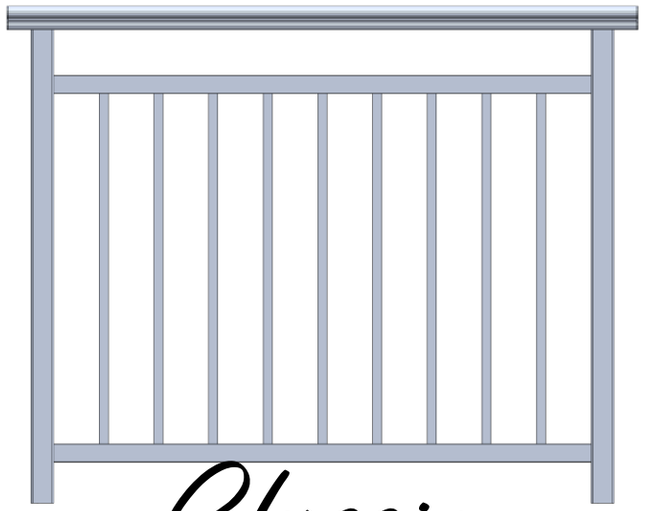
ELEGRA

Elegance and Strength

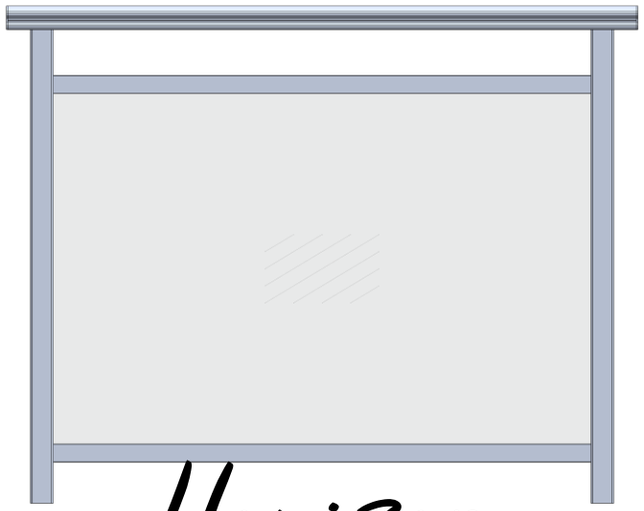
Balustrades by ACME

ELEGRA

ACME



Classic



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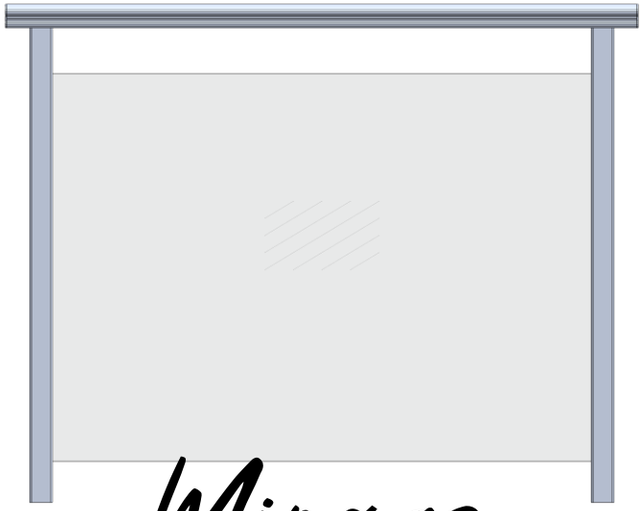
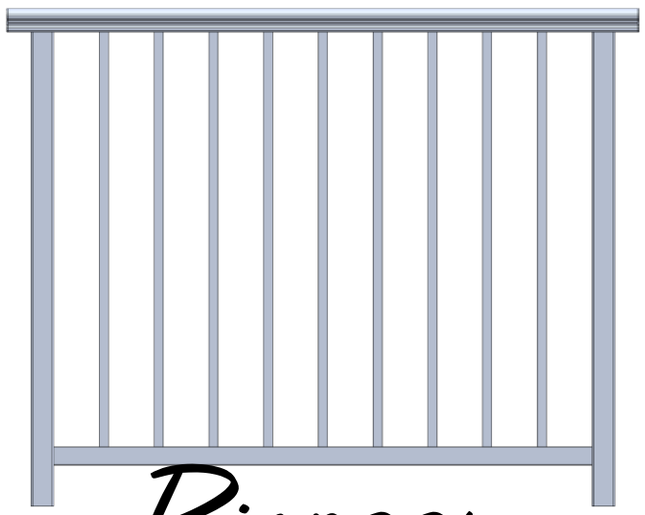
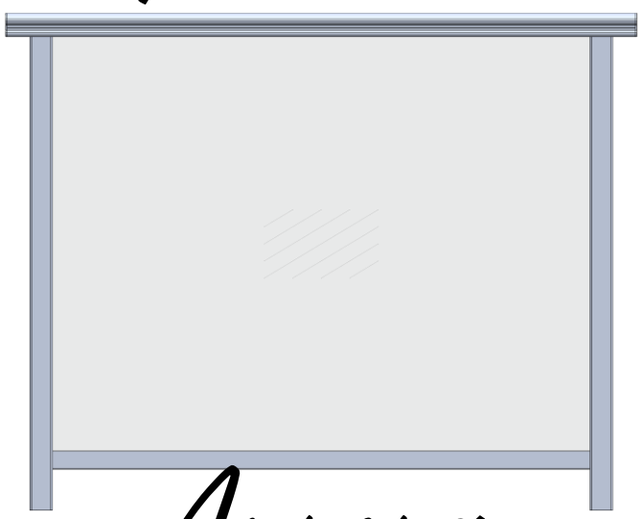


Mirage



Pioneer



Aurora

Crystal

Infinity

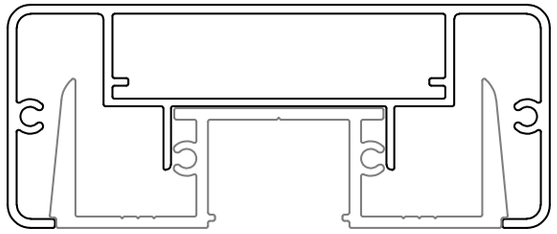
Zenith

Lumina

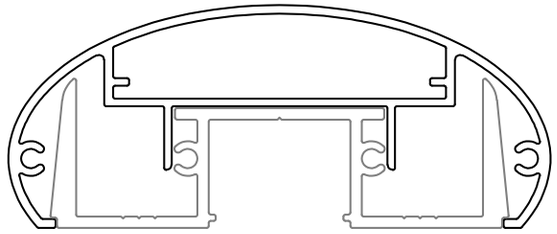
ELEGRA

Profile Identification

ACME



DIE No.TR-B3085 | ELEGRA FLAT HANDRAIL



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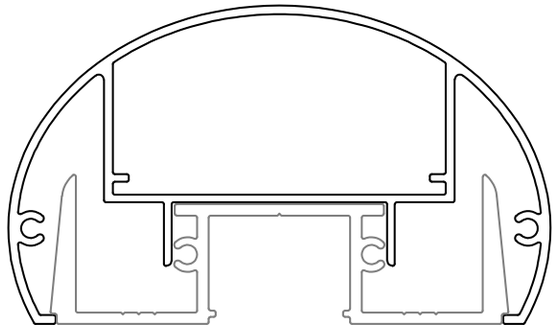
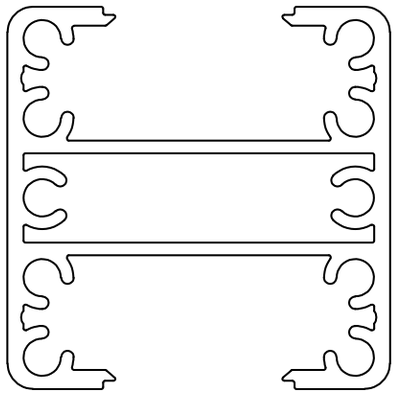
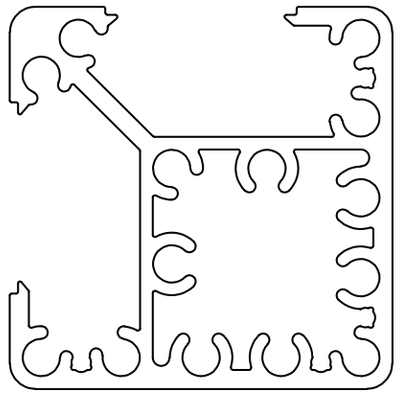


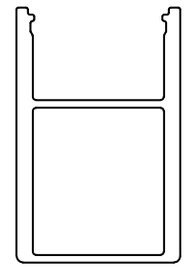
DIE No.TR-R4080 | ELEGRA ROUNDED HANDRAIL



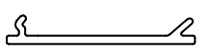
DIE No.ST-S6060 | ELEGRA STANCHION



DIE No.ST-C6060 | ELEGRA BALUSTER

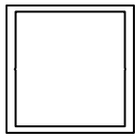


DIE No.HR-C2725 | ELEGRA HORIZONTAL RAIL

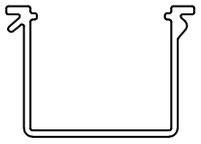


DIE No.ST-C60 | ELEGRA SIDE CLIP

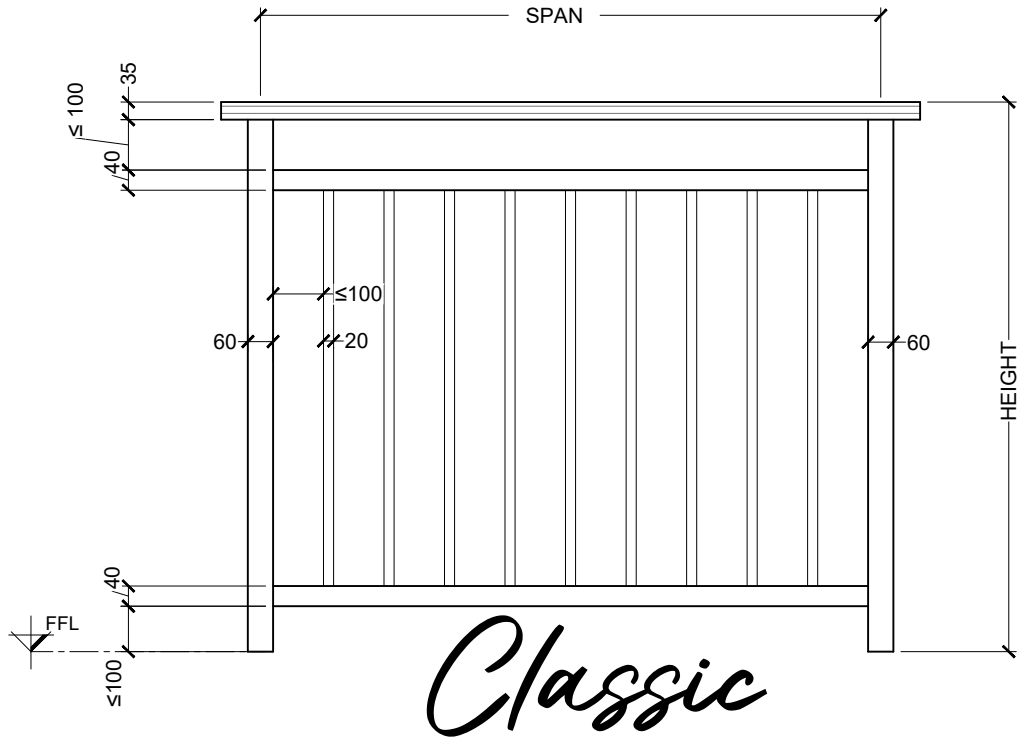
DIE No.BL-C20 | ELEGRA COVER



DIE No.BL-S20 | ELEGRA BALUSTER



DIE No.ST-C60G | ELEGRA GLASS CLIP



Classic

TECHNICAL DATA

DESCRIPTION :	ELEGRA CLASSIC FRAMED BALUSTRADE SYSTEM
MATERIAL :	ALUMINIUM ALLOY 6061-T6
TYPICAL HEIGHT :	1000 MM / 1100 MM FROM FFL (REFER TO NZBC F4/AS1)
FIXING TYPE OPTIONS :	TOP FIX AND SIDE FIX

- MIN CONCRETE STRENGTH IS TO BE 25 Mpa
- CONCRETE BOLT MIN EMBEDMENT IS TO BE 120MM
- COACH SCREWS ARE TO BE FIXED INTO 3 MEMBER BEAM WITH MIN EMBEDMENT 135MM

BASE FIX BALUSTER TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.30	2.30
STEEL	2.30	2.30	2.30	2.30	2.30
TIMBER (BOLTED)	2.30	2.30	2.30	2.30	2.30
TIMBER (COACH SCREW)	0.80	0.80	0.80	0.80	-

SIDE FIX BALUSTER TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.30	2.30
STEEL	2.30	2.30	2.30	2.30	2.30
TIMBER (BOLTED)	1.20	1.20	1.20	1.20	1.20
TIMBER (COACH SCREW)	0.70	0.70	0.70	0.70	0.70

