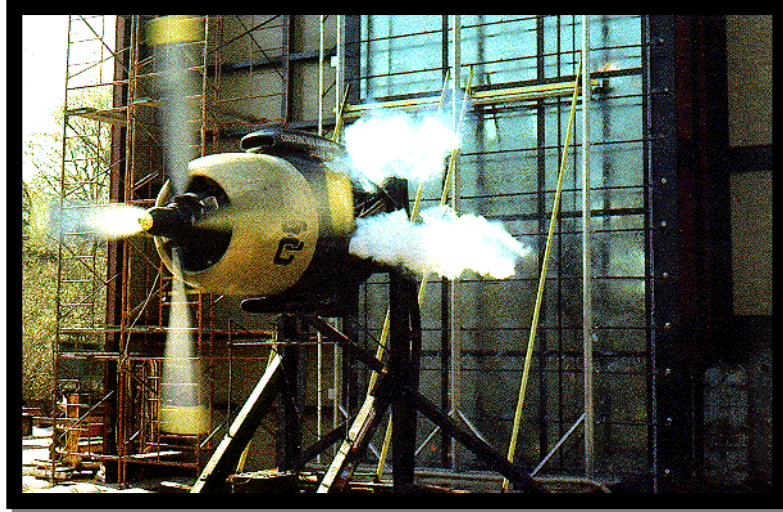




CONSTRUCTION CONSULTING LABORATORY



TEST REPORT:

ASTM PERFORMANCE TESTING
ASTM E 330/E330M-14

GLASSCRAFT DOOR COMPANY

SERIES BUFFALO FORGE STEEL IN-SWING ENTRY DOORS

REPORT #CCL-19-089

Report Date
June 14, 2019

Prepared for:

GLASSCRAFT.
DOOR COMPANY

2002 Brittmoore Rd.
Houston, TX 77043
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S-UNITED, INC.
A Quality Control Company



**ASTM E 330-14 UNIFORM LOAD PERFORMANCE TESTING
GLASS CRAFT SERIES BUFFALO FORGE STEEL ENTRY DOORS (IN-SWING)
REPORT #CCL-19-089**

June 14, 2019

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APPENDIX

APPENDIX A: Series Buffalo Forge steel clad composite wood (In-Swing) Drawings

Refer to drawings in **Appendix A**, this report is not complete unless these drawings are stamped and initialed by **CCL** as illustrated below.

Drawing	Part/Drawing/Die#	Received Date	Stamped as Illustrated
1	French / double Elevation	6-18-19	Construction Consulting Laboratory 1601 Luna Road Carrollton, Texas 75006 Phone (972) 242-0556
2	French / double Installation	6-18-19	
3	Single Elevation	6-18-19	
4	Single Installation	6-18-19	
5	Cam-Lock / Casement Hardware	6-18-19	
6	Section View	6-18-19	
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8	French List of Materials	6-18-19	
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10	Casement Vent Frame	6-18-19	
11	Casement Main Frame	6-18-19	
12	Twin Plan	6-18-19	
13	Single Plan	6-18-19	

CCLI Report # 19-089 issued June 14, 2019 has been reviewed and approved by:

Florida Registered Professional Engineer
ABDOL REZADAD, P.E.
(Florida PE #52849 Expiration: 2/28/2021)



Texas Registered Professional Engineer
ABDOL REZADAD, P.E.
Texas PE License # 82468
Firm Reg. # F-8127



4341 Lindbergh Street, Suite 200-E, Addison, TX 75001
Phone: 972-960-2223



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1. PROJECT DATA

Project: ASTM Performance Testing

Tests Completed: March 8, 2019

Tested For: GlassCraft Door Company

Witnessed By	All or Partial Viewing	
Construction Consulting Laboratory	Edsson Alarcon	Wesley Wilson

2. SUMMARY

Specimen	Type	Title	Summary of Results
1	Single	ASTM E 330-14 Design Pressure	+/- 3840 Pa (80.20 psf)
2	Double	ASTM E 330-14 Design Pressure	+/- 3840 Pa (80.20 psf)

3. TEST SPECIMEN

Specimen 1:	18-gauge steel clad Timberstrand Core door	
Product Type:	Single Entry Door (In-Swing)	
Series / Model:	Buffalo Forge / Steel Clad Wood Core Door	
Test Methods:	ASTM E 330/E330M-14	
Frame Size:	1105 x 2489mm (43½"x 98")	
Leaf Size:	1060 x 2419 (41¾" x 95¼")	
Casement Flange Size:	Inside 660 x 2215 (26"x 87¾"/16") / Outside 700 x 2261 (27¾/16"x 89")	
Glass DLO:	573 x 2134 (22¾/16" x 84")	
Configuration:	X	
Specimen 2:	18-gauge steel clad Timberstrand Core door	
	Active Leaf 1	In-Active Leaf 2
Product Type:	Double Entry Door (In-Swing)	
Series / Model:	Buffalo Forge / Steel Clad Wood Core Door	
Test Methods:	ASTM E 330/E330M-14	
Frame Size:	1905 x 2502 (75" x 98")	
Leaf Size:	908 x 2419 (35¾" x 95¼")	921 x 2419 (36¼" x 95¼")
Casement Flange Size:	Inside 660 x 2215 (26"x 87¾"/16") / Outside 700 x 2261 (27¾/16"x 89")	
Glass DLO:	573 x 2134 (22¾/16" x 84")	573 x 2134 (22¾/16" x 84")
Configuration:	X.X	

Door Leaf: 1⁵/₈" thick Timberstrand composite core with a ⁵/₁₆" thick AERT composite edge clad with 18-gauge steel sheet adhered to door core with Ashland 750 glue. Core stiles with AERT edges are 5½" wide at the lock stile, 4" wide at the hinge stile and 3¾" wide at the rails. Overall thickness of door leaf with steel skin cladding is 1¾".

