

ARCHITECTURAL

Volume IX

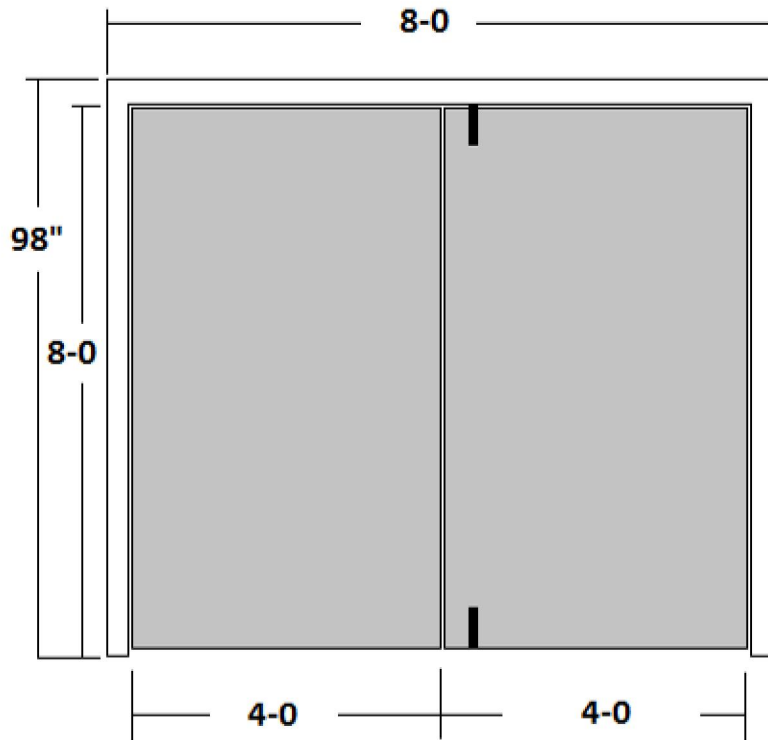
Operations & Maintenance Manual

Plenum Doors Product Data

**Operations & Maintenance Manual
December 2015**

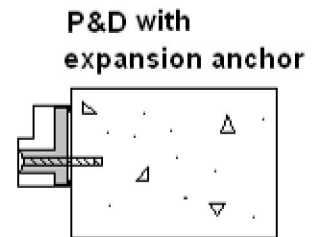
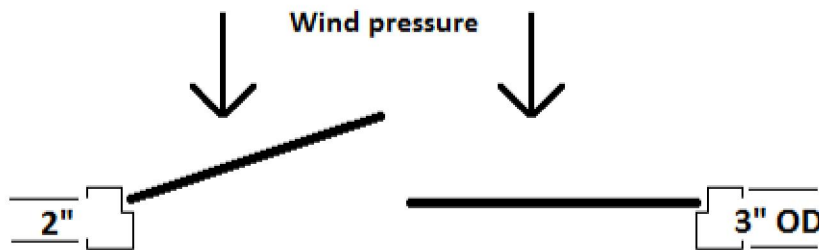
Door #	Width Active	Width Inactive	Height	ECBB1102 4.5X4.5 Heavy Duty Hinges	ECBB1100 4.5X4.5 Standard Duty Hinges	6'-8" ASA LH/RH Z Astragal	8'-0" ASA FB LH Z Astragal	Schlage L9010 x 06 Eschutcheon Passage Mortise lever latch	275D 8" Surface Bolt	815A 108" Jamb up Weatherseal	815A 84" Jamb up Weatherseal	806A 48" Sweep	806A 36" Sweep	S488AV 72" Threshold	S488AV 96" Threshold	PK55BL Weatherseal (per LF)
1	4'-0"	4'-0"	8'-0"	8	-	-	1	1	2	3	-	2	-	-	1	8
2	4'-0"	4'-0"	8'-0"	8	-	-	1	1	2	3	-	2	-	-	1	8
3	4'-0"	4'-0"	8'-0"	8	-	-	1	1	2	3	-	2	-	-	1	8
4	4'-0"	4'-0"	8'-0"	8	-	-	1	1	2	3	-	2	-	-	1	8
5	4'-0"	4'-0"	8'-0"	8	-	-	1	1	2	3	-	2	-	-	1	8
6	4'-0"	4'-0"	8'-0"	8	-	-	1	1	2	3	-	2	-	-	1	8
7	4'-0"	4'-0"	8'-0"	8	-	-	1	1	2	3	-	2	-	-	1	8
8	4'-0"	4'-0"	8'-0"	8	-	-	1	1	2	3	-	2	-	-	1	8
9	3'-0"	2'-0"	6'-8"	-	8	1	-	1	2	-	2	-	2	1	-	7
TOTAL				64	8	1	8	9	18	24	2	16	2	1	8	71

DOORS 1-8



**TESTED IN ACCORDANCE
 WITH ASTM E-330**

**DESIGN PRESSURE =
 +/- 50 PSF = 139.75 MPH**



Project Name: Eisenhower Tunnel		GC Name: Barnard Construction	
Gage Door: 14	Gage Frame: 14	Swing: RHRA	Anchor: P&D
Door Material: HM	Frame Material: HM	Glass kit: None	Glass type: None
Door Type: B	Frame Type: F	Fire Rating: None	Wall Type: Concrete
Door Number: Steel Stiffened, 4 hinges per door leaf, 8 ea. Thus			HW Set:
			Date: December 19, 2014
Comments:			Revision 1 February 2, 2015
			Revision 2 February 4, 2015
			Revision 3
			Revision 4
Approved: _____		Page 1 OF 2	

As Drawn

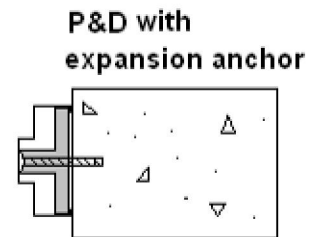
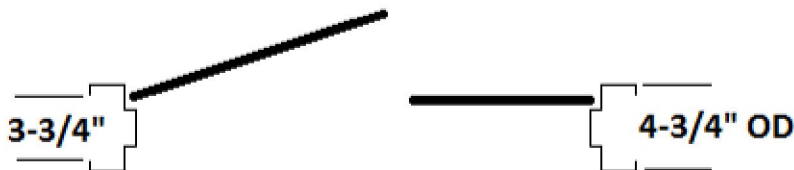
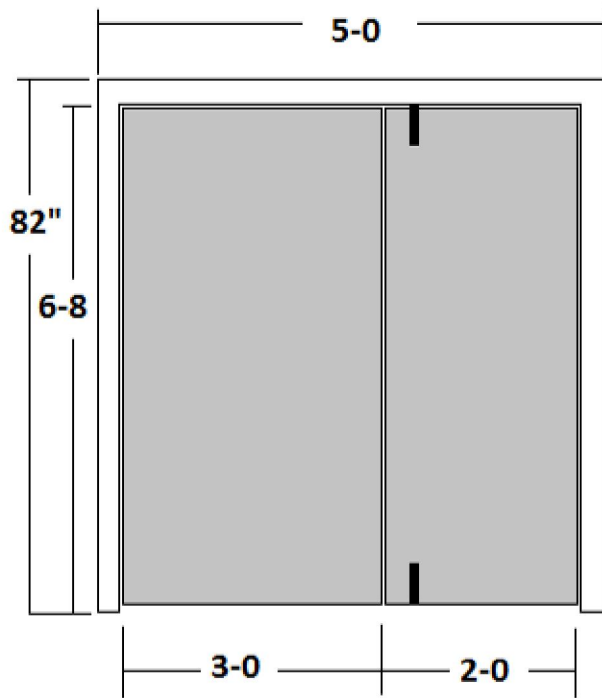
As Corrected


Drawn by: **BJD**

AID Job Number:	79781
Project # / PO:	EJMT



DOOR 9



Project Name: Eisenhower Tunnel		GC Name: Barnard Construction		
Gage Door: 18	Gage Frame: 16	Swing: RHRA	Anchor: P&D	
Door Material: HM	Frame Material: HM	Glass kit: None	Glass type: None	
Door Type: L	Frame Type: F	Fire Rating: None	Wall Type: Drywall	
Door Number: Standard Honeycomb core, 3 hinges per leaf			HW Set:	
			Date: December 19, 2014	
Comments:			Revision 1	February 4, 2015
			Revision 2	
			Revision 3	
			Revision 4	
Approved: _____		Page	2	OF 2
As Drawn	AID Job Number: 79781	 American Industrial Door Company Davenport, Iowa		
As Corrected	Project # / PO:			
Drawn by: BJD				



ABOUT THE PRODUCT:

Steelcraft B18, B16 and B14 Series Flush Doors are designed to meet the architectural requirements for full flush, steel stiffened doors.

The door face sheets are supported by the internal steel stiffeners, which extend the full door width. The stiffeners are welded to (1) face sheet and bonded to the opposite panel.

The B Series Door offers a wide range of specifiable options including sizes, glass light designs, optional edge constructions and hardware (mechanical, pneumatic, electrical) preparations.

B-Series Doors are 1-3/4" (45mm) thick.

THE USE OF HIGH GLOSS PAINT IS NOT RECOMMENDED.

High gloss paint accentuates the visibility of all welds.

INSTALLATION:

1. Installation shall conform to the published Steelcraft installation instructions, ANSI A250.11-2001 (formerly SDI 105) *Recommended Erection Instructions for Steel Frames and HMMMA 840.*
2. Fire Rated Assemblies must be in accordance with NFPA Pamphlet 80. *The Authority Having Jurisdiction* is the final authority on issues related to the installation and use of installed Fire Rated Doors.

FEATURES AND BENEFITS:

Steelcraft's B Series Doors offer the following standard unique features, which enhance long term performance and durability:

1. **Steel Stiffened core construction** with welded 20 gage hat section stiffeners.
2. **Full Height, Epoxy Filled Mechanical Interlock Edges** provide structural support and stability the full height of the door edges. Available edge options:
 - **Visible Edge Seam** (standard) – full height, epoxy filled mechanical Interlocked edges
 - **Filled Seam** – optional edge seam epoxy filled and finished smooth. Includes tack welds above and below edge cutouts for hinges, locks, etc
 - **Welded Edge Seam** – optional edge seam welded with 1" (25mm) long weld, 6" (152mm) on center, epoxy filled between welds and finished smooth; available on B18, B16 and B14 doors.
3. **Universal Hinge Preparations** (patented) allow for easy field conversion from standard weight .134" (3.3mm) hinges to heavy weight .180" (4.7mm) hinges.

14 Gage [0.067" (1.7mm)] Inverted Top and Bottom Channels provide stability and protection for the top and bottom edges from abuse.

4. **Beveled Hinge and Lock Edges** allow for tighter installation tolerances, ensure easier operation and eliminate binding and sticking.
5. **Recessed Designer™ Glass Trim** provides a clean, neat and flush finish with the door surface.
6. **Factory Applied Baked-On Rust Inhibiting Primer** paint in accordance with ANSI A250.10-1998 (R2004).

SPECIFICATION COMPLIANCE:

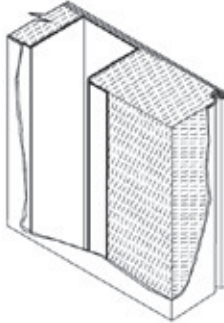
1. Door construction for Steelcraft B Series Full Flush Doors meets the requirements of ANSI A250.8-2003 (SDI 100).
2. Hardware preparations and reinforcements are in accordance with ANSI A250.6-2003. Locations are in accordance with ANSI/DHI A115 unless otherwise stated.

FIRE RATINGS:

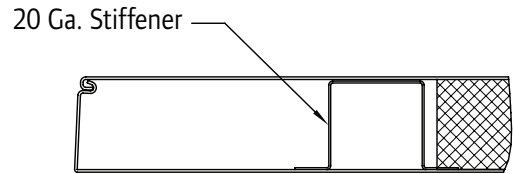
B Series Doors meet the broadest fire rating requirements. They are listed for installations requiring compliance to both neutral pressure testing (ASTM E152 and UL-10B) and positive pressure standards (UL-10C).

B SERIES CORE CONSTRUCTION

Steel Stiffeners with Fiberglass Insulation

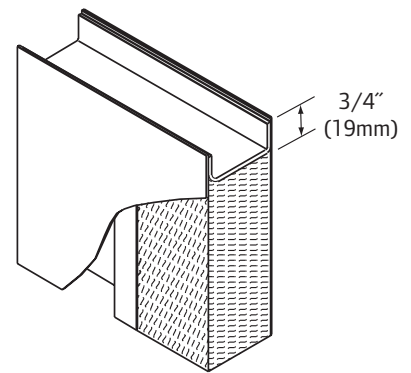
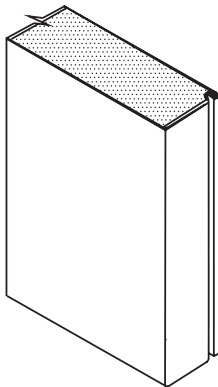


Steel Stiffeners with Fiberglass Insulation



Standard B Series Core

- 20 gage stiffeners
- Stiffeners welded to inside of (1) face sheet and bonded to the opposite face
 - Vertical interior webs located 6" (152mm) apart
 - Welded to face sheet 5" (127.6mm) on center
- Stiffener height extends full height of door thickness
- Areas between stiffeners filled with nominal 1 pound (453.6g) per ft³ density fiberglass batt insulation



Standard Premium Edge Construction

- Beveled hinge & lock edges
- Full height mechanical interlock with epoxy adhesive
- Visible edge seam standard
- Seamless edge optional

Standard Rigid 14 Gage End Channel Construction

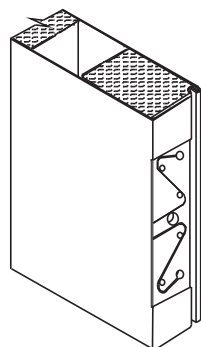
- 14 gage inverted galvanized top & bottom channels
- Projection welded to both face sheets
- Optional 24 gage galvanized top caps

DOOR APPLICATION AND USAGE

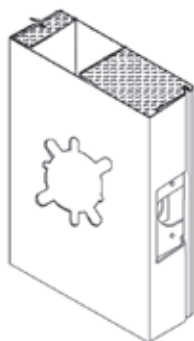
Series	Steel Thickness	Opening	Usage Frequency	
B18	18 Ga (1.0mm)	Interior - Cold Rolled Steel	Heavy Duty	Heavy Commercial & Institutional applications with high use
B18	18 Ga (1.0mm)	Exterior - Galvanized Steel		
B16	16 Ga (1.3mm)	Interior - Cold Rolled Steel	Extra Heavy Duty	Extra Heavy Commercial applications with potential of very high use
B16	16 Ga (1.3mm)	Exterior - Galvanized Steel		
B14	14 Ga (1.7mm)	Interior - Cold Rolled Steel	Maximum Duty	Extra Heavy Commercial applications with extremely high use
B14	14 Ga (1.7mm)	Exterior - Galvanized Steel		

STANDARD HARDWARE PREPARATIONS

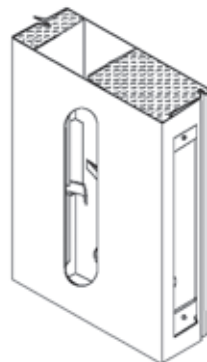
Typical hardware applications shown. Refer to section 8 for more details.



