EDGESMITH

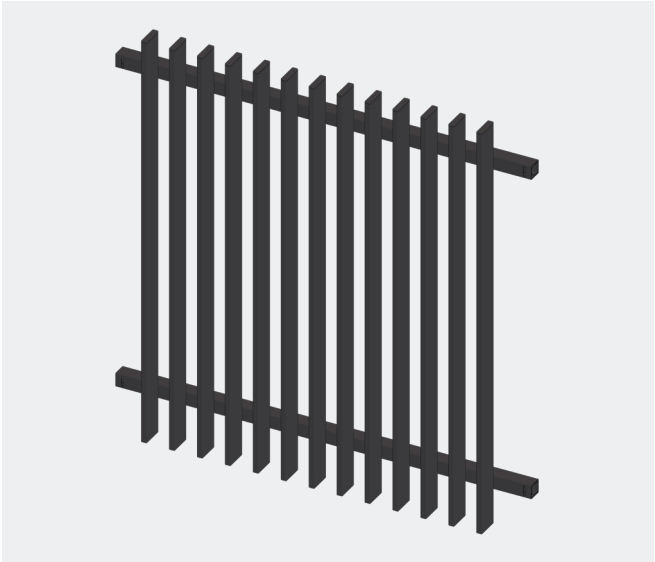
FOR RESIDENTIAL AND COMMERCIAL BALUSTRADES

PS1 | FINN CONTOUR

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. 01 | **Issue Date:** June 2024



FINN CONTOUR

Balustrade System

A modern architectural styled modular panel with striking vertical pickets closely spaced to accentuate the vertical lines of the house. Fence panels, balustrade panels and a matching series of gates compliment the range. The design is Pool safety compliant at 1.2m high.

1. Aluminium Caps

Finn Contour panels use aluminium caps to top the pickets. Unlike plastic caps they don't bow or break down in sunlight. They are powder coated with the panel so you have a perfect colour match that will look good throughout the lifespan of the product. Our caps perfectly match the radius of the picket extrusion, giving the illusion that the extrusion is a solid bar.

2. Closely Spaced Pickets

The Finn Contour panel uses a 1:1 gap-to-depth ratio (65mm gap: 65mm depth) giving it a 45˚ block-out angle. This balances visibility and privacy and makes the balustrade look like a solid smooth surface when viewed from the side.

3. Hidden Posts

Using 65mm Finn Contour posts creates the illusion of a continuous fenceline.

4. Rakeability

The Finn Contour panel is rakeable up to 40°, making it an ideal panel for undulating ground as well as staircases.

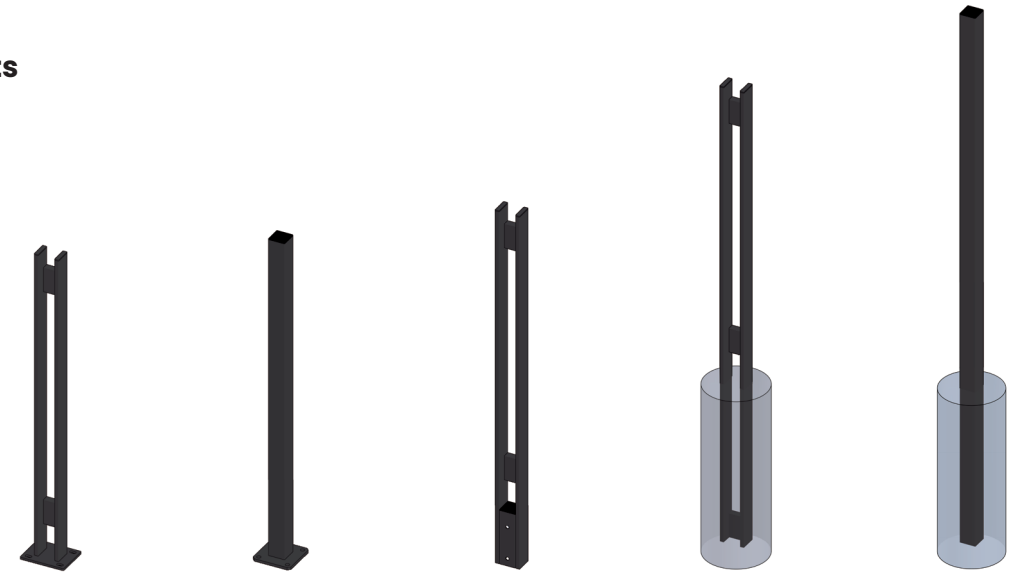
Rail Brackets

(Sold Separately)