Casement: Subframe constructed of a 2" x 1" x 1/8" thick steel tube with a 1" x 1/8" steel flat bar set at the exterior of the tube, perpendicular to the long dimension, parallel to the short dimension and is spot welded to the tube corner radius with a 2" weld at each end and 1" weld on 12" centers. Subframe is attached to the door leaf through the exterior flat bar into the door core with #8 x 1¼" wood screws spaced 3" from each end and on 10". In-swing casement vent frame constructed of two (2) 14-gage steel plates separated by a ¾" x ¾" x 1/8" steel spacer tube. Interior plate is 2½" wide, centered and 1" spot welded to both sides of the spacer tube at each end and on 10" centers. Exterior plate is 1¼" wide and serves as a glazing stop once glass is installed. Glazing stop secured to spacer tube with #8 x 5/8 self-drilling screws spaced 3" from each end and on 10" centers at stiles and 6" from each end at rails.

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Weather Strip: Kerf mounted Q-Lon foam filled single leaf gasket located at the interior face of frame head, jambs, and/or astragal. 5-Leg rubber sweep at the bottom of door panel bottom rails attached with sealant and 1" x 0.050" diameter staples spaced 1" from each end and on 6" centers.

Glass Insert: 12.7mm (1/2") overall thickness Sealed Insulating glass (SIG). Two (2) pieces, 3.1mm (1/8") tempered glass with (1/4") airspace.

Glazing: Exterior glazed with butyl tape at the interior face of glass, full perimeter.

Door Hardware: Two (2) Steel 6" long pin and barrel hinges, bottom half attached through composite wood jamb into test fixtured with six (6) #8 x 3 wood screws. Hinge top half attached to door leaf through AERT composite edge into door core with six (6) #8 x 3" wood screws. Hinges spaced 12" on center from door bottom and from door top. Hardened steel 3/4" wide x 1/4" thick x 9 1/2" long surface bolt at the top and bottom of the active and in-active leaf lock stiles secured with two (2) 3/4" wide x 1/8" thick steel collars at the interior face. Collars are set at the door edge and 3" from the door edge and are secured to door with two (2) steel flanged rivet nuts at the exterior face and #10 x 1 counter sunk screws per collar. Steel plate keepers attached in-line with bolt throw and secured to test buck / substrate with two (2) #8 x 1 1/2" screws. Test buck was routed at the keeper slots to allow for full 1 1/2" engagement into substrate. Shoot bolts attached to top and bottom of the in-active panel lock stile astragal with two (2) #8 x 3" wood screws, one (1) at top of housing and one (1) up through bottom of housing. Active leaf lock stile secured to frame or astragal with a two-point lock consisting of the handle and lock set throw bolt located on center 35" from door panel bottom rail and a key actuated deadbolt located on center 41 1/4" from panel bottom rail. Handle set and deadlock keepers attached to frame jamb with two (2) #10 x 2 1/4" screws per keeper.

Casement Hardware: Steel 3" long pin and barrel hinges with hinge bottom attached to door leaf with two (2) #8 x 1 1/2" wood screws and hinge top welded to casement hinge stile. Hinge spacing on French door (double door) are 12" on center from casement frame top and bottom. **Note:** Single door hinge spacing are 12" and 29" on center from casement frame bottom and 12" from frame top. Black plated steel cam-lock with cam lock housing attached to vent flange with two (2) #10 x 3/4" long countersunk machine screws with nylock nuts. Cam lock engages a black plated steel keeper/catch that is attached to door with two (2) #8 x 1 1/2" wood screws each. Lock spacing is 12" from each end and mid-span of vent span.

Installation: Test specimen installed into a nominal 2" x 10" test buck. In addition to the fasteners used through the hinges, #8 x 1 1/2" screws were used within 2" and 20" above bottom and below top hinge. #8 x 2 1/4" screws through frame head and sill spaced approximately 6" from each end and on 10" centers. Aluminum frame sill with adjustable threshold attached to test buck with #8 x 1 1/2".



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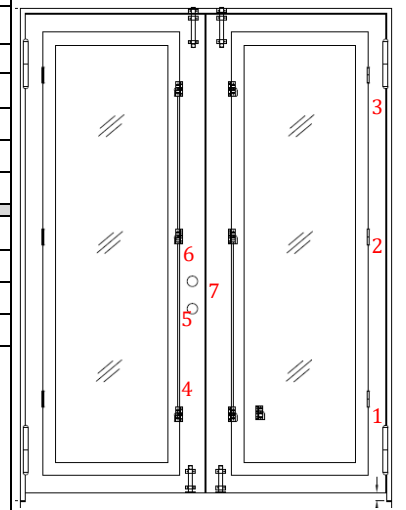
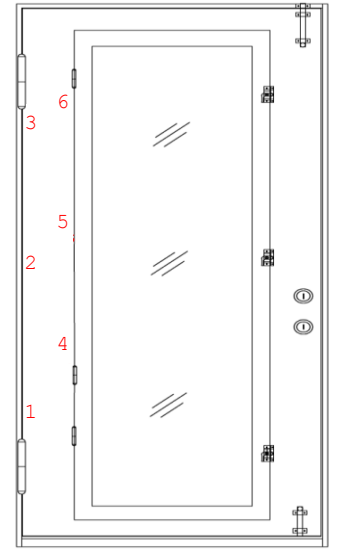
4. PERFORMANCE RESULTS

Specimen 1 / In-Swing Entry Door							
10-Second Test Load	Load Duration	Deflection at Load					
		1	2	3	4	5	6
3840 Pa (80.20 psf)	Positive	.06	.16	.09	.18	.44	.17
	Net		.13			.27	
5760 Pa (120.30 psf)	Positive	.09	.27	.10	.20	.78	.19
	Set	.01	.02	.00	.02	.03	.01
3840 Pa (80.20 psf)	Negative	.05	.17	.07	.12	.40	.18
	Net		.10			.25	
5760 Pa (120.30 psf)	Negative	.10	.25	.08	.25	.65	.28
	Set	.02	.07	.01	.00	.01	.01
2-mil plastic sheeting was used to obtain positive and negative test pressures. In the opinion of the laboratory, the use of plastic sheeting did not enhance the performance characteristics of the tested specimen.							
Results: No glass breakage occurred and the door remained operable after all test loads.							

