is when PWM is operational and power is being applied to the exit device. LED then goes into a steady "OFF" state and holds there, even with +24V continuing to be applied to the module.
Fault Condition	LED will turn "ON" and remain illuminated when over-voltage is detected. The PWM will remain in this state until power is removed from the module. **NOTE:** Input voltage greater than 30V will cause an over-voltage condition.



4 Check EL Device Operation

Activate input and verify that EL device operates properly. Solenoid should retract latch bolt(s). If device does not operate properly, see EL Troubleshooting section.

EL Troubleshooting (page 1 of 3)

A

If the solenoid fails to retract the latch bolt when power is applied, recheck wiring for proper connections.

If solenoid retracts latch bolt momentarily but will not remain in energized position:

1. Check wiring for proper connections, gauge, and distances.
2. Make sure PS914-2RS or PS914-4RL power supply is installed.
3. Check for latch bolt binding caused by improper strike installation, warped door, etc.
4. If device still does not function properly, continue to Section B.

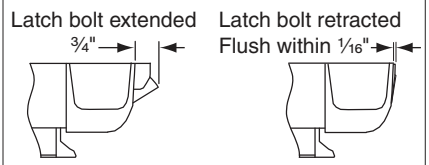
EL Troubleshooting (page 2 of 3)

B Check For Proper Function

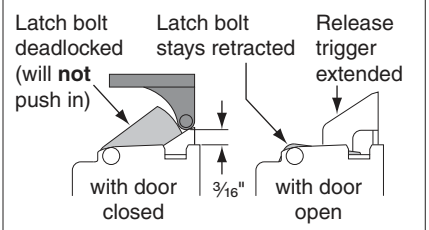
33A/35A Rim	98/99 Rim	98/9947WDC
33A/3527A	98/9927	98/9957
33A/3547A	98/9947	98/9975

1. Make sure device is not dogged for SD/HD-EL.
2. Depress pushbar and make sure latch bolt retracts and extends fully (see Figure 1). If latch bolt does not retract or extend fully, adjustment may be required per the device installation instructions.
3. Electrically energize solenoid and hold.
4. Check latch bolt(s) for full retraction (must clear strike, see Figure 1).
5. Release solenoid and check latch bolt extension (see Figure 1)
6. Continue to Section C if device does not function electrically.

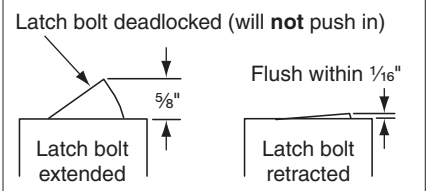
33A/35A Rim, 98/99 Rim, 98/9957



33A/3527A, 98/9927, 98/9957



33A/3547A, 98/9947, 98/9947WDC



98/9975

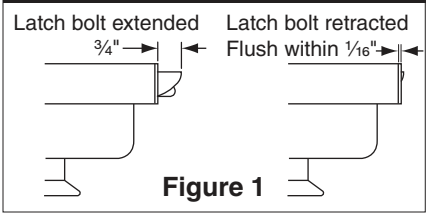
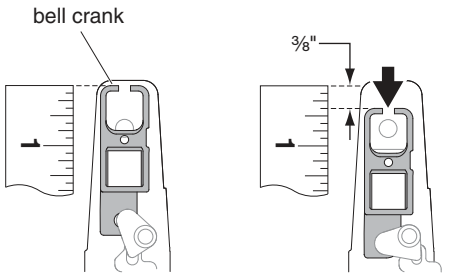


Figure 1

33/3549A
98/9949
98/9949WDC

1. Make sure device is not dogged for SD/HD-EL.
2. Using a ruler, locate the extended position of the bell crank (see Figure 2).
3. Electrically energize solenoid and hold.
4. Check bell crank travel. Bell crank must be a minimum of 3/8" from extended position and must not run out of travel (see Figure 2).
5. Continue to Section C if bell crank travel is too short or long.

33/3549A



98/9949, 98/9949WDC

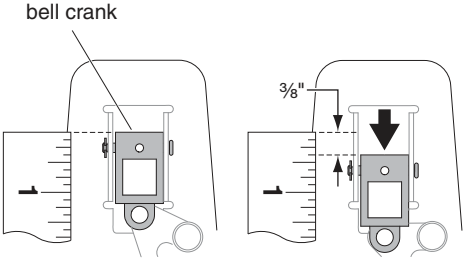


Figure 2

EL Troubleshooting (page 3 of 3)

C Determine if Dogging Rod Adjustment is Too Long or Short

Device	
33A/35A Rim 98/9927 33A/3527A 98/9947 33A/3547A 98/9947WDC 98/99 Rim 98/9975	1. The dogging rod adjustment is too **long** if latch bolt does not retract and clear strike (see Section D for adjustment). 2. The dogging rod adjustment is too **short** if latch bolt does not fully extend **or** latch bolt fully retracts but solenoid releases while energized (see Section D for adjustment).
33/3549A	1. The dogging rod adjustment is too **long** if bell crank moves less than ⅜" (see Section D for adjustment). 2. The dogging rod adjustment is too **short** if bell crank runs out of travel (see Section D for adjustment).
98/9949 98/9949WDC	1. The dogging rod adjustment is too **long** if bell crank pin moves less than ⅜" (see Section D for adjustment). 2. The dogging rod adjustment is too **short** if bell crank pin bottoms out on the end of the slot (see Section D for adjustment).

D Adjust Solenoid Plunger if Required (See Figure 4)

1. Remove end cap ① and dogging cover ②.
2. Loosen cap screw ③ with 3⁄32" hex key.
3. Hold plunger ④ so it does not rotate.
4. Turn threaded bushing ⑤ in or out to see 8 to 10 threads showing so plunger ④ just bottoms in solenoid housing ⑥ and latch bolt is fully retracted.
5. Tighten cap screw ③.
   Note: Cap screw ③ must be tightened against flat on threaded bushing ⑤. Apply a few drops of Loc-Tite 222 to threads of cap screw ③.
6. Replace dogging cover ② and end cap ①.
7. Return to Section B to check for proper function.

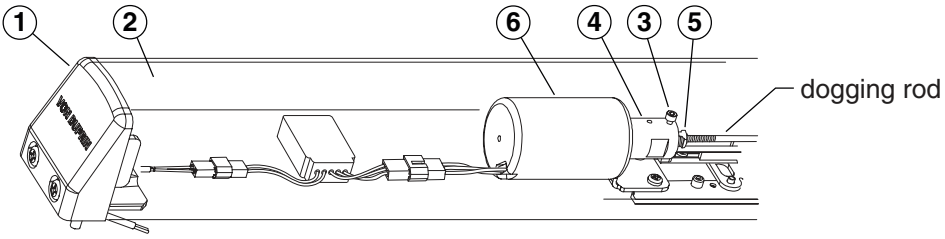


Figure 4

SD/EL 98/99 Cylinder Dogging

1. Obtain a 1¼" mortise cylinder.

2. Make sure cylinder cam is in position shown **with key removed** (Figure A). If not, remove key, remove cam, and reinstall in position shown (Figure B).

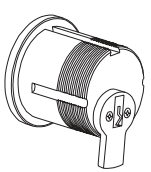


Figure A

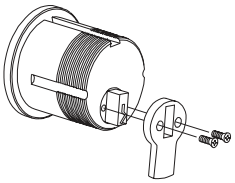
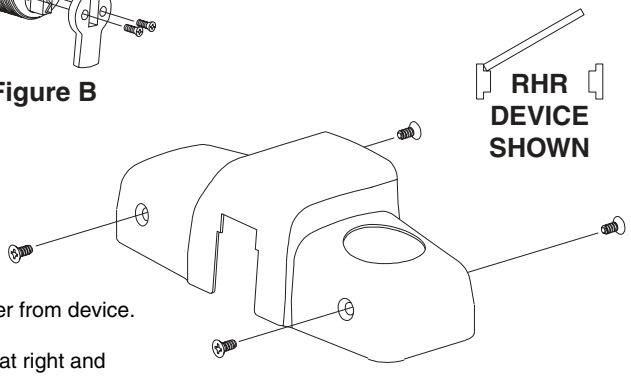


Figure B



3. Remove center case cover from device.

4. Orient cylinder as shown at right and insert cylinder into bracket.

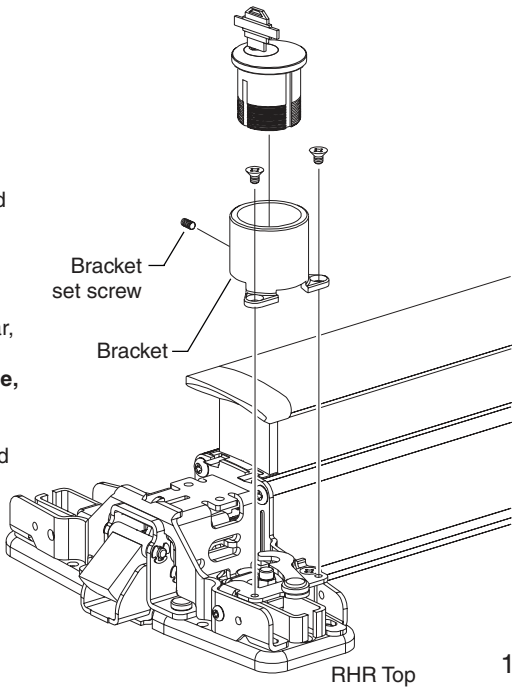
5. Tighten bracket set screw with a 1/16" hex wrench.

   If you cannot reach bracket set screw with wrench, remove bracket from center case, install cylinder in bracket, tighten bracket set screw, and reinstall bracket in center case.

6. Install center case cover.

   To dog RHR device, depress pushbar, insert key, and turn key 180 degrees counterclockwise. **To dog LHR device,** turn key clockwise.

   To undog RHR device, insert key and turn key 180 degrees clockwise. **To undog LHR device,** turn key counterclockwise.

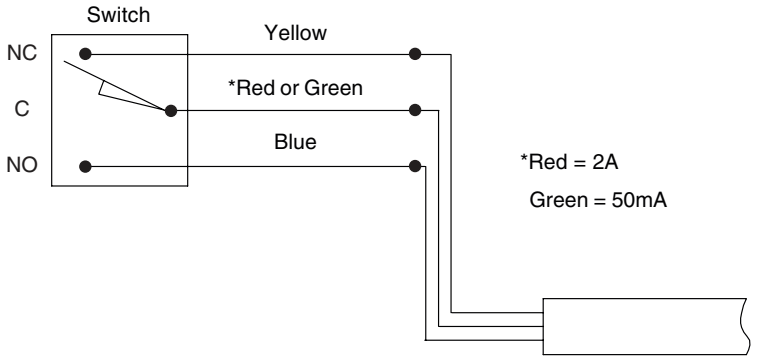


RX or RX-LC/S1 Switch Wiring

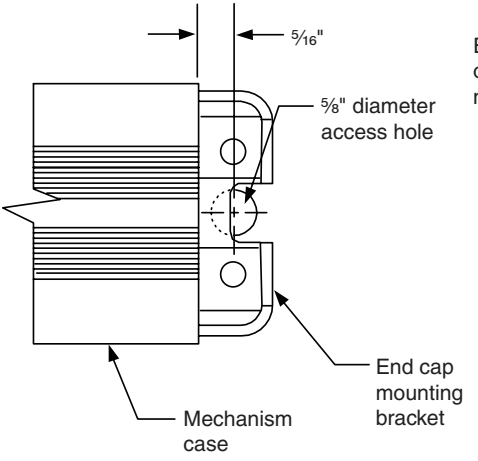
RX - Switch is intended for signaling purposes only and is rated for a maximum 2 ampere resistance load at 24VDC/AC. Use with inductive or capacitive loads (magnetic locks or solenoid devices) derates the capacity of the switch. Consult the factory for assistance.

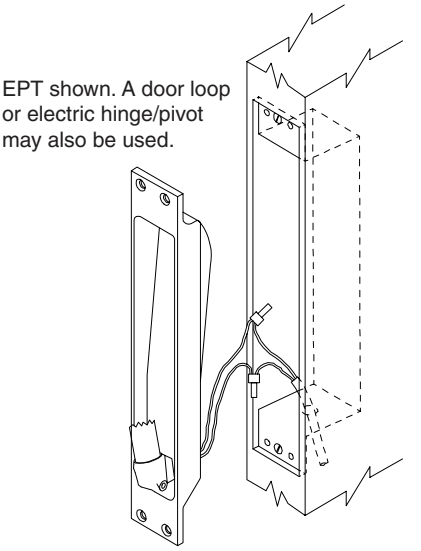
RX-LC - Switch is intended for systems using low current signals and is rated for a maximum 50mA. Consult the factory for assistance.

1. The RX touchbar monitor switch is activated whenever the touchbar is depressed.
2. The switch function is shown with the latchbolt extended and the touchbar not depressed.



3. Mark and drill wiring access hole on inside face of door (only after device is cut to length).
4. The Von Duprin EPT-10 power transfer (for three wires) or EPT-2 power transfer (for two wires) is required to transfer the wiring from the door to the frame.
5. Connect the power transfer wires and switch assembly wires with crimp connectors. Unused wires should be insulated separately.

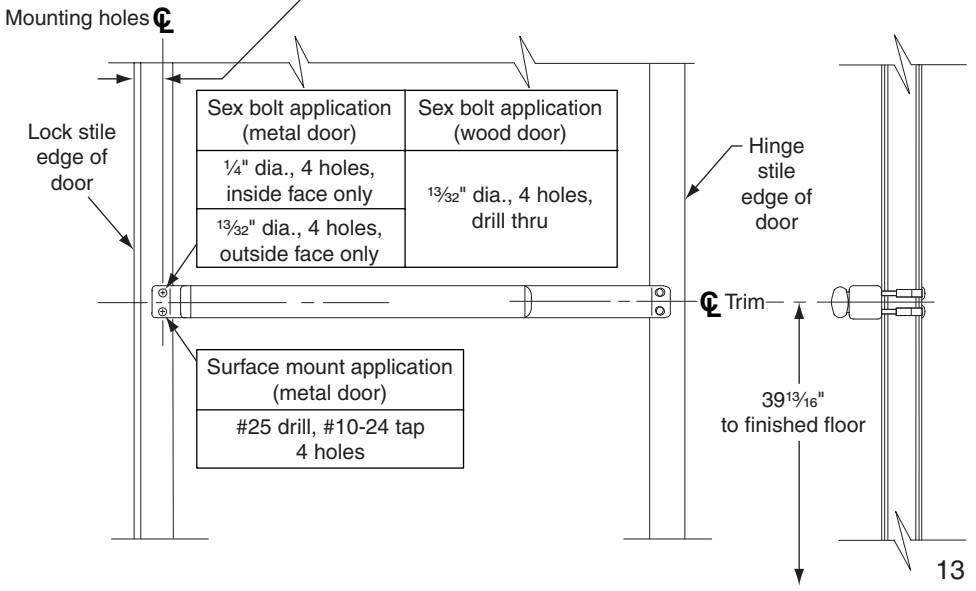




330, 350, RX-330 and RX-350 Push Bar Trim Mechanical Installation (page 1 of 2)

1. Follow directions for fitting and cutting trim (see next page). See trim installation schedule below to determine proper formula to use.
2. Use lock stile mounting bracket to mark lock stile mounting holes, then prepare lock stile mounting holes. Be sure bracket is flush against mechanism case on both ends before marking holes; be sure trim is level.
3. Temporarily install trim using lock stile mounting bracket.
4. Insert hinge stile mounting bracket in hinge stile end of trim and mark hinge stile mounting holes.
5. Remove trim from door and prepare hinge stile mounting holes.
6. For RX-330/350 wiring, see page 10.
7. Install trim on door and attach end caps.

Trim Installation Schedule			
Installation	Stile Size	Backset	Cutoff Formula (see next page)
Single door ½" stop and back to back with 386DT, 337DT or 696/697DT trim on single door ½" stop	1¾" - 3"	1 5⁄16"	Fig. 1A
Single door ⅝" stop and back to back with 386DT, 337DT or 696/697DT trim on single door ⅝" stop	1⅞" - 3"	1 7⁄16"	Fig. 1A
Pair of doors without mullion and back to back with 386DT, 337DT or 696/697DT trim on pair of doors without mullion	1¾" - 3"	1 5⁄16"	Fig. 1B
Single door, pair of doors without mullion, and back to back with 990DT, 991DT, 992DT, or 230DT trim	3" flush	½ of stile	Fig. 1C



330, 350, RX-330 and RX-350 Push Bar Trim Mechanical Installation (page 2 of 2)

Cutoff Instructions

1. To determine required trim length, fill in appropriate chart below Figure 1A, 1B, or 1C. See trim installation schedule on previous page to determine proper formula to use.

2. Cut trim as shown in Figure 2.

NOTE

Measure trim with both end caps and mounting brackets removed.

Figure 1A

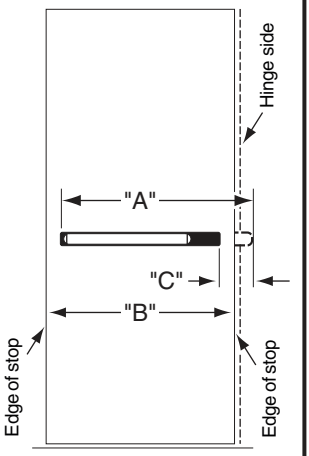


Figure 1B

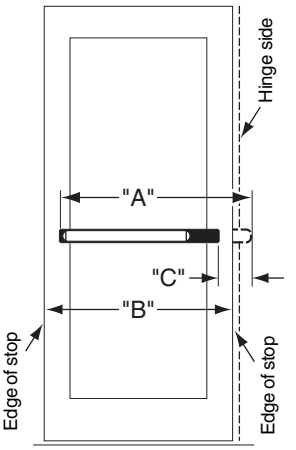
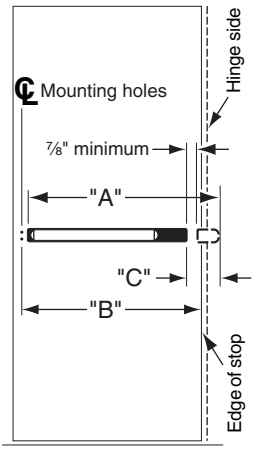


Figure 1C



Trim Cutoff Formula for Single Doors 1¾ - 3" Stile		Trim Cutoff Formula for Double Doors without Mullion		Trim Cutoff Formula for 3" Stile - Flush	
44 15/16" (4' door) 32 15/16" (3' door)	"A" Trim length *	44 15/16" (4' door) 32 15/16" (3' door)	"A" Trim length *	44 15/16" (4' door) 32 15/16" (3' door)	"A" Trim length *
+ 2 1/16"		+ 2 1/2"		+ 2 1/16"	
=		=		=	
-	"B" (stop to stop)	-	"B" (edge of door at lock stile to hinge stop)	-	"B" (℄ mounting holes to hinge stile stop)
=	"C" (cutoff dim.)	=	"C" (cutoff dim.)	=	"C" (cutoff dim.)

* "A" trim length is measured with both end caps and mounting brackets removed.

1. Mark dimension "C" on mechanism case and cover plate. (Measure trim with both end caps and mounting brackets removed.)