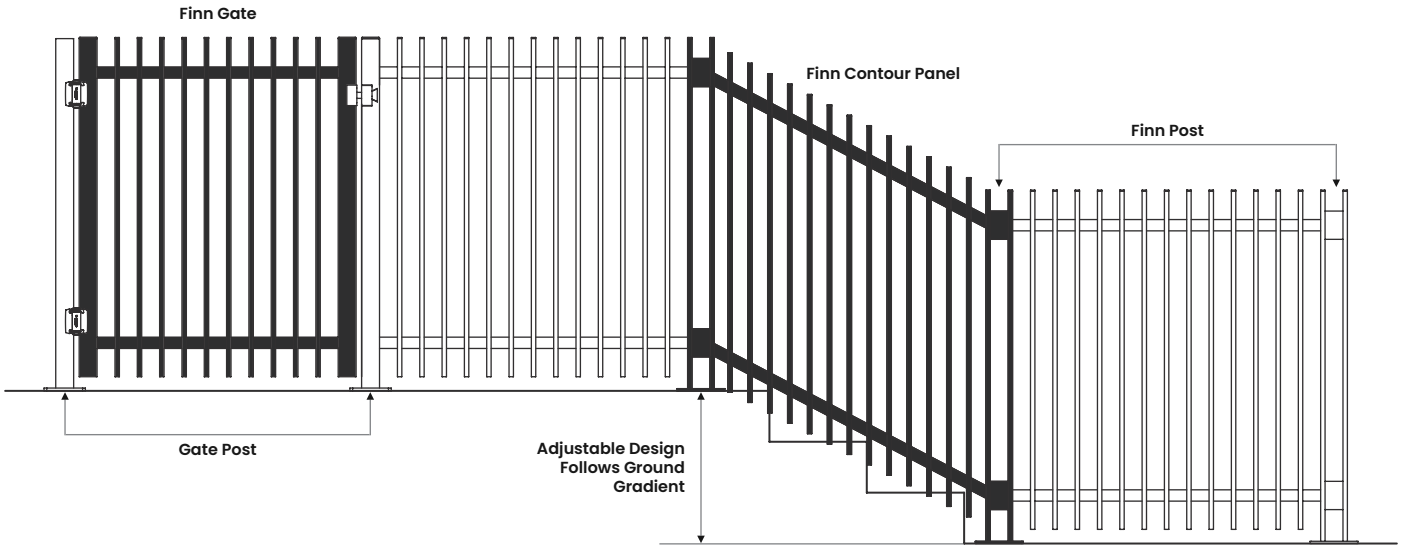
Thru Bracket | End Bracket | End Cap

Contour Posts

(Sold Separately)



Flanged Posts | Face Fixed Posts | In-Ground Posts



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 10-14 for more details.

Residential - Occupancy Type C3

	Application	Fixing Options	Pages
Side Fixed	To Timber Deck	M12 Bolts	**Pg. 10**
	To Masonry Wall	M12 Chemset Rod	**Pg. 11**
	To Timber Retaining Wall	M12 Coach Screws	**Pg. 12**
	To Timber Retaining Wall	M12 Bolts	**Pg. 12**
	To Concrete Slab	M12 Chemset Rod	**Pg. 13**
	To Steel Boundary Beam	M12 Bolts	**Pg. 14**
Top Fixed	To Timber Deck	M12 CoachScrews	**Pg. 10**
	To Masonry	M12 Chemset Rod	**Pg. 11**
	To Concrete	M12 Screw Bolt	**Pg. 13**
	To Concrete	M12 Chemset Rod	**Pg. 13**
Inground	Embedded into Concrete Pile	-	**Pg. 14**

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

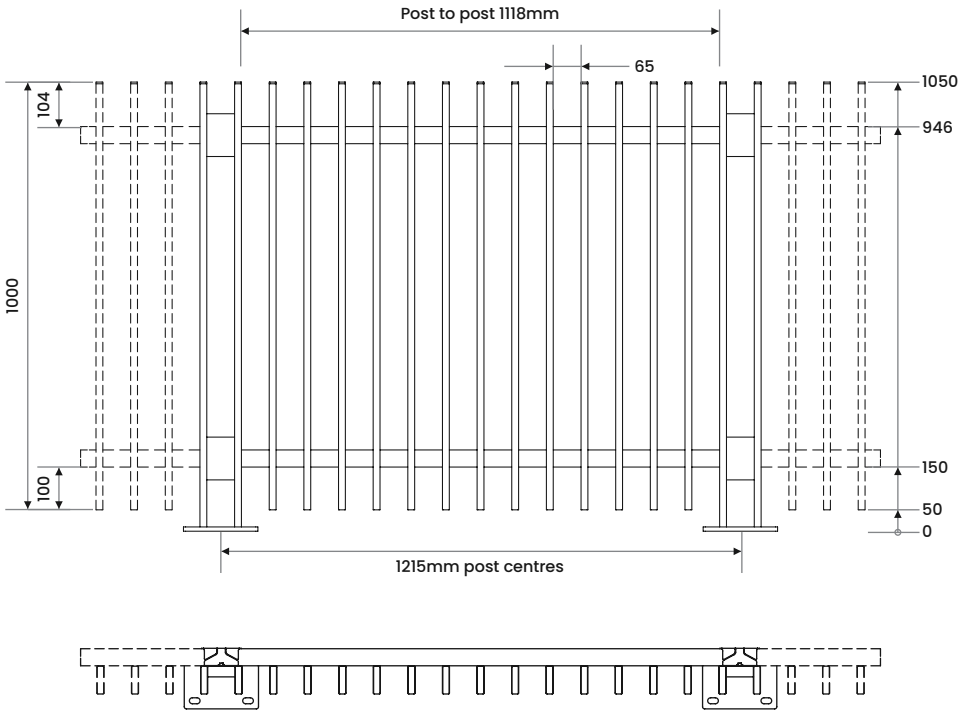
This schedule of ongoing maintenance of structural elements shall be included with the O&M manuals and provided to the Owner/Body Corporate and building managers.