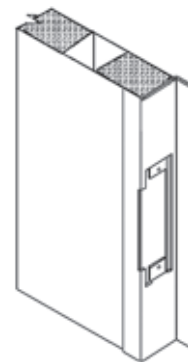
Universal Mortise Hinge
7 Gage Universal hinge reinforcement



61L Lock



86 Lock



**Inactive Leaf ASA
Strike Prep with
Astragal attached**



**Optional 14 Gage
Closer Reinforcement**

Standard: mortised and reinforced for

- Patented **Universal hinge preparations** allow for easy field conversion from standard 4-1/2" x .134" standard weight hinges to 4-1/2" x .180" heavy weight hinges. Optional hinge preparation for 5" x .146" standard weight hinges or for 5" (127mm) x .190" (4.8mm) heavy weight hinges is also available.
- The cylindrical 161, 61L and mortise 86 lock preps are the most commonly used active leaf preparations. The 4-7/8" (124mm) strike prep is the most commonly used inactive leaf preparation.
- Optional reinforcements for surface and concealed Closers are available.
- Special hardware applications are available.

Door Sizes and ANSI A250.8 Conversions

Steelcraft product selection for B Series Doors has been matched to ANSI/SDI Level and Model designations.

- In accordance with ANSI A250.8, core material is not specific to the level or model designations. Core material selection is specified based on preference and application.
- Recommended minimum frame gage also applies to the frequency of operation of the opening.

Series	ANSI A250.8 - SDI 100			Edge Construction Options	Maximum Sizes		Recommended Gage of Frame
	Level	Model	Description		Single	Pair	
Level 2 - Heavy Duty Commercial & Institutional							
B18	2	1	Full Flush	Visible Epoxy Filled	4'-0" x 10'-0" 1219mm x 3048mm	8'-0" x 10'-0" 2438mm x 3048mm	16 Gage [0.053" (1.3mm)]
BF18		2	Seamless				
BW18		2	Seamless	Welded			
Level 3 - Extra Heavy Duty Commercial & Institutional							
B16	3	1	Full Flush	Visible Epoxy Filled	4'-0" x 10'-0" 1219mm x 3048mm	8'-0" x 10'-0" 2438mm x 3048mm	16 Gage [0.053" (1.3mm)] 14 Gage [0.067" (1.7mm)]
BF16		2	Seamless				
BW16		2	Seamless	Welded			
Level 4 - Maximum Duty Commercial & Institutional							
B14	4	1	Full Flush	Visible Epoxy Filled	4'-0" x 10'-0" 1219mm x 3048mm	8'-0" x 10'-0" 2438mm x 3048mm	14 Gage [0.067" (1.7mm)]
BF14		2	Seamless				
BW14		2	Seamless	Welded			

DOOR EDGE CONSTRUCTION:

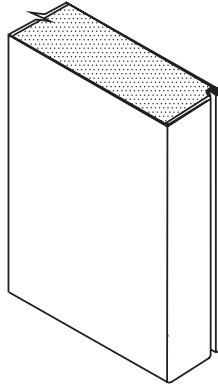
- Vertical edges (both hinge and lock) are beveled 1/8" (3.2mm) in 2" (51mm) with a visible seam.
- Top and bottom edges are closed with inverted 14 gage [0.067" (1.7mm)] welded channels. Exterior applications require the addition of top caps to protect against the weather.
- Optional Edge Seams available in the B Series doors:
 - a. **BF** – the mechanical edge seam is filled and finished prior to applying the factory primer.
 - b. **BW** – the mechanical edge seam is welded and finished prior to applying the factory primer.

Beveled Edge with Full Height Mechanical Interlock

Full Flush

B Series Visible Seam Features

- Full height mechanical interlock
- Interlock filled with epoxy adhesive
- Visible edge seam



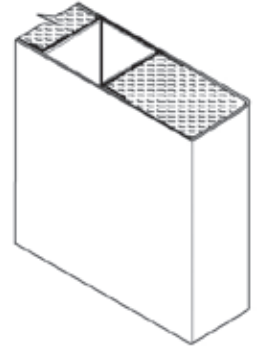
Seamless

BF Series Seam Filled Features

- Full height mechanical interlock
- Interlock is tack welded and filled with epoxy adhesive
- Edge seam is epoxy filled and finished
- No visible edge seam

BW Series Seam Welded Features

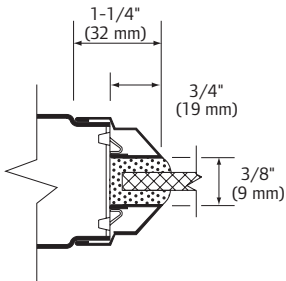
- Full height mechanical interlock
- Interlock filled with epoxy adhesive
- Edge is seam welded 1" (25mm) long, 6" (152mm) O.C.
- No visible edge seam



GLASS LIGHT OPTIONS – REFER TO THE LIGHTS AND LOUVERS SECTION FOR FURTHER DETAILS

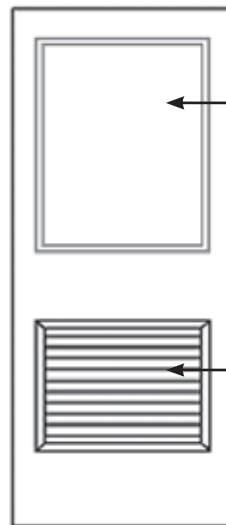
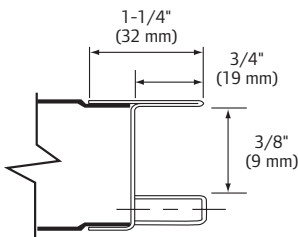
Designer® Trim

- Standard 1/4" Thick Glass
- Optional 1/2" Thick Glass



Recessed Steel Insulated Glass Trim

- For 1" Thick Glass



Note: Glazing type and thickness vary per job requirements.

Note: Louver size and type vary per requirements.

Divider Muntins Are Not Available

Full Flush Doors

Full flush doors are defined as having no seams on the faces but seams are permitted on the edges. Steelcraft's L-, B-, LS- and CE-Series doors meet this specification. Steelcraft standard doors are manufactured from cold-rolled steel, or A60 hot dipped galvanized steel, and prime painted at the factory.

L – SERIES

The L-Series door is a beveled edge honeycomb core door with a visible seam on both the hinge and lock edge. Optional cores are polystyrene and polyurethane.

B – SERIES

The B-Series is a steel stiffened door with visible seams on the hinge and lock edges.

CE – SERIES

CE-Series doors feature deeply embossed panels on both sides, creating the appearance of hand carved doors. The CE-Series doors include all the features of the L-Series door.

GRAIN-TECH

GRAIN-TECH doors are L-Series doors produced with steel sheets that have been embossed to create a wood door appearance. GRAIN-TECH doors are available with an optional factory finish in six different standard color stains, and a factory-applied clear top coat with ultraviolet inhibitors. Special colors are available upon request. The look of wood with the durability and fire rated certification of a steel door. Truly the best of both worlds!

RELATIVE COST

L18, 1-3/4", 3'0" x 7'0" flush door used as base of 100

L18	Flush, 18 gage,	100
L20-4	Flush, 20 gage,	87
LF20-4	Flush, 20 gage,	96
L18	Galvanized, Flush, 18 gage,	113
L18	UL Flush, 18 gage,	115
L18	Finished paint, Flush, 18 gage,	116
LF18	Full flush, 18 gage, (filled)	110
LW18	Full flush, 18 gage, (welded)	112
T18	Temperature Rise, 18 gage,	154
LS18	Stainless.Flush. 18 gage,	726
L16	Flush, 16 gage,	123
LF16	Flush, 16 gage, (filled)	133
LW16	Flush, 16 gage, (welded)	137
L14	Flush, 14 gage,	148
B18	Flush, 18 gage, steel stiffened,	125
B16	Flush, 16 gage, steel stiffened,	149
BW16	Flush, 16 gage, steel stiffened, (welded)	161
B14	Flush, 14 gage, steel stiffened,	173
CE20	Embossed, 20 gage,	105
CE18	Embossed, 18 gage,	122
CE16	Embossed, 16 gage,	139
L20	Stainable, 20 gage, factory finished	130
L18	Stainable, 18 gage, factory finished	143
A16	Stile & Rail, 16 gage, Full Glass,	166
AN16	Stile & Rail, 16 gage, Full Glass,	166

STAINLESS STEEL

LS-Series doors are L-Series doors fabricated from type #304 or #316 stainless steel material (specify type).The stainless steel provides extra protection against corrosive chemicals and atmosphere.

FINISH PAINT

L-Series doors are available with factory-applied finish paint. Ten standard colors as shown below are available. Special colors are available upon request. Factory finished doors and frames save job site preparation time, give a higher quality finish, and allow for decorator color selection.

Series	Core Material				Gage			
	HONEYCOMB	POLYSTYRENE	POLYURETHANE	STEEL STIFFENED	20	18	16	14
L	■	★	★		●	●	●	●
B				■		●	●	●
CE		■			●	●	●	
GRAIN-TECH	■	■	■		●	●	●	
Stainless	■	★	★		●			

■ = Standard Core
★ = Optional Core Available



L - Series

L20(.8mm) • L18(1mm) • L16(1.3mm) • L14(1.7mm)

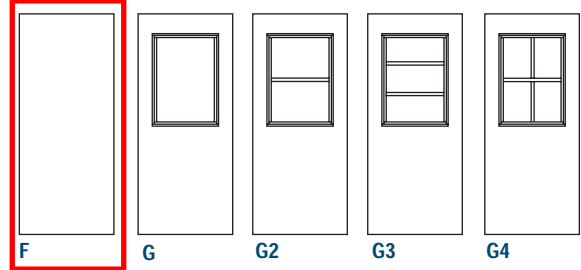
FULL FLUSH DOORS



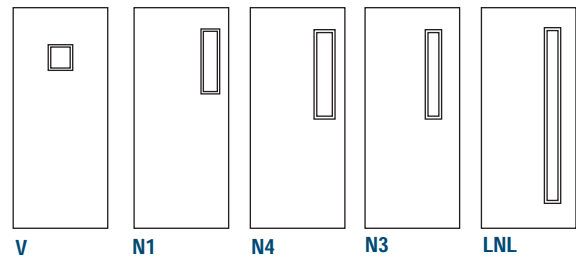
L-Series Door with Narrow Lite

Steelcraft L-Series doors are designed to meet architectural requirements for full flush doors. The L-Series door combines the strength and dimensional stability of steel with the structural integrity of the honeycomb core. The continuous bonding of core to metal provides an attractive, absolutely flat door, free of face welding marks. Tests have proven the L-Series door's high resistance to impact damage, low thermal conductivity and have validated the high STC ratings of this door.

Full Flush and Half Glass Doors.



Doors with Glass Lites.

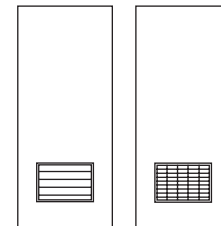


Dutch Doors



Dutch

Doors with Louvers or Grilles.



Louver

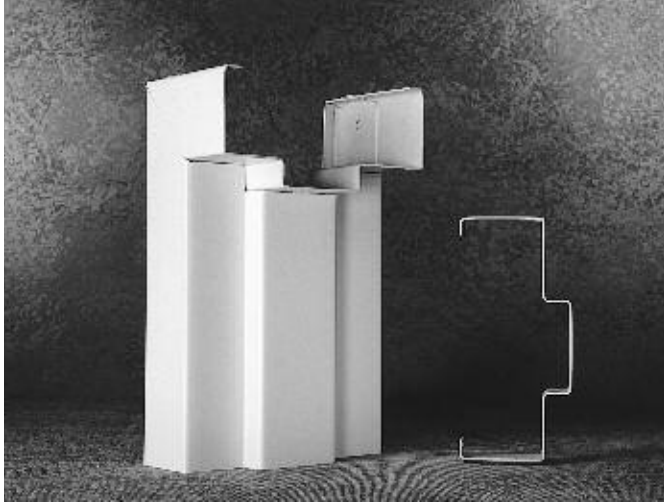
Grille

Width	Height			
	L20 B/L18, B/L16, B/L14, A16, AN16 1-3/4			CE20, CE18, CE16
	68			
	70	710	100	68
	72	80		70
2'0"(610mm)	■			
2'4"(711mm)	■			
2'6"(762mm)	■			
2'8"(813mm)	■			■
2'10"(864mm)	■			■
3'0"(914mm)	■	■	■	■
3'4"(1016mm)		■	■	■*
3'6"(1067mm)		■	■	■*
3'8"(1118mm)		■	■	
3'10"(1168mm)		■	■	
4'0"(1219mm)		■	■	

*Not available in 20 gage

Specifications

Door thickness:	1-3/4"	(45mm)
Standard heights:	6'8"-7'0"	(2032mm-2134mm)
	7'2"-7'10"	(2184mm-2388mm)
	8'0"-10'0"	(2438mm-3048mm)
Standard widths:	increments of 2"(50mm) from 1'6"(457mm) to 4'0"(1219mm)	



FEATURES AND BENEFITS:

Steelcraft F Series Flush Frames offer the following unique features, which enhance long term functionality and durability:

1. **Die-mitered corner connections** Die-mitered corner connection at the head and jamb insure an attractive, tight and closed mitered connection. The miter includes 4 corner tabs designed with concealed connection eliminating the need for continuous profile welding.
2. **Patented universal hinge preparations** allow for easy field conversion from standard weight .134" (3.3mm) thick hinges to heavy weight .180" (4.7mm) hinges.
3. **Adjustable base anchors** allow for installation adjustment when the floor is not level.
4. **Factory prepared** for field installed silencers.
5. **Factory applied baked on rust inhibiting primer** in accordance with ANSI A250.10-1998 (R2004).

SPECIFICATION COMPLIANCE:

1. Overall frame construction for the Steelcraft F-Series Flush Frames meets the requirements of ANSI A250.8-2003 (commonly referred to as SDI-100).
2. Hardware preparations and reinforcements are in accordance with ANSI A250.6-2003. Locations are in accordance with ANSI/DHI A115 .

