FenceLab

by Edgesmith

THE FINNS

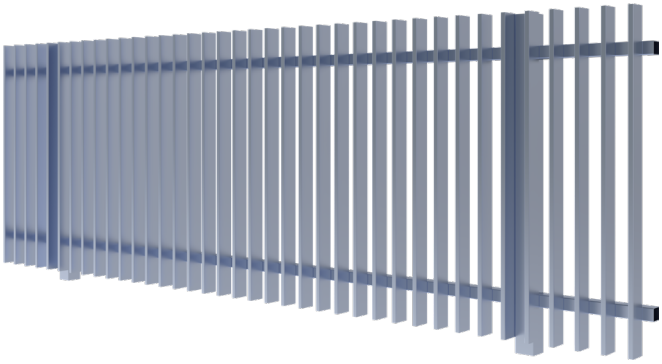
PS1 | Producer Statement
Commercial and Residential Balustrades

DESIGN COMPLIANCE

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

THE FINNS BALUSTRADE SYSTEM

A modern architectural styled 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.



Posted panels for retaining walls, pools & general fencing

Plated panels (post less) for decks & balcony's

1. ALUMINIUM CAPS

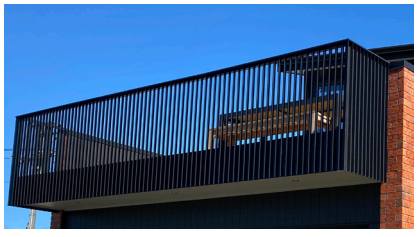
Finn panels use aluminium caps to top the pickets. Unlike plastic caps they don't bow or break down in sunlight. They are powder coated with the panel so you have a perfect colour match that will look good throughout the lifespan of the product. Our caps perfectly match the radius of the picket extrusion,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

2. CLOSELY SPACED PICKETS

The Finn 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 posts in line with the front of the rails the design of the brackets create the illusion of a continuous wall.



4. HAND SUPPORT

The top rail of a Finn Balustrade can be capped off with a (optional) capping rail to give a flat surface suitable as a hand support.

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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 5-9 for more details.

RESIDENTIAL - Occupancy Type A, B, E, C3

Setting	Application	Type	Design Load	Plate Thickness / Post Centres	Fixing Options	Drawing Number	Pages
Residential	Side Fixed to Masonry Wall	Plated	0.75 kN/m	6mm	Chemset Rod, Screw Bolt	SF1, SF2	**Pg. 11**
	Side Fixed to Masonry Wall	Posted	0.75 kN/m	1459mm (1500mm MAX)	Chemset Rod	SF9	**Pg. 15**
	Side Fixed to Timber Deck	Plated	0.75 kN/m	6mm	M12 Coach Screws	SF5, SF6, SF7	**Pg. 13-14**
	Side Fixed to Timber Deck	Posted	0.75 kN/m	1459mm (1500mm MAX)	M12 Bolts	SF11	**Pg. 16**
	Side Fixed to Steel Boundary Beam	Plated	0.75 kN/m	6mm	M12 Bolts	SF4	**Pg. 12**
	Side Fixed to Steel Boundary Beam	Posted	0.75 kN/m	1459mm (1500mm MAX)	M12 Bolts	SF12	**Pg. 16**
	Side Fixed to Concrete Slab	Plated	0.75 kN/m	6mm	Chemset Rod, Screw Bolt	SF5, SF6, SF7, SF8	**Pg. 13-14**
	Side Fixed to Concrete Slab	Posted	0.75 kN/m	1459mm (1500mm MAX)	Chemset Rod	SF10	**Pg. 15**
	Side Fixed to Timber Retaining Wall	Posted	0.75 kN/m	1459mm (1500mm MAX)	M12 Coach Screws, M12 Bolts	SF13, SF14	**Pg. 17-18**
	Top Fixed to Concrete	Posted	0.75 kN/m	1459mm (1500mm MAX)	Chemset Rod, Screw Bolt	TF1, TF2	**Pg. 19**
	Top Fixed to Masonry	Posted	0.75 kN/m	1459mm (1500mm MAX)	Chemset Rod	TF3	**Pg. 20**
	Top Fixed to Timber Deck	Posted	0.75 kN/m	1459mm (1500mm MAX)	M12 Coach Screws	TF4	**Pg. 20**

