HydAway Test Report Summary

intertek
Total Quality. Assured.

HYDAWAY HYDRAULICS, INC.
MOCK-UP TEST REPORT

SCOPE OF WORK
PERFORMANCE TESTING ON AN OPERABLE DOOR SYSTEM

REPORT NUMBER
R9063.01-120-32 R0

TEST DATES
11/18/24 - 12/18/24

ISSUE DATE
01/13/25

RECORD RETENTION END DATE
12/18/28

PAGES
43

DOCUMENT CONTROL NUMBER
RT-R-AMER-Test-2744 (10/11/21)

intertek
Total Quality. Assured.

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR HYDAWAY HYDRAULICS, INC.

Report No.: R9063.01-120-32 R0
Date: 01/13/25

REPORT ISSUED TO

HYDAWAY HYDRAULICS, INC.
305 4th Street
Suite B
Brookings, SD 57006

PROJECT

10' X 10' DOOR

For INTERTEK B&C:

COMPLETED BY:	Joe W. Enriquez	**REVIEWED BY:**	Thomas E. Lawlor
TITLE:	Technician – Project Testing	**TITLE:**	Manager – Project Testing
SIGNATURE:	Digitally Signed by: Joe Enriquez	**SIGNATURE:**	
DATE:	01/13/25	**DATE:**	01/13/25

JWE:rdw

TEST METHODS

Mock-up testing was performed in accordance with referenced test methods as specified in the bid documents.

Air Infiltration: ASTM E283/E283M-19, *Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen*. Testing was conducted at 1.57 and 6.24 psf positive static air pressure differences.

Static Pressure Water Resistance: ASTM E331-00(2023), *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference*. Testing was conducted at 8.0 and 15.0 psf positive static air pressure differences for 15-minute durations. Water was applied to the mock-up at a minimum rate of 5 gal/ft^2/hr.

Structural Performance: ASTM E330/E330M-14(2021), *Standard Test Method for Structural Performance of Exterior Windows, Door, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*. Testing was conducted at positive and negative loads as described in the test procedure and listed in the test results.

GENERAL MOCK-UP DESCRIPTION

Project Type

The mock-up was comprised of a steel-framed hydraulic-powered operable door with exterior glazing.

Mock-Up Size

Door: 10' 0" wide by 10' 0" high

Material Source/Installation

The mock-up materials/components were supplied and installed by representatives from Hydaway Hydraulics, Inc.

intertek
Total Quality. Assured.

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR HYDAWAY HYDRAULICS, INC.
Report No.: R9063.01-120-32 R0
Date: 01/13/25

FINAL TEST RESULTS (Continued)

DATE: December 18, 2024	**TEMP:** 43°F	**BP:** 29.72 inHg
TITLE OF TEST	**MEASURED**	**ALLOWED**
Preload @ +25.0 psf	---	---
Static Pressure Air Infiltration @ 1.57 psf	PASSED	
Operable Door	0.10 cfm/ft^2	0.10 cfm/ft^2 max
Static Pressure Air Infiltration @ 6.24 psf	N/A	
Operable Door	0.21 cfm/ft^2	For information only
General Note: *All parties agreed to separately evaluate the glass/glazing from the fixed and operable frames during the remaining static water penetration tests.*		
Static Pressure Water Resistance @ 8.0 psf – Fixed & Operable Frames	PASSED	
	No uncontrolled leakage	No uncontrolled leakage
Uniform Load Deflection	PASSED	
@ +25.0 psf (Preload)	No visible damage	No visible damage
@ +50.0 psf (Design Load)	Condition mock-up only, no readings	Condition mock-up, no readings
@ -25.0 psf (Preload)		
@ -50.0 psf (Design Load)		

intertek
Total Quality. Assured.

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

FINAL TEST RESULTS (Continued)

DATE: December 18, 2024	**TEMP:** 43°F	**BP:** 29.72 inHg
TITLE OF TEST	**MEASURED**	**ALLOWED**
Repeat Static Pressure Air Infiltration @ 1.57 psf	PASSED	
Operable Door	0.10 cfm/ft^2	0.10 cfm/ft^2 max
Repeat Static Pressure Air Infiltration @ 6.24 psf	N/A	
Operable Door	0.21 cfm/ft^2	For information only
Uniform Structural Overloads	PASSED	
@ +37.5 psf (Preload)	No visible damage See Table #2 and Sketch #2	No structural failure See Table #2 and Sketch #2
@ +75.0 psf (Overload)		
@ -37.5 psf (Preload)		
@ -75.0 psf (Overload)		

SECTION 6
CONCLUSION

Regarding the glass tested, no conclusions of any kind regarding the adequacy or inadequacy of the glass in the test specimen are to be drawn from the test. Tape or film, or both, were not used to seal against air leakage; this did not influence the results of the testing.