FIRE RATINGS:

The F-Series Flush Frames meet the broadest fire rating requirements. They are listed for installations requiring compliance to both neutral pressure testing (ASTM E152 and UL 10B) and positive pressure standards (UBC 7-2 and UL 10C). Refer to the **Fire Rated Section** of this manual for particular listings.

APPLICATIONS:

F-Series Frames are typically installed in wall construction types as defined in the chart below:

ABOUT THE PRODUCT:

F Series 3 Sided Flush Frames are designed to meet requirements for light to maximum duty applications in both commercial and institutional buildings. They are installed in both interior and exterior locations, and in virtually all types of buildings and wall constructions. These frames are to be installed as part of the wall framing sequence. They can be specified and supplied as KD (knock-down) for field assembly prior to installation or welded for installation as a complete unit.

INSTALLATION:

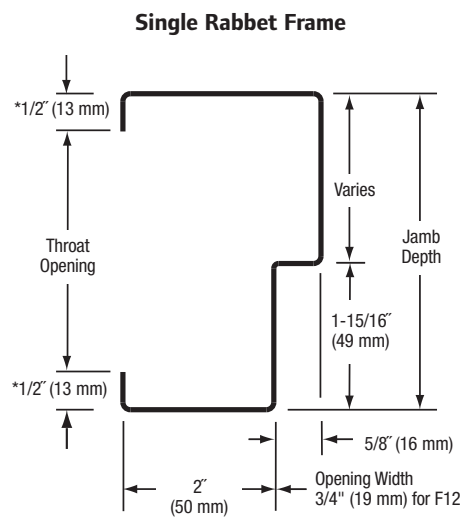
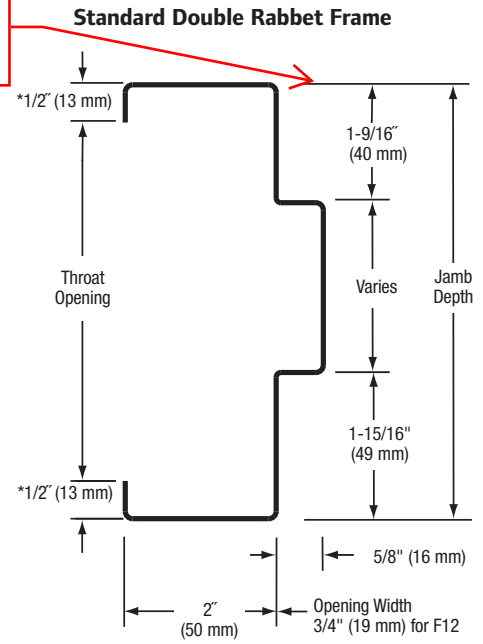
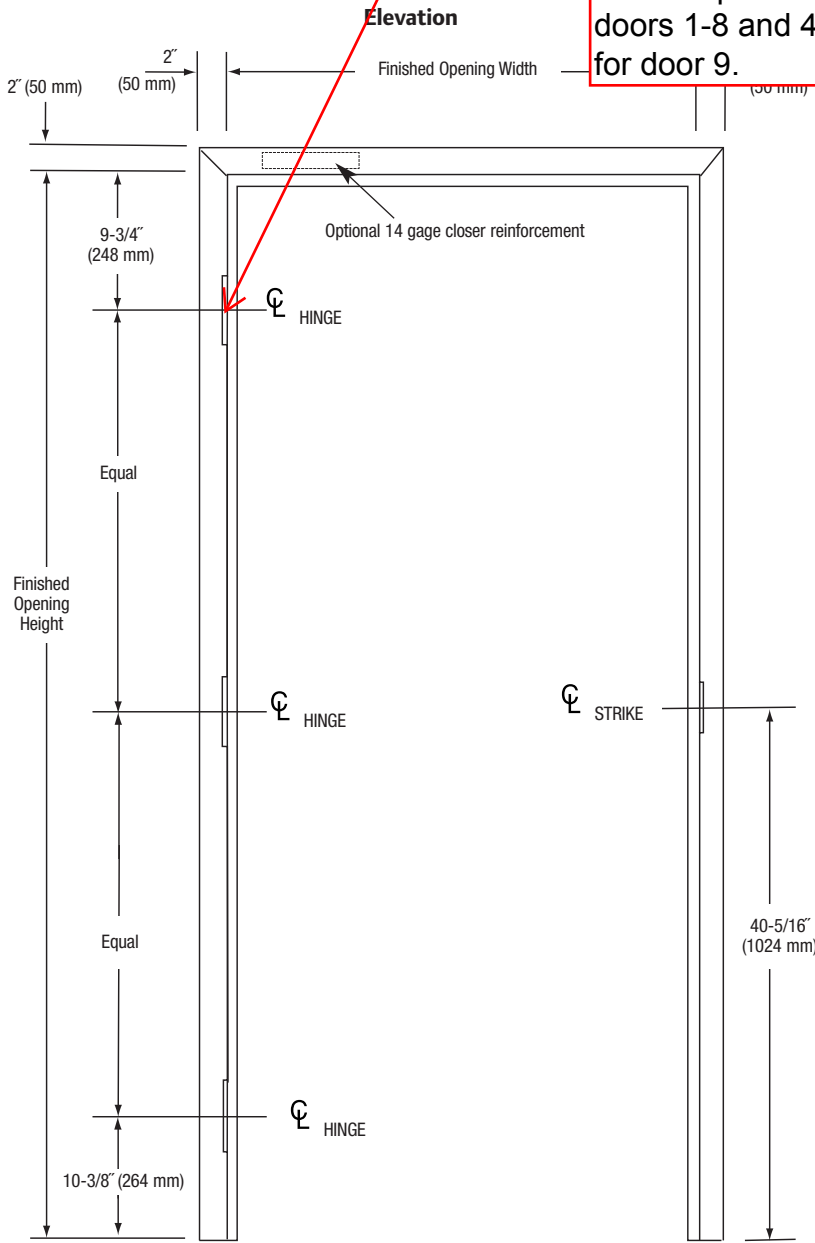
1. Installation shall conform to the published Steelcraft installation instructions, ANSI A250.11-2001 (formerly SDI 105)
Recommended Erection Instructions for Steel Frames and HMMA 840.
2. Fire Rated Assemblies must be in accordance with NFPA Pamphlet 80. The Authority Having Jurisdiction is the final authority in issues related to the installation and use of installed Fire Rated Doors.

FRAME APPLICATIONS

Profile	Steel Thickness	Wall Construction	Typical Wall Anchors
F16	16 Gage [0.053" (1.3mm)]	Wood or Steel Stud	Lock-in Stud Anchor
		Masonry	Wire Masonry
		Existing Masonry	Bolted Through Soffit
F14	14 Gage [0.067" (1.7mm)]	Wood or Steel Stud	Lock-in Stud Anchor
		Masonry	Wire Masonry
		Existing Masonry	Bolted Through Soffit
F12	12 Gage [0.093" (2.3mm)]	Wood or Steel Stud	Welded Stud Anchors
		Masonry	Wire Masonry
		Existing Masonry	Bolted Through Soffit

Frame to be modified for four hinge doors, as needed.

Jamb depth is 3" for doors 1-8 and 4-3/4" for door 9.

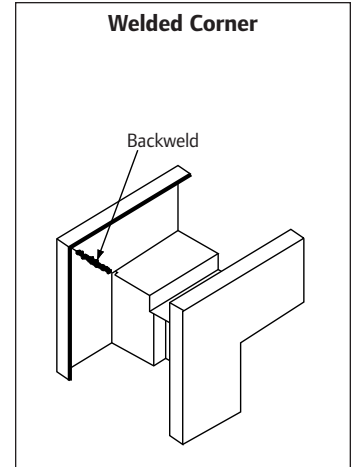
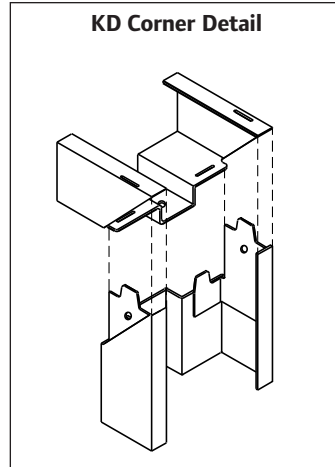
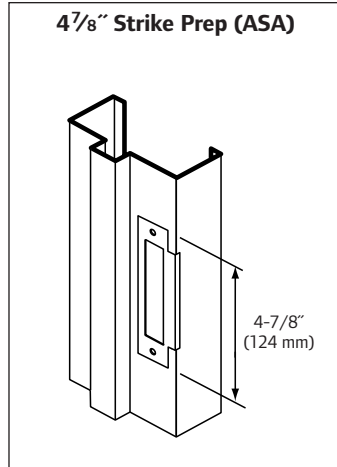
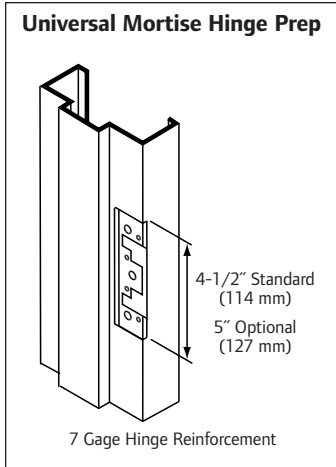


* 7/16" (11mm) on 5-3/4" frame depth

FRAME SIZING OPTIONS

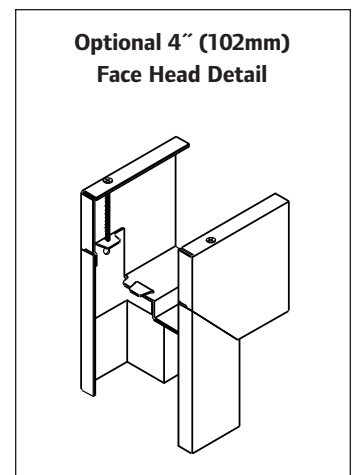
SERIES	MAXIMUM OPENING SIZE		JAMB DEPTH AVAILABILITY (profile)				STANDARD PROFILE DIMENSIONS (Variations Available)			CORNERS
	Single	Pair	SINGLE RABBET		DOUBLE RABBET		FACE	STOP	RETURNS	STANDARD
			Minimum	Maximum	Minimum	Maximum				
F16	5'-0" x 11'-0" (1524mm x 3353mm)	10'-0" x 11'-0" (2439mm x 3353mm)	3" (76mm)	20" (508mm)	4-3/4" (121mm)	20" (508mm)	2" (50mm)	5/8" (16mm)	1/2"* (13mm)	DIE MITERED with four (4) concealed tabs interlocking head and jambs
F14										
F12	4'-0" x 8'-0" (1524mm x 3353mm)	8'-0" x 8'-0" (2439mm x 3353mm)	N/A (76mm)	N/A (508mm)	4-3/4" (121mm)	14-3/4" (375mm)	2" (50mm)	3/4" (19mm)	1/2" (13mm)	Square cut for welded corners

*except 5-3/4" (146mm) depth, which is 7/16" (11mm) N/A - Not Available



GENERAL NOTES:

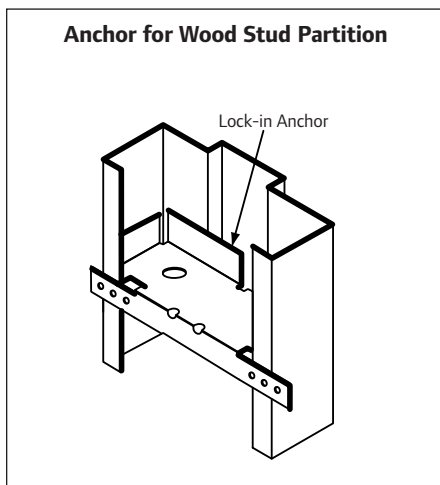
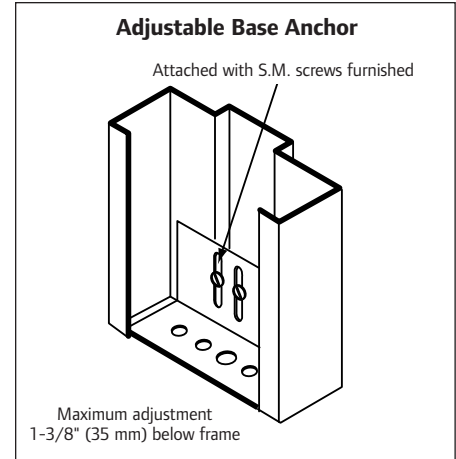
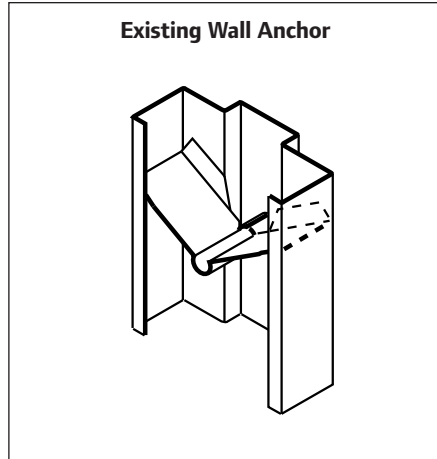
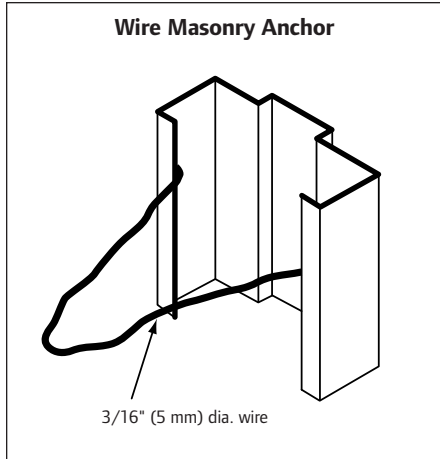
1. Variations in jamb depths available in 1/8" (3mm) increments.
2. All F Series frames are supplied standard with masonry wire or lock-in jamb anchors and adjustable base anchors. Anchors are designed for maximum wall/frame engagement and installation flexibility.
3. F Series Frames are to be installed as part of the wall framing sequence.
4. Depending on environmental and usage conditions the steel can be either cold rolled or galvanized. Galvanized steel is recommended for all exterior applications.