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68 ELLICE ROAD, GLENFIELD

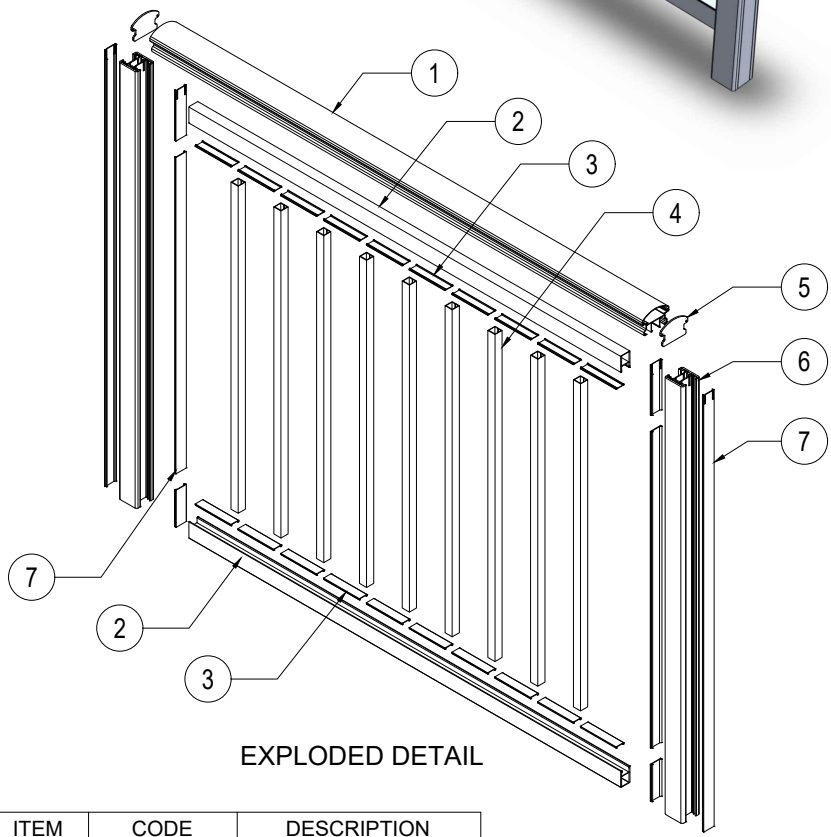
ELEGRA Pioneer

CLASSIC FRAMED BALUSTRADE SYSTEM

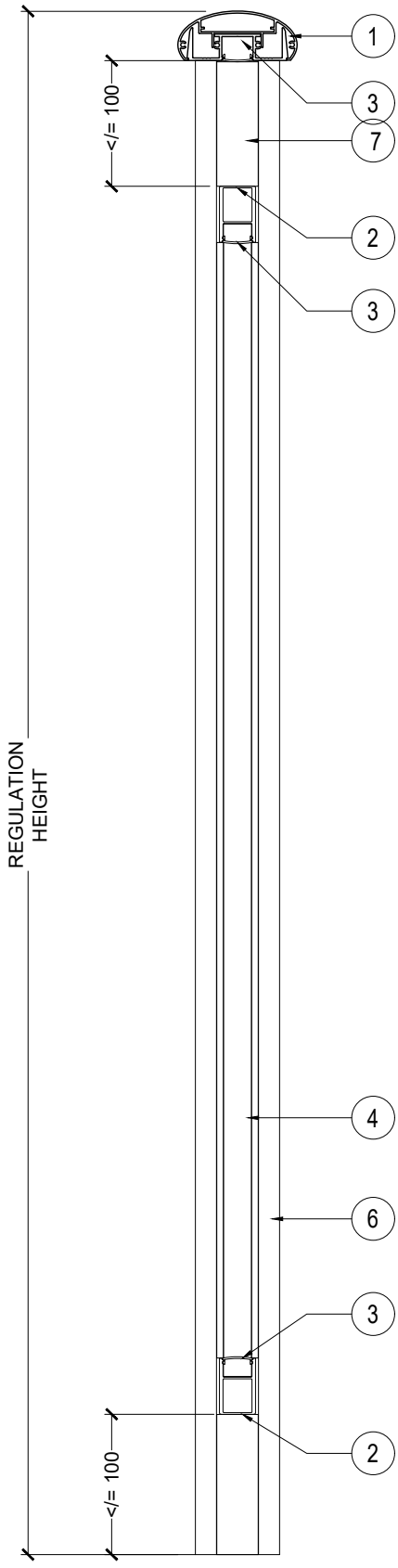
DATE : 10/11/2025

SCALE : NTS

3D VIEW



EXPLODED DETAIL



SECTION DETAIL

ITEM	CODE	DESCRIPTION
1	TR-E3585	HAND RAIL
2	HR-C2725	HORIZONTAL RAIL
3	BL-C20	COVER
4	BL-S20	BALUSTERS
5		END CAP
6	ST-S6060	STANCHION
7	ST-C60	SIDE COVER

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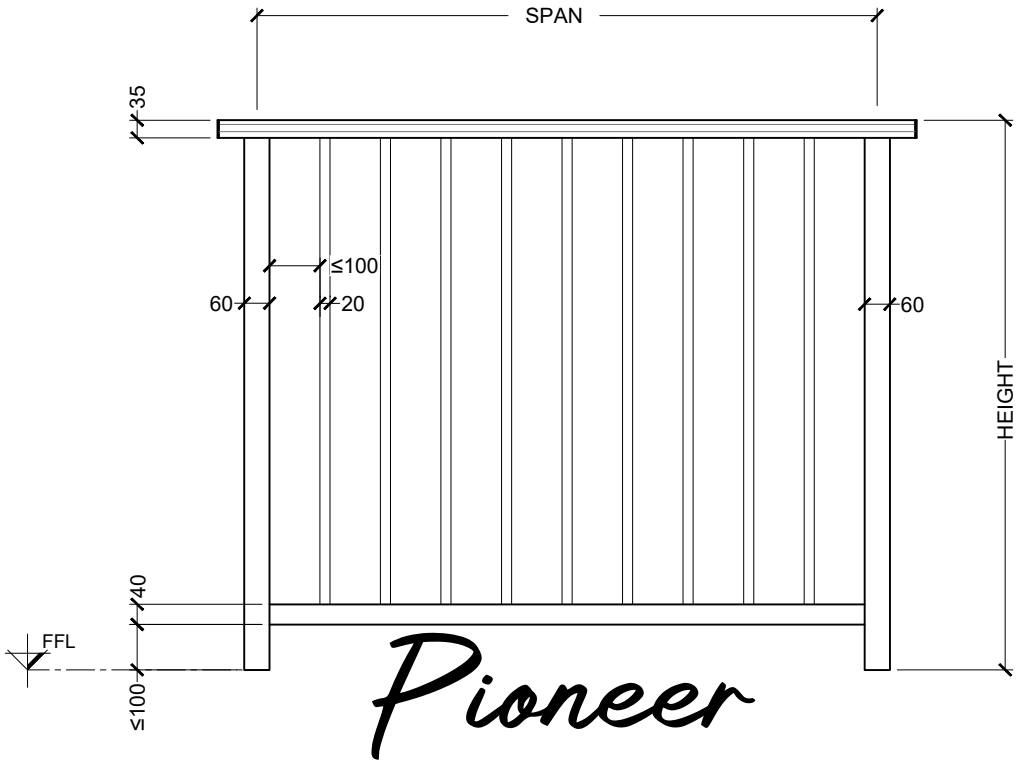
CLASSIC FRAMED BALUSTRADE SYSTEM

DATE : 05/09/2024

SCALE : NTS



TECHNICAL DATA

DESCRIPTION :	ELEGRA PIONEER FRAMED BALUSTRADE SYSTEM
MATERIAL :	ALUMINIUM ALLOY 6061-T6
TYPICAL HEIGHT :	1000 MM / 1100 MM FROM FFL (REFER TO NZBC F4/AS1)
FIXING TYPE OPTIONS :	TOP FIX AND SIDE FIX

- MIN CONCRETE STRENGTH IS TO BE 25 Mpa
- CONCRETE BOLT MIN EMBEDMENT IS TO BE 120MM
- COACH SCREWS ARE TO BE FIXED INTO 3 MEMBER BEAM WITH MIN EMBEDMENT 135MM

BASE FIX BALUSTER TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.30	2.30
STEEL	2.30	2.30	2.30	2.30	2.30
TIMBER (BOLTED)	2.30	2.30	2.30	2.30	2.30
TIMBER (COACH SCREW)	0.80	0.80	0.80	0.80	-

SIDE FIX BALUSTER TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.30	2.30
STEEL	2.30	2.30	2.30	2.30	2.30
TIMBER (BOLTED)	1.20	1.20	1.20	1.20	1.20
TIMBER (COACH SCREW)	0.70	0.70	0.70	0.70	0.70

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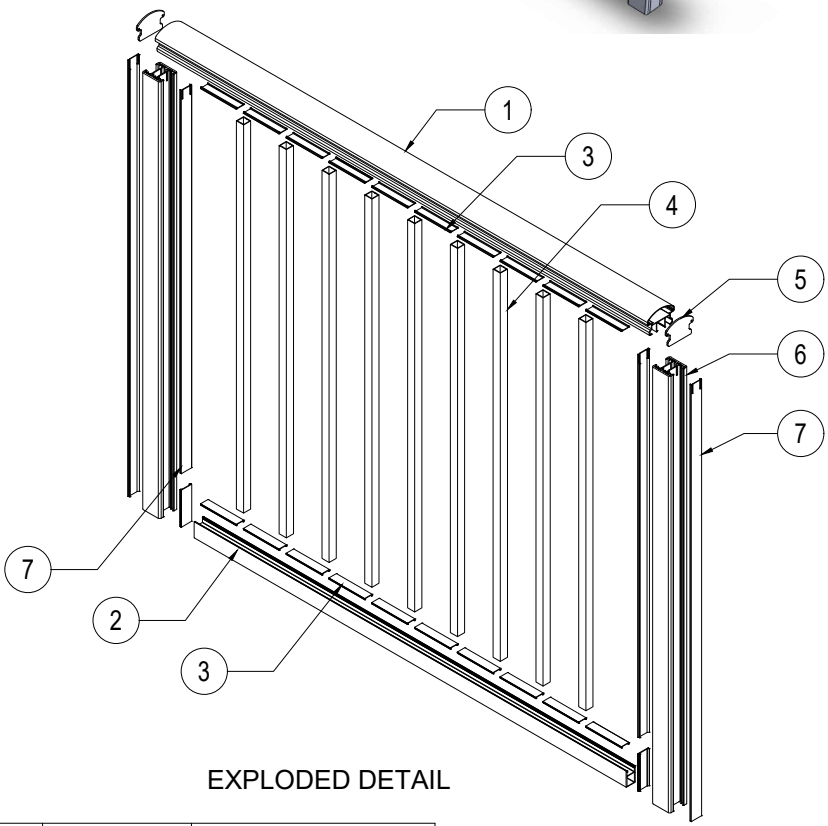
ELEGRA

PIONEER FRAMED BALUSTRADE SYSTEM

DATE : 05/09/2024

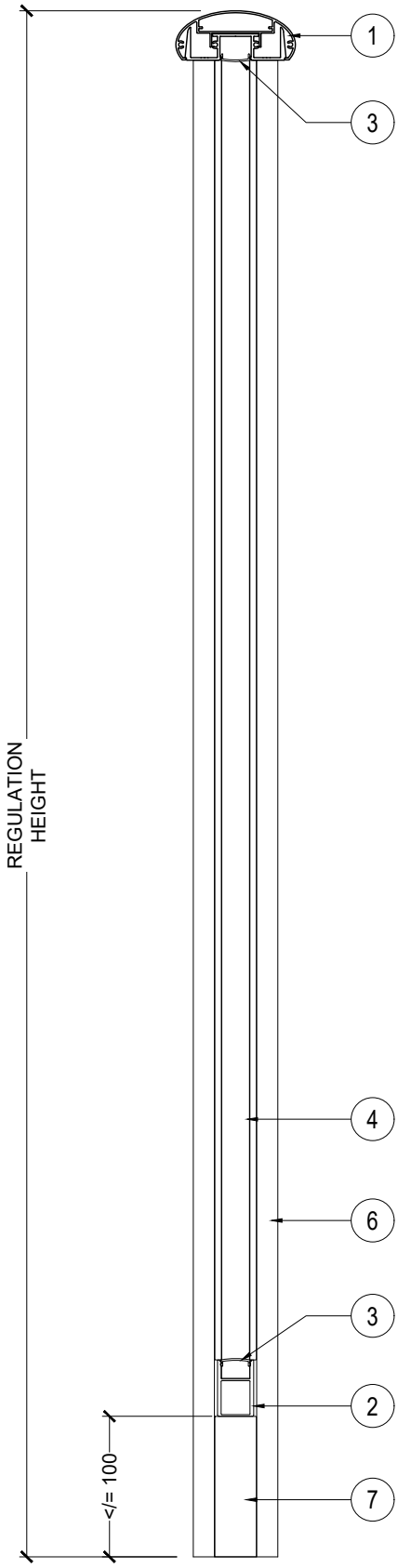
SCALE : NTS

3D VIEW



EXPLODED DETAIL

ITEM	CODE	DESCRIPTION
1	TR-E3585	HAND RAIL
2	HR-C2725	HORIZONTAL RAIL
3	BL-C20	COVER
4	BL-S20	BALUSTERS
5		END CAP
6	ST-S6060	STANCHION
7	ST-C60	SIDE COVER



