

Test Report



WIND AND WATER TEST TO THE REQUIREMENTS OF AS2047

CLIENT – CIVRO Building Technology (Guangdong)
Co.Ltd

PRODUCT – XWS115OU Awning Window

TESTED AT – AZUMA JIANGMEN BRANCH
LABORATORY

REPORTED BY – AZUMA TESTING LIMITED

REPORT NO. – AZHK260830

Issue Date: 4th September 2026

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1 Customer Requirements

Customer requires all applicable tests to the performance requirements of AS 2047, using the test procedures from AS/NZS 4420.1.

2 Reference Standard

- AS 2047: 2014 Windows and External Glazed Doors in Buildings
- AS/NZS 4420.1: 2016 Windows external glazed timber and composite doors - Methods of test - Test sequence, sampling and test methods

3 General Information

Test Lab/ Site No.	Azuma (Jiangmen) Testing Limited / 26054
Address	Room 101, Building 4, 80 Longxi Road, Jianghai District, Jiangmen City, China
Date(s) of Test	1 st July 2026
Test Job Number	AZJM260701
Report Issuing Lab	Azuma Testing Limited
Test Report Number	AZHK260830

3.1 Customer & Sample Information

Customer	CIVRO Building Technology (Guangdong) Co.Ltd
Customer's Address	No.3 Guandi Area, Fanhu, Leping, Sanshui CentralTechnology Park, Sanshui District, Foshan City, Guangdong,China
Window/Door Type	Awning Window
Model	XWS115OU
Test Sample Description	XWS115OU Awning Window
Number of Sample Testing	1 nos
Manufacturer (s)	CIVRO Building Technology (Guangdong) Co.Ltd
Manufacturer's Address	No.3 Guandi Area, Fanhu, Leping, Sanshui CentralTechnology Park, Sanshui District, Foshan City, Guangdong,China

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4 Test Result Summary

Test Method per AS/NZS 4420.1	Figures Recorded	Result for compliance with AS2047
Deflection Test	Positive – 1000 Pa	Pass
	Negative – 1200 Pa	Pass
Operating Force Test	160N/ 80N	Pass
Air Infiltration Test	Low	Pass
Water Penetration Resistance Test	700 Pa	Pass
Ultimate Strength Test	Positive – 2800 Pa	Pass
	Negative – 2800 Pa	Pass

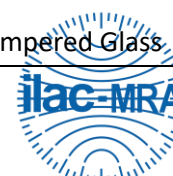
* N/A: Not Applicable

** N/T: Not Tested

5 Test Sample Description

Product Name	XWS115OU Awning Window
Model	XWS115OU
Dimension of Frame	2780mm (Height) x 4810mm (Width) x 138mm (Thickness)
Dimension of Sashes	Operable Sash 1: 1660.4mm (Height) x 1155mm (Width) Fixed panel 1: 980mm (Height) x1300 mm (Width) Fixed panel 2: 2780mm (Height) x 1890mm (Width) Fixed panel 3: 1800mm (Height) x1620 mm (Width) Fixed panel 4: 980mm (Height) x 1620mm (Width)
Glazing – Size/Type	Operable sash 1: 1524mm (Height) x 1019mm (Width) Glass Thickness: 24mm Glass Type: 6G+12A+6G Double Ultra Clear Tempered Glass Manufacturer: Sunglas Technics Co.,Ltd Fixed panel 1: 884mm (Height) x 1194mm (Width) Glass Thickness: 24mm Glass Type: 6G+12A+6G Double Ultra Clear Tempered Glass Manufacturer: Sunglas Technics Co.,Ltd Fixed panel 2: 2636mm (Height) x 1826mm (Width) Glass Thickness: 32mm Glass Type: 10G+12A+10G Double Ultra Clear Tempered Glass

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	Fixed panel 3: 1700mm (Height) x 1514mm (Width) Glass Thickness: 24mm Glass Type: 6G+12A+6G Double Ultra Clear Tempered Glass Manufacturer: Sunglas Technics Co.,Ltd Fixed panel 4: 884mm (Height) x 1514mm (Width) Glass Thickness: 24 mm Glass Type: 6G+12A+6G Double Ultra Clear Tempered Glass Manufacturer: Sunglas Technics Co.,Ltd
Flyscreen – Size/Type	None
Hardware	Name: Handle Model No.: C510021 Quantity: 1 Manufacturer: CIVRO Building Technology (Guangdong) Co.Ltd Name: lock box Model No.: C521001 Quantity: 1 Manufacturer: CIVRO Building Technology (Guangdong) Co.Ltd Name: lock bracket Model No.: C542003 Quantity: 2 Manufacturer: CIVRO Building Technology (Guangdong) Co.Ltd Name: lock rod Model No.: C542002 Quantity: 2 Manufacturer: CIVRO Building Technology (Guangdong) Co.Ltd Name: Cover for lock box Model No.: C570002 Quantity: 1 Manufacturer: CIVRO Building Technology (Guangdong) Co.Ltd Name: Friction hinge Model No.: C731025 Quantity: 1 pair Manufacturer: CIVRO Building Technology (Guangdong) Co.Ltd Name: Telescopic support hardware

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	Model No.: C554114 Quantity: 1 pair Manufacturer: CIVRO Building Technology (Guangdong) Co.Ltd Name: Run-Up Block Model No.: C554081 Quantity: 4 Manufacturer: CIVRO Building Technology (Guangdong) Co.Ltd
Drawing Identification	C1
Profile Section	Material: 6060T6 Manufacturer: Foshan Yinghui Aluminum Profile co.,LTD
Frame Corner Construction Details	See Drawings for Details
Drain holes	Size: 34mm x 4.5mm Spacing: 600mm Quantity: 4 Size: 34mm x 10.6mm Spacing: 100mm Quantity: 2 See Drawings for Details
Weep holes	Size: 34mm x 5mm Spacing: 600mm Quantity: 16 Size: ø6mm Spacing: 15mm Quantity: 6 See Drawings for Details
Gasket/Seals/Hairs	Model No.: C61008 Material: CR4305 Manufacturer: GUANGZHOU FURISING COMPOSITE MATERIAL CO., LTD
Weather Strip	Model No.: C351004 Material: EPDM Manufacturer: JIANGYIN HAIDA RUBBER & PLASTIC CO.,LTD. Model No.: C355001 Material: EPDM Manufacturer: JIANGYIN HAIDA RUBBER & PLASTIC CO.,LTD. Model No.: C358012 Material: EPDM Manufacturer: JIANGYIN HAIDA RUBBER & PLASTIC CO.,LTD.

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	Model No.: C358014 Material: EPDM Manufacturer: JIANGYIN HAIDA RUBBER & PLASTIC CO.,LTD. Model No.: C358010 Material: EPDM Manufacturer: JIANGYIN HAIDA RUBBER & PLASTIC CO.,LTD. Model No.: C355054 Material: EPDM Manufacturer: Foshan Shunde Wingkay Plastic Products Co., Ltd. Model No.: C355052 Material: EPDM Manufacturer: JIANGYIN HAIDA RUBBER & PLASTIC CO.,LTD. Model No.: C350008 Material: EPDM Manufacturer: Foshan Shunde Wingkay Plastic Products Co., Ltd. See Drawings for Details
Glass Retention	Gasket sealing Model No.: C358010 Material: EPDM Manufacturer: JIANGYIN HAIDA RUBBER & PLASTIC CO.,LTD. Model No.: C358014 Material: EPDM Manufacturer: JIANGYIN HAIDA RUBBER & PLASTIC CO.,LTD. Model No.: C811015 Material: Hydroxy-terminated polydimethylsiloxane Manufacturer: Guangzhou jitai chemical industry co., ltd Sealant Locations: 1、 Handle position 2、 Bottom corner under cover plate
Thermal Break	Model No.: C422201 Material: PA66+GF25 Manufacturer: Ensinger(China)Co., Ltd Model No.: C422204 Material: PA66+GF25 Manufacturer: Ensinger(China)Co., Ltd Model No.: C421202 Material: PA66+GF25

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	Manufacturer: Ensinger(China)Co., Ltd
Sub Head and Sub Sill Used	Yes See Drawings for Details
Reinforcement	None
Fillers	None
Installation	The exterior perimeter of the test specimen was sealed with silicone sealant
Support Fixings	The test specimen and frame were fixed securely onto the test rig using screws fixings.

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6 Procedures

6.1 Deflection Test

1. The test sample shall be operative and pre-loaded as described in AS/NZS 4420.1:2016.
2. The pre-load pressure shall be removed and the zero position of the displacement measuring devices recorded.
3. Differential pressures in the same direction shall then be applied across the test sample in not less than four approximately equal increments until the test pressure is reached. The pressure shall be held for at least 1 min at each pressure increment, and the readings of the displacement measuring devices recorded before the pressure is increased.
4. The differential pressure shall be removed and after 2 min the zero displacement readings shall be taken.
5. The direction of the air pump or test sample shall be reversed and Steps (1) to (4) shall be repeated using the opposite test loading.

6.2 Operating Force Test

1. With the window closed, but unlocked, an operating force shall be applied, without shock, in the plane and direction of the sash operation.
2. For both directions of sash travel, the following forces shall be noted and recorded:
 - (a) That capable of setting the sash in motion.
 - (b) That capable of maintaining the motion after the sash frame is clear of the perimeter frame of the test sample.
3. Each sliding sash of the test sample is tested separately.
4. For horizontally sliding sashes, the force shall be applied either at the position of a fixed handle, or at one-third of the height of the pull stile above the sill for continuous or adjustable handgrips.
5. For vertically sliding sashes, the force shall be applied at the sash pulls or at the midpoint of the bottom rail, or at the position nominated by the manufacturer.

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6.3 Air Infiltration Test

1. Operation and pre-loading as described in AS/NZS 4420.1: 2016.
2. The face of the test sample shall then be sealed airtight by covering it with an impervious film. If this is not practicable, all joints, weep holes, and glazing or sealant lines of the test sample shall be sealed with impervious adhesive tape.
3. Positive and negative test pressures shall then be applied, and the base air infiltration rates through the test apparatus shall be determined by air flow meter.
4. The sealing film or tape shall be removed from the test sample and the air infiltration rates determined. The air infiltration through the test sample shall be the difference between the base and total readings.

6.4 Water Penetration Resistance Test

1. The test sample shall be subjected to water sprayed uniformly and continuously over the exterior face of the test sample at a rate not less than $0.05 \text{ L/m}^2\text{s}$. At the start of the test, the water sprays shall operate for 5 min with zero air pressure differential on the test sample.
2. The test pressure shall be applied and maintained for 15 min with the water sprays still operating. The visible internal surfaces of the test sample shall be inspected throughout the water spray operation.
3. Any water appearing on the inside surfaces of the test sample shall be noted and recorded, with the extent and, if possible, the source of penetration of uncontrolled water. Uncontrolled water shall be as defined in AS 2047.
4. The pressure and water sprays shall then be removed from the test sample.

6.5 Ultimate Strength Test

1. The test sample shall be subjected to a smoothly increasing differential pressure up to the test pressure determined in Clause 6.1, conducted individually in both positive and negative directions.
2. The time taken to reach the structural test pressure shall be approximately 1 min. Test pressure shall be maintained on the test sample for a period of 10 s.
3. If a sponsor requires incremental tests, each increment shall represent a separate test requiring 10 s duration.
4. At the conclusion of the test at each loading, the test sample shall be inspected and any signs of deformity or damage or collapse of the test sample noted and recorded.

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7 Results

7.1 Test for Operation

☒ The test specimen has been opened and closed for 5 times and operates well.