--

Specimen 2 / French In-Swing Entry Door								
10-Second Test Load	Load Duration	Deflection at Load						
		1	2	3	4	5	6	7
3840 Pa (80.20 psf)	Positive	.10	.23	.10	.02	.25	.08	.95
	Net		.13			.20		
5760 Pa (120.30 psf)	Positive	.19	.38	.16	.10	.30	.09	1.55
	Net		.21			.22		
3840 Pa (80.20 psf)	Negative	.11	.25	.08	.02	.10	.04	.86
	Set	.05	.05	.04	.02	.03	.01	.28
5760 Pa (120.30 psf)	Negative	.24	.44	.15	.18	.28	.15	1.25
	Set	.05	.08	.02	.00	.01	.01	.05
2-mil plastic sheeting was used to obtain positive and negative test pressures. In the opinion of the laboratory, the use of plastic sheeting did not enhance the performance characteristics of the tested specimen.								
Results: No glass breakage occurred and the door remained operable after all test loads.								

--



Assembly drawings will be retained at **CCL** for a period of four (4) years.

5. DISCLAIMER

Test results were achieved by using the designated test methods and indicate compliance with the above test method. This report does not constitute certification of this product.

CONSTRUCTION CONSULTING LABORATORY


EDSSON ALARCON
Quality and Testing Technician
Signed Electronically


WESLEY WILSON
Laboratory Manager
Signed Electronically



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Appendix A

DRAWINGS

Drawing	Part/Drawing/Die#	Received Date	Stamped as Illustrated
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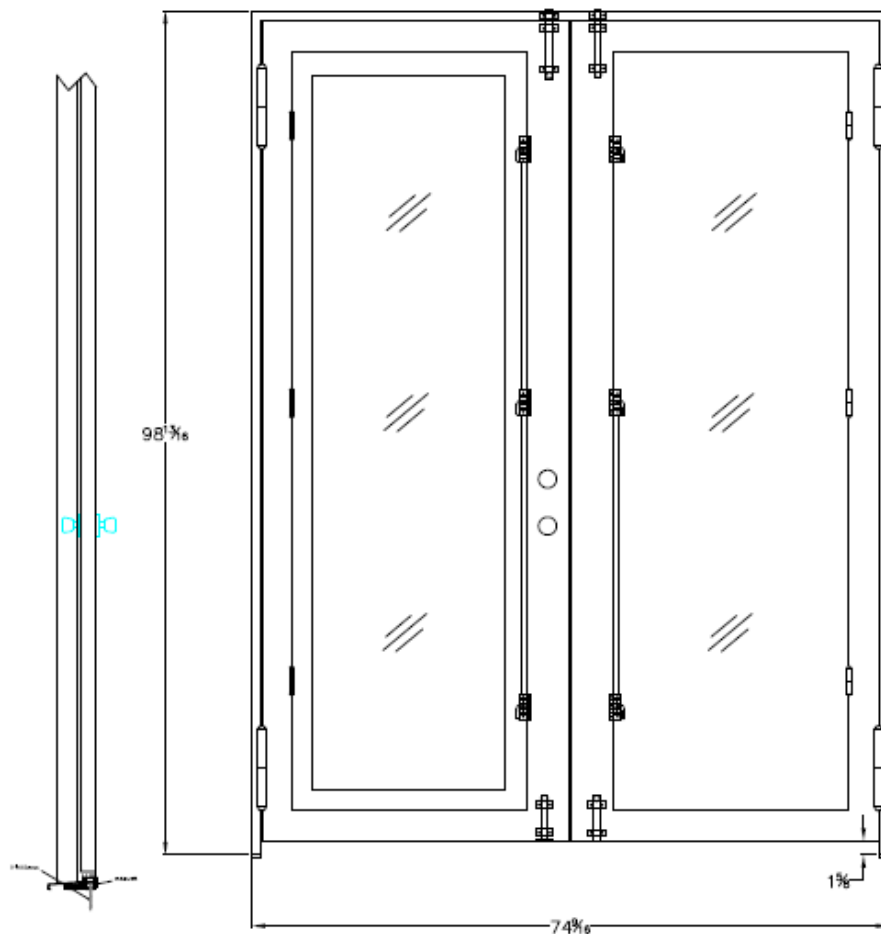
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In Swing
ELEVATION