FRAME OPTIONS

SERIES	FRAME PROFILE		CORNER CONNECTIONS				4" (102mm) HEADS
			KD (Knock-Down)		SUA (Set-Up & Weld)		
	SINGLE RABBET	DOUBLE RABBET	SINGLE RABBET	DOUBLE RABBET	SINGLE RABBET	DOUBLE RABBET	
F16	Typically for walls less than 3-3/4" (95mm) thick. Minimum walls thickness 2" (51mm)	Typically for walls 3-3/4" (95mm) thickness or greater	3 interlocking corner tabs per factory die-miter. See the "KD Corner Detail"	4 interlocking corner tabs per factory die-miter. See the "KD Corner Detail"	Available when specified, and in accordance with ANSI A250.8-2003 (SDI 100).		Die-mitered for use with 2" (51mm) face double rabbet jambs. Available when specified for KD or SUA applications.
F14							
F12	N/A		N/A	N/A	Standard Saw Cut and welded, and in accordance with ANSI A250.8-2003 (SDI 100)		For use with 2" (51mm) face double rabbet jambs.

N/A = Not Available



Anchoring and Installation Notes:

- F16 and F14-Series Commercial and Institutional Frames** are supplied standard with masonry wire or lock-in jamb anchors and adjustable base anchors. Anchors are designed for maximum wall/frame engagement and installation flexibility.
- For anchoring applications, refer to section 2.4 of this manual.**
- Installation Caution Notice – Grouted Frames:**
 - When temperature conditions necessitate an additive to be used in the mortar to prevent freezing, the contractor installing the frames must coat the inside of frames in the field with a corrosion resistant coating per SDI 105.
 - When frames are to be grouted full, silencers must be field installed prior to grouting.
 - Steel frames, including fire rated frames, do not require grouting. Grouting is not recommended for frames in drywall.
- All fire rated frames must be installed in accordance with NFPA Pamphlet 80 and the Authority Having Jurisdiction

FRAMING APPLICATIONS

SERIES	Steel Type	Building Type	Opening	Usage Frequency ¹	KD ⁴ Corner	SUA ⁵ Corner	Applications
F16	Non-Galvannealed ²	Institutional and Commercial	Interior	Heavy to Extra Heavy Duty	✓	✓	Typical Building Conditions
	Galvannealed ³		Mainly Exterior				High Humidity and/or Weather Exposure
F14	Non-Galvannealed ²	Institutional and Commercial	Interior	Extra Heavy to Maximum Duty	✓	✓	Typical Building Conditions
	Galvannealed ³		Mainly Exterior				High Humidity and/or Weather Exposure
F12	Galvannealed	Institutional and Commercial	Interior and Exterior	Maximum Duty	N/A	✓	Maximum Traffic Building Conditions
							High Humidity and/or Weather Exposure

¹ Usage frequency is based on ANSI A250.8-2003

² Commercial quality cold rolled steel

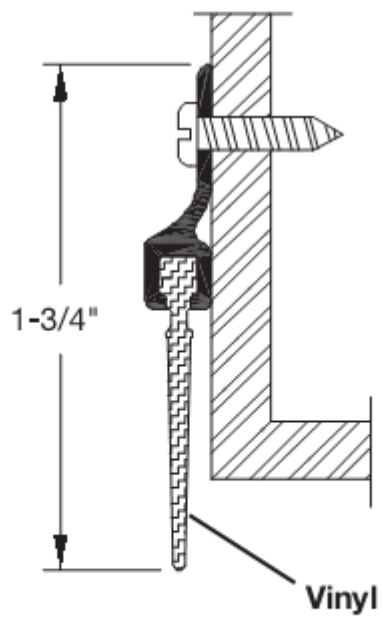
³ Reinforcements for galvannealed frames are also galvannealed

⁴ Knock-Down for field assembly prior to installation

⁵ Set-up and Welded for installation as a pre-welded unit

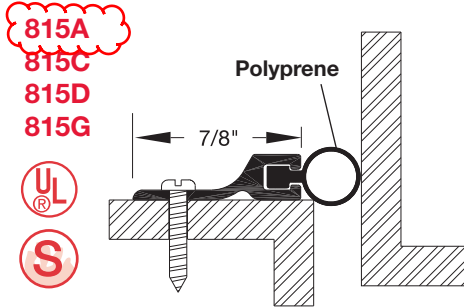


806A



Polyprene

Polyprene[®], a thermoplastic compound rubber, is a series of high-performance elastomers which combine the desirable characteristics of vulcanized rubber, such as flexibility and low compression set with the processing ease of thermoplastics.



ECBB1100

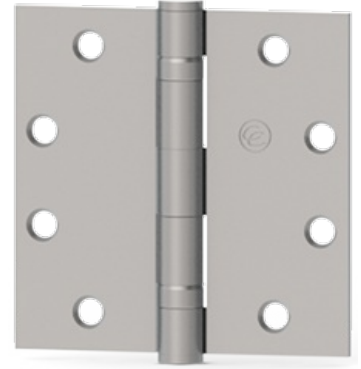
Five Knuckle
Ball Bearing
Standard Weight

Application:

- ANSI A8112
- Five knuckle
- Non-rising removable pin with button tip and plug
- With door closer use ball bearing hinge
- For use on medium weight doors or doors requiring medium frequency service

Note:

- Complies with NFPA80 requirements for use on fire rated door assemblies



PRODUCT SPECIFICATIONS

MATERIAL:

- Steel with Steel pin

FINISHES:

- USP, US3, US4, US10B, US15, US26, US26D

FASTENERS:

- All machine and all wood

PRODUCT SIZE OPTIONS

HINGE SIZE (INCHES)	HINGE SIZE (MM)	GAUGE OF METAL	HOLE COUNT	SCREW SIZE (MACHINE)	SCREW SIZE (WOOD)
4-1/2 x 4	114 x 102	0.134	8	1/2" x 12-24	1 1/4" x 12
4-1/2 x 4-1/2	114 x 114	0.134	8	1/2" x 12-24	1-1/4" x 12



ECBB1102

Description: ECCO > Ball Bearing > Heavy Weight

Description

- ANSI A8111
- Four ball bearings
- Non-removable pin with tip and plug

Material

- Steel with Steel pin

Finishes

- USP (4.5" x 4.5" only), US15, US26, US26D

Hinge Size (inches)	Hinge Size (mm)	Gauge of Metal	Hole Count	Screw Size (Machine)	Screw Size (Wood)
4 1/2 x 4 1/2	114 x 114	0.180	8	1/2 x 12-24	1 1/4 x 12
*5 x 4 1/2	127 x 114	0.190	8	1/2 x 12-24	1 1/4 x 12



SCHLAGE

L Series

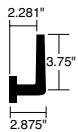
Commercial mortise locks



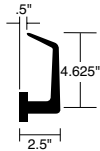
Finish options											
Color	Bright brass	Satin brass	Antique brass	Satin bronze	Oil rubbed Bronze	Satin nickel	Bright chrome	Satin chrome	Bright stainless steel	Satin stainless steel	Aged bronze
ANSI/BHMA number	605	606	609	612	613	619	625	626/626AM	629	630/630AM	643
US number	US3	US4	US5	US10	US10B	US15	US26	US26D	US32	US32D	US11

AM = Antimicrobial.
See pricebook for additional trim and finish availability. 33A, 95 & 99 devices not available in 619 & 630 finishes.

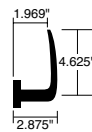
05
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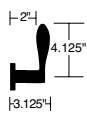
06
♿



07
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Accent
♿



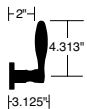
Asti
♿



Latitude
♿



St Annes
♿



To learn more about suiting of Schlage and Von Duprin products with our decorative or standard levers contact your security consultant or visit allegion.com/us.

Escutcheons and roses

Choose from three types of escutcheon and two rose sizes to add tough, durable performance to your lockset.

Escutcheons



L Full face

Specify by adding 'L' after lever design.

Material: Cold-forged brass, bronze or stainless steel

Finishes: 605, 606, 609, 612, 613, 619, 625, 626, 629, 630, 643e

Size: 8" x 1 3/4" x 7/16"
(203 mm x 44 mm x 11 mm)



L Concealed

Specify by adding 'C' suffix to function and by adding 'L' after lever design.

Material: Cold-forged brass, bronze or stainless steel

Finishes: 605, 606, 609, 612, 613, 619, 625, 626, 629, 630, 643e

Size: 8" x 1 3/4" x 7/16"
(203 mm x 44 mm x 11 mm)



N Escutcheon

Specify by adding 'N' after lever design.

Material: Heavy wrought reinforced brass, bronze or stainless steel

Finishes: 605, 606, 609, 612, 613, 619, 625, 626, 629, 630, 643e

Size: 8" x 2 9/16" x 7/16"
(203 mm x 65 mm x 11 mm)



Roses



A Wrought rose

2 1/8" (54 mm) diameter

Available for use on L Series knob and lever designs. Specify by adding 'A' after lever design

Finishes: 605, 606, 609, 612, 613, 619, 625, 626, 629, 630, 643e



B Wrought rose

2 9/16" (65 mm) diameter

Available for use on L Series knob and lever designs. Specify by adding 'B' after lever design.

Finishes: 605, 606, 609, 612, 613, 619, 625, 626, 629, 630, 643e



C Wrought rose

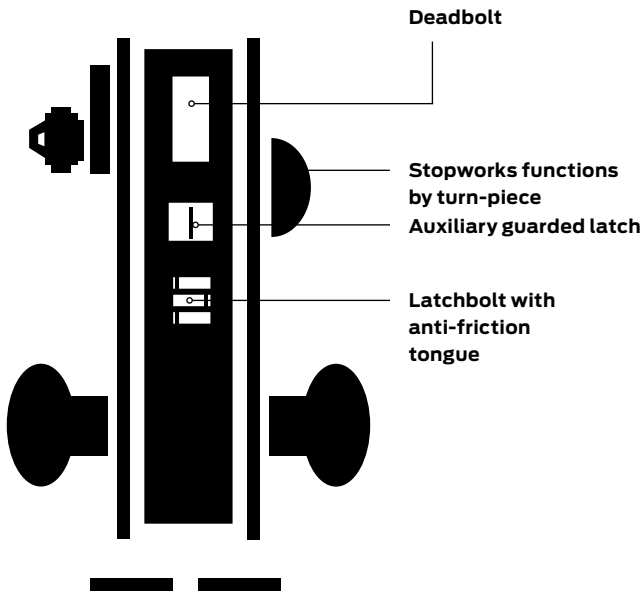
2 5/8" (66 mm) diameter

Available for use on L Series knob and lever designs. Specify by adding 'C' after lever design.

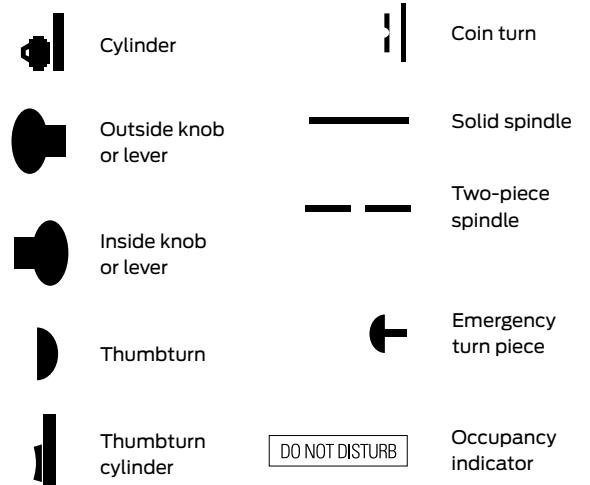
Finishes: 605, 606, 609, 619, 625, 626, 629, 630, 643e

Lock functions

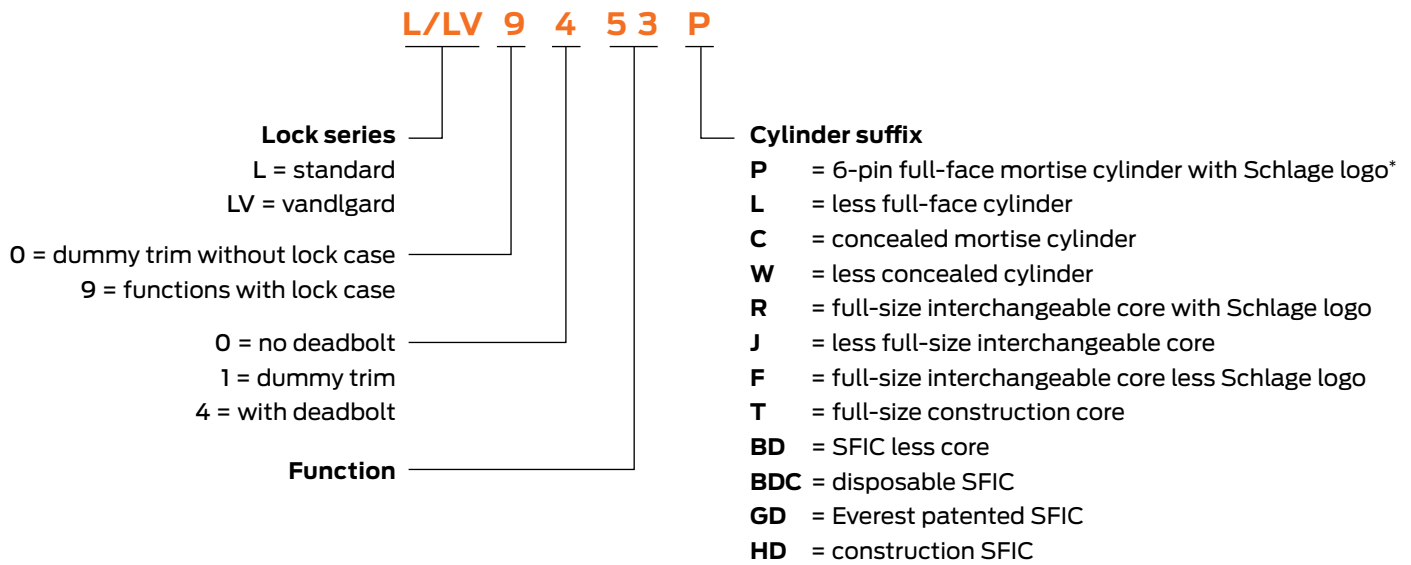
Lock components



Symbol key



Product identification guide



SFIC = Small Format (Best® style) Interchangeable Core
 To order less Schlage logo, specify lock
 "with K510-612 faceplate."

LV = Vandlgard® function allows exterior lever to rotate freely down while remaining securely locked.

Lock functions

ANSI A156.13, Series 1000



Schlage ANSI
L9010 **F01**

Passage latch

Latchbolt retracted by knob/lever from either side at all times. Inside lever is always free for immediate egress.



L9040 **F22**
LV9040

Bath/bedroom privacy lock

Latchbolt retracted by knob/lever from either side unless outside is locked by inside thumbturn. Turning inside knob/lever or closing door unlocks outside knob/lever. To unlock from outside remove emergency button, insert emergency thumbturn (furnished) in access hole and rotate. Inside lever is always free for immediate egress.