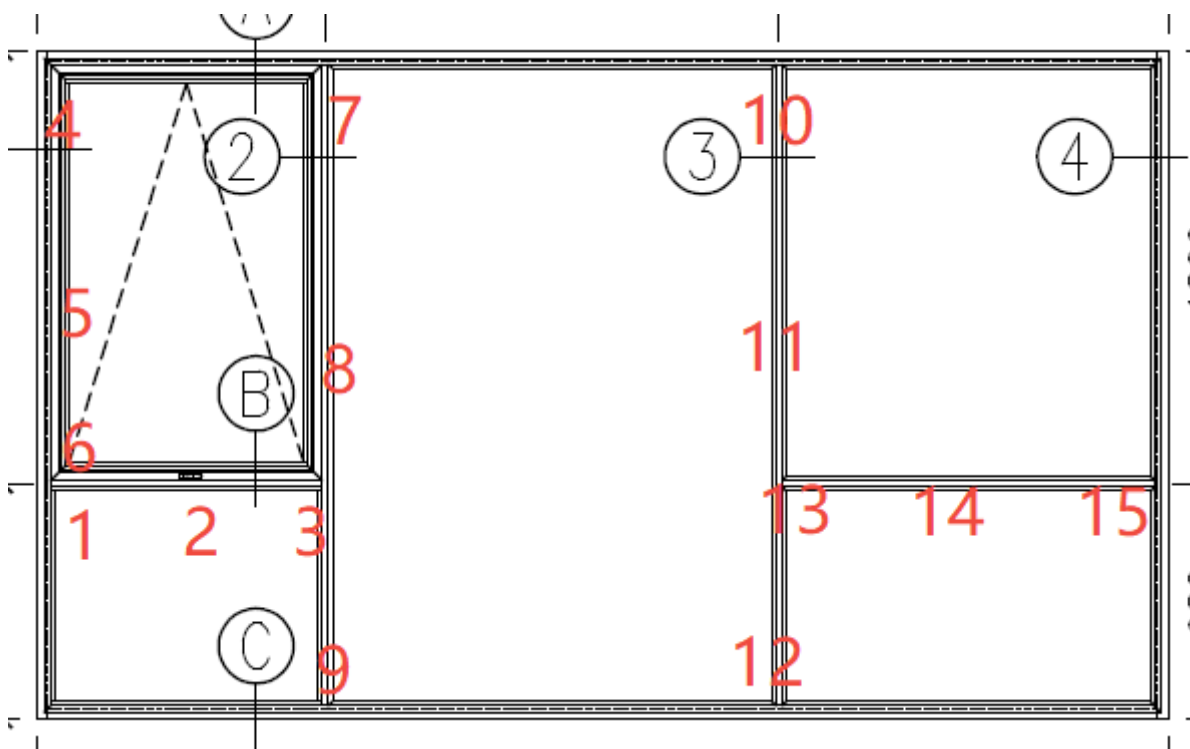
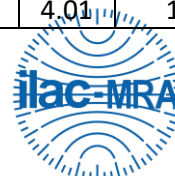


Figure 1 Transducer Locations

7.2 Deflection Test

Setup 1								
Structural Member	Transom							
Span Length	1180 mm							
Transducers Used	1,2,3							
Maximum Allowable Deflection	4.72 mm							
Direction	Positive				Negative			
Pressure (Pa)	1 (mm)	2 (mm)	3 (mm)	Net Deflection (mm)	1 (mm)	2 (mm)	3 (mm)	Net Deflection (mm)
200 Pa	0.38	1.58	2.64	1.13	0.16	0.71	1.20	0.52
400 Pa	0.55	2.39	4.02	1.74	0.35	1.50	2.51	1.08
600 Pa	0.84	3.54	5.95	2.56	0.57	2.42	4.01	1.72

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800 Pa	1.27	5.30	8.87	3.80	0.90	3.63	5.98	2.54
1000 Pa	1.72	7.00	11.71	5.00	1.80	5.76	9.23	3.72
1200Pa					2.94	8.18	12.75	4.91
Span Ratio	Positive - 236				Negative - 241			
Result	Positive - Pass				Negative - Pass			

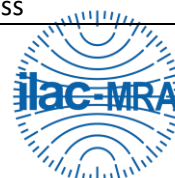
Setup 2

Structural Member	Awning Stile							
Span Length	1560 mm							
Transducers Used	4,5,6							
Maximum Allowable Deflection	6.24 mm							
Direction	Positive				Negative			
Pressure (Pa)	4 (mm)	5 (mm)	6 (mm)	Net Deflection (mm)	4 (mm)	5 (mm)	6 (mm)	Net Deflection (mm)
200 Pa	1.27	1.22	0.57	0.35	0.31	0.37	0.17	0.13
400 Pa	2.22	2.16	1.07	0.58	0.81	1.08	0.67	0.34
600 Pa	2.81	2.84	1.56	0.66	1.19	1.88	1.32	0.63
800 Pa	3.40	3.48	1.96	0.80	1.52	2.77	2.13	0.95
1000 Pa	3.95	4.12	2.45	0.92	1.83	3.66	2.91	1.29
1200 Pa	5.39	5.63	3.64	1.12	2.09	4.52	3.69	1.63
Span Ratio	Positive - 1399				Negative - 957			
Result	Positive - Pass				Negative - Pass			

Setup 3

Structural Member	Mullion							
Span Length	2650 mm							
Transducers Used	7,8,9							
Maximum Allowable Deflection	10.60 mm							
Direction	Positive				Negative			
Pressure (Pa)	7 (mm)	8 (mm)	9 (mm)	Net Deflection (mm)	7 (mm)	8 (mm)	9 (mm)	Net Deflection (mm)
200 Pa	3.37	3.25	0.30	1.54	1.21	1.31	0.09	0.66
400 Pa	5.92	5.67	0.68	2.62	2.72	3.02	0.28	1.52
600 Pa	7.74	7.56	1.02	3.36	4.26	5.36	1.44	2.51
800 Pa	9.58	9.51	1.33	4.13	5.61	8.16	3.67	3.52
1000 Pa	11.15	11.25	1.83	4.76	6.71	10.66	5.84	4.39
1200 Pa	14.54	15.48	4.44	5.99	7.72	12.96	7.77	5.22
Span Ratio	Positive - 442				Negative - 508			
Result	Positive - Pass				Negative - Pass			

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Setup 4

Structural Member	Mullion							
Span Length	2650 mm							
Transducers Used	10,11,12							
Maximum Allowable Deflection	10.60 mm							
Direction	Positive				Negative			
	10 (mm)	11 (mm)	12 (mm)	Net Deflection (mm)	10 (mm)	11 (mm)	12 (mm)	Net Deflection (mm)
Pressure (Pa)								
200 Pa	3.39	3.59	0.35	1.72	1.22	1.47	0.11	0.81
400 Pa	6.16	6.34	0.72	2.90	2.75	3.42	0.31	1.89
600 Pa	6.77	7.58	0.80	3.80	4.41	6.20	1.60	3.20
800 Pa	7.10	8.89	0.84	4.92	5.94	9.53	4.33	4.40
1000 Pa	7.42	10.69	1.14	6.41	7.23	12.62	7.13	5.44
1200 Pa	7.97	15.35	4.28	9.23	8.44	15.46	9.53	6.48
Span Ratio	Positive - 287				Negative - 409			
Result	Positive - Pass				Negative - Pass			

Setup5

Structural Member	Transom							
Span Length	1540 mm							
Transducers Used	13,14,15							
Maximum Allowable Deflection	6.16 mm							
Direction	Positive				Negative			
	13 (mm)	14 (mm)	15 (mm)	Net Deflection (mm)	13 (mm)	14 (mm)	15 (mm)	Net Deflection (mm)
Pressure (Pa)								
200 Pa	2.81	1.83	0.42	1.20	1.41	0.93	0.16	0.63
400 Pa	4.71	3.06	0.64	2.04	2.85	1.87	0.38	1.24
600 Pa	6.62	4.30	0.89	2.87	5.24	3.44	0.75	2.25
800 Pa	10.35	6.80	1.88	4.24	8.94	5.94	1.74	3.60
1000 Pa	4.64	9.68	3.13	5.80	12.09	8.12	2.64	4.73
1200 Pa	17.42	11.50	3.68	6.87	14.97	10.09	3.38	5.80
Span Ratio	Positive - 224				Negative - 266			
Result	Positive - Pass				Negative - Pass			

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7.3 Operating Force Test

Movement Type	Panel	Opening Force (N)	Closing Force (N)	Allowable (N)	Result
Initiating	Operable Sash	42.6 N	49.8 N	≤ 160 N	Pass
Sustaining	Operable Sash	13.7 N	32.4 N	≤ 80 N	Pass

7.4 Air Infiltration Test

Barometric Pressure	101250 Pa
Air Temperature	31.7 °C
Overall Area	13.37 m ²

Pressure	Sealed	Unsealed	Net Leakage
Positive - 75 Pa	49.75 Ls ⁻¹	52.64 Ls ⁻¹	2.90 Ls ⁻¹
Negative - 75 Pa	56.01 Ls ⁻¹	58.99 Ls ⁻¹	2.98 Ls ⁻¹

Air Infiltration Level	Direction	Allowable	Actual	Result
Low	Positive Negative	≤ 1 Ls ⁻¹ m ⁻²	0.22 Ls ⁻¹ m ⁻² 0.22 Ls ⁻¹ m ⁻²	Pass
High	Positive Only	≤ 5 Ls ⁻¹ m ⁻²	0.22 Ls ⁻¹ m ⁻²	Pass

7.5 Water Penetration Resistance Test

Wet Down Complete – 5 minutes	Yes
Maximum Pressure Applied to Sample	700 Pa
Time Pressure Held for	15 minutes
Leakages Observed	Nil
Observations	No Observable Leakage

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Jianghai District, Jiangmen City, China
M: info@azuma.com.hk

7.6 Ultimate Strength Test

Maximum Pressure Applied to Sample	Positive – 2800 Pa Negative – 2800 Pa
Time Pressure Held for	10 seconds
Compliant with AS2047 Clause 2.3.1.7	Yes
Observations	No Observable Damage

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7.7 Photos



Figure 2 Photo of Test Specimen Closed (Interior)



Figure 3 Photo of Test Specimen Open (Interior)

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Jianghai District, Jiangmen City, China
M: info@azuma.com.hk



Dennis CM (2026 14:13:07 GMT+8)

Figure 4 Photo of Test Specimen Open (Exterior)



Dennis CM (2026 14:13:07 GMT+8)

Figure 5 Photo of Test Specimen Closed (Exterior)

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Figure 6 Photo of Hardware Details