Steel Glazed Doors

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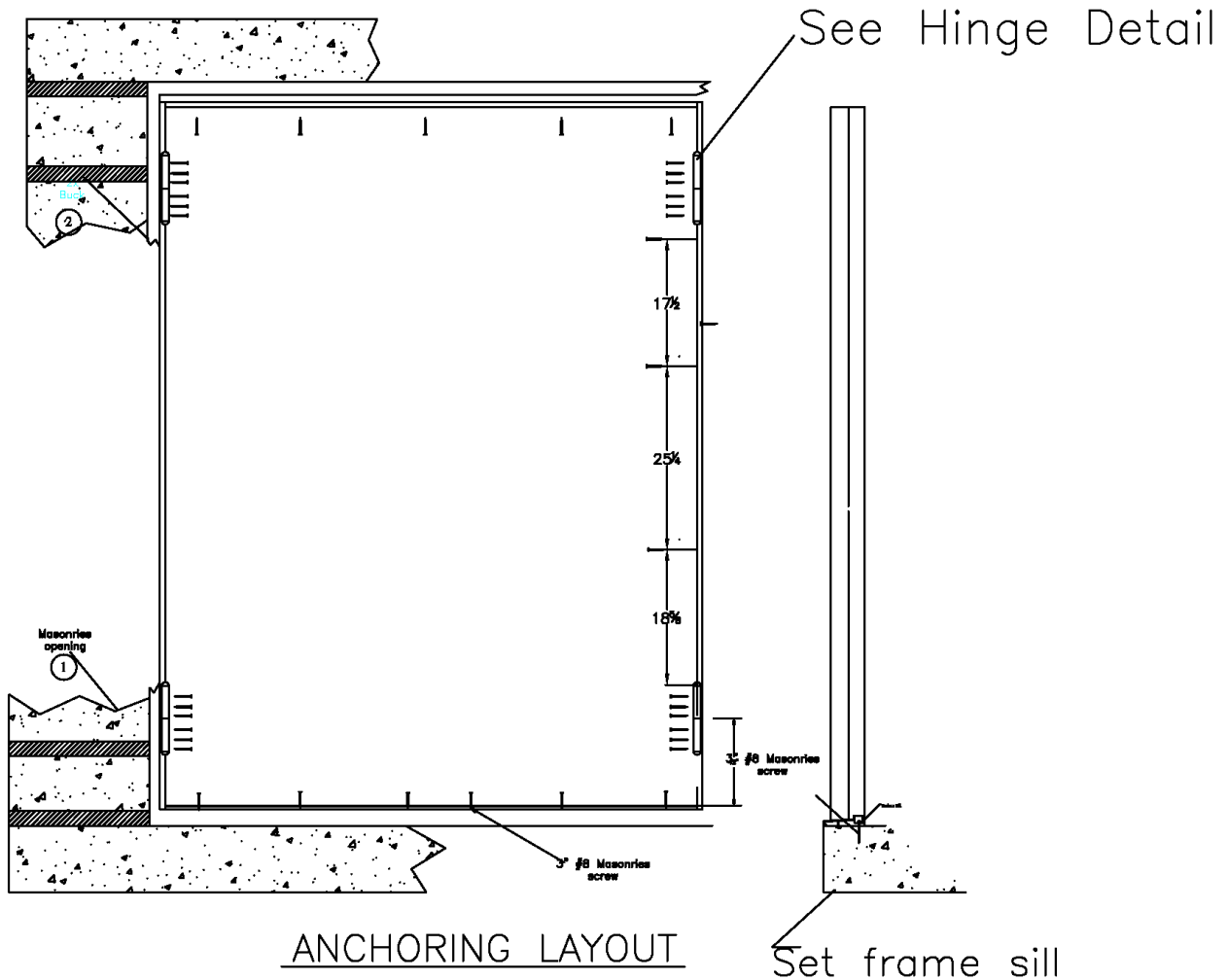
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Glass*Craft

Steel Glazed Doors

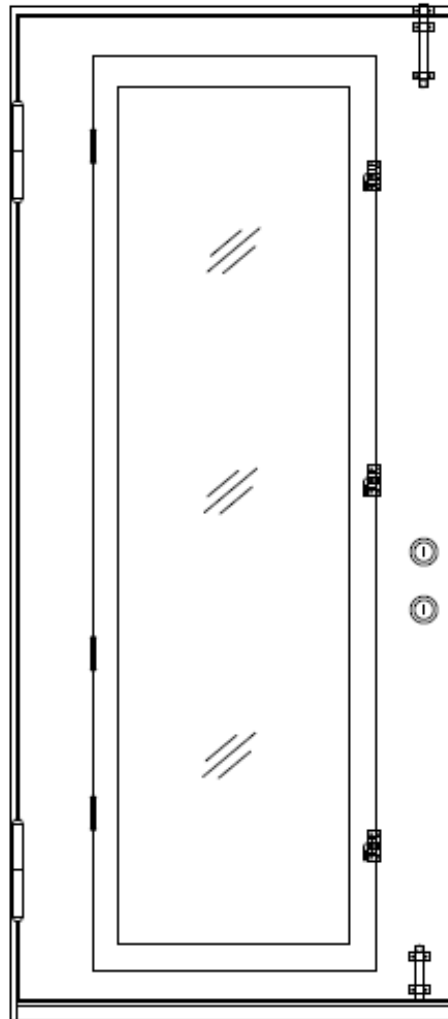




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ELEVATION

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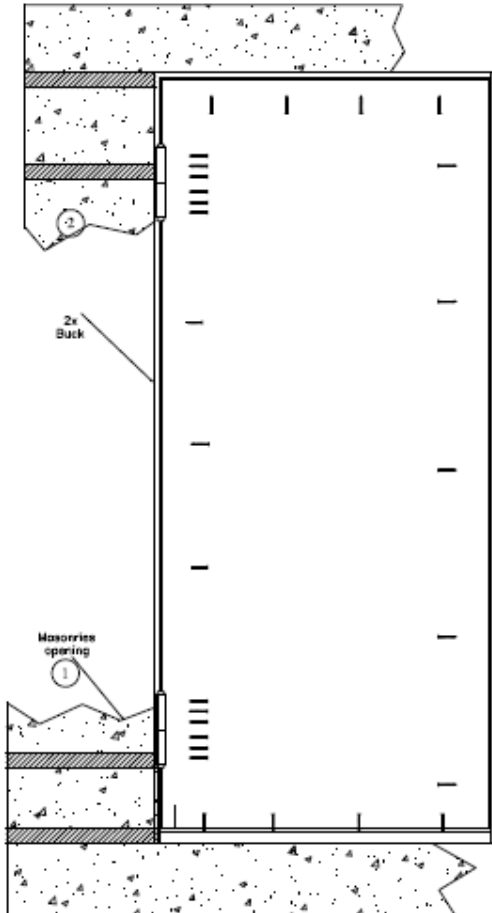