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.

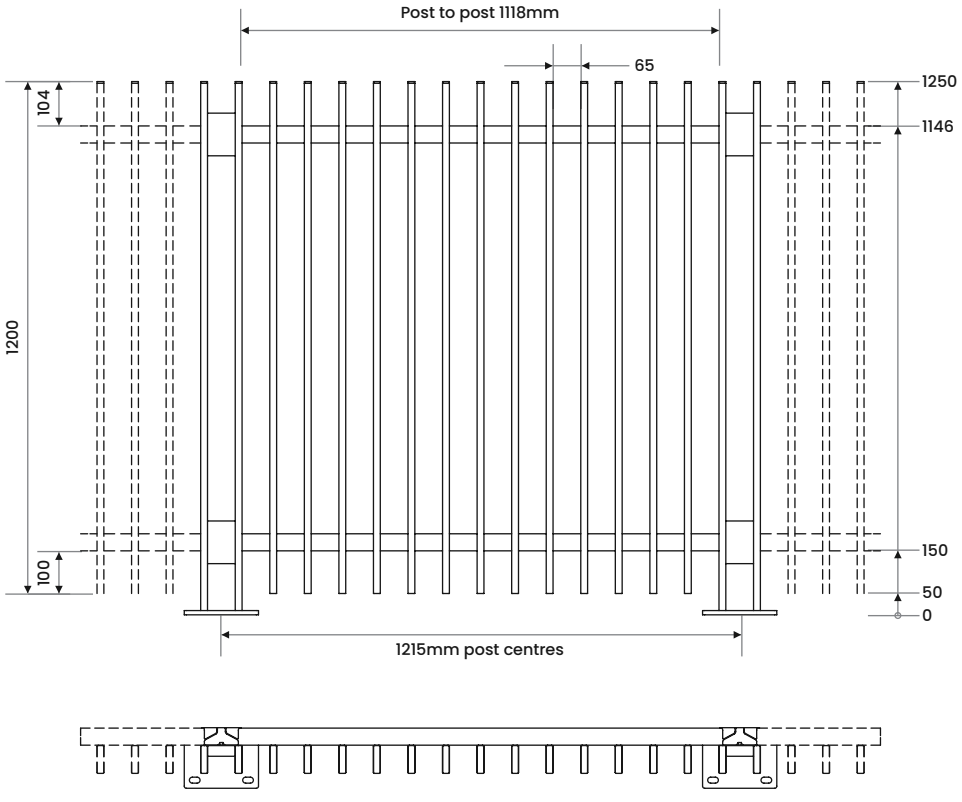
Full engineers report with design calculations available on request.

Finn Contour Balustrade

1.0mH Panel



1.2mH Panel



Material:

- Aluminium
- Pickets 65 x 16 x 1.2mm
- Rails Two Piece 40 x 40 x 2.0mm

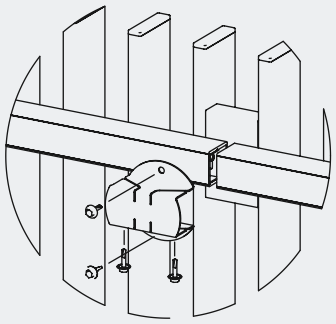
Finish:

Powder Coated

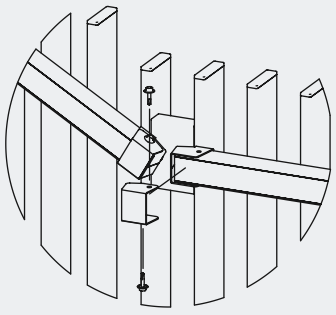
Bracket Fixings:

- Brackets
- Tek Screws
- Cap Screws
- Washers

Bracket Details:



Thru Bracket



End Brackets

PRODUCER STATEMENT – PS1 DESIGN

Building Code Clause(s):	B1,	Job number: GR-0709
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 "Finn Contour" 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 based on strength only and 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 roofs, etc., 0.75kN/m)
  - The barrier supporting structure/members are structurally adequate to accommodate the loads induced by the barrier.
  - Components are not exposed to environments that adversely affect the durability of steel bolts and screws along with the washers and nuts.
  - For barrier connection CP1 (using concrete piles), the soil is assumed to be "Good Ground" as per NZS 3604.
  - All proprietary products meeting their performance specification requirements.
- all proprietary products meeting their performance specification requirements;
- Edgesmith understands and accepts that the side-fixed balustrade system with 90 mm anchor spacing, if installed in in areas where people may congregate, could potentially undergo limited plastic deformation when subjected to the design barrier loads and may have to be replaced.