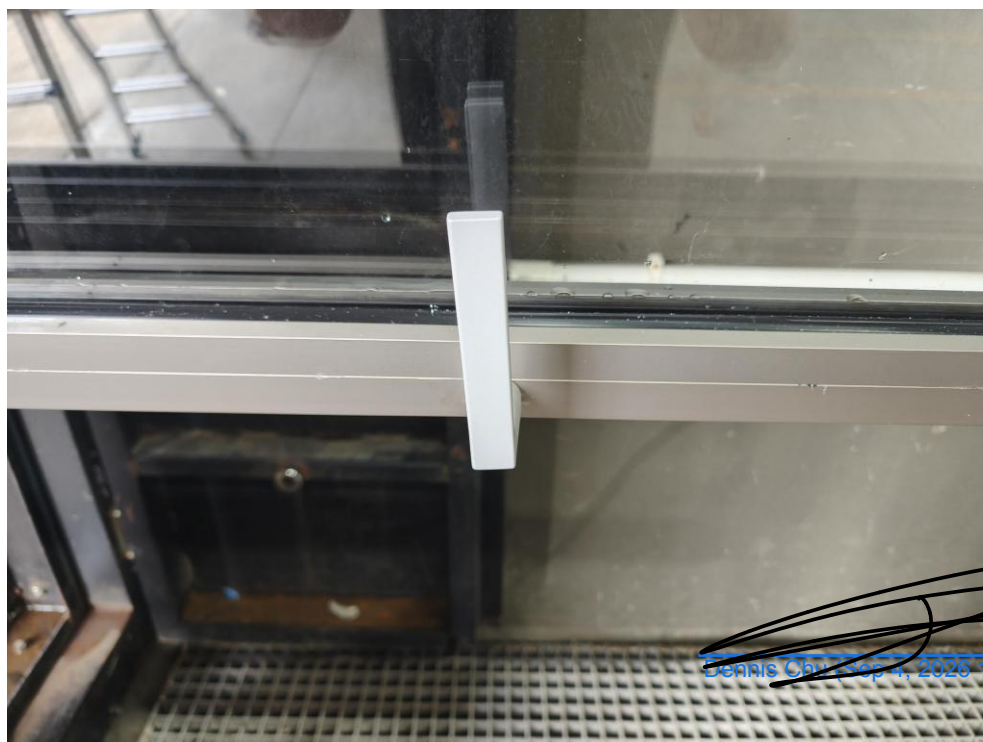


Figure 7 Photo of Hardware Details

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Figure 8 Photo of Hardware Details



Figure 9 Photo of Hardware Details

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Figure 10 Photo of Drain Holes Detail



Figure 11 Photo of Drain Holes Detail

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Figure 12 Photo of Weep Holes Detail

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Jianghai District, Jiangmen City, China
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8 Signatories

Tested By: **Dennis Chu**

Signature: _____

Date: **4th September 2026**

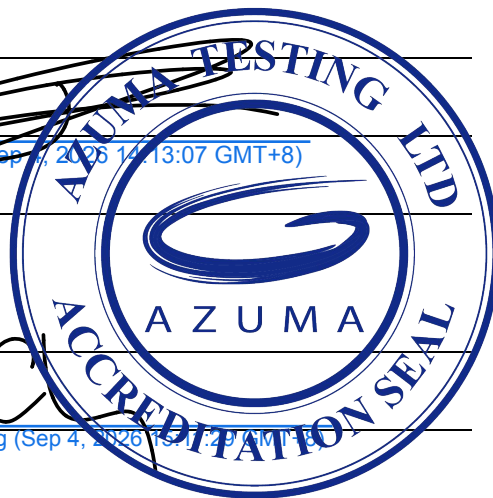
Dennis Chu (Sep 4, 2026 14:13:07 GMT+8)

Checked By: **George Cheung**

Signature: _____

Date: **4th September 2026**

George Cheung (Sep 4, 2026 15:12:29 GMT+8)



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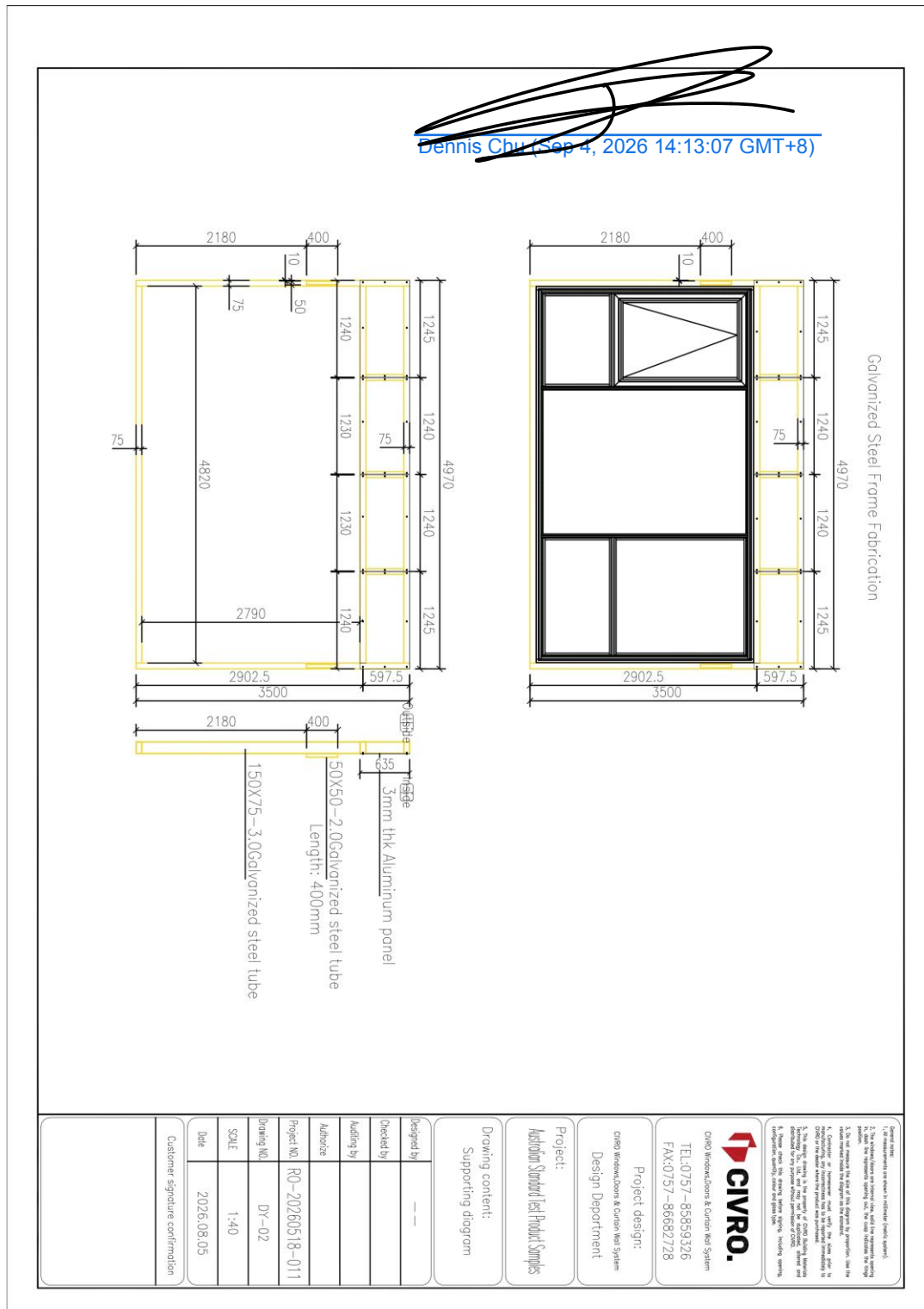


Figure 14 Drawing of Test Specimen Elevations

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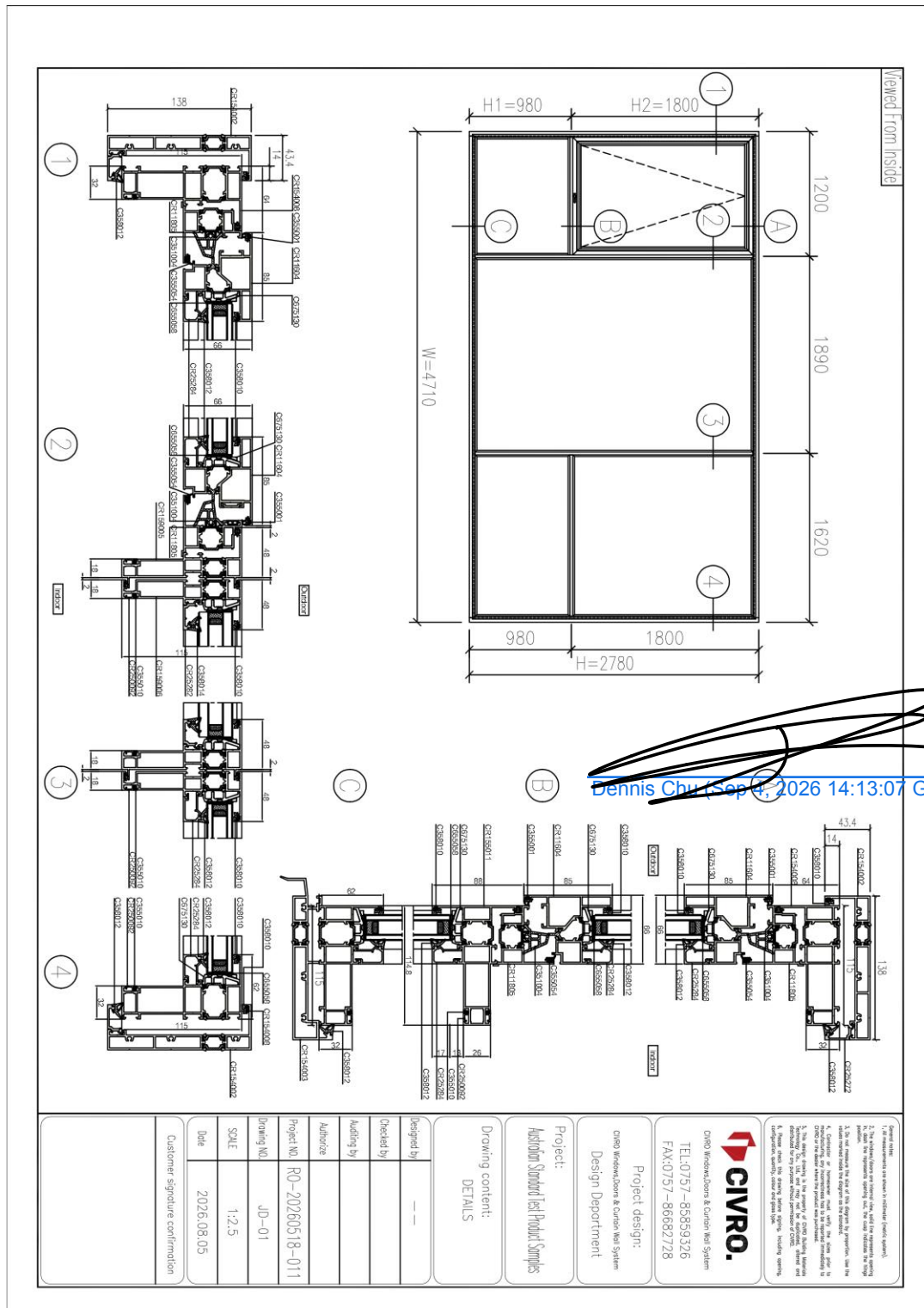