2. Cut mechanism case and cover plate. Cover plate ① must be flush against end of mechanism case ② when cutting.

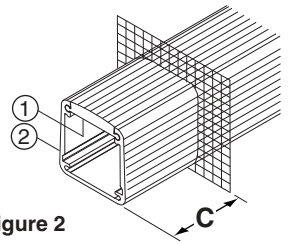


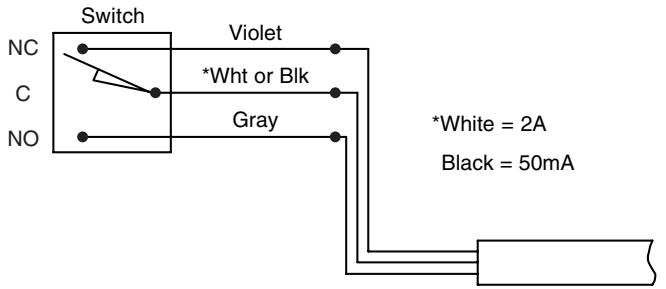
Figure 2

LX or LX-LC Switch Wiring

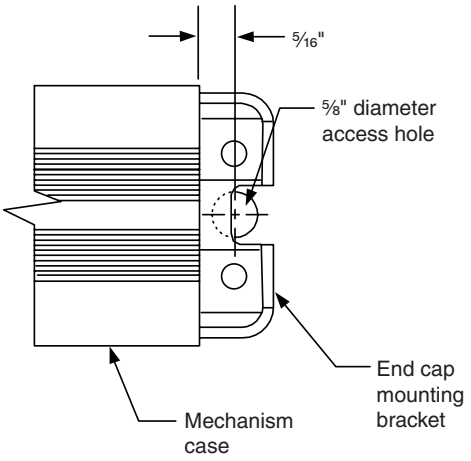
LX - Switch is intended for signaling purposes only and is rated for a maximum 2 ampere resistance load at 24VDC/AC. Use with inductive or capacitive loads (magnetic locks or solenoid devices) derates the capacity of the switch. Consult the factory for assistance.

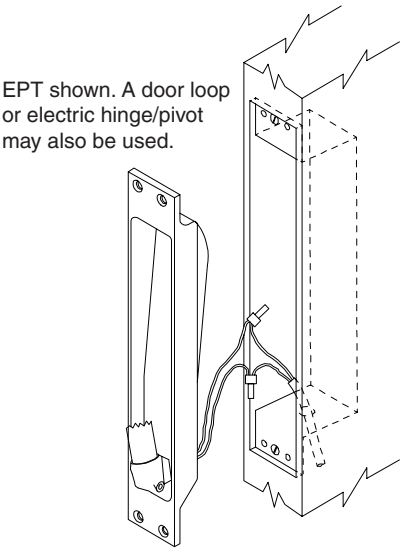
LX-LC - Switch is intended for systems using low current signals and is rated for a maximum 50mA. Consult the factory for assistance.

1. The latchbolt monitor switch is activated whenever the latch bolt is retracted.
2. The switch function is shown with the latchbolt extended and the touchbar not depressed.



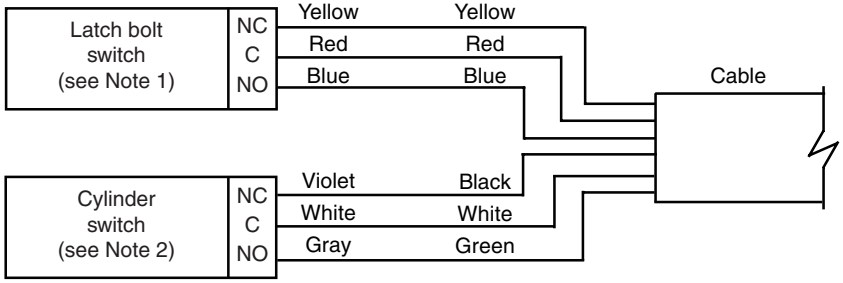
3. Mark and drill wiring access hole on inside face of door (only after device is cut to length).
4. The Von Duprin EPT-10 power transfer (for three wires) or EPT-2 power transfer (for two wires) is required to transfer the wiring from the door to the frame.
5. Connect the power transfer wires and switch assembly wires with crimp connectors. Unused wires should be insulated separately.





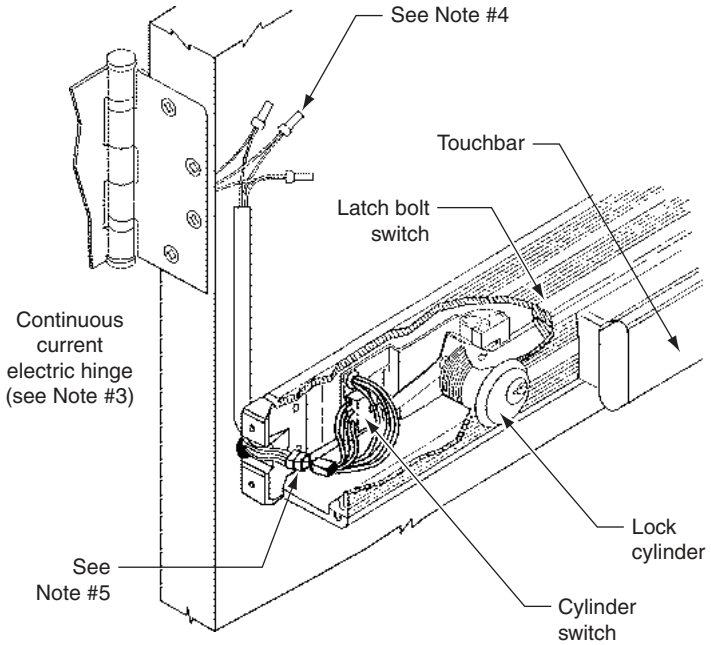
SS Wiring

Applies to all SS33/35, SS33A/35A, & SS98/99 series exit devices



Notes:

1. The latch bolt switch is actuated whenever the touchbar is depressed or the device latch bolt is retracted. This switch may be used for initiating an alarm.
2. The cylinder switch is actuated when the key is inserted into the lock cylinder and turned clockwise. This switch may be used for shunting or resetting an alarm.
3. A continuous current electric hinge or equivalent is required to transfer the wiring from the door to the frame.
4. Splice electric hinge wires and cable wires together with wire nuts. Unused wires should be cut off or insulated separately.
5. Cut device to proper length before connecting cable and switch wires.



Customer Service

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ALLEGION

Printed in U.S.A.
24228413 Rev. 11/16-e

338
Top Strike

385A
Bottom Strike

9847/9947 concealed vertical rod device for use on single or double metal doors, UL listed for Panic Exit Hardware. Devices are ANSI A156.3 – 2001 Grade 1. The 9847 device has a smooth mechanism case and the 9947 device has a grooved case. The concealed vertical rod device is non-handed except when the following device options are used: SD (Special Dogging), or SS (Signal Switch). See Opposite page for available outside trim and device functions.

The 9847/9947 devices are available in the following finishes: US3, US4, US10, US26, US26D, US28, 313AN, 315AN and US32D for the 9847 device only. See page 52 for component finishes and the inside cover for finish chips.

Specifications

Device Functions	Device ships EO/DT/NL. Field selectable. For TP,K,or L remove NL drive screw from device		
Device Lengths	3′ 2′4" to 3′ (711mm to 914 mm) Door Size 4′ 2′10" to 4′ (864 mm to 1219 mm) Door Size		
Strikes	Top - 338 – Unfinished, Bottom – 385A - Unfinished Optional Strikes – see page 39		
Dogging Feature	Hex key dogging standard		
Dogging Options	CD	Cylinder Dogging	see page 48
	SD	Special Center Case Dogging	see page 48
	LD	Less Dogging	see page 48
Electric Options	LX	Latchbolt Monitor Switch	see page 42
	RX	Pushpad Monitor Switch	see page 42
	RX2	Double Pushpad Monitor Switch	see page 42
	EL	Electric Latch Retraction	see page 43
	SS	Signal Switch	see page 43
	CX	Chexit Delayed Exit	see page 45
	ALK	Alarm Exit Kit	see page 42
Miscellaneous Options	PN	Pneumatic Latch Retraction	see page 48
	LBR	Less Bottom Rod	see page 49
	GBK	Glass Bead Kit	see page 49
	PL	Pullman Latch	see page 49
Fasteners & Sex Bolts (SNB)	Includes 1 ¾" (19mm) – 2 ¼" (57mm) Wood & Metal Doors Optional SNB available for device, see next page for quantities		
Latch Bolt	Deadlocking Top & Bottom Bolt, ⅝" (16mm) throw		
Device Centerline from Finished Floor	39 ⅝" (1006 mm) Standard, Adjustable from 35 ⅝" (905mm) to 49 ⅝" (1260mm)		
Door Undercut	¼" (7mm) maximum		
Center Case Dimensions	8" x 2 ¾" x 2 ⅜" (203mm x 70mm x 60mm)		
Mechanism Case Dimensions	2 ¼" x 2 ¼" (57mm x 57mm)		
Top & Bottom Latch Case	4 ½" x 2 ⅛" x 1 ½" (114mm x 54mm x 38mm)		
Vertical Rods	Round 2 piece adjustable rods Top rod adjustable from 6′8" (2027mm) to 8′4"(2533mm) Bottom rod adjustable 35 ⅝" (905 mm) to 49 ⅝" (1260 mm) Extension rod kits available for doors over 8′4" (2533mm)		
Projection	Pushbar Neutral – 3 13/16" (97 mm) Pushbar Depressed – 3 1/16" (78 mm)		

See page 53 for How to Order specification

	Exit only	**Dummy Trim** Pull when Dogged	**Night Latch** Key Retracts Latchbolt	**Night Latch** Key Retracts Latchbolt Optional Pull Required	**Thumbturn** Key Locks & Unlocks (Use with DT Trim)	**Thumbturn** Blank Escutcheon Always Operable (No Cylinder) (Use with DT Trim)
						
Product Description	9847EO 9947EO	9847DT 9947DT	9847NL 9947NL	9847NL-OP 9947NL-OP	9847TL 9947TL	9847TL-BE 9947TL-BE
Trim Description	—	990DT	990NL-R/V	110NL-MD	374T x 990DT	374T-BE x 990DT
Escutcheon Plate Size	—	3" x 14³⁄₁₆" x ³⁄₃₂" (*76x360x2mm*)	3" x 14³⁄₁₆" x ³⁄₃₂" (*76x360x2mm*)	—	2¾" x 10¾" x ²⁷⁄₃₂" (*70x273x21mm*)	2¾" x 10¾" x ²⁷⁄₃₂" (*70x273x21mm*)
Pull Center to Center	—	5½" (*140mm*)	5½" (*140mm*)	—	—	—
Projection	—	2" (*51mm*)	2" (*51mm*)	—	3¼" (*83mm*)	3¼" (*83mm*)
ANSI Function	01	02	03	03	11	—
Cylinder Type	—	—	Rim	Rim	1¼" Mortise	—
Optional Trim (See pages 32 – 34)	x990EO x992EO x994EO x996EO	x991K-DT x992L-DT x994L-DT x996L-DT x696DT x697DT	x991K-NL x992L-NL x994L-NL x996L-NL x696NL x697NL			
Optional #425 Sex Bolt Quantity for Device	6	2	2	6	2	2

	Lever Key Locks & Unlocks	**Lever – Night Latch** Key Retracts Latchbolt	**Lever – Blank Escutcheon** Always operable (No Cylinder)	**Lever Dummy Trim** Pull when Dogged
				
Product Description	9847L 9947L	9847L-NL 9947L-NL	9847L-BE 9947L-BE	9847L-DT 9947L-DT
Trim Description	996L-CV	996L-NL-CV	996L-BE-CV	996L-DT-CV
Escutcheon Plate Size	2¾" x 10¾" x ²⁷⁄₃₂" *(70x273x21mm)*	2¾" x 10¾" x ²⁷⁄₃₂" *(70x273x21mm)*	2¾" x 10¾" x ²⁷⁄₃₂" *(70x273x21mm)*	2¾" x 10¾" x ²⁷⁄₃₂" *(70x273x21mm)*
Pull Center to Center	—	—	—	—
Projection	2⅞" (*73mm*)	2⅞" (*73mm*)	2⅞" (*73mm*)	2⅞" (*73mm*)
ANSI Function	08	09	—	02
Cylinder Type	Rim	Rim	—	—
Optional Trim (See pages 32 – 34)	x992L x994L	x992L-NL x994L-NL	x992L-BE x994L-BE	x992L-DT x994L-DT
Optional #425 Sex Bolt Quantity for Device	2	2	2	2

For optional trims and functions see pages 32-34

ADJUST RODS

1. Open door and release top latch bolt as shown (Figure 1).

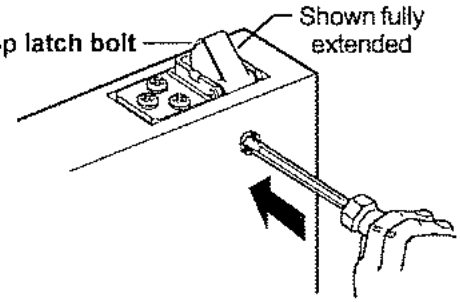


Figure 1

2. Remove bottom locking screw and retaining clip (Figure 2).
3. Disconnect bottom vertical rod by removing bottom adjusting screw.
4. Loosen top locking screw.
5. Rotate top adjusting screw clockwise until top latch bolt is fully extended (Figure 1).

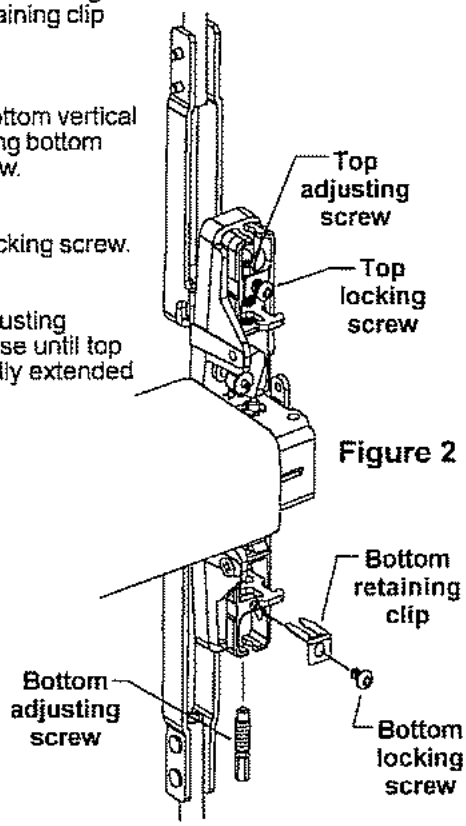
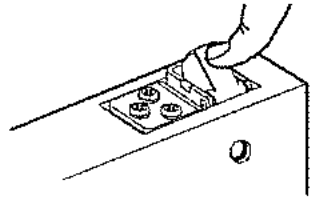


Figure 2

6. Check top latch bolt for deadlocking (latch bolt should not push in).



7. Turn top locking screw in against flat on adjusting screw. Do not over-tighten.
8. Depress pushbar and release.
9. Make sure top latch bolt stays retracted as shown.

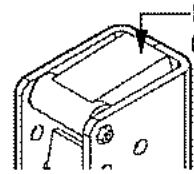


Figure 3

10. Install bottom adjusting screw through bottom rod and install bottom retaining clip and locking screw (Figure 2).
11. With top latch bolt still retracted, adjust bottom rod so latch bolt clears floor and bottom strike.

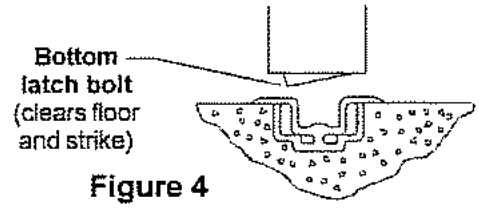


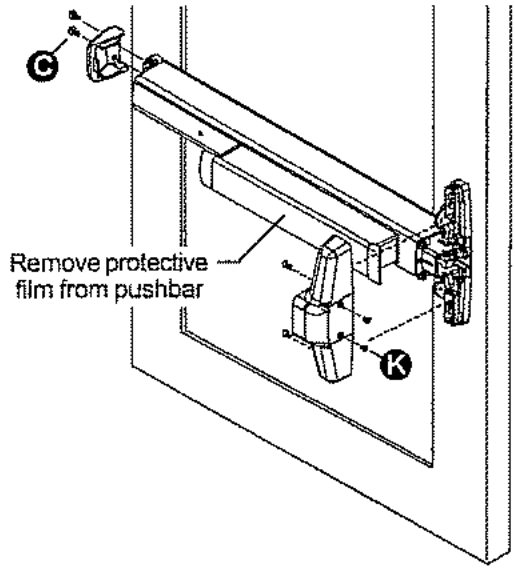
Figure 4

12. Close door and check bottom latch bolt for dead locking.
13. After bottom rod is fully adjusted per steps 11 and 12, turn bottom locking screw in against flat on adjusting screw. Do not over-tighten.
14. Check device operation by opening and closing door several times from the outside.

Redo adjustment procedure if :

- Top latchbolt is not held retracted
- Bottom latchbolt does not clear floor and bottom strike

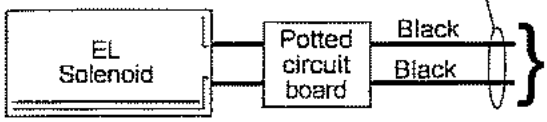
15. Install end cap and center case covers.



OPTIONAL EQUIPMENT - CONTINUED

EL WIRING

12 AWG required for distances up to 200'
14 AWG permitted for distances 0-100'



Solenoid draws 16 A inrush current from PS873. Solenoid must be wired to a PS873 logic board:

If 871-2 logic board, refer to Von Duprin instructions 941352.

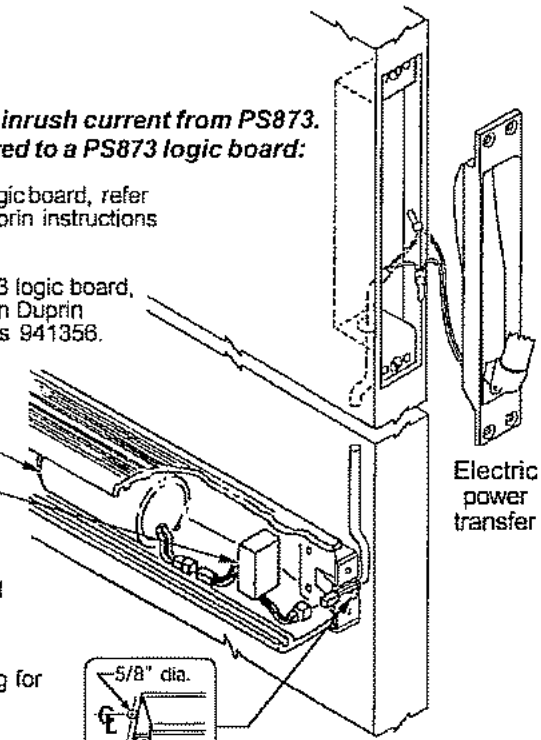
If other 873 logic board, refer to Von Duprin instructions 941356.

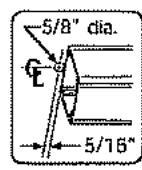
ELECTRICAL SPECIFICATIONS

Voltage:	24 VDC
Current:	16 A inrush (0.3 sec.)
	0.25 A holding

NOTE

When power is applied to the **potted circuit board**, the solenoid receives a momentary signal to retract and a separate signal to hold as long as power is applied. When attempting to retract solenoid again, power must be removed from the circuit and reapplied.





Drill 5/8"dia. wire access hole thru device side of door.

Troubleshooting solenoid operation

If the solenoid fails to retract the latch bolt when power is applied, recheck wiring for proper connections.

If solenoid retracts latch bolt momentarily but will not remain in energized position:
1. Check wiring for proper connections, guage, and distances.
2. Check for latch bolt binding caused by improper strike installation, warped door, etc.

EL ADJUSTMENT PROCEDURE

A. Check for proper function:
1. Make sure device is not dogged.
2. Depress pushbar and make sure latch bolts retracts and extends fully (see Figure 5).
3. Electrically energize solenoid and hold.
4. Check latch bolt(s) for full retraction (must clear strike (see Figure 5).
5. Release solenoid and check latch bolt extension (see Figure 5).
6. Continue to Section B if device does not function electrically.