Job Number: GR-0709
Job Address: Throughout New Zealand
Compilation Date and Time: 13 June 2024 at 12:49 PM

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, Matthew Chubb, am:

- CPEng number 263297
- and hold the following qualifications: CPEng, CMEngNZ, IntPE(NZ), APEC Engineer

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: Matthew Chubb

(Signature): 

Date: 20th June 2024

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.

LETTER IN LIEU – DESIGN

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

Matthew Chubb

For and on behalf of

Grit Engineering Ltd

To the Building Official,
New build throughout New Zealand,

COMPLIANCE WITH BUILDING CODE CLAUSE F4 – SAFETY FROM FALLING

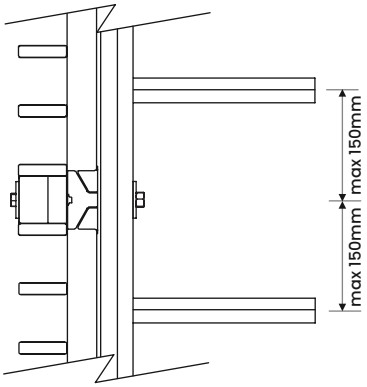
The purpose of this letter is to demonstrate how compliance with the performance requirements of barriers under the Building Code Clause F4 (Safety from Falling) will be achieved for the specifically designed barriers:

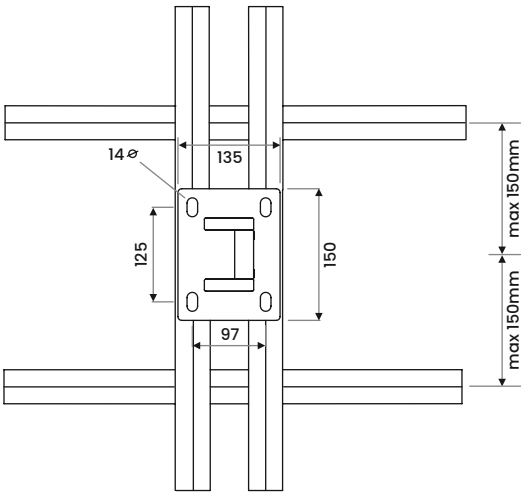
Requirements of F4.3.4 a) to h)	Means of Compliance
F4.3.1: Where people could fall 1 metre or more from an opening in the external envelope or floor of a building, or from a sudden change of level within or associated with a building, a barrier shall be provided.	The architect/barrier contractor is to determine the location of fall hazards within the building, including roof edges, and provide barriers accordingly.
F4.3.2: Roofs with permanent access shall have barriers provided.	
F4.3.3: *[Revoked]*	*N/A*
Requirements of F4.3.4 a) to h)	
(a) Be continuous and extend for the full extent of the hazard,	The barriers are to be constructed continuously for the full extent of the fall hazards.
(b) Be of appropriate height,	The barriers will be a minimum of 1050 mm from the finished floor level. Barrier types with a height of at least 1200 mm from the finished floor level will be provided in common areas of multi-unit dwellings.
(c) Be constructed with adequate rigidity,	The barriers will be made of aluminium and steel, specifically designed to withstand the minimum barrier loads as per Table 3.3 of AS/NZS 1170.1 for Occupancy Type C3 (e.g., Stairs, landings, external balconies, roof edges, etc.).
(d) Be of adequate strength to withstand the foreseeable impact of people and, where appropriate, the static pressure of people pressing against them,	
(e) Be constructed to prevent people from falling through them,	This is satisfied by using vertical infills with gaps of not more than 100 mm. The gaps between the balustrade fins are also not more than 100 mm.
(f) [Revoked]	*N/A*
(g) Restrict the passage of children under 6 years of age when provided to guard a change of level in areas likely to be frequented by them.	The gap between the bottom rail and the finished floor level is not more than 100 mm. The top of the bottom rail is not more than 200 mm above the finished floor level.
(h) Be constructed so that they are not readily able to be used as seats.	The proposed barrier with vertical infills is unable to be used as seats.