Figure 15 Drawing of Test Specimen Elevations and Test Specimen Cross Sections

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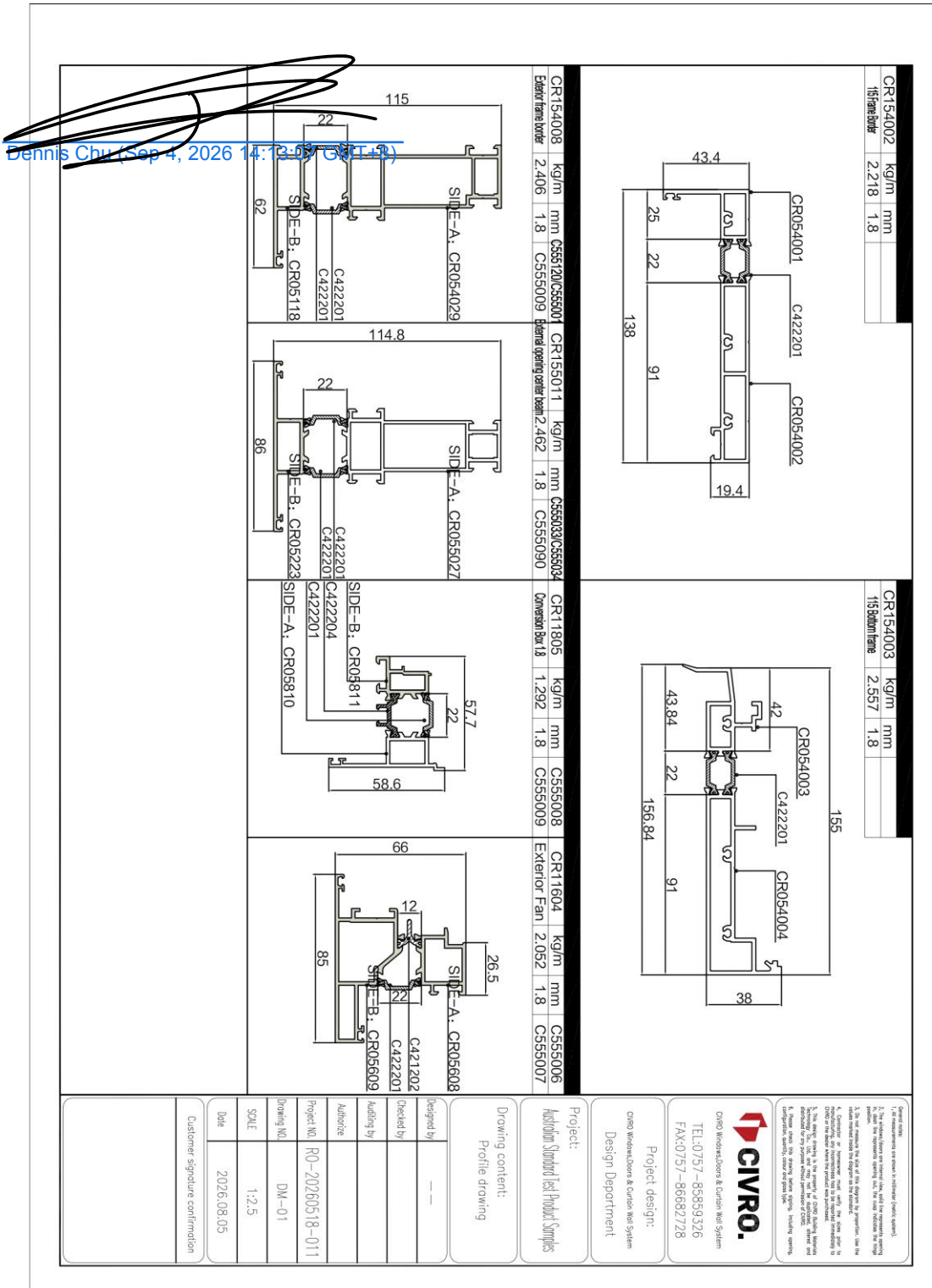


Figure 16 Drawing of Profile Details

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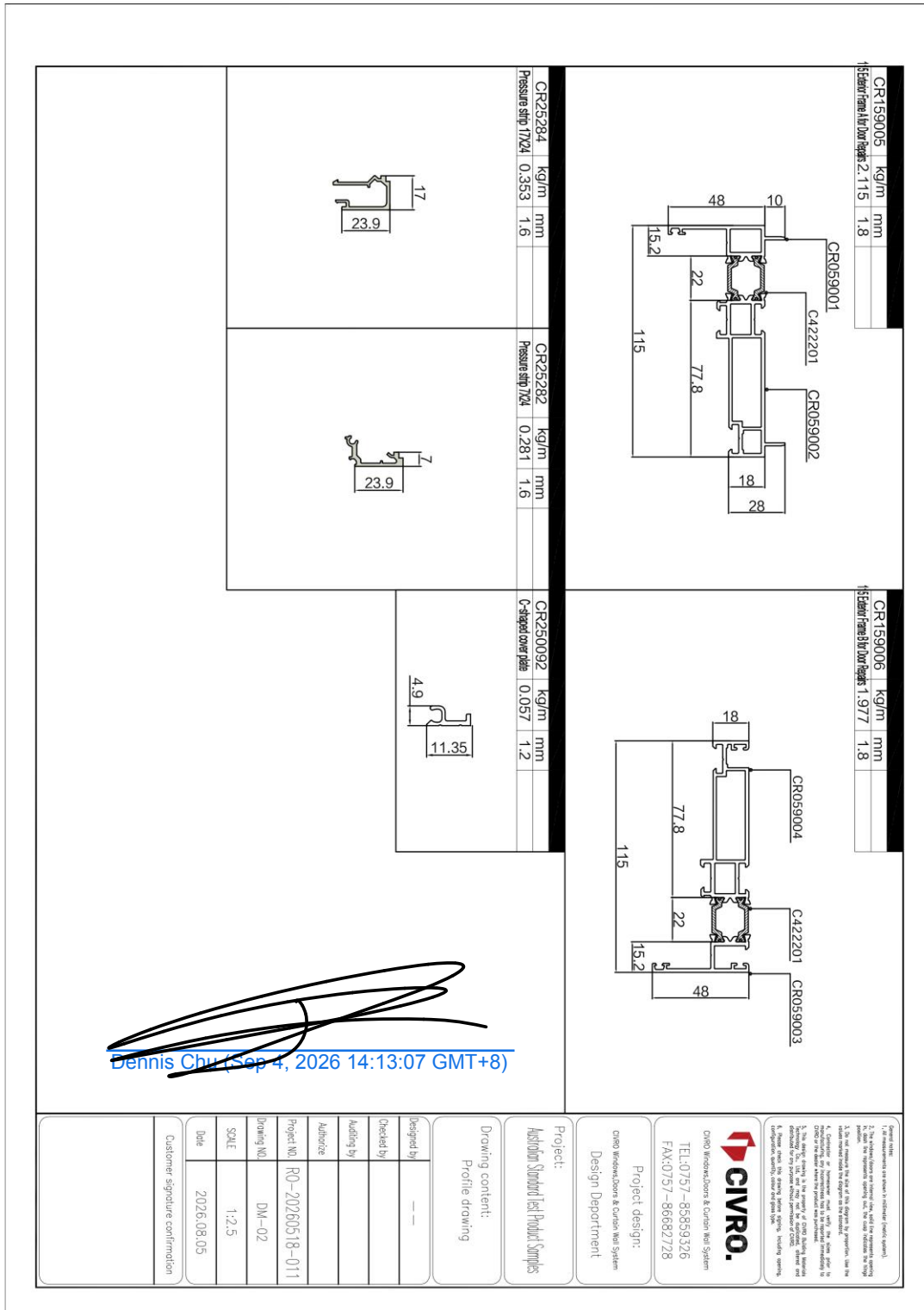


Figure 17 Drawing of Profile Details

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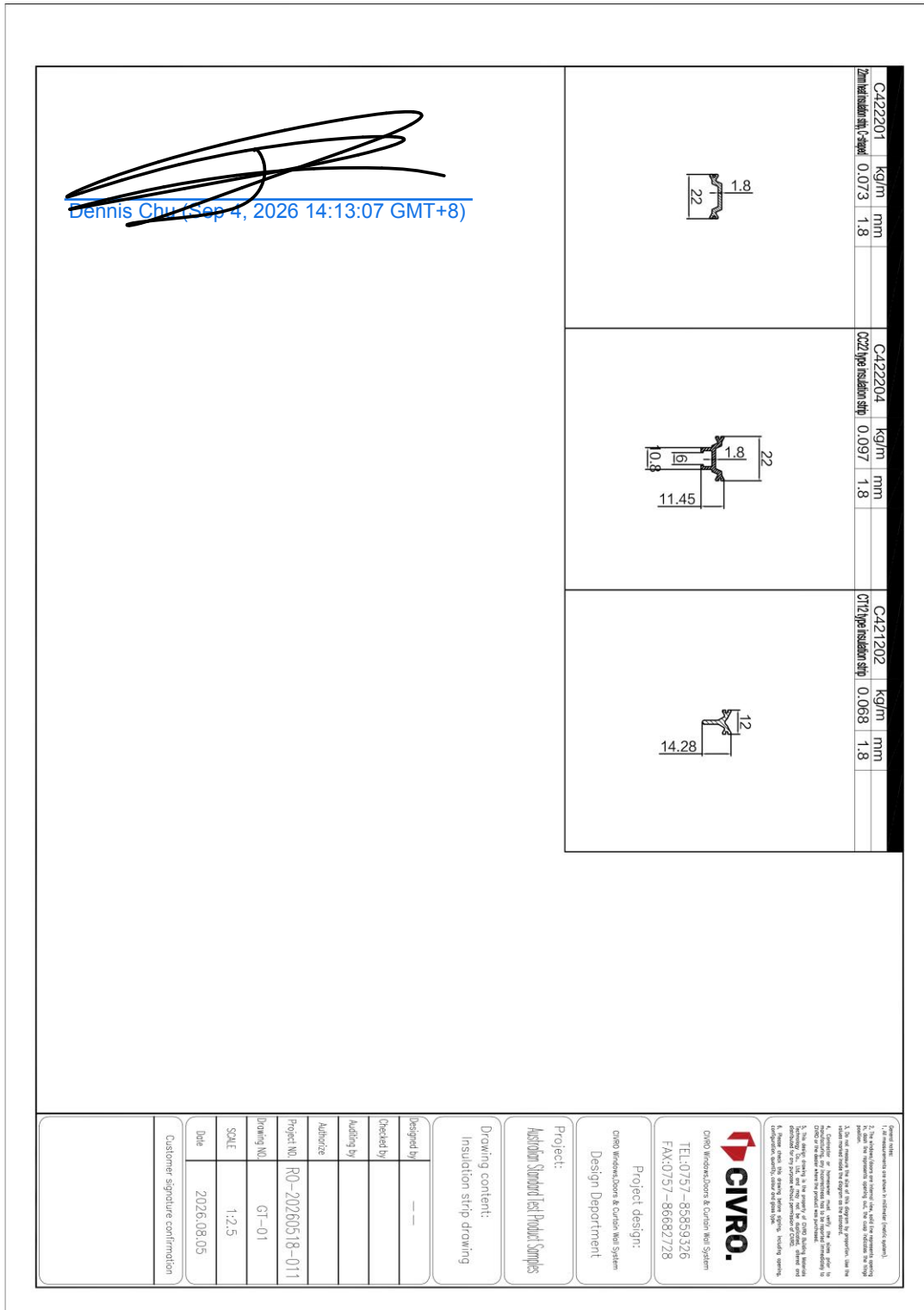


Figure 18 Drawing of Thermal Break Details

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Name: C35004 Wedge rubber strip Material: EPDM Notes: Exterior Fan Sealing	Name: C35001 Super rubber ring Material: EPDM Notes: Fan Sealing	Name: C35012 Bone glue strip Material: EPDM Notes: glass capsulation	Name: C35014 Bone glue strip Material: EPDM Notes: glass capsulation	Name: C35010 Bone glue rubber strip Material: EPDM Notes: glass capsulation
Name: C35004 Super rubber ring Material: EPDM Notes: Fan seal	Name: C35002 Tearing Sealant Material: EPDM Notes: Sealed conversion box	Name: C35003 T-connection seal Material: CR4305 Notes: T-connection seal	Name: C350008 Sealant gasket Material: EPDM Notes: Sealing at the joint	

Dennis Chu (Sep 4, 2026 14:13:07 GMT+8)

Project design: CIVRO Windows, Doors & Curtain Wall System Design Department	Project: Aviation Standard Test Product Samples	Drawing content: Auxiliary material drawing	Design by: _____ Checked by: _____ Auditing by: _____ Authorize: _____ Project NO.: RO-20260518-011 Drawing NO.: FJ-01 SCALE: 1:2.5 Date: 2026.08.05 Customer signature confirmation: _____
--	--	--	---