SECTION DETAIL

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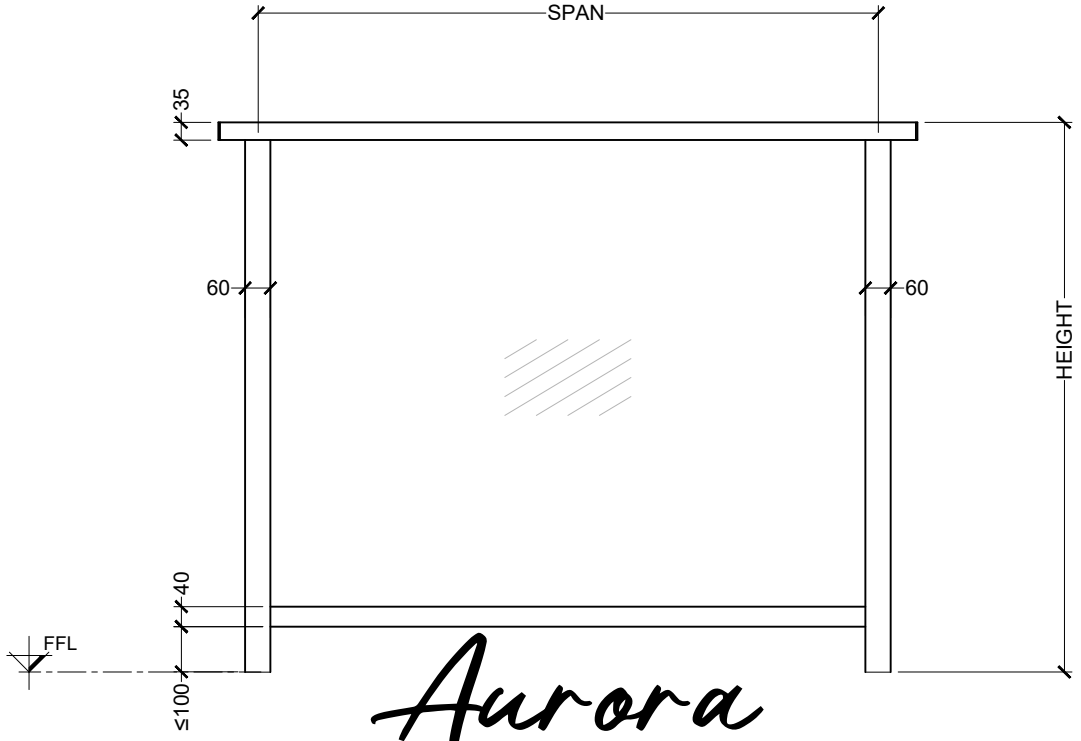
ELEGRA

PIONEER FRAMED BALUSTRADE SYSTEM

DATE : 05/09/2024

SCALE : NTS



Aurora

TECHNICAL DATA

DESCRIPTION :	ELEGRA AURORA SEMI-FRAMELESS BALUSTRADE SYSTEM
MATERIAL :	ALUMINIUM ALLOY OR 6061-T6
TYPICAL HEIGHT :	1000 MM / 1100 MM FROM FFL (REFER TO NZS 4223.3)
FIXING TYPE OPTIONS :	TOP FIX AND SIDE FIX

- MIN CONCRETE STRENGTH IS TO BE 25 Mpa
- CONCRETE BOLT MIN EMBEDMENT IS TO BE 120MM
- COACH SCREWS ARE TO BE FIXED INTO 3 MEMBER BEAM WITH MIN EMBEDMENT 135MM

BASE FIX GLASS TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.30	2.20
STEEL	2.30	2.30	2.30	2.30	2.00
TIMBER (BOLTED)	2.30	2.30	2.30	2.30	1.90
TIMBER (COACH SCREW)	0.80	0.80	-	-	-

SIDE FIX GLASS TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.00	1.60
STEEL	2.30	2.30	2.30	2.30	2.00
TIMBER (BOLTED)	1.20	1.20	1.20	1.20	1.00
TIMBER (COACH SCREW)	0.70	0.70	-	-	-

MAXIMUM GLASS SPAN (MM)

OCCUPANCY	LAMINATED SAFETY GLASS				TOUGHENED SG		TLSG
	6	8	10 and over	12	6	8 and over	8 and over
C3	-	1150	1200	1200	1100	1200	1200

NOTE: GLASS SPAN IS THE SMALLER DIMENSION OF THE HEIGHT OR WIDTH

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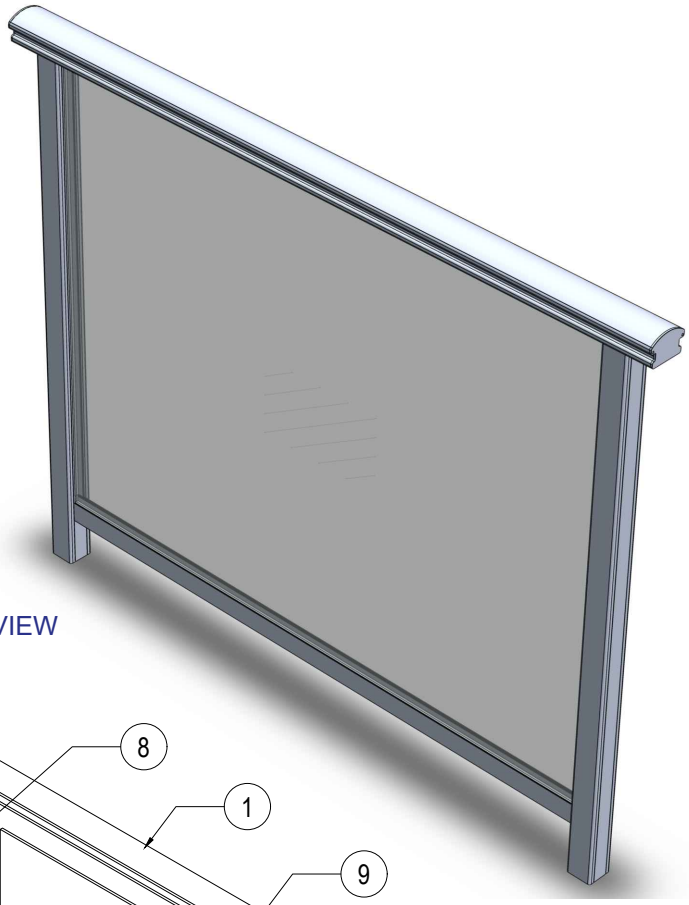
ELEGRA

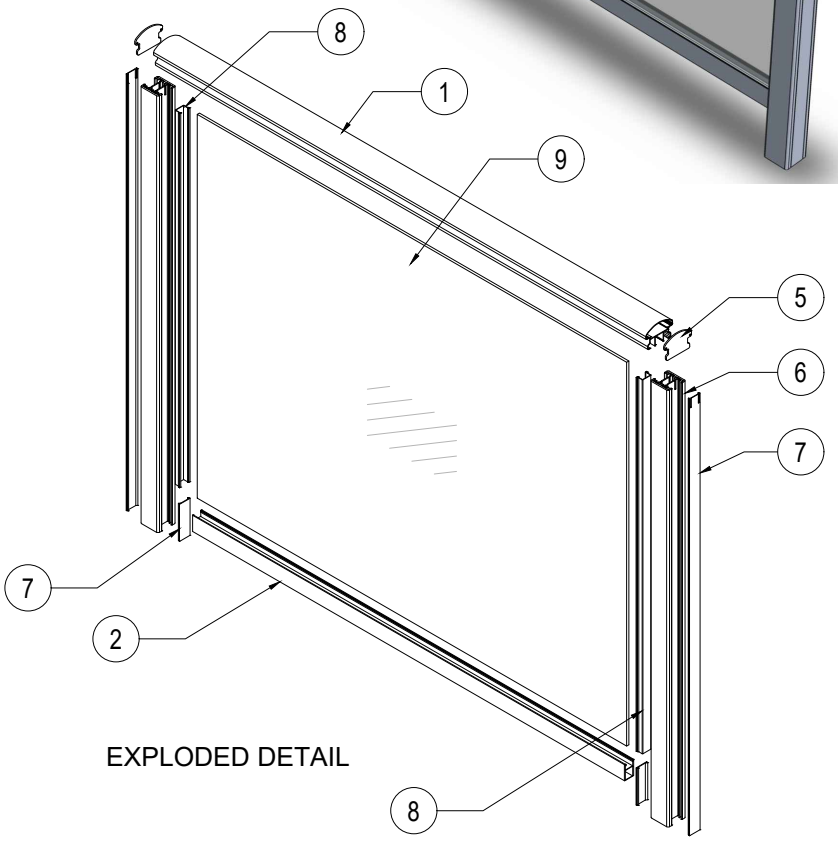
AURORA SEMI-FRAMELESS BALUSTRADE SYSTEM

DATE : 10/11/2025

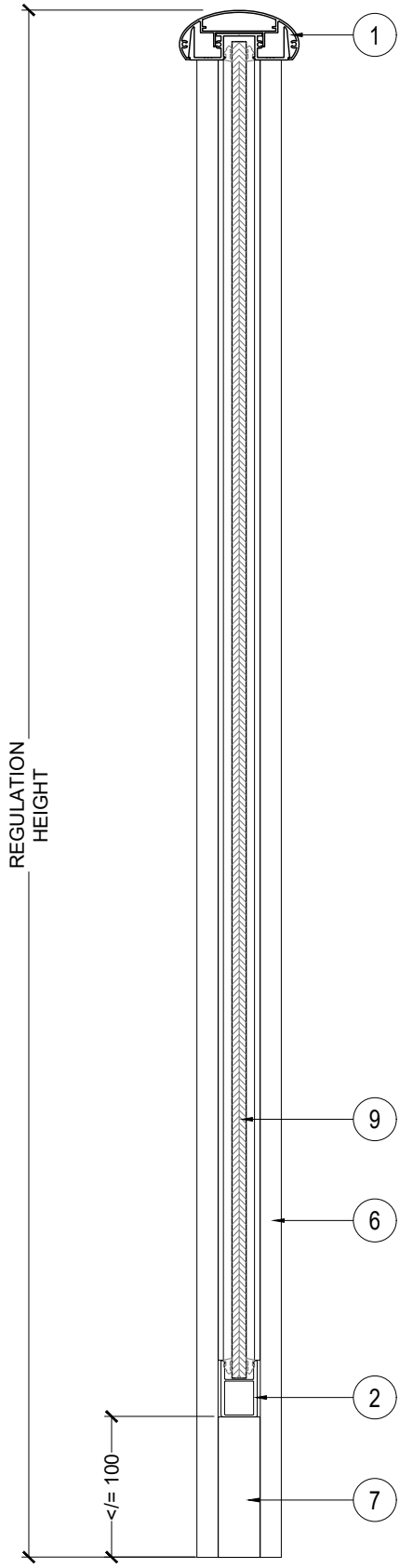
SCALE : NTS



3D VIEW



EXPLODED DETAIL



SECTION DETAIL

ITEM	CODE	DESCRIPTION
1	TR-E3585	HAND RAIL
2	HR-C2725	HORIZONTAL RAIL
3	BL-C20	COVER
4	BL-S20	BALUSTERS
5		END CAP
6	ST-S6060	STANCHION
7	ST-C60	SIDE COVER
8	ST-C60G	GLASS CLIP
9		GLASS