COMMERCIAL - Occupancy Type A, B, E, C1/C2, C3, D

Setting	Application	Type	Design Load	Plate Thickness / Post Centres	Fixing Options	Drawing Number	Pages
Commercial	Side Fixed to Masonry Wall	Plated	1.5 kN/m	8mm	Chemset Rod, Screw Bolt	SF1, SF2	**Pg. 11**
	Side Fixed to Steel Boundary Beam	Plated	1.5 kN/m	8mm	M12 Bolts	SF4	**Pg. 12**
	Side Fixed to Concrete Slab	Plated	1.5 kN/m	8mm	Chemset Rod, Screw Bolt	SF5, SF6, SF7	**Pg. 13-14**

AS/NZS 1170.1:2002 Table 3.3 Occupancy Reference

THE FINNS

For Residential and Commercial Balustrades

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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.

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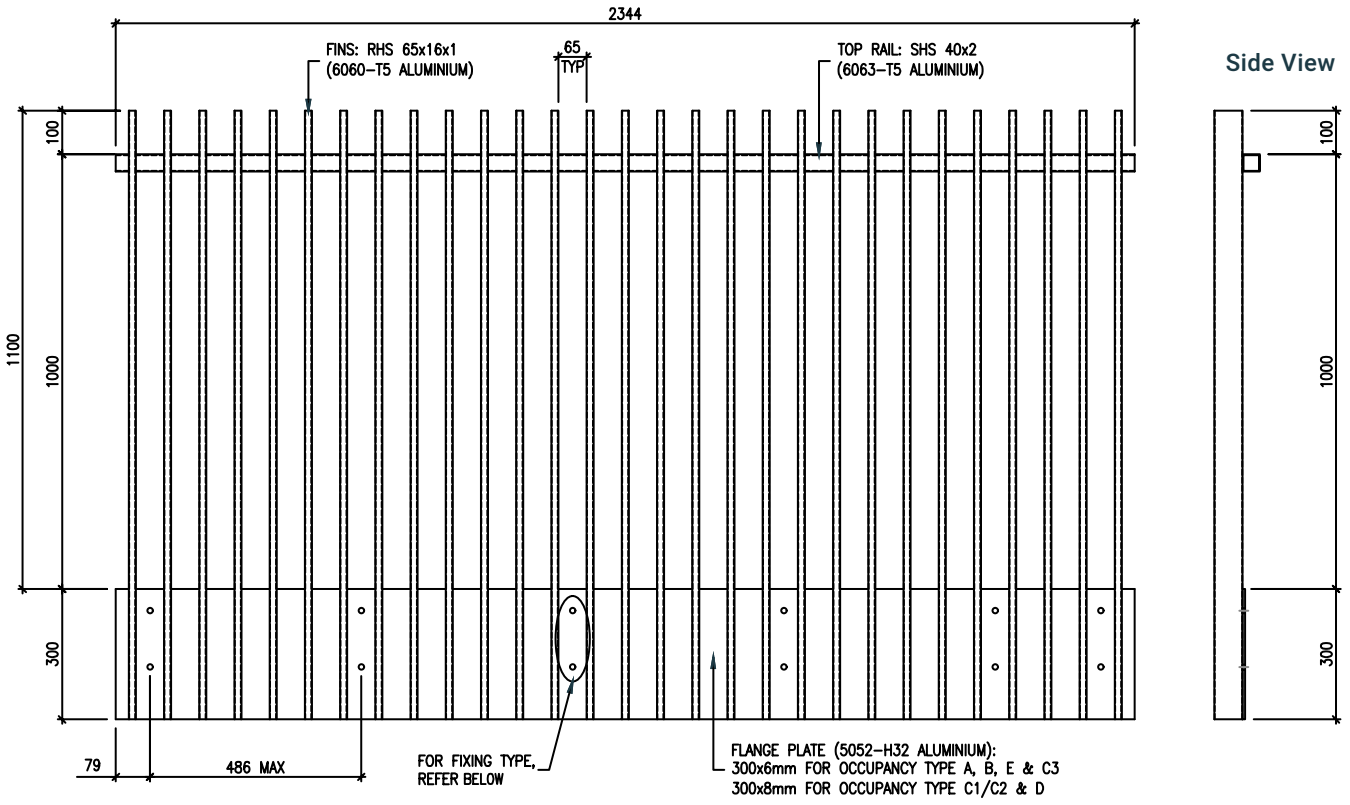
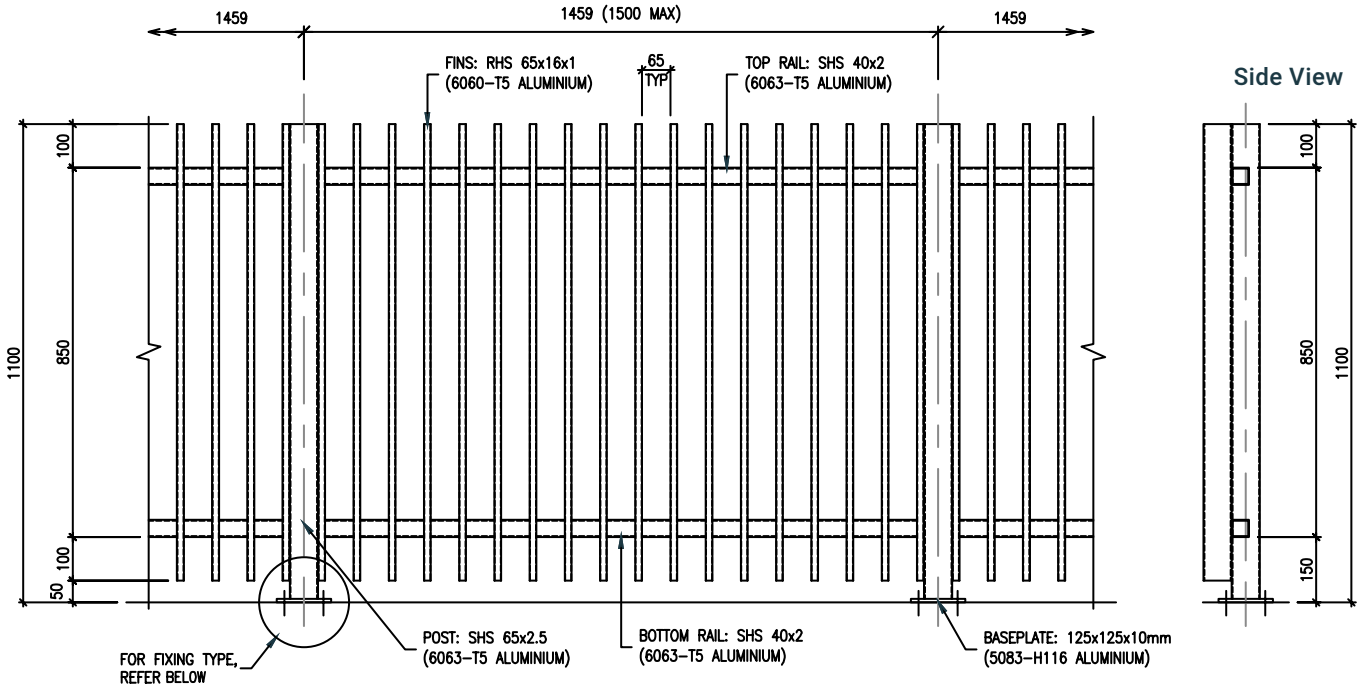
THE FINNS BALUSTRADE – FACE FIXED FLANGE PLATE TYPE