Figure 19 Drawing of Gaskets, Seals and Weatherstripping Details

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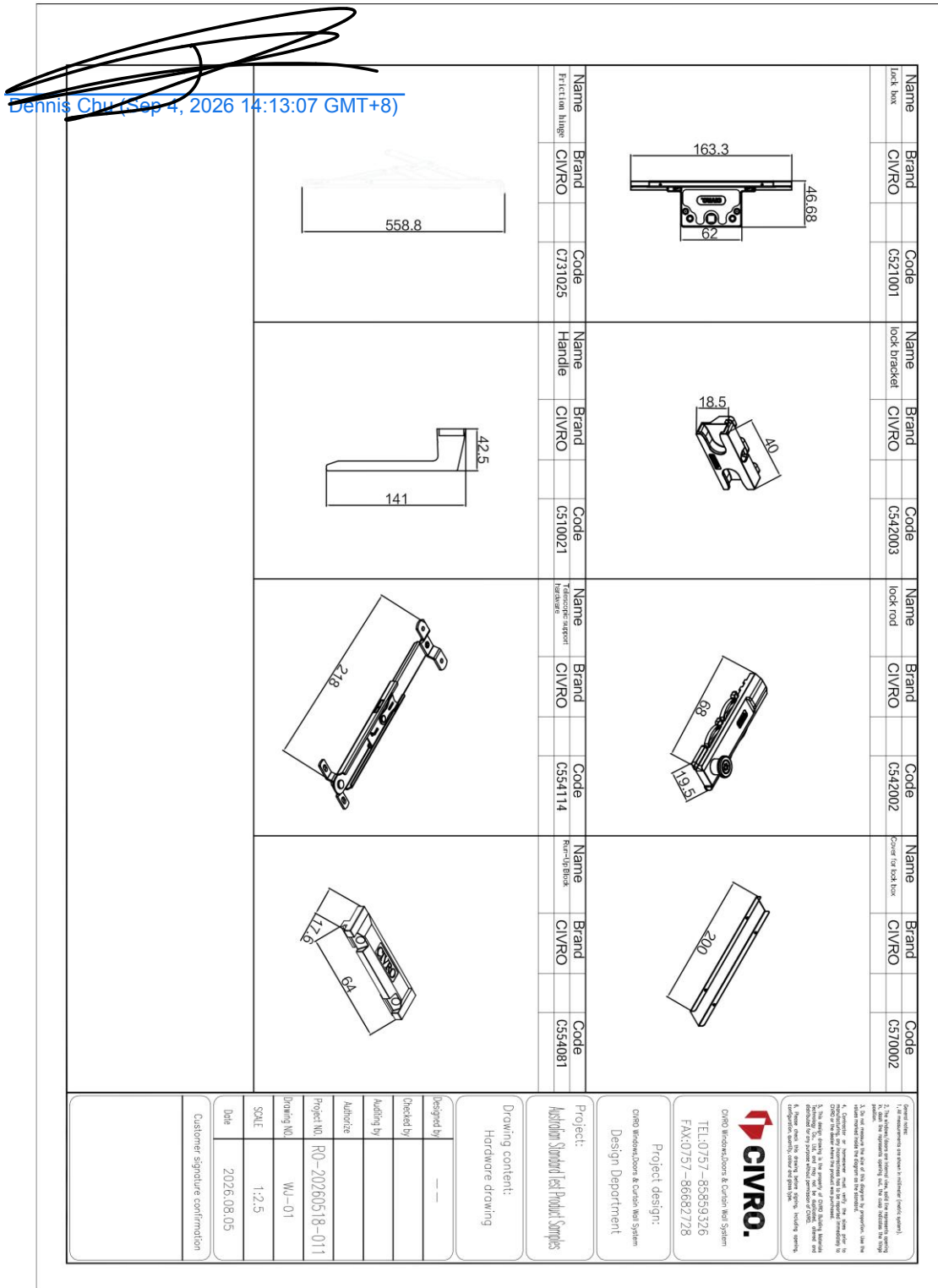


Figure 20 Drawing of Hardware Details

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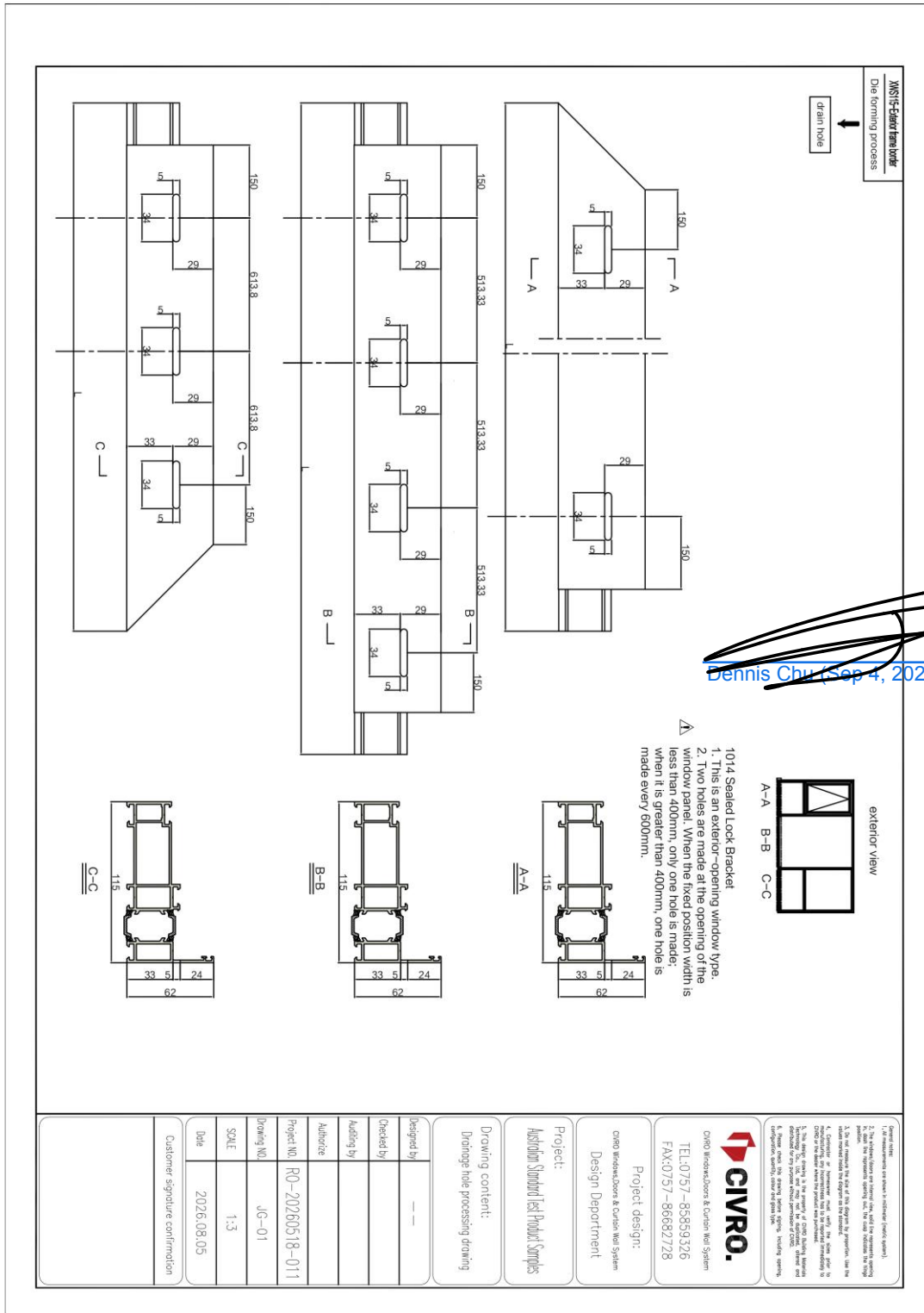


Figure 21 Drawing of Drainage System and Details

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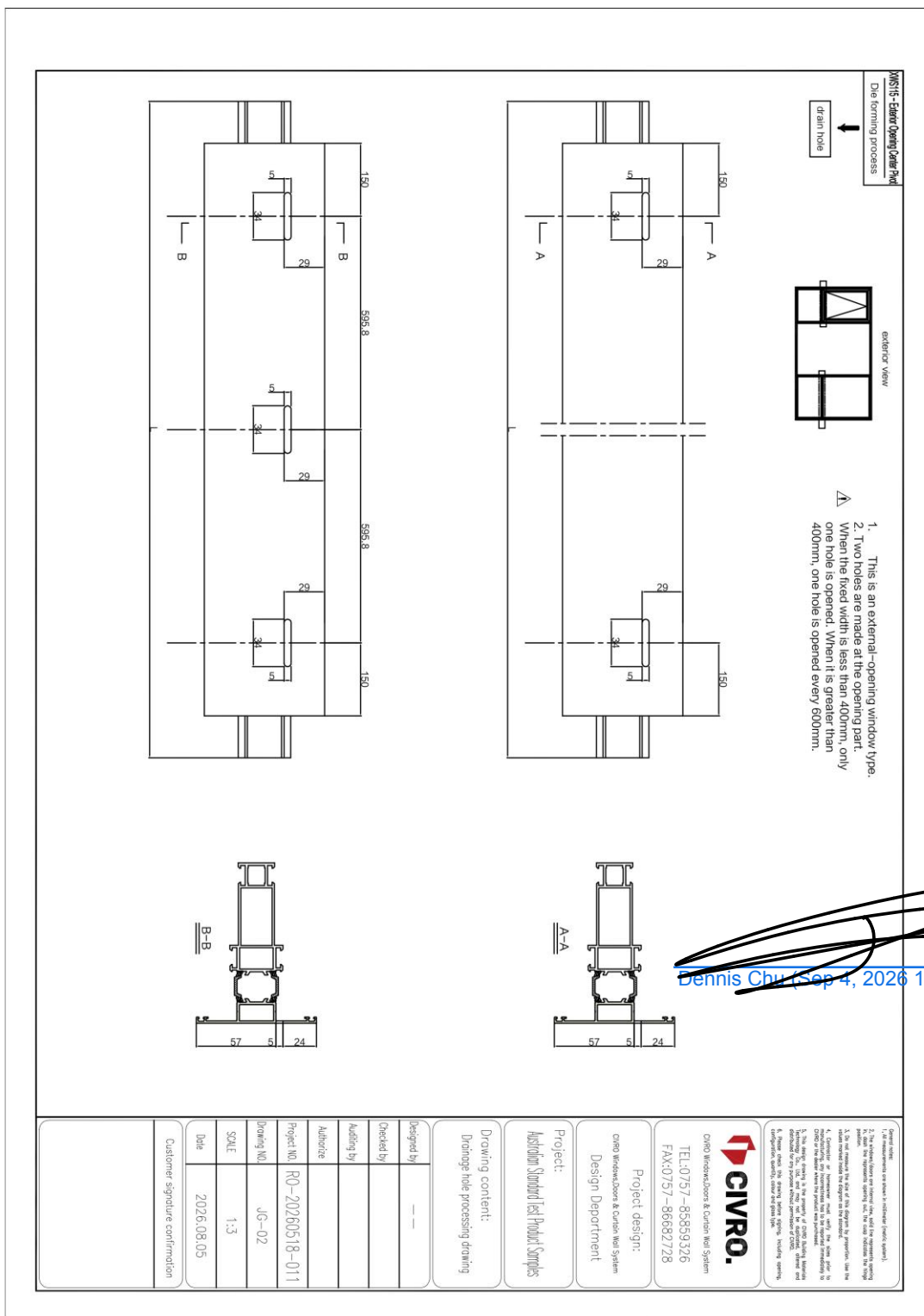


