

FRAMELESS HARDWARE COMPANY, LLC. TEST REPORT

SCOPE OF WORK

AAMA/WDMA/CSA 101/I.S.2/A440 TESTING ON MODEL = FHC ASPIRE SIDELITE WITH TWO BAYS – FIXED WINDOW

REPORT NUMBER

R6093.01-303-44 R1

TEST DATE

10/28/24

ISSUE DATE

10/30/24

REVISION DATE

11/1/24

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14

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TEST REPORT FOR FRAMELESS HARDWARE COMPANY, LLC

Report No.: R6093.01-303-44 R1

Date: 10/30/24

REPORT ISSUED TO

FRAMELESS HARDWARE COMPANY, LLC.

4361 Firestone Blvd.
South Gate, CA 90280

SECTION 1

SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Frameless Hardware Company, LLC. – 4361 Firestone Blvd. South Gate, CA 90280 to perform testing in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 on their Model = FHC Aspire Sidelite with two bays, fixed window. Results obtained are tested values and were secured by using the designated test methods. Testing was conducted at the Intertek Inc. test facility in Lake Forest, CA 92630.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. Intertek B&C will service this report for the entire test record retention period. The test record retention period ends four years after the test date. Test records, such as detailed drawings, datasheets, or other pertinent project documentation, will be retained for the entire test record retention period.

Unless differently required, Intertek reports apply the "Simple Acceptance" rule, also called "Shared Risk approach," of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.

For INTERTEK B&C:

COMPLETED BY:	Benjamin Johns	REVIEWED BY:	Tyler Westerling P.E.
TITLE:	Project Manager Building and Construction	TITLE:	Regional Manager Building and Construction
SIGNATURE:		SIGNATURE:	
DATE:	11/01/24	DATE:	11/01/24

BAJ

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SECTION 2

SUMMARY OF TEST RESULTS

TITLE	RESULTS
AAMA/WDMA/CSA 101/I.S.2/A440-22	Class - LC – PG40 Size Tested 2184mm X 3048mm (86" X 120")
Design Pressure	±1920 Pa (±40.10 psf)
Negative Design Pressure	-1920 Pa (-40.10 psf)
Air Infiltration	<0.05 L/s/m ² (<0.01 cfm/ft ²)
Air Exfiltration	<0.05 L/s/m ² (<0.01 cfm/ft ²)
Water Penetration Resistance Test Pressure	580 Pa (12.11 psf)

SECTION 3

TEST SPECIFICATIONS/METHODS

The specimens were evaluated in accordance with the following:

AAMA/WDMA/CSA 101/I.S.2/A440:22, *North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

The following test methods were used during testing:

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*

ASTM E330/E330M-14(2021), *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

ASTM E331-00(2023), *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference*

ASTM F588-17, *Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact*

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SECTION 4

MATERIAL SOURCE/INSTALLATION

The test specimen was provided by the client. Representative samples of the test specimen will be retained by Intertek B&C for a minimum of two years from the test completion date.

The specimen was installed into a Douglas-Fir wood buck. The rough opening allowed for a 1/4" shim space and the exterior perimeter of the specimen was sealed to the test buck. The installation of the tested product was performed by the client.

LOCATION	ANCHOR DESCRIPTION	ANCHOR SPACING
Through the frame	#8 X 3" zinc coated pan head Philips wood screw	4" from the from the corners
Through the frame	#8 X 3" zinc coated pan head Philips wood screw	12" on center at the perimeter of the frame

SECTION 5

EQUIPMENT

The following equipment was utilized to apply Forced Entry Resistance (FER) loading in accordance with ASTM F588:

EQUIPMENT	ASSET NUMBER	CALIBRATION DUE DATE
Stopwatch	64988	12/27/25

A FER tool kit containing the following tools was also utilized:

- 24 gauge 0.024" thick x 0.78" wide x 3.5" long stainless-steel spatula/putty knife/non-cutting tool, unwrapped
- 6" Phillips head screwdriver [unpowered, 6 in max]
- 6" standard slot-type pliers [max 6 to 7 in (150 to 175 mm) overall length]
- Black annealed 16-gauge straight wire.

SECTION 6

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Mario Salazar	Frameless Hardware Company, LLC.
Benjamin Johns	Intertek B&C

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SECTION 7

TEST SPECIMEN DESCRIPTION

Product Type: Fixed Window

Series/Model: FHC Aspire Side-lite with 2 bays

Product Size:

Test Specimen #1

OVERALL, AREA:	WIDTH		HEIGHT	
	millimeters	inches	millimeters	inches
6.66 m ² (71.67 ft ²)				
Overall size	2184	86	3048	120

Frame Construction:

MEMBER	MATERIAL	DESCRIPTION
Head	Aluminum	Extruded
Sill	Aluminum	Extruded
Jambs	Aluminum	Extruded
Intermediate stile	Aluminum	Extruded

	JOINERY TYPE	DETAIL
All corners	Butt	Attached with screws and joint sealed with 100% silicone

Reinforcement: No reinforcement was utilized.