B. Determine if dogging rod adjustment is too long or short:
1. The dogging rod adjustment is too **long** if latch bolt does not retract and clear strike (see Section C for adjustment).
2. The dogging rod adjustment is too **short** if latch bolt does not fully extend **or** latch bolt fully retracts but solenoid releases while energized (see Section D for adjustment).

C. Adjust solenoid if dogging rod is too **long** (see Figure 6):
1. Remove end cap ① and dogging cover ②.
2. Loosen cap screw ③.
3. Hold plunger ⑤ depressed in solenoid housing ⑥.
Note: Push hard against plunger ⑤ to overcome an internal spring in solenoid housing ⑥.
4. Turned threaded bushing ④ in to shorten dogging rod ⑦ so latch bolt fully retracts.
5. Tighten cap screw ③.
Note: Cap screw ③ must be tightened against flat on threaded bushing ④. Apply a few drops of Loc-Tite 222 to threads of cap screw ③.
6. Replace dogging cover ② and end cap ①.
7. Return to Section A to check for proper function.

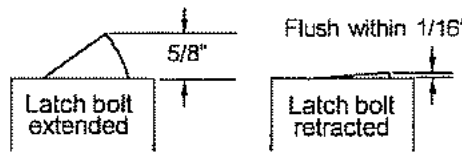


Figure 5

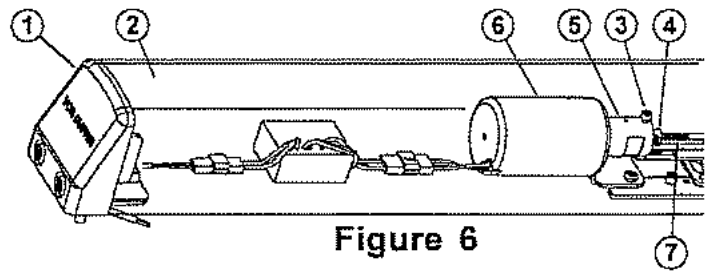


Figure 6

D. Solenoid adjustment if dogging rod adjustment is too **short** (see Figure 6):
1. Remove end cap ① and dogging cover ②.
2. Loosen cap screw ③.
3. Hold plunger ⑤ depressed in solenoid housing ⑥.
4. Turn threaded bushing ④ out to lengthen dogging rod ⑦ so plunger ⑤ just bottoms in solenoid housing ⑥ and latch bolt is fully retracted.
Note: Push hard against plunger ⑤ to overcome an internal spring in solenoid housing ⑥.
5. Tighten cap screw ③.
Note: Cap screw ③ must be tightened against flat on threaded bushing ④. Apply a few drops of Loc-Tite 222 to threads of cap screw ③.
6. Replace dogging cover ② and end cap ①.
7. Return to Section A to check for proper function.

PUSH PLATE FAMILY
PLATES & ACCESSORIES

***DMA: VERIFY STYLE OF ADA BUTTON TO BE INSTALLED, MAKE SELECTION ON THIS PAGE.

4.5" ROUND









10PBR45 10PBR451 10PBR4510 10PBR45LL 10BOX45RNDFM 10BOX45RNDSM 10ESCUTCHEON45 10WRRND45

4.5" SQUARE












10PBS45 10PBS451 10PBS4510 10PBS45LL 10PBS451AL 10PBS45B 10PBS451B 10PBS45POD 10PBS26BLK 10BOX45SQSM 10BOX45SQFM 10BOXDGSM

4.5" SQUARE FAMILY IS COMPATIBLE WITH BOLLARDS

4.75" SQUARE










10PBS1 10PBS1 10PBSLL 10PBS10 10PBSE 10PBS1B 10PBS1SB 10PBS1BB 10PBS1AL







10BOX475SQFM 10BOX475SQSM 10BOX475SQSMEBA 10BOXDG4H 10WRSQ475 10PBBRACKET 10PBBRACKETCA

4.75" SQUARE FAMILY IS COMPATIBLE WITH BOLLARDS

4.75" VESTIBULE






10PBDGP1 10BOX475SQFM 10BOX475SQSM 10BOXDG4H 50.5016

4.75" VESTIBULE FAMILY IS COMPATIBLE WITH BOLLARDS

36" HIGH-LOW

10LPR36* 10LPR36L*

LPR36 FAMILY IS COMPATIBLE WITH BOLLARDS
*AVAILABLE IN HARDWIRED AND WIRELESS (900, 433 OR 300 MHZ) MODELS.

6" ROUND












10PBR 10PBR1 10PBR10 10PBR1AL 10PBRLL 10BOX6RNDFM 10BOX6RNDSM 10ESCUTCHEON 10WRRND6 10PBBRACKET 10PBBRACKETCA

6" SQUARE







10PBS6 10PBS61 10PBS610 10PBS6LL 10BOX6SQFM 10BOX6SQSM

SINGLE GANG (2.75" X 4.5")






10PBO241 10PBO2410 10PBO24L 10PBO24E 10BOX24SGSM

JAMB (1.5" X 4.75")











10PBJ 10PBJ1* 10PBJ10 10PBJL* 10PBJE 10PBJSREV 10PBJ1B 10PBJLB 10BOXJAMBFM 10BOXJAMBSM

CHERRY SWITCH VERSIONS SHOWN
*ALSO AVAILABLE IN HARDWIRED AND MICROSWITCH VERSIONS

BOLLARDS



10BOLLARDBRZ 10BOLLARDSLV 10BOLLARDBLK

*ALSO AVAILABLE WITHOUT HOLE

The World's Most Advanced Wireless Door Control System

LAZERPOINT RF™
BY CAMDEN

Only LAZERPOINT RF™ provides the largest selection of activation devices, the most reliable performance and the lowest installation cost!

Camden
DOOR CONTROLS

www.camdencontrols.com/lazerpoint

Advanced Technology and System Design

DELIVERING THE MOST FLEXIBLE AND RELIABLE SOLUTION AVAILABLE TODAY!

LAZERPOINT RF™ BY CAMDEN

LAZERPOINT RF™ is designed to do what narrow-band systems can't!

Conventional wireless (also known as narrow-band) systems communicate at a frequency that remains constant. This makes the wireless signal very susceptible to interference.

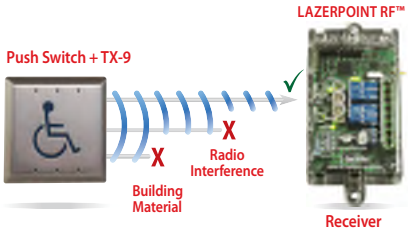
Camden's new Lazerpoint RF™ provides a superior solution with industry-leading (broadband) 915 MHz. spread spectrum wireless technology.

Lazerpoint RF™ 'spreads' the wireless signal across a number of frequency channels on a wider electromagnetic spectrum.

Lazerpoint RF™ frequency - hopping (FHSS) wireless communications is virtually impervious to interference from other wireless devices (RFI immunity).

In addition, Lazerpoint RF™ wave length is 70% shorter than 300-400 MHz. signals, allowing it to pass through smaller openings in building materials. Best of all, Lazerpoint RF™ provides a range up to 10 times that of typical narrow-band wireless products.

Lazerpoint RF™ state-of-the-art circuitry draws minimal power: up to 5 year battery life or 500,000 activations, utilizing two AAA alkaline batteries.



Single frequency wireless (narrowband) is easily blocked by building materials (that limit your options for placement of transmitters) and radio interference from other electrical/electronic devices (which can cause intermittent disruptions that are a service nightmare). LAZERPOINT RF™ wireless technology 'hops' between 3 frequencies to ensure that the wireless signal always gets through.

Lazerpoint RF™ by Camden Door Controls is the industry's most advanced wireless activation system for automatic doors. This remarkable 915MHz. spread spectrum (broadband) wireless system even provides reliable performance in many applications where wireless could not be used before. In addition to the best wireless technology, Lazerpoint RF™ also offers a range of exclusive features designed to make installation and service easier, including a battery test gauge, built-in signal strength indicator and stuck switch alarm. Lazerpoint RF™ is supported with the widest range of wireless transmitters, receivers, accessories and compatible activation devices in the market.

Lazerpoint RF™ is also ideal for retrofit applications with compatibility with most 300MHz., 318MHz., 390MHz. and 433MHz. fixed frequency wireless systems.

SYSTEM FEATURES

- The industry's most advanced wireless activation system with a range of wireless activation devices, receivers and accessories.
- 12 or 24 Volt, AC or DC operation. Lazerpoint RF™ is compatible with all automatic door operators.
- Advanced 915MHz. spread spectrum (broadband) wireless communications for outstanding performance in the most demanding applications.
- Multi-year battery life (using inexpensive 'AAA' alkaline batteries) and exclusive 'low battery' and 'gas gauge' audible alerts.
- Ultra compact designs fit where other products can't, including jamb switch boxes and low profile door operators.
- Built-in relays/door sequencers save time and money by avoiding the cost of buying and installing additional components.
- Optional plug-in receiver modules provide compatibility to other RF frequencies.
- A range of installation support features, including 'Push and Learn' transmitter enrollment and signal strength indicators, makes Lazerpoint RF™ the easiest system to install.
- The option for Lazerpoint RF™ wireless compatible keypads and hands-free switches.
- Camden product quality backed by a full 3 year replacement warranty.

Wireless Activation

LAZERPOINT RF™ by Camden Door Controls provides exclusive 915Mhz. spread spectrum technology, together with the widest range of wireless door activation devices in the industry. From push plate or touchless switches to FOBs and keypads, LAZERPOINT RF™ allows you to provide the best door control for any application.

WALL SWITCH TRANSMITTERS

Ultra compact design, fits where other transmitters can't.

Best of all, the low current draw of LAZERPOINT RF™ wireless technology supports years of battery life using standard alkaline batteries.

- **'Instant response' captures brief switch activations**
- **Compatible with all push button and push plates**
- **Ultra compact design**
- **Audible 'stuck switch'**
- **Low battery indication**

MODELS

CM-TX-9 Wall Switch Transmitter

Lithium Batteries

CM-xxxL2: Add 'L2' to CM-TX-9 model # for 'AAA' lithium batteries in place of alkaline

CM-LP2: (2) 'AAA' lithium battery pack

NOTE: Lithium batteries recommended for environments below 32°F (0°C)

HANDS-FREE SWITCHES

Camden SureWave™ touchless switches utilize active infrared micro burst technology, to provide superior performance over years of operation.

- **Adjustable operating range, 1" to 72"**
- **Adjustable time delay, 3 – 30 seconds**
- **Optional light ring for visual indication of door status and alarms**

MODELS

CM-330 Wireless, battery powered, no relay (provided by receiver)

CM-331 Wired, line powered switch with 1 relay, and the option for wireless

CM-332 Wired, line powered switch with 2 relays, and the option for wireless

CM-333 Battery powered, and the option for wireless

Lithium Batteries for CM-330 and CM-333

CM-xxxL1: Add 'L1' for (2) 'AA' lithium batteries in place of (2) alkaline

CM-LP1: (2) 'AA' lithium battery pack

KEYPADS

Camden CM-120 Series keypads are North American built and are available battery powered or hand-wired.

- **Indoor or back-lit, weather and vandal resistant models**
- **999 Users with 10 million variable length codes**
- **REX and door contact inputs**

MODELS

CM-120i Indoor wired keypad, with option for wireless

CM-120wV2 Outdoor back-lit vandal resistant wired keypad, with option for wireless

CM-120TX Outdoor back-lit vandal resistant wireless keypad, battery operated

Lithium Batteries for CM-120TX

CM-xxxL1: Add 'L1' for (2) 'AA' lithium batteries in place of (2) alkaline

CM-LP1: (2) 'AA' lithium battery pack

Wireless Receivers

LAZERPOINT RF™ receivers are the most advanced, feature rich and easily installed receivers in the industry, available in one relay or two relay configurations. The receiver can be installed inside a door operator cabinet header. Factory default operating modes eliminate the need for an additional door control relay. Plug-in daughterboards enable the receiver to be used with most brands of fixed frequency transmitters, eliminating the need to replace equipment in retrofit applications.

VISUAL LEDs – RL1 AND RL2

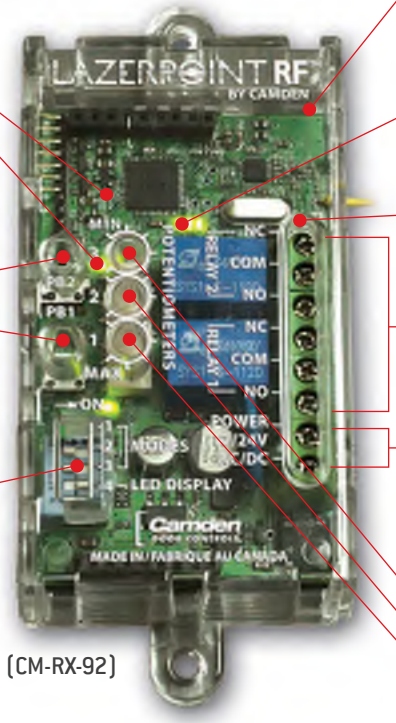
- Indicates program mode 'on' and 'off'
- Indicates transmitter deletion (erase)
- Indicates number of transmitters enrolled, channel 1 and 2
- Indicates Relay Activation
- Indicates transmitter signal strength

PUSH BUTTONS - PB1 AND PB2

- Enter programming mode, channels 1 and 2
- Enroll transmitters

DIP SWITCH – 1, 2, 3 AND 4

- Select relay operating mode
- Select LED indications for relay status or transmitter signal strength



(CM-RX-92)

- Plug-in slot for first optional daughterboard

VISUAL LED - ARRAY

- Indicates confirmation of transmitter enrollment
- Indicates hold open relay time
- Potentiometer display setting

'EASY CONNECT'

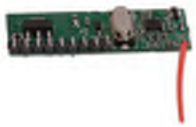
- Large terminal block for easier wiring
- (2) SPDT relays rated 3 Amps
- 12/24V, AC/DC power

POTENTIOMETERS – 1, 2 AND 3

- Adjust for lock (strike) hold time
- Adjust for door operator 'energize' delay
- Adjust for door operator hold open time

OPTIONAL FIXED FREQUENCY PLUG-IN BOARDS

- **Up to 2 plug-in daughterboards per receiver allowing up to 3 transmitter frequencies to be used simultaneously.**
- **Frequency formats compatible with most brands**

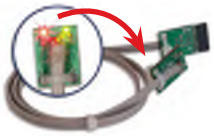


MODELS

CM-RX-DBB	300MHz Daughterboard (blue antenna)
CM-RX-DBO	318MHz Daughterboard (orange antenna)
CM-RX-DBR	390MHz Daughterboard (red antenna)
CM-RX-DBW	433MHz Daughterboard (white antenna)

SERVICE TOOL

Plug-in LED Cable Tool, 33".



RX-92 RELAY OPERATING MODES		
MODE 1	**DUAL INDEPENDENT OUTPUTS**	Two separate channels, each with a Form 'C' output, and 1 - 30 second timer.
MODE 2	**SWITCHING NETWORK**	(Make/Break Relay) performs a similar function as Camden CX-12 or SA-1. Suitable for a door with electric lock and automatic operator.
MODE 3	**VESTIBULE SEQUENCING 'A'**	This mode sequences two doors in both directions, with just one pair of wires between the two doors. Only 1 RX-92 required.
MODE 4	**VESTIBULE SEQUENCING 'B'**	This mode sequences two doors in both directions, with no wiring! Requires 2 RX-92's.
MODE 5	**ACCESS CONTROL MODE**	Upon receipt of a signal, this mode latches Relay 1, the lock relay. While locked, it allows transmitters, learned into channel 2, to fire (activate) the operator relay.
MODE 6	**FREIGHT DOOR MODE**	A transmitter input will activate the lock output for an adjustable time, and latch the operator output indefinitely. A second activation allows the door to close.

Lazerpoint RF Packages

Camden makes project management easier by offering a range of LAZERPOINT RF™ kits. It's a complete door activation package, with the assurance of the best performance and no missing parts on the jobsite.

LAZERPOINT RF™ PACKAGES INCLUDE:

- **2 CM-TX9 transmitters**
- **1 CM-RX91 receiver**
- **2 stainless steel all-active switches**
- **2 mounting boxes/enclosures.**

RECEIVER OPTION: Add 'D' to Switch Package # for CM-RX92 Dual Relay Receiver in place of CM-RX91

JAMB WIDTH SWITCH PACKAGES (CM-25 SERIES)

CM-RFL252	Wheelchair Symbol + Surface Box
CM-RFL253	'PUSH TO OPEN' + Surface Box
CM-RFL254	Text and Wheelchair Symbol + Surface Box

CM-RFL252

4 1/2" ROUND SWITCH PACKAGES (CM-40 SERIES)

CM-RFL402-47	Wheelchair Symbol + Surface Box
CM-RFL403-47	'PUSH TO OPEN' + Surface Box
CM-RFL404-47	Text and Wheelchair Symbol + Surface Box
CM-RFL402-49	Wheelchair Symbol + Flush / Surface Kit
CM-RFL403-49	'PUSH TO OPEN' + Flush / Surface Kit
CM-RFL404-49	Text and Wheelchair Symbol + Flush / Surface Kit

CM-RFL404-47

CM-RFL404-49

4 1/2" SQUARE SWITCH PACKAGES (CM-45/46 SERIES)

CM-RFL45	Concealed Screws, stainless steel faceplate
CM-RFL46	Exposed Screws, stainless steel faceplate
CM-RFL46CB	Exposed Screws, blue aluminum faceplate
CM-RFLXX2	Wheelchair Symbol + Surface Box
CM-RFLXX3	'PUSH TO OPEN' + Surface Box
CM-RFLXX4	Text and Wheelchair Symbol + Surface Box

CM-RFL453

CM-RFL464

CM-RFL46CB4

6" ROUND SWITCH PACKAGES (CM-60 SERIES)

CM-RFL602-69	Wheelchair Symbol + Surface Box
CM-RFL603-69	'PUSH TO OPEN' + Surface Box
CM-RFL604-69	Text and Wheelchair Symbol + Surface Box
CM-RFL602-79	Wheelchair Symbol + Flush/Surface Kit
CM-RFL603-79	'PUSH TO OPEN' + Flush/Surface Kit
CM-RFL604-79	Text and Wheelchair Symbol + Flush / Surface Kit

CM-RFL603-69

CM-RFL603-79

OPTIONS (Add suffix to models above)

CM-RFLxxx/V

Add 'V' to switch package model # to add CM-2520 vestibule switch, CM-53 surface box, (2) CM-TX9 wireless transmitters and (2)CM-RX92 dual relay receivers.

The CM-2520 graphic option will match push plate switches. Not to be ordered with 'D' suffix switch packages.