THE FINNS BALUSTRADE – POST & RAIL TYPE



Building Code Clause(s) B1

PRODUCER STATEMENT – PS1 – DESIGN

ISSUED BY: OBD Consultants Ltd
(Design Firm)

TO Edgesmith Ltd
(Owner/Developer)

TO BE SUPPLIED TO: Relevant City Council
(Building Consent Authority)

IN RESPECT OF: The Finns Aluminium Balustrade System Design
(Description of Building Work)

AT: Throughout New Zealand
(Address)

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

We have been engaged by the owner/developer referred to above to provide Structural Engineering Design services of the following SED items: The Finns Aluminium Balustrade System and its connections to existing concrete, masonry, steel, and timber structural members.
(Extent of Engagement)

Services in respect of the requirements of Clause(s) B1 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 VM1 or
(Verification method / acceptable solution)

☐ Alternative solution as per the attached schedule

The proposed building work covered by this producer statement is described on the drawings titled:
as per attached Schedule and numbered as per attached Schedule ;
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: The balustrade supporting structure/members are to accommodate loads induced by the barrier. Components exposed to environments that do not adversely affect the durability of steel bolts/screws along with washer and nuts.
(ii) All proprietary products meeting their performance specification requirements; Option added to replace the Epcon C8 fixings with the Fischer Superbond Injection System where bonding anchor in concrete

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 ☐CM 3 ☐CM4 ☐CM5 (Engineering Categories) or ☐as per agreement with owner/developer (Architectural)

I, Tony O'Brien (AC Author NO: 1966) am: ☒CPEng 251875 # ☐Reg Arch #
(Name of Design Professional)

I am a Member of: ☒Engineering New Zealand ☐NZIA and hold the following qualifications: BSc Dip Eng CMEngNZ CPEng IntPE(NZ)
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 Tony O'Brien (signature) p.p.
(Name of Design Professional)

ON BEHALF OF OBD Consultants Job Ref: 20076 Date 19/01/2023
(Design Firm)

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.

GUIDANCE ON USE OF PRODUCER STATEMENTS

Producer statements were first introduced with the Building Act 1991. The producer statements were developed by a combined task committee consisting of members of the New Zealand Institute of Architects, Institution of Professional engineers New Zealand (now Engineering New Zealand), Association of Consulting Engineers New Zealand in consultation with the Building Officials Institute of New Zealand. The original suit of producer statements has been revised at the date of this form as a result of enactment of the Building Act (2004) by these organisations to ensure standard use within the industry.

The producer statement system is intended to provide Building Consent Authorities (BCAs) with reasonable grounds for the issue of a Building Consent or a Code Compliance Certificate, without having to duplicate design or construction checking undertaken by others.

PS1 Design Intended for use by a suitably qualified independent design professional in circumstances where the BCA accepts a producer statement for establishing reasonable grounds to issue a Building Consent;

PS2 Design Review Intended for use by a suitably qualified independent design professional where the BCA accepts an independent design professional's review as the basis for establishing reasonable grounds to issue a Building Consent;

PS3 Construction Forms commonly used as a certificate of completion of building work are Schedule 6 of NZS 3910:2013 or Schedules E1/E2 of NZIA's SCC 2011[2]

PS4 Construction Review Intended for use by a suitably qualified independent design professional who undertakes construction monitoring of the building works where the BCA requests a producer statement prior to issuing a Code Compliance Certificate.

This must be accompanied by a statement of completion of building work (Schedule 6).

The following guidelines are provided by ACENZ, Engineering NZ and NZIA to interpret the Producer Statement.

Competence of Design Professional

This statement is made by a Design Firm that has undertaken a contract of services for the services named and is signed by a person authorised by that firm to verify the processes within the firm and competence of its designers.

A competent design professional will have a professional qualification and proven current competence through registration on a national competence based register, either as a Chartered Professional Engineer (CPEng) or a Registered Architect.