Figure 22 Drawing of Drainage System and Details

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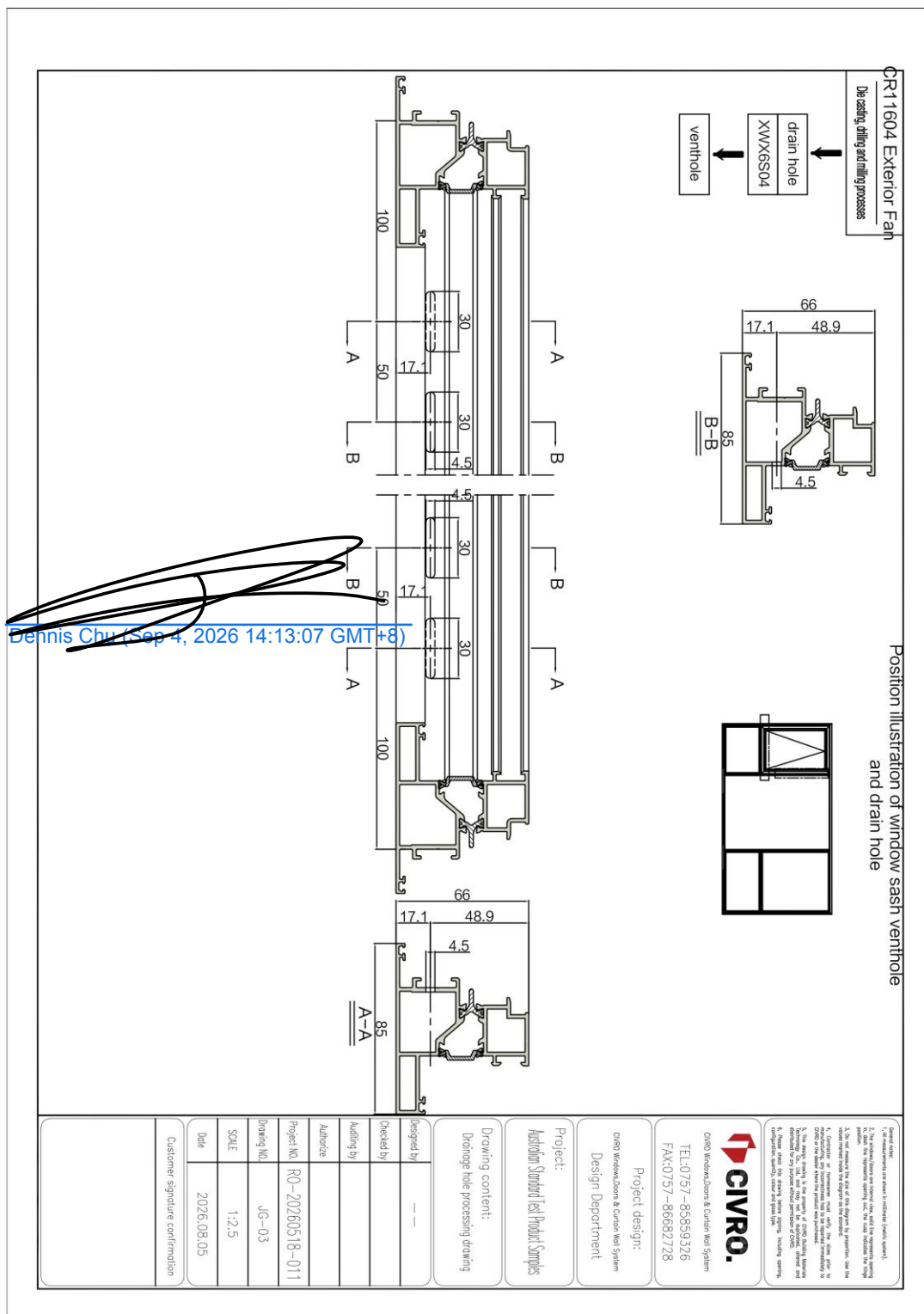


Figure 23 Drawing of Drainage System and Details

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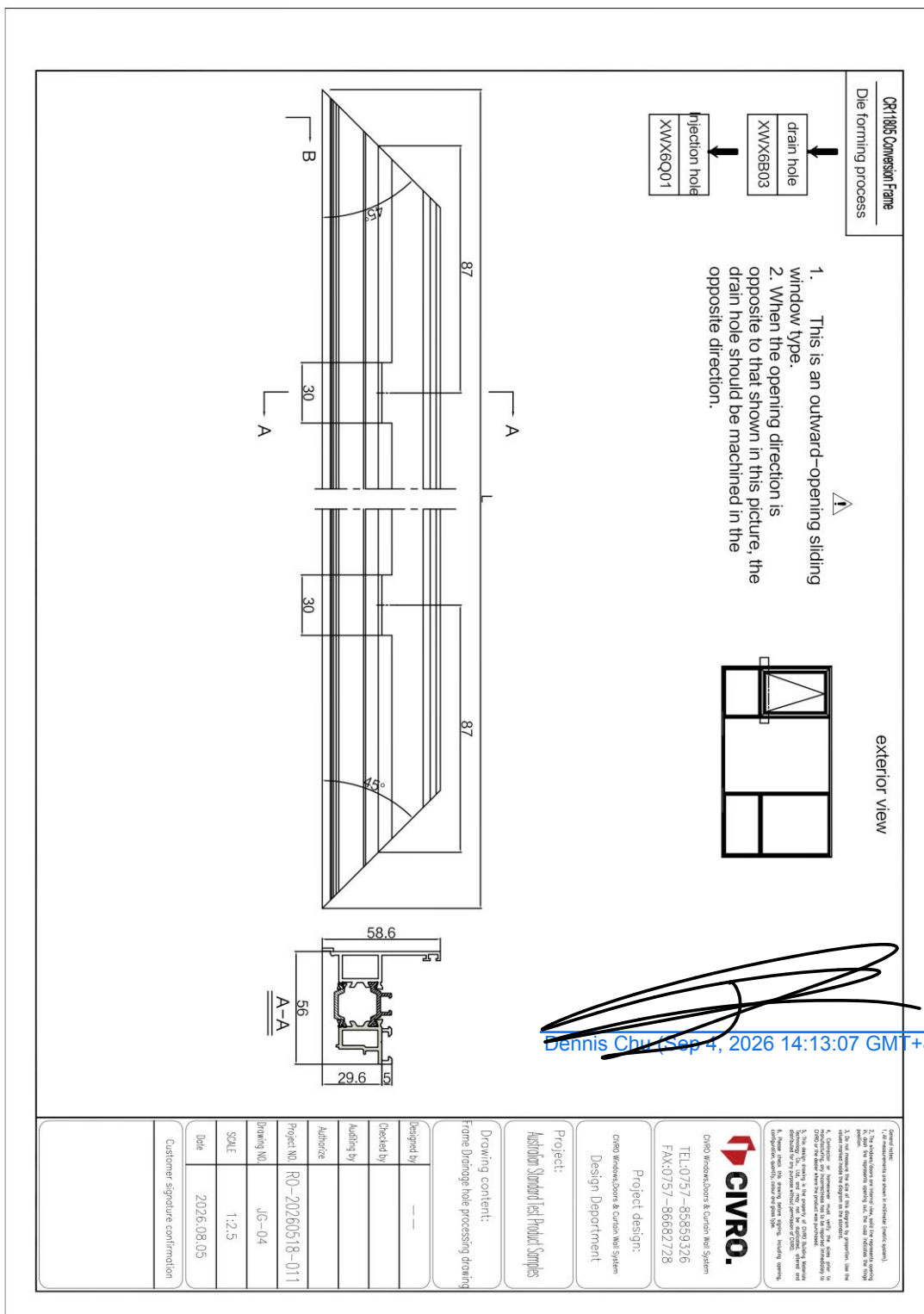


Figure 24 Drawing of Drainage System and Details

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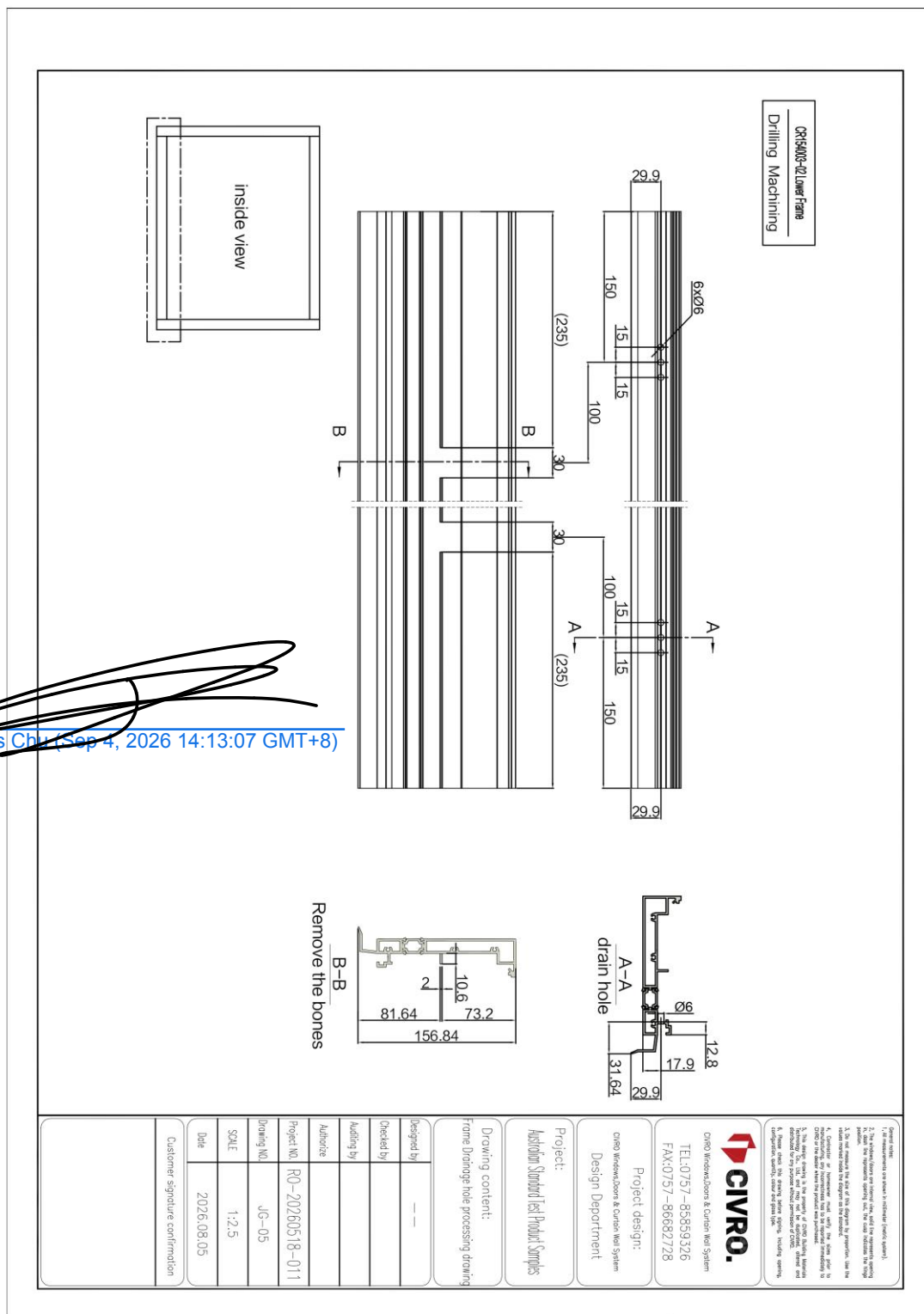