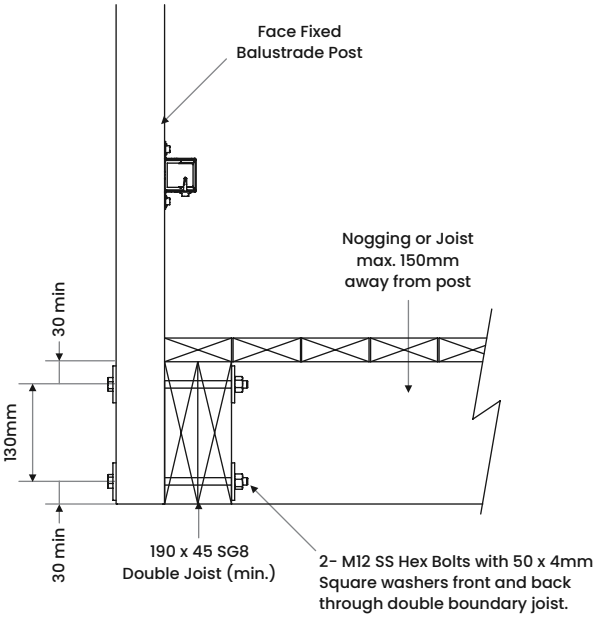
Yours faithfully,

Matthew Chubb 20th June 2024
CPEng number 263297

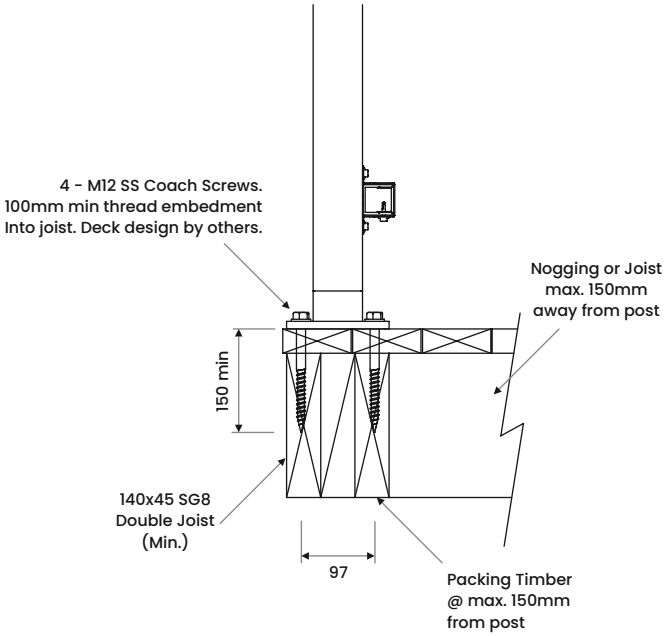
TIMBER DECK





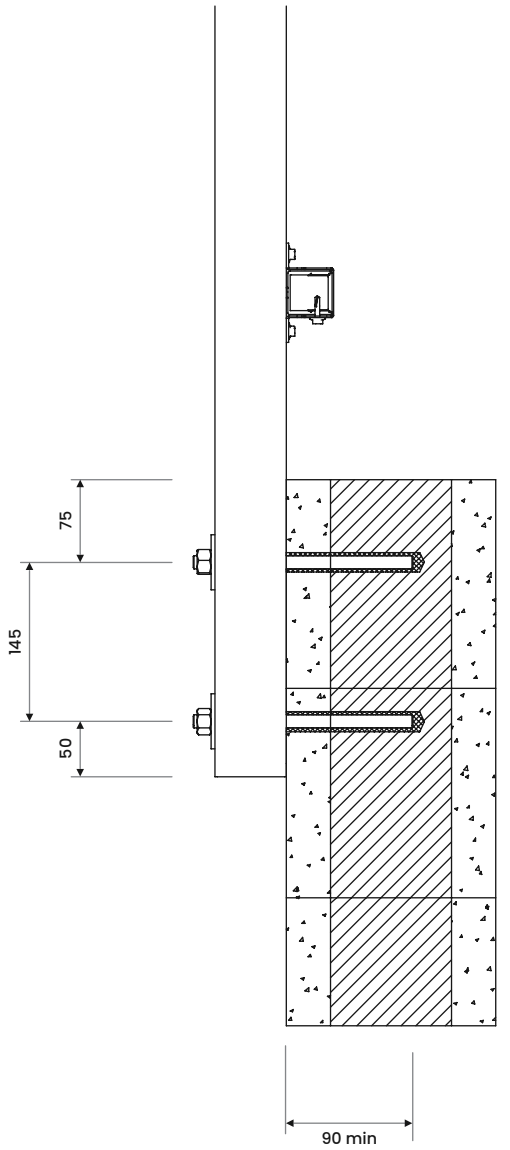


Side Fixed To Timber Deck with M12 Hex Bolts



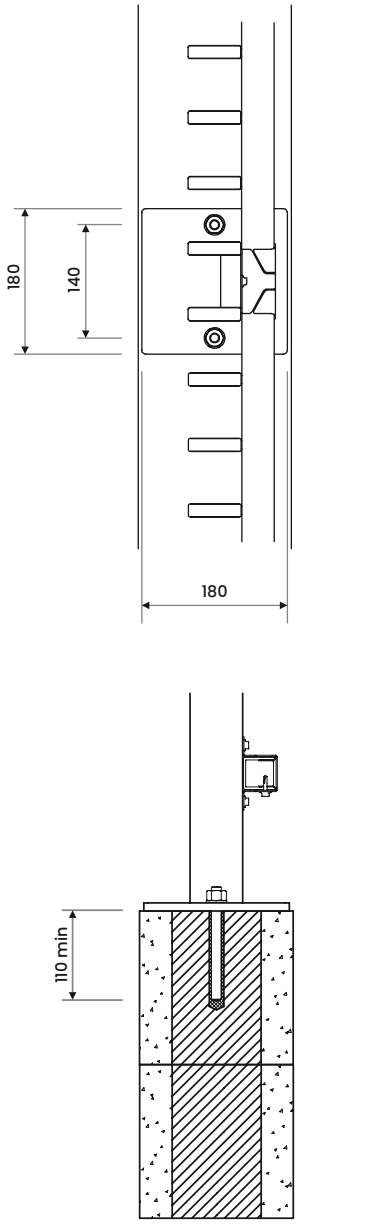
Top Fixed To Timber Deck with Coach Screws