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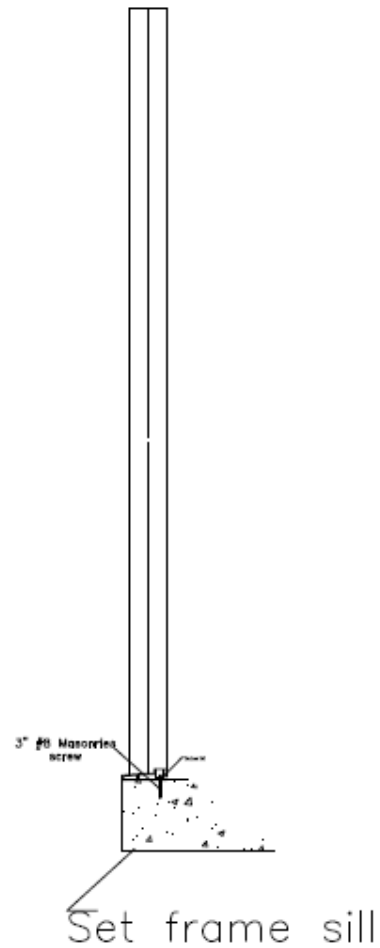
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Glass*Craft
Steel Glazed Doors



ANCHORING LAYOUT



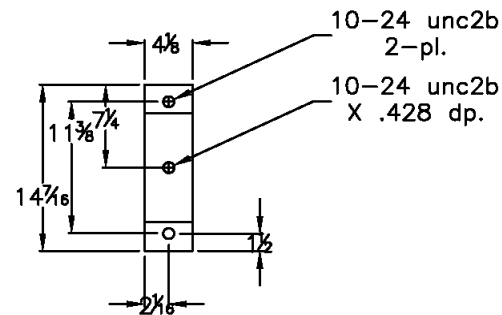
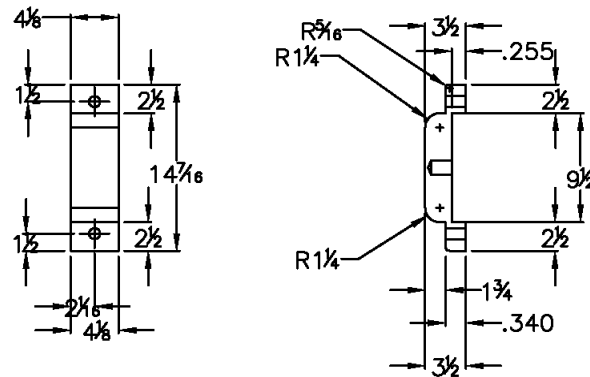
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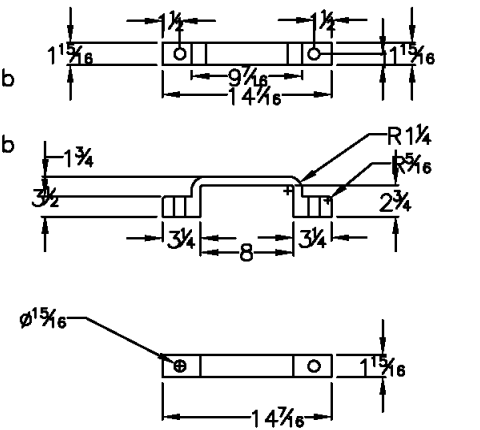


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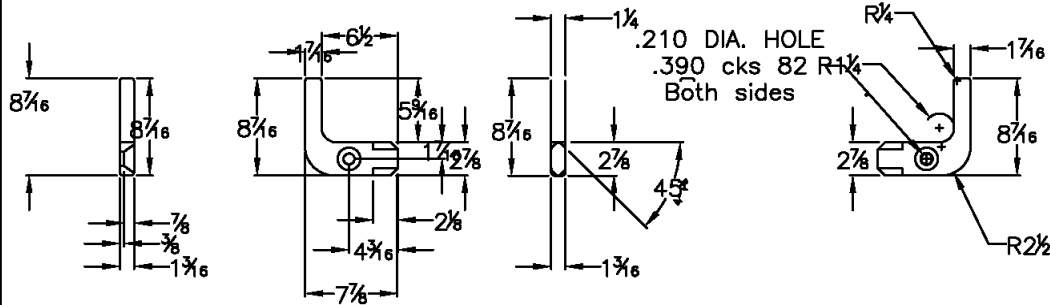
Latch housing



Catch

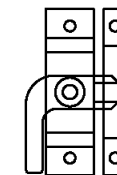
Material:Black Plated Steel

Material:Black Plated Steel

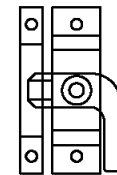


Latch Arm

Material:Black Plated Steel



Left



Right

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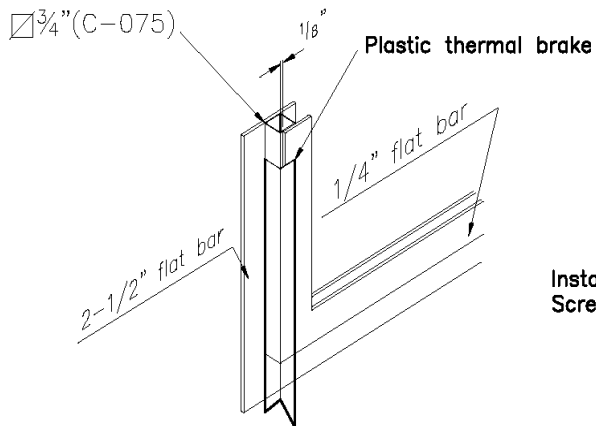
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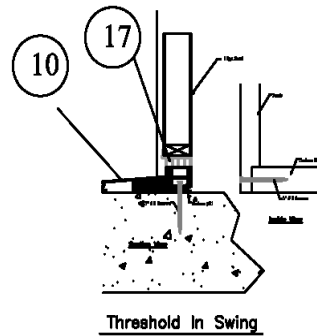
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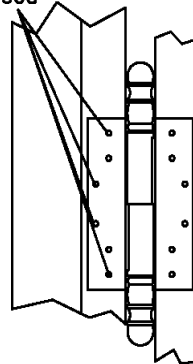


(C) Frame & Glass

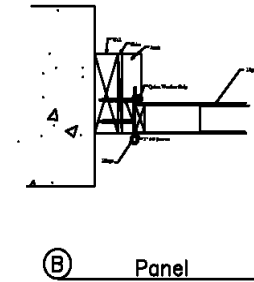


Threshold In Swing

Install (2) 3\" #8 Wood
Screws Per Hinge.