Weatherstripping: No weatherstripping was utilized.

Glazing: No conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimen(s) can be made.

GLASS TYPE	SPACER TYPE	INTERIOR LITE	EXTERIOR LITE	GLAZING METHOD
1" IG	Aluminum Butyl	1/4" Tempered	1/4" Tempered	Dry glazed interior and exterior

LOCATION	QUANTITY	DAYLIGHT OPENING		GLASS BITE
		millimeters	inches	
Left lite	1	1038 X 2189	40.88 X 111	1/2"
Right lite	1	1038 X 2189	40.88 X 111	1/2"

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Drainage:

METHOD	SIZE	QUANTITY	LOCATION
Weep Hole	1-1/4" wide by 3/16" high	4	1 @ 2" 1 @ 40-1/2" 1 @ 45-1/2" 1 @ 84" on center from the left jamb on the sill.

Hardware: No hardware was utilized.

SECTION 8

TEST RESULTS

The temperature during testing was (59-65°F). The results are tabulated as follows:

TITLE OF TEST	RESULTS	ALLOWED	NOTE
Air Leakage, Infiltration per ASTM E283 at 75 Pa (1.57 psf)	<0.05 L/s/m ² (<0.01 cfm/ft ²)	0.47 L/s/m ² (0.10 cfm/ft ²) max.	1, 2
Air Leakage, Exfiltration per ASTM E283 at 75 Pa (1.57 psf)	<0.05 L/s/m ² (<0.01 cfm/ft ²)	0.47 L/s/m ² (0.10 cfm/ft ²) max.	1, 2
Water Penetration, per ASTM E331 at 580 Pa (12.11 psf)	Pass	No leakage	3
Uniform Load Deflection, per ASTM E330 Deflections taken at the meeting stile +1920 Pa (+40.10 psf) -1920 Pa (40.10 psf)	57.15 mm (2.25") 56.10 mm (<2.21")	Report only Report only	4,5,6,7
Uniform Load Structural, per ASTM E330 Permanent set taken at the meeting stile + 2880 Pa (+60.15 psf) -2880 Pa (-60.15 psf)	5.84 mm (0.23") 5.08 mm (0.20")	11.18 mm (0.44") max. 11.18 mm (0.44") max.	4,5,6,7
Forced Entry Resistance, per ASTM F588, Type: D - Grade: 10	Pass	No entry	

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TITLE OF TEST	RESULTS	ALLOWED	NOTE
Uniform Load Deflection, per ASTM E330 Deflections taken at the meeting stile +1680 Pa (+35.09 psf) -1680 Pa (-35.09 psf)	 <46.74 mm (<1.84") <48.77 mm (<1.92")	 Report only Report only	 4,5,6,7
Uniform Load Structural, per ASTM E330 Permanent set taken at the meeting stile +1680 Pa (+35.09 psf) -1680 Pa (-35.09 psf)	 <0.26 mm (<0.01") 0.76 mm (<0.03")	 11.18 mm (0.44") max. 11.18 mm (0.44") max.	 4,5,6,7

Note 1: The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440 for air leakage resistance.

Note 2: Test Date 10/28/24 / Time: 8:00 AM (Air Note Only)

Note 3: Without an insect screen.

Note 4: The client opted to start at a pressure higher than the minimum required. Test results are reported under Optional Performance.

Note 5: The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440 for this product designation. The deflection data is recorded in this report for special code compliance and information only.

Note 6: Loads were held for 10 seconds.

Note 7: Tape and film not used to seal against air leakage during structural testing.