Membership of a professional body, such as Engineering New Zealand (formerly IPENZ) or the New Zealand Institute of Architects (NZIA), provides additional assurance of the designer's standing within the profession. If the design firm is a member of the Association of Consulting Engineers New Zealand (ACENZ), this provides additional assurance about the standing of the firm.

Persons or firms meeting these criteria satisfy the term "suitably qualified independent design professional".

***Professional Indemnity Insurance**

As part of membership requirements, ACENZ requires all member firms to hold Professional Indemnity Insurance to a minimum level. The PI Insurance minimum stated on the front of this form reflects standard, small projects. If the parties deem this inappropriate for large projects the minimum may be up to $500,000.

Professional Services during Construction Phase

There are several levels of service which a Design Firm may provide during the construction phase of a project (CM1-CM5 for Engineers[3]). The Building Consent Authority is encouraged to require that the service to be provided by the Design Firm is appropriate for the project concerned.

Requirement to provide Producer Statement PS4

Building Consent Authorities should ensure that the applicant is aware of any requirement for producer statements for the construction phase of building work at the time the building consent is issued as no design professional should be expected to provide a producer statement unless such a requirement forms part of the Design firm's engagement.

Attached Particulars

Attached particulars referred to in this producer statement refer to supplementary information appended to the producer statement.

Refer Also:

[1] Conditions of Contract for Building & Civil Engineering Construction NZS 3910: 2013

[2] NZIA Standard Conditions of Contract SCC 2011

[3] Guideline on the Briefing & Engagement for Consulting Engineering Services (ACENZ/IPENZ 2004)

[4] PN Guidelines on Producer Statements

www.acenz.org.nz
www.engineeringnz.org
www.nzia.co.nz

obd consultants
Innovation in Engineering Design

DESIGN DOCUMENT SCHEDULE

JOB NO: 20076

DRAWING LIST			
SHEET NUMBER	**SHEET NAME**	**CURRENT REVISION**	**REVISION DATE**
1-205	THE FINNS BALUSTRADE SYSTEM DESIGN	-	17.12.2020
G01	GENERAL NOTES	A	21.12.2020
GA1	THE FINNS GENERAL ARRANGEMENT	A	21.12.2020
GA2	THE FINNS BALUSTRADE CONNECTIONS TABLE SUMMARY	A	21.12.2020
S01	CONNECTION TYPES SF1 & SF2	A	21.12.2020
S02	CONNECTION TYPES SF3 & SF4	A	21.12.2020
S03	CONNECTION TYPES SF5 & SF6	A	21.12.2020
S04	CONNECTION TYPES SF7 & SF8	A	21.12.2020
S05	CONNECTION TYPES SF9 & SF10	A	21.12.2020
S06	CONNECTION TYPES SF11 & SF12	A	21.12.2020
S07	CONNECTION TYPE SF13	A	21.12.2020
S08	CONNECTION TYPE SF14	A	21.12.2020
S09	CONNECTION TYPES TF1 & TF2	A	21.12.2020
S10	CONNECTION TYPES TF3 & TF4	A	21.12.2020

Date: 19/01//2023

Signed: ..p.p.....

19 January 2023

Auckland Council
Private Bag 92300
Victoria Street West
Auckland 1142

To the Building Official,

Auckland Council

The Finns Aluminium Balustrade System Design at 20 Anvil Road, Silverdale, Auckland

OBD Reference: 20076

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 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
Steel structure & fixing components	Alternative solution	Protection for mild steel has been specified in accordance with SNZ TS 3404- Durability requirements for steel structures and components and AS/NZS 2312 – 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. Refer to the attached maintenance plan.