Hinge Detail



(B) Panel

In Swing

Steel Glazed Doors
Glass*Craft



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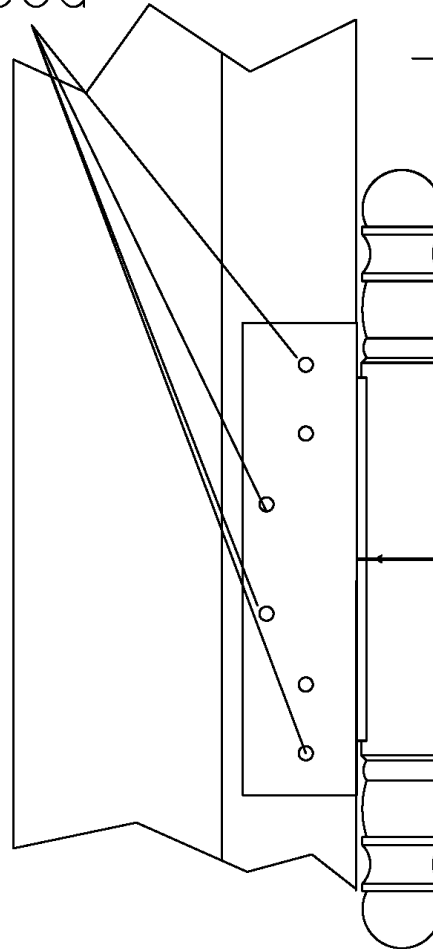
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Install (6) 3" #8 Wood
Screws Per Hinge.

Hinge Detail

Glass*Craft

Steel Glazed Doors



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List of Material

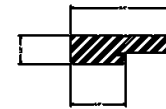
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1	Masonry	CONC.
2	2x Buck	Wood
3	Astrical	Composite
4	Lock Set	Metal
5	Surface Bolt	Metal
7	Hinge	Metal
8	Glass	Glass
9	Latch	Metal
10	sill	Metal
11	#9x1" PFH Screw	Metal
16	Door jam	Composite
17	Bottom Door sweep	Rubber
20	weather strip	Foam

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Sill

(10)



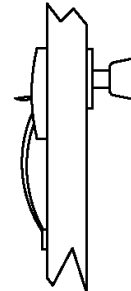
Door Jam

(16)



Astrical

(3)



Lock Set

(4)



weather strip

(20)



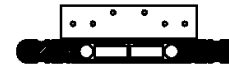
Glass

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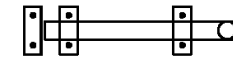
Bottom Door sweep

(17)



Hinge

(7)



Surface Bolt

(5)



Latch

(9)

Steel Glazed Doors

Glass*Craft

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List of Material

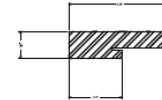
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2	2x Buck	Wood
4	Lock Set	Metal
5	Surface Bolt	Metal
7	Hinge	Metal
8	Glass	Glass
9	Latch	Metal
10	sill	Metal
11	#9x1" PFH Screw	Metal
16	Door jam	Composite
17	Bottom Door sweep	Rubber
20	weather strip	Foam

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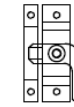


Sill

(10)



Door Jam (16)



Latch

(9)

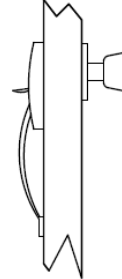


Glass

(8)



weather strip (20)



Lock Set (4)

(4)



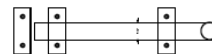
Hinge

(7)



Bottom Door sweep (17)

(17)



Surface Bolt

(5)