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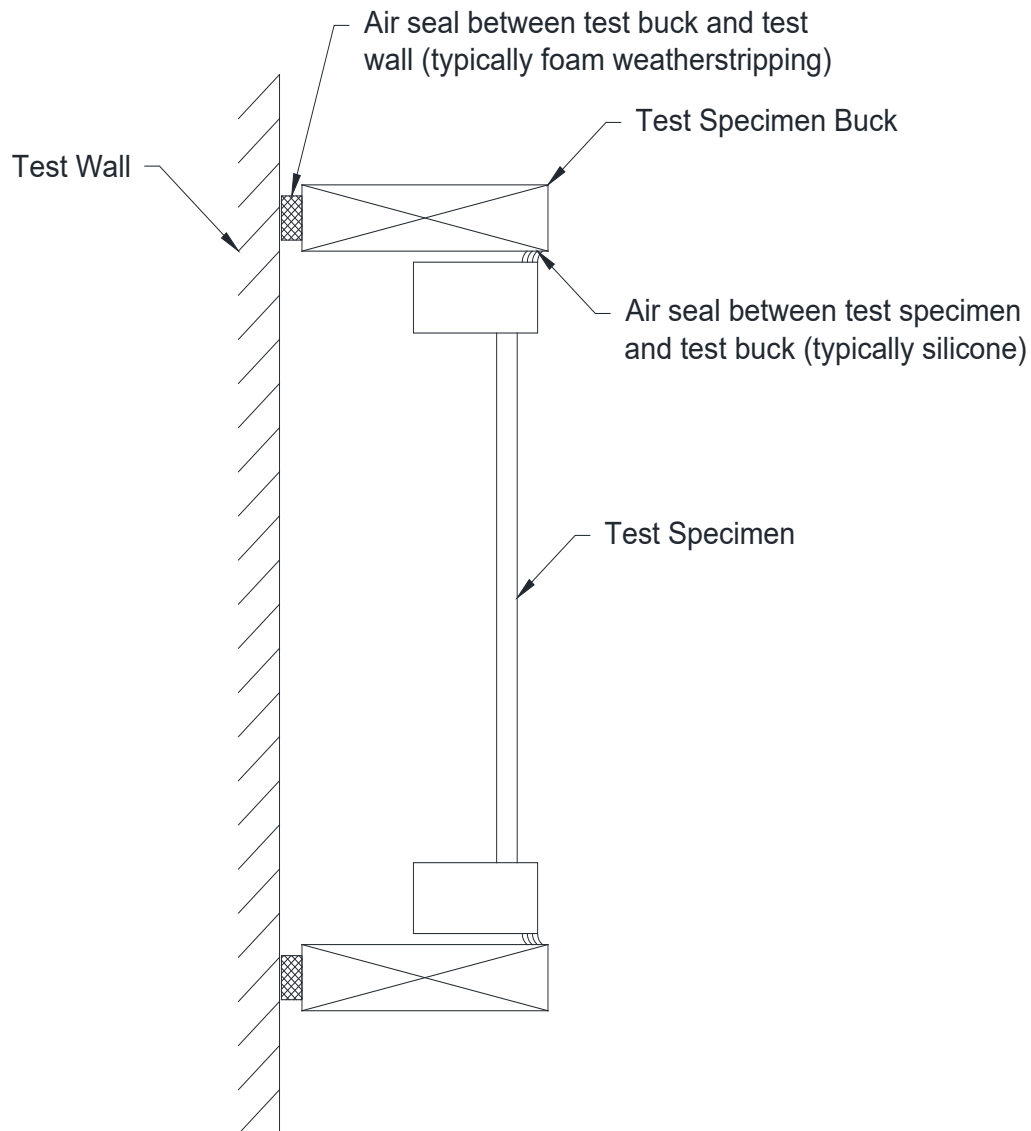
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SECTION 9

LOCATION OF AIR SEAL

The air seal between the test specimen and the test wall is detailed below. The seal is made of foam weatherstripping and is attached to the edge of the test specimen buck. The test specimen buck is placed against the test wall and clamped in place, compressing the weatherstripping and creating a seal.



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SECTION 10 CONCLUSION

The specimens tested successfully met the performance requirements for the following ratings:

TEST SPECIMEN	TITLE	SUMMARY OF RESULTS
1	AAMA/WDMA/CSA 101/I.S.2/A440:22	Class- R – PG 20 Size Tested: 2184 mm X 3048 mm (86" X 120")
1	AAMA/WDMA/CSA 101/I.S.2/A440:22	Class- LC – PG 40 Size Tested: 2184 mm X 3048 mm (86" X 120")


SECTION 11 DRAWINGS

The test specimen drawings have been reviewed by Intertek B&C and are representative of the test specimen reported herein. Test specimen construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.

Note: Complete drawings packet on file with Intertek B&C.