MASONARY WALL



2 - M12 G5.8 Chemset Anchors
90mm min embedment using epcon C8 or equivalent
use 50 x 50 x 4mm washers

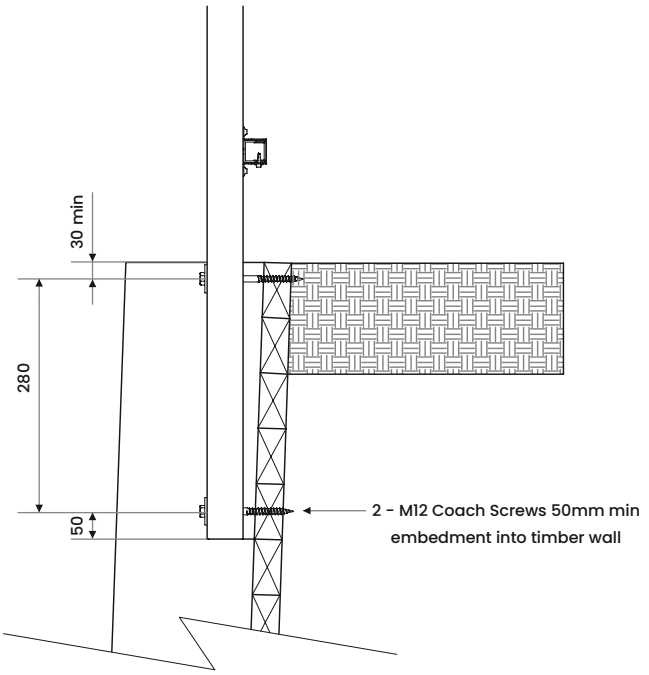
Side Fixed To Masonry Wall with Chemical Anchors



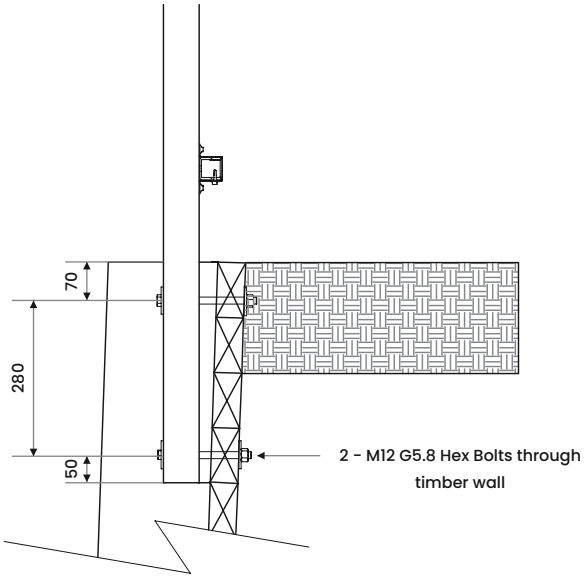
2 - M12 G5.8 Chemset Anchors
110mm min embedment
using epcon C8 Or equivalent