130 Derry Court
York, Pennsylvania 17406

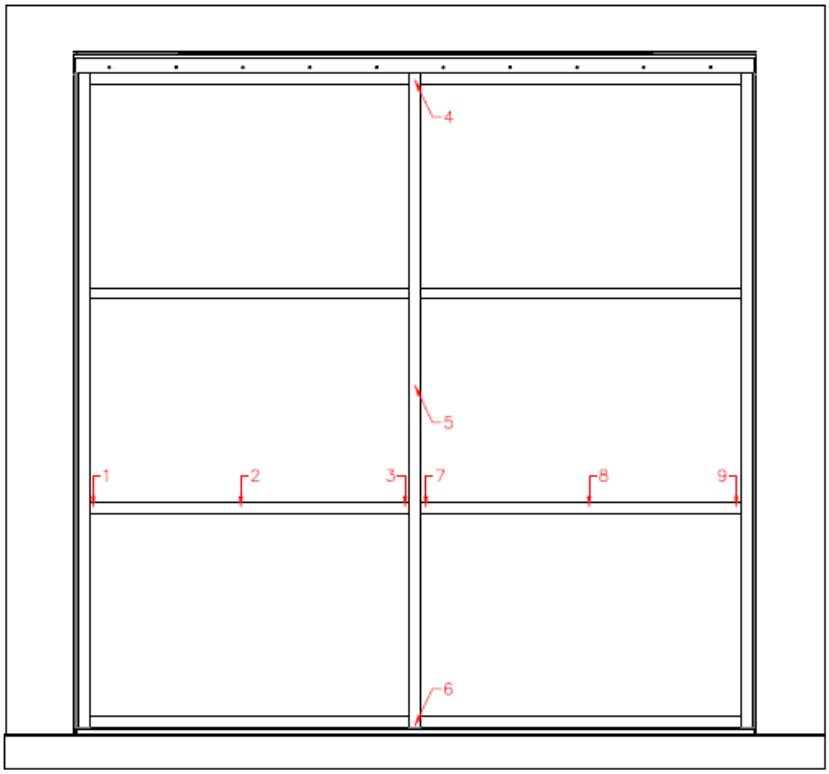
Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR HYDAWAY HYDRAULICS, INC.

Report No.: R9063.01-120-32 R0
Date: 01/13/25

SECTION 8
SKETCHES

Interior
View



PROJECT NO.	PROJECT NAME: 10' X 10' Door		DRAWING:
R9063.01	CLIENT: HydAway Hydraulics, Inc.	intertek Total Quality. Assured.	Sketch #2 Indicator Locations

intertek
Total Quality. Assured.

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR HYDAWAY HYDRAULICS, INC.

Report No.: R9063.01-120-32 R0
Date: 01/13/25

SECTION 9
TABLES

TABLE #1 - Uniform Load Deflection (Deflection in inches)

INDICATOR LOCATION	POSITIVE +50.0 psf	NET DEFLECTION	NEGATIVE -50.0 psf	NET DEFLECTION	ALLOWED*
1	0.090		0.210		
2	0.380	0.085	0.390	0.110	0.314
3	0.500		0.350		
4	0.150		0.200		
5	0.550	0.250	0.400	0.075	0.628
6	0.450		0.450		
7	0.550		0.350		
8	0.410	0.045	0.350	0.085	0.314
9	0.180		0.180		

**General Note: Allowable amounts are based on L/175 of their clear span for framing members. Refer to Sketch #2 for dial indicator locations and to the test procedure for additional information regarding allowable deflections.*

TABLE #2 - Uniform Structural Overloads (Permanent Set in inches)

INDICATOR LOCATION	POSITIVE +75.0 psf	NET PERM. SET	NEGATIVE -75.0 psf	NET PERM. SET	ALLOWED*
1	0.000		0.010		
2	0.005	0.000	0.010	0.000	0.110
3	0.010		0.010		
4	0.000		0.000		
5	0.010	0.005	0.010	0.005	0.220
6	0.010		0.010		
7	0.010		0.010		
8	0.000	-0.005	0.010	0.000	0.110
9	0.000		0.010		

**General Note: Allowable amounts are based on 0.2% of their clear span for framing members. Refer to Sketch #2 for dial indicator locations and to the test procedure for additional information regarding allowable deflections.*

intertek
Total Quality. Assured.

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

SECTION 10
PHOTOGRAPHS

Photo No. 1
Exterior View During Static Air Infiltration Testing @ 1.57 psf & 6.24 psf

Photo No. 2
Exterior View During Static Water Penetration Testing @ 8.0 psf

intertek
Total Quality. Assured.

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

Photo No. 17
Interior View of New Gasket Material Applied to
Inner Face of Operable Steel Frame (Two Rows at Jambs)

Photo No. 18
Interior View of New Gasket Material Applied to
Inner Face of Operable Steel Frame (Two Rows at Jambs)

intertek
Total Quality. Assured.

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

Photo No. 19
Exterior View of Operable Steel Frame at
Sill with New Horizontal Gasket and Aluminum Angle

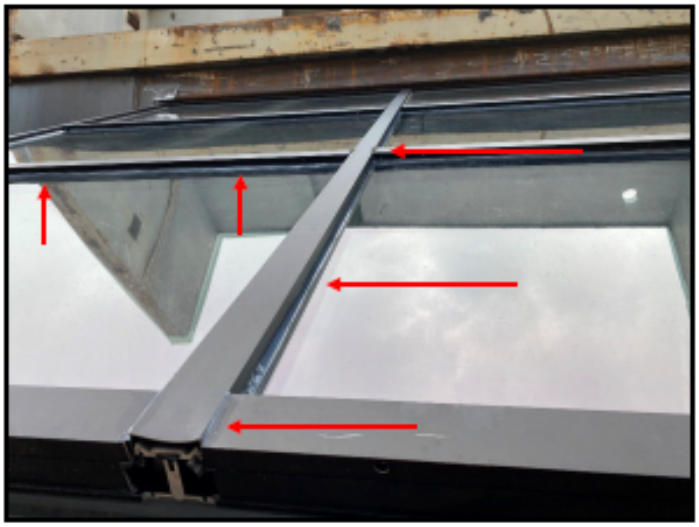


Photo No. 20
Exterior View of Sealant Applied to
GlazingTrim Joinery

intertek
Total Quality. Assured.

130 Derry Court
York, Pennsylvania 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

Photo No. 25
Interior View of Threshold Installed and Sealed at Sill of Fixed Steel Frame

Photo No. 27
Interior View of Threshold Installed and Sealed at Sill of Fixed Steel Frame

intertek
Total Quality. Assured.