L9044
LV9044

Privacy with coin turn outside

Latchbolt retracted by knob/lever from either side unless outside is locked by inside thumbturn or outside coin turn. Operating inside knob/lever, closing door, rotating inside thumbturn or rotating outside coin turn unlocks outside knob/lever. Specify per L283-056 for Torx® screws. Available with rose trim only. (Previously XL11-868)



L9440 **F19**
LV9440

Privacy with deadbolt

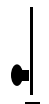
Latchbolt retracted by knob/lever from either side. Deadbolt thrown or retracted by inside thumbturn. Throwing deadbolt locks outside knob/lever. Rotating inside knob/lever simultaneously retracts deadbolt and latchbolt, and unlocks outside knob/lever. To unlock from outside remove emergency button, insert emergency thumbturn in access hole and rotate. Inside liner is always free for immediate egress. (Previously XL11-761.)



Schlage ANSI
L9444
LV9444

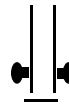
Privacy with deadbolt and coin turn outside

Latchbolt retracted by knob/lever from either side. Deadbolt thrown or retracted by inside thumbturn or outside coin turn. Throwing deadbolt locks outside knob/lever. Rotating inside knob/lever simultaneously retracts deadbolt and latchbolt, and unlocks outside knob/lever. Rotating outside coin turn retracts deadbolt and unlocks outside knob/lever. Specify per L283-056 for Torx screws. Available with rose trim only. Inside lever is always free for immediate egress. (Previously XL11-868)



L0170
Half dummy trim

Knob/lever on one side fixed by mounting bar.



L0172
Full dummy trim

Knob/lever on both sides fixed by mounting bar.



L9175
Half dummy trim with lock case

Fixed knob/lever on one side inoperable. Includes lock case and armored front. Options same as L9176 below.



L9176
Full dummy trim with lock case*

Fixed knob/lever on both sides. Includes lock case and blank armor front. May be ordered with optional XL11-743 armored front with cutout to receive deadbolt.

*In a double-door application where the dummy will be used as the strike order 10-091 Armored Front Strike separately.



275D | 276D

Surface Bolt

- Certifications: Meets ANSI A156.16 for L04161
 Overall Projection: 1-3/8" (35 mm)
 Overall Width: 2-1/32" (52 mm)
 Bar: 3/4" x 1/4" (19 mm x 6 mm) thick
 Length: 275D - 8" (203 mm)
 276D - 12" (305 mm)
 Throw: 1" (25 mm)
 Materials: Steel
 Finishes: US3, US10, US10B, US26D
 Fasteners: Eight (8) #10 x 1-1/4" FPHWS and eight (8) 10-24 x 1" undercut FPHMS
 Notes:
 - Mortise bottom strike and universal top strike included
 - Strong tension springs prevent creep
 - UL listed for use on inactive leaf of a pair of 3-HR labeled fire doors



278D

Surface Bolt

- Bolt Length: 6" (152 mm)
 Bolt Width: 7/16" (11 mm)
 Bolt Throw: 31/32" (25 mm)
 Base Width: 19/32" (15 mm)
 Knob Diameter: 1/2" (13 mm)
 Projection: 3/4" (19 mm)
 Materials: Brass
 Finishes: US3, US10B, US26D
 Fasteners: Four (4) #5 x 5/8" FPHWS
 Notes:
 - Mortise and universal strikes included
 - Concealed screw design enhances appearance and security
 - Permanent stop prevents bolt disengagement from track



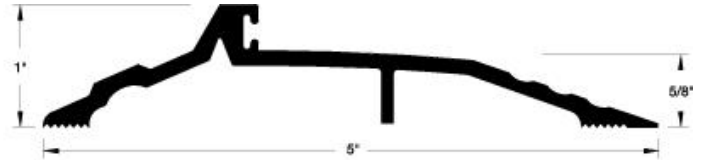
279D

Surface Bolt

- Length: 4" (102 mm)
 Width: 1-11/16" (43 mm)
 Throw: 3/8" (10 mm)
 Half Round Bolt Size: 5/8" (16 mm)
 Projection: 1-1/4" (32 mm)
 Knob Diameter: 29/32" (23 mm)
 Materials: Brass
 Finishes: US3, US10, US10B, US26D
 Fasteners: Twelve (12) #6 x 3/4" FPHWS
 Notes: Mortise and universal strikes included

Path: [Online Catalog](#) - [Thresholds](#) - [Panic Type Threshold](#) - S488AV

Installation Drawing
Reese Catalog Number: S488AV
Description: S488AV - Mill Aluminum Panic Type Threshold Vinyl Insert, 5/8" x 5"



Fire Rated

Quantity:

Options:

Length
 inches

Comment (specify fractional inches or comments here)

Fire Rated

Yes No

All parts come with holes unless otherwise specified.

* Note all items are listed at retail price.

Your actual price will vary.

Call and hear for yourself.

1-800-328-0953



Box 459 - Rosemount, MN 55068
Phone 800-328-0953
Fax 800-334-8823

Thresholds

V300, V301, S404, S405,
S406, S407, S408, S411,
S412, S424, S425, S426,
S427, S428, 437, S439,
S470*, S471, S472, S473,
S474*, S475, S476*, S478,
S479, 480, S481, S482*,
S483*, S484*, S485*, S486*,
S487*, S488*, S489*, S490*,
S498*

**suffix insert can be v-vinyl,
u-polyurethane, n-neoprene,
s-silicone, or pr-polyprene*

1. Measure door sill (frame width at bottom) and cut the threshold to extend the full width of the opening.
2. Notch the threshold sides if necessary to accommodate the side jamb stops.
3. Fasten on threshold to the sill with screws provided.
4. Operate the door several times to ensure the part is properly adjusted so as not to inhibit the door from self-closing and latching.



Positive Pressure Tested Gasketing Materials for Fire Doors. Intended for Application to/with listed steel frames and/or classified steel covered composite, hollow metal type fire doors rated up to 3 hours, wood and plastic covered composite type fire doors rated up to 1-1/2 hours, and wood core type fire doors rated up to 20 minutes.

Meets UL10B, UL10C
Meets CAN4-S104-2010
Category J.
17L5 9903

Plenum Doors Paint

**Operations & Maintenance Manual
December 2015**



Protective & Marine Coatings

MACROPOXY® 646 FAST CURE EPOXY

PART A
PART B

B58-600
B58V600

SERIES
HARDENER

Revised: Sept. 29, 2015

PRODUCT INFORMATION

4.53

PRODUCT DESCRIPTION

MACROPOXY 646 FAST CURE EPOXY is a high solids, high build, fast drying, polyamide epoxy designed to protect steel and concrete in industrial exposures. Ideal for maintenance painting and fabrication shop applications. The high solids content ensures adequate protection of sharp edges, corners, and welds. This product can be applied directly to marginally prepared steel surfaces.

- Low VOC
- Low odor
- Outstanding application properties
- Meets Class A requirements for Slip Coefficient, 0.36 @ 6 mils / 150 microns dft (Mill White only)
- Chemical resistant
- Abrasion resistant

PRODUCT CHARACTERISTICS

Finish:	Semi-Gloss
Color:	Mill White, Black and a wide range of colors available through tinting
Volume Solids:	72% ± 2%, mixed, Mill White
Weight Solids:	85% ± 2%, mixed, Mill White
VOC (EPA Method 24): mixed	Unreduced: <250 g/L; 2.08 lb/gal Reduced 10%: <300 g/L; 2.50 lb/gal
Mix Ratio:	1:1 by volume

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	7.0 (175)	13.5 (338)
Dry mils (microns)	5.0* (125)	10.0* (250)
~Coverage sq ft/gal (m²/L)	116 (2.8)	232 (5.7)
Theoretical coverage sq ft/gal (m²/L) @ 1 mil / 25 microns dft	1152 (28.2)	

*May be applied at 3.0-10.0 mils (75-250 microns) dft as an intermediate coat in a multi-coat system. Refer to Recommended Systems (page 2). See Performance Tips section also.

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 7.0 mils wet (175 microns):

	@ 35°F/1.7°C	@ 77°F/25°C 50% RH	@ 100°F/38°C
To touch:	4-5 hours	2 hours	1.5 hours
To handle:	48 hours	8 hours	4.5 hours
To recoat:			
minimum:	48 hours	8 hours	4.5 hours
maximum:	1 year	1 year	1 year
To cure:			
Service:	10 days	7 days	4 days
Immersion:	14 days	7 days	4 days
<i>If maximum recoat time is exceeded, abrade surface before recoating. Drying time is temperature, humidity, and film thickness dependent. Paint temperature must be at least 40°F (4.5°C) minimum.</i>			
Pot Life:	10 hours	4 hours	2 hours
Sweat-in-time:	30 minutes	30 minutes	15 minutes

When used as an intermediate coat as part of a multi-coat system:

Drying Schedule @ 5.0 mils wet (125 microns):

	@ 35°F/1.7°C	@ 77°F/25°C 50% RH	@ 100°F/38°C
To touch:	3 hours	1 hour	1 hour
To handle:	48 hours	4 hours	2 hours
To recoat:			
minimum:	16 hours	4 hours	2 hours
maximum:	1 year	1 year	1 year

PRODUCT CHARACTERISTICS (CONT'D)

Shelf Life:	36 months, unopened Store indoors at 40°F (4.5°C) to 110°F (43°C).
Flash Point:	91°F (33°C), TCC, mixed
Reducer/Clean Up:	Reducer, R7K15
In California:	Reducer R7K111 or Oxsol 100

PERFORMANCE CHARACTERISTICS

Substrate*: Steel

Surface Preparation*: SSPC-SP10/NACE 2

System Tested*:

1 ct. Macropoxy 646 Fast Cure @ 6.0 mils (150 microns) dft
*unless otherwise noted below

Test Name	Test Method	Results
Abrasion Resistance	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	84 mg loss
Accelerated Weathering-QUV¹	ASTM D4587, QUV-A, 12,000 hours	Passes
Adhesion	ASTM D4541	1,037 psi
Corrosion Weathering¹	ASTM D5894, 36 cycles, 12,000 hours	Rating 10 per ASTM D714 for blistering; Rating 9 per ASTM D610 per rusting
Nuclear Decontamination	ASTM D4256/ANSI N 5.12	99% Water Wash; 95% Overall
Direct Impact Resistance²	ASTM D2794	120 in. lb.
Dry Heat Resistance	ASTM D2485	250°F (121°C)
Exterior Durability	1 year at 45° South	Excellent, chalks
Flexibility	ASTM D522, 180° bend, 3/4" mandrel	Passes
Fuel Contribution	NFPA 259	5764 btu/lb
Humidity Resistance	ASTM D4585, 6000 hours	No blistering, cracking, or rusting
Immersion	1 year fresh and salt water	Passes, no rusting, blistering, or loss of adhesion
Radiation Tolerance	ASTM D4082 / ANSI 5.12	Pass at 21 mils (525 microns)
Pencil Hardness	ASTM D3363	3H
Salt Fog Resistance¹	ASTM B117, 6,500 hours	Rating 10 per ASTM D610 for rusting; Rating 9 per ASTM D1654 for corrosion
Slip Coefficient, Mill White*	AISC Specification for Structural Joints Using ASTM A325 or ASTM A490 Bolts	Class A, 0.36
Surface Burning	ASTM E84/NFPA 255	Flame Spread Index 20; Smoke Development Index 35 (at 18 mils or 450 microns)
Water Vapor Permeance	ASTM D1653, Method B	1.16 US perms

Epoxy coatings may darken or discolor following application and curing.

*Refer to Slip Certification document

Footnotes:

¹ Zinc Clad II Plus Primer

² Two coats of Macropoxy 646 Fast Cure Epoxy

DISCLAIMER

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Protective & Marine Coatings

MACROPOXY® 646 FAST CURE EPOXY

PART A
PART B

B58-600
B58V600

SERIES
HARDENER

Revised: Sept. 29, 2015

PRODUCT INFORMATION

4.53

RECOMMENDED USES

- Marine applications
- Fabrication shops
- Pulp and paper mills
- Power plants
- Offshore platforms
- Nuclear Power Plants
- Nuclear fabrication shops
- Mill White and Black are acceptable for immersion use for salt water and fresh water, not acceptable for potable water
- Suitable for use in USDA inspected facilities
- Acceptable for use in Canadian Food Processing facilities, categories: D1, D2, D3 (Confirm acceptance of specific part numbers/boxes with your VV Sales Representative)
- Conforms to AWWA D102 OCS #5
- Conforms to MPI # 108
- This product meets specific design requirements for non-safety related nuclear plant applications in Level II, III and Balance of Plant, and DOE nuclear facilities*.
- * Nuclear qualifications are NRC license specific to the facility.
- Suitable for use in the Mining & Minerals Industry
- Acceptable for use over and/or under Loxon S1 and Loxon H1 Caulking

RECOMMENDED SYSTEMS

		Dry Film Thickness / ct.	
		Mils	(Microns)
Immersion and atmospheric:			
Steel:			
2 cts.	Macropoxy 646 Fast Cure Epoxy	5.0-10.0	(125-250)
Concrete/Masonry, smooth:			
2 cts.	Macropoxy 646 Fast Cure Epoxy	5.0-10.0	(125-250)
Concrete Block:			
1 ct.	Kem Cati-Coat HS Epoxy Filler/Sealer	10.0-20.0	(250-500)
<i>as needed to fill voids and provide a continuous substrate.</i>			
2 cts.	Macropoxy 646 Fast Cure Epoxy	5.0-10.0	(125-250)
Atmospheric:			
Steel:			
(Shop applied system, new construction, AWWA D102, can also be used at 3 mils / 75 microns minimum dft when used as an intermediate coat as part of a multi-coat system)			
1 ct.	Macropoxy 646 Fast Cure Epoxy	3.0-6.0	(75-150)
1-2 cts.	of recommended topcoat		
Steel:			
1 ct.	Recoat Epoxy Primer	4.0-6.0	(100-150)
2 cts.	Macropoxy 646 Fast Cure Epoxy	5.0-10.0	(125-250)
Steel:			
1 ct.	Macropoxy 646 Fast Cure Epoxy	5.0-10.0	(125-250)
1-2 cts.	Acrolon 218 Polyurethane	3.0-6.0	(75-150)
	or Hi-Solids Polyurethane	3.0-5.0	(75-125)
	or SherThane 2K Urethane	2.0-4.0	(50-100)
	or Hydrogloss	2.0-4.0	(50-100)
Steel:			
2 cts.	Macropoxy 646 Fast Cure Epoxy	5.0-10.0	(125-250)
1-2 cts.	Tile-Clad HS Epoxy	2.5-4.0	(63-100)
Steel:			
1 ct.	Zinc Clad II Plus	2.0-4.0	(50-100)
1 ct.	Macropoxy 646 Fast Cure Epoxy	5.0-10.0	(125-250)
1-2 cts.	Acrolon 218 Polyurethane	3.0-6.0	(75-150)
Steel:			
1 ct.	Zinc Clad III HS	3.0-5.0	(75-125)
	or Zinc Clad IV	3.0-5.0	(75-125)
1 ct.	Macropoxy 646 Fast Cure Epoxy	3.0-10.0	(75-250)
1-2 cts.	Acrolon 218 Polyurethane	3.0-6.0	(75-150)
Aluminum:			
2 cts.	Macropoxy 646 Fast Cure Epoxy	5.0-10.0	(125-250)
Galvanizing:			
2 cts.	Macropoxy 646 Fast Cure Epoxy	5.0-10.0	(125-250)
FIRETEX M89/02, M90, M90/02, and M93/02:			
Steel & Galvanized Substrates being primed for FIRETEX only:			
1 ct.	Macropoxy 646 Fast Cure Epoxy	2.0-5.0	(50-125)

The systems listed above are representative of the product's use, other systems may be appropriate.

SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

Iron & Steel	
Atmospheric:	SSPC-SP2/3
Immersion:	SSPC-SP10/NACE 2, 2-3 mil (50-75 micron) profile
Aluminum:	SSPC-SP1
Galvanizing:	SSPC-SP1; See Surface Preparations section on page 3 for application of FIRETEX intumescent coating systems
Concrete & Masonry	
Atmospheric:	SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3
Immersion:	SSPC-SP13/NACE 6-4.3.1 or 4.3.2, or ICRI No. 310.2R, CSP 2-4

Surface Preparation Standards

Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal	Sa 3	Sa 3	SP 5	1
Near White Metal	Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast	Sa 2	Sa 2	SP 6	3
Brush-Off Blast	Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	C St 2	C St 2	SP 2	-
Pitted & Rusted	D St 2	D St 2	SP 2	-
Power Tool Cleaning	C St 3	C St 3	SP 3	-
Pitted & Rusted	D St 3	D St 3	SP 3	-

TINTING

Tint Part A with Maxitones at 150% strength. Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.

Tinting is not recommended for immersion service.

APPLICATION CONDITIONS

Temperature:	35°F (1.7°C) minimum, 120°F (49°C) maximum (air and surface) 40°F (4.5°C) minimum, 120°F (49°C) maximum (material) At least 5°F (2.8°C) above dew point
Relative humidity:	85% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging:	
Part A:	1 gallon (3.78L) and 5 gallon (18.9L) containers
Part B:	1 gallon (3.78L) and 5 gallon (18.9L) containers
Weight:	12.9 ± 0.2 lb/gal ; 1.55 Kg/L mixed, may vary by color

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.



Protective & Marine Coatings

MACROPOXY® 646 FAST CURE EPOXY

PART A
PART B

B58-600
B58V600

SERIES
HARDENER

Revised: Sept. 29, 2015

APPLICATION BULLETIN

4.53

SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Iron & Steel, Atmospheric Service:

Minimum surface preparation is Hand Tool Clean per SSPC-SP2. Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. For better performance, use Commercial Blast Cleaning per SSPC-SP6/NACE 3, blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils / 50 microns). Prime any bare steel within 8 hours or before flash rusting occurs.

Iron & Steel, Immersion Service:

Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2-3 mils / 50-75 microns). Remove all weld spatter and round all sharp edges by grinding. Prime any bare steel the same day as it is cleaned.

Aluminum

Remove all oil, grease, dirt, oxide and other foreign material by Solvent Cleaning per SSPC-SP1.

Galvanized Steel

Allow to weather a minimum of six months prior to coating. Solvent Clean per SSPC-SP1 (recommended solvent is VM&P Naphtha). When weathering is not possible, or the surface has been treated with chromates or silicates, first Solvent Clean per SSPC-SP1 and apply a test patch. Allow paint to dry at least one week before testing adhesion. If adhesion is poor, brush blasting per SSPC-SP7 is necessary to remove these treatments. Rusty galvanizing requires a minimum of Hand Tool Cleaning per SSPC-SP2, prime the area the same day as cleaned. In preparing galvanized steel substrates for the application of FIRE-TEX intumescent coating systems, Surface Preparation Specification SSPC-SP 16 must be followed obtaining a surface profile of minimum 1.5 mils (38 microns). Optimum surface profile will not exceed 2.0 mils (50 microns).

Concrete and Masonry

For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F (24°C). Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with Steel-Seam FT910.

Concrete, Immersion Service:

For surface preparation, refer to SSPC-SP13/NACE 6, Section 4.3.1 or 1.3.2 or ICRI No. 310.2R, CSP 2-4.

Follow the standard methods listed below when applicable:

ASTM D4258 Standard Practice for Cleaning Concrete.
ASTM D4259 Standard Practice for Abrading Concrete.
ASTM D4260 Standard Practice for Etching Concrete.
ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete.
SSPC-SP 13/Nace 6 Surface Preparation of Concrete.
ICRI No. 310.2R Concrete Surface Preparation.

Previously Painted Surfaces

If in sound condition, clean the surface of all foreign material. Smooth, hard or glossy coatings and surfaces should be dulled by abrading the surface. Apply a test area, allowing paint to dry one week before testing adhesion. If adhesion is poor, or if this product attacks the previous finish, removal of the previous coating may be necessary. If paint is peeling or badly weathered, clean surface to sound substrate and treat as a new surface as above.

Surface Preparation Standards

Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal	Sa 3	Sa 3	SP 5	1
Near White Metal	Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast	Sa 1	Sa 1	SP 6	3
Brush-Off Blast	Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	C St 2	C St 2	SP 2	-
Pitted & Rusted	D St 2	D St 2	SP 2	-
Rusted	C St 3	C St 3	SP 3	-
Power Tool Cleaning	D St 3	D St 3	SP 3	-

APPLICATION CONDITIONS

Temperature:	35°F (1.7°C) minimum, 120°F (49°C) maximum (air and surface) 40°F (4.5°C) minimum, 120°F (49°C) maximum (material) At least 5°F (2.8°C) above dew point
Relative humidity:	85% maximum

APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Reducer/Clean Up Reducer R7K15
In California..... Reducer R7K111

Airless Spray

Pump.....	30:1
Pressure.....	2800 - 3000 psi
Hose.....	1/4" ID
Tip.....	.017" - .023"
Filter.....	60 mesh
Reduction.....	As needed up to 10% by volume

Conventional Spray

Gun.....	DeVilbiss MBC-510
Fluid Tip.....	E
Air Nozzle.....	704
Atomization Pressure.....	60-65 psi
Fluid Pressure.....	10-20 psi
Reduction.....	As needed up to 10% by volume
Requires oil and moisture separators	

Brush

Brush.....	Nylon/Polyester or Natural Bristle
Reduction.....	As needed up to 10% by volume

Roller

Cover.....	3/8" woven with solvent resistant core
Reduction.....	As needed up to 10% by volume

Plural Component Spray... Acceptable

Refer to April 2010 Technical Bulletin - "Application Guidelines for Macroxy 646 Fast Cure Epoxy & Recoatable Epoxy Primer Utilizing Plural Component Equipment"
If specific application equipment is not listed above, equivalent equipment may be substituted.



Protective & Marine Coatings

MACROPOXY® 646 FAST CURE EPOXY

PART A
PART B

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Revised: Sept. 29, 2015

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APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with low speed power agitation. Make certain no pigment remains on the bottom of the can. Then combine one part by volume of Part A with one part by volume of Part B. Thoroughly agitate the mixture with power agitation. Allow the material to sweat-in as indicated prior to application. Re-stir before using.

If reducer solvent is used, add only after both components have been thoroughly mixed, after sweat-in.

Apply paint at the recommended film thickness and spreading rate as indicated below:

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	7.0 (175)	13.5 (338)
Dry mils (microns)	5.0* (125)	10.0* (250)
~Coverage sq ft/gal (m ² /L)	116 (2.8)	232 (5.7)
Theoretical coverage sq ft/gal (m ² /L) @ 1 mil / 25 microns dft	1152 (28.2)	

*May be applied at 3.0-10.0 mils (75-250 microns) dft in atmospheric conditions. Refer to Recommended Systems (page 2). See Performance Tips section also.

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 7.0 mils wet (175 microns):

	@ 35°F/1.7°C	@ 77°F/25°C 50% RH	@ 100°F/38°C
To touch:	4-5 hours	2 hours	1.5 hours
To handle:	48 hours	8 hours	4.5 hours
To recoat:			
minimum:	48 hours	8 hours	4.5 hours
maximum:	1 year	1 year	1 year
To cure:			
Service:	10 days	7 days	4 days
Immersion:	14 days	7 days	4 days

If maximum recoat time is exceeded, abrade surface before recoating.

Drying time is temperature, humidity, and film thickness dependent.

Paint temperature must be at least 40°F (4.5°C) minimum.

Pot Life:	10 hours	4 hours	2 hours
Sweat-in-time:	30 minutes	30 minutes	15 minutes

When used as an intermediate coat as part of a multi-coat system:

Drying Schedule @ 5.0 mils wet (125 microns):

	@ 35°F/1.7°C	@ 77°F/25°C 50% RH	@ 100°F/38°C
To touch:	3 hours	1 hour	1 hour
To handle:	48 hours	4 hours	2 hours
To recoat:			
minimum:	16 hours	4 hours	2 hours
maximum:	1 year	1 year	1 year

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer R7K15. Clean tools immediately after use with Reducer R7K15. In California use Reducer R7K111. Follow manufacturer's safety recommendations when using any solvent.

PERFORMANCE TIPS

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, and adhesion.

Do not mix previously catalyzed material with new.

Do not apply the material beyond recommended pot life.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer R7K15. In California use Reducer R7K111.

Tinting is not recommended for immersion service.

Use only Mill White and Black for immersion service.

Insufficient ventilation, incomplete mixing, miscatalyzation, and external heaters may cause premature yellowing.

Excessive film build, poor ventilation, and cool temperatures may cause solvent entrapment and premature coating failure.

Quik-Kick Epoxy Accelerator is acceptable for use. See data page 4.99 for details.

When coating over aluminum and galvanizing, recommended dft is 2-4 mils (50-100 microns).

Acceptable for Concrete Floors.

Can be used as a metalizing sealer. Consult Technical Bulletin - Sealers for Thermal Spray Metalizing, or your local Sherwin-Williams representative.

Refer to Product Information sheet for additional performance characteristics and properties.

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

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WARRANTY

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Protective & Marine Coatings

ZINC CLAD® IV ORGANIC ZINC-RICH EPOXY PRIMER

PART U
PART V

B69A8
B69V8

BINDER
HARDENER

Revised: January 19, 2015

PRODUCT INFORMATION

6.04

PRODUCT DESCRIPTION

ZINC CLAD IV is a two-component, polyamide epoxy, zinc-rich coating. It has a low VOC level and contains 85% by weight of zinc dust pigment in the dried film.

- Meets SSPC-Paint 20 Type II, Organic, Level 1
- Zinc dust meets or exceeds the requirements for ASTM D520, Type II
- Meets Class A requirements for Slip Coefficient and Creep Resistance, .49
- Provides cathodic protection
- Damaged film exhibits "self-healing" properties

PRODUCT CHARACTERISTICS

Finish:	Flat
Color:	Gray-green
Volume Solids:	64% ± 2%, mixed, calculated 68% ± 2%, mixed, ASTM D2697
Weight Solids:	90% ± 2%, mixed
VOC (EPA Method 24):	Unreduced: <340 g/L; 2.80 lb/gal mixed Reduced 5%: <340 g/L; 2.80 lb/gal
Zinc Content in Dry Film:	85% by weight
Mix Ratio:	2 components, premeasured; 8:1 2.25 gallons (8.5L) total

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	5.0 (125)	8.0 (200)
Dry mils (microns)	3.0 (75)	5.0 (125)
~Coverage sq ft/gal (m²/L)	205 (5.0)	345 (8.4)
Theoretical coverage sq ft/gal (m²/L) @ 1 mil / 25 microns dft	1056 (25.8)	

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 5.0 mils wet (125 microns):

	@ 40°F/4.5°C	@ 77°F/25°C 50% RH	@ 110°F/43°C
To touch:	45 minutes	30 minutes	15 minutes
To handle:	1.5 hours	1 hour	45 minutes
To recoat*:			
minimum:	6 hours	4 hours	2 hours
maximum**:	none	none	none
To cure:	10 days	10 days	7-10 days

Drying time is temperature, humidity, and film thickness dependent.

*NOTE: Film must be free of solvent, hard and firm. When rubbed with the face of a coin or knife the film should polish but not flake or chip.

**Maximum Recoat: Unlimited. Must have a clean, dry surface for top-coating. "Loose" chalk or salts must be removed in accordance with good painting practice.

Pot Life:	8 hours	6 hours	4 hours
Sweat-in-Time:	1 hour	30 minutes	15 minutes

PRODUCT CHARACTERISTICS (CONT'D)

Shelf Life:	18 months, unopened Store indoors at 40°F (4.5°C) to 100°F (38°C)
Flash Point:	80°F (27°C) PMCC, mixed
Reducer/Clean Up:	
Below 80°F (27°C):	MEK, R6K10
Above 80°F (27°C):	Reducer #58, R7K58 or MEK, R6K10

RECOMMENDED USES

For use over properly prepared blasted steel.