Top Fixed to Masonry with Chemical Anchors

TIMBER RETAINING WALL

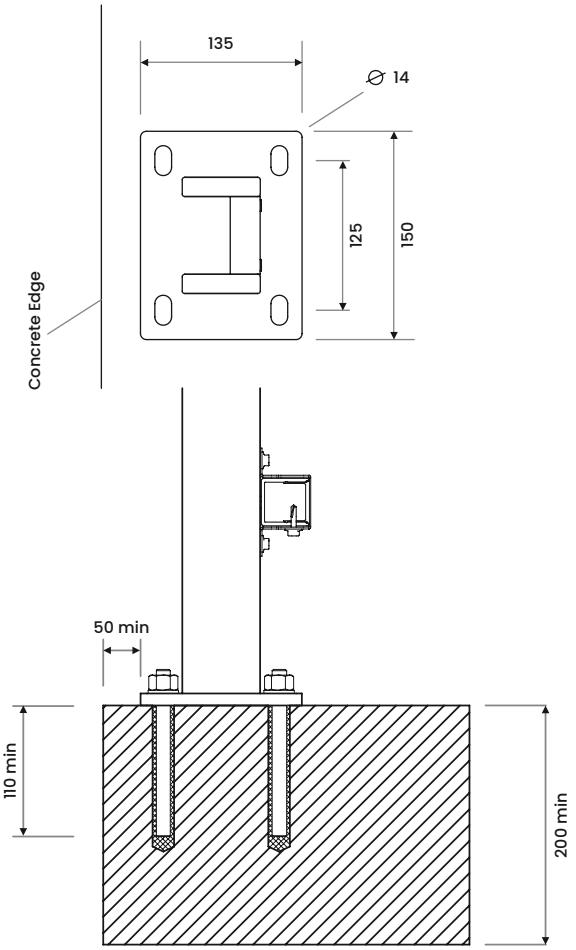


Side Fix to Timber Retaining Wall with M12 Coach Screws



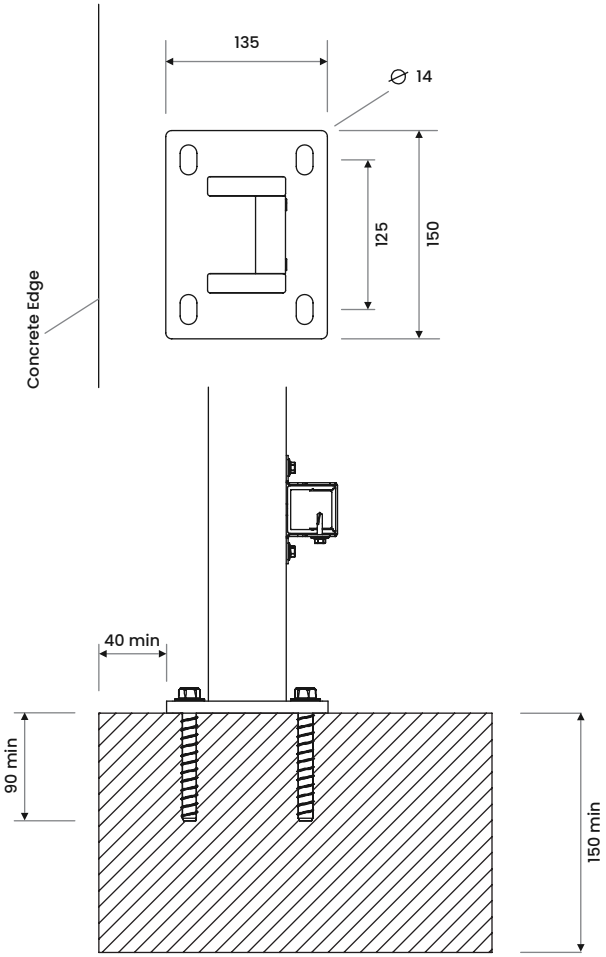
Side Fix to Timber Retaining Wall with M12 Hex Bolts

CONCRETE



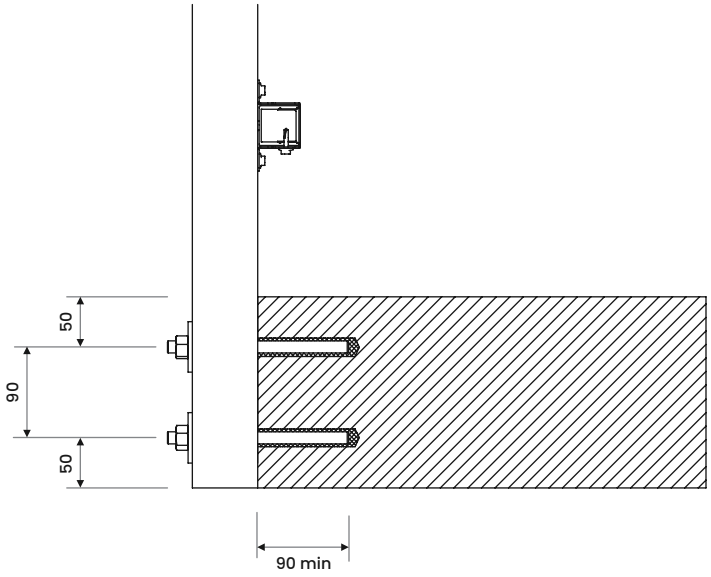
4 - M12 G5.8 Chemset Anchors
110mm min embedment using
epcon C8 or equivalent