BILL OF MATERIALS

TYPE:	ITEM:	PART NUMBER:	DESCRIPTION:
FRAME	F1	ASVMWC0MPDU	VERTICAL MULLION AT WALL COMPOSITE DARK BRONZE
	F2	ASVMWSDU	VERTICAL MULLION AT WALL GLASS STOP DARK BRONZE
	F3	AS1VMGSDU	INTERMEDIATE VERTICAL MULLION GLASS STOP DARK BRONZE
	F4	AS1VMC0MPDU	INTERMEDIATE VERTICAL MULLION COMPOSITE DARK BRONZE
	F5	ASSR4C0MPDU	4" SIDELITE RAIL HOUSING 1" I.G. COMPOSITE DARK BRONZE
	F6	ASTSSB0C0MPSA	TOP SIDELITE SETTING BASE FOR OHCC COMPOSITE CLEAR ANODIZE
	F7	ASBSSBC0MPSA	BOTTOM SIDELITE SETTING BASE COMPOSITE CLEAR ANODIZE
CLAD	C1	ASVMWCLDSA	VERTICAL MULLION AT WALL CLADDING CLEAR ANODIZE
	C2	AS1VMCLDSA	INTERMEDIATE VERTICAL MULLION CLADDING CLEAR ANODIZE
	C3	AS4SRCLDSA	4" SIDELITE RAIL CLADDING 1" I.G. S/S 12' CLEAR ANODIZE
GASKET	G1	ASBULBSL	ASPIRE BULB SEAL FOR VERTICAL MULLIONS
	G2	7700	FHC ALUMINUM EPDM STOREFRONT GLAZING GASKET DUROMETER 70 - EMUL/CORD
HARDWARE	H1	ENDDAMCAP	16 GA ALUMINUM END DAMN
	H2	ASDJSB	DOOR JAMB SHEAR BLOCK AT SIDELITE 304 STAINLESS STEEL
	H3	AS1MSB	INTERMEDIATE MULLION SHEAR BLOCK 304 STAINLESS STEEL
SCREWS	S1	ASVMSFST	VERTICAL MULLION & JAMB STOP FASTENER
	S2	AS1MFST	INTERMEDIATE MULLION CLAMPING FASTENER
	S3	ASDJSFST	DOOR JAMB SHEAR BLOCK FASTENER
	S4	MS4334	SIDELITE RAIL FASTENER
	S5	MS4234	SIDELITE SETTING BASE FASTENER
	S6	ASVMCSFST	VERTICAL MULL & CORNER SHEAR BLOCK FASTENER
	S7	ASBWFST	SIDELITE & VERTICAL MULLION FASTENER WASHER
	S8	90294A257	#10 X 3" LONG 18-8 STAINLESS STEEL PHILLIPS FLAT HEAD SCREW FOR WOOD
MISC	M1	AS14CLRT	1" THICK INSULATED TEMP GLASS PANEL 1/4" CLEAR TEMP X 1/2" BLACK SPACER X 1/4" CLEAR TEMP
	M2	SSBN2	FHC 1/8" X 1-1/8" X 4" BLACK SILICONE 80 DUROMETER SETTING BLOCK
	M3	VHB1240	7/16 X .040 X 108' ACRYLIC VERY HI-BOND ADHESIVE TAPE
	M4	VHB110	PVC VHB ADHESIVE TAPE .010 X 1
	M5	AS1CSBFAB	1" COMPOSITE SETTING BLOCK FABRICATION
	M6	CCBR14C	FHC BACKER ROD CLOSED CELL 1/4" DIA
	M7	DC795BL	FHC 795 DOW CORNING SILICONE BUILDING SEALANT - BLACK
	M8	S150C	FHC S150 SERIES ACETIC CURE SILICONE SEALANT - CLEAR

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	Date: 10/28/24
	Verified by: 



ENGINEER STAMP

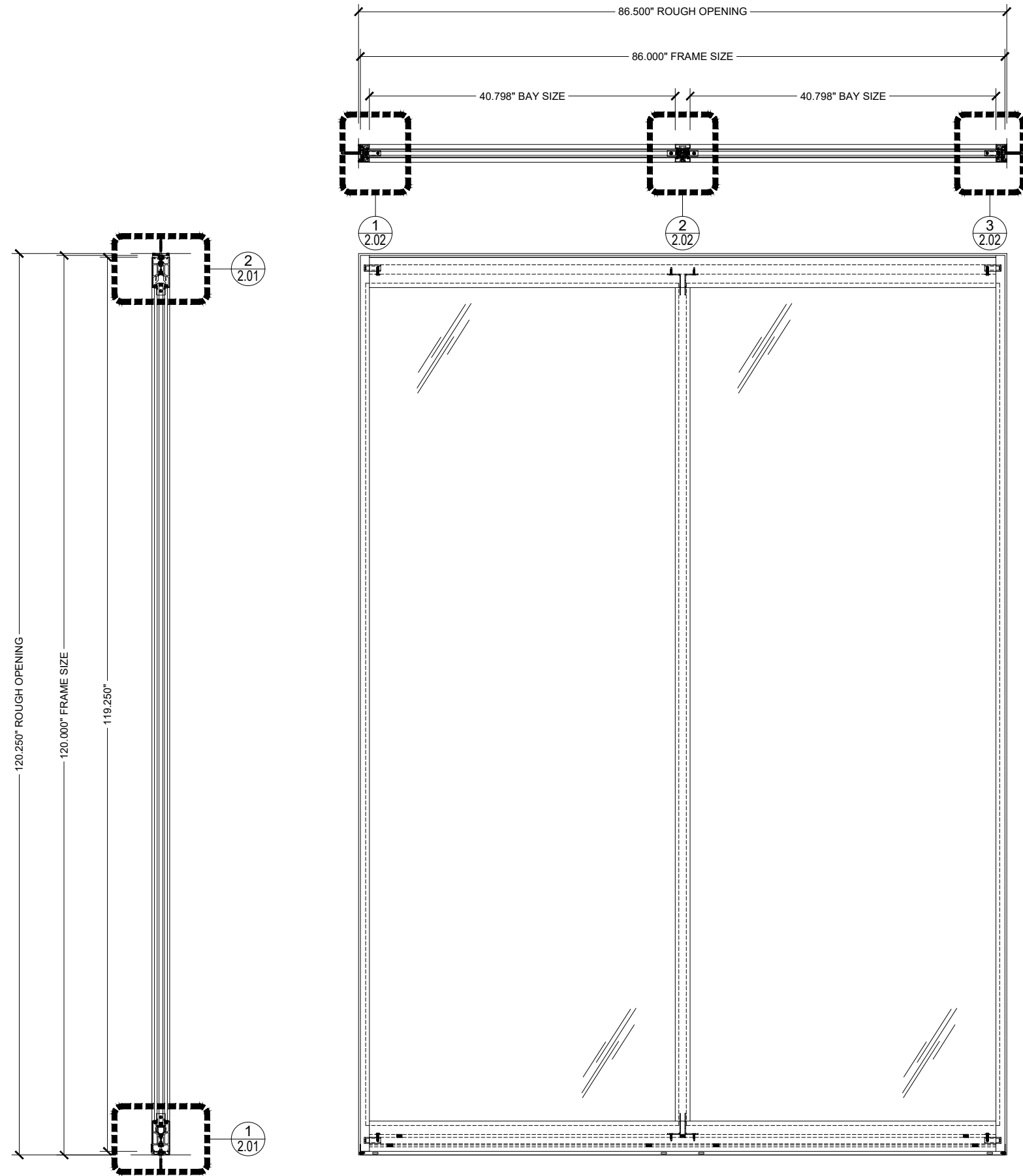
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Customer:
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 Checked By:
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intertek
Total Quality. Assured.