Steel Glazed Doors

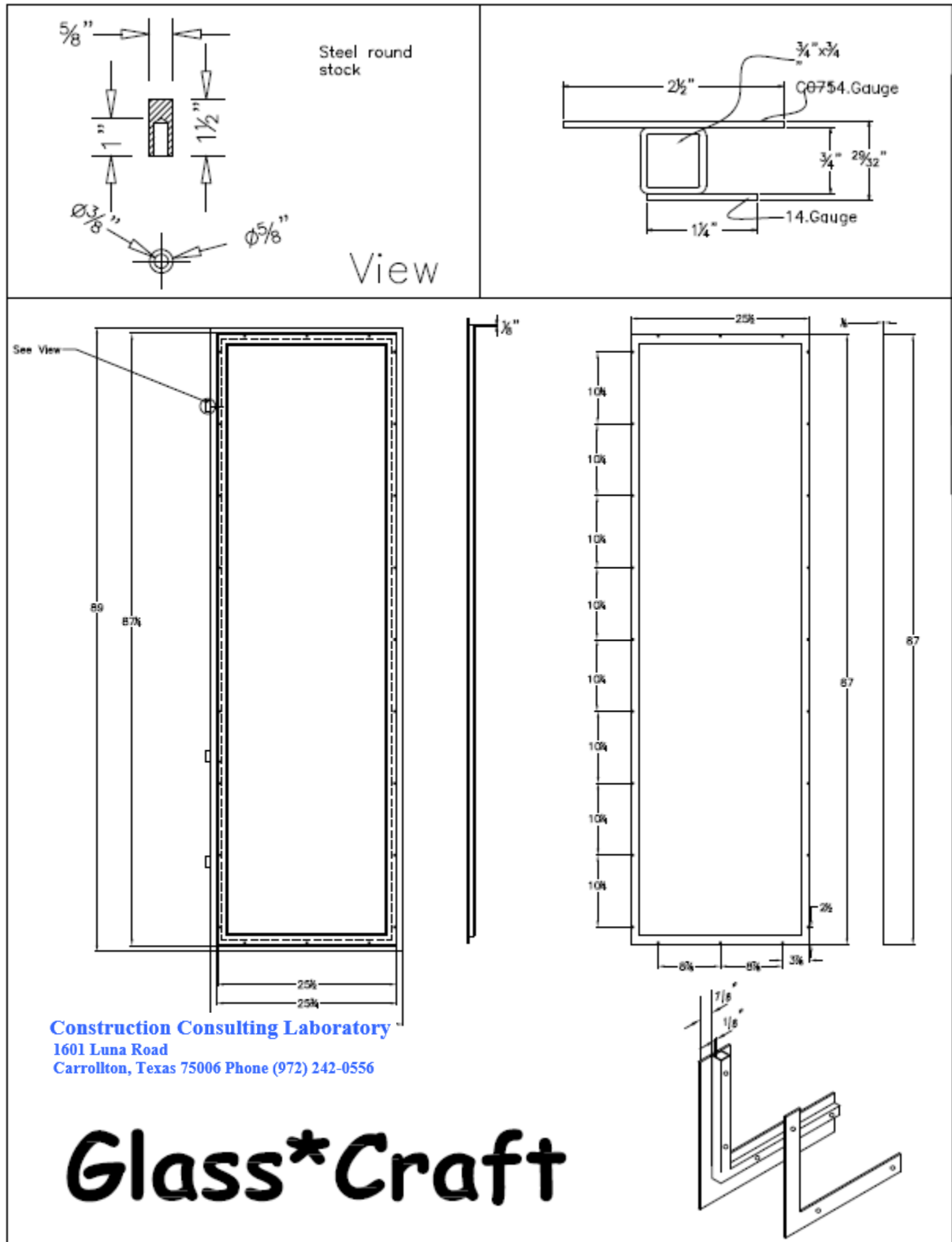
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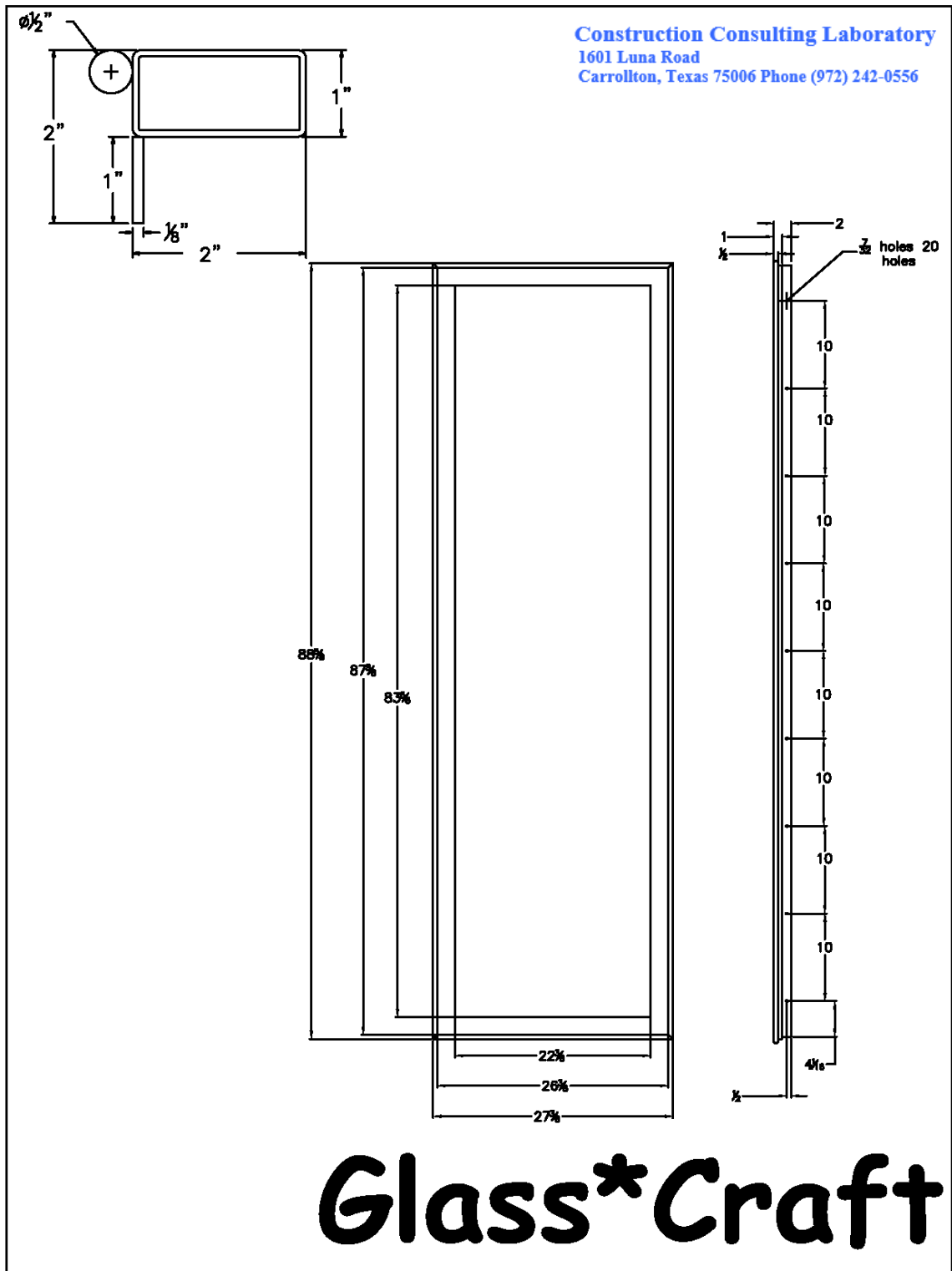
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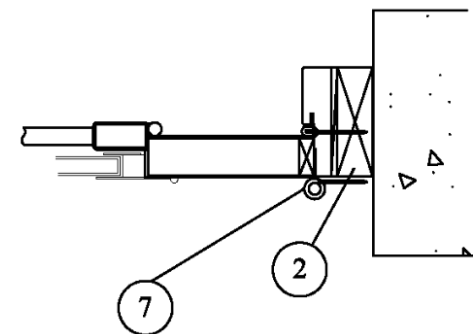
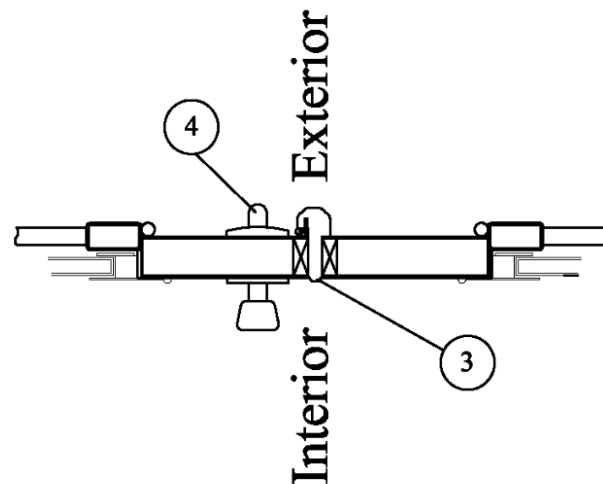
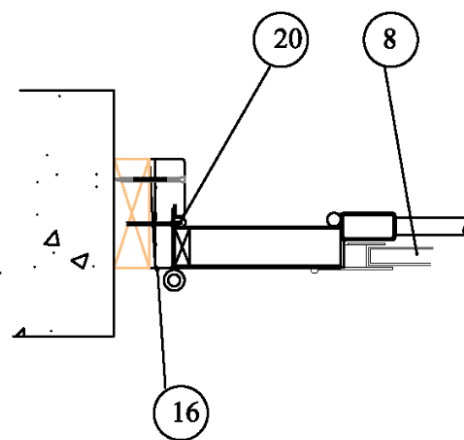
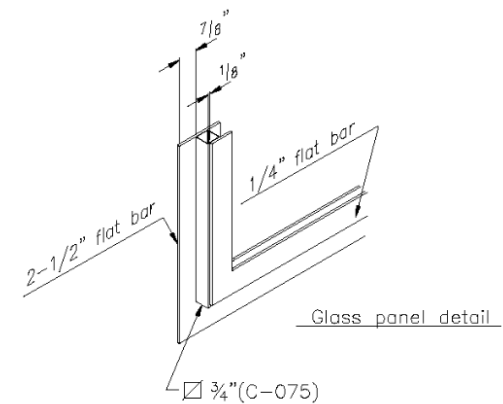
A Quality Control Company