Yours sincerely,

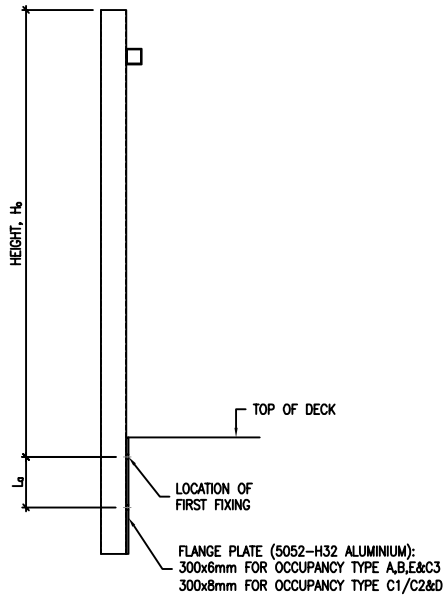
p.p.
Tony O'Brien
BSc Dip Eng CMEngNZ CPEng IntPE(NZ)
Director
For and on behalf of **OBD Consultants Ltd**

FINNS BALUSTRADE FACE FIXED FLANGE PLATE (LOADING TYPE A, B, E & C3)											
FIXING CENTERS	MAX HEIGHT TO 1ST	MAX BENDING MOMENT	APPLICABLE CONNECTION/FIXING TYPES							
(in mm)	FIXING, H_o (in mm)	(in kN.m)	SF1	SF2	SF3	SF4	SF5	SF6	SF7	SF8
486	1150	0.63	YES	YES	YES	YES	YES	YES	YES	YES
405	1250	0.57	YES	YES	YES	YES	YES	YES	YES	YES
324	1350	0.49	YES	YES	YES	YES	YES	YES	YES	YES
243	1400	0.38	YES	YES	YES	YES	YES	YES	YES	YES

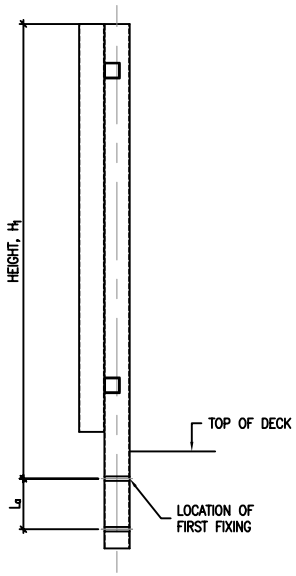
FINNS BALUSTRADE FACE FIXED FLANGE PLATE (LOADING TYPE C1/C2 & D)										
FIXING CENTERS	MAX HEIGHT TO 1ST	MAX BENDING MOMENT	APPLICABLE CONNECTION/FIXING TYPES							
(in mm)	FIXING, H_o (in mm)	(in kN.m)	SF1	SF2	SF3	SF4	SF5	SF6	SF7	SF8
486	1150	1.26	YES	YES		YES	YES		YES	
405	1250	1.14	YES	YES		YES	YES		YES	
324	1250	0.91	YES	YES		YES	YES	YES	YES	
243	1250	0.68	YES	YES		YES	YES	YES	YES	

FINNS BALUSTRADE POST & RAIL SIDE-FIXED (LOADING TYPE A, B, E & C3)								
POST CENTERS	MAX HEIGHT TO 1ST	MAX BENDING MOMENT	APPLICABLE CONNECTION/FIXING TYPES					
(in mm)	FIXING, H_1 (in mm)	(in kN.m)	SF9	SF10	SF11	SF12	SF13	SF14
1500	1170	1.97	YES	YES	YES	YES	YES	YES

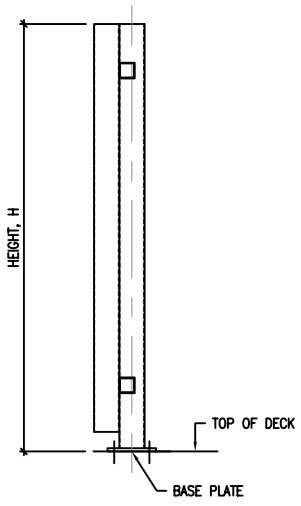
FINNS BALUSTRADE POST & RAIL TOP-FIXED (LOADING TYPE A, B, E & C3)						
POST CENTERS	POST HEIGHT FROM TOP	MAX BENDING MOMENT	APPLICABLE CONNECTION TYPES			
(in mm)	OF DECK, H (in mm)	(in kN.m)	TF1	TF2	TF3	TF4
1500	1100	1.86	YES	YES	YES	YES