- Application to blasted steel surfaces
- Areas exposed to fresh and salt water
- Areas exposed to brackish water
- Areas exposed to chemical fumes
- Topcoating is recommended for maximum protection
- Not recommended for immersion service
- Suitable for use in the Mining & Minerals Industry

PERFORMANCE CHARACTERISTICS

Substrate*: Steel

Surface Preparation*: SSPC-SP10/NACE 2

System Tested*:

1 ct. Zinc Clad IV @ 3.0 mils (75 microns) dft
*unless otherwise noted below

Test Name	Test Method	Results
Abrasion Resistance	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	300 mg loss
Adhesion	ASTM D4541	1000 psi
Dry Heat Resistance	ASTM D2485	300°F (149°C)
Exterior Durability	1 year at 45° South	Good
Flexibility	ASTM D522, 180° bend, 1" mandrel	Passes
Moisture Condensation Resistance	ASTM D4585, 100°F (38°C), 1500 hours	Excellent
Pencil Hardness	ASTM D3363	2H
Salt Fog Resistance	ASTM B117, 1500 hours	Excellent
Slip Coefficient* (zinc only)	AISC Specifications for Structural Joints using ASTM A325 or ASTM A490 Bolts	Class A, 0.49

*Refer to Slip Certification document

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Protective & Marine Coatings

ZINC CLAD® IV ORGANIC ZINC-RICH EPOXY PRIMER

PART U
PART V

B69A8
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BINDER
HARDENER

Revised: January 19, 2015

PRODUCT INFORMATION

6.04

RECOMMENDED SYSTEMS

	Dry Film Thickness / ct.	
	Mils	(Microns)
Steel, acrylic topcoat:		
1 ct. Zinc Clad IV	3.0-5.0	(75-125)
2 cts. Pro Industrial DTM Acrylic Coating	2.5-4.0	(63-100)
or		
1 ct. Fast Clad HB Acrylic	5.0-8.0	(125-200)
Steel, water based epoxy topcoat:		
1 ct. Zinc Clad IV	3.0-5.0	(75-125)
2 cts. Water Based Catalyzed Epoxy	2.5-4.0	(63-100)
Steel, catalyzed epoxy topcoat:		
1 ct. Zinc Clad IV	3.0-5.0	(75-125)
1-2 cts. Macropoxy HS	3.0-6.0	(75-150)
or		
1-2 cts. SeaGuard 5000 HS	4.0-7.0	(100-175)
or		
1-2 cts. SeaGuard 6000	5.0-8.0	(125-200)
Steel, high build epoxy topcoat:		
1 ct. Zinc Clad IV	3.0-5.0	(75-125)
1-2 cts. Tile-Clad HS	2.5-4.0	(63-100)
Steel, epoxy/urethane topcoat:		
1 ct. Zinc Clad IV	3.0-5.0	(75-125)
1 ct. Macropoxy HS	3.0-6.0	(75-150)
1 ct. Acrolon 218 HS Acrylic Polyurethane	3.0-6.0	(75-150)
Steel, polyurethane topcoat:		
1 ct. Zinc Clad IV	3.0-5.0	(75-125)
1-2 cts. Acrolon 218 HS	3.0-6.0	(75-150)

NOTE: 1 ct. of DTM Wash Primer can be used as an intermediate coat under recommended topcoats to prevent pinholing.

FIRETEX ONLY:

Steel Substrates being primed for FIRETEX M90, M90/02 and M93/02 only:

1 ct. Zinc Clad IV 3.0-5.0 (75-125)

Steel Substrates being primed for FIRETEX only:

1 ct. Zinc Clad IV 3.0-5.0 (75-125)
1 ct. Macropoxy 920 Pre-Prime 1.5-2.0 (40-50)

The systems listed above are representative of the product's use, other systems may be appropriate.

DISCLAIMER

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SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

Iron & Steel: SSPC-SP6/NACE 3, 2 mil (50 micron) profile or SSPC-SP12/NACE 5 WJ-2L
Galvanizing: SSPC-SP7
Weathered Zinc Rich Primer: Clean, dry, sound

Surface Preparation Standards

Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal	Sa 3	Sa 3	SP 5	1
Near White Metal	Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast	Sa 2	Sa 2	SP 6	3
Brush-Off Blast	Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	Rusted C St 2	C St 2	SP 2	-
Pitted & Rusted	D St 2	D St 2	SP 2	-
Rusted	C St 3	C St 3	SP 3	-
Power Tool Cleaning	Pitted & Rusted D St 3	D St 3	SP 3	-

TINTING

Do not tint.

APPLICATION CONDITIONS

Temperature: 40°F (4.5°C) minimum, 120°F (49°C) maximum (air, surface, and material)
At least 5°F (2.8°C) above dew point

Relative humidity: 85% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging: 2.25 gallons (8.5L) mixed
Part U 2 gallon (7.56L) kit
Part V 1 quart (0.94L)

Weight: 26.45 ± 0.2 lb/gal ; 3.17 Kg/L, mixed

SAFETY PRECAUTIONS

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WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

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Protective & Marine Coatings

ZINC CLAD® IV ORGANIC ZINC-RICH EPOXY PRIMER

PART U B69A8 BINDER
PART V B69V8 HARDENER

Revised: January 19, 2015

APPLICATION BULLETIN

6.04

SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Zinc rich coatings require direct contact between the zinc pigment in the coating and the metal substrate for optimum performance.

Iron & Steel (atmospheric service)

Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6/NACE 3. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils / 50 microns). Coat any bare steel the same day as it is cleaned or before flash rusting occurs. For SSPC-SP12/NACE 5, all surfaces to be coated shall be cleaned in accordance with WJ-2L standards. Pre-existing profile should be approximately 2 mils (50 microns). Light rust bloom is allowed.

Galvanized Steel

Allow to weather a minimum of six months prior to coating. Solvent Clean per SSPC-SP1 (recommended solvent is VM&P Naphtha). When weathering is not possible, or the surface has been treated with chromates or silicates, first Solvent Clean per SSPC-SP1 and apply a test patch. Allow paint to dry at least one week before testing adhesion. If adhesion is poor, brush blasting per SSPC-SP7 is necessary to remove these treatments. Rusty galvanizing requires a minimum of Hand Tool Cleaning per SSPC-SP2, prime the area the same day as cleaned or before flash rusting occurs.

Weathered Zinc-Rich Primer

Remove zinc salts by either high pressure water washing and scrubbing with stiff bristle brush or sweep blast followed by water flush. Allow to dry.

Note: If blast cleaning with steel media is used, an appropriate amount of steel grit blast media may be incorporated into the work mix to render a dense, angular 1.5-3.0 mil (38-75 micron) surface profile, per Keane-Tator Surface Profile Comparator. A profile up to 4 mils (100 microns) is acceptable, however, coating must be applied to achieve a minimum of 3 mils (75 microns) dft. This method may result in improved adhesion and performance.

Surface Preparation Standards

Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal	Sa 3	Sa 3	SP 5	1
Near White Metal	Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast	Sa 2	Sa 2	SP 6	3
Brush-Off Blast	Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	Rusted C St 2	C St 2	SP 2	-
Pitted & Rusted	D St 2	D St 2	SP 2	-
Power Tool Cleaning	Rusted C St 3	C St 3	SP 3	-
Pitted & Rusted	D St 3	D St 3	SP 3	-

APPLICATION CONDITIONS

Temperature: 40°F (4.5°C) minimum, 120°F (49°C) maximum (air, surface, and material)
At least 5°F (2.8°C) above dew point

Relative humidity: 85% maximum

APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Reducer/Clean Up

Below 80°FMEK, R6K10
Above 80°FReducer #58, R7K58 or MEK, R6K10

Airless Spray

(use Teflon packings and continuous agitation)

Pressure.....2000 - 2300 psi
Hose.....3/8" ID
Tip......019"
Filter.....none
Reduction.....As needed up to 5% by volume

Conventional Spray

(continuous agitation required)

GunBinks 95
Fluid Nozzle68
Air Nozzle.....68P
Atomization Pressure.....50 psi
Fluid Pressure.....10 - 20 psi
Reduction.....As needed up to 5% by volume

Keep pressure pot at level of applicator to avoid blocking of fluid line due to weight of material. Blow back coating in fluid line at intermittent shutdowns, but continue agitation at pressure pot.

Brush

Brush.....Small areas only; natural bristle
Reduction.....Not recommended

If specific application equipment is not listed above, equivalent equipment may be substituted.



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&
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APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Zinc Clad IV comes in 2 premeasured containers which when mixed provides 2.25 gallons (8.5L) of ready-to-apply material.

Mixing Instructions:

Mix contents of each component thoroughly with a low speed power agitator. Make certain no pigment remains on the bottom of the can. Then combine 8 parts by volume of Part U with 1 part by volume of Part V. Thoroughly agitate the mixture with power agitation. After mixing, pour through a 30-60 mesh screen. Allow the material to sweat-in as indicated. Re-stir before using. If reducer solvent is used, add only after both components have been thoroughly mixed, after sweat-in. Continuous agitation of mixture during application is required, otherwise zinc dust will quickly settle out.

Apply paint at the recommended film thickness and spreading rate as indicated below:

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	5.0 (125)	8.0 (200)
Dry mils (microns)	3.0 (75)	5.0 (125)
~Coverage sq ft/gal (m ² /L)	205 (5.0)	345 (8.4)
Theoretical coverage sq ft/gal (m ² /L) @ 1 mil / 25 microns dft	1056 (25.8)	
<i>NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.</i>		

Drying Schedule @ 5.0 mils wet (125 microns):

	@ 40°F/4.5°C	@ 77°F/25°C 50% RH	@ 110°F/43°C
To touch:	45 minutes	30 minutes	15 minutes
To handle:	1.5 hours	1 hour	45 minutes
To recoat*:			
minimum:	6 hours	4 hours	2 hours
maximum**:	none	none	none
To cure:	10 days	10 days	7-10 days
<i>Drying time is temperature, humidity, and film thickness dependent.</i>			
<i>*NOTE: Film must be free of solvent, hard and firm. When rubbed with the face of a coin or knife the film should polish but not flake or chip.</i>			
<i>**Maximum Recoat: Unlimited. Must have a clean, dry surface for top-coating. "Loose" chalk or salts must be removed in accordance with good painting practice.</i>			
Pot Life:	8 hours	6 hours	4 hours
Sweat-in-Time:	1 hour	30 minutes	15 minutes

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with MEK, R6K10. Clean tools immediately after use with MEK, R6K10. Follow manufacturer's safety recommendations when using any solvent.

DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

PERFORMANCE TIPS

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, and performance.

Do not mix previously catalyzed material with new.

Do not apply the material beyond recommended pot life.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with MEK, R6K10.

Keep pressure pot at level of applicator to avoid blocking of fluid line due to weight of material. Blow back coating in fluid line at intermittent shutdowns, but continue agitation at pressure pot.

SSPC-SP11 surface preparation is acceptable for small areas.

Application above recommended film thickness may result in mud cracking.

Refer to Product Information sheet for additional performance characteristics and properties.

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

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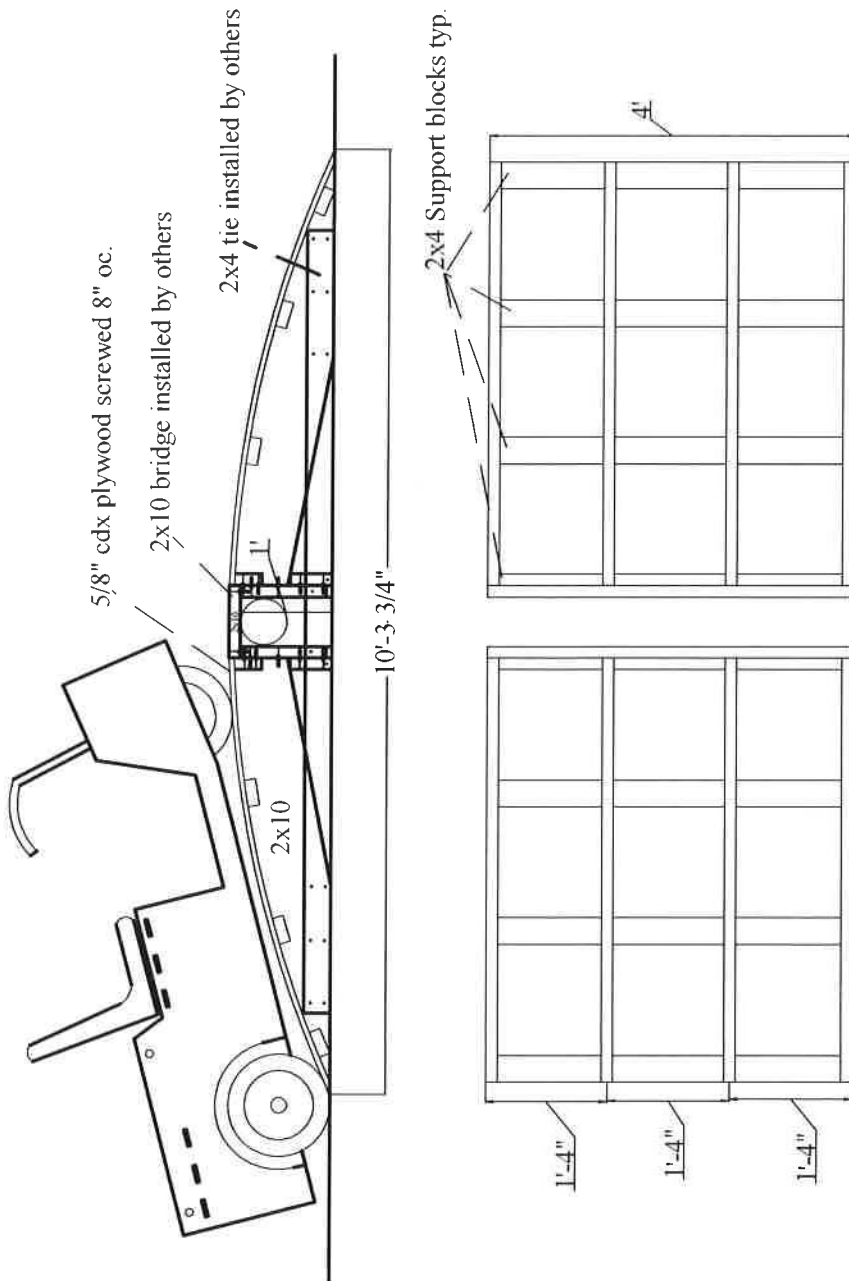
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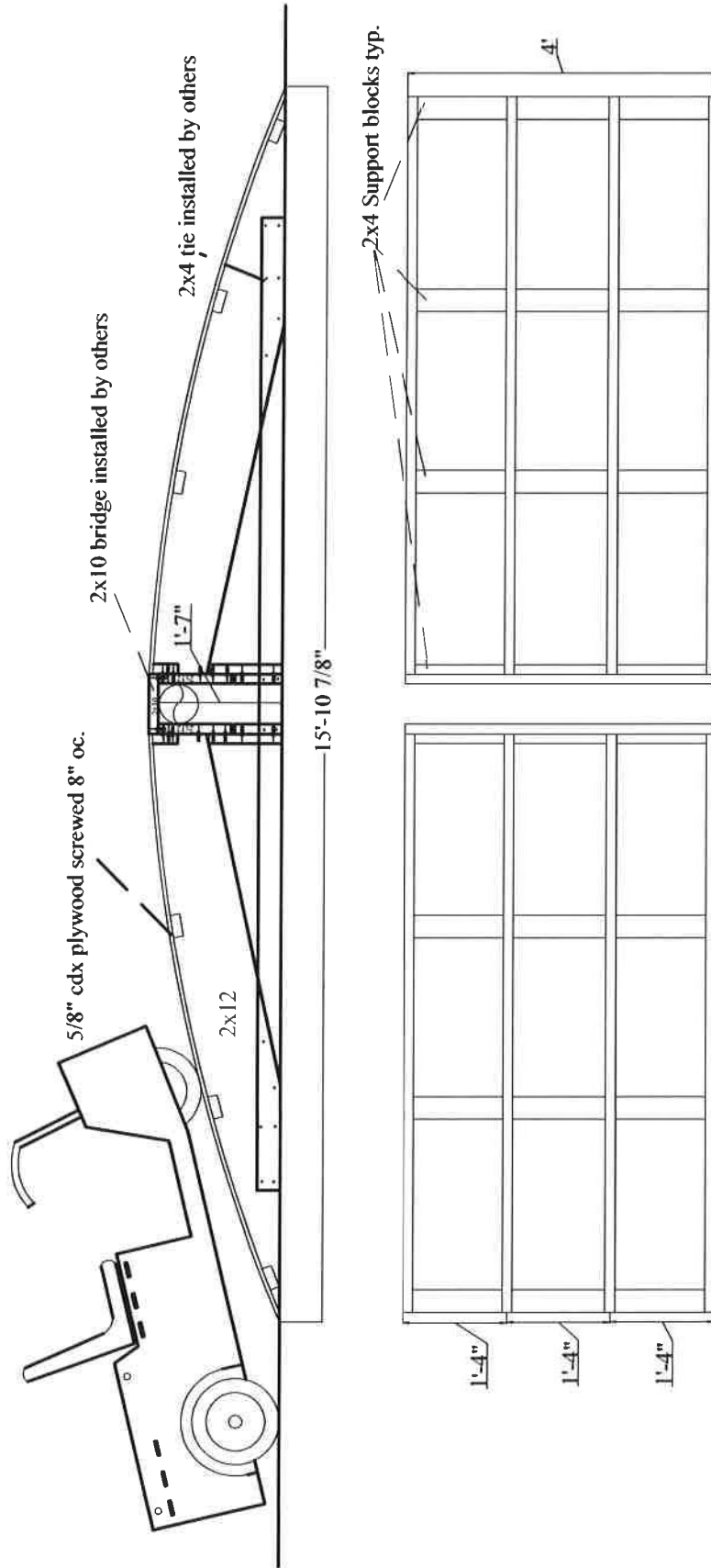
Plenum Ramps