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Date: 10/28/24
Verified by: *Benji Akh*

① FHC ASPIRE SIDELITE SERIES ELEVATION

ARCH REF: NONE

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

Job Name: **AMS**
INTERTEK (ATI) FHC ASPIRE SIDELITE

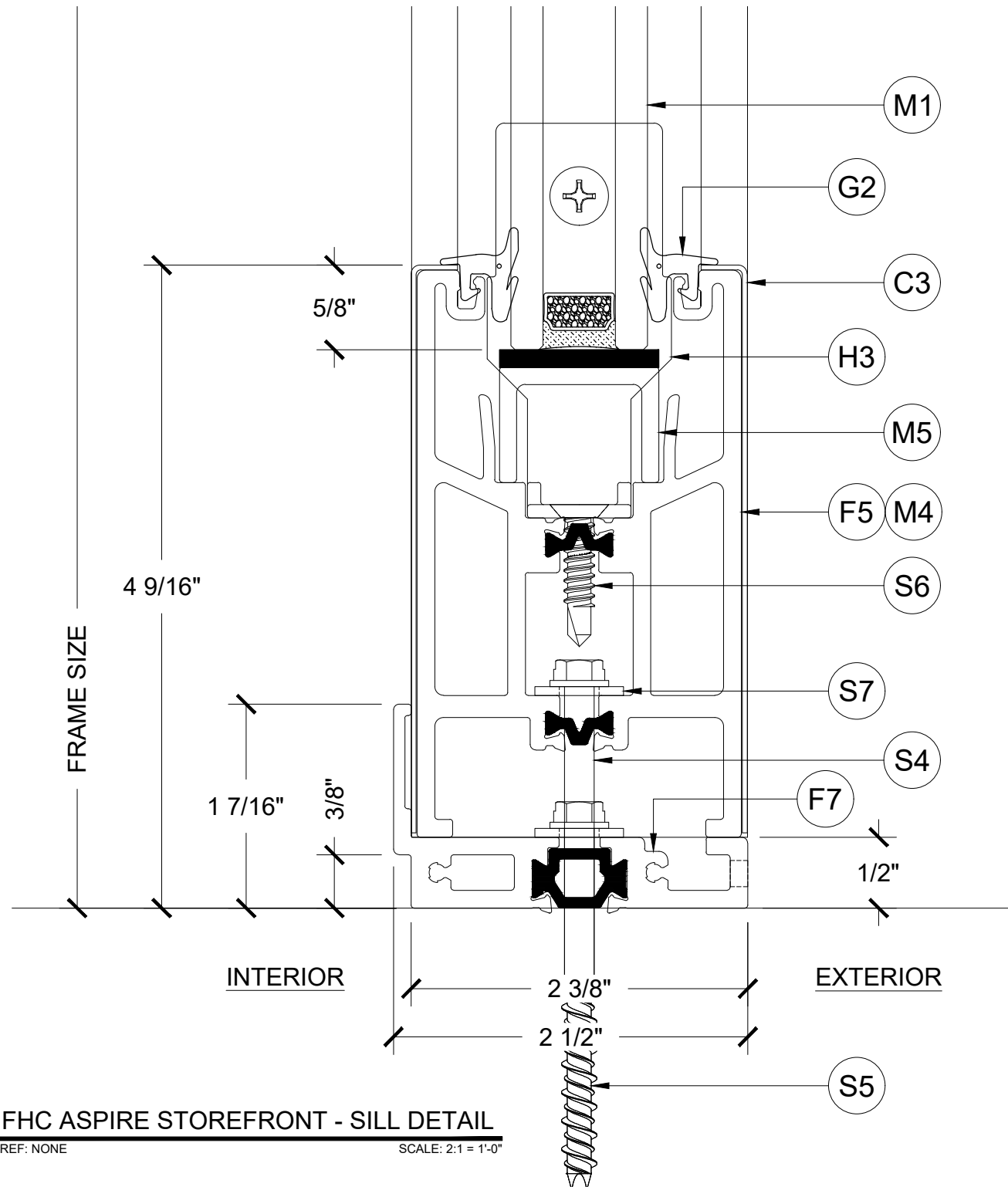
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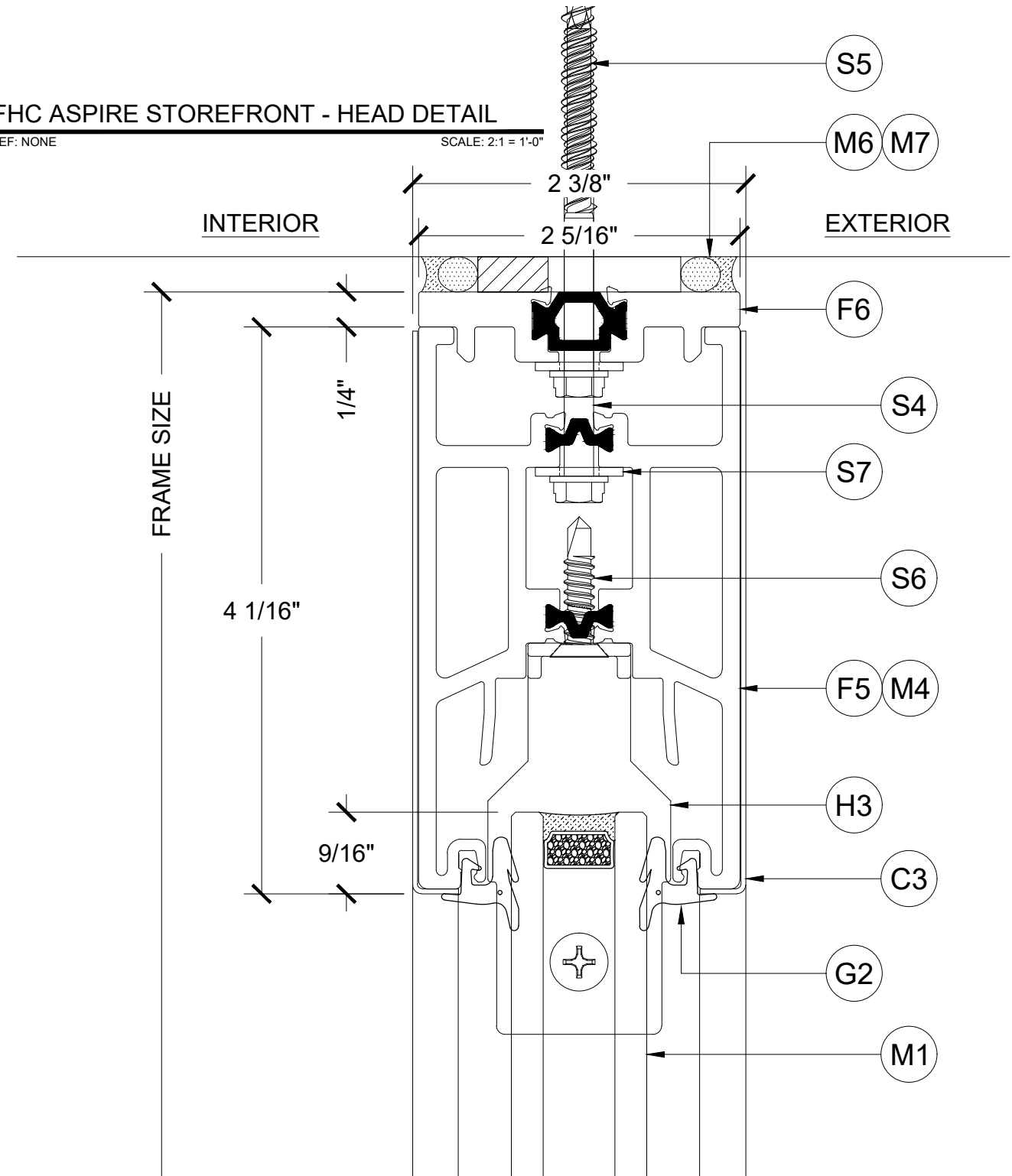
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① FHC ASPIRE STOREFRONT - SILL DETAIL
ARCH REF: NONE SCALE: 2:1 = 1'-0"