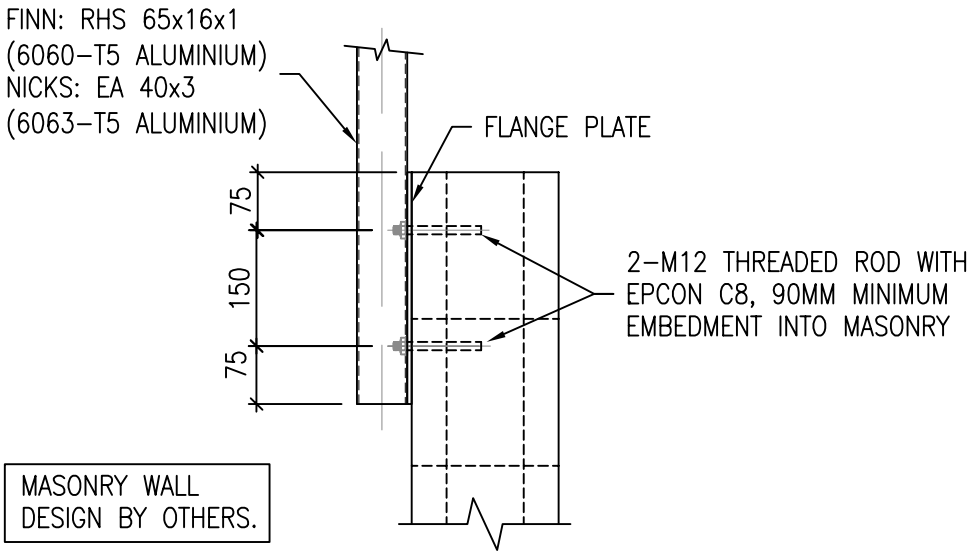
FLANGE PLATE FACE FIXED



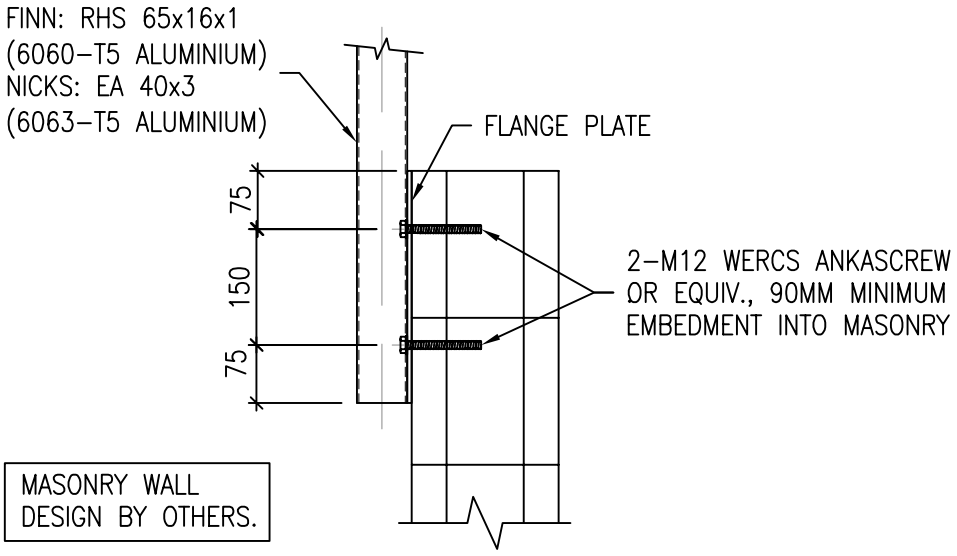
POST SIDE FIXED



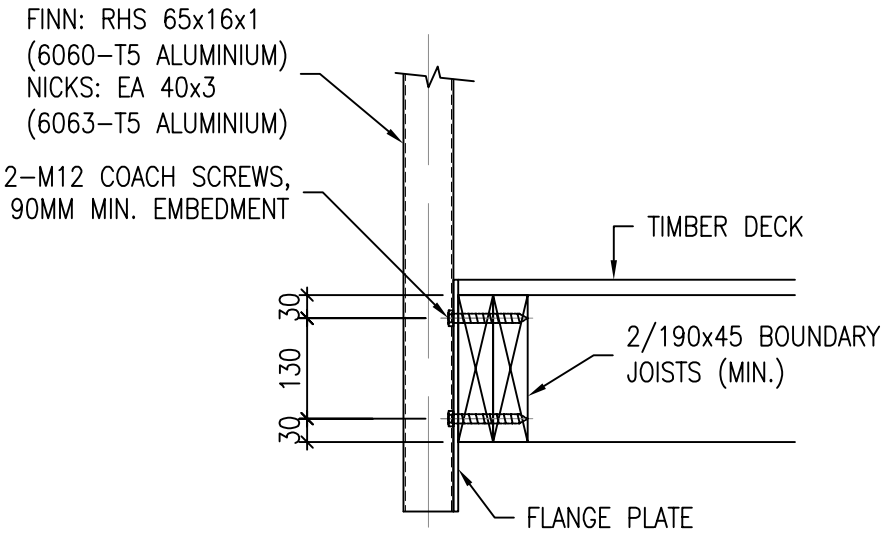
POST TOP FIXED



1 – TYPE SF1 – FLANGE PL. SIDE FIXED TO MASONRY USING CHEMSET THREADED ROD
SCALE: NOT TO SCALE