CM-RFLxxx/D

Add 'D' to switch package model # for CM-RX92 dual relay receiver, in place of CM-RX91

Lithium Batteries for Wireless Switch Kits

CM-xxxL3	Add 'L3' to RFL kit for (4) 'AAA'
CM-LP2	(2) 'AAA' lithium battery packs

CM-RFL25204

VESTIBULE SWITCH PACKAGES INCLUDE:

- **CM-2520**
- **CM-53 Surface Box**
- **2 CM-TX9 transmitters**
- **1 CM-RX92 receiver**

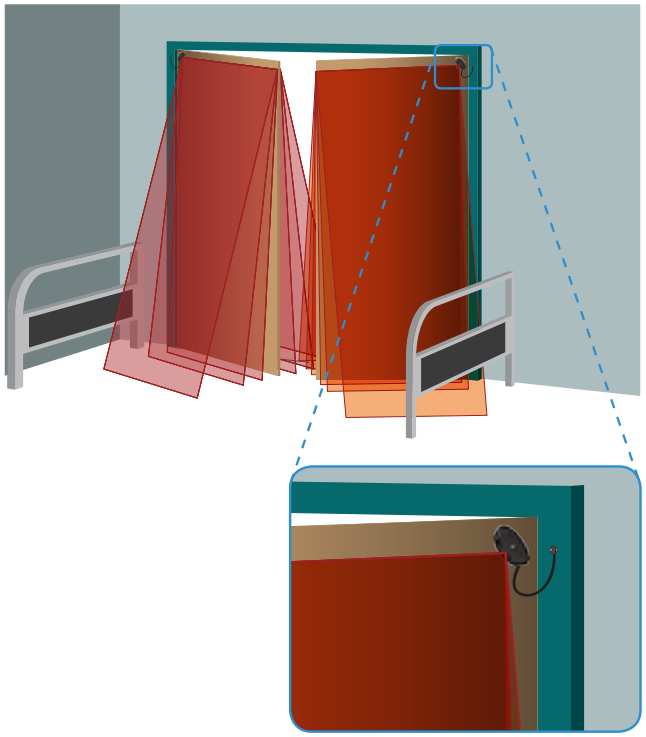
VESTIBULE SWITCH PACKAGES (CM- 2520)

CM-RFL25202	Wheelchair Symbol
CM-RFL25203	'PUSH TO OPEN'
CM-RFL25204	Text and Wheelchair Symbol

LZR®-MICROSCAN

STAND-ALONE, DOOR-MOUNTED, SWING DOOR SAFETY SYSTEM

PRIMARY APPLICATION



DESCRIPTION

BEA's LZR-microscan is a laser-based sensor system designed for automatic swing doors. It is the premier safety sensor system on the market.

Using sophisticated time-of-flight technology, the LZR-microscan eliminates all past limitations of infrared-based devices. Its background independence eliminates nuisance detections caused by changing weather and floor conditions, while gyroscopes sense the movement of the door for accurate positioning.

The LZR-microscan provides adjustable pattern depths that exceed the ANSI 156.10 8.2.2.3 standard and offer 100% coverage in all door states (fully open, fully closed, opening and closing).

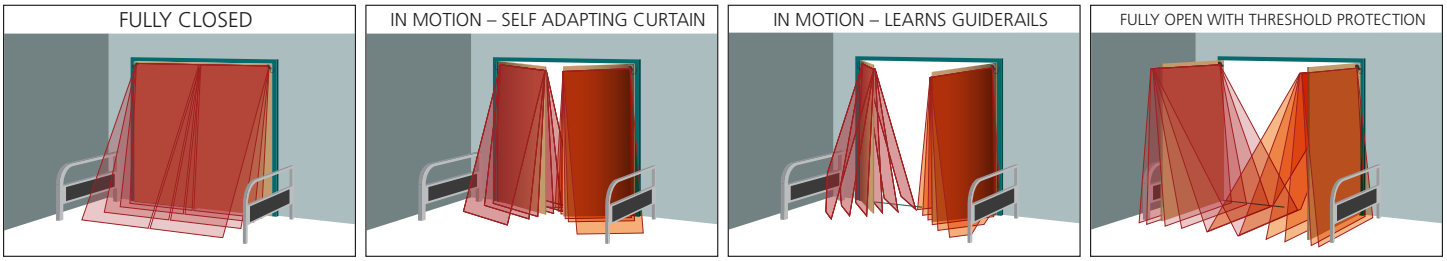
FEATURES & BENEFITS

- Plug & play technology and universal door compatibility greatly reduces installation time
- Centralized Hub and intuitive LCD user interface with simplified three-step programming greatly reduces setup time
- High resolution, self-adapting detection zones, coupled with reduced uncovered zones create the most accurate and reliable safety sensor
- "Zip code" troubleshooting and on-board error log provide ease of service
- Three "traffic modes" for normal, high or extreme traffic flow

BEA, Inc.
RIDC Park West
100 Enterprise Drive
Pittsburgh, PA 15275-1213

Customer Service: 800.523.2462
Technical Support: 800.407.4545
www.BEAinc.com

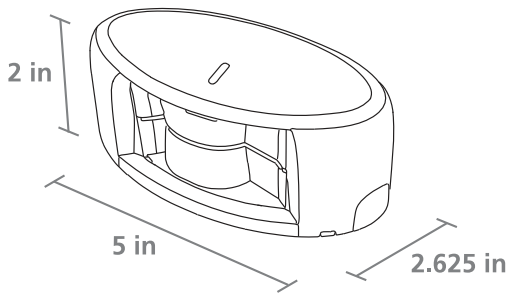
FULL COVERAGE IN ALL DOOR STATES



TECHNICAL SPECIFICATIONS

Technology	LASER scanner, Time-of-Flight measurement
Detection Mode	Presence
Min. / Max. Door Width	20 in to 48 in (per door leaf) (measured from leading edge to sensor LED)
Mounting Height	75 in to 98 in (6.25 ft to 8 ft) (measured from finished floor to sensor LED)
Remission Factor	> 2%
Angular Resolution	2.56°
Testbody (H×W×D)	28 in × 12 in × 8 in
Emission Characteristics IR laser	Wavelength 905 nm; Maximum Output Pulse Power 35 W (CLASS 1)
Supply Voltage	12 – 30 VDC (15 W Class II)
Power Consumption	< 15 W
Response Time	Typ. 40 ms; Max. 80 ms
Output Rating	4 electro-mechanic relays (galvanic isolated - polarity free) All outputs Class 2 supply, 12 - 24 VAC, 12 - 30 VDC, Max. 15 W
Input Rating	2 optocouplers (galvanic isolated - polarity free) 12 - 24 VAC, 15 / 60 HZ, 12 - 30 VDC, Max. 15 W
Test Input*	8 – 15 VDC
Temperature Range	-13°F to +121°F (-25°C to +55°C)
Degree of Protection	Hub: IP20/NEMA 1 Sensor: IP53/NEMA 3
Humidity	0 – 95% Non-condensing
Vibrations	< 2 G
Material	PC/ASA
Norm Conformance	EN 60825-1-Eye-safety class 1 IR laser (905 nm), UL325, UL6730
Mounting Angle (rotational)	35° fixed
Tilt Angle	0° to 5° (for angles less than 5° contact Technical Support)
Pollution on Front Screens	Maximum 30%; Homogenous

DIMENSIONAL DRAWINGS



RELATED PRODUCTS

10LZRMICROSCAN1
SINGLE SWING DOOR KIT

10LZRMICROSCAN2
SIM PAIR / DUAL EGRESS KIT

10LZRMICROSCAN1U
CUSTOM SINGLE UNIVERSAL KIT

10LZRMICROSCAN2U
CUSTOM PAIR / DUAL UNIVERSAL KIT

10LZRMICROHUB
LZR-MICROSCAN HUB

10MICROSCANMOUNT
MOUNTING ARM

70.5554
MOUNTING SPACER

10LZRMICROLEFT
LEFT MOUNT SENSOR

10LZRMICRORIGHT
RIGHT MOUNT SENSOR

10MICROSCAN-Y
Y-HARNESS

10EAGLE
MICROWAVE MOTION SENSOR

LZR®-MICROSCAN STAND-ALONE, DOOR-MOUNTED, SWING DOOR SAFETY SYSTEM

BEA, Inc.
RIDC Park West
100 Enterprise Drive
Pittsburgh, PA 15275-1213

Customer Service: 800.523.2462
Technical Support: 800.407.4545

79.0163.09 20170306

LAZERPOINT RF™
BY CAMDEN

LAZERPOINT RF™ is designed for any wireless door control application!

LAZERPOINT RF™ is the only 915MHz spread spectrum wireless system on the market, with instant switch response – simply better performance!

- 915Mhz. spread spectrum wireless technology provides superior operating range, signal integrity and reliable operation not offered by other (fixed frequency) wireless systems.
- Supported with the widest range of wireless door activation devices in the market
- An extensive list of unique product features that make installation, operation and maintenance easier than ever before.
- Optional fixed frequency plug-in boards eliminate the need to replace transmitters in retrofit applications.

LAZERPOINT RF™ is designed to save you more money!

- No extra cost for timers and sequencer relay control. RX-92 features (3) built-in timers and a complete range of program controls.
- Faster installation with less problems. LAZERPOINT RF™ exclusive features include battery test/alarm, stuck switch alarm, signal strength indicators, auto enrollment and cable tool.
- Virtually no service call backs. Spread spectrum technology will not be affected by future building changes (materials or electrical equipment).
- Less maintenance due to longer battery life.

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February 3, 2021

FASTENING AND ANCHORAGE SPECIFICATION
FOR
ARMORY PROJECTS WITH COUNTRYSIDE GLASS AND MIRROR

This specification letter is for the specification of fastening and anchorage for the window and doors system installation at the project captioned above. Due to varying locations, the worst case wind pressures based on location will be used.

Wind Pressures:

MecaWind v2367 per ASCE 7-16

Software Developer: Meca Enterprises Inc., www.meca.biz, Copyright © 2020

Date : 02/03/21
Company Name: Paul E Hagler, Consulting Eng
Address : 1280 Heather Ridge Blvd.
City : Dunedin, FL 34698

Project No. : Armory Wind Pressures
Designed By : Paul E Hagler, FPE 20158
Description : New Windows & Doors
Customer Name: Countryside Glass & Mirror
Location : Homestead, FL

Basic Wind Parameters:

Wind Load Standard	=ASCE 7-16	Exposure Category	= C
Wind Design Speed	=181.0 mph	Risk Factor	= III
Structure Type	=Building	Building Type	= Enclosed

Gust Factor Calculations:

Gust Factor Summary
Not a Flexible structure, use the lessor of Gust1 and Gust2 = 0.85

GCPi = Ref Table 26.11-1 for Enclosed Building = +/-0.18

Wind Pressure on Components and Cladding (Ch 30 Part 1)

All pressures shown are based upon ASD Design, with a Load Factor of 0.6
Width of Pressure Coefficient Zone "a" = 10.00 ft

Description	Zone	Width ft	Span ft	Area sq ft	1/3 Rule	Ref Fig	GCp Max	GCp Min	p Max psf	p Min psf
10sf Interior	4	2.000	5.000	10.00	No	30.3-1	1.000	-1.100	47.84	-51.90
10sf Corner	5	2.000	5.000	10.00	No	30.3-1	1.000	-1.400	47.84	-64.06
20sf Interior	4	4.000	5.000	20.00	No	30.3-1	0.947	-1.047	45.69	-49.74
20sf Corner	5	4.000	5.000	20.00	No	30.3-1	0.947	-1.294	45.69	-59.75
50sf Interior	4	5.000	10.000	50.00	No	30.3-1	0.877	-0.977	42.84	-46.89
50sf Corner	5	5.000	10.000	50.00	No	30.3-1	0.877	-1.153	42.84	-54.05
100sf Interior	4	10.000	10.000	100.00	No	30.3-1	0.823	-0.923	40.68	-44.74
100sf Corner	5	10.000	10.000	100.00	No	30.3-1	0.823	-1.047	40.68	-49.74

The Armory at West Palm Beach, detail EL/2, will be used for fastening requirements as this is the worst-case scenario.

PAUL E. HAGLER, P.E.

Engineering Consultant

"Civil - Structural - Geotechnical Engineering"

1280 Heather Ridge Blvd.
Dunedin, Florida 34698

FPE20158
E-mail: pehagler@gmail.com

voice: (727)738-9025
fax: (727)738-9505

Proposed Loading From Wind Pressures (50sf Zone 5):

(43"+36") / 2 = 39.5"
39.5" x (54psf / 144) = 14.82 #/in.
(14.82#/in x 108") / 2 = **800#** ea. End of Mullion
Jambs are half tributary area = **400#** ea. End

The allowable loadings based on substrates are as follows:

Fasteners to concrete:

1. Proposed anchorage is with 5/16" dia. Ultracon fasteners
2. With minimum edge distance of 1-1/4" and min. embedment depth of 1-3/4"
3. Allowable shear strength in min. 3000psi concrete (Saftey factor of 4): **300#** per anchor
4. This will require a minimum of (3) fasteners at each end of mullions, and (2) at each end of jambs.
5. Additional fasteners for this project will include (2) at center of door head and threshold with 3"spacing from center.

Fasteners to wood:

1. Proposed anchorage is with 5/16" dia. Ultracon fasteners
2. With minimum edge distance of 5d (1-9/16") and min. embedment depth of 1"
3. Allowable shear strength (Saftey factor of 4): **274#** per anchor
4. This will require a minimum of (3) fasteners at each end of mullions, and (2) at each end of jambs.
5. Additional fasteners for this project will include (2) at center of door head and threshold with 3"spacing from center.

Fasteners to steel:

1. Proposed anchorage is with 1/4" dia. Dril-Flex or similar fasteners
2. With minimum 3 threads of penetration, and minimum 18ga steel
3. Allowable shear strength (Saftey factor of 4): **237#** per anchor
4. This will require a minimum of (4) fasteners at each end of mullions, and (2) at each end of jambs.
5. Additional fasteners for this project will include (2) at center of door head and threshold with 3"spacing from center.

It is our professional opinion that the proposed fastener conditions will be sufficient in resisting wind pressures acting on the window system. Should you have any questions, please contact us.

Sincerely,

Paul E. Hagler, FPE 20158

GENERAL INFORMATION

ULTRACON®

Concrete and Masonry Fasteners

PRODUCT DESCRIPTION

The UltraCon fastening system is a complete family of screw anchors for light to medium duty applications in concrete and masonry block base materials. UltraCon is available in 5/16" diameter which provides increased shear and tensile strength to meet the needs of more demanding applications. The UltraCon is fast and easy to install and provides a neat, finished appearance. The UltraCon screw anchor is available in carbon steel with a Stalgard coating in silver that provides additional corrosion resistance.

GENERAL APPLICATIONS AND USES

- Window Frames
- Metal Door Frames
- Shelving and Racking
- Shutters and Guards
- Pipe Support
- Cable Trays

FEATURES AND BENEFITS

+ 5/16" diameter provides increased shear and tensile strength
+ Stalgard® coating provides 1000 hours of salt spray protection when tested in accordance with ASTM B117
+ Available in various head styles to fit the intended application
+ Installed with a standard ANSI bit

APPROVALS AND LISTINGS

- Miami-Dade County Notice of Acceptance (NOA) No. 19-0619.02
- Florida Statewide Product Approval FL29068.2

GUIDE SPECIFICATIONS

CSI Divisions: 03 16 00 - Concrete Anchors, 04 05 19.16 - Masonry Anchors and 05 05 19 - Post-Installed Concrete Anchors. Concrete Screw Anchors shall be UltraCon as supplied by DEWALT, Towson, MD. Concrete screw anchors shall be installed in accordance with published instructions and the Authority Having Jurisdiction.

MATERIAL SPECIFICATIONS

Anchor Component	Specifications
Anchor Body	Case Hardened Carbon Steel
Coating/Plating/Finish	Stalgard® 1000 hour rating for ASTM B 117 salt spray test

SECTION CONTENTS

ULTRACON

HEAD STYLES

- Hex Washer Head
- TrimFit® Hex Head
- Phillips Flat Head
- TrimFit® Flat Head
- Oversized Flat Head

ANCHOR MATERIALS

- Carbon Steel with Stalgard Coating

ANCHOR SIZE RANGE (TYP.)

- 5/16" diameter x 1-3/4" to 6" lengths

SUITABLE BASE MATERIALS

- Normal-weight Concrete
- Hollow Concrete Masonry (CMU)
- Grouted-Filled Concrete Masonry (CMU)
- Wood

MIAMI-DADE COUNTY APPROVED

INSTALLATION SPECIFICATIONS

UltraCon Carbon Steel Hex Head

Dimension	Anchor Diameter, d				
	5/16" HWH	5/16" THH	5/16" PFH	5/16" TFH	5/16" OFH
Drill Bit Size (in)	1/4	1/4	1/4	1/4	1/4
Typ. Fixture Clearance hole (in)	3/8	3/8	3/8	3/8	3/8
Head Height (in.)	11/64	5/32	13/64	1/8	5/16
Head Width (in)	5/16	5/16	35/64	13/32	11/16
Washer OD (in)	35/64	7/16	N/A	N/A	N/A
Washer Thickness (in)	1/16	1/16	N/A	N/A	N/A
Hex Driver (in)/ Phillips Driver	5/16	5/16	#3	#3	#3

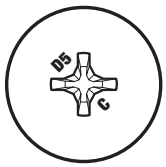
UltraCon Identification

Hex Washer Head (HWH)

TrimFit Hex Head (THH)

Phillips Flat Head (PFH)

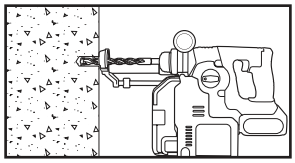
TrimFit Flat Head (TFH)



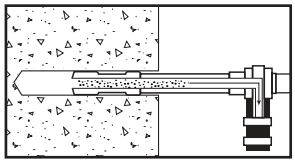
Oversized Flat Head (OFH)

The head markings consist of a "D" for the DEWALT brand, the number "5" for the 5/16" diameter, and the length code. TrimFit flat head variations also include two dots

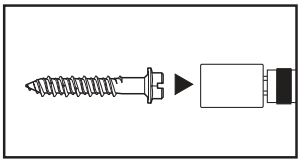
Installation Instruction for UltraCon



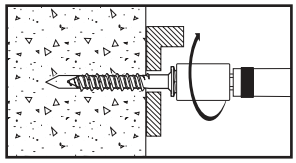
Step 1
Using the proper drill bit size, drill a hole into the base material to the required depth, ho, which is a 1/4-inch deeper than the minimum embedment depth, h_{nom}.



Step 2
Remove dust and debris from the hole during drilling (e.g. dust extractor) or following drilling (e.g. suction, forced air) to extract loose particles created by drilling.



Step 3
Attach a UltraCon+ installation socket tool for the selected anchor size to a percussion drill and set the drill to rotary only mode. Mount the screw anchor head into the socket. For flat head versions a bit tip must be used with the socket tool.



Step 4
Place the point of the UltraCon through the fixture into the pre-drilled hole and drive the anchor in one steady continuous motion until it is fully seated at the proper embedment. The driver will automatically disengage from the head of the UltraCon.