**Operations & Maintenance Manual
December 2015**

142 total



29 total



**Eisenhower/Johnson Memorial Tunnel
Fixed Fire Suppression System
Design Build Project, NO. C 0703-360**

Plenum Ramps Parts List

Ramps:

**5/8" CDX Plywood
2x10 Lumber
2x4 Lumber
2x8 Lumber
3" Wood Screws**

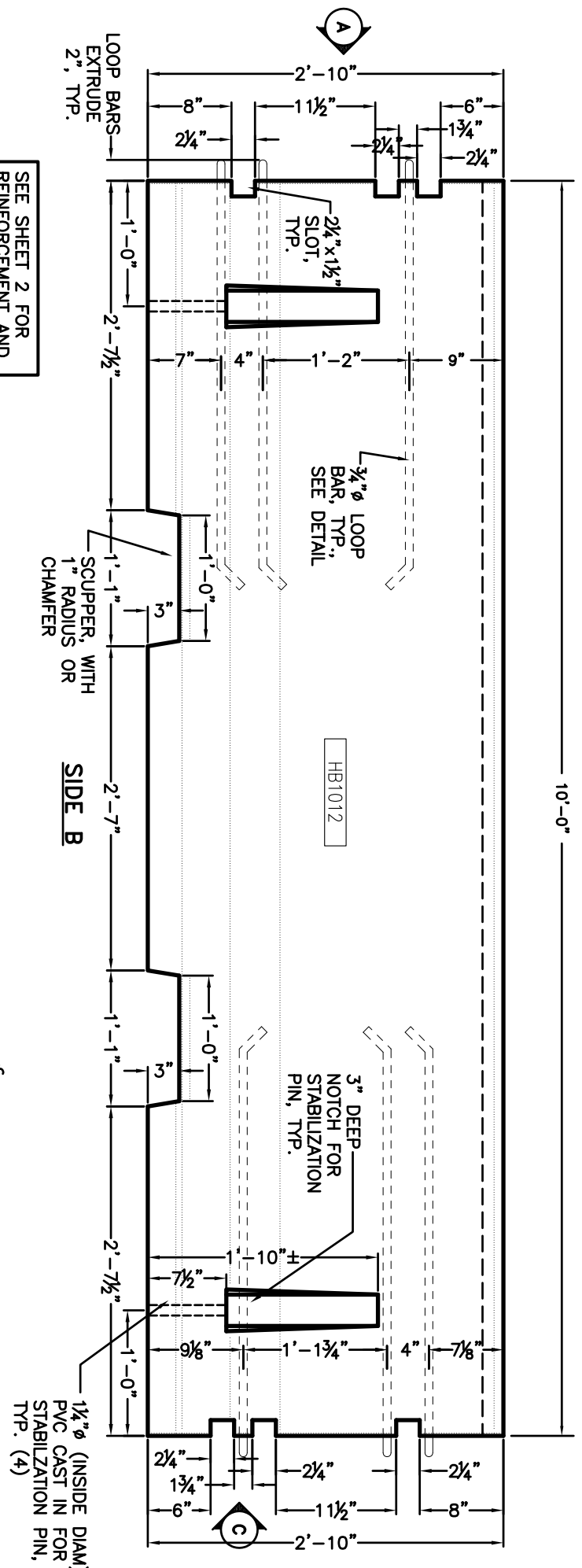
Anchors:

**P1026 Unistrut
3/8" KH-EZ Screws**

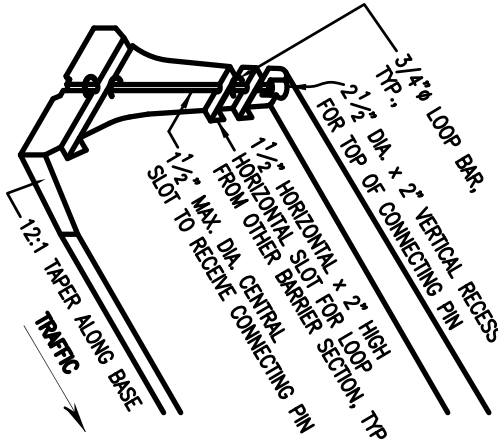
Generator Protecting Barriers

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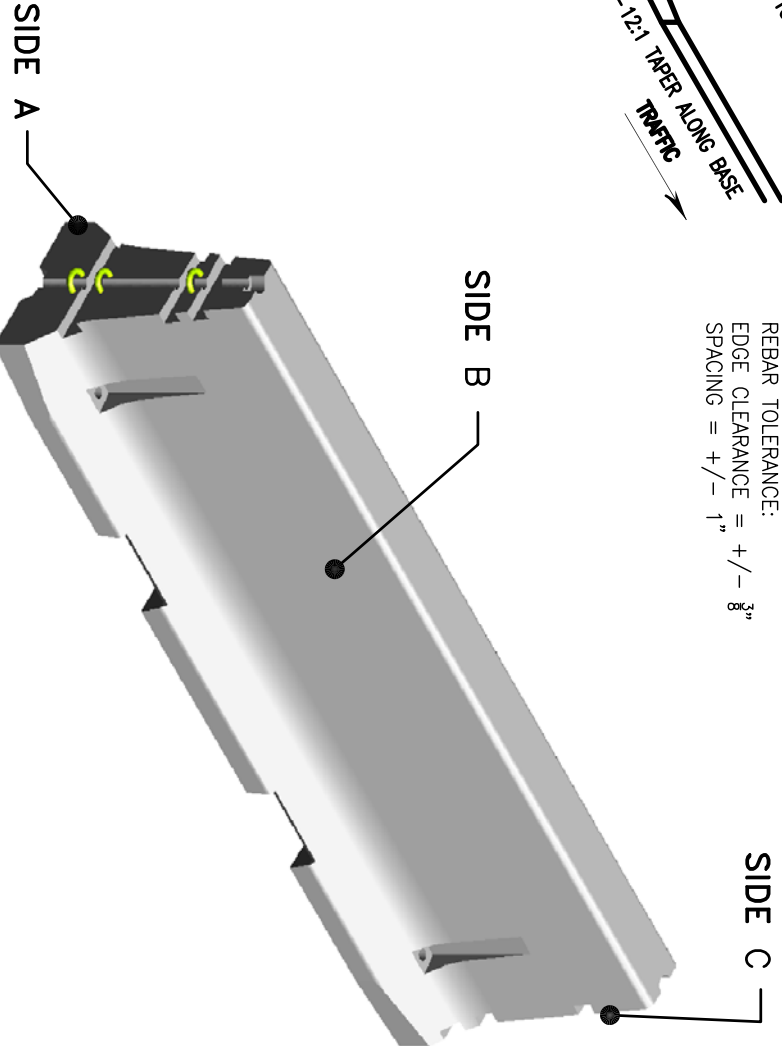
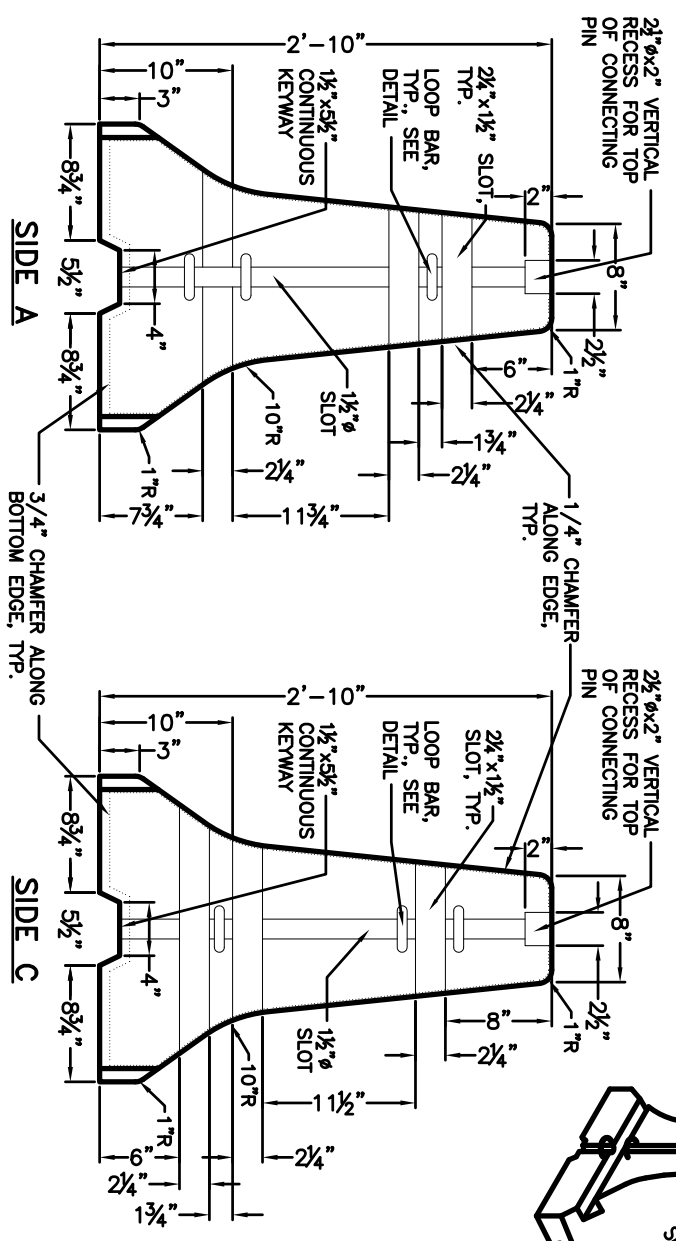
THIS PE STAMP IS FOR GENERAL CONFORMITY OF THIS DRAWING TO THE CDOT M-606-13 TYPE 7 TO TYPE 3G TRANSITION, AND THE ADDITION OF THE 12" END SECTION MEETS THE TYPE 4 PROFILE ON SHEET NO. 25A OF PROJECT NO. ES6 4701-118. NOT FOR STRUCTURAL.



SEE SHEET 2 FOR REINFORCEMENT AND STABILIZATION DETAILS



- NOTES:
1. THE MONTH AND YEAR OF MANUFACTURE OF THE BARRIER MUST BE MOLDED INTO ONE END OF EACH UNIT
 2. MEETS ASTM 825 STANDARDS
- DESIGN CRITERIA:
 CONCRETE STRENGTH= 4,500 PSI
 CONCRETE WEIGHT= 150PCF NORMAL WT
 STEEL STRENGTH= 60,000 PSI GRADE 60
- REBAR TOLERANCE:
 EDGE CLEARANCE = +/- 3/8"
 SPACING = +/- 1"



WEIGHT/CONCRETE: 4,223 LBS / 1.09 CY

05/14/09

COLORADO PRECAST CONCRETE, Inc.
 1820 E. HIGHWAY 402, LOVELAND, CO 80537
 (970) 669-0535 FAX (970) 669-0674
 www.coloprecast.com



ITEM NAME: **PRECAST TYPE 7 CONCRETE BARRIER WITH STABILIZATION PINHOLES WITH SCUPPERS**

SHEET 1 OF 2

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**Eisenhower/Johnson Memorial Tunnel
Fixed Fire Suppression System
Design Build Project, NO. C 0703-360**

Barrier Paint Product Data

Barrier Paint – Federal Standard Color 20059 or Sherwin Williams Equivilant Color
#SW2838

Anti-Graffiti Coating – Sherwin Williams Pro Industrial Anti-Graffiti Coating

**Eisenhower/Johnson Memorial Tunnel
Fixed Fire Suppression System
Design Build Project, NO. C 0703-360**

Architectural Consumables

The Architectural feature and all associated components have no required consumables for normal operation, nor for any ongoing testing and maintenance operations.

SPARE PARTS

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Barnard Spare Parts Provided

System	Part Description	Part #	Manufacturer	Supplier	QTY
Plenum Ramps	Anchor Bolts		Hilti	Fastenal	50
Plenum Ramps	Wood Screws			Lowes	1750
Plenum Doors	Paint		Sherwin Williams	Sherwin Williams	1 gal
Plenum Doors	Primer - Primer & Hardener		Sherwin Williams	Sherwin Williams	2 gal
Generator Barriers	Paint		Sherwin Williams	Sherwin Williams	.5 gal
Inlets	Parking Blocks			barnard	4

Barnard Recommended Spare Parts

System	Part Description	Part #	Manufacturer	Supplier	QTY
Plenum Ramps	5/8" CDX Plywood			Lowes	20
Plenum Ramps	Lumber 2x4s			Lowes	60
Plenum Doors	Lumber 2x10s			Lowes	20
Plenum Doors	Primer - Primer & Hardener		Sherwin Williams	Sherwin Williams	5 gal
Generator Barriers	Paint		Sherwin Williams	Sherwin Williams	2 gal
Inlets	Parking Blocks			barnard	8