EDGESMITH

FOR RESIDENTIAL AND COMMERCIAL BALUSTRADES

PS1 STRAITS

Producer Statement
Commercial and Residential Balustrades

The design is in compliance with the **New Zealand Building Code (NZBC)**, NZS 3604:2011 section **B1** and **F4**.
Barrier loadings meet AS/NZS 1170.1:2002

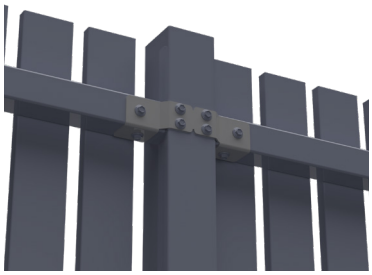
Rev No. 02 | **Issue Date:** February 2025

STRAITS

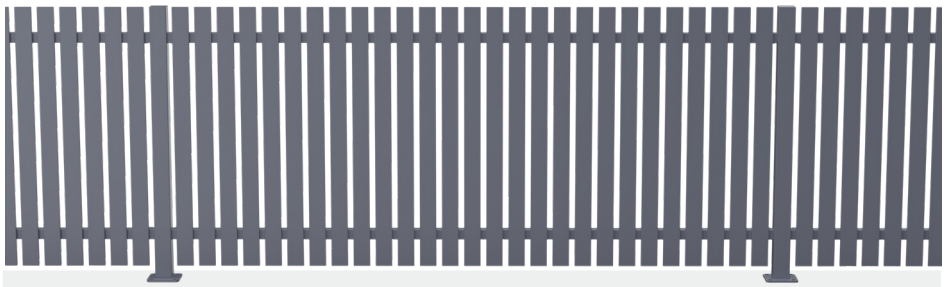
Balustrade System

A traditional looking picket fence that is fast to install and doesn't need painting!

Timber pickets are slow to install because you have to cut and nail them on site. And then they need to be painted. The Straits replicates this traditional look with a fully welded and powder coated aluminium fence panel system.



Close-up View



Applications

The New Zealand Building Code (AS/NZS 1170.1:2002) designates different occupancy types and specifies the load ratings that the system must be capable of withstanding. The system comprises of the panel, posts, fixings and the structure that the balustrade is being attached to. These are summarised in the table below. Refer to the drawings on pages 9-15 for more details.

See page 4 for width requirements.

Table of Contents

Application	Occupancy Type	Design Load	Posts	Fixing Options	Details
Concrete	C3	0.35kN/m	Alu 65SHS x 2.5 mm	Screw Bolt, Chemset Rod	Pg. 9
Masonry Block Wall	C3	0.35kN/m	Alu 65SHS x 2.5 mm	Chemset Rod	Pg. 10
Timber Deck	C3	0.75kN/m	Alu 65SHS x 2.5 mm	Bolt or Coach Screw	Pg. 11
Concrete	C3	0.75kN/m	Alu 65SHS x 2.5 mm	Screw Bolt	Pg. 11
Timber Retaining Wall	C3	0.75kN/m	Alu 65SHS x 2.5 mm	Bolt or Coach Screw	Pg. 12
Masonry Block Wall	C3	0.75kN/m	Alu 65SHS x 2.5 mm	Chem Set Rod	Pg. 13
Timber Deck	C3	0.75kN/m	Alu 65SHS x 2.5 mm	Coach Screw or Bolt	Pg. 13-14
PFC	C3	0.75kN/m	Alu 65SHS x 2.5 mm	Bolt	Pg. 14
In-Ground	C3	0.75kN/m	Alu 65SHS x 2.5 mm	-	Pg. 15

AS/NZS 1170.1:2002 Table 3.3 Occupancy Reference

Fasteners And Corrosion Zones

New Zealand's coastal climate means that attention must be paid to the proximity to salt water when choosing what fasteners to use. The table below is a guide to where hot dip galvanised fasteners can be used. While it may seem counter intuitive that sheltered installations require stainless steel fittings even within 5km of the sea, it is because regular exposure to rainfall cleans the fasteners and prolongs their life.

Environment	Corrosion Classification	Exposed	Sheltered
Within 500m of breaking surf or 50m of calm salt water	C4	All fixings 304 Stainless Steel	All fixings 304 Stainless Steel
Within 20km of salt water on West or South Coast of South Island or within 5km of salt water elsewhere	C3	All fixings Hot dip Galvanised or 304 Stainless Steel	All fixings 304 Stainless Steel
More than 20km of salt water on West or South Coast of South Island or more than 5km of salt water elsewhere	C2	All fixings Hot dip Galvanised or 304 Stainless Steel	All fixings Hot dip Galvanised or 304 Stainless Steel

Note 1: While hot dip galvanised fixings are acceptable in inland locations it is safer to use 304 grade stainless steel.
Note 2: The table above is only a guide. Please refer to SNZ TS 3404:2018, Figures 1 to 7 for specific corrosivity maps for further guidance.

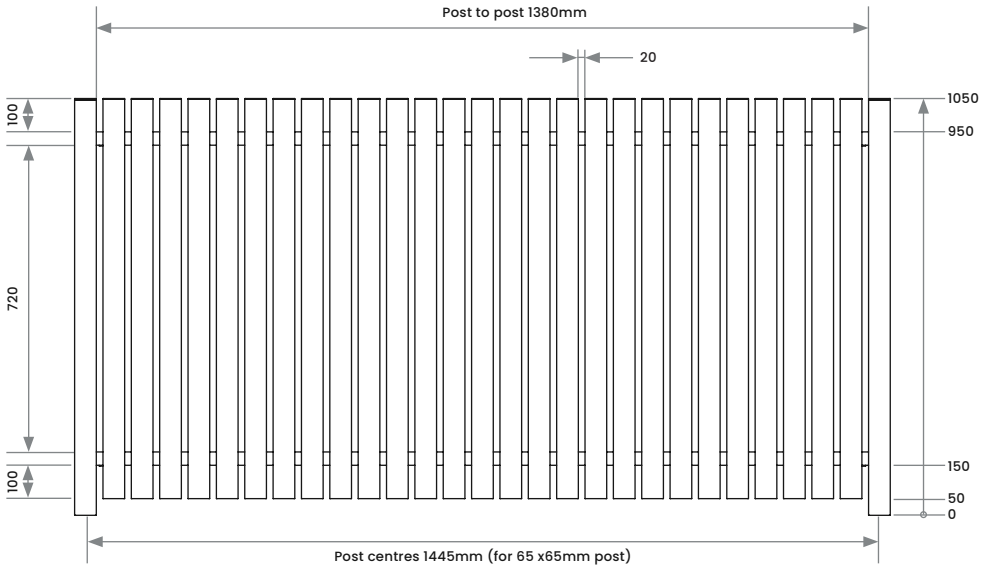
Inspection And Maintanence Schedule

This schedule of ongoing maintenance of structural elements shall be included with the O&M manuals and provided to the Owner/Body Corporate and building managers.

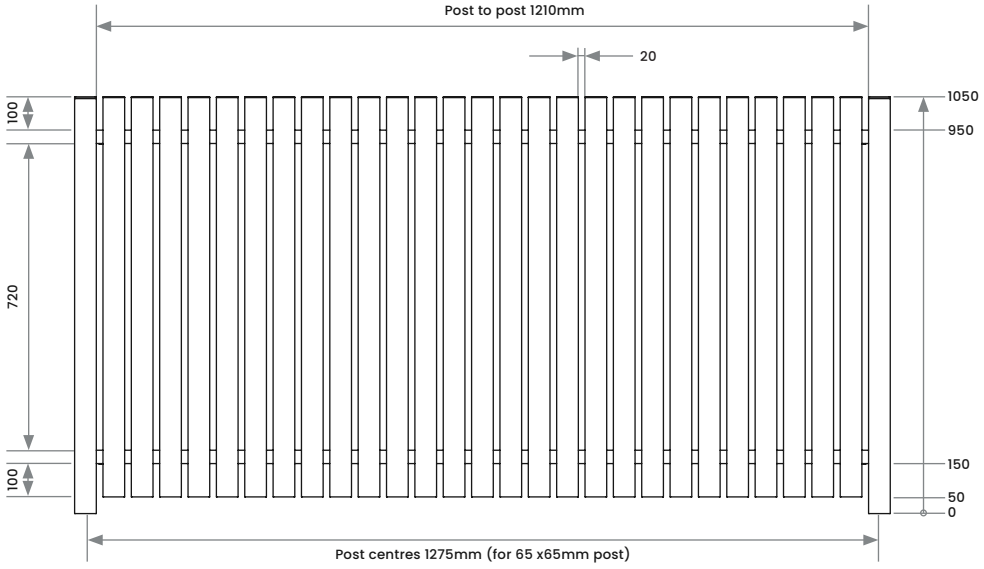
Timeframe	Inspection / Maintenance
1/2 yearly	Wash down all exposed metalwork including panels, posts and fixings
10 yearly	Check panels, posts and fixings for signs of corrosion. Repair protective coatings or replace as required.
Following seismic shaking > SLS1 event	Inspect and repair as per the 10 yearly requirements.

Full engineers report with design calculations available on request.

Straits - 1000mm x 1380mm for Very High Wind Zone



Straits - 1200mm x 1210mm for Extra High Wind Zone



Material:

· Aluminium

· Pickets RHS 65 x 16 x 1.2mm

· Rails 40 x 40 x 2.0mm

Finish:

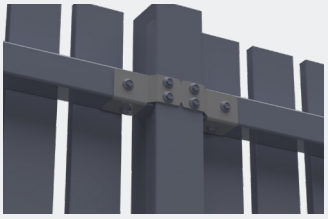
Powder Coated

Bracket Fixings:

· Brackets

· Tek Screws

Bracket Details:



PRODUCER STATEMENT – PS1 DESIGN

Building Code Clause(s):	B1,	Job number: GR-0750 Part 1
ISSUED BY: *(Engineering Design Firm)*	Grit Engineering Ltd	
TO: *(Client)*	Edgesmith Ltd	
TO BE SUPPLIED TO: *(Building Consent Authority)*	Relevant Local Authority	
IN RESPECT OF: *(Description of building work))*	New build	
AT: *(Address)*	Throughout New Zealand	
LEGAL DESCRIPTION	N/A	

We have been engaged by Edgesmith Ltd to provide:

Structural engineering and design services of the Edgesmith Ltd "Straits Barrier System" and the corresponding connections to concrete, masonry, timber, steel and ground using concrete piles.

in respect of the requirements of the Clause(s) of the Building Code specified above for all of the proposed building work.

The design carried out by Grit Engineering Ltd has been prepared in accordance with:

✓ compliance documents issued by the Ministry of Business, Innovation & Employment (Verification method /acceptable solution): VM1

The proposed building work covered by this producer statement is described in the drawings specified in the attached Schedule, together with the specification, and other documents set out in the attached Schedule.

On behalf of Grit Engineering Ltd, and subject to:

- site verification of the following design assumptions:
  - The balustrade was designed for situations that fall strictly within the limitations set out in Clause F4 of the New Zealand building Code, and based on the minimum barrier loads shown in Table 3.3 of AS/NZS 1170.1 For Occupancy Type C3 (Stairs, landings, external balconies, edges of roof, etc., 0.75 kN/m)
  - The wind zone of the area where the barrier is to installed should be confirmed. The following post spacing is to be used: 1445mm for Very High Wind Zone and below, and 1275mm for Extra High Wind Zone.
  - The barrier supporting structure/members are to accommodate the loads induced by the barrier.
  - For barrier connection CP1 (using concrete piles), the soil is assumed to be "Good Ground" as per NZS 3604.
  - Components are not exposed to environments that adversely affect the durability of the steel bolts and screws along with the washers and nuts.
  - All proprietary products meeting their performance specification requirements.
- all proprietary products meeting their performance specification requirements;

I believe on reasonable grounds that:

- 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 specified above; and that
- the persons who have undertaken the design have the necessary competence to do so.

I recommend the CM1 level of construction monitoring.

I, Erik Kyle Thomson, am:

- CPEng number 1155610
- and hold the following qualifications: CPEng, CEng, MICE, AIStructE

Grit Engineering Ltd holds a current policy of Professional Indemnity Insurance no less than $200,000.

Grit Engineering Ltd is not a member of ACE New Zealand.

SIGNED BY: Erik Kyle Thomson

(Signature):  Date: 21/12/2023

ON BEHALF OF: Grit Engineering Ltd

Note: This statement has been prepared for any relevant Local Authority and shall not be relied upon by any other person or entity. Any liability in relation to this statement accrues to Grit Engineering Ltd only. As a condition of reliance on this statement, the relevant Local Authority accepts that the total maximum amount of liability of any kind arising from this statement and all other statements provided to the relevant Local Authority in relation to this building work, whether in tort or otherwise, 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.

engineering new zealand

STRUCTURAL MAINTENANCE SCHEDULE

NEW BUILD AT THROUGHOUT NEW ZEALAND, , A

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	
(a) Half-yearly	Wash down all exposed steelwork that is not in a fully interior environment including: • Exposed timber fixings (e.g. bolts and brackets).
(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.
(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.
(e) Following fit-out or alterations	Not applicable.
(f) Following seismic shaking > SLS1 event	Not applicable.

LETTER IN LIEU – DESIGN

To the Building Official,
Auckland Council
New build at Throughout New Zealand, , A

COMPLIANCE WITH BUILDING CODE CLAUSE B2 – DURABILITY

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	Acceptable 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.

Yours faithfully,

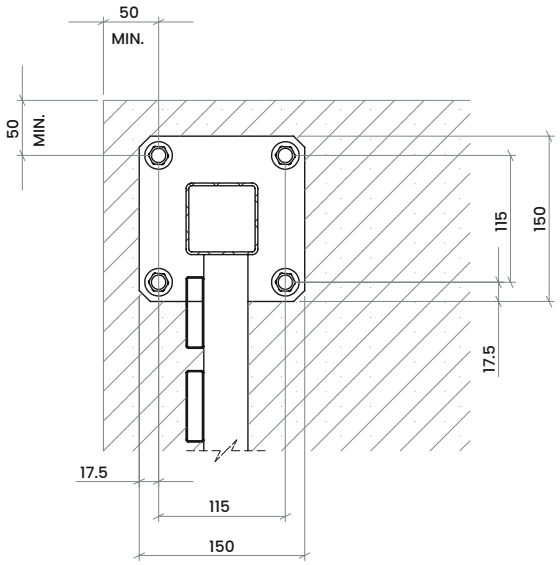
Erik Kyle Thomson

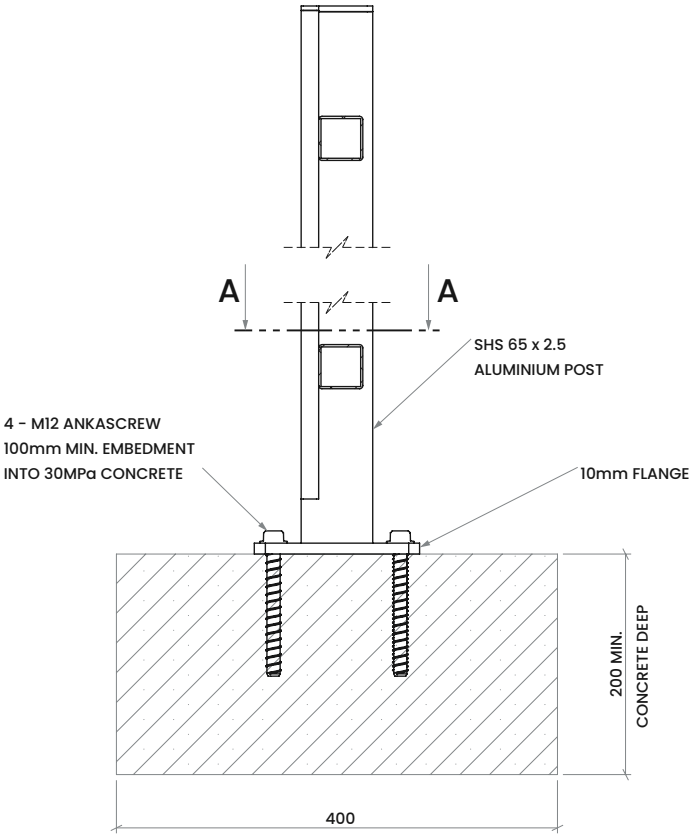
For and on behalf of

Grit Engineering Ltd

Top-Fixed Flange - Concrete

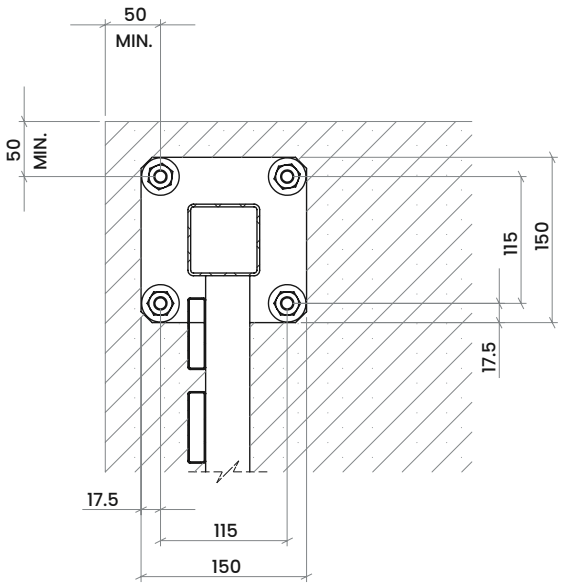
Screw Bolt

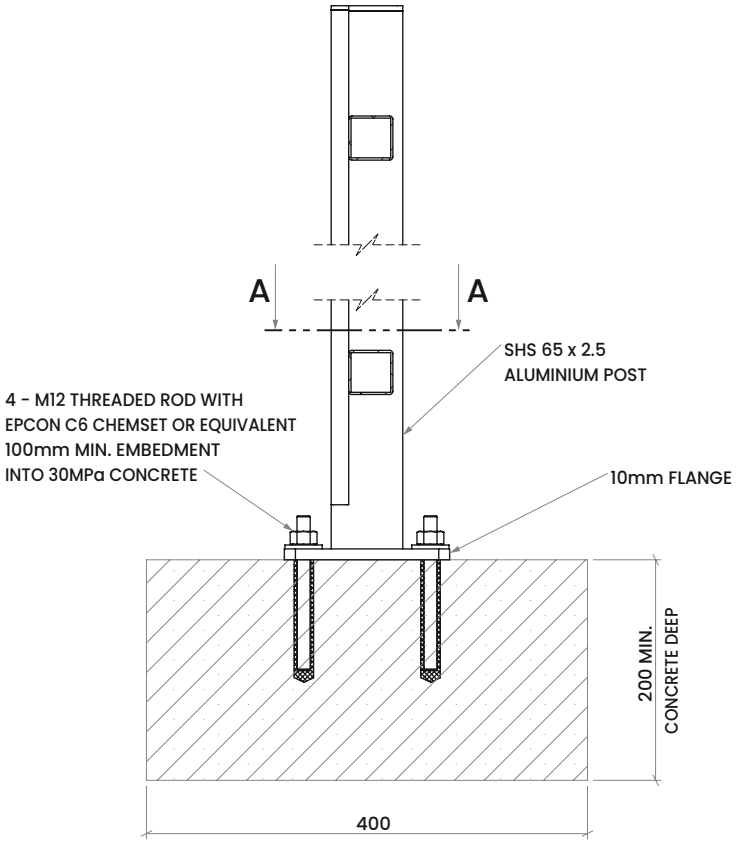




Top-Fixed Flange - Concrete

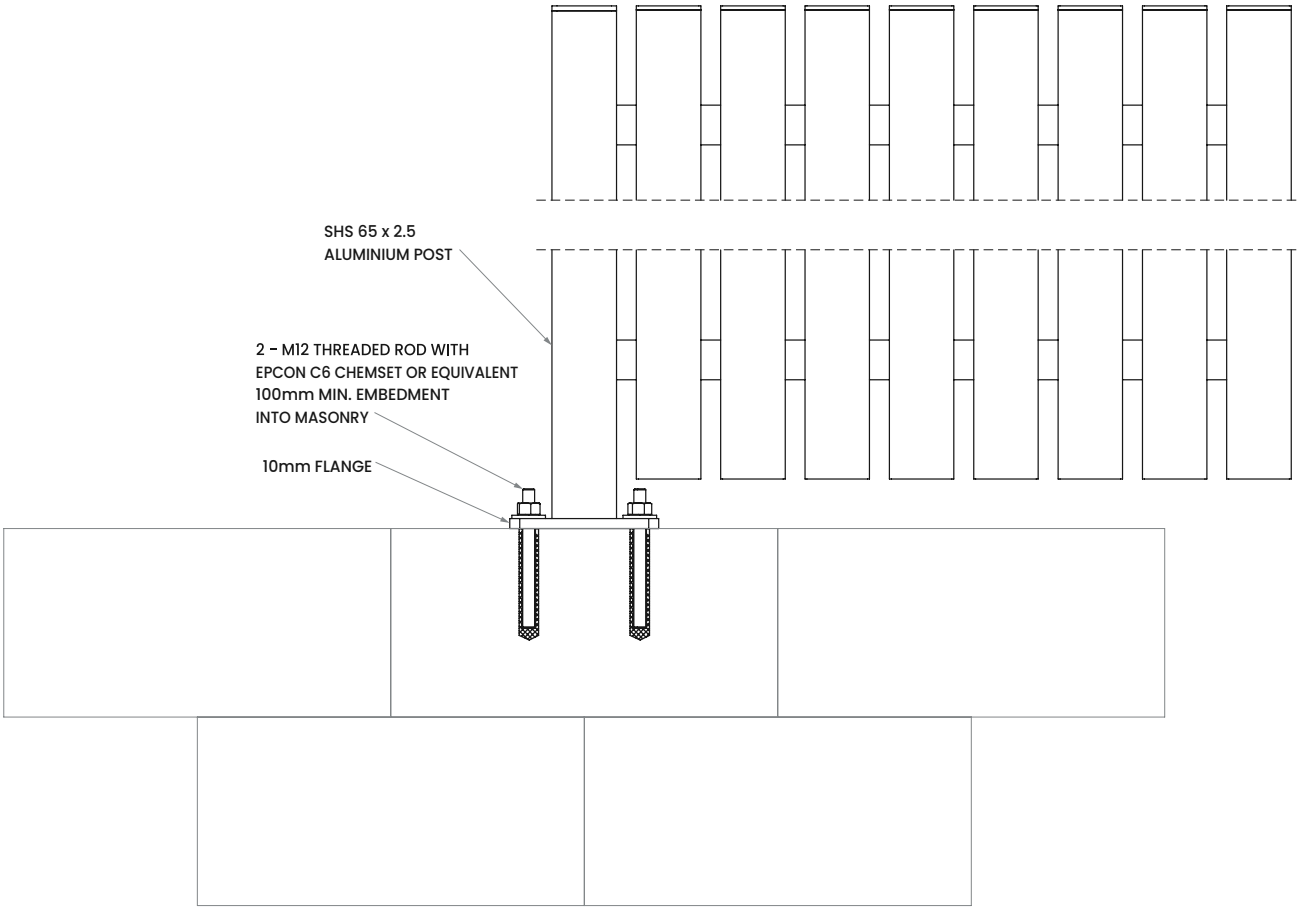
Chemset Rod

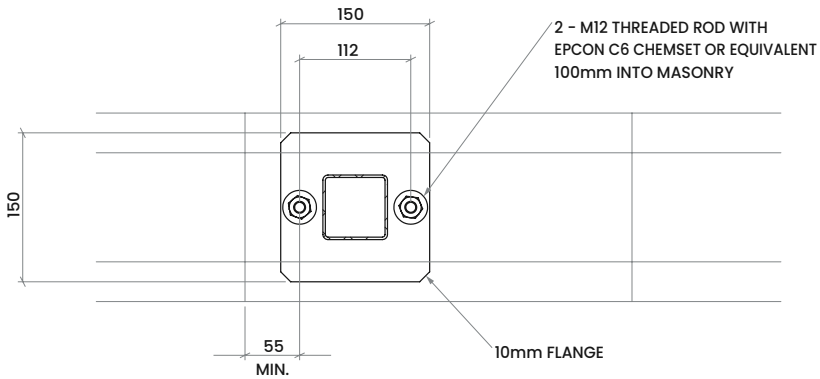




Top-Fixed Flange - Masonry Block Wall

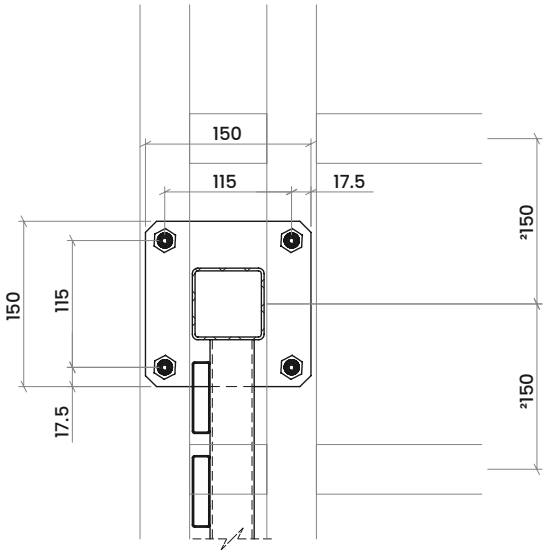
Chemset Rod

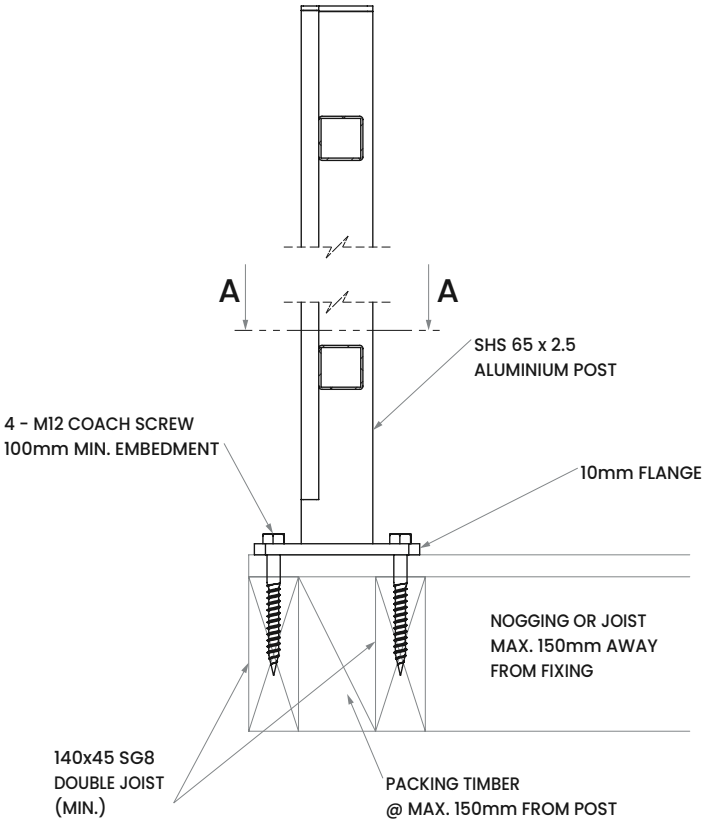




Top-Fixed Flange - Timber Deck

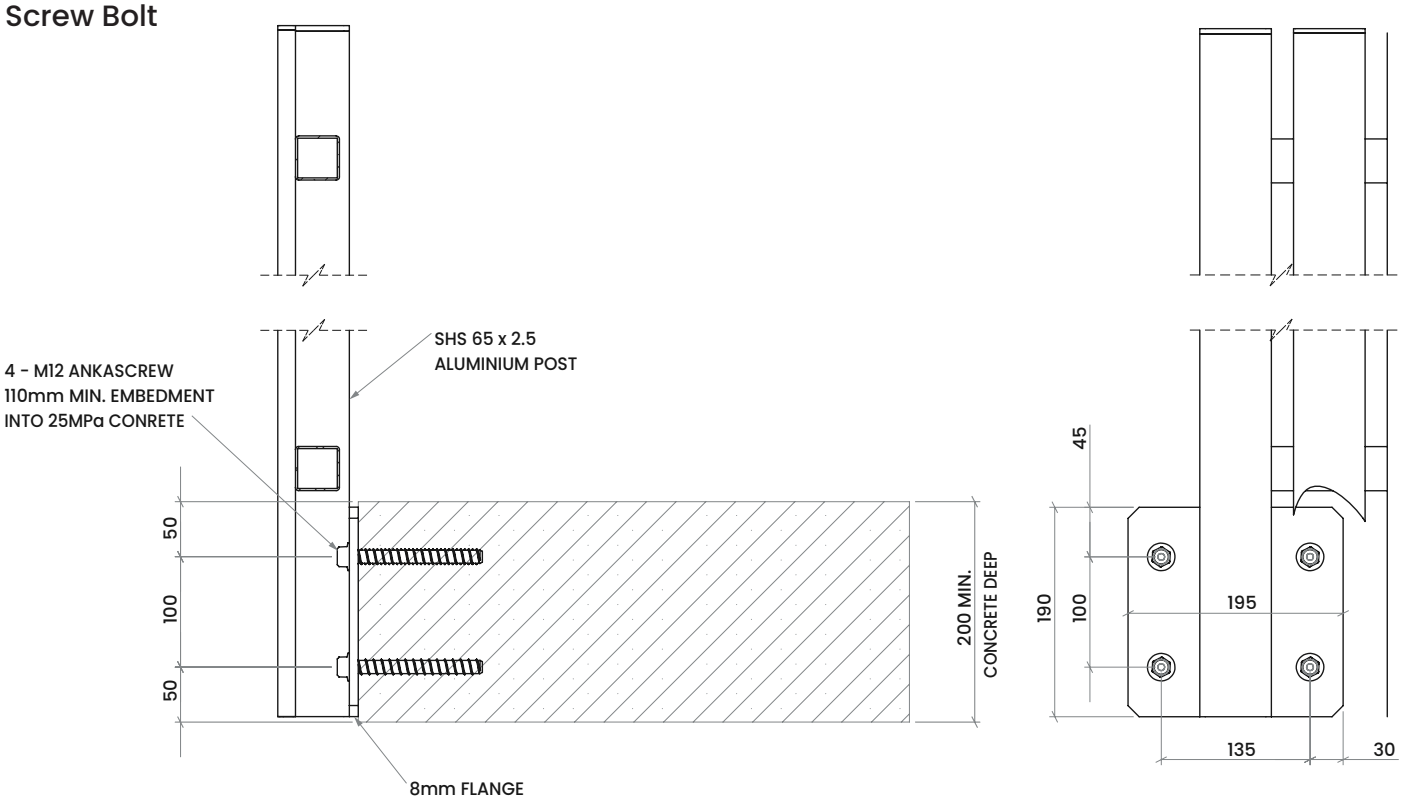
Coach Screw





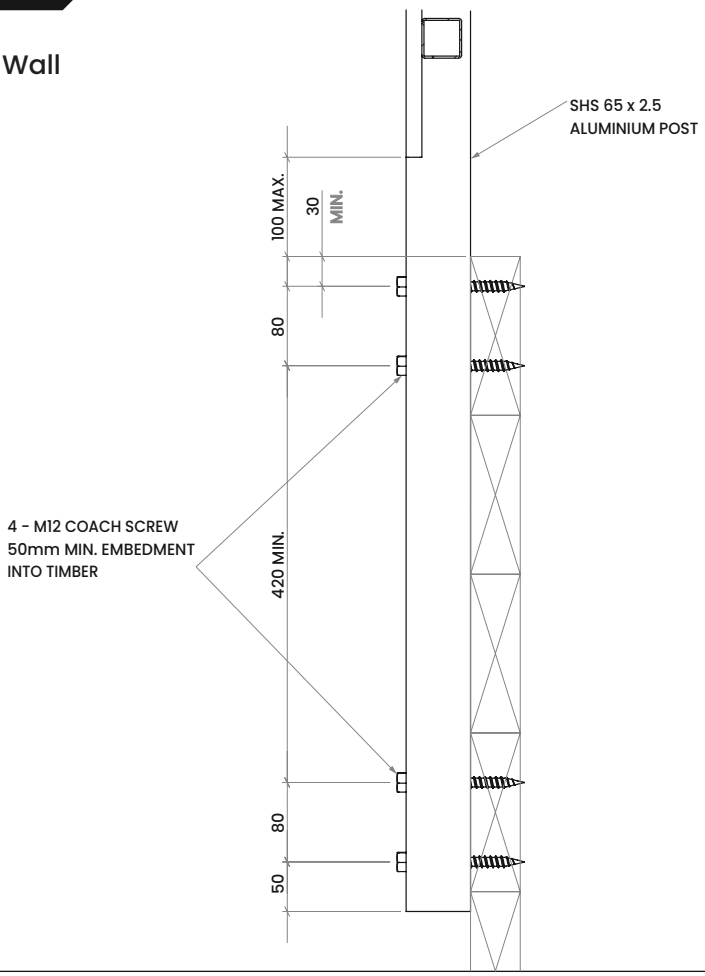
Face-Fixed Flange - Concrete

Screw Bolt



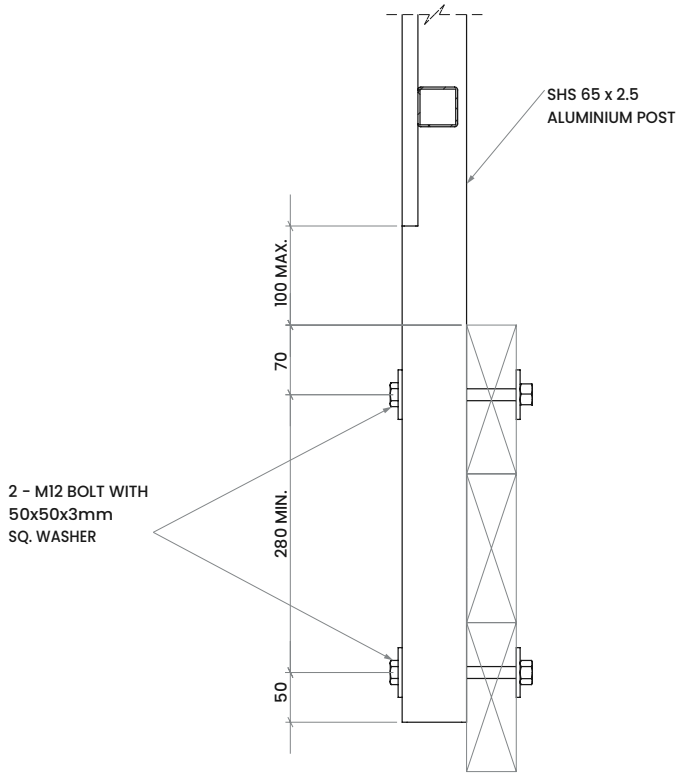
Face-Fixed - Timber Retaining Wall

Coach Screw



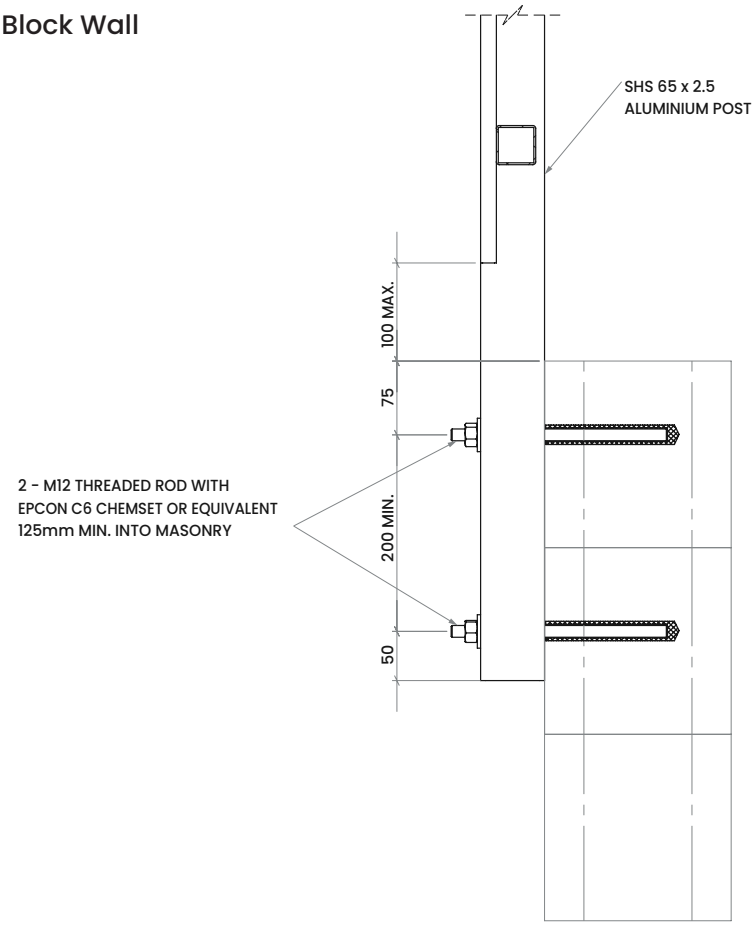
Face-Fixed - Timber Retaining Wall

Bolt



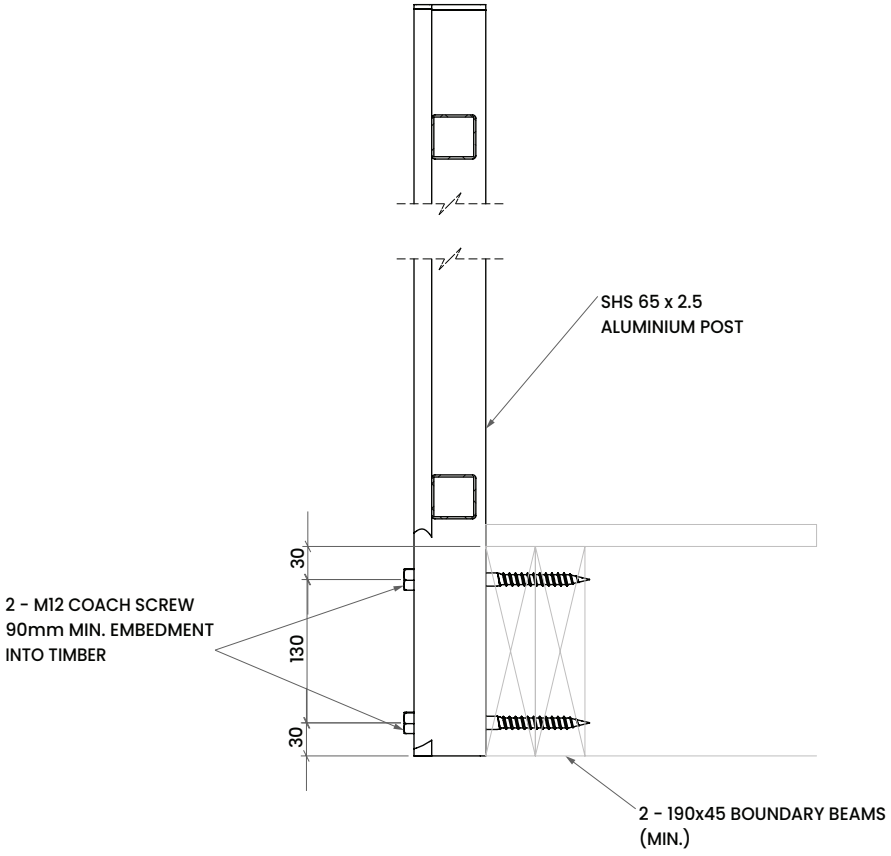
Face-Fixed - Masonry Block Wall

Chemset Rod



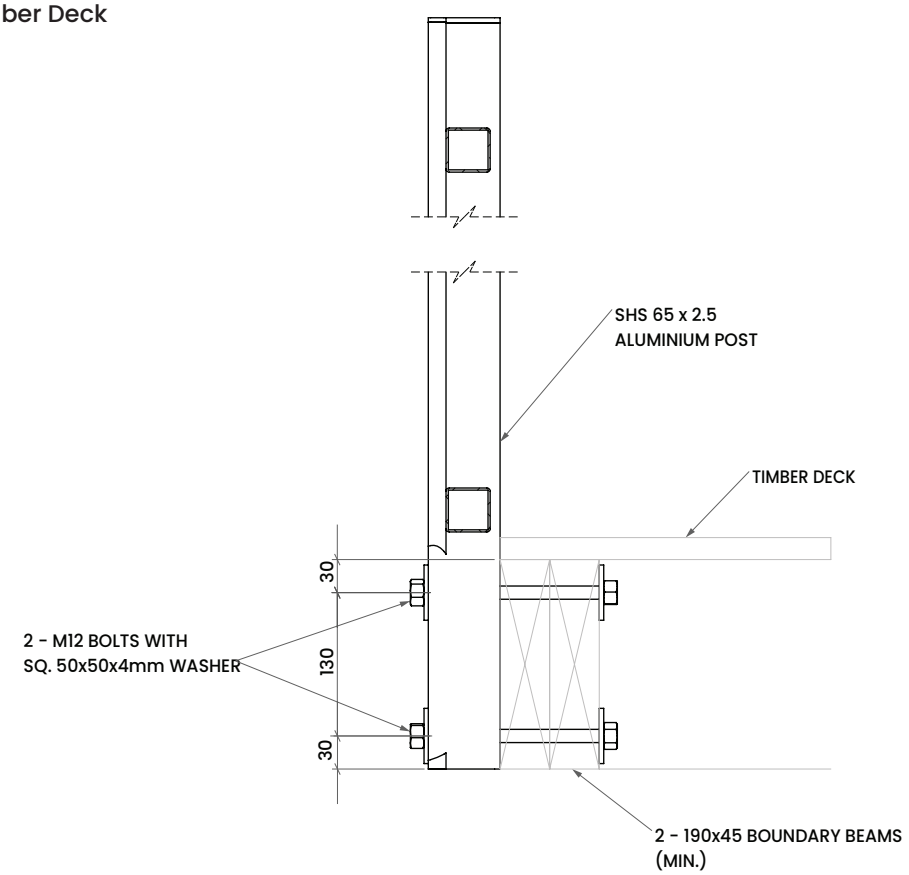
Face-Fixed - Timber Deck

Coach Screw



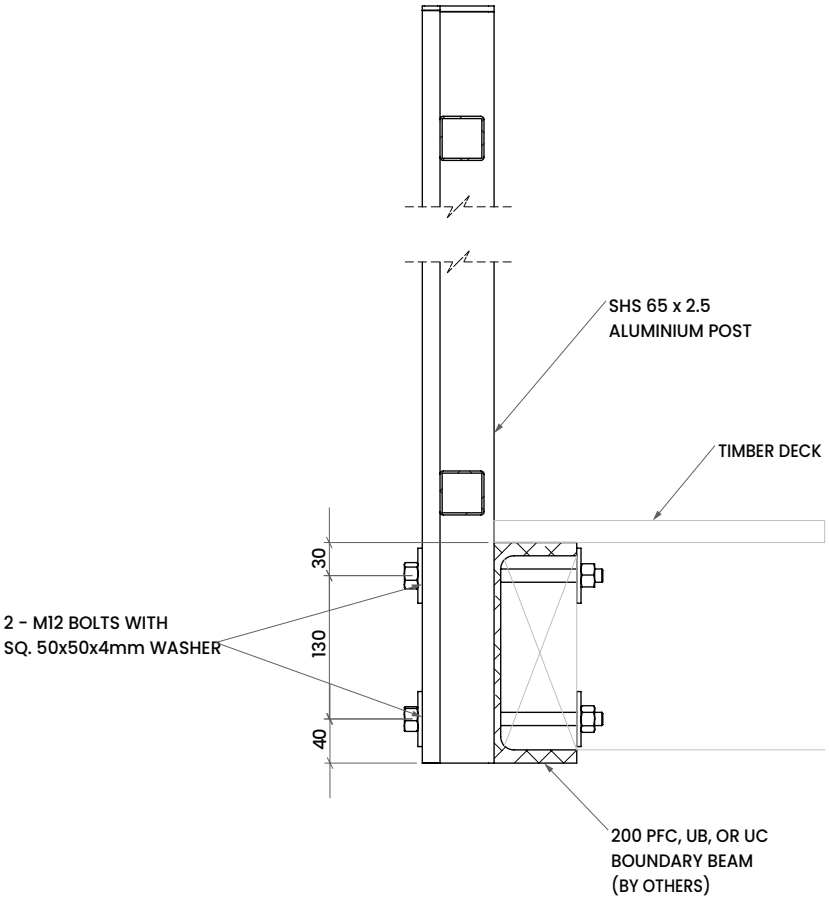
Face-Fixed - Timber Deck

Bolt

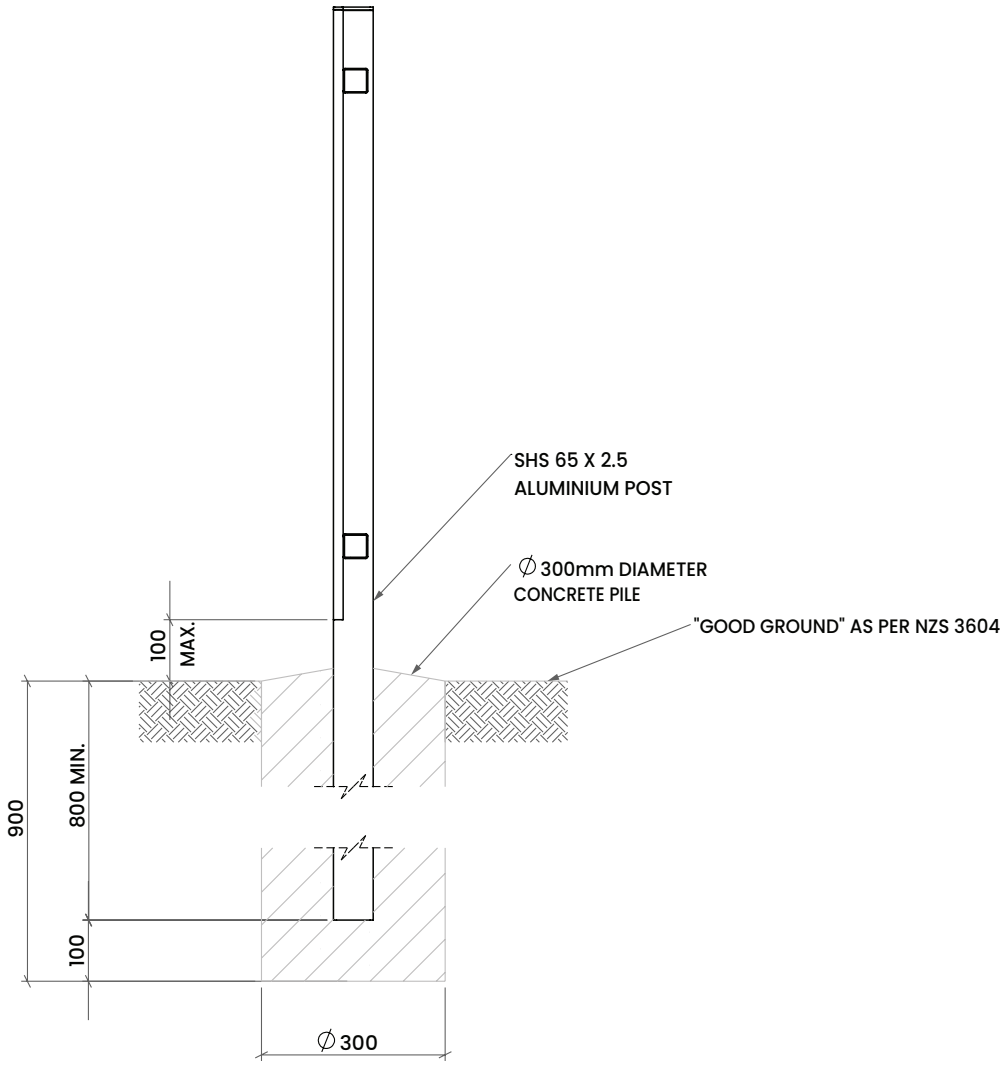


Face-Fixed - PFC

Bolt



In-Ground


SHS 65 X 2.5
ALUMINIUM POST
∅300mm DIAMETER
CONCRETE PILE
"GOOD GROUND" AS PER NZS 3604
100
MAX.
900
800 MIN.
100
∅300

EDGE SMITH

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20 Anvil Road, Silverdale
Auckland 0932

South Auckland Branch

20 Kerwyn Avenue, East Tamaki
Auckland 2013

Christchurch Branch

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Christchurch 8042

Contact

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Monday - Friday:
8.00am - 4.30pm