Figure 25 Drawing of Drainage System and Details

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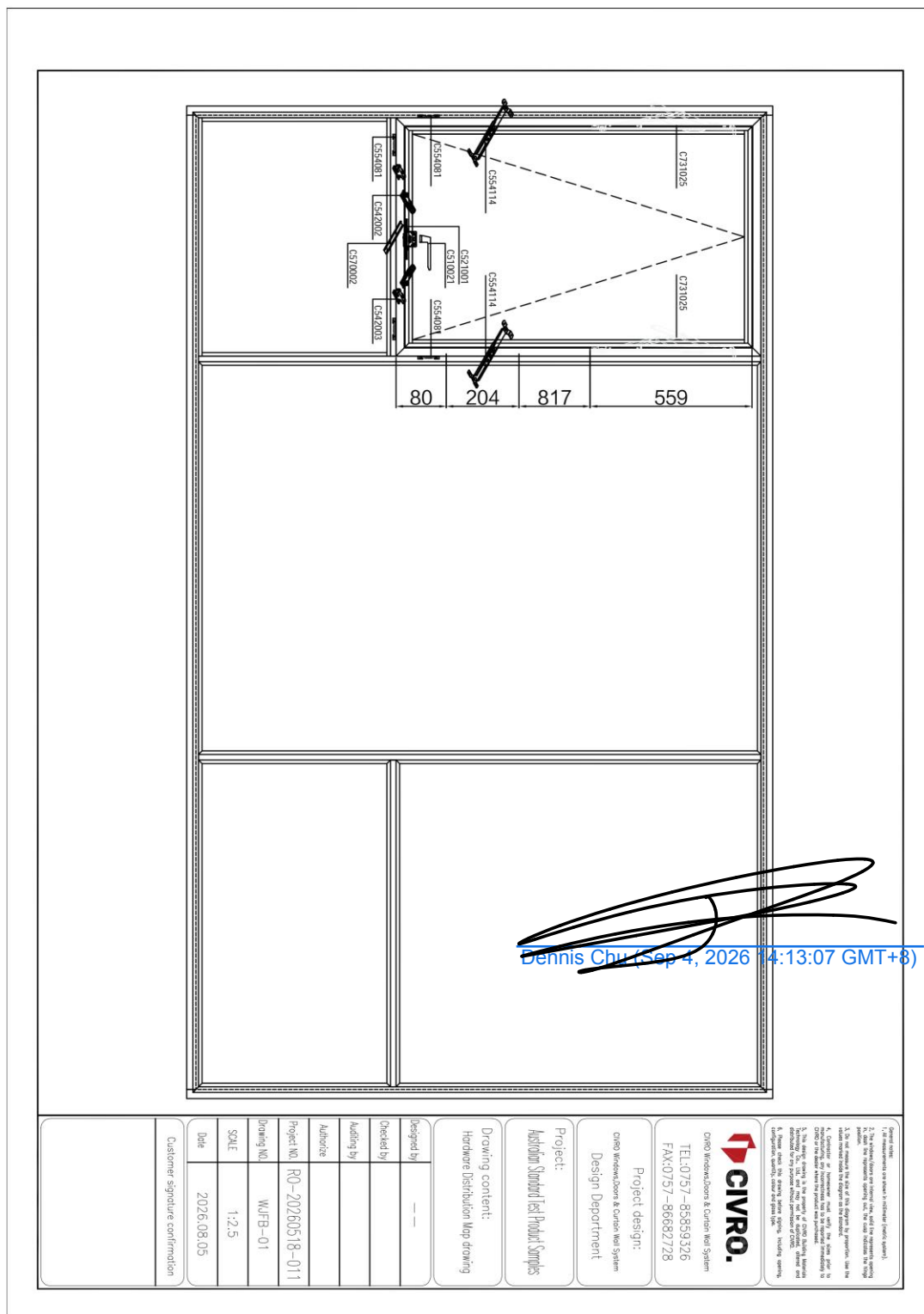


Figure 26 Drawing of Hardware Details

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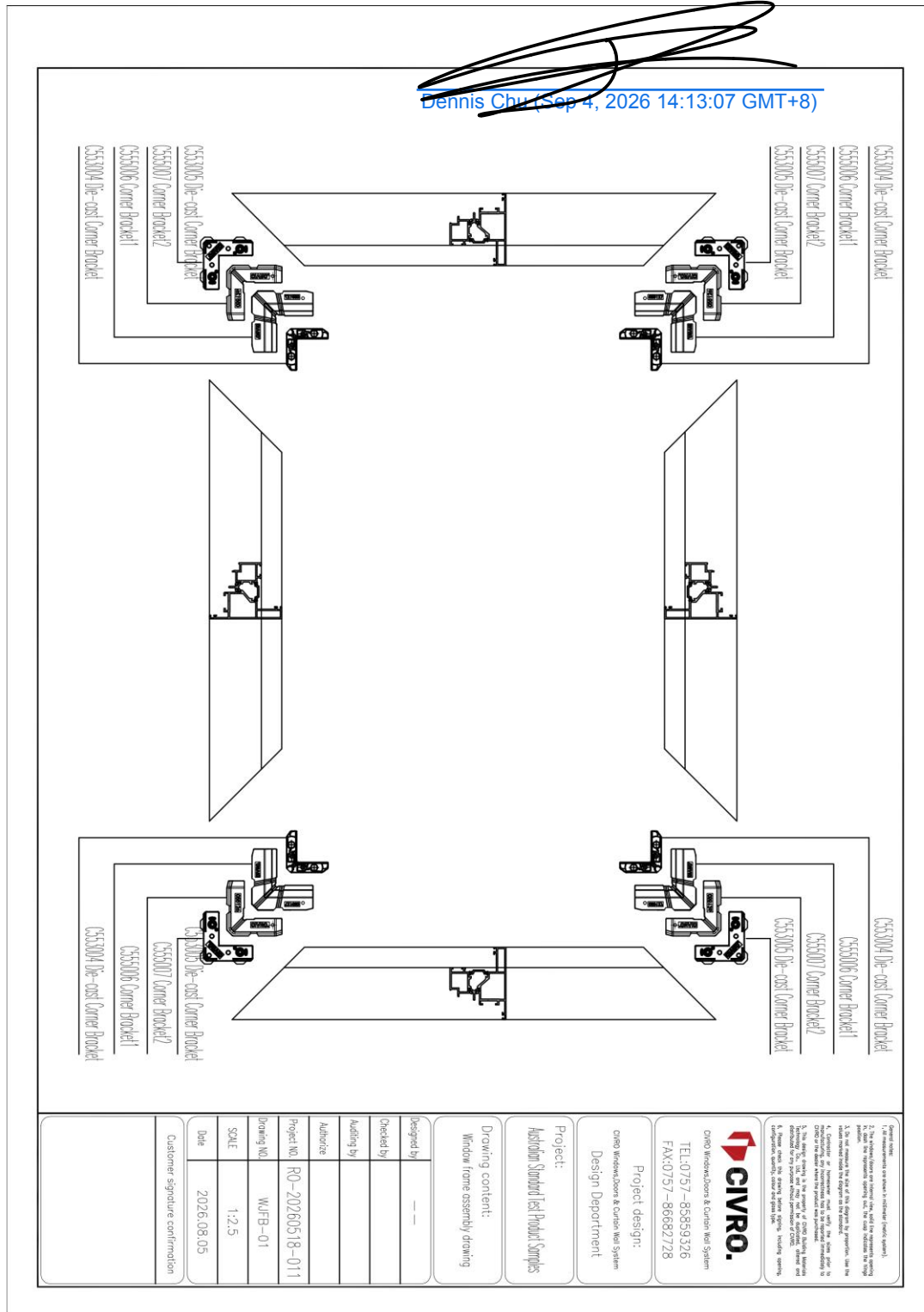


Figure 27 Drawing of Frame and Sash Construction Details

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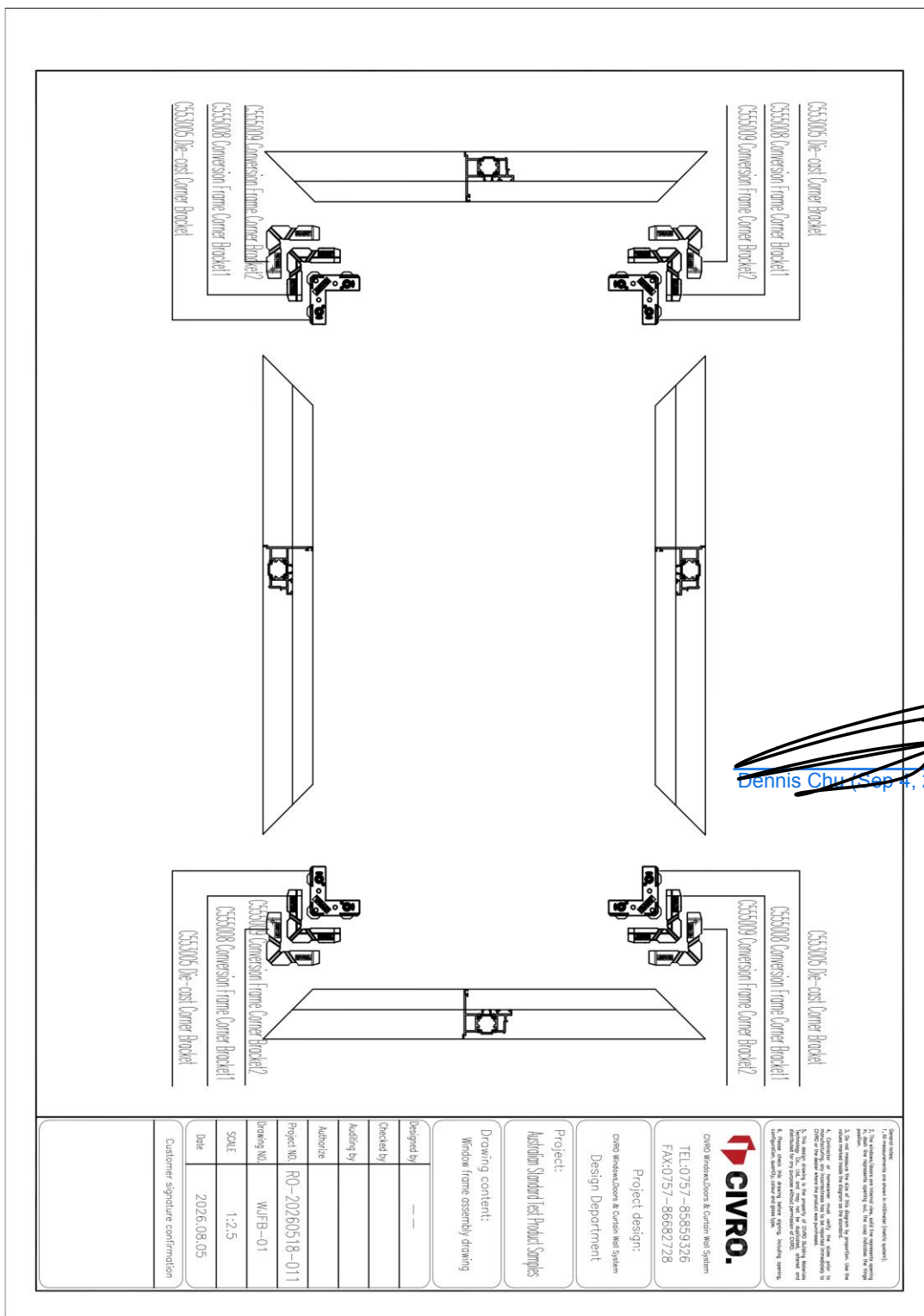