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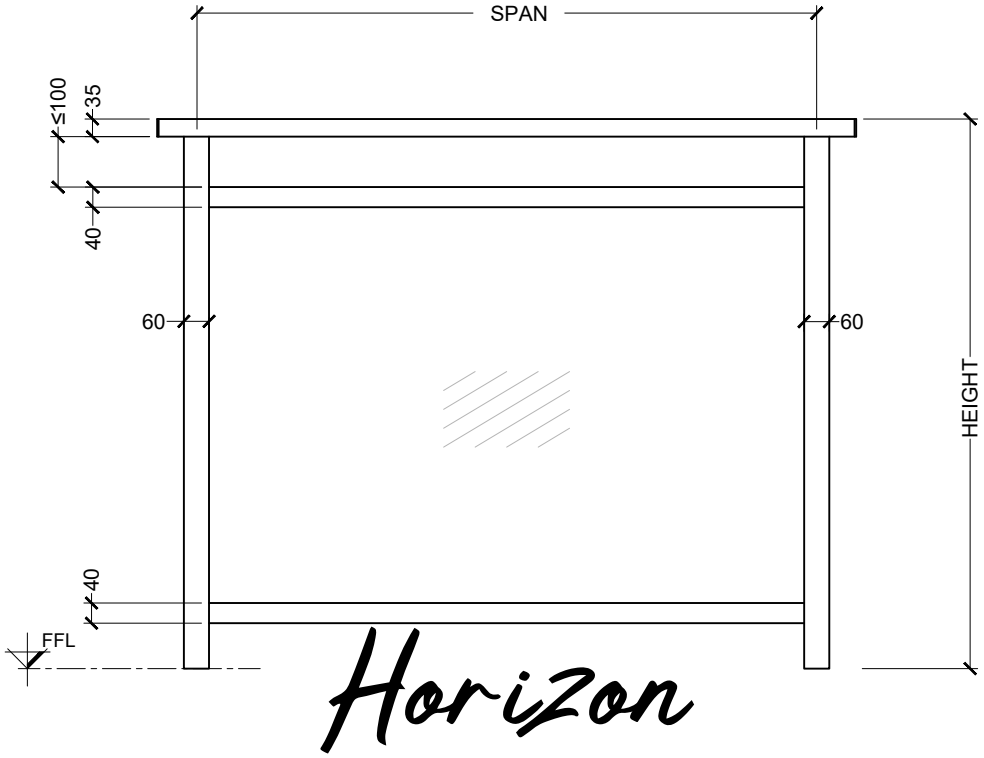
68 ELLICE ROAD, GLENFIELD

AURORA SEMI-FRAMELESS BALUSTRADE SYSTEM

DATE : 05/09/2024

SCALE : NTS



Horizon

TECHNICAL DATA

DESCRIPTION :	ELEGRA HORIZON SEMI-FRAMELESS BALUSTRADE SYSTEM
MATERIAL :	ALUMINIUM ALLOY 6061-T6
TYPICAL HEIGHT :	1000 MM / 1100 MM FROM FFL (REFER TO NZS 4223.3)
FIXING TYPE OPTIONS :	TOP FIX AND SIDE FIX

- MIN CONCRETE STRENGTH IS TO BE 25 Mpa
- CONCRETE BOLT MIN EMBEDMENT IS TO BE 120MM
- COACH SCREWS ARE TO BE FIXED INTO 3 MEMBER BEAM WITH MIN EMBEDMENT 135MM

BASE FIX GLASS TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.30	2.20
STEEL	2.30	2.30	2.30	2.30	2.00
TIMBER (BOLTED)	2.30	2.30	2.30	2.30	1.90
TIMBER (COACH SCREW)	0.80	0.80	-	-	-

SIDE FIX GLASS TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.00	1.60
STEEL	2.30	2.30	2.30	2.30	2.00
TIMBER (BOLTED)	1.20	1.20	1.20	1.20	1.00
TIMBER (COACH SCREW)	0.70	0.70	-	-	-

MAXIMUM GLASS SPAN (MM)

OCCUPANCY	LAMINATED SAFETY GLASS				TOUGHENED SG		TLSG
	6	8	10	12	6	8 and over	8 and over
C3	-	1150	1200	1200	1100	1200	1200

NOTE: GLASS SPAN IS THE SMALLER DIMENSION OF THE HEIGHT OR WIDTH

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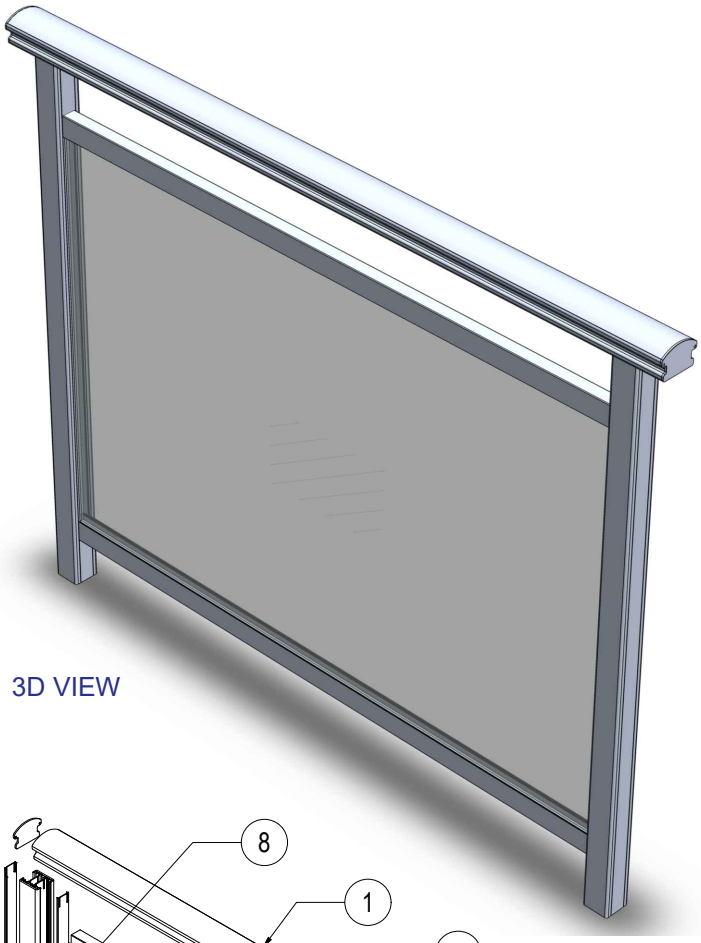
68 ELLICE ROAD, GLENFIELD

ELEGRA

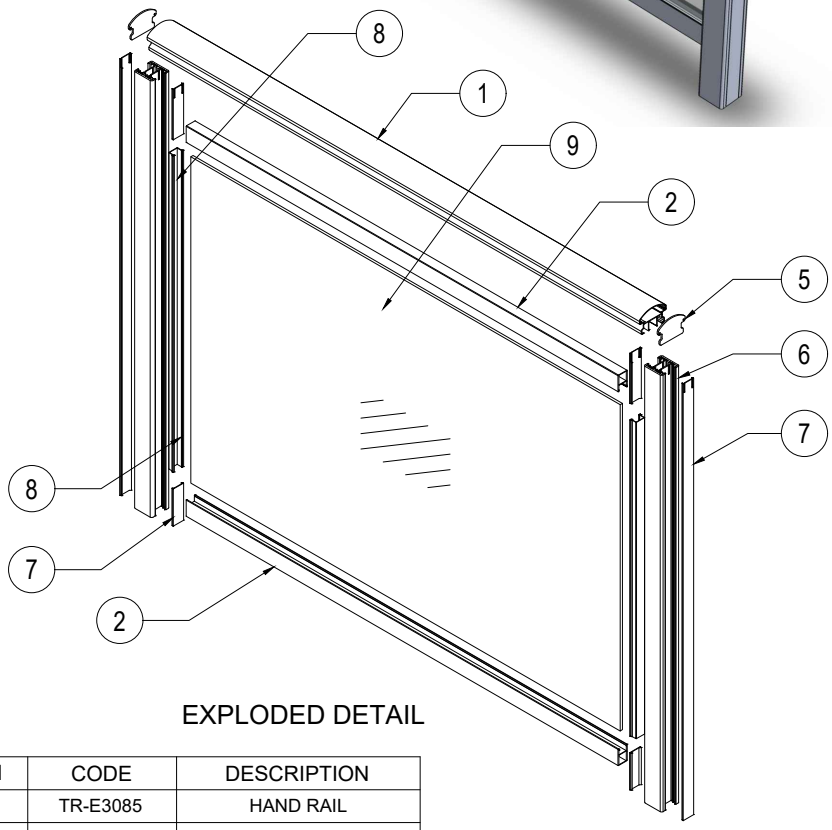
HORIZON SEMI-FRAMELESS BALUSTRADE SYSTEM

DATE : 05/09/2024

SCALE : NTS

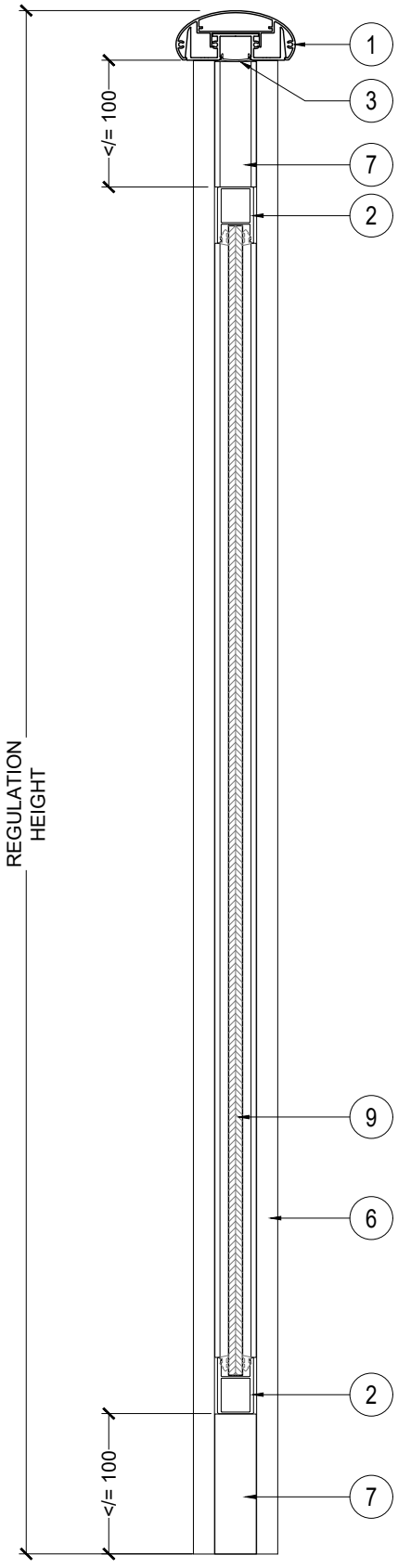


3D VIEW



EXPLODED DETAIL

ITEM	CODE	DESCRIPTION
1	TR-E3085	HAND RAIL
2	HR-C2725	HORIZONTAL RAIL
3	BL-C20	COVER
4	BL-S20	BALUSTERS
5		END CAP
6	ST-S6060	STANCHION
7	ST-C60	SIDE COVER
8	ST-C60G	GLASS CLIP
9		GLASS



SECTION DETAIL

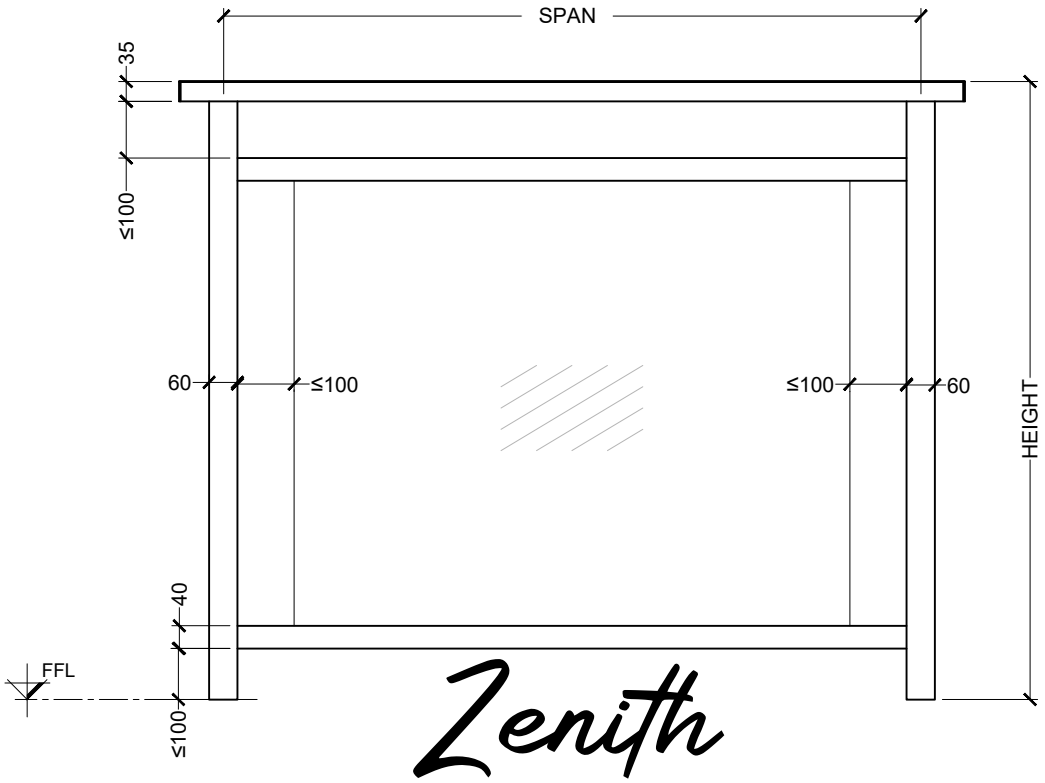
ACMF - SOLAR EDGE
PO BOX 101 760 NORTH SHORE 0745
TEL: 09 214 3236 FAX: 09 444 2142
68 ELLICE ROAD, GLENFIELD