Top Fixed to Concrete with Chemical Anchors



4 - M12 G5.8 Concrete Screw Anchors
90mm min embedment

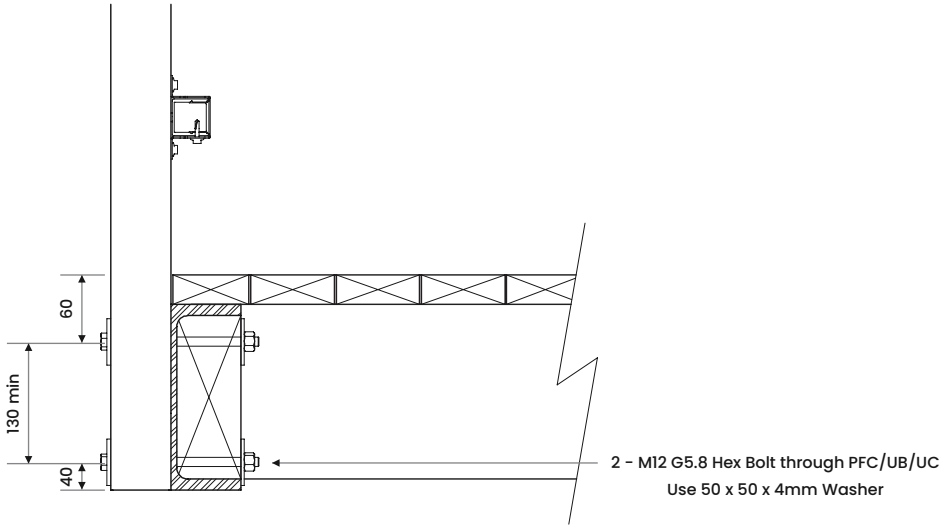
Top Fixed to Concrete with M12 Screw Bolts



4 - M12 G5.8 Chemset Anchors
90mm min embedment using epcon C8 or equivalent
use 50 x 50 x 4mm washers

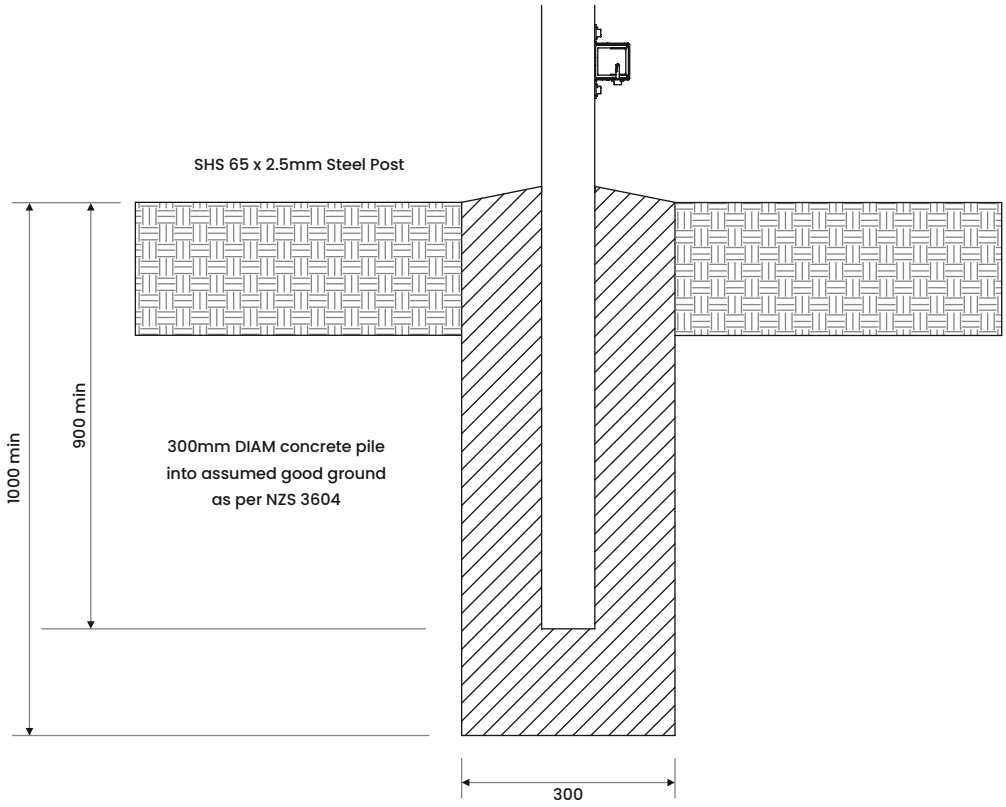
Side Fixed To Concrete Slab with Chemical Anchors

STEEL FRAMING



Side Fix to Steel Framing with M12 Hex Bolts

IN-GROUND



Embedded in Concrete Pile using SHS 65 Post

EDGE SMITH

North Auckland Branch

20 Anvil Road, Silverdale
Auckland 0932

South Auckland Branch

20 Kerwyn Avenue, East Tamaki
Auckland 2013

Christchurch Branch

4 Anchorage Road, Hornby,
Christchurch 8042

Contact

T: 09 427 4980
E: crew@edgesmith.co.nz

Monday - Friday:
8.00am - 4.30pm