UltraCon Length Code Identification System

Length ID marking on head		A	B	C	D	E	F	G	H
Overall anchor length ℓ_{anch} (inches)	From	1-1/2"	2"	2-1/2"	3-1/4"	3-1/2"	4"	4-1/2"	5-1/2"
	Up to but not including	2"	2-1/2"	3-1/4"	3-1/2"	4"	4-1/2"	5-1/2"	6-1/2"

Installation Table for UltraCon in Concrete[1]

Anchor Property/Setting Information	Notation	Units	Nominal Anchor Diameter
			5/16
Anchor Shank Diameter	d_a	in.	0.246
Typ. Diameter of Hole Clearance in Fixture	d_h	in.	3/8
Nominal Drill Bit Diameter	d_{bit}	in.	1/4
Bit Tolerance Range	-	in.	0.260 to 0.268
Minimum Nominal Embedment Depth	h_{nom}	in.	1
Minimum Hole Depth	h_o	in.	1-1/4
Hex Head Socket Size	-	in.	5/16
Phillips Bit Size	-	No.	3

1. The minimum base material thickness must be $1.5h_{nom}$ or 3", whichever is greater.

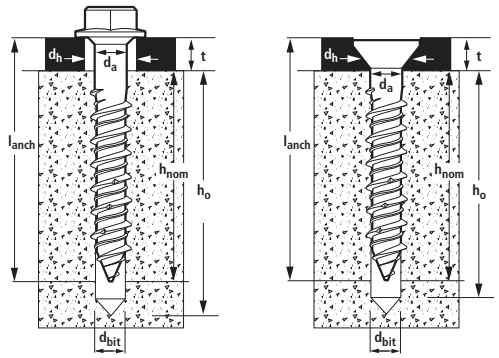
Installation Table for UltraCon in Masonry

Anchor Property/Setting Information	Notation	Units	Nominal Anchor Size (in.)
			5/16
Anchor Shank Diameter	d_a	in.	0.246
Typ. Diameter of Clearance Hole in Fixture	d_h	in.	3/8
Nominal Drill Bit Diameter	d_{bit}	in.	1/4
Bit Tolerance Range	-	in.	0.260 to 0.268
Minimum Nominal Embedment Depth (Grout Filled Masonry)	h_{nom}	in.	1-3/4
Minimum Hole Depth (Grout Filled Masonry)	h_o	in.	2
Minimum Nominal Embedment Depth (Hollow Masonry)	h_{nom}	in.	1-1/4
Minimum Hole Depth (Hollow Masonry)	h_o	in.	1-1/2
Hex Head Socket Size	-	in.	5/16
Phillips Bit Size	-	No.	3

Installation Table for UltraCon in Wood

Anchor Property/Setting Information	Notation	Units	Nominal Anchor Size (in.)
			5/16
Anchor Shank Diameter	d_a	in.	0.246
Typ. Diameter of Clearance Hole in Fixture	d_h	in.	3/8
Nominal drill bit diameter	d_{bit}	in.	Pre-drilling is not required for UltraCon into wood
Hex Head Socket Size	-	in.	5/16
Phillips Bit Size	-	No.	3

Anchor Detail



Nomenclature

d_a = Diameter of anchor
d_{bit} = Diameter of drill bit
d_h = Diameter of fixture clearance hole
h_{nom} = Minimum embedment depth
h = Base material thickness
The minimum value of h should be $1.5h_{nom}$ or 3" whichever is greater
h_o = Minimum hole depth

PERFORMANCE DATA

Ultimate Load Capacities for UltraCon in Normal Weight Concrete

Nominal Anchor Diameter (in.)	Min. Embed. (in.)	Min. Edge Dist. (in.)	Min. Spacing (in.)	Concrete Compressive Stength			
				3000 psi		4000 psi	
				Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
5/16	2	1-1/4	1-7/8	755	440	870	480
	2		3-3/4	1,070	440	1,235	480
	1		5	665	790	765	860
	1-3/4			1,940	1,215	2,240	1,320
	1	2-3/16	5	755	1,385	870	1,500
	1-3/4			2,215	2,900	2,560	3,140
	2	3-1/8	1-7/8	1,105	1,550	1,280	1,680
	2		3-3/4	1,680	2,620	1,940	2,840
	1		5	775	1,660	895	1,800
	1-3/4			2,435	3,140	2,815	3,400
	2			3,085	3,140	3,560	3,400

1. Tabulated load values are for anchors installed in concrete. Concrete compressive strength must be at the specified minimum at the time of installation
2. Ultimate load capacities must be reduced by a minimum safety factor of 4.0 or greater to determine allowable working load. Consideration of safety factors of 10 and higher may be necessary depending upon the application such as life safety or overhead.

Allowable Load Capacities for UltraCon in Normal Weight Concrete

Nominal Anchor Diameter (in.)	Min. Embed. (in.)	Min. Edge Dist. (in.)	Min. Spacing (in.)	Concrete Compressive Stength			
				3000 psi		4000 psi	
				Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
5/16	2	1-1/4	1-7/8	185	110	215	120
	2		3-3/4	265	110	305	120
	1		5	165	195	190	215
	1-3/4			485	300	560	330
	1	2-3/16	5	185	345	215	375
	1-3/4			550	725	640	785
	2	3-1/8	1-7/8	275	385	320	420
	2		3-3/4	420	655	485	710
	1		5	190	415	220	450
	1-3/4			605	785	700	850
	2			770	785	890	850

1. Allowable load capacities listed are calculated using an applied safety factor of 4.0. Consideration of safety factors of 10 or higher may be necessary depending on the application, such as life safety or overhead.
2. Allowable loads suggested herein are only valid when both the minimum anchor center-to-center spacing and minimum edge distances are complied with.

Ultimate Load Capacities for UltraCon in Hollow and Grout-Filled Concrete Masonry

Nominal Anchor Diameter (in.)	Min. Embed. (in.)	Min. Edge Dist. (in.)	Min. Spacing (in.)	Hollow Block		Grouted-Filled Block	
				Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
5/16	1-1/4	1-9/16	6	650	700	-	-
	1-3/4	2-1/2	5	-	-	1,150	1,850
	2-1/4			-	-	1,450	1,875
	1-1/4	3-1/8	1-7/8	650	875	-	-
	1-1/4		3-3/4	700	875	-	-
	1-1/4		6	1,125	1,450	-	-

1. Tabulated load values are for ancors installed in grout-filled concrete block conforming to ASTM C-90.
2. Ultimate load capacities must be reduced by a minimum safety factor of 5.0 or greater to determine allowable working load. Consideration of safety factors of 10 and higher may be necessary depending upon the application such as life safety or overhead.

Allowable Load Capacities for UltraCon in Hollow and Grout-Filled Concrete Masonry

Nominal Anchor Diameter (in.)	Min. Embed. (in.)	Min. Edge Dist. (in.)	Min. Spacing (in.)	Hollow Block		Grouted-Filled Block	
				Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
5/16	1-1/4	1-1/16	6	130	140	-	-
	1-3/4	2-1/2	5	-	-	230	370
	2-1/4			-	-	290	375
	1-1/4	3-1/8	1-7/8	130	175	-	-
	1-1/4		3-3/4	140	175	-	-
	1-1/4		6	225	290	-	-

1. Allowable load capacities listed are calculated using an applied safety factor of 5.0. Consideration of safety factors of 10 or higher may be necessary depending on the application, such as life safety or overhead.
2. Allowable loads suggested herein are only valid when both the minimum anchor center-to-center spacing and minimum edge distances are complied with.

Ultimate Tension and Shear Capacity for UltraCon in Southern Yellow Pine (minimum .55 specific gravity)[1]

Nominal Anchor Diameter (in.)	Min. Embed. (in.)	Min. Edge Dist. (in.)	Tension (lbs.)	Shear (lbs.)
5/16	1	5d	1,420	1,095
	1-1/2		2,470	1,615
	2		2,910	2,365
	1	10d	1,450	1,185
	1-1/2		2,470	1,675
	2		3,230	2,405

1. Tabulated load values are ultimates based on laboratory tests.

ORDERING INFORMATION

UltraCon

Cat. No.					Screw Size	Standard Box	Standard Carton
HWH	THH	PFH	TFH	OFH			
DFM5ELG481	DFM5ELG482	-	-	-	5/16" X 1-3/4"	1000	-
DFM5ELG486	DFM5ELG487	DFM5ELG941	DFM5ELG945	-	5/16" X 2-1/4"	1000	-
DFM5ELG491	DFM5ELG492	DFM5ELG948	DFM5ELG955	-	5/16" X 2-3/4"	500	-
-	-	-	-	DFM5ELG203	5/16" X 3"	50	250
DFM5ELG496	DFM5ELG497	DFM5ELG960	DFM5ELG965	-	5/16" X 3-1/4"	500	-
DFM5ELG501	DFM5ELG502	-	DFM5ELG972	-	5/16" X 3-3/4"	500	-
DFM5ELG506	-	DFM5ELG979	DFM5ELG976	-	5/16" X 4"	500	-
-	-	-	-	DFM5ELG204		50	250
DFM5ELG511	-	DFM5ELG992	DFM5ELG991	-	5/16" X 5"	250	-
-	-	-	-	DFM5ELG205		50	250
DFM5ELG516	-	DFM5ELG998	-	-	5/16" X 6"	250	-
-	-	-	-	DFM5ELG206		50	250

HWH = Hex Washer Head; THH = TrmFit Hex Head; PFH = Phillips Flat Head, TFH = TrimFit Flat Head, OFH = Oversized Flat Head
Hex Head UltraCon anchors are measured from below the washer while flat head UltraCon anchors are measured end to end. To select the proper minimum anchor length, determine the embedment depth required to obtain the desired load capacity. Then add the thickness of the fixture, including any spacers or shims, to the embedment depth.

Drill Bits

Cat. No.	Description
DW5417	1/4" x 6" SDS Plus 2 Cutter Drill Bit
DW5418	1/4" x 8-1/2" SDS Plus 2 Cutter Drill Bit
DW5420	1/4" x 12" SDS Plus 2 Cutter Drill Bit
DW5421	1/4" x 14" SDS Plus 2 Cutter Drill Bit

Rotary Hammers

Cat. No.	Description
DCH273	20V Max* XR Brushless 1" L-Shape SDS Plus Rotary Hammer
DCH133	20V Max* XR Brushless 1" D-Handle SDS Plus Rotary Hammer

Accessories

Cat. No.	Description
DWH303DH	Onboard Dust Extractor for 1 in. SDS Plus Hammers
DWH050	Large Hammer Dust Extraction - Hole Cleaning
DWH200	Dust Extraction Tube Kit with Hose

Dust Extractors

Cat. No.	Description
DCV585	Flexvolt® 60V Max* Dust Extractor
DVW010	8 Gallon Wet Dry Hepa/Rrp Dust Extractor
DWV012	10 Gallon Wet Dry Hepa/Rrp Dust Extractor
DWH161D1	20V Max* XR Brushless Universal Dust Extractor Kit

GENERAL INFORMATION

DRIL-FLEX®

Self-Drilling Structural Screws

PRODUCT DESCRIPTION

Dril-Flex Structural Drill Screws are dual heat treated self-drilling tapping screws that provide the strength, ductility and resistance to embrittlement required for critical applications.

GENERAL APPLICATIONS AND USES

- Steel-to-steel connections
- Aluminum-to-steel connections
- Aluminum-to-aluminum connections
- Wood-to-steel connections

FEATURES AND BENEFITS

+ High-hardness point and lead threads for drilling and tapping
+ Lower-hardness load bearing area provides increased resistance to Hydrogen-Assisted Stress Corrosion Cracking when compared to case hardened fasteners
+ Stalgard and Stalgard SUB Coatings provide enhanced galvanic compatibility in dissimilar metal applications
+ Fasteners coated with Stalgard SUB finish typically show no red rust or other base metal corrosion on significant surfaces after 2000 hours of 5% neutral salt spray exposure (per ASTM B117)
+ Fasteners coated with Stalgard finish typically show no red rust or other base metal corrosion on significant surfaces after 1000 hours of 5% neutral salt spray exposure (per ASTM B117)

APPROVALS AND LISTINGS

- International Code Council, Evaluation Service (ICC-ES), ESR-3332
- International Code Council, Evaluation Service (ICC-ES), ESR-4367
- Code compliant with the International Building Code/International Residential Code: 2018 IBC/IRC, 2015 IBC/IRC, 2012 IBC/IRC and 2009 IBC/IRC
- Tested in accordance with ICC-ES AC118 for use in Steel-to-Steel Connections
- Tested in accordance with ICC-ES AC500 for attaching Miscellaneous Building Materials to Steel

GUIDE SPECIFICATIONS

05 05 23 – Metal Fastenings, 09 22 16.23 – Fasteners. Fasteners shall be Dril-Flex as supplied by Elco Construction Products, Towson, MD. Fasteners shall be installed with published instructions and the Authority Having Jurisdiction.

SECTION CONTENTS

ANCHOR MATERIALS

- Alloy Steel

HEAT TREAT

- Dual Hardened - Load Bearing Area meets SAE J429 Grade 5 and ASTM A449 Type 1 specifications

HEAD STYLES

- Hex Washer Head (HWH)
- Pan Head (PPH)
- Wafer Head (PWH)
- Undercut Flat Head (PUFH)

DIAMETER

- #10, #12
- 1/4", 5/16"

POINT DRILL TYPE

- #2, #3, #4, #5

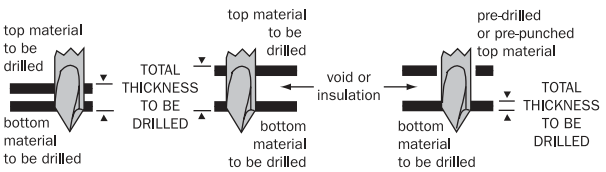
FINISH

- Stalgard SUB coating (HWH)
- Stalgard coating

CODE LISTED
ICC-ES ESR-3332
STEEL-TO-STEEL

CODE LISTED
ICC-ES ESR-4367
WOOD-TO-STEEL

Point Size Selection
Maximum Combined Material Thickness By Point Type



Maximum Recommended Installation RPM

Diameter	RPM
#10	2500
#12	
#12**	1800
1/4"	
5/16"	1200

** Applies to #12 diameter screws with point type 5

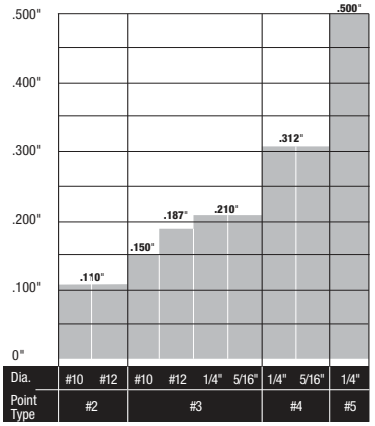
Nominal Sheet Metal Sizes

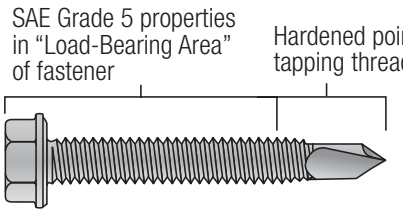
Gauge	Decimal (in.)
18	0.048
16	0.060
14	0.075
12	0.105

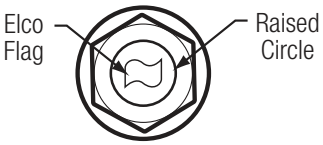
Nominal Screw Sizes

Thread Dia.	Decimal (in.)
#10	.190
#12	.216
1/4"	.250
5/16"	.3125

Drilling and Tapping Capacity (Maximum Material Thickness)*







PERFORMANCE DATA

Fastener Strengths[1,2,3,4,5,6,7]

Description	Tension (lbf)			Shear (lbf)			Minimum Torsional Strength (in-lbs)
	Ultimate	ASD	LRFD	Ultimate	ASD	LRFD	
#10-16	2,275	760	1,140	1,460	485	730	61
#10-24	2,610	870	1,305	1,080	360	540	65
#12-14	3,215	1,070	1,610	1,990	665	995	92
#12-14 (PUFH)	2,630	875	1,315	2,090	695	1,045	92
#12-24	4,175	1,390	2,090	2,500	835	1,250	100
1/4"-14	4,360	1,455	2,180	2,690	895	1,345	150
1/4"-20	4,620	1,540	2,310	2,615	870	1,310	156
5/16"-18	8,070	2,690	4,035	4,565	1,520	2,285	425
5/16"-24	8,755	2,920	4,380	5,470	1,825	2,735	425

1. Ultimate strengths are based on laboratory tests.
2. Allowable (ASD) strengths are based on a safety factor ,Ω, of 3.0 in accordance with ICC-ES AC118 and AISI S100-16.
3. Design (LRFD) strengths are based on a resistance factor, ϕ, of 0.50 in accordance with ICC-ES AC118 and AISI S100-16.
4. For ASD tension connections, the lower of the ASD tension strength, ASD pull-out strength and ASD pull-over strength must be used for design.
5. For LRFD tension connections, the lower of the LRFD tension strength, LRFD pull-out strength and LRFD pull-over strength must be used for design.
6. For ASD shear connections, the lower of the ASD Shear (Bearing) Capacity and the ASD Fastener Shear Strength must be used for design.
7. For LRFD shear connections, the lower of the LRFD Shear (Bearing) Capacity and the LRFD Fastener Shear Strength must be used for design.

Ultimate Shear (Bearing) Capacity of Screw Connections in Steel, lbf[1,2]

Diameter	Point Type	Steel						
		18-18 Ga.	18-14 Ga.	16-16 Ga.	14-14 Ga.	1/8" - 3/16"	3/16" - 1/4"	1/4" - 12 Ga.
#10-16	#3	925	1,195	1,140	-	-	-	-
#10-16 (PPH)	#2	865	865	1,210	-	-	-	-
#10-24 (PWH)	#3	880	1,545	1,445	-	-	-	-
#12-14	#2/#3	895	1,460	1,290	1,255	-	-	-
12-14 (PUFH)	#3	880	1,648	1,304	1,688	-	-	-
#12-24	#5	785	1,650	1,285	1,750	1,705	1,985	1,620
1/4"-14	#3	950	1,595	1,310	1,665	1,610	-	-
1/4"-20	#4/#5	975	1,330	1,350	1,700	1,460	1,570	1,395
5/16"-18	#3	1,025	1,585	1,410	2,245	-	-	-
5/16"-24	#4	-	-	-	-	3,400	2,485	2,240

1. Ultimate strengths are based on laboratory tests.
2. Ultimate load capacities must be reduced by a minimum safety factor to determine allowable loads (ASD) or by a load resistance factor to determine strength design capacities (LRFD).

Allowable (ASD) Shear (Bearing) Capacity of Screw Connections in Steel, lbf[1,2,3,4,5,6]

Diameter	Point Type	Steel						
		18-18 Ga.	18-14 Ga.	16-16 Ga.	14-14 Ga.	1/8" - 3/16"	3/16" - 1/4"	1/4" - 12 Ga.
#10-16	#3	370	395	455	-	-	-	-
#10-16 (PPH)	#2	290	290	405	-	-	-	-
#10-24 (PWH)	#3	320 [10]	570 [10]	535 [7,8,9]	-	-	-	-
#12-14	#2/#3	355	575	515	495	-	-	-
12-14 (PUFH)	#3	325 [10]	610 [10]	480 [7,8,9]	625 [7,8]	-	-	-
#12-24	#5	290 [10]	610 [10]	475 [7,8,9]	645 [7,8]	630 [7,8,9]	735 [7,8,9]	600 [7,8,9]
1/4"-14	#3	375	625	520	660	640	-	-
1/4"-20	#4/#5	385 [7,8]	525 [7,8]	535 [8]	670 [8]	595 [9]	625 [9]	555 [9]
5/16"-18	#3	410	620	560	890	-	-	-
5/16"-24	#4	-	-	-	-	1,345	985	885

1. Allowable (ASD) strengths are based on a safety factor ,Ω, determined in accordance with AISI S100-16.
2. Values are based on steel members with with a minimum tensile strength of Fu = 45 ksi.
3. Allowable (ASD) Shear (Bearing) capacities for other member thicknesses may be determined by interpolating within the table.
4. For ASD shear connections, the lower of the ASD Shear (Bearing) Capacity and the ASD Fastener Shear Strength must be used for design.
5. Unless otherwise noted, for steel with a minimum tensile strength Fu ≥ 58 ksi, multiply tabulated values by 1.29 and for steel with a minimum tensile strength Fu ≥ 65 ksi steel, multiply tabulated values by 1.44.
6. The first number is the thickness of steel in contact with the screw head, the second number is the thickness of the steel not in contact with the screw head.
7. For steel with a minimum tensile strength Fu ≥ 55 ksi, multiply tabulated values by 1.22.
8. For steel with a minimum tensile strength Fu ≥ 52 ksi, multiply tabulated values by 1.15.
9. For steel with a minimum tensile strength Fu ≥ 58 ksi, multiply tabulated values by 1.29.
10. Increasing values for higher steel tensile strength per Note 5 is not allowed.