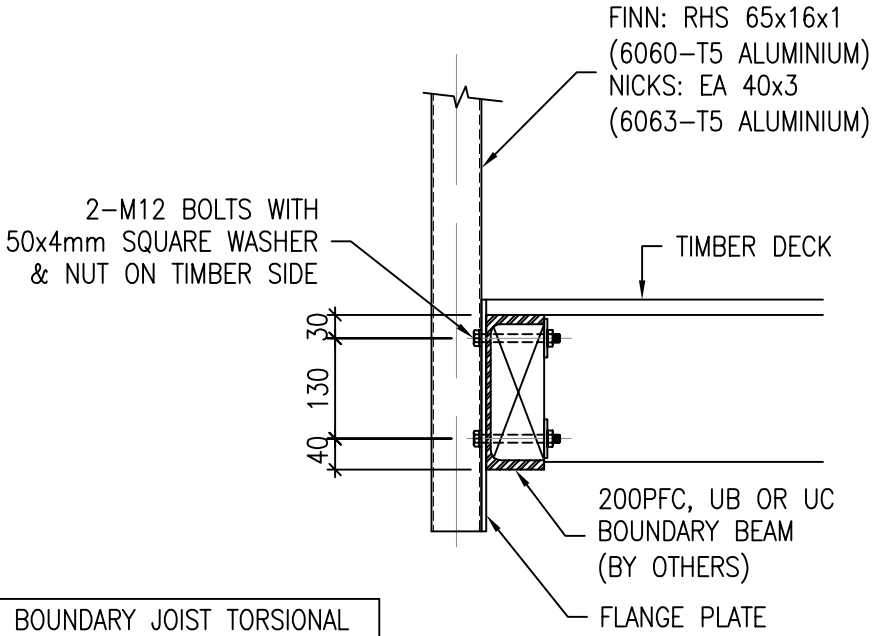
2 – TYPE SF2 – FLANGE PL. SIDE FIXED TO MASONRY USING CONCRETE SCREWS
SCALE: NOT TO SCALE



DOUBLE BOUNDARY JOIST TORSIONAL RESTRAINTS AND CONNECTIONS TO DECK FRAMING (BY OTHERS).

3 / – TYPE SF3 – FLANGE PL. SIDE FIXED TO TIMBER BOUNDARY JOIST USING COACH SCREWS