ELEGRA

HORIZON SEMI-FRAMELESS BALUSTRADE SYSTEM

DATE : 10/11/2025

SCALE : NTS



Zenith

TECHNICAL DATA

DESCRIPTION :	ELEGRA ZENITH SEMI-FRAMELESS BALUSTRADE SYSTEM
MATERIAL :	ALUMINIUM ALLOY OR 6061-T6
TYPICAL HEIGHT :	1000 MM / 1100 MM FROM FFL (REFER TO NZS 4223.3)
FIXING TYPE OPTIONS :	TOP FIX AND SIDE FIX

- MIN CONCRETE STRENGTH IS TO BE 25 Mpa
- CONCRETE BOLT MIN EMBEDMENT IS TO BE 120MM
- COACH SCREWS ARE TO BE FIXED INTO 3 MEMBER BEAM WITH MIN EMBEDMENT 135MM

BASE FIX GLASS TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.30	2.20
STEEL	2.30	2.30	2.30	2.30	2.00
TIMBER (BOLTED)	2.30	2.30	2.30	2.30	1.90
TIMBER (COACH SCREW)	0.80	0.80	-	-	-

SIDE FIX GLASS TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.00	1.60
STEEL	2.30	2.30	2.30	2.30	2.00
TIMBER (BOLTED)	1.20	1.20	1.20	1.20	1.00
TIMBER (COACH SCREW)	0.70	0.70	-	-	-

MAXIMUM GLASS SPAN (MM)

OCCUPANCY	LSG		TOUGHENED SAFETY GLASS					TOUGHENED LAMINATED SG			
	10	12	6	8	10	12	15	8	10	12	16
C3	-	-	-	1100	1650	1930	2250	1200	1200	1200	1200

NOTE: GLASS SPAN IS THE SMALLER DIMENSION OF THE HEIGHT OR WIDTH

ACMF - SOLAR EDGE
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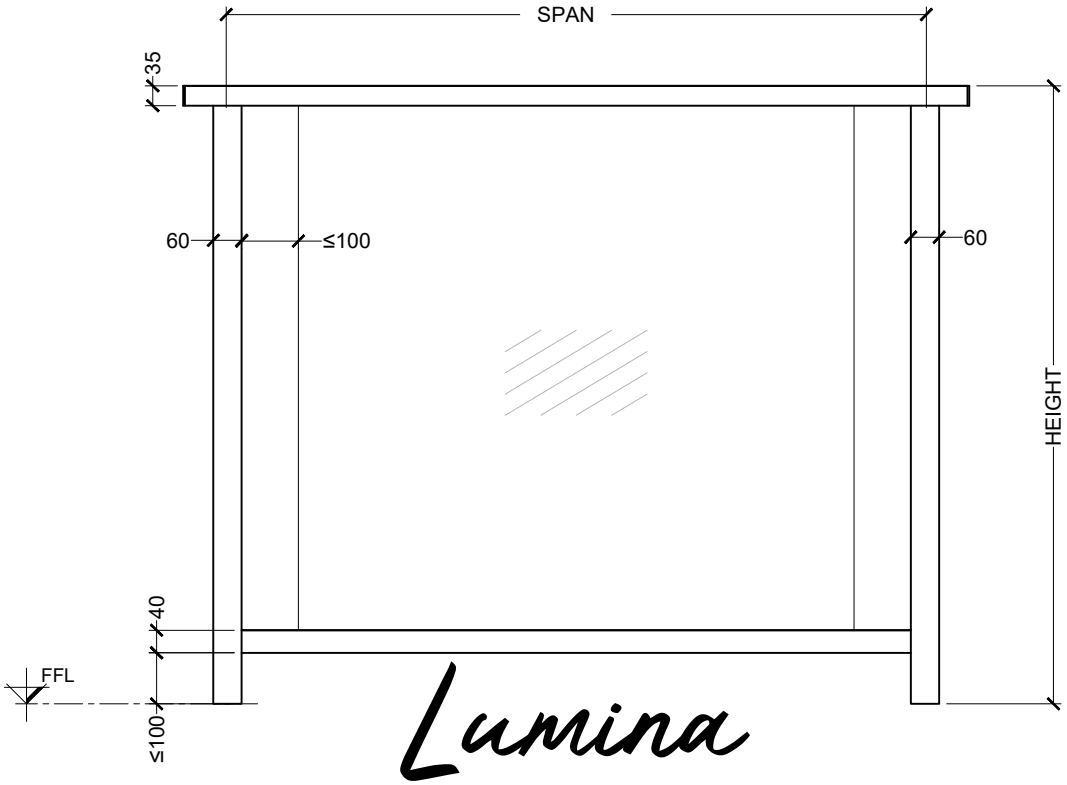
TEL: 09 214 3236 FAX: 09 444 2142
68 ELLICE ROAD, GLENFIELD

ELEGRA

ZENITH SEMI-FRAMELESS BALUSTRADE SYSTEM

DATE : 10/11/2025

SCALE : NTS



Lumina

TECHNICAL DATA

DESCRIPTION :	ELEGRA LUMINA SEMI-FRAMELESS BALUSTRADE SYSTEM
MATERIAL :	ALUMINIUM ALLOY OR 6061-T6
TYPICAL HEIGHT :	1000 MM / 1100 MM FROM FFL (REFER TO NZS 4223.3)
FIXING TYPE OPTIONS :	TOP FIX AND SIDE FIX

- MIN CONCRETE STRENGTH IS TO BE 25 Mpa
- CONCRETE BOLT MIN EMBEDMENT IS TO BE 120MM
- COACH SCREWS ARE TO BE FIXED INTO 3 MEMBER BEAM WITH MIN EMBEDMENT 135MM

BASE FIX GLASS TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.30	2.20
STEEL	2.30	2.30	2.30	2.30	2.00
TIMBER (BOLTED)	2.30	2.30	2.30	2.30	1.90
TIMBER (COACH SCREW)	0.80	0.80	-	-	-

SIDE FIX GLASS TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.00	1.60
STEEL	2.30	2.30	2.30	2.30	2.00
TIMBER (BOLTED)	1.20	1.20	1.20	1.20	1.00
TIMBER (COACH SCREW)	0.70	0.70	-	-	-

MAXIMUM GLASS SPAN (MM)

OCCUPANCY	LSG		TOUGHENED SAFETY GLASS					TOUGHENED LAMINATED SG			
	10	12	6	8	10	12	15	8	10	12	16
C3	-	-	-	1100	1650	1930	2250	1200	1200	1200	1200

NOTE: GLASS SPAN IS THE SMALLER DIMENSION OF THE HEIGHT OR WIDTH

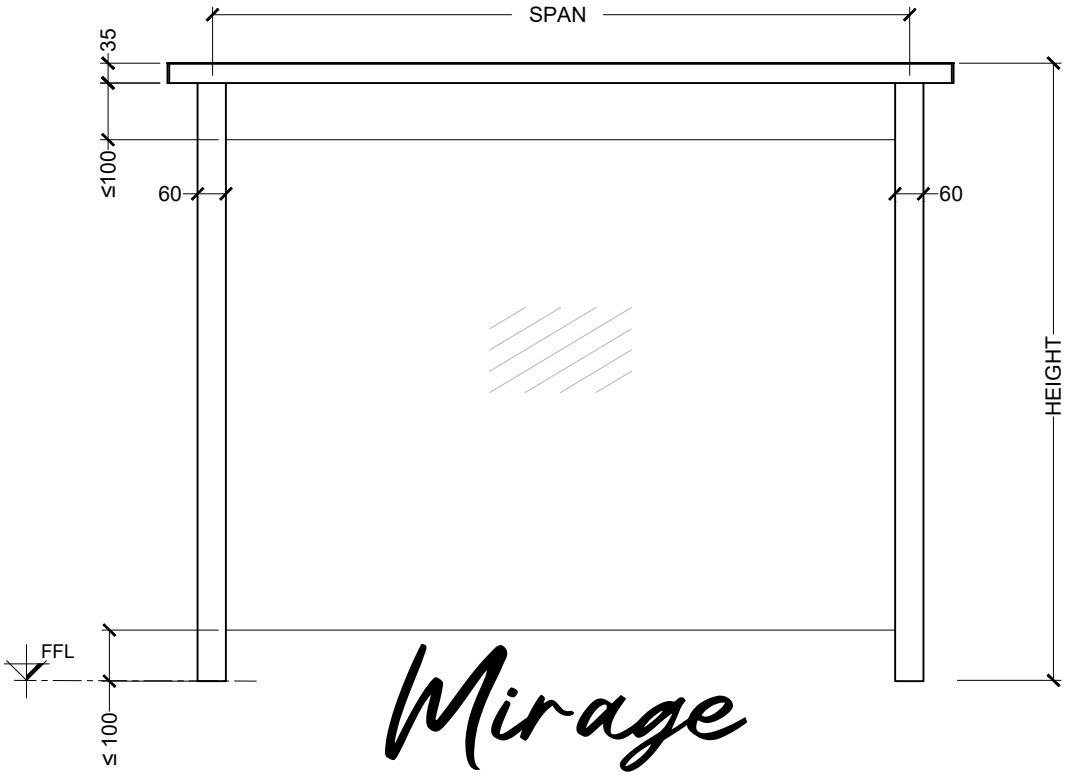
ACMF - SOLAR EDGE
PO BOX 101 760 NORTH SHORE 0745
TEL: 09 214 3236 FAX: 09 444 2142
68 ELLICE ROAD, GLENFIELD

ELEGRA

LUMINA SEMI-FRAMELESS BALUSTRADE SYSTEM

DATE : 10/11/2025

SCALE : NTS



Mirage

TECHNICAL DATA

DESCRIPTION :	ELEGRA MIRAGE SEMI-FRAMELESS BALUSTRADE SYSTEM
MATERIAL :	ALUMINIUM ALLOY OR 6061-T6
TYPICAL HEIGHT :	1000 MM / 1100 MM FROM FFL (REFER TO NZS 4223.3)
FIXING TYPE OPTIONS :	TOP FIX AND SIDE FIX

- MIN CONCRETE STRENGTH IS TO BE 25 Mpa
- CONCRETE BOLT MIN EMBEDMENT IS TO BE 120MM
- COACH SCREWS ARE TO BE FIXED INTO 3 MEMBER BEAM WITH MIN EMBEDMENT 135MM

BASE FIX GLASS TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.30	2.20
STEEL	2.30	2.30	2.30	2.30	2.00
TIMBER (BOLTED)	2.30	2.30	2.30	2.30	1.90
TIMBER (COACH SCREW)	0.80	0.80	-	-	-

SIDE FIX GLASS TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.00	1.60
STEEL	2.30	2.30	2.30	2.30	2.00
TIMBER (BOLTED)	1.20	1.20	1.20	1.20	1.00
TIMBER (COACH SCREW)	0.70	0.70	-	-	-

MAXIMUM GLASS SPAN (MM)

OCCUPANCY	LSG		TOUGHENED SAFETY GLASS					TOUGHENED LAMINATED SG			
	10	12	6	8	10	12	15	8	10	12	16
C3	-	-	-	1100	1650	1930	2250	1200	1200	1200	1200

NOTE: GLASS SPAN IS THE SMALLER DIMENSION OF THE HEIGHT OR WIDTH

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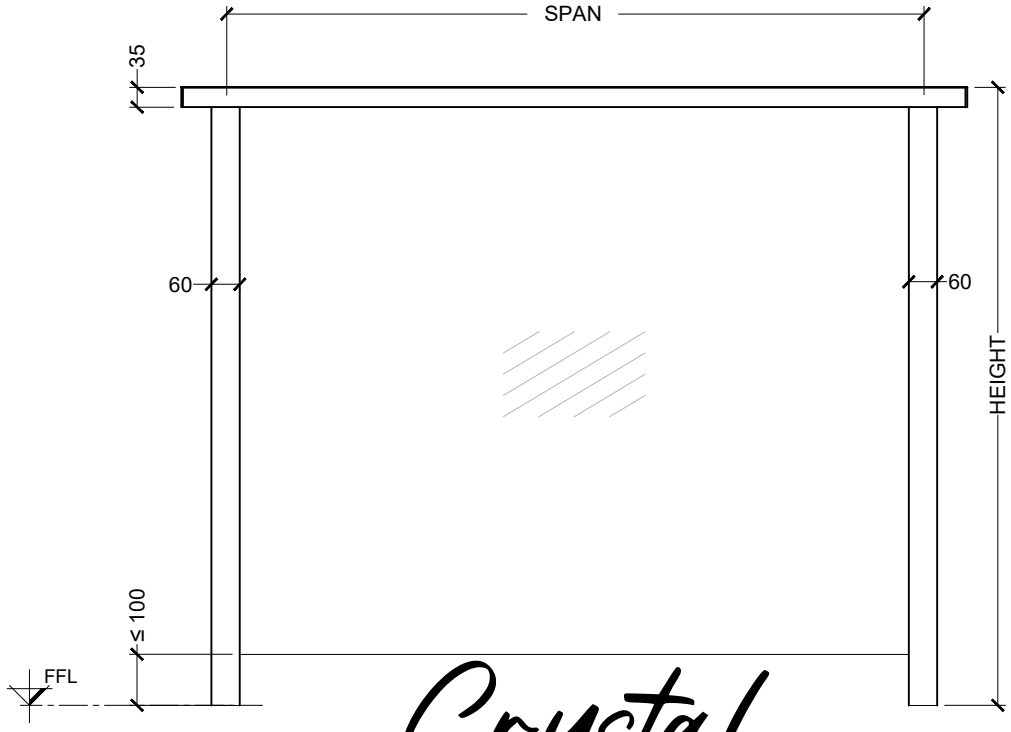
68 ELLICE ROAD, GLENFIELD