Design (LRFD) Shear (Bearing) Capacity of Screw Connections in Steel, lbf[1,2,3,4,5,6]

Diameter	Point Type	Steel Thickness (Lapped Sheets/ Bars)						
		18-18 Ga.	18-14 Ga.	16-16 Ga.	14-14 Ga.	1/8" - 3/16"	3/16" - 1/4"	1/4" - 12 Ga.
#10-16	#3	590	630	725	-	-	-	-
#10-16 (PPH)	#2	435	435	605				
#10-24 (PWH)	#3	515	915	855	-	-	-	-
#12-14	#2/#3	570	915	820	795	-	-	-
12-14 (PUFH)	#3	520 [10]	975 [10]	770 [7,8,9]	1,000 [7,8]	-	-	-
#12-24	#5	465 [10]	976 [10]	760 [7,8,9]	1,035 [7,8]	1,010 [7,8,9]	1,175 [7,8,9]	960 [7,8,9]
1/4"-14	#3	605	1,000	835	1,060	1,020	-	-
1/4"-20	#4/#5	615 [7,8]	840 [7,8]	850 [8]	1,070 [8]	950 [9]	1,000 [9]	885 [9]
5/16"-18	#3	655	995	895	1,425	-	-	-
5/16"-24	#4	-	-	-	-	2,155	1,575	1,420

1. Design (LRFD) strengths are based on a safety factor ,ϕ, determined in accordance with AISI S100-16.
2. Values are based on steel members with a minimum tensile strength of Fu = 45 ksi.
3. Design (LRFD) Shear (Bearing) capacities for other member thicknesses may be determined by interpolating within the table.
4. For LRFD shear connections, the lower of the LRFD Shear (Bearing) Capacity and the LRFD Fastener Shear Strength must be used for design.
5. Unless otherwise noted, for steel with a minimum tensile strength Fu ≥ 58 ksi, multiply tabulated values by 1.29 and for steel with a minimum tensile strength Fu ≥ 65 ksi steel, multiply tabulated values by 1.44.
6. The fisrt number is the thickness of steel in contact with the screw head, the second number is the thickness of the steel not in contact with the screw head.
7. For steel with a minimum tensile strength Fu ≥ 55 ksi, multiply tabulated values by 1.22.
8. For steel with a minimum tensile strength Fu ≥ 52 ksi, multiply tabulated values by 1.15.
9. For steel with a minimum tensile strength Fu ≥ 58 ksi, multiply tabulated values by 1.29.

Ultimate Tension Pull-Out Capacity of Screw Connections in Steel, lbf[1,2]

Diameter	Point Type	Thickness of Steel Not in Contact with Screw Head							
		18 Ga.	16 Ga.	14 Ga.	12 Ga.	1/8"	3/16"	1/4"	5/16"
#10-16	#2/#3	335	485	585	955	1,135	-	-	-
#10-24	#3	330	505	675	1,125	1,480	-	-	-
#12-14	#2/#3	335	510	585	790	1,380	1,795	-	-
#12-24	#5	-	-	605	1,030	1,370	2,410	2,760	2,760
1/4"-14	#3	340	515	630	825	1,515	2,430	-	-
1/4"-20	#4/#5	-	555	705	1,145	1,410	2,575	2,810	3,255
5/16"-18	#3	-	-	-	1,400	1,915	-	-	-
5/16"-24	#4	-	-	-	1,290	1,725	2,620	3,565	4,270

1. Ultimate strengths are based on laboratory tests.
2. Ultimate load capacities must be reduced by a minimum safety factor to determine allowable loads (ASD) or by a load resistance factor to determine strength design capacities (LRFD).

Allowable Tension Pull-Out Capacity of Screw Connections in Steel, lbf[1,2,3,4,5]

Diameter	Point Type	Thickness of Steel Not in Contact with Screw Head							
		18 Ga.	16 Ga.	14 Ga.	12 Ga.	1/8"	3/16"	1/4"	5/16"
#10-16	#2/#3	135	195	235	305	295	-	-	-
#10-24	#3	120 [8]	185 [7]	250 [6]	415 [6]	545 [7]	-	-	-
#12-14	#2/#3	130	205	265	330	510	665	-	-
#12-24	#5	95 [8]	165 [7]	225 [6]	380 [6]	505 [7]	890 [8]	1,020	1,020
1/4"-14	#3	130	205	255	340	560	900	-	-
1/4"-20	#4/#5	-	205 [6]	260 [6]	425 [6]	525 [7]	915 [7]	1,045	1,205
5/16"-18	#3	-	-	-	520	705	-	-	-
5/16"-24	#4	-	-	-	460	635	725	1,190	1,425

1. Allowable (ASD) strengths are based on a safety factor ,Ω, determined in accordance with AISI S100-16.
2. Values are based on steel members with a minimum tensile strength of Fu = 45 ksi.
3. Allowable (ASD) pull-over capacities for other member thicknesses may be determined by interpolating within the table.
4. For ASD tension connections, the lower of the ASD tension strength, ASD pull-out strength and ASD pull-over strength must be used for design.
5. Unless otherwise noted, for steel with a minimum tensile strength Fu ≥ 58 ksi, multiply tabulated values by 1.29 and for steel with a minimum tensile strength Fu ≥ 65 ksi steel, multiply tabulated values by 1.44.
6. For steel with a minimum tensile strength Fu ≥ 52 ksi, multiply tabulated values by 1.15.
7. For steel with a minimum tensile strength Fu ≥ 58 ksi, multiply tabulated values by 1.29.
8. Increasing values for higher steel tensile strength per Note 5 is not allowed.

Design Tension Pull-Out Capacity of Screw Connections in Steel, lbf [1,2,3,4,5]

Diameter	Point Type	Thickness of Steel Not in Contact with Screw Head							
		18 Ga.	16 Ga.	14 Ga.	12 Ga.	1/8"	3/16"	1/4"	5/16"
#10-16	#2/#3	215	310	380	490	475	-	-	-
#10-24	#3	194 [8]	295 [7]	400 [6]	665 [6]	875 [7]	-	-	-
#12-14	#2/#3	210	330	425	525	815	1,065	-	-
#12-24	#5	155 [8]	265 [7]	360 [6]	610 [6]	810 [7]	1425 [8]	1,630	1,630
1/4"-14	#3	210	330	410	550	550	895	-	-
1/4"-20	#4/#5	-	325 [6]	415 [6]	675 [6]	840 [7]	1,460 [7]	1,670	1,930
5/16"-18	#3	-	-	-	830	1,130	-	-	-
5/16"-24	#4	-	-	-	735	1,020	1,160	1,905	2,280

1. Design (LRFD) strengths are based on a resistance factor, ϕ, determined in accordance with AISI S100-16.
2. Values are based on steel members with a minimum tensile strength of Fu = 45 ksi.
3. Design (LRFD) pull-out capacities for other member thicknesses may be determined by interpolating within the table.
4. For LRFD tension connections, the lower of the LRFD tension strength, LRFD pull-out strength and LRFD pull-over strength must be used for design.
5. Unless otherwise noted, for steel with a minimum tensile strength Fu ≥ 58 ksi, multiply tabulated values by 1.29 and for steel with a minimum tensile strength Fu ≥ 65 ksi steel, multiply tabulated values by 1.44.
6. For steel with a minimum tensile strength Fu ≥ 52 ksi, multiply tabulated values by 1.15.
7. For steel with a minimum tensile strength Fu ≥ 58 ksi, multiply tabulated values by 1.29.
8. Increasing values for higher steel tensile strength per Note 5 is not allowed.

Ultimate Pull-Over Capacity of Screw Connections in Steel, lbf[1,3]

Fastener Description		Minimum Thickness of Steel in Contact with Screw Head							
		18 Ga.	16 Ga.	14 Ga.	12 Ga.	1/8"	3/16"	1/4"	5/16"
#10-16	Phillips Pan Head	1,155 [2]	1,200	1,200	1,200	1,200	-	-	-
#10-16	5/16" Hex Washer Head	1,245	1,200	1,200	1,200	1,200	-	-	-
#10-24	Phillips Wafer Head	1,650 [2]	1,615 [2]	1,935 [2]	1,935 [2]	1,935 [2]	-	-	-
#12-14	5/16" Hex Washer Head	1,290	1610	2,015	1,835	1,835	1,835	-	-
#12-14	Phillips Undercut Flat Head	1,060 [2]	1,455 [2]	1,845 [2]	2,160 [2]	2,160 [2]	2,160 [2]	-	-
#12-24	5/16" Hex Washer Head	1,290	1,610	2,015	1,835	1,835	1,835	1,835	1,835
1/4"-14	3/8" Hex Washer Head	1,555	1,945	2,430	2,815	2,815	2,815	-	-
1/4"-20	3/8" Hex Washer Head	-	1,945	2,430	2,815	2,815	2,815	2,815	2,815
5/16"-18	3/8" Hex Washer Head	-	-	-	3,045	3,045	-	-	-
5/16"-24	3/8" Hex Washer Head	-	-	-	3,045	3,045	3,045	3,045	3,045

1. Unless otherwise noted, ultimate strengths are based on calculations in accordance with AISI S100-16, or on the calculated shear strength of the integral washer.
2. Ultimate strengths are based on laboratory testing.
3. Ultimate load capacities must be reduced by a minimum safety factor to determine allowable loads (ASD) or by a load resistance factor to determine strength design capacities (LRFD).

Allowable (ASD) Pull-Over Capacity of Screw Connections in Steel, lbf[1,2,3,5,6]

Fastener Description		Minimum Thickness of Steel in Contact with Screw Head							
		18 Ga.	16 Ga.	14 Ga.	12 Ga.	1/8"	3/16"	1/4"	5/16"
#10-16	Phillips Pan Head	385	480	480	480	480	-	-	-
#10-16	5/16" Hex Washer Head	415	480	480	480	480	-	-	-
#10-24	Phillips Wafer Head	610	595 [4]	715 [4]	715 [4]	715 [4]	-	-	-
#12-14	5/16" Hex Washer Head	430	535	670	735	735	735	-	-
#12-14	Phillips Undercut Flat Head	390	535 [4]	680 [4]	795 [4]	795 [4]	795 [4]	-	-
#12-24	5/16" Hex Washer Head	430	535	670	735	735	735	735	735
1/4"-14	3/8" Hex Washer Head	520	650	810	1,125	1,125	1,125	-	-
1/4"-20	3/8" Hex Washer Head	-	650	810	1,125	1,125	1,125	1,125	1,125
5/16"-18	3/8" Hex Washer Head	-	-	-	1,170	1,170	-	-	-
5/16"-24	3/8" Hex Washer Head	-	-	-	1,325	1,325	1,325	1,325	1,325

1. Allowable (ASD) strengths are based on a safety factor, Ω, determined in accordance with AISI S100-16.
2. Values are based on steel members with with a minimum tensile strength of Fu = 45 ksi.
3. Unless otherwise noted, increasing values for higher steel tensile strength per Note 4 is not allowed.
4. For steel with a minimum tensile strength Fu ≥ 52 ksi, multiply tabulated values by 1.15.
5. Allowable (ASD) pull-over capacities for other member thicknesses may be determined by interpolating within the table.
6. For ASD tension connections, the lower of the ASD tension strength, ASD pull-out strength and ASD pull-over strength must be used for design.

Design (LRFD) Pull-Over Capacity of Screw Connections in Steel, lbf[1,2,3,5,6]

Fastener Description		Minimum Thickness of Steel in Contact with Screw Head							
		18 Ga.	16 Ga.	14 Ga.	12 Ga.	1/8"	3/16"	1/4"	5/16"
#10-16	Phillips Pan Head	580	725	780	780	780	-	-	-
#10-16	5/16" Hex Washer Head	620	780	780	780	780	-	-	-
#10-24	Phillips Wafer Head	975	955 [4]	1,140 [4]	1,140 [4]	1,140 [4]	-	-	-
#12-14	5/16" Hex Washer Head	645	805	1,005	1,190	1,190	1,190	-	-
#12-14	Phillips Undercut Flat Head	625	860 [4]	1,090 [4]	1,275 [4]	1,275 [4]	1,275 [4]	-	-
#12-24	5/16" Hex Washer Head	645	805	1,005	1,190	1,190	1,190	1,190	1,190
1/4"-14	3/8" Hex Washer Head	780	970	1,215	1,700	1,830	1,830	-	-
1/4"-20	3/8" Hex Washer Head	-	970	1,215	1,700	1,830	1,830	1,830	1,830
5/16"-18	3/8" Hex Washer Head	-	-	-	1,870	1,870	1,870	-	-
5/16"-24	3/8" Hex Washer Head	-	-	-	2,120	2,120	2,120	2,120	2,120

1. Design (LRFD) strengths are based on a resistance factor, ϕ, determined in accordance with AISI S100-16.
2. Values are based on steel members with with a minimum tensile strength of Fu = 45 ksi.
3. Unless otherwise noted, increasing values for higher steel tensile strength per Note 4 is not allowed.
4. For steel with a minimum tensile strength Fu ≥ 52 ksi, multiply tabulated values by 1.15.
5. Design (LRFD) pull-over capacities for other member thicknesses may be determined by interpolating within the table.
6. For LRFD tension connections, the lower of the LRFD tension strength, LRFD pull-out strength and LRFD pull-over strength must be used for design.

Ultimate, Allowable (ASD) and Design (LRFD) Shear (Bearing) Capacity of Screw Connections in Aluminum, lbf [1,2,3,4,5,6]

Diameter	Point Type	6063-T5 Aluminum					
		1/8"-1/8"			1/8"-1/4"		
		Ultimate	ASD	LRFD	Ultimate	ASD	LRFD
#10-16	#2/#3	1,205	400	600	-	-	-
#12-14	#2/#3	1,475	490	740	2,040	680	1,020
1/4"-14	#3	1,640	545	820	2,365	790	1,185
1/4"-20	#4	1,645	550	825	2,400	800	1,200
5/16"-18	#3	1,750	585	875	2,470	825	1,235
5/16"-24	#4	1,520	505	760	2,355	785	1,175

1. Ultimate strengths are based on laboratory tests. Allowable (ASD) and Design (LRFD) capacities are based on a Safety Factor, Ω=3.0, and a resistance factor, ϕ=0.5, respectively.
2. Clearance holes were provided in the top sheet of aluminum. Clearance holes shall be 13/64, 15/64, 17/64, and 21/64 for #10, #12, 1/4-inch, and 5/16-inch diameter fasteners, respectively.
3. Allowable (ASD) and Design (LRFD) capacities are based on aluminum members with a minimum tensile strength of Fu = 22 ksi.
4. For ASD shear connections, the lower of the ASD shear (bearing) strength and ASD fastener shear strength must be used for design.
5. For LRFD shear connections, the lower of the LRFD shear (bearing) strength and LRFD fastener shear strength must be used for design.
6. For aluminum with an ultimate tensile strength, Fu ≥ 27 ksi, allowable and design capacities may be increased by a factor of 1.20.

Ultimate, Allowable (ASD) and Design (LRFD) Tension Pull-Out Capacity of Screw Connections in Aluminum, lbf [1,2,3,4,5,6,7]

Diameter	Point Type	6063-T5 Aluminum								
		1/8"			1/4"			3/8"		
		Ultimate	ASD	LRFD	Ultimate	ASD	LRFD	Ultimate	ASD	LRFD
#10-16	#2/#3	630	210	315	-	-	-	-	-	-
#12-14	#2/#3	770	255	385	1,875	625	940	-	-	-
1/4"-14	#3	825	275	410	1,990	665	995	-	-	-
1/4"-20	#4	735	245	370	1,705	570	850	3,045	1,015	1,525
5/16"-18	#3	920	305	460	2,435	810	1,220	-	-	-
5/16"-24	#4	855	285	430	2,105	700	1,055	-	-	-

1. Ultimate strengths are based on laboratory tests. Allowable (ASD) and Design (LRFD) capacities are based on a Safety Factor, Ω=3.0, and a resistance factor, ϕ=0.5, respectively.
2. Clearance holes were provided in the top sheet of aluminum. Clearance holes shall be 13/64", 15/64", 17/64", and 21/64" for #10, #12, 1/4-inch, and 5/16-inch diameter fasteners, respectively.
3. Allowable (ASD) and Design (LRFD) capacities are based on aluminum members with a minimum tensile strength of Fu = 22 ksi.
4. For ASD tension connections, the lower of the ASD tension strength, ASD pull-out strength and ASD pull-over strength must be used for design.
5. For LRFD tension connections, the lower of the LRFD tension strength, LRFD pull-out strength and LRFD pull-over strength must be used for design.
6. Allowable (ASD) and Design (LRFD) capacities for other member thicknesses may be determined by interpolating within the table.
7. For aluminum with an ultimate tensile strength, Fu ≥ 27 ksi, allowable and design capacities may be increased by a factor of 1.20.

Ultimate Pull-Over Capacity of Screw Connections in Aluminum, lbf[1,2]

Screw Description		Minimum Thickness of Aluminum or Framing Member in Contact with Screw Head								
		1/32"			1/16"			1/8"		
		6063-T5	6063-T6	6061-T6	6063-T5	6063-T6	6061-T6	6063-T5	6063-T6	6061-T6
10 - 16	HWH	225	350	495	505	790	1,105	1,225	1,910	2,680
10 - 16	PPH	205	325	455	470	735	1,030	1,155	1,805	2,525
12 - 14	HWH	230	365	510	520	810	1,140	1,255	1,960	2,745
12 - 24	HWH	230	365	510	520	810	1,140	1,255	1,960	2,745
1/4 - 14	HWH	275	430	605	605	945	1,325	1,425	2,225	3,115
1/4 - 20	HWH	275	430	605	605	945	1,325	1,425	2,225	3,115

1. Ultimate strengths are based on calculations in accordance with ICC-ES AC491 and the Aluminum Design Manual, AA ADM1-2015.
2. Ultimate load capacities must be reduced by a minimum safety factor to determine allowable loads (ASD) or by a load resistance factor to determine strength design capacities (LRFD).

Allowable (ASD) Pull-Over Capacity of Screw Connections in Aluminum, lbf [1,2,3,4,5,6]

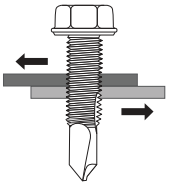
Screw Description		Minimum Thickness of Aluminum or Framing Member in Contact with Screw Head								
		1/32"			1/16"			1/8"		
		6063-T5	6063-T6	6061-T6	6063-T5	6063-T6	6061-T6	6063-T5	6063-T6	6061-T6
10 - 16	HWH	75	120	165	170	265	370	410	640	895
10 - 16	PPH	70	110	150	155	245	345	385	600	840
12 - 14	HWH	80	120	170	175	270	380	420	655	915
12 - 24	HWH	80	120	170	175	270	380	420	655	915
1/4 - 14	HWH	90	145	200	200	315	440	475	740	1,040
1/4 - 20	HWH	90	145	200	200	315	440	475	740	1,040

1. Allowable strengths are based on a safety factor, $\Omega = 3.00$, determined in accordance with ICC-ES AC491 and the Aluminum Design Manual, AA ADM1-2015.
2. Values are based on aluminum members with the following minimum yield strengths: 6063-T5, $F_y = 16$ ksi; 6063-T6, $F_y = 25$ ksi; 6061-T6, $F_y = 35$ ksi.
3. Allowable (ASD) pull-over capacities for other member thicknesses may be determined by interpolating within the table.
4. For aluminum with the following yield strengths: 6063-T5, $F_y = 21$ ksi; 6063-T6, $F_y = 31$ ksi; 6061-T6, $F_y = 40$ ksi; multiply tabulated values by 1.31, 1.24, 1.14 respectively.
5. Tabulated pull-over capacities are applicable to aluminum that has been self drilled by the screw fastener and for pre-drilled aluminum members with clearance holes sizes of 0.201, 0.228 and 0.266 for #10, #12 and 1/4" screws, respectively.
6. For ASD tension connections, the lower of the ASD tension strength, ASD pull-out strength and ASD pull-over strength must be used for design.