Figure 28 Drawing of Frame and Sash Construction Details

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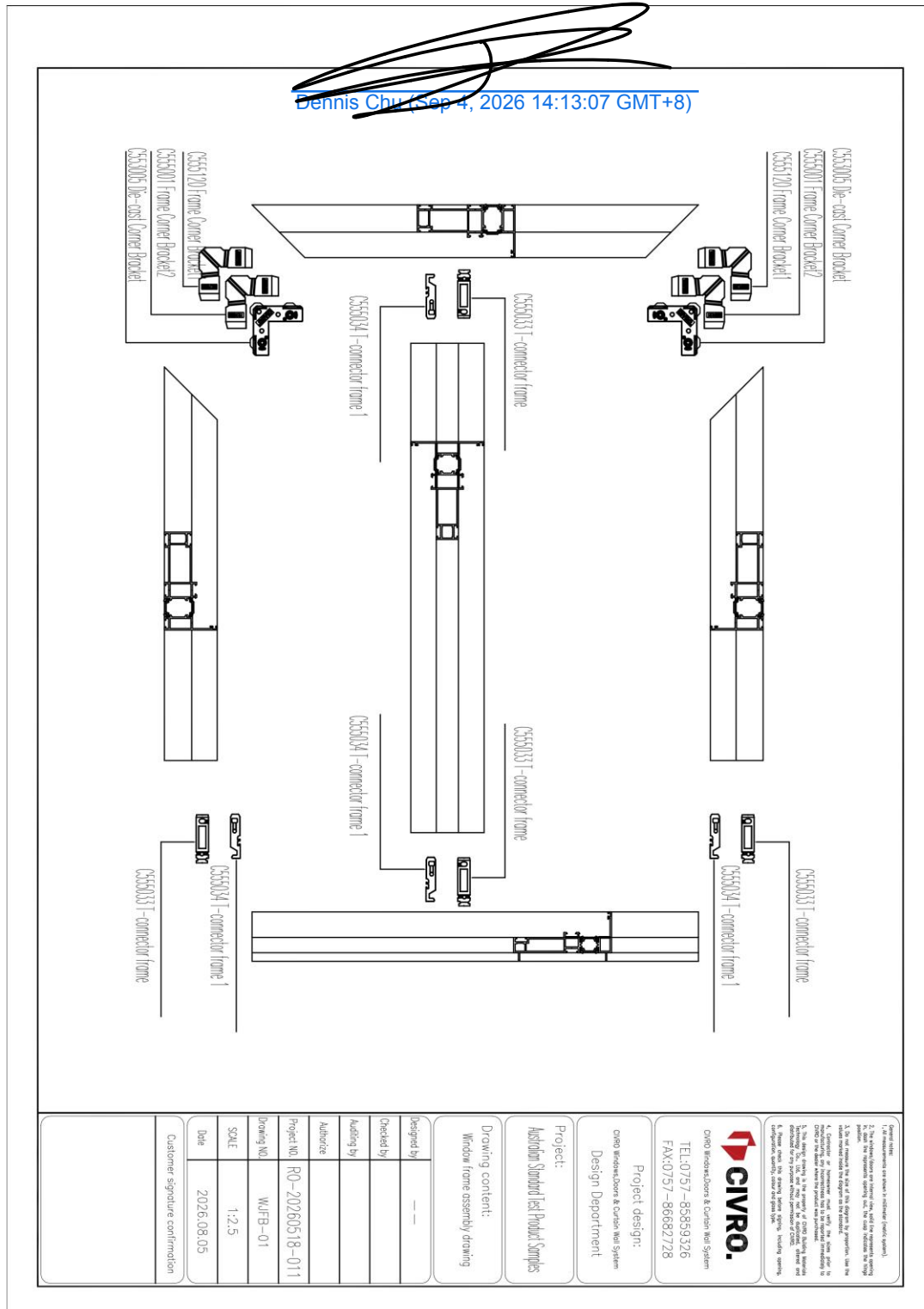


Figure 29 Drawing of Frame and Sash Construction Details

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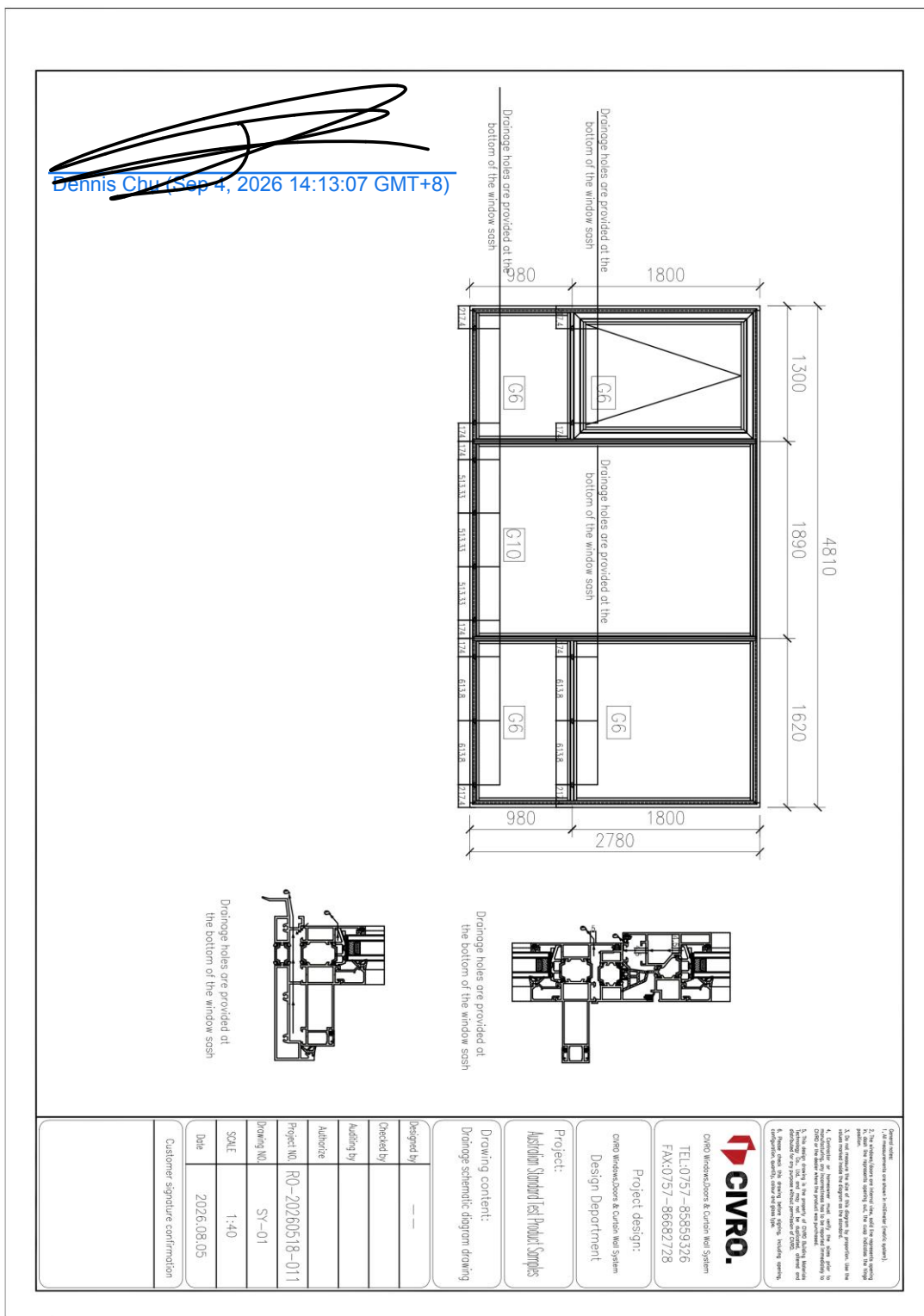


Figure 30 Drawing of Test Specimen Elevations

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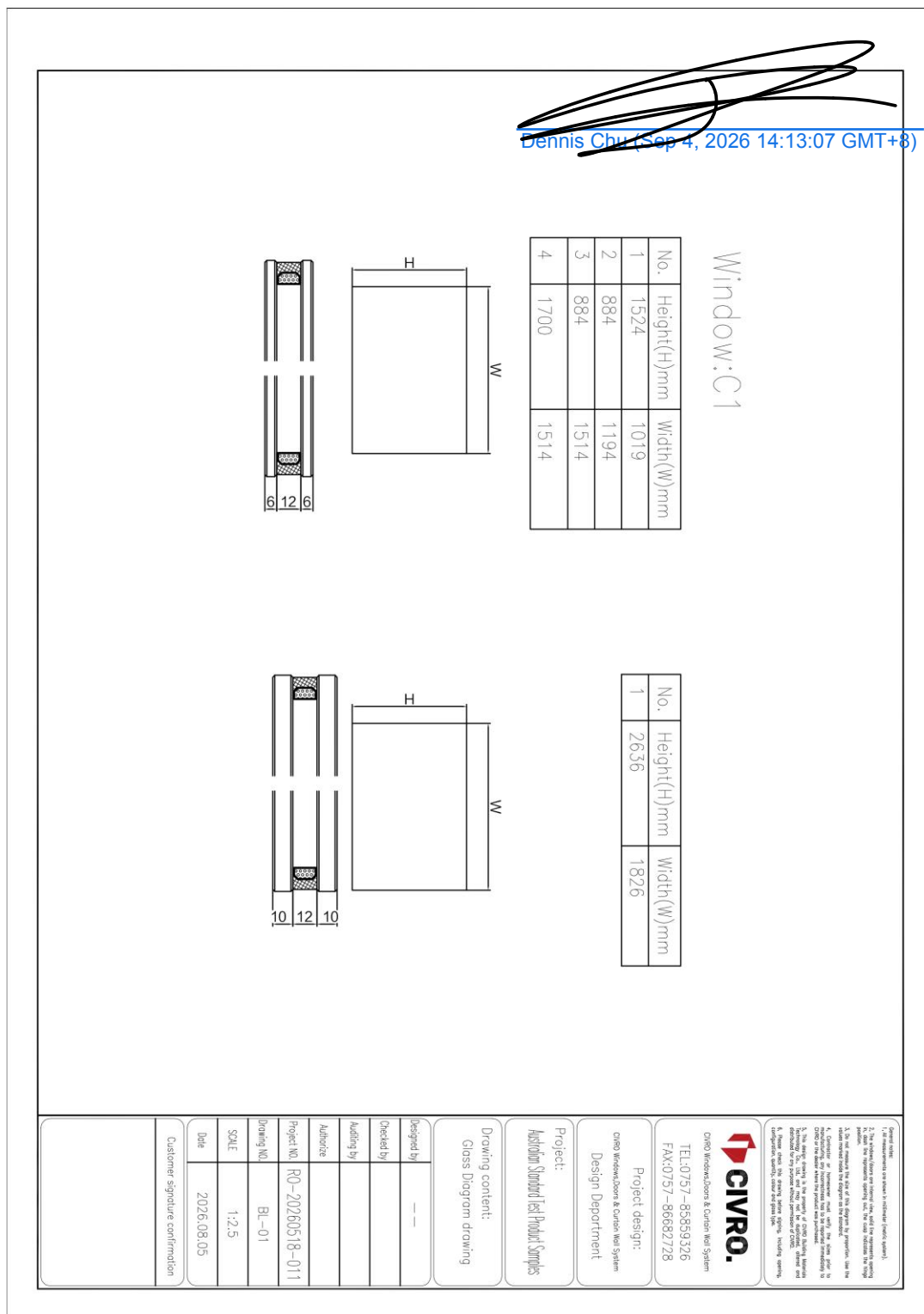


Figure 31 Drawing of Glazing Details

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