ELEGRA

MIRAGE SEMI-FRAMELESS BALUSTRADE SYSTEM

DATE : 10/11/2025

SCALE : NTS



Crystal

TECHNICAL DATA

DESCRIPTION :	ELEGRA CRYSTAL SEMI-FRAMELESS BALUSTRADE SYSTEM
MATERIAL :	ALUMINIUM ALLOY OR 6061-T6
TYPICAL HEIGHT :	1000 MM / 1100 MM FROM FFL (REFER TO NZS 4223.3)
FIXING TYPE OPTIONS :	TOP FIX AND SIDE FIX

- MIN CONCRETE STRENGTH IS TO BE 25 Mpa
- CONCRETE BOLT MIN EMBEDMENT IS TO BE 120MM
- COACH SCREWS ARE TO BE FIXED INTO 3 MEMBER BEAM WITH MIN EMBEDMENT 135MM

BASE FIX GLASS TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.30	2.20
STEEL	2.30	2.30	2.30	2.30	2.00
TIMBER (BOLTED)	2.30	2.30	2.30	2.30	1.90
TIMBER (COACH SCREW)	0.80	0.80	-	-	-

SIDE FIX GLASS TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.00	1.60
STEEL	2.30	2.30	2.30	2.30	2.00
TIMBER (BOLTED)	1.20	1.20	1.20	1.20	1.00
TIMBER (COACH SCREW)	0.70	0.70	-	-	-

MAXIMUM GLASS SPAN (MM)

OCCUPANCY	LSG		TOUGHENED SAFETY GLASS					TOUGHENED LAMINATED SG			
	10	12	6	8	10	12	15	8	10	12	16
C3	-	-	-	1100	1650	1930	2250	1200	1200	1200	1200

NOTE: GLASS SPAN IS THE SMALLER DIMENSION OF THE HEIGHT OR WIDTH

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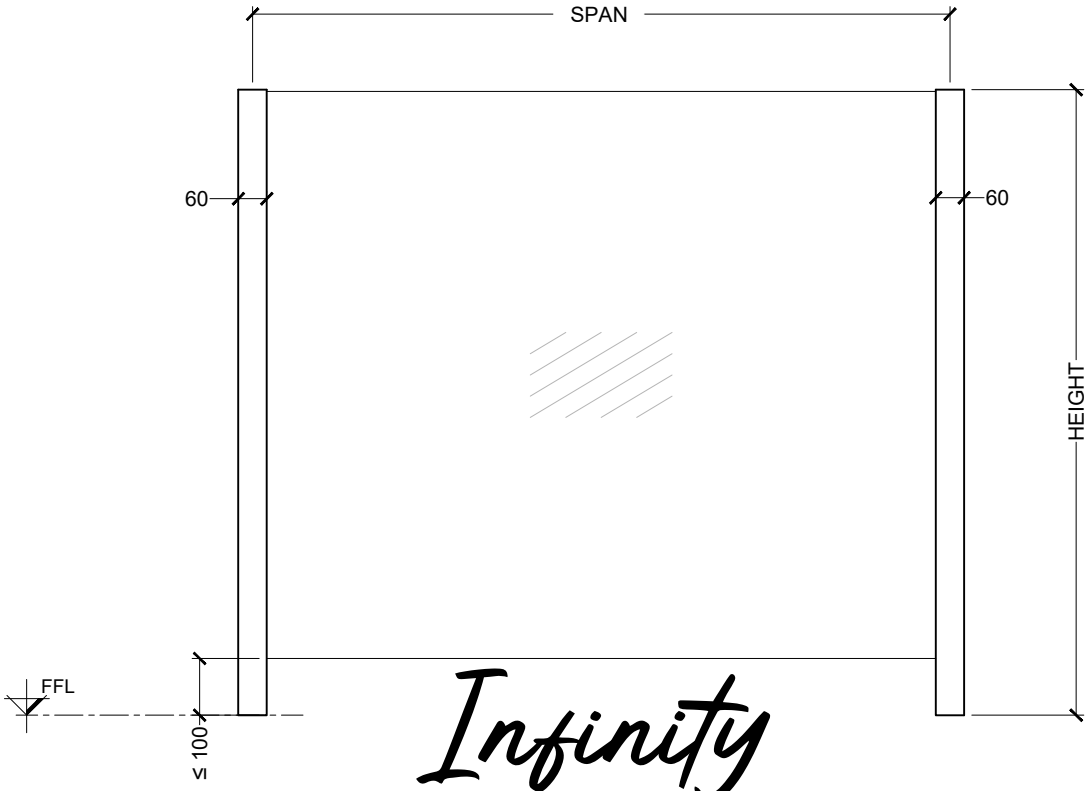
68 ELLICE ROAD, GLENFIELD

ELEGRA

CRYSTAL SEMI-FRAMELESS BALUSTRADE SYSTEM

DATE : 10/11/2025

SCALE : NTS



Infinity

TECHNICAL DATA

DESCRIPTION :	ELEGRA INFINITY SEMI-FRAMELESS BALUSTRADE SYSTEM
MATERIAL :	ALUMINIUM ALLOY 6061-T6
TYPICAL HEIGHT :	1000 MM / 1100 MM FROM FFL (REFER TO NZS 4223.3)
FIXING TYPE OPTIONS :	TOP FIX AND SIDE FIX

- MIN CONCRETE STRENGTH IS TO BE 25 Mpa
- CONCRETE BOLT MIN EMBEDMENT IS TO BE 120MM
- COACH SCREWS ARE TO BE FIXED INTO 3 MEMBER BEAM WITH MIN EMBEDMENT 135MM

BASE FIX GLASS TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.30	2.20
STEEL	2.30	2.30	2.30	2.30	2.00
TIMBER (BOLTED)	2.30	2.30	2.30	2.30	1.90
TIMBER (COACH SCREW)	0.80	0.80	-	-	-

SIDE FIX GLASS TABLE - MAX SPAN (m)					
MATERIAL	WIND ZONE				
	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH
CONCRETE	2.30	2.30	2.30	2.00	1.60
STEEL	2.30	2.30	2.30	2.30	2.00
TIMBER (BOLTED)	1.20	1.20	1.20	1.20	1.00
TIMBER (COACH SCREW)	0.70	0.70	-	-	-

MAXIMUM GLASS SPAN (MM)

OCCUPANCY	LAMINATED SAFETY GLASS				TOUGHENED SG		TLSG
	6	8	10 and over	12	6	8 and over	8 and over
C3	-	1150	1200	1200	1100	1200	1200

NOTE: GLASS SPAN IS THE SMALLER DIMENSION OF THE HEIGHT OR WIDTH

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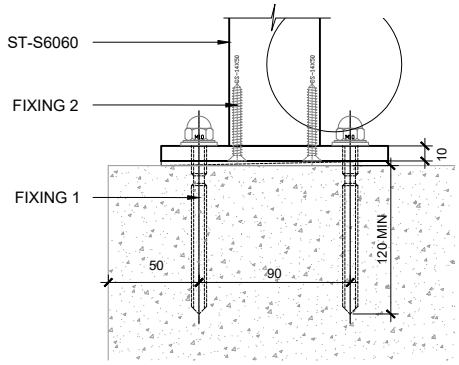
ELEGRA

INFINITY SEMI-FRAMELESS BALUSTRADE SYSTEM

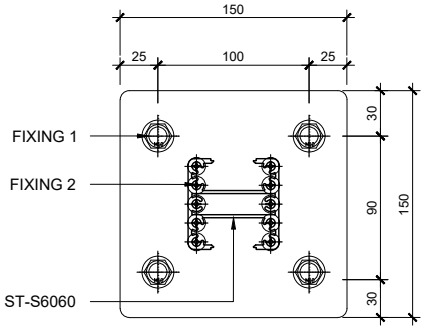
DATE : 05/09/2024

SCALE : NTS

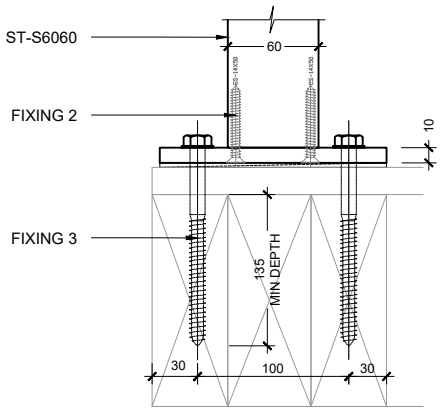
TOP FIXING DETAIL:



SECTION OVER CONCRETE



PLAN



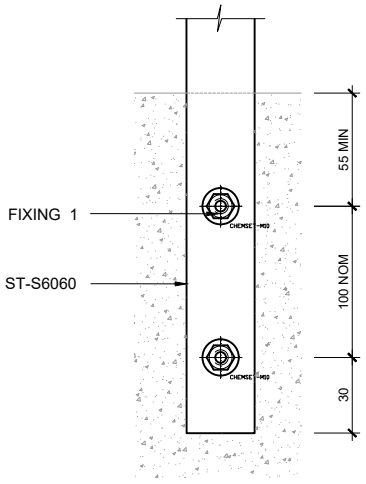
SECTION OVER TIMBER

FIXING 1: M12 SS 316 STUD WITH FISCHER FIS V PLUS 300 CHEMICAL ADHESIVE.
OPTIONAL: M10SS 316 STUD, 145MM DEPTH

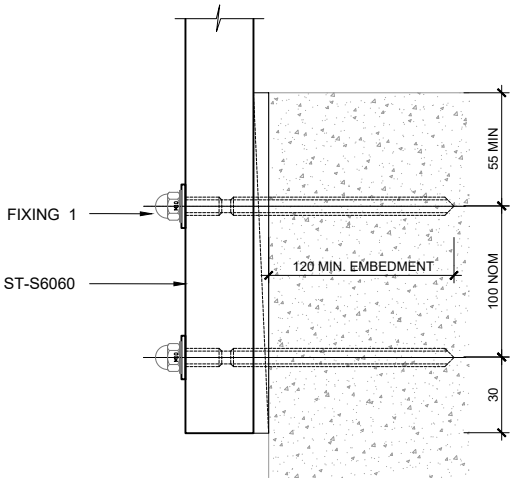
FIXING 2: 14g SS 304 SCREWS (50 MIN EMBEDMENT)

FIXING 3: M10 SS 316 COACH SCREWS, 135MM DEPTH

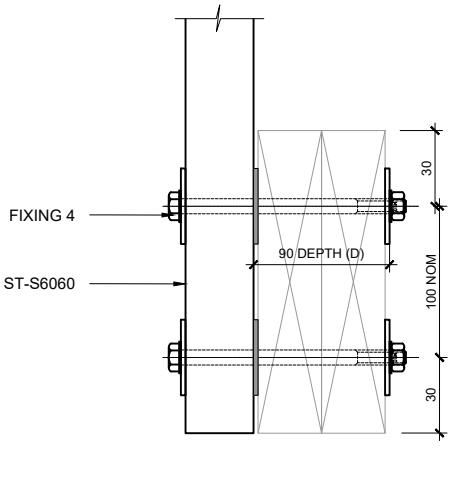
SIDE FIXING DETAIL:



FRONT



SECTION OVER CONCRETE



SECTION OVER TIMBER

FIXING 4: M12 SS BOLT AND NUT ASSEMBLY WITH 50X3 SS SQUARE WASHERS
AND NEOPRENE WASHER ON ALUMINIUM STANCHION INTERFACE

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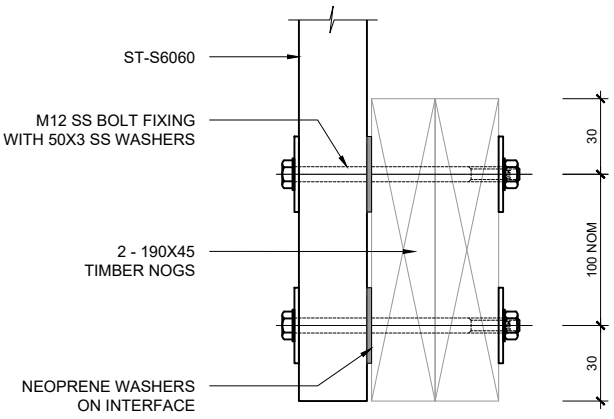
68 ELLICE ROAD, GLENFIELD