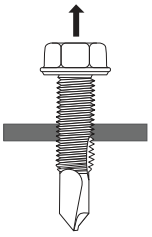
Design (LRFD) Pull-Over Capacity of Screw Connections in Aluminum, lbf[1,2,3,4,5,6]

Screw Description		Minimum Thickness of Aluminum or Framing Member in Contact with Screw Head								
		1/32"			1/16"			1/8"		
		6063-T5	6063-T6	6061-T6	6063-T5	6063-T6	6061-T6	6063-T5	6063-T6	6061-T6
10 - 16	HWH	115	175	250	255	395	555	615	955	1,340
10 - 16	PPH	105	165	230	235	370	515	580	905	1,265
12 - 14	HWH	115	185	255	260	405	570	630	980	1,375
12 - 24	HWH	115	185	255	260	405	570	630	980	1,375
1/4 - 14	HWH	140	215	305	305	475	665	715	1,115	1,560
1/4 - 20	HWH	140	215	305	305	475	665	715	1,115	1,560

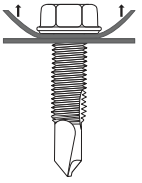
1. Design (LRFD) strengths are based on a resistance factor, $\phi = 0.50$, determined in accordance with ICC-ES AC491 and the Aluminum Design Manual, AA ADM1-2015.
2. Values are based on aluminum members with the following minimum yield strengths: 6063-T5, $F_y = 16$ ksi; 6063-T6, $F_y = 25$ ksi; 6061-T6, $F_y = 35$ ksi.
3. Design (LRFD) pull-over capacities for other member thicknesses may be determined by interpolating within the table.
4. For aluminum with the following yield strengths: 6063-T5, $F_y = 21$ ksi; 6063-T6, $F_y = 31$ ksi; 6061-T6, $F_y = 40$ ksi; multiply tabulated values by 1.31, 1.24, 1.14 respectively.
5. Tabulated pull-over capacities are applicable to aluminum that has been self drilled by the screw fastener and for pre-drilled aluminum members with clearance holes sizes of 0.201, 0.228 and 0.266 for #10, #12 and 1/4" screws, respectively.
6. For LRFD tension connections, the lower of the LRFD tension strength, LRFD pull-out strength and LRFD pull-over strength must be used for design.



Lap Shear



Tension Pull-Out



Tension Pull-Over

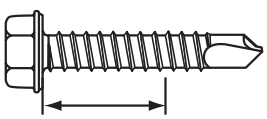
ORDERING INFORMATION

Dril-Flex

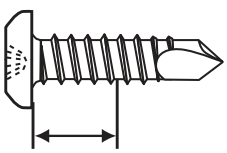
Cat. No.	Description (Diameter- TPI x Nominal Length)	Point Type	Finish	Maximum Load-Bearing Length[1] (in.)	Minimum Protrusion Length[2]	Nominal Head Diameter[3] (in.)	Nominal Head Height[4] (in.)	Qty / Carton
#10 Diameter, 5/16" Hex Washer Head								
EAF430	#10 - 16 x 3/4"	#3	Stalgard SUB	0.250	1/2"	0.400	0.14	6,000
EAF460	#10 - 16 x 1-1/2"	#3	Stalgard SUB	1.000	1/2"	0.400	0.14	2,500
EAF470	#10 - 16 x 2"	#3	Stalgard SUB	1.500	1/2"	0.415	0.17	2,000
EAF480	#10 - 16 x 2-1/2"	#3	Stalgard SUB	2.000	1/2"	0.400	0.14	1,500
#10 Diameter, #2 Phillips Pan Head								
EDX445	#10 - 16 x 3/4"	#2	Stalgard	0.344	13/32"	0.365	0.13	6,000
#10 Diameter, #2 Phillips Wafer Head								
EBL530	#10 - 24 x 1-1/4"	#3	Stalgard	0.781	15/32"	0.470	0.05	5,000
#12 Diameter, 5/16" Hex Washer Head								
EAF621	#12 - 14 x 7/8"	#3	Stalgard SUB	0.375	1/2"	0.415	0.18	5,000
EAF641	#12 - 14 x 1"	#3	Stalgard SUB	0.500	1/2"	0.415	0.18	4,000
EAF661	#12 - 14 x 1-1/4"	#3	Stalgard SUB	0.750	1/2"	0.415	0.18	2,500
EAF681	#12 - 14 x 1-1/2"	#3	Stalgard SUB	1.000	1/2"	0.415	0.18	2,500
EAF755	#12 - 24 x 1-3/4"	#5	Stalgard SUB	0.813	15/16"	0.415	0.18	2,500
EAF690	#12 - 14 x 2"	#3	Stalgard SUB	1.500	1/2"	0.415	0.18	2,000
EAF715	#12 - 14 x 3"	#2	Stalgard SUB	2.375	5/8"	0.500	0.19	1,000
#12 Diameter, #3 Phillips Undercut Flat Head								
EBL215	#12 - 14 x 1"	#3	Stalgard	0.500	1/2"	0.415	0.09	4,000
EBL220	#12 - 14 x 1-1/4"	#3	Stalgard	0.750	1/2"	0.415	0.09	3,000
EBL223	#12 - 14 x 1-1/2"	#3	Stalgard	1.000	1/2"	0.415	0.09	2,500
1/4" Diameter, 3/8" Hex Washer Head								
EAF816	1/4" - 14 x 1"	#3	Stalgard SUB	0.438	9/16"	0.500	0.23	3,000
EAF865	1/4" - 20 x 1-1/8"	#4	Stalgard SUB	0.438	11/16"	0.500	0.23	2,500
EAF841	1/4" - 14 x 1-1/2"	#3	Stalgard SUB	0.938	9/16"	0.500	0.23	2,000
EAF876	1/4" - 20 x 1-1/2"	#4	Stalgard SUB	0.813	11/16"	0.500	0.23	2,000
EAF888	1/4" - 20 x 1-3/4"	#5	Stalgard SUB	0.813	15/16"	0.500	0.23	1,000
EAF846	1/4" - 14 x 2"	#3	Stalgard SUB	1.438	9/16"	0.500	0.23	1,500
EAF886	1/4" - 20 x 2"	#4	Stalgard SUB	1.313	11/16"	0.500	0.23	1,500
EAF890	1/4" - 20 x 2-1/2"	#4	Stalgard SUB	1.813	11/16"	0.500	0.23	1,000
EAF900 [5]	1/4" - 20 x 3-3/8"	#4	Stalgard SUB	2.625	3/4"	0.500	0.23	500
EAF910 [5]	1/4" - 20 x 4"	#4	Stalgard SUB	3.250	3/4"	0.500	0.23	500
1/4" Diameter, #3 Phillips Undercut Flat Head								
EBL330 [5]	1/4" - 20 x 3"	#4	Stalgard	2.250	3/4"	0.460	0.10	500
EBL340 [5]	1/4" - 20 x 4"	#4	Stalgard	3.250	3/4"	0.460	0.10	500
5/16" Diameter, 3/8" Hex Washer Head								
EAF940	5/16" - 18 x 1-1/2"	#3	Stalgard SUB	0.813	11/16"	0.600	0.27	1,000
EAF960	5/16" - 24 x 1-1/2"	#4	Stalgard SUB	0.750	3/4"	0.600	0.27	1,000
EAF970	5/16" - 24 x 2"	#4	Stalgard SUB	1.250	3/4"	0.600	0.27	1,000

1. The Maximum Load Bearing Length is calculated by subtracting the Minimum Protrusion Length from the Nominal Length of the fastener.
2. Minimum Protrusion Length is the length that allows the higher hardness tip and lead threads to protrude out of the back side of the supporting material.
3. Nominal head diameter is the diameter of the integral washer on hex washer head fasteners.
4. Nominal head height includes the thickness of the integral washer on hex washer head fasteners.
5. Partially Threaded Fastener with a thread length of 2.00".

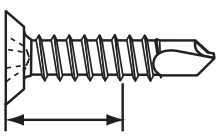
Load Bearing Area



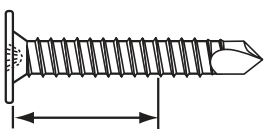
Hex Washer Head



Pan Head



Undercut Flat Head



Wafer head

Screwguns

Cat. No.	Description	Screw Diameter
DW268	2,500 RPM VSR VERSA-CLUTCH™ Screwgun	#10
DW267	2,000 RPM VSR VERSA-CLUTCH™ Screwgun	#12 & 1/4"
DW269	1,000 RPM VSR VERSA-CLUTCH™ Screwgun	5/16"
DCF622M2	20V MAX* XR® VERSA-CLUTCH™ Adjustable Torque Screwgun Kit	#10-1/4"

For 20V MAX Maximum initial battery voltage measured without a workload is 20 volts. Nominal voltage is 18.
Dril-Flex Fasteners must be installed perpendicular to the work surface using a maximum 2500 RPM screw gun with a torque sensing nose piece.
Guidance on installation RPM of particular screw diameters can be found on page 1.
Impact tools are not recommended for the installation of Dril-Flex fasteners.

Accessories

Cat. No.	Description
DW2046	2" Bit Tip Holder
DWA1PH2IR2	#2 Phillips Bit Tip (2 Pack)
DWA1PH3IR2	#3 Phillips Bit Tip (2 Pack)
DW2219IR	5/16" Impact Ready® Nut Driver
DW2223IR	3/8" Impact Ready® Nut Driver
DWA2SLS30	Screwdriving Set
DWA2FTS25IR	Screwdriving Set

H.P. WHITE LABORATORY, INC.
3114 Scarboro Road
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email: info@hpwhite.com
www.hpwhite.com

4 March 1999
(HPWLI 7818-01)
(Revised 25 February 2003)

United States Bullet Proofing, Inc.
4925 Lawrence Street
Hyattsville, Maryland 20781

Attention: Mr. Ken Sampson

Dear Mr. Sampson:

Your Purchase Order 00000158, dated 3 March 1999, requested Ballistic resistance Testing of an aluminum and steel sub-scale Model USAD1000 door, hand delivered on 3 March 1999. Your representatives were present for, and witnessed all testing.

Testing was conducted using equipment and procedures specified in UL-752, STANDARD FOR BULLET RESISTING EQUIPMENT, Ninth Edition, dated 27 January 1995, Levels 7 and 8 ballistic threats, caliber 5.56mm, M193, 55 grain, Ball and caliber 7.62mm, M80, 150 grain, Ball ammunition, were used. In addition to the formal UL-752 Testing, additional testing was conducted using caliber 7.62x39mm, Type 56, 123 grain, Ball ammunition. All testing was conducted on an indoor range at ambient conditions. The test sample was rigidly mounted 15 feet from the muzzle of the test barrel, and oriented to produce zero degree obliquity impacts. Redundant pairs of lumiline screens were located at 5 feet and 10 feet. In conjunction with electronic chronographs they provided bullet velocities at 7.5 feet from the muzzle. Penetrations were determined by visual examination of a 1/8" thick corrugated cardboard witness panel 18" behind, and parallel to, the rear of the test sample. Table I (attached) provides a summary of information contained in the attached data records.

In accordance with our standard policy, we attempted to maintain the velocities in the upper half of the specified range of velocities to reduce any effect the broad range of those velocities might have on the repeatability of results.

Based upon the data presented in Table I, the USAD1000 aluminum + steel sub-scale door submitted for testing SATISFIED the ballistic resistance requirements of UL-752, Level 7 and 8, Paragraph 14. The sample also "Passed" the non-rated additional testing with 7.62x39mm, Type 56 ammunition. This conclusion is based on data obtained from having tested only the samples submitted, and should NOT be interpreted as an endorsement by H.P. White Laboratory, Inc. of the future quality or performance of any other items of the same, or similar design.

The test sample was returned to your representative after testing. Should you have any questions regarding this matter, or if we may be of any further service, please do not hesitate to contact us.

Very truly yours,

H. P. WHITE LABORATORY, INC.

Lester W. Roane

LWR/lt
enclosures

TABLE I. SUMMARY OF RESULTS
(Model USAD1000)

Shot Location	Ballistic Threat				Results		
	Caliber	Shots	Velocity(fps) Max.	Min.	Pene-tration	Spall Only	Muzzle Hole
			LEVEL 7				
Hinge	5.56mm, M193	1	3322		0	0	0
Glazing Stops	5.56mm, M193	2	3341	3336	0	0	0
Stiles/Rails	5.56mm, M193	3	3336	3329	0	0	0
Jambs	5.56mm, M193	3	3344	3331	0	0	0
			LEVEL 8				
Hinge	7.62mm, M80	1	2957		0	0	0
Glazing Stops	7.62mm, M80	2	2948	2946	0	0	0
Stiles/Rails	7.62mm, M80	4	2964	2942	0	0	0
Jambs	7.62mm, M80	3	2952	2938	0	0	0
			NON-RATED SPECIAL TEST				
Stile	7.62x39mm	1	2496		0	0	0
Jamb	7.62x39mm	1	2360		0	0	0

H.P. White Laboratory, Inc.

BALLISTIC RESISTANCE TEST

Client : U.S. BULLET PROOFING

Job No. : 7818-01 Test Date : 03-03-99

TEST PANEL

Manufacturer : U.S. BULLET PROOFING
Size : 22 x 25 in.
Thicknesses : NA
Avg. Thick. : NA
Description : DOOR WITH FRAME SAMPLE

Sample No. : UASD1000
Weight : lbs.
Hardness : NA
Plies/Laminates : NA

Date Rec'd. : 03-03-99
Via : Hand Carried
Returned : Hand Carried

SET-UP

Shot Spacing : NA
Witness Panel : 1/8" CORRUGATED CARDBOARD
Obliquity : 0 deg.
Backing Material : NA
Conditioning : AMBIENT

Primary Vel. Screens : 5.0 ft., 10.0 ft.
Primary Vel. Location : 7.5 ft. From Muzzle
Residual Vel. Screens : NA
Residual Vel. Location : NA
Range to Target : 15.0 ft.
Target to Wit. : 18.0 in.

Range No. : 3
Temp. : 60 F
BP : 29.78 in. Hg
RH : 38%
Barrel No./Gun : TEST BARREL
Gunner : FULK
Recorder : POOLE

AMMUNITION

(1) : 7.62mm Ball, M80, 149 gr. Lot No. : WCC90B001-001
(2) : 5.56mm Ball, M193, 55 gr. Lot No. : LC-93G006-533
(3) : Lot No. :
(4) : Lot No. :

APPLICABLE STANDARDS OR PROCEDURES

(1) : UL-752 (ASSEMBLY)
(2) : LEVEL VII AND VIII
(3) :

Shot No.	Ammo.	Time 1 (usec)	Velocity 1 (ft/s)	Time 2 (usec)	Velocity 2 (ft/s)	Avg. Vel. (ft/s)	Vel. Loss (ft/s)	Strike Vel. (ft/s)	Penetration	Footnotes
1	1	1684	2969	1685	2967	2968	5	2964	None	
2	1	1690	2959	1692	2955	2957	5	2952	None	
3	1	1693	2953	1696	2948	2951	5	2946	None	
4	1	1693	2953	1694	2952	2952	5	2948	None	
5	1	1697	2946	1701	2939	2943	5	2938	None	
6	1	1696	2948	1698	2945	2946	5	2942	None	
7	1	1696	2948	1698	2945	2946	5	2942	None	
8	1	1690	2959	1692	2955	2957	5	2952	None	
9	1	1687	2964	1689	2960	2962	5	2957	None	
10	1	1698	2945	1698	2945	2945	5	2940	None	
11	2	1495	3344	1496	3342	3343	10	3334	None	
12	2	1490	3356	1492	3351	3353	10	3344	None	
13	2	1500	3333	1501	3331	3332	10	3322	None	
14	2	1497	3340	1498	3338	3339	10	3329	None	
15	2	1497	3340	1498	3338	3339	10	3329	None	
16	2	1491	3353	1493	3349	3351	10	3341	None	
17	2	1494	3347	1495	3344	3346	10	3336	None	
18	2	1496	3342	1497	3340	3341	10	3331	None	
19	2	1490	3356	1492	3351	3353	10	3344	None	

REMARKS :

FOOTNOTES :

H.P. White Laboratory, Inc.

BALLISTIC RESISTANCE TEST

Client : U.S. BULLET PROOFING

Job No. : 7818-01 Test Date : 03-03-99

TEST PANEL

Manufacturer : U.S. BULLET PROOFING
Size : 22 x 25 in.
Thicknesses : NA
Avg. Thick. : NA
Description : DOOR WITH FRAME SAMPLE

Sample No. : USAD1000
Weight : lbs.
Hardness : NA
Plies/Laminates : NA

Date Rec'd. : 03-03-99
Via : Hand Carried
Returned : Hand Carried

SET-UP

Shot Spacing : NA
Witness Panel : 1/8" CORRUGATED CARDBOARD
Obliquity : 0 deg.
Backing Material : NA
Conditioning : AMBIENT

Primary Vel. Screens : 5.0 ft., 10.0 ft.
Primary Vel. Location : 7.5 ft. From Muzzle
Residual Vel. Screens : NA
Residual Vel. Location : NA
Range to Target : 15.0 ft.
Target to Wit. : 18.0 in.

Range No. : 3
Temp. : 60 F
BP : 29.78 in. Hg
RH : 38%
Barrel No./Gun : TEST BARREL
Gunner : FULK
Recorder : POOLE

AMMUNITION

(1) : 7.62 x 39mm, 123 gr. Lot No. : TYPE 56
(2) : Lot No. :
(3) : Lot No. :
(4) : Lot No. :

APPLICABLE STANDARDS OR PROCEDURES

(1) : UL-752 (ASSEMBLY/MODIFIED)
(2) :
(3) :

Shot No.	Ammo.	Time 1 (usec)	Velocity 1 (ft/s)	Time 2 (usec)	Velocity 2 (ft/s)	Avg. Vel. (ft/s)	Vel. Loss (ft/s)	Strike Vel. (ft/s)	Penetration	Footnotes
1	1	2113	2366	2115	2364	2365	5	2360	None	
2	1	1998	2503	2000	2500	2501	5	2496	None	

REMARKS :

FOOTNOTES :

H.P. WHITE LABORATORY, INC.
3114 Scarboro Road
Street, Maryland 21154-1822
Telephone: (410) 838-6550
Facsimile: (410) 838-2802
email: info@hpwhite.com
www.hpwhite.com

8 March 1995
(HPWLI 6780-01D)
(Revised 25 August 1998)
(Revised 25 February 2003)
(Revised 21 July 2003)
(Revised 20 October 2003)

United States Bullet Proofing, Inc.
4925 Lawrence Street
Hyattsville, Maryland 20781

Attention: Mr. Ken Sampson

Dear Mr. Sampson:

In accordance with your Purchase Order Number 005, and amended verbally 7 March 1995, H.P. White Laboratory, Inc. conducted ballistic resistance testing of the frame/glass cross section of one Model USAW400 aluminum-clad steel window coupon assembly (glazing identified by client as Model IC534) received 7 March 1995 via your representatives.

Testing was conducted in accordance with UL-752, STANDARD FOR BULLET RESISTING EQUIPMENT, Ninth Edition, dated 27 January 1995, Levels 7 and 8 Paragraph 14, using caliber 5.56 x 45mm, 55 grain, Ball and 7.62 x 51mm, 150 grain, M80, Ball ammunition. The test sample was rigidly mounted 15.0 feet from the muzzle of a test barrel to produce zero degree obliquity impacts. Lumiline screens were located at 5.0 and 10.0 feet, which in conjunction with an elapsed time counter (chronograph) were used to compute bullet velocities 7.5 feet from the muzzle. Penetrations were determined by visual examination of a 1/8" thick corrugated cardboard witness panel 18.0 inches behind, and parallel to, the test sample. Table I presents a summary of the attached data record.

TABLE I. SUMMARY OF RESULTS

Insert			Ballistic Threat				Results		
Model Number	Size (in)	Location	Caliber	Shots	Velocity(fps) Max.	Min.	Penetration	Spall Only	Muzzle Hole
USAW400	12x14.5	Frame Center	5.56mm.	1	3215		0	0	0
		Frame Center	5.56mm.	1	3220		0	0	0
		Frame Center	5.56mm.	1	3199		0	0	0
		Frame Center	5.56mm.	1	2897		0	0	0
		Frame Center	5.56mm.	1	2892		0	0	0
		Frame Center	5.56mm.	1	2896		0	0	0
		Frame Center	5.56mm.	1	2917		0	0	0

Based upon the data presented in Table I, the frame/glass cross section of the fixed, aluminum-clad steel window coupon assembly of Model USAW400 submitted for testing **SATISFIED** the ballistic resistance requirements of UL-752, Levels 7 and 8, Paragraph 14. The glazing was not tested as part of this effort.