ASTM E 330-14 UNIFORM LOAD PERFORMANCE TESTING
GLASS CRAFT SERIES BUFFALO FORGE STEEL ENTRY DOORS (IN-SWING)
REPORT #CCL-19-089

June 19, 2019

Construction Consulting Laboratory
1601 Luna Road
Carrollton, Texas 75006 Phone (972) 242-0556



Steel Doors

Horizontal Cross Section

Glass*Craft

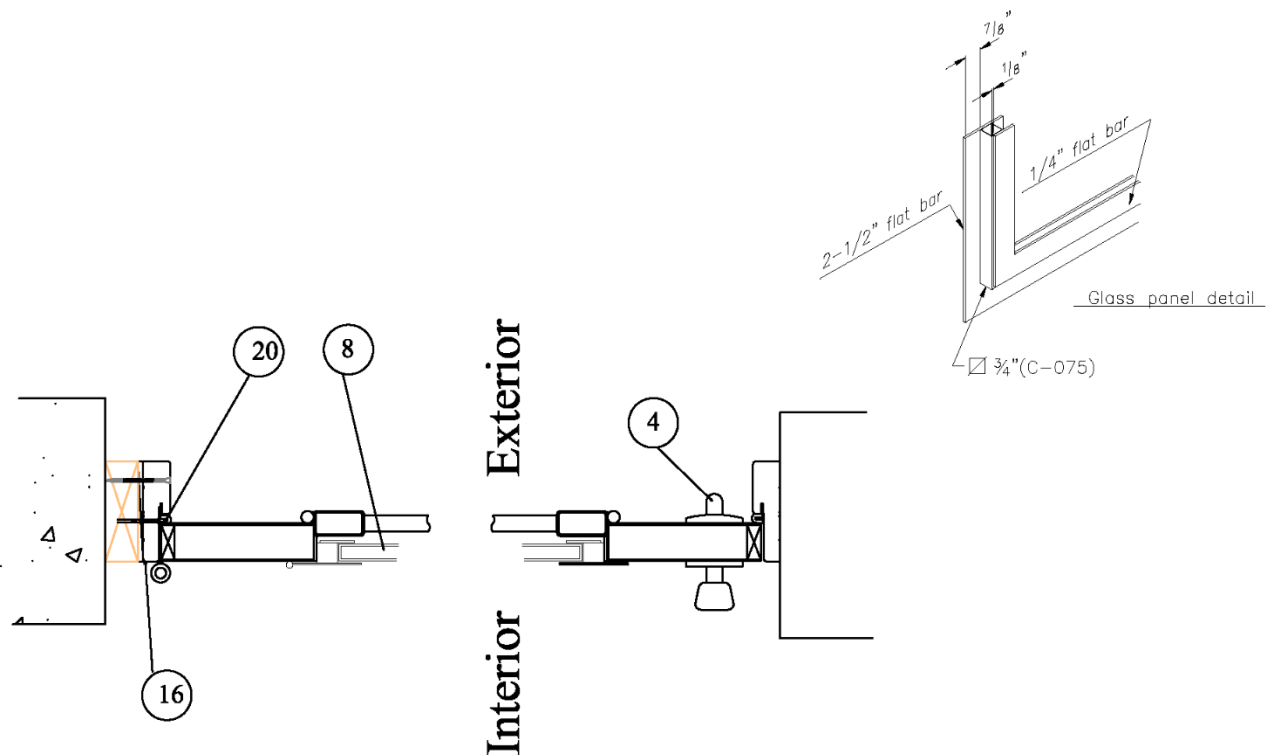
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June 19, 2019



Horizontal Cross Section

Steel Doors single

Glass*Craft

- END OF REPORT -

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