② FHC ASPIRE STOREFRONT - HEAD DETAIL
ARCH REF: NONE SCALE: 2:1 = 1'-0"



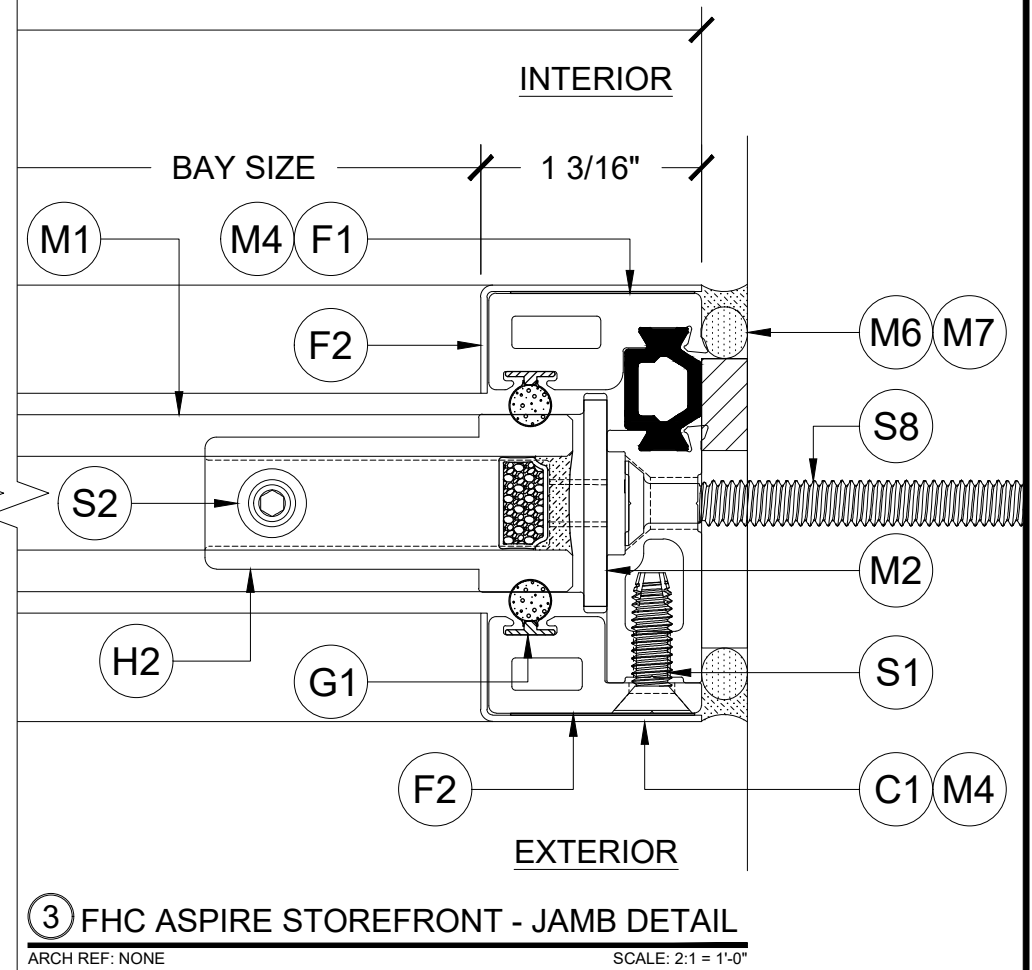
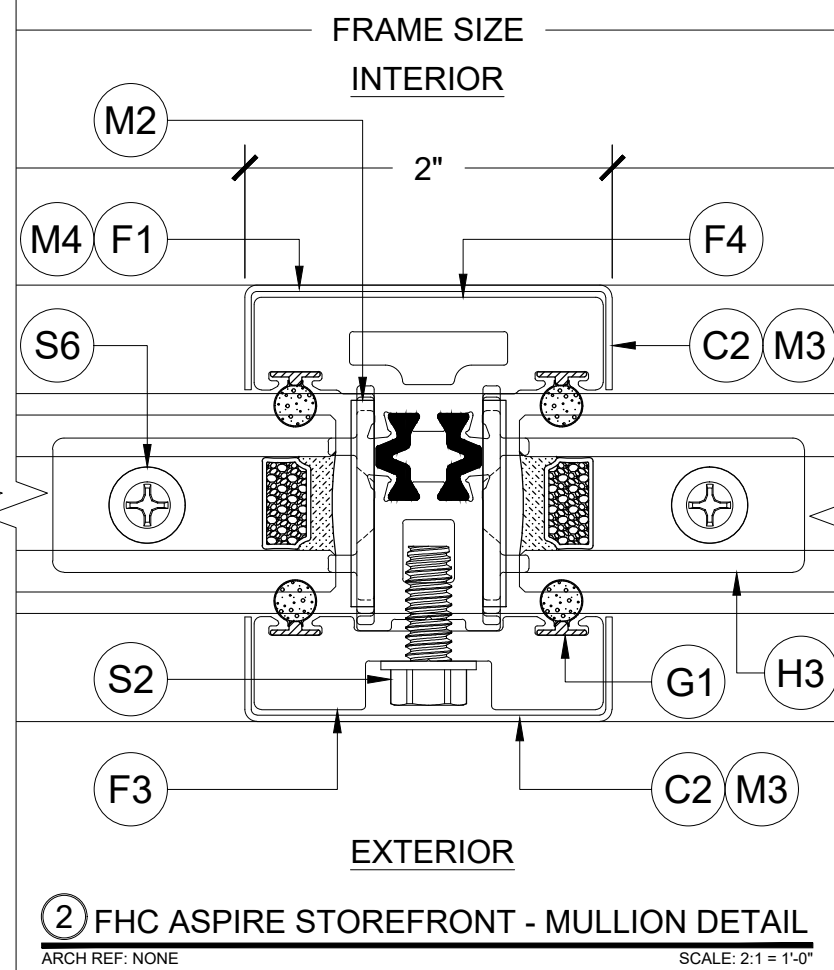
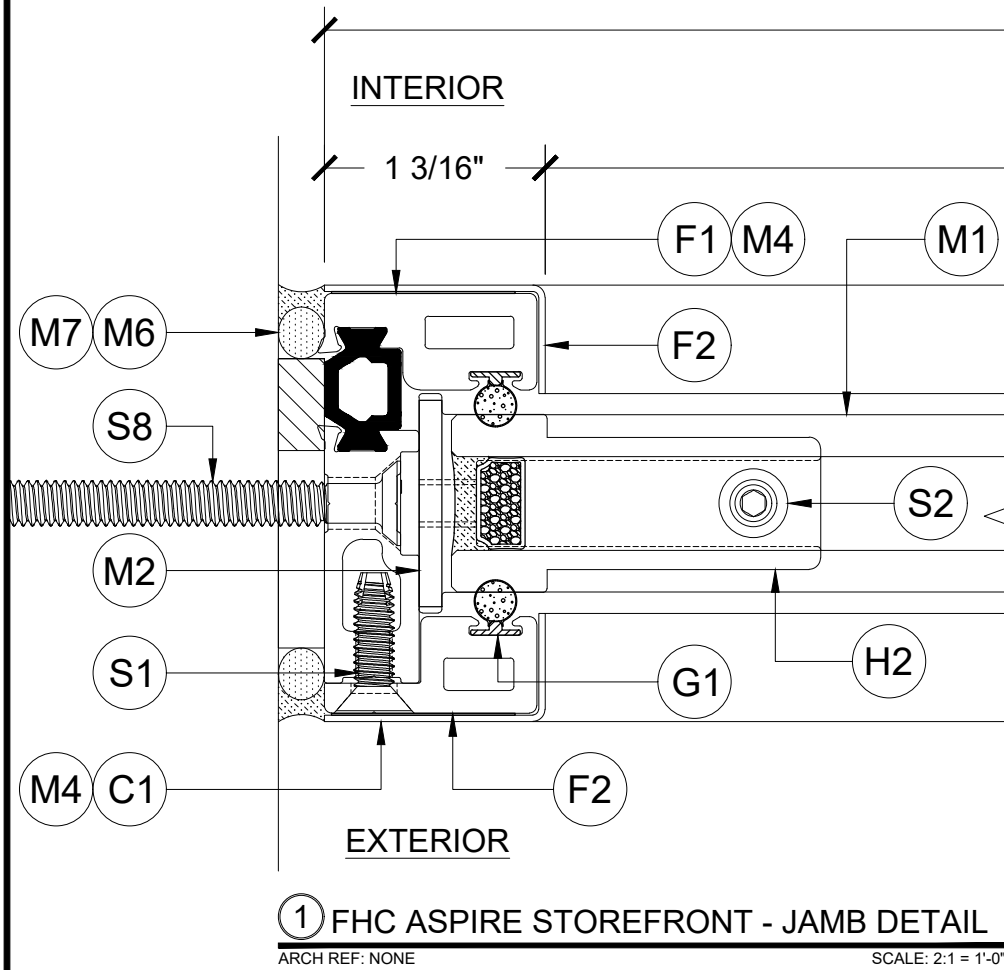
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SECTION 12

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	10/30/24	N/A	Original Report Issue
1	10/30/24	1,2,6,7 & 9	Change specimen type from door to window add deflections for a R-PG 20 per the client's request.