This report is based on data obtained from having tested only the sample submitted, and should NOT be interpreted as an endorsement by H.P. White Laboratory, Inc. of the continuing quality, or performance, of any other items of the same, or similar, design.

The test sample was returned to the custody of your representative. Should you have any questions regarding this matter, or if we may be of any further service, please do not hesitate to contact us.

Very truly yours,

H. P. WHITE LABORATORY, INC.

Craig B. Dunn

CBD/lt
Enclosure

H.P. White Laboratory, Inc.

BALLISTIC RESISTANCE TEST

Client : U.S. BULLET PROOFING

Job No. : 6780-01 Test Date : 03-07-95

TEST PANEL

Manufacturer : U.S. BULLET PROOFING
Size : 12 x 14.5 in.
Thicknesses : NA
Avg. Thick. : NA
Description : WINDOW COUPON, MODEL# USAW400

Sample No. : USAW400
Weight : lbs.
Hardness : NA
Plies/Laminates : NA

Date Rec'd. : 03-07-95
Via : Hand Carried
Returned : Hand Carried

SET-UP

Shot Spacing : PER HPWL DISCRETION
Witness Panel : 1/8" CORRUGATED CARDBOARD
Obliquity : 0 deg.
Backing Material : NA
Conditioning : AMBIENT

Primary Vel. Screens : 5.0 ft., 10.0 ft.
Primary Vel. Location : 7.5 ft. From Muzzle
Residual Vel. Screens : NA
Residual Vel. Location : NA
Range to Target : 15.0 ft.
Target to Wit. : 18.0 in.

Range No. : 1
Temp. : 73 F
BP : 30.19 in. Hg
RH : 44%
Barrel No./Gun : TEST BARREL
Gunner : L. MURRAY
Recorder : THOMAS

AMMUNITION

(1) : 5.56mm Ball, M193, 55 gr.
(2) : 7.62mm Ball, M80, 149 gr.
(3) :
(4) :

Lot No. : UNKNOWN
Lot No. : WCC90B001-001
Lot No. :
Lot No. :

APPLICABLE STANDARDS OR PROCEDURES

(1) : UL-752 (ASSEMBLY)
(2) : LEVEL VII AND VIII
(3) :

Shot No.	Ammo.	Time 1 (usec)	Velocity 1 (ft/s)	Time 2 (usec)	Velocity 2 (ft/s)	Avg. Vel. (ft/s)	Vel. Loss (ft/s)	Strike Vel. (ft/s)	Penetration	Footnotes
1	1	1550	3226	1551	3224	3225	10	3215	None	
2	1	1548	3230	1548	3230	3230	10	3220	None	
3	1	1558	3209	1559	3207	3208	10	3199	None	
4	2	1723	2902	1723	2902	2902	5	2897	None	
5	2	1726	2897	1726	2897	2897	5	2892	None	
6	2	1723	2902	1724	2900	2901	5	2896	None	
7	2	1711	2922	1712	2921	2921	5	2917	None	

REMARKS :

FOOTNOTES :

GLAZING INSTALLATION AND MAINTENANCE

Security glass products must be installed in accordance with the proper glazing techniques set forth in the Glass Association of North America (GANA) Glazing Manual and Sealant Manual, most current edition. For copies, contact: GANA, 785-271-0208, fax: 785-271-0166. Normal installation should follow trade-glazing guidelines using skilled, professional techniques.

Our clearance recommendations below must also be followed to protect all products from excessive pressure or glass-to-metal contact, which can cause breakage.

PRODUCT	OVERALL THICKNESS	MININUM CLEARANCE		
		FACE	EDGE	BITE
GLASS CLAD POLYCARBONATE	7/16" – 2 1/2"	1/4"	1/4"	3/4"
INSULATED GLAZING	1" – 2"	1/4"	1/4"	3/4"
POLYCARBONATE		1/4"	1/4"	3/4"
ALL GLASS	1 7/32" - 2 3/32"	1/4"	1/4"	3/4"

For exterior glazing, our glass products must be installed in a framing system that incorporates a weep system, as it is essential that the glass edges remain dry. Prolonged exposure of the product edge to solvents, solvent vapors, water or water vapor may cause delamination or insulated unit seal failure which will void the warranty.

Storage: Plan ordering and shipping schedules to minimize glass storage. All glass products should be installed within 30 days of delivery to ensure protection from moisture and warpage. When on site, store the crates indoors and keep them dry. Products that must be stored for longer than 30 days must be moved to a controlled environment where temperatures are consistently above the dew point, maintaining air circulation under and around the sides of each case to prevent condensation and staining. Protect the crates from exposure and damage from practices of other construction trades. We do not recommend purchasing attic stock as glass can rarely be stored for extended periods within a proper environment.

Handling: Only remove glazing from crates when it is ready to be installed. Remove glass from sides of packaging and never by sliding the crates on their side. On security glass with exposed polycarbonate, pay attention to this face. Never allow the glass to rest on an un-cushioned surface. When exposed polycarbonate is supplied with a protective removeable sheet, this must be removed immediately after the installation. Never allow the sun to bake this protective film on to the glazing. **Never use insulation materials such as "Blue or Pink board insulation" such as Polystyrene to protect windows during construction.**

Cleaning Exterior Threat Side:

Do not expose the edges of any laminated glass to organic solvents, acids or any cleaner containing ammonia, which can react with the plastic components. Take care during initial cleaning, especially if the surfaces are severely soiled and never try to remove dry deposits.

Flush glass surface with water to soften and remove as many contaminants and possible. Use a clean squeegee to remove any excess water, ensuring that abrasive deposits do not get trapped between squeegee and glass surface.
Use a mild non-abrasive, non-alkaline cleaner and a soft, grit free cloth to clean the glass. Rinse immediately with water and remove excess water with a squeegee.
Routine cleaning should be completed with a mild soap or detergent and lukewarm water with clean cloth. Dry the surface immediately and NEVER use a sharp blade or scraper tool to remove deposits or clean the glass.

Cleaning Exposed Polycarbonate:

Thoroughly pre-rinse with lukewarm water to loosen and wash away surface residue, grit and grime.
Gently wash product with a mild diluted solution of soap or detergent and lukewarm water using a soft, grit-free cloth or sponge. Avoid abrasive cleaners.
Do not use razor blades or other sharp instruments to remove spots.
Rinse immediately with clean water!
To prevent water spotting, thoroughly dry with a chamois or cellulose sponge. Only glass surfaces can be dried with a squeegee, taking care that the metal parts do not contact the glass.
Rewash glass and polycarbonate frequently during construction as dust and debris from concrete and rusting from steel can combine with dew or condensation to form chemicals which may etch/stain glass or polycarbonate or cause scratching.
Abusive cleaning procedures by hand washing or automated washing equipment will eventually result in visual hazing, loss of light transmission and coating delamination.

Removing Heavy Oils and Tars:

Thoroughly pre-rinse with lukewarm water to loosen and wash away surface residue, grit and grime.
Use a 50/50 isopropyl alcohol/water mixture, gently rub the area with a soft non-abrasive cloth.
Immediately rinse with lukewarm clean water. Dry with chamois or soft cloth.

Removing graffiti, paint, marker, inks, labels and glazing compounds:

Thoroughly pre-rinse with lukewarm water to loosen and wash away surface residue, grit and grime
Using Naphtha VM&P grade, Isopropyl Alcohol or Butyl Cellosolve, gently rub area with soft cloth. DO NOT apply solvent cleaners under direct sunlight or during high temperatures.
Immediately rinse with lukewarm clean water. Dry with chamois or soft cloth.

Reminders:

- Do not clean Polycarbonate with ANY cleaners other than those on the approved compatible list below.
- Do not use abrasive cleaners
- Do not use high alkaline cleaners (high pH or ammoniated)
- Do not leave cleaners sitting on polycarbonate for periods of time. Rinse off Immediately.
- Do not apply cleaners under direct sunlight or at high temperatures.
- Do not use scrapers, squeegees, razors or other sharp instruments.
- Do not dry rub or dry clean- always pre-rinse to remove any sand, grit or grime on surfaces.

- All cleaning agents should be procured in the United States- Products manufactured or procured outside of the U.S. may have different chemical properties that cause damage to polycarbonate.
- The edges of GCP or coated polycarbonate glazing panels are not protected with any abrasion resistant coatings. DO NOT allow ANY cleaning solutions or solvents to pool in glazing pockets or soak though interior gasketing. ANY cleaner pooling in glazing pockets can cause direct contact or gassing to the exposed poly edges or interlayers that can cause delamination and crazing to the glazing units.

Compatible Cleaning Agents only to be used as indicated above:

- **Aqueous Solutions of Soaps and Detergents diluted with water.**
    1. Joy – US Manufactured
    2. Palmolive Liquid – US Manufactured
    3. Windex- AMMONIA FREE – US Manufactured
- **Heavy Oils, Tars, Graffiti, Marker, Ink and Glazing Compounds:**
    1. Naphtha VM&P grade Isopropyl alcohol
    2. Butyl Cellosolve

Joy is a registered trademarks of Proctor & Gamble, Palmolive is a registered trademark of Colgate Palmolive, Windex is a register trademark of Drackett Products and Butyl Collsolve is a trademark of DOW.

Cleaning Instructions for Glass and Polycarbonate

Glass and polycarbonate must be handled and cleaned properly during the installation process. Glass and polycarbonate products can be permanently damaged if improperly handled and cleaned. Standard Bent Glass Corp recommends strict compliance with the following procedures.

Uniformly apply a mild solution of soap and water or a non-abrasive commercial window washing solution to the surface using applicator methods. Remove all liquid from the surface with a soft flannel or cotton cloth immediately following the application of the cleaning solutions. Care should be taken to ensure that no metal, sand, or foreign particles become trapped between the cloth and the substrate. These particles, if allowed to contact the glass or polycarbonate surface, will mar and damage the glazing. All cleaning solutions should be dried from the window gaskets and sealants to avoid the potential for deterioration as a result of the cleaning process. Do not apply cleaners in direct sunlight or at elevated temperatures. Do not use razor blades or squeegees to clean hard to remove substances from specific glass and polycarbonate surfaces. Do not use abrasive or highly alkaline cleaners. Benzene, gasoline, acetone, MEK, and Carbon Tetrachloride should never be used on polycarbonate surfaces. Cleaning agents found to be compatible with glass and polycarbonates are as follows:

Compatible Cleaners and Detergents for Glass and Polycarbonate Products

- Formula 409
- Joy
- Windex with Amonia D
- Palmolive
- Naphtha VM&P Grade
- Isopropyl Alcohol

Warranty

U. S. Bullet Proofing Inc. (USBP) warrants that the products manufactured by USBP shall be free from material defects in workmanship and materials for a period of one (1) year from the date of substantial completion, provided that they have been installed and maintained in strict accordance with all applicable safety codes, building standards and USBP recommendations. This warranty is also limited to the repair or replacement of defective material or the repayment by USBP of the original purchase price paid for the defective material. USBP reserves the exclusive rights to select any one of the above mentioned remedies. USBP makes no other warranties or representations, either expressed or implied, concerning product fitness for a particular purpose. In no event will USBP be liable for direct, indirect, special or consequential damages including but not limited to loss of profits or use.

Warranty of Outside Suppliers: Items manufactured by others and supplied by USBP carry the manufacturer's warranty only. In replacing defective items manufactured by others, USBP will not assume charges for freight or labor.

Anodized Finish Warranty

This warranty is in addition to U.S. Bullet Proofing's standard product warranty.

U.S. Bullet Proofing (USBP) warrants for a period of five (5) years from date of shipment that all exposed anodized aluminum furnished by USBP and specified to be processed to AAMA 603.8 standards shall conform to the following provided it is installed in and exposed to normal atmospheric conditions.

The said aluminum will not develop excessive fading or excessive non-uniformity of color; and will not crack, peel, pit, or corrode, all within the limits defined as follows:

> "Excessive fading" means that all change in color during the period of this warranty shall not exceed 10% or a value of 4, whichever is greater, above or below the original limits of acceptable color range for the color specified.
>
> "Excessive non-uniformity" means non-uniform fading during the period of this warranty to the extent that adjacent panels have a color difference greater than the original limits of acceptable color expressed in the same system of color measurement described agove.
>
> "Will not pit or corrode" means that there shall be no pitting or other type of corrosion discernible by the naked eye from a distance of 10 feet resulting from the natural elements in the atmosphere at the project.

This warranty applies only if such anodized material is installed in strict accordance with USBP's recommended practices and maintained in accordance with American Architectural Manufacturers Association (AAMA) Publication Number 609.1 "Voluntary Guide Specification for Cleaning and Maintenance of Architectural Anodized Aluminum". AAMA Publication No. 609.1 will be furnished upon request.

This warranty does not cover, and USBP expressly disclaims all liability for and with respect to any material which has been subject to abuse, alteration, modification, neglect, misuse, abnormal use, accident, fire, war, flood, earthquake, or acts of God.

The sole and exclusive remedy with respect to this warranty shall be repair or replacement of the defective material or repayment by USBP of the purchase price paid therefore. USBP reserves the right to select the remedy.

In no event shall U.S. Bullet Proofing Inc. be liable for special, direct, indirect or consequential damages of any kind including but not limited to, loss of use, loss of profits or good will, or any other loss or injury.

United States Bullet Proofing, Inc.
16201 Branch Court
Upper Marlboro, MD 20774
www.usbulletproofing.com

(800) 363-8328 Toll Free
(301) 218-7920 Local
(301) 218-7925 Fax
info@usbulletproofing.com

WARRANTY

Standard Bent Glass Corp warrants:

(a) Each unit of **laminated glass and bent laminated glass** to be free from delamination for a period of five (5) years from the date of manufacture.

(b) Each unit of **SentryGlas® Expressions™** to be free from color fading for a period of five (5) years from the date of manufacture. White inks are not warranted for lightfastness for exterior use.

(c) Each unit of **insulated glass (IG)** to be free from material obstruction of vision as a result of film formation on the internal glass surfaces caused by failure of the hermetic seal due to defects in material or workmanship for a period of five (5) years from the date of manufacture.

(1) Insulated units containing laminated glass, covered in section (a)), will carry a five (5) year warranty from date of manufacture for the IG portion of the product and the warranty stated above for the laminated portion of the product.
(2) Insulated glass warranty does not apply to any IG unit installed in water craft, land vehicles, trailers, swimming pools, or solar collectors.
(3) Insulated units (IG), covered by section (c) warranty, will be void if IG units supplied with breather tubes are not sealed within sixty days of manufacture.

The above warranties are subject to the following terms and conditions. These terms and conditions supersede all Purchaser requests for variations unless Standard Bent Glass Corp accepts such variations in writing prior to manufacturing and shipment of materials.

1. The warranty is limited to the replacement of the defective product, including shipping charges, and does not include labor costs for removal or reinstallation.
2. The warranty does not apply to glass which has not been handled, stored, installed, or used in accordance with Standard Bent Glass Corp's instructions or industry guidelines.
3. There is no warranty against glass breakage, surface damage, or scratches on either glass or polycarbonate surfaces. Purchaser is responsible for processing freight claims.
4. The warranty does not apply to replacement glass beyond the period covering the original lite.
5. Warranty for products installed outside of the United States will be issued contingent upon consideration of product application and warranty requested.
6. The warranty does not apply to material that is not paid for in full.
7. The warranty does not apply to products furnished by Standard Bent Glass Corp that have been altered or modified.

Standard Bent Glass Corp is not to be held liable for damages or expenses due to late delivery of raw materials; manufacturing delays; defective or broken products (except to the extent of express warranty); internal errors; improper handling or negligence by Purchaser; delays due to strikes, fires, or freight carriers; priorities of the government or any department thereof; natural disasters; or acts that are unavoidable and beyond the control of Standard Bent Glass Corp.

Customer Name:

Project Name:

Product Type:

Date of Completion:

PO BOX 65 • EAST BUTLER PA 16029 • *(724) 287-3747 • FAX (724) 287-1661*
• WEBSITE: www.standardbent.com
Established 1936

ASSA ABLOY

Certificate of Warranty

PROJECT NAME:	
CUSTOMER NAME:	
PROJECT ADDRESS:	
PRODUCT: DOOR:	
Sales Order/Project Number:	

ASSA ABLOY Entrance Systems US Inc. ("AAES") warrants *only* the equipment supplied *and* installed *by* AAES to be free of defects in material and workmanship from _____ until _____ (the "Warranty Period"). AAES, at its sole option, shall repair or replace at its own expense, any materially defective work or material during the Warranty Period specified. Any work will take place during AAES's normal working hours, which are 8:00 am to 5:00 pm, Monday through Friday, excluding holidays.

Service requests that are not covered by this warranty will be charged at AAES's published service rate. Service requests outside of normal working hours will be charged at AAES's published emergency service rate.

Service requests not covered by this warranty include, but are not limited to:

1. Requests for service occasioned by a lack of reasonable care in the maintenance of material and equipment including: a failure to follow manufacturer's instructions, abuse, neglect, vandalism, acts of civil disorder, acts of war, acts of God, water damage, adverse weather conditions, fire, natural disaster, variations or interruptions in the power supply, unauthorized modification or adjustment, or any other reason beyond the reasonable control of AAES.
2. Requests for service made necessary because of any related components not furnished and/or installed by AAES.
3. Requests for service to perform routine maintenance, including, but not limited to: any speed and timing adjustments, normal wear and tear to movable components (i.e. rollers, brush sweep, track cap, bottom guides, pivots, etc.), and other maintenance items considered customarily a part of routine service in the industry (ask your AAES authorized service dealer about options for a complete maintenance program).
4. Service requests for operator resets, replacement fuses or batteries, dismounted drive and control unit, and incorrect fusing.
5. Service requests where evidence exists that others have examined the material and equipment intended to be covered by this warranty.

6. Travel time and expenses associated with calls for service where the equipment is found to be operational and running upon AAES's arrival to the location.

AAES reserves the right, in its sole discretion, to void this warranty on account of any amounts due owing for this or any other accounts AAES may have with the holder of this warranty.

Nothing herein is intended to imply that the Warranty Period is to be extended beyond the expiration date referenced herein, including repair or replacement of equipment during the Warranty Period.

This warranty is not intended to cover any AAES manufactured product that has been installed, reinstalled, or serviced by anyone other than an AAES certified technician or an AAES authorized agent.

For warranty questions or for service please call: (877)237-2687

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED, WRITTEN OR ORAL. ALL OTHER WARRANTIES INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. REPAIR OR REPLACEMENT AT AAES'S OPTION IS CUSTOMER'S SOLE REMEDY AND IN NO EVENT SHALL AAES BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING BUT NOT LIMITED TO LOSS OF PROFITS OR REVENUE, LOSS OF USE OF THE COMPONENT OR FACILITIES OR SERVICE DOWNTIME, OR CLAIMS OF OTHERS. AAES'S LIABILITY PURSUANT TO THIS WARRANTY SHALL IN NO CASE EXCEED THE PURCHASE PRICE ALLOCABLE TO THE AUTOMATIC DOOR COMPONENT OR PORTION THEREOF WHICH GIVES RISE TO THE CLAIM.

By: Date:

Customer Acknowledgement: _____

Date: _____

This warranty is in effect once the Customer has acknowledged the terms set forth herein and a signed copy of the Warranty Certificate is received by ASSA ABLOY Entrance Systems US, Inc. Warranty Dept. 1900 Airport Rd, Monroe NC 28110