130 Derry Court
York, Pennsylvania 17406

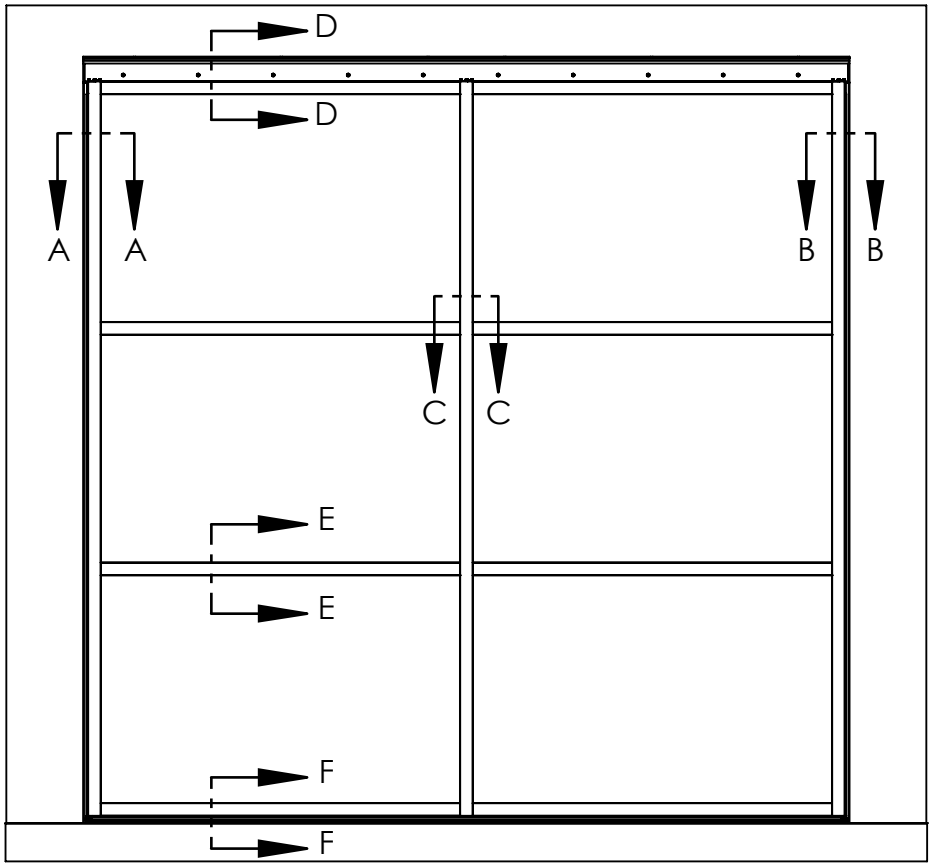
Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

SECTION 11

DRAWINGS

The "As-Built" drawings for the 10' X 10' HydAway Door dated December 20, 2024, and HydAway Hurricane Strap Drawing dated November 8, 2024, which follow, have been reviewed by Intertek B&C and are representative of the project reported herein. Project construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.

Friday, December 20, 2024 4:16:49 PM



NOTES:
1. VIEW IS FROM EXTERIOR

HydAway HYDRAULIC WALLS

NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±
INTERPRET GEOMETRIC TOLERANCING PER: ASME Y14. 5-2009
MATERIAL
FINISH
DO NOT SCALE DRAWING

	NAME	DATE
DRAWN		
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		

COMMENTS:

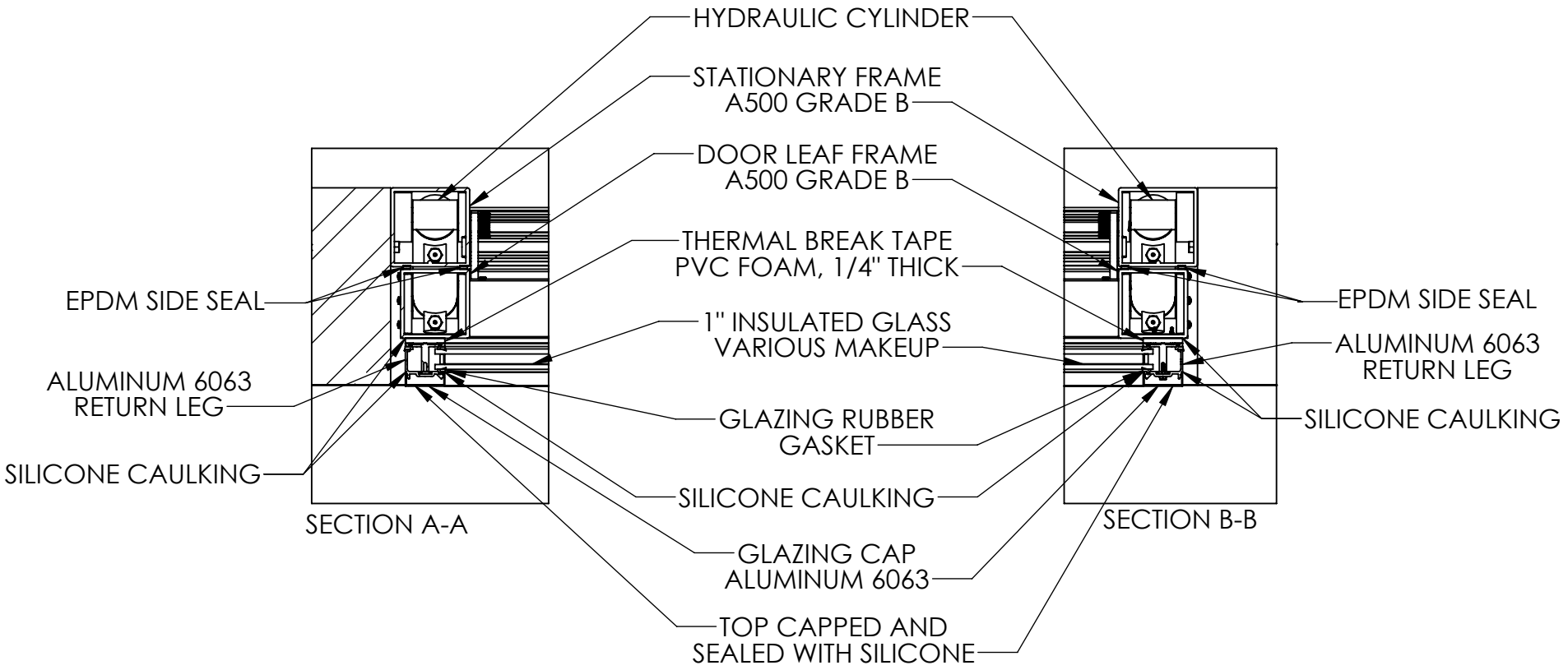
Part Number

TITLE:
Small Frame HydAway Test Door

SIZE	Door Type(s)	REV
A		D

SCALE: 1:30 WEIGHT: SHEET 1 OF 6

Friday, December 20, 2024 4:16:49 PM



HydAway HYDRAULIC WALLS

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±
INTERPRET GEOMETRIC TOLERANCING PER: ASME Y14. 5-2009
MATERIAL
FINISH
DO NOT SCALE DRAWING

NEXT ASSY | USED ON
APPLICATION

	NAME	DATE
DRAWN		
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		

COMMENTS:

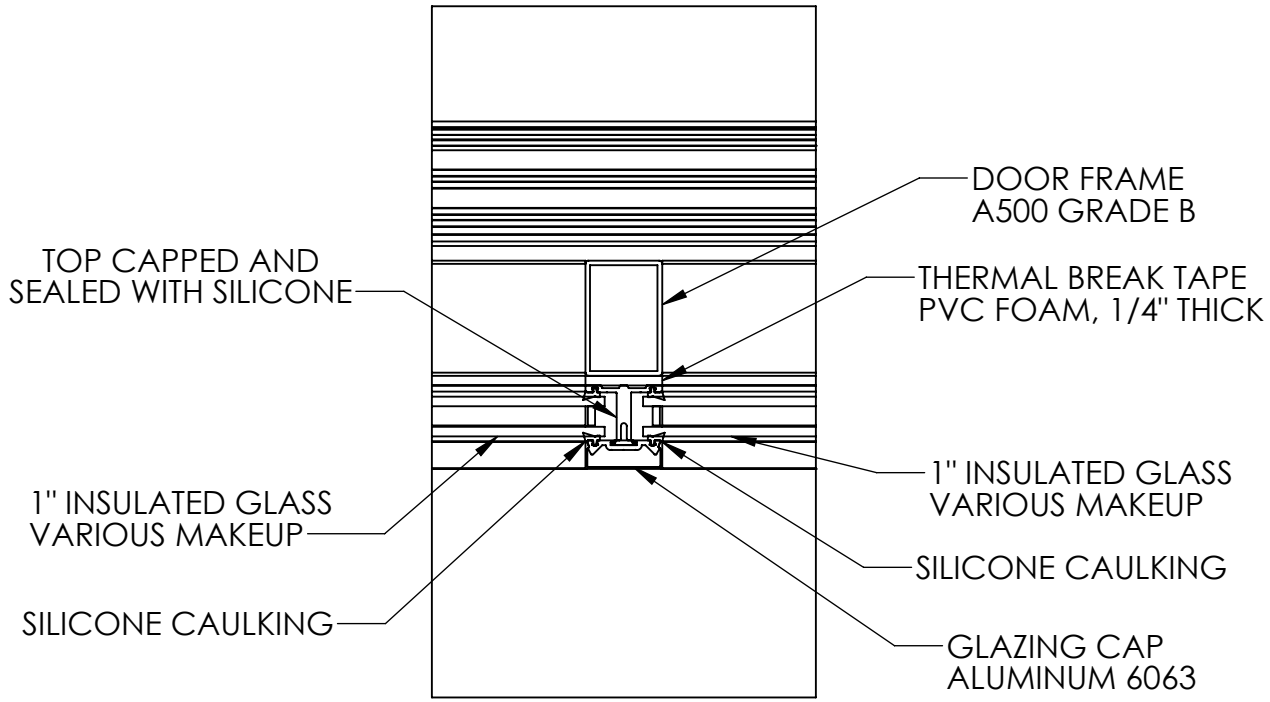
Part Number

TITLE:
Small Frame HydAway Test Door

SIZE **A** | Door Type(s) | REV D

SCALE: 1:8 | WEIGHT: | SHEET 2 OF 6

Friday, December 20, 2024 4:16:49 PM



SECTION C-C

HydAway HYDRAULIC WALLS

NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±
INTERPRET GEOMETRIC TOLERANCING PER: ASME Y14. 5-2009
MATERIAL
FINISH
DO NOT SCALE DRAWING

	NAME	DATE
DRAWN		
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		

COMMENTS:

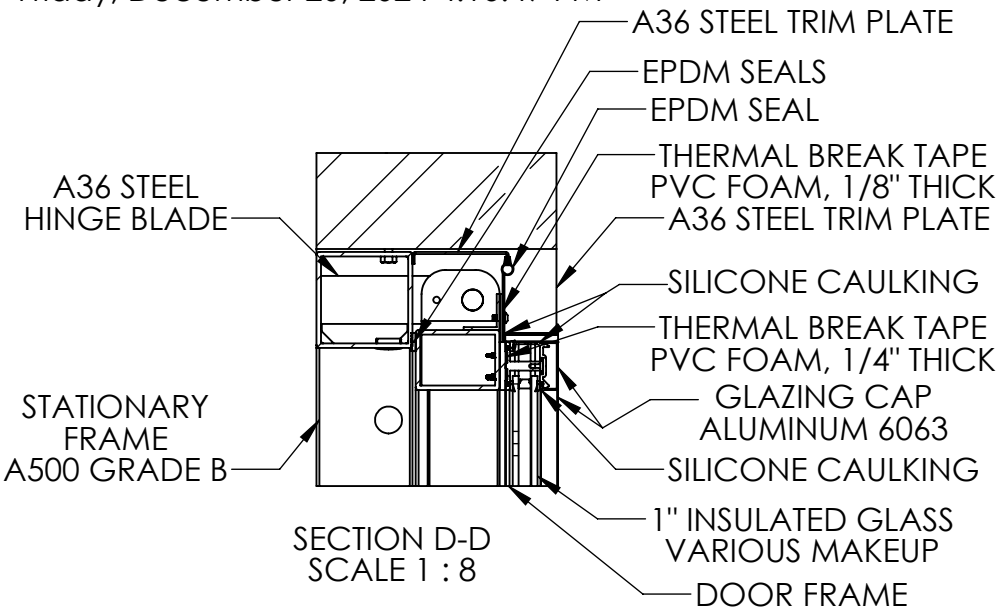
Part Number

TITLE:
Small Frame HydAway Test Door

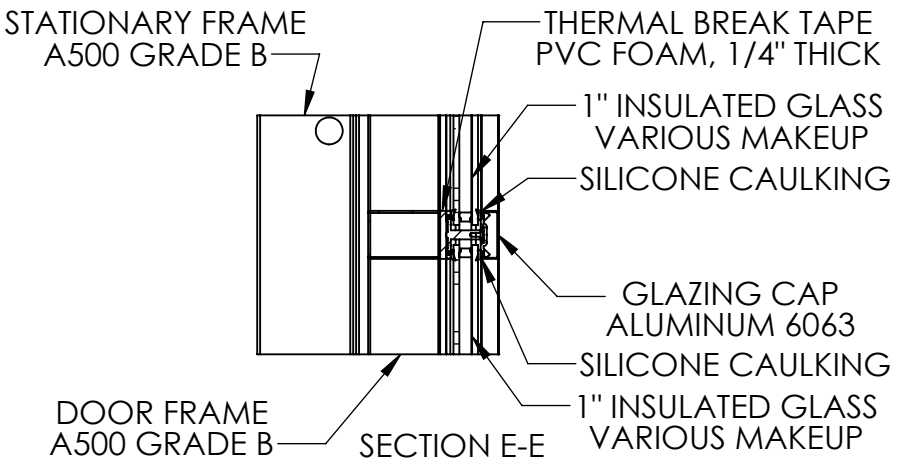
SIZE		REV
A	Door Type(s)	D

SCALE: 1:5 | WEIGHT: | SHEET 3 OF 6

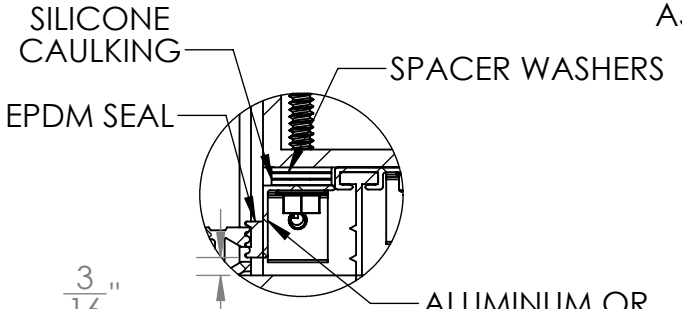
Friday, December 20, 2024 4:16:49 PM



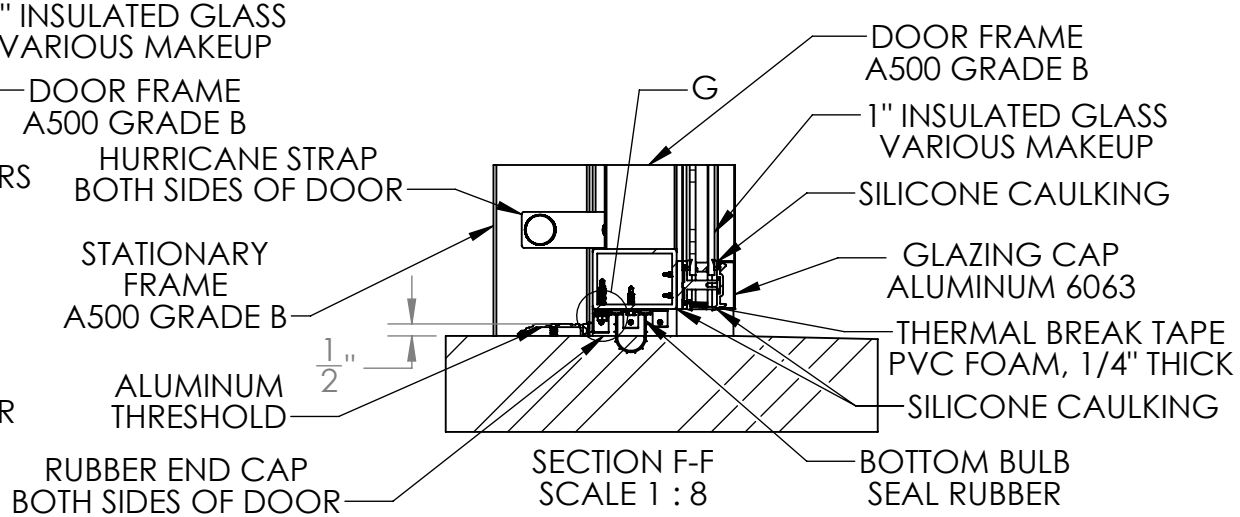
SECTION D-D
SCALE 1 : 8



SECTION E-E
SCALE 1 : 8



DETAIL G
SCALE 1 : 2



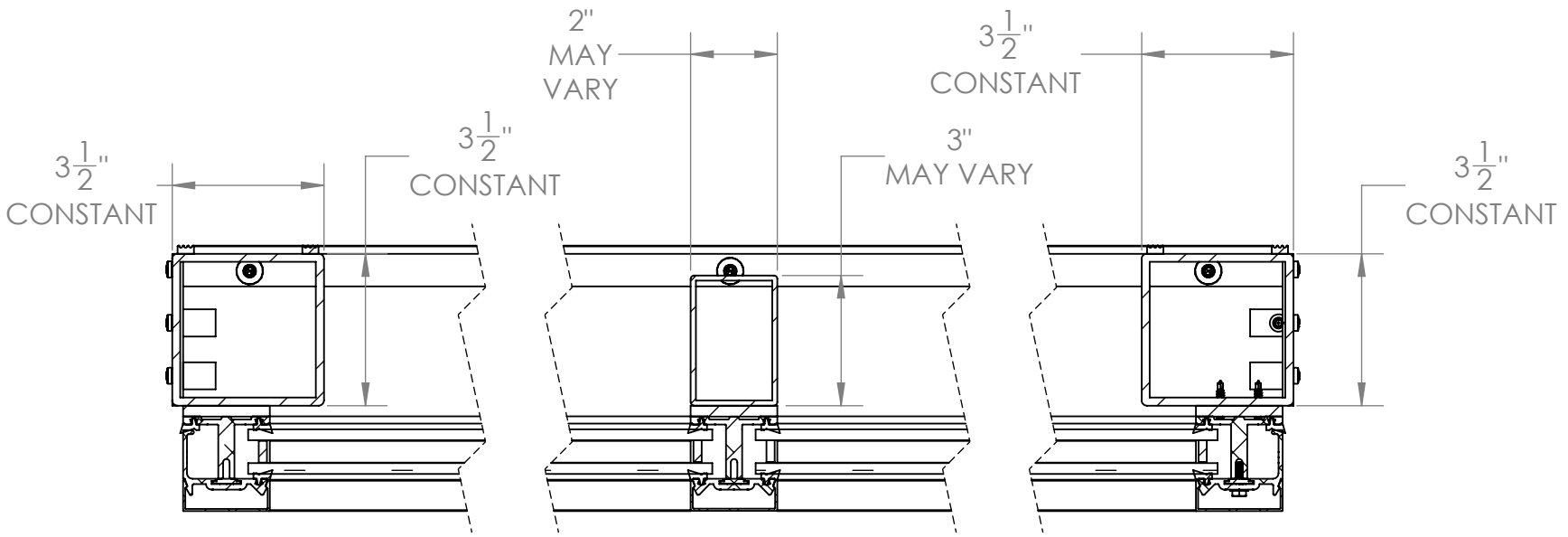
SECTION F-F
SCALE 1 : 8

UNLESS OTHERWISE SPECIFIED:			NAME	DATE	Part Number
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±		DRAWN			TITLE: Small Frame HydAway Test Door
		CHECKED			
		ENG APPR.			
		MFG APPR.			
INTERPRET GEOMETRIC TOLERANCING PER: ASME Y14. 5-2009		Q.A.			
MATERIAL		COMMENTS:			SIZE A | Door Type(s) | REV D
FINISH					
NEXT ASSY	USED ON				SCALE: 1:32 | WEIGHT: | SHEET 4 OF 6
APPLICATION	DO NOT SCALE DRAWING				

HydAway HYDRAULIC WALLS

Friday, December 20, 2024 4:16:49 PM

Typical Glazing Detail



HydAway HYDRAULIC WALLS

NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±
INTERPRET GEOMETRIC TOLERANCING PER: ASME Y14. 5-2009
MATERIAL
FINISH
DO NOT SCALE DRAWING

	NAME	DATE
DRAWN		
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		

COMMENTS:

Part Number

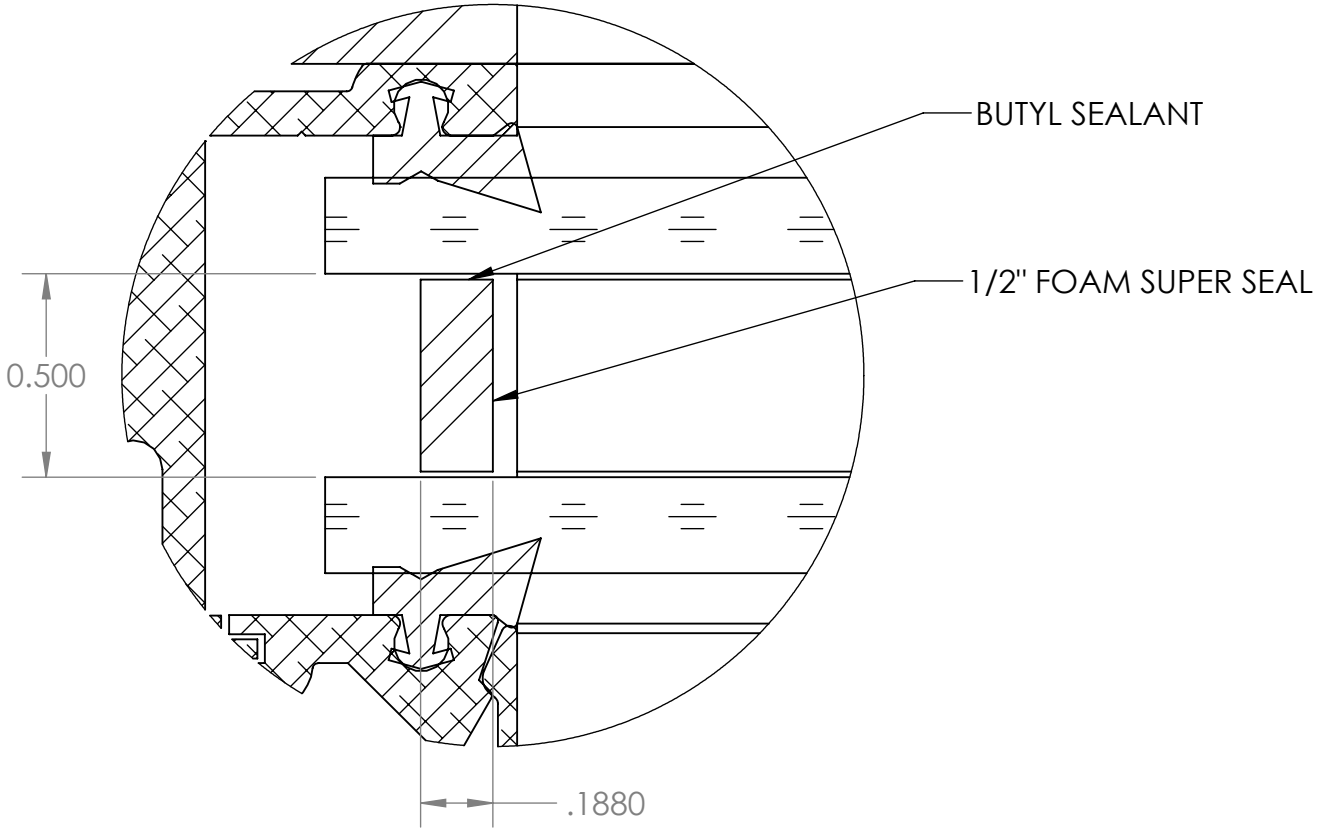
TITLE:
Small Frame HydAway Test Door

SIZE	Door Type(s)	REV
A		D

SCALE: 1:4 | WEIGHT: | SHEET 5 OF 6

Friday, December 20, 2024 4:16:49 PM

DETAIL FOR THERMAL MODELING OF FOAM GLASS SPACER



HydAway HYDRAULIC WALLS

NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±
INTERPRET GEOMETRIC TOLERANCING PER: ASME Y14. 5-2009
MATERIAL
FINISH
DO NOT SCALE DRAWING

	NAME	DATE
DRAWN		
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		

COMMENTS:

Part Number

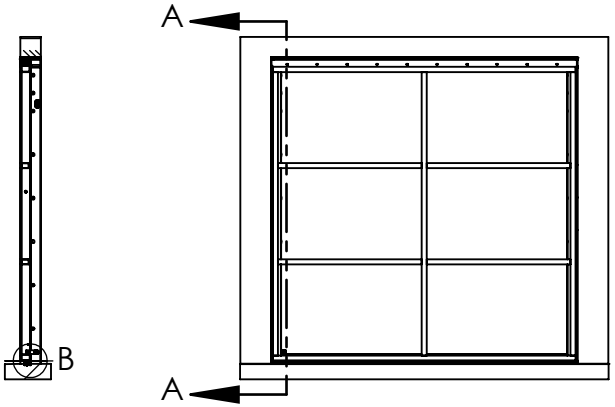
TITLE:
Small Frame HydAway Test Door

SIZE	Door Type(s)	REV
A		D

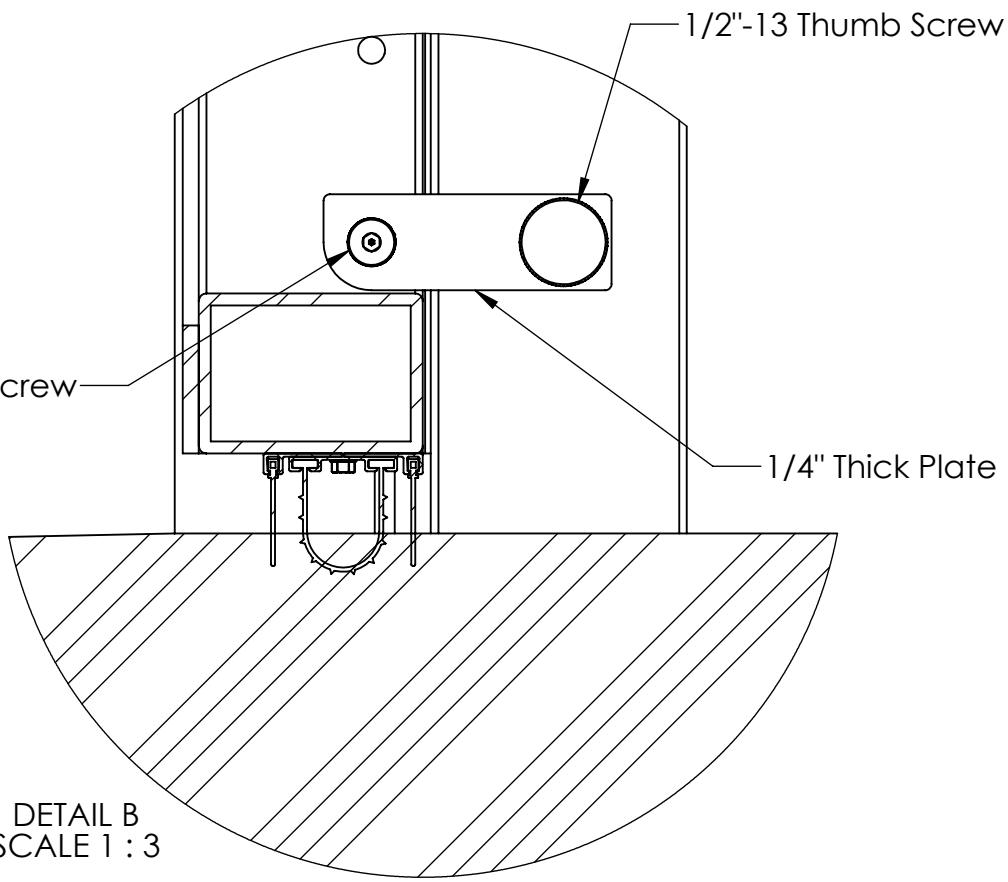
SCALE: 2:1	WEIGHT:	SHEET 6 OF 6

Friday, November 8, 2024 1:56:17 PM

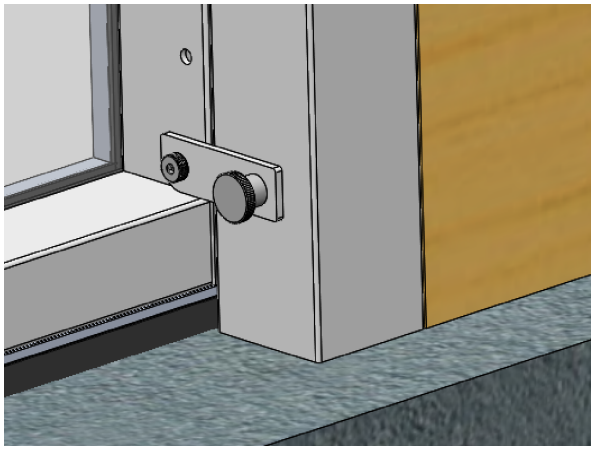
DOOR CLOSED



SECTION A-A



DETAIL B
SCALE 1 : 3



		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN		
			CHECKED		
			ENG APPR.		
			MFG APPR.		
		INTERPRET GEOMETRIC TOLERANCING PER: ASME Y14. 5-2009	Q.A.		
			COMMENTS:		
		MATERIAL			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

HydAway HYDRAULIC WALLS

Part Number

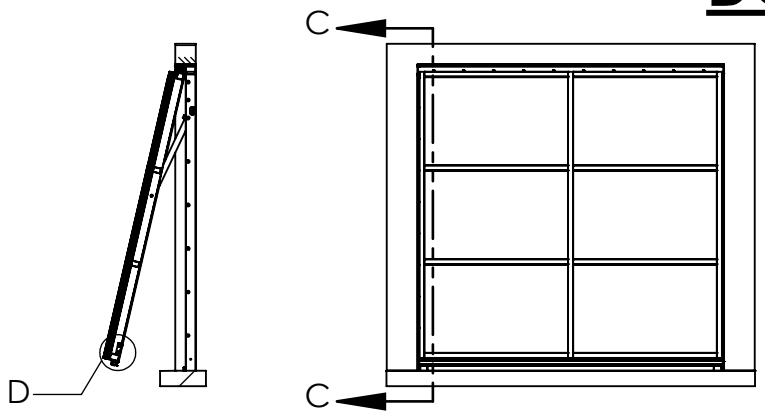
TITLE:
Hydaway Hurricane Strap Drawings

SIZE	Door Type(s)	REV
A		A

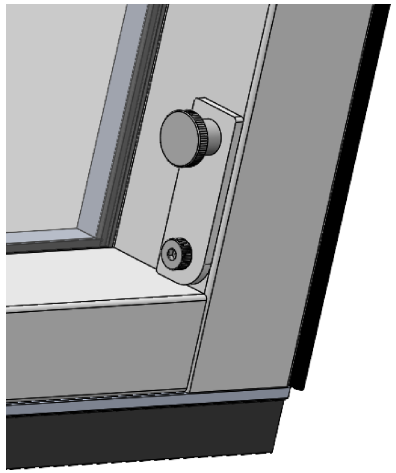
SCALE: 1:75 WEIGHT: SHEET 1 OF 2

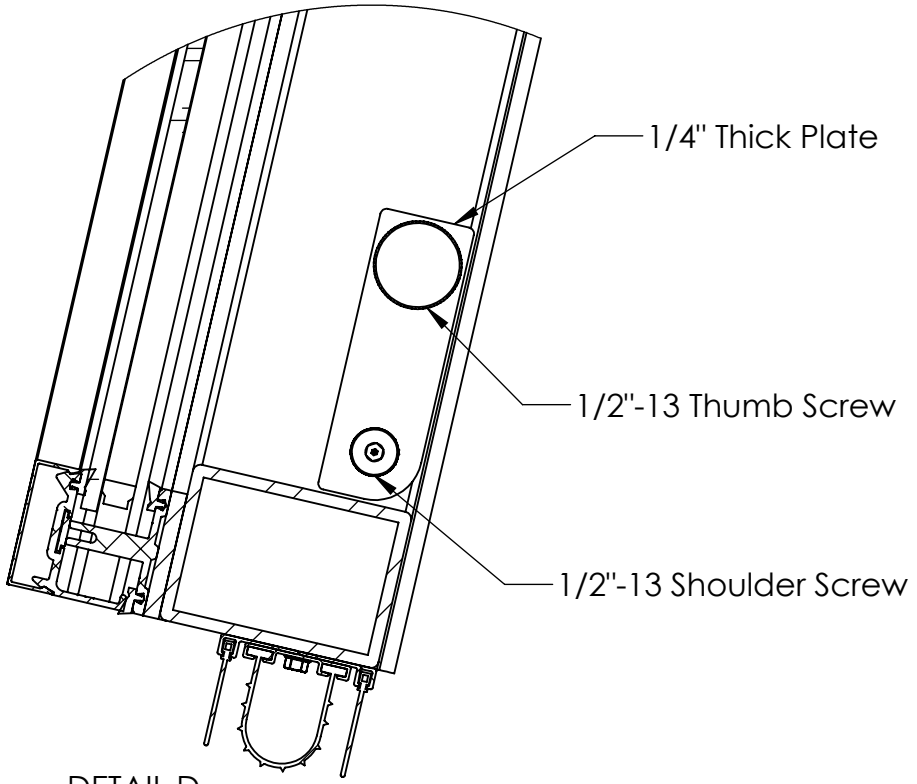
Friday, November 8, 2024 1:56:17 PM

DOOR OPEN



SECTION C-C





DETAIL D
SCALE 1 : 3

HydAway HYDRAULIC WALLS

		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN		
			CHECKED		
			ENG APPR.		
			MFG APPR.		
		INTERPRET GEOMETRIC TOLERANCING PER: ASME Y14. 5-2009	Q.A.		
			COMMENTS:		
		MATERIAL			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

Part Number

TITLE:
Hydaway Hurricane Strap Drawings

SIZE	Door Type(s)	REV
A		A

SCALE: 1:75	WEIGHT:	SHEET 2 OF 2