ELEGRA

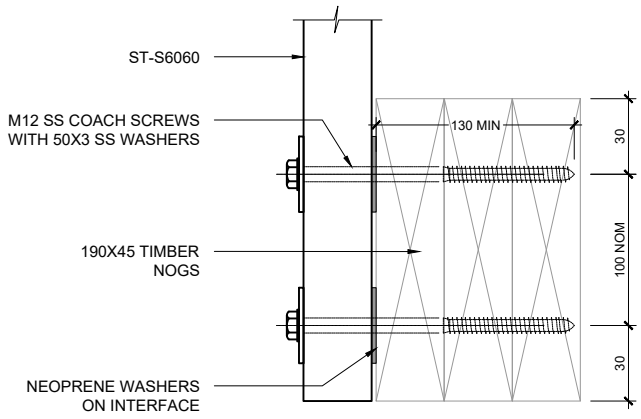
TYPICAL FIXING DETAILS

DATE : 10/11/2025

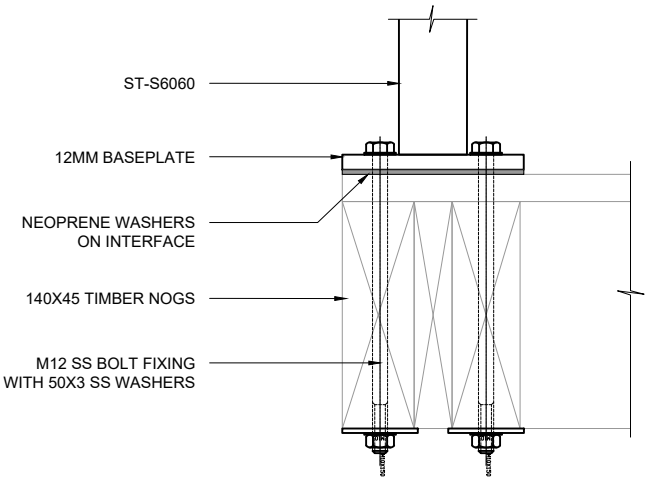
SCALE : NTS



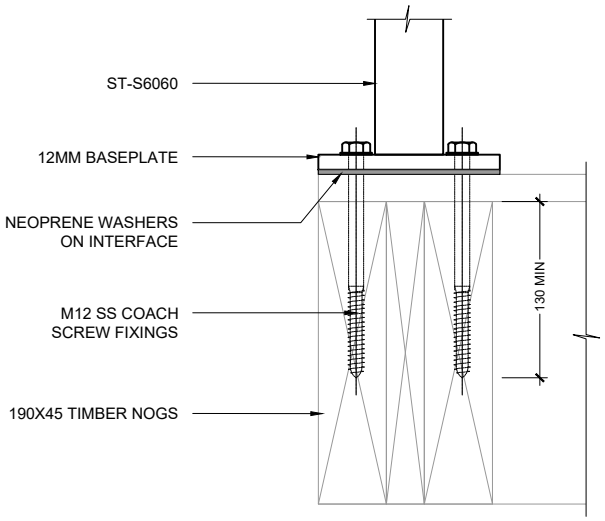
SIDE FIXING ON TIMBER - BOLT THRU



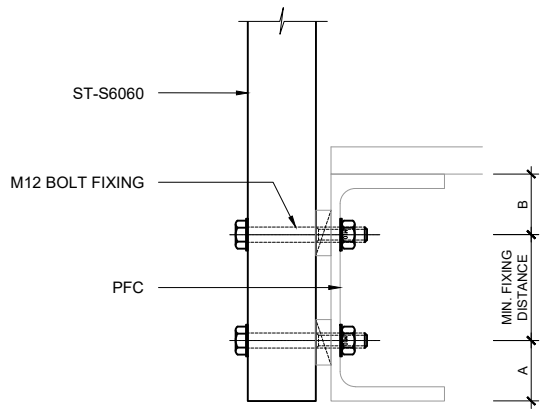
SIDE FIXING ON TIMBER



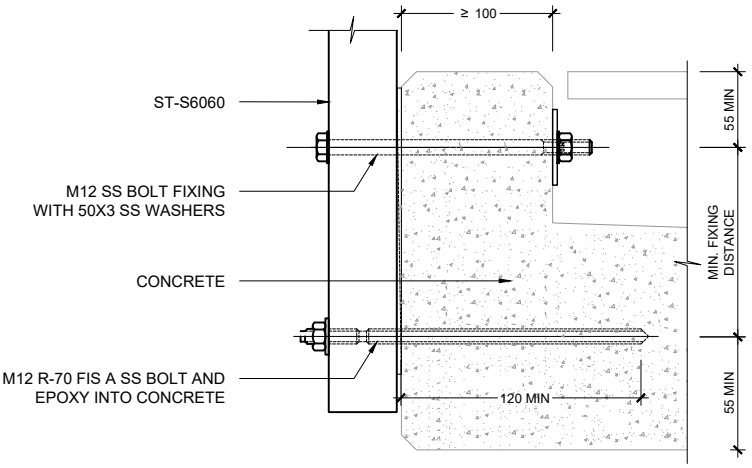
TOP FIXING ON TIMBER - BOLT THRU



TOP FIXING ON TIMBER



SIDE FIXING TO STEEL - BOLT THRU



SIDE FIXING TO CONCRETE WITH
BOLT THRU AND CHEMSET FIXING

ACMF - SOLAR EDGE
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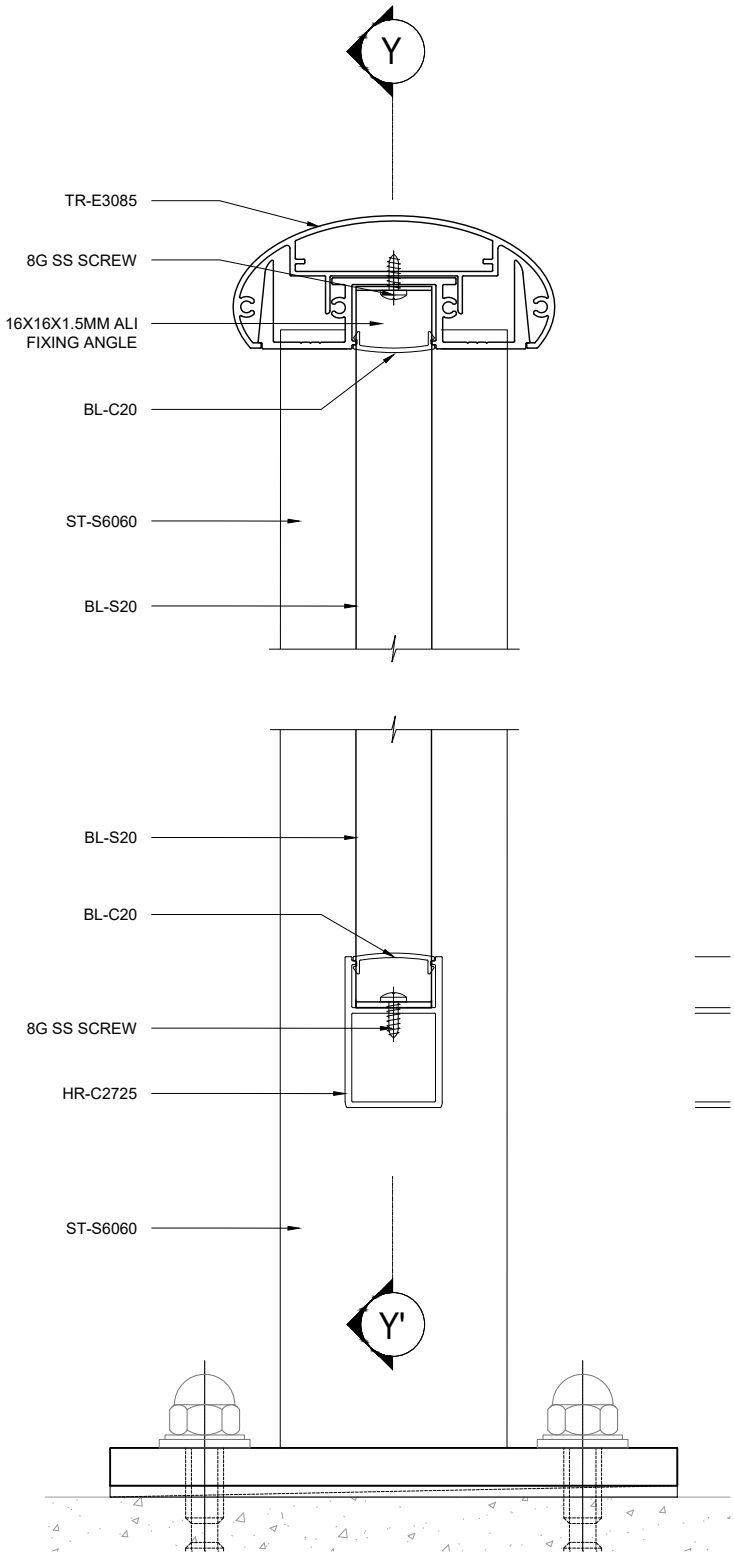
68 ELLICE ROAD, GLENFIELD

ELEGRA

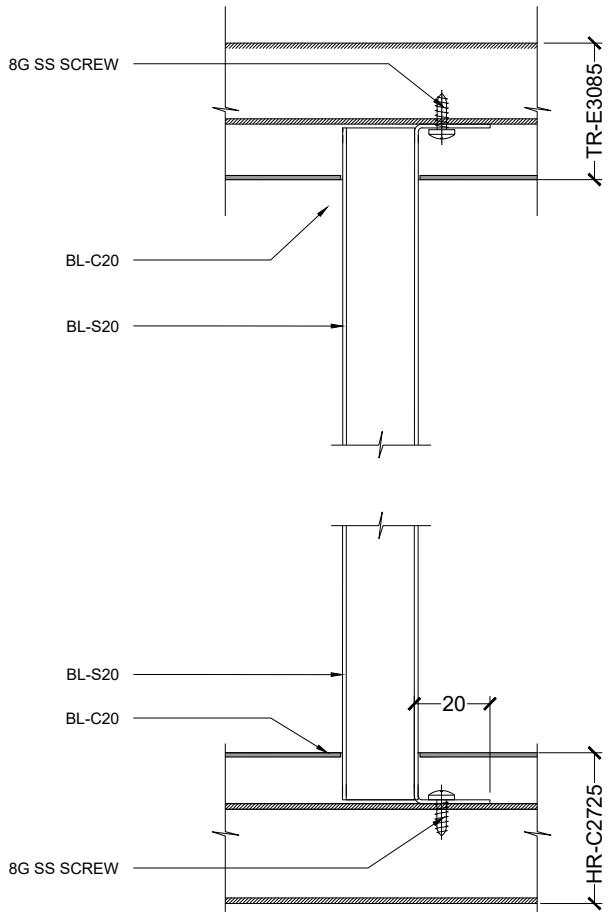
TYPICAL FIXING DETAILS

DATE : 05/09/2024

SCALE : NTS



SECTION



SECTION Y - Y'

TYPICAL FIXING DETAIL FOR BALUSTRADE AT MID-SPAN FOR SPANS MORE THAN 1400MM

ACMF - SOLAR EDGE
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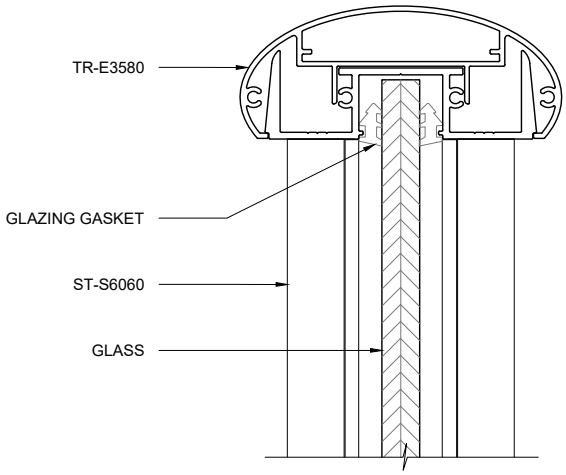
68 ELLICE ROAD, GLENFIELD

ELEGRA

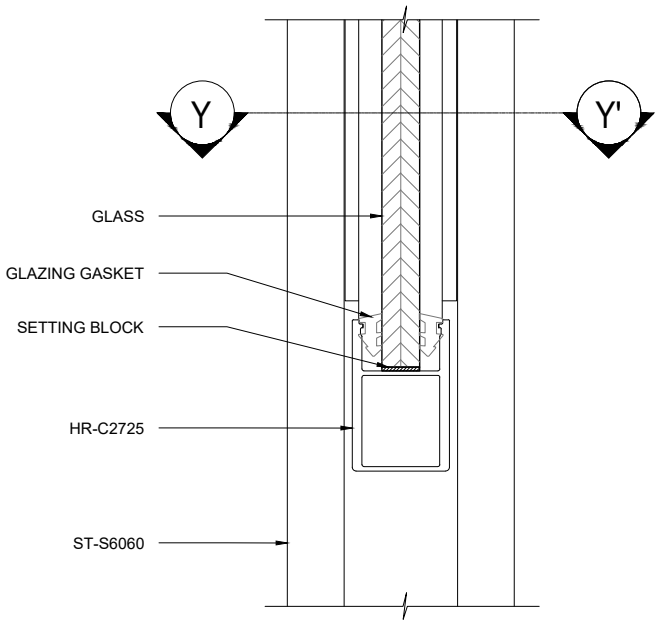
TYPICAL FIXING DETAILS

DATE : 10/11/2025

SCALE : NTS

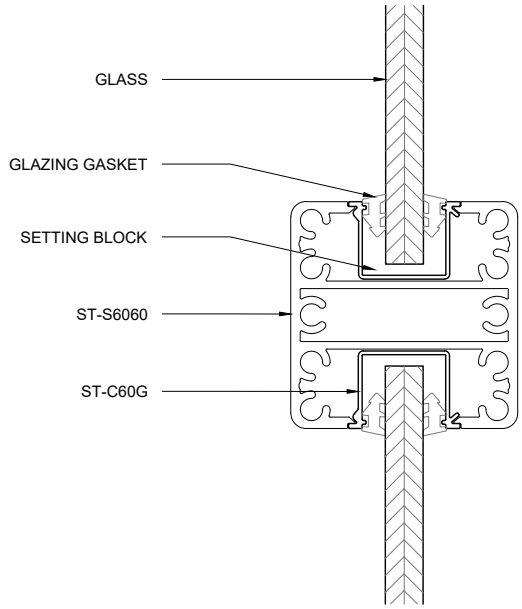


TOP



BOTTOM

SECTION



PLAN Y - Y'

TYPICAL GLASS FIXING DETAIL

ACMF - SOLAR EDGE
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68 ELLICE ROAD, GLENFIELD

ELEGRA

TYPICAL FIXING DETAILS

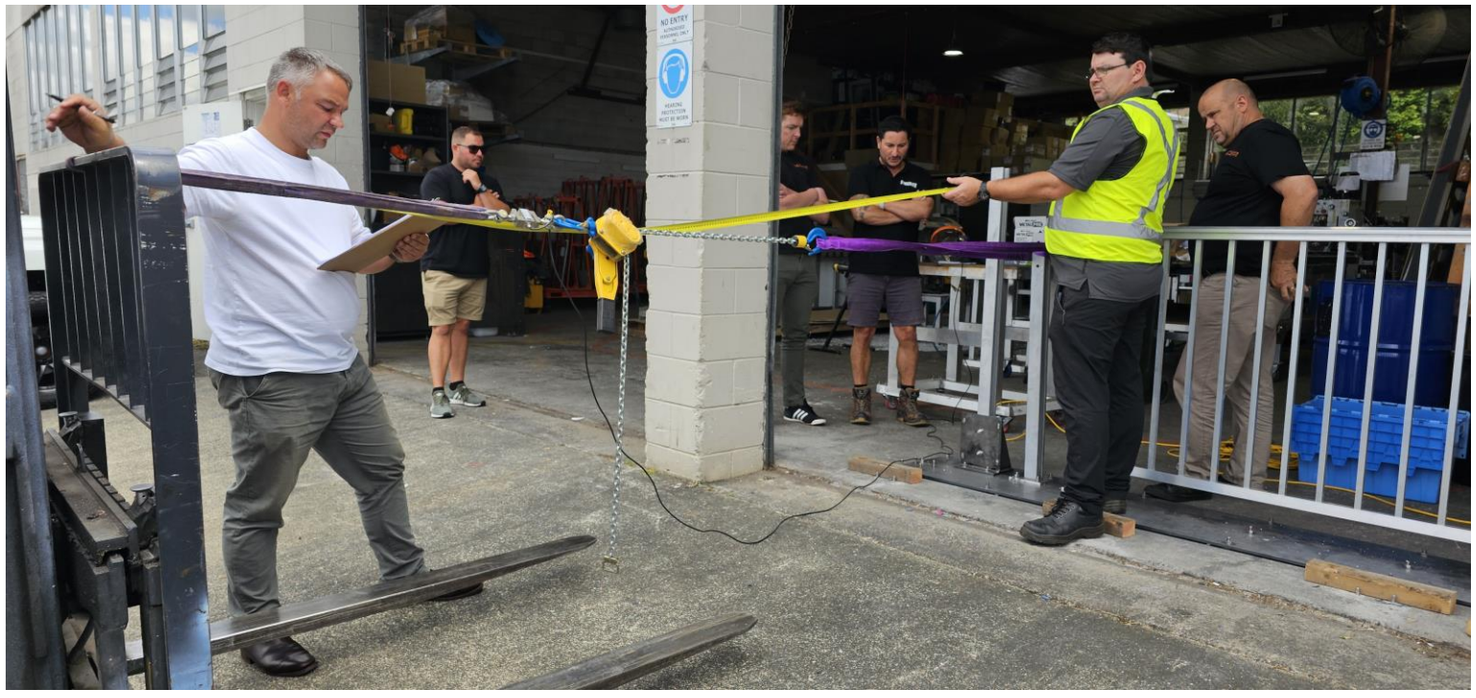
DATE : 10/11/2025

SCALE : NTS

ELEGRA

Tested for Strength

All of our balustrades undergo rigorous strength testing conducted by certified engineers to ensure they meet the highest safety and durability standards. Each design is carefully assessed for structural integrity and performance, ensuring that they can withstand the required loads and stresses over time. By working closely with expert engineers, we provide products that are both aesthetically pleasing and structurally sound.



Building Code Clause(s) B1/VM1, B2, F2/AS1, F4/AS1

PRODUCER STATEMENT – PS1 – DESIGN

(Guidance on use of Producer Statements (formerly page 2) is available at www.engineeringnz.org)

ISSUED BY: HD Structural Engineers
(Design Firm)

TO: ACMF
(Owner/Developer)

TO BE SUPPLIED TO: New Zealand Consenting Authority
(Building Consent Authority)

IN RESPECT OF: Elegra Pioneer Framed Elegra Aurora Semi-frameless Balustrade System Fixings Only
(Description of Building Work)

AT: Varies
(Address)

Town/City:- **LOT** - **DP** - **SO**
(Address)

We have been engaged by the owner/developer referred to above to provide:
Elegra Pioneer Framed Elegra Aurora Semi-frameless Balustrade System Fixings Only

(Extent of Engagement)

services in respect of the requirements of Clause(s) B1, B2** of the Building Code for:

☐ All or ■ Part only (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

■ Compliance Documents issued by the Ministry of Business, Innovation & Employment B1/VM1, B2, F2/AS1, F4/AS1 or
(verification method/acceptable solution)

☐ Alternative solution as per the attached calculations Ref. 0672

The proposed building work covered by this producer statement is described on the drawings titled:

Balustrade system fixing and numbered 1 to 26,
together with the specification, and other documents set out in the schedule attached to this statement.

On behalf of the Design Firm, and subject to:
(i) Site verification of the following design assumptions Installed in accordance with the relevant Installation Brochure, Aluminum supplied meets AS/NZS1664-1997, products meeting required specifications and tolerances
(ii) All proprietary products meeting their performance specification requirements;

I believe on reasonable grounds that a) the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that b), the persons who have undertaken the design have the necessary competency to do so. I also recommend the following level of construction monitoring/observation:

☐ CM1 ■ CM2 ☐ CM3 ☐ CM4 ☐ CM5 (Engineering Categories) or ☐ as per agreement with owner/developer (Architectural)

I, Hasan Al-safi (Name of Design Professional) am: ■ CPEng 1011174 # ☐ Reg Arch #

I am a member of: ■ Engineering New Zealand ☐ NZIA and hold the following qualifications: BE (Hons), CMEngNZ, CPE
The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.
The Design Firm is a member of ACENZ: ☐

SIGNED BY Hasan Al-safi (Name of Design Professional) (Signature)

ON BEHALF OF HD Structural Engineers (Design Firm) Date 09/05/2025

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of $200,000.*

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.

This PS1 is valid for a period of two years from the date of signature, 09/05/2025. After this period, the document shall be considered expired, and revalidation will be required for building consent approval.

B2** - Refer to attached letter, clarifying the extent of PS2 B2

To whom it may concern

B2 compliance in respect of the proposed additions and alterations

The purpose of this letter is to demonstrate how compliance with Clause B2 (Durability) of the Building Code will be achieved for the above project. We can confirm that for specifically designed structural elements that are included within our design documentation:

Material	Means of compliance	Details
Reinforced concrete	B2/AS1	Concrete cover to reinforcing has been selected in accordance with NZS3101, Part 1, Section 3
Structural timber	B2/AS1	Timber treatment has been selected in accordance with Table 1A of B2/AS1
Mild steel structure	Alternative Solution	Protection for mild steel has been specified in accordance with SNZ TS 3404 – Durability requirements for steel structures and components and AS/NZS2312 – Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings. This guide works on a time to first maintenance basis and assumes on-going maintenance. Refer to the attached maintenance plan (optional but recommended).
Other		

Yours faithfully,
Hasan Al-safi

For and on behalf of
HD Structural Engineers Ltd

Structural maintenance schedule

This schedule of ongoing inspection and maintenance of structural elements shall be included with the Operations and Maintenance manuals and provided to the Owner/Body Corporate and building managers.

Inspection/maintenance timeframe and item	
Half-yearly	Wash down all exposed steelwork that is not in a fully interior environment including: • Veranda steelwork • Steel Carpark structure (beams, columns, braces etc) • Deck and balcony steelwork • Exposed façade steelwork, both primary and secondary structure • Plantrooms and plenums with fresh-air intakes • External structural components such as Buckling Restrained Braces, Viscous Dampers, Eccentrically Braced Frames and the like • Sub-ground floor mild-steel structures such as beams, isolation bearings etc.
(b) 5 yearly	Inspect and repair sealant that encloses structural mild-steel components and/or timber with mild-steel fixings
(c) 10 yearly	Check exposed timber fixings for corrosion, repair as required.
	Inspect/replace sealant that encloses structural mild-steel components and/or timber with mild-steel fixings. This will typically include sealants around the perimeter of precast panels. Note that 10 years is the expected useful life for many sealants
	Check exposed structural steel within plantrooms and plenums for corrosion. Repair protective coatings as required.
	Check all exposed steelwork that is not in a fully interior environment for signs of corrosion. Repair protective coatings as required.
	Audit of damage to exposed intumescent coatings. Repair as required.
(d) 25 yearly	Inspect samples of structural steel that is hidden from view but not enclosed within a vapour barrier, and repair protective coatings as necessary. A typical example is a veranda with built-in steelwork. (Such steelwork should typically have duplex protective coatings). Inspection may typically require removal of claddings and/or the drilling of holes for borescope access. Repair as required.
	Inspect all exposed, external timber. Repair as required.
	Inspect all exposed, external reinforced concrete for signs of spalling or cracking. Repair as required.
	Audit of damage to enclosed intumescent coatings. Repair as required.
Following fit-out or alterations	Audit of damage to intumescent coatings. Repair as required.
Following seismic shaking > SLS1 event	Inspections and repair as per b), c) and d) above

CONSTRUCTION MONITORING SCHEDULE
RESIDENTIAL

Schedule of inspections for

Address Varies

We confirm that HD Structural Engineers have been engaged to undertake construction monitoring of the specific engineering design items to an Engineering New Zealand/ACENZ CM 1 level and propose to undertake at least the following site inspections:

No.	Item of inspection	Timeframe
	(Delete any that do not apply)	
1	Internal posts and connections	While all connections are clearly visible, pre-line and prior to building in to such an extent that remediation work could not be carried out.

Notes:

a) The above items of inspection are the minimum required to enable HD Structural Engineers to issue a PS4 – Producer Statement Construction Review for the specific engineering design items.

b) The above items of inspection do not cover work constructed in accordance with NZS 3604:2011, for which inspections are to be undertaken by the Building Consent Authority.

c) The Contractor/Builder is to provide HD Structural Engineers at least 24 hours' notice of the requirement for an inspection. The above timeframes are indicative, the Engineer and Contractor are to agree the timing of inspection prior to work commencing on site.

d) A copy of this inspection schedule is to be held on site during the works, and the Contractor/Builder is to provide reasonable and safe access to enable works to be inspected according to the schedule.

e) The above schedule does not necessarily represent the actual number of inspections to be undertaken. The number of inspections will depend on the construction method, sequence of the works and whether or not unforeseen conditions or difficulties are encountered on site.