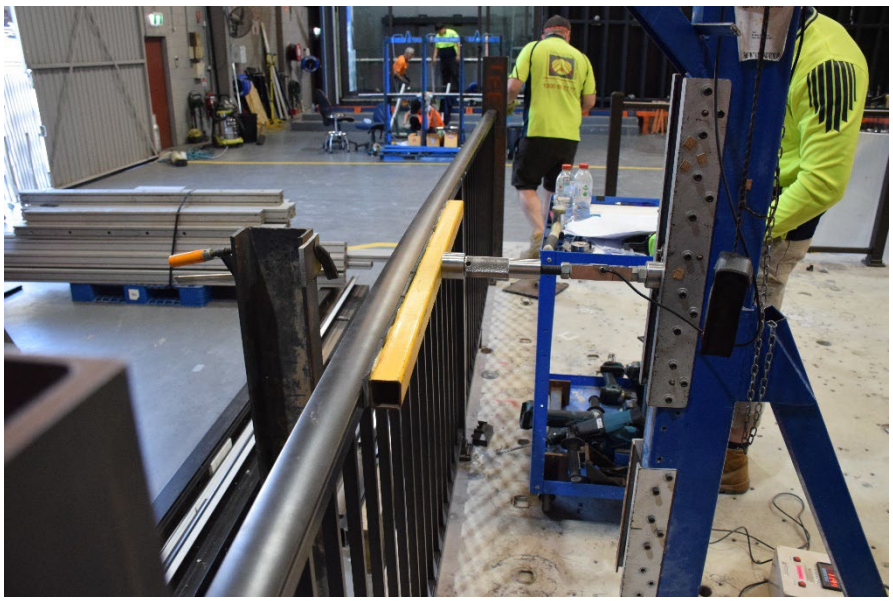
TEST REPORT

AZUMA Design

Balustrade / Barriers



Client – Genneral Staircase

Product – Ultralox 50.8 mm Post – 1830 mm Panel

Tested By

Azuma Design Pty Ltd

AZT0362.23

Nata Accredited Laboratory No. 15147

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Test results in this report are relevant only to the sample tested.

Signature: Date: 18/10/2023

1 Customer Requirements

To test the sample by the test methods specified in Appendix H of AS1288-2021 and requirements from Section 7.

2 Referenced Standards

- AS1288-2021 Glass in buildings Set - Section 7 Balustrades, Appendix H
- AS/NZS1170.1:2002 Structural design actions- Permanent, imposed and other actions (Clause 3.6, Table 3.3)

3 Test Sample Description

Model No./Name	Ultralox 50.8 mm Post – 1830 mm Panels
Customer	Genneral Staircase
Address	12b – 13 Davis Road, Wetherill Park NSW 2164
Azuma Testing Number	AZT0362.23
Date of Test	21/10/2023
Structural Connection	Yes, wall simulated through 2 steel posts with 4 off M10 x 75 mm Screwbolts
Test Sample Description	3 x 50.8 mm posts fixed into concrete with 4 off SS 75 mm x 14 - 10G Bugle screws & 10 x 80 DUOPOWER Fischer plugs for anchors per post. Between posts, the rails are fixed using a small bracket fixed to the posts and the panel screw fixed to the bracket, A handrail is then press fit onto the top of the panel and secured with one screw at each end on each side. A small support footing as spaced at the mid span of the panel and is fit over a bolted down block of wood. The footing is screwed fixed through to the timber and to the bottom rail. There is a gap of 98 mm between pickets and 16 pickets in a panel, pickets are 12.7 x 19.05 mm and 922.8 mm in length.

4 Results

4.1 Barrier Gap Test

Does the probe pass through any gap	No, gaps checked are the picket gap and bottom of the panel gap
Result	Pass

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4.2 Point Load Testing

4.2.1 Outwards (K_T =1.2)

Type of Load	Serviceability	Ultimate
Load Applied	600 N	1080 N
Time Load Held	10 minutes	10 minutes
Deflection under Load	13.19 mm	25.23 mm
Permanent Deflection	0.62 mm	1.33 mm
Damage to Sample	No	No
Result	Pass	Pass

4.2.2 Downwards (K_T =1.2)

Type of Load	Serviceability	Ultimate
Load Applied	600 N	1080 N
Time Load Held	10 minutes	10 minutes
Deflection under Load	0 mm	0 mm
Permanent Deflection	0 mm	0 mm
Damage to Sample	No	No
Result	Pass	Pass

4.2.3 Post Load (K_T =1.2)

Type of Load	Serviceability	Ultimate
Load Applied	600 N	1080 N
Time Load Held	10 minutes	10 minutes
Deflection under Load	7.41 mm	12.05 mm
Permanent Deflection	0.26 mm	0.57 mm
Damage to Sample	No	No
Result	Pass	Pass

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4.3 Uniform Line Load Testing

4.3.1 Vertical – 750 N/m (Span 2510 mm, K_T =1.2)

Type of Load	Serviceability	Ultimate
Load Applied	1448 N	2606 N
Time Load Held	10 minutes	10 seconds
Deflection under Load	0 mm	1 mm
Permanent Deflection	0 mm	0 mm
Damage to Sample	No	No
Result	Pass	Pass

4.3.2 Horizontal – 750 N/m (Span 2510 mm, K_T =1.2)

Type of Load	Serviceability	Ultimate
Load Applied	1448 N	2606 N
Time Load Held	10 minutes	10 seconds
Deflection under Load	27.93 mm	60.04 mm
Permanent Deflection	1.02 mm	3.71 mm
Damage to Sample	No	No
Result	Pass	Pass

4.4 Infill Point Load Testing (Applied over 3 Pickets, K_T =1.2)

Type of Load	Serviceability	Ultimate
Load Applied	500 N	900 N
Time Load Held	1 minute	10 seconds
Deflection under Load	15.80 mm	27.15 mm
Permanent Deflection	0.17 mm	0.02 mm
Damage to Sample	No	No
Result	Pass	Pass

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4.5 Infill Uniform Load Testing (Area = 0.173 m², Applied over 3 Pickets, K_T =1.2)

Type of Load	Serviceability	Ultimate
Pressure Required	1000 Pa	1800 Pa
Load Applied	173 N	312 N
Time Load Held	5 minutes	10 seconds
Deflection under Load	5.59 mm	10.13 mm
Permanent Deflection	0.09 mm	0.04 mm
Damage to Sample	No	No
Result	Pass	Pass

5 Conclusion and Signatories

5.1 Conclusion

The tested sample has passed the requirements of AS1288 Appendix H.

5.2 Signatories

Tested By: Ashley Horne

Position: National Business Manager

Qualifications: B.ENG (Hons), MEM, MIEAust

Signature:

Date: 18/10/2023

END OF REPORT

Azuma Design Pty Ltd
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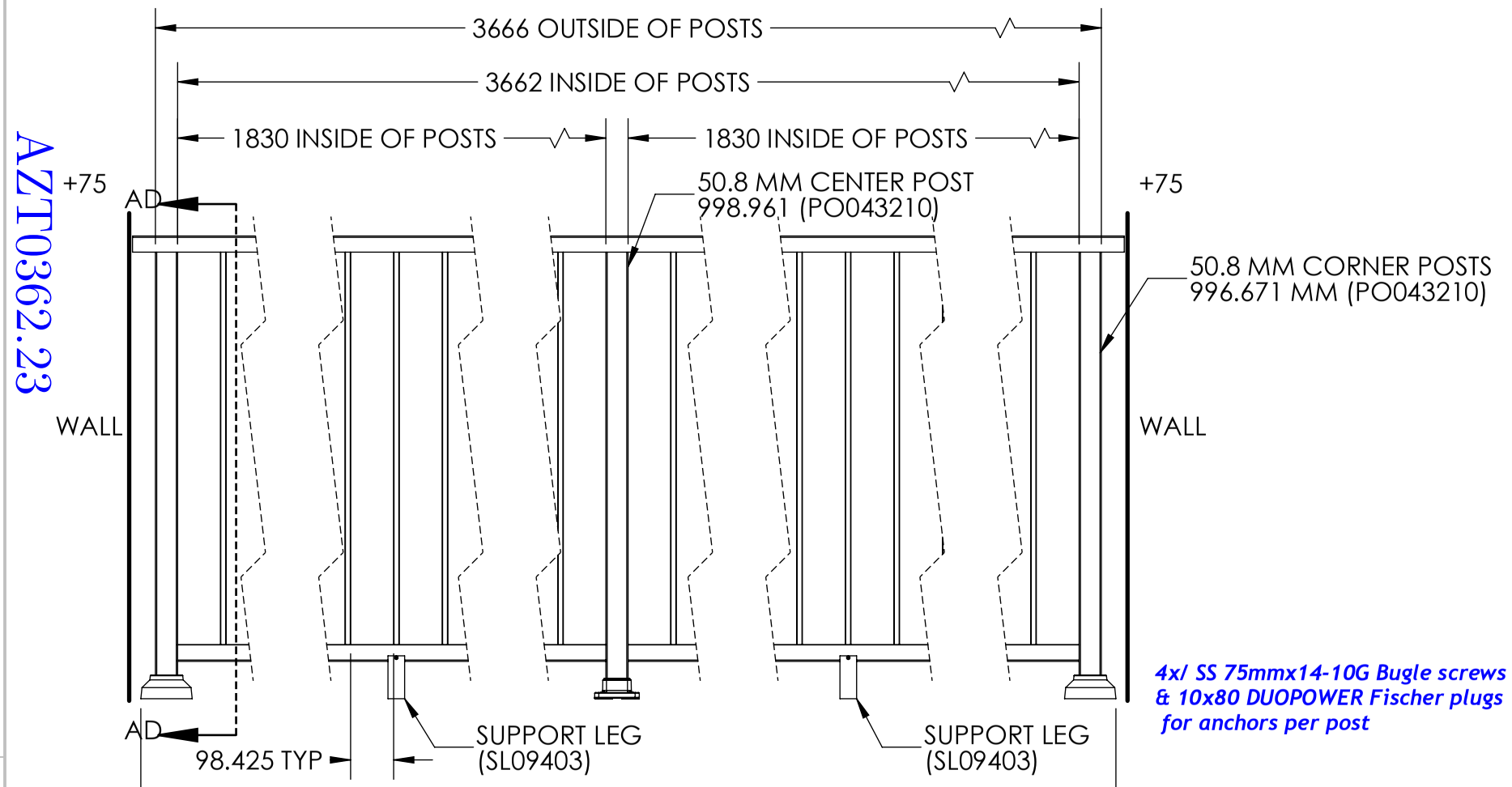
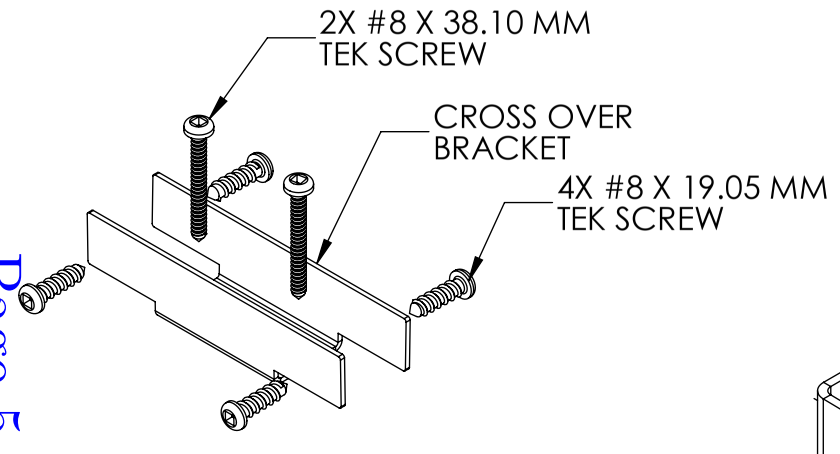
REVISIONS - BALLOONS DENOTE CHANGES			
REV.	DESCRIPTION	DATE	APPROVED
A		9/8/2023	ZAG



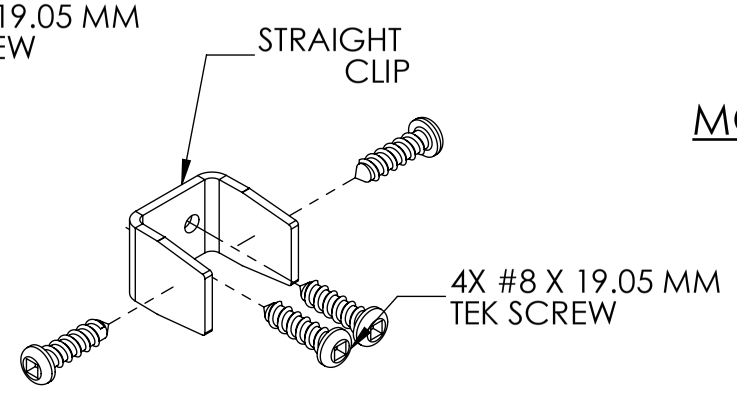
AZT0362.23

4x/ SS 75mmx14-10G Bugle screws & 10x80 DUOPOWER Fischer plugs for anchors per post

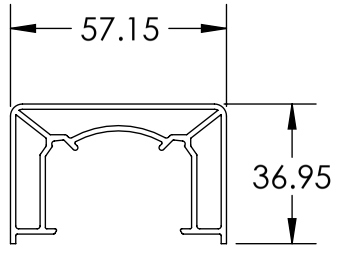
2X/ 1830 PANELS REQD



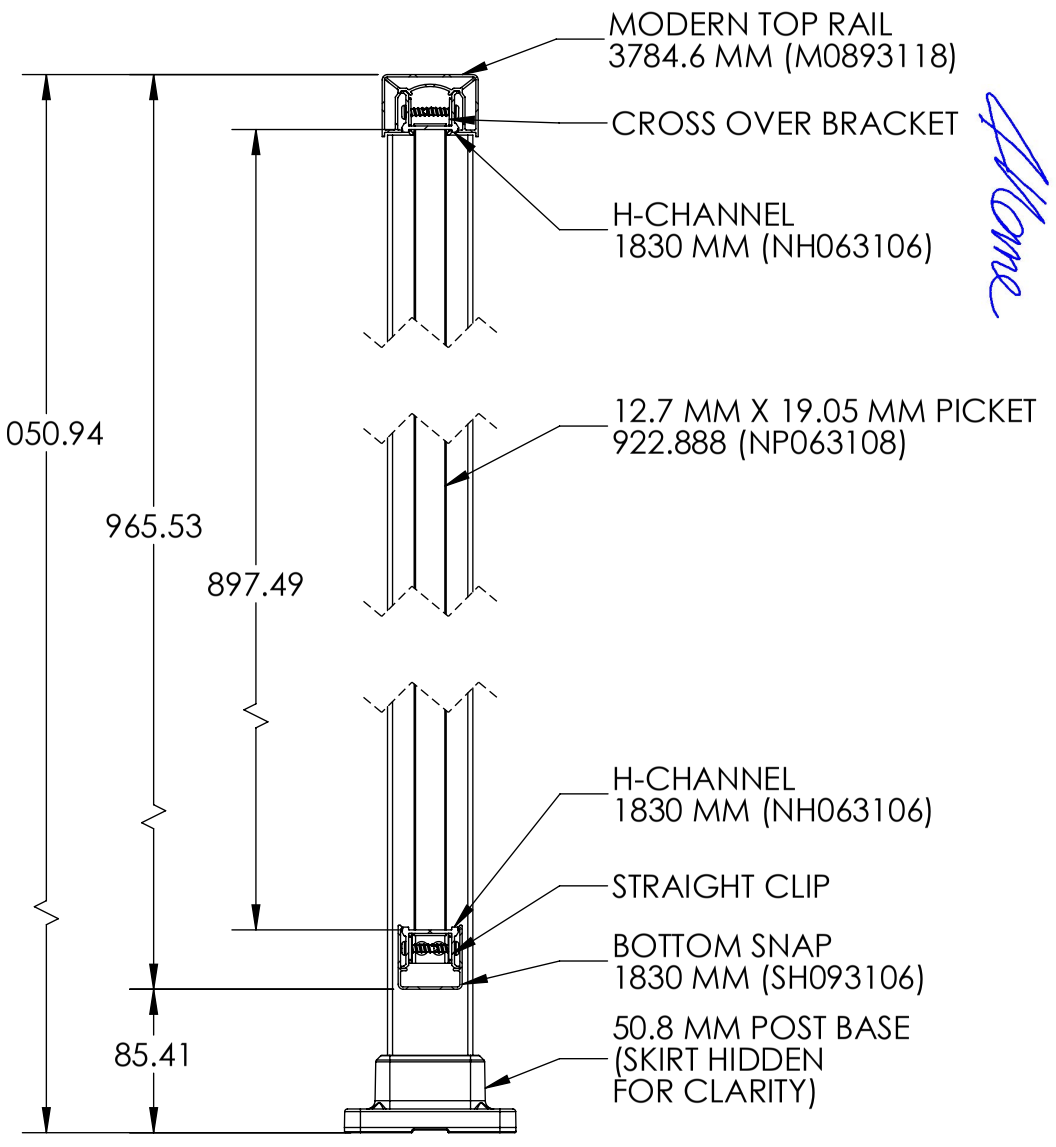
3X 50.8 MM CROSS OVER BRACKET (MOUNTS ON TOP OF CENTER POST)



4X CLIP DETAIL



MODERN TOP RAIL



SECTION AD-AD

Information supplied by customer

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NOTES:
1. ALL RAIL MUST BE ASSEMBLED AND FASTENED IN ACCORDANCE WITH ULTRALOX'S INSTALLATION INSTRUCTIONS.
2. AVAILABLE COLORS ARE BLACK - WHITE - BRONZE.

UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: SURFACE FINISH: 125 RMS ANGULAR: ±.5 DEG LINEAR: .X ±.02 .XX ±.010 .XXX ±.005	DRAWN	VINH	9/8/23
	CHECKED		
	ENG APPR.		
	MFG APPR.		
THIRD ANGLE PROJECTION:	INTERPRET GEOMETRIC TOLERANCING PER: ASME Y14.5-2009		
MATERIAL	**PROPRIETARY AND CONFIDENTIAL** THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF UltraLox. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF UltraLox.		
FINISH			
DO NOT SCALE DRAWING			

ULTRALOX INTERLOCKING TECHNOLOGY

TITLE:

18/10/2023

SIZE	DWG. NO.	REV

SCALE: 1:10 WEIGHT: SHEET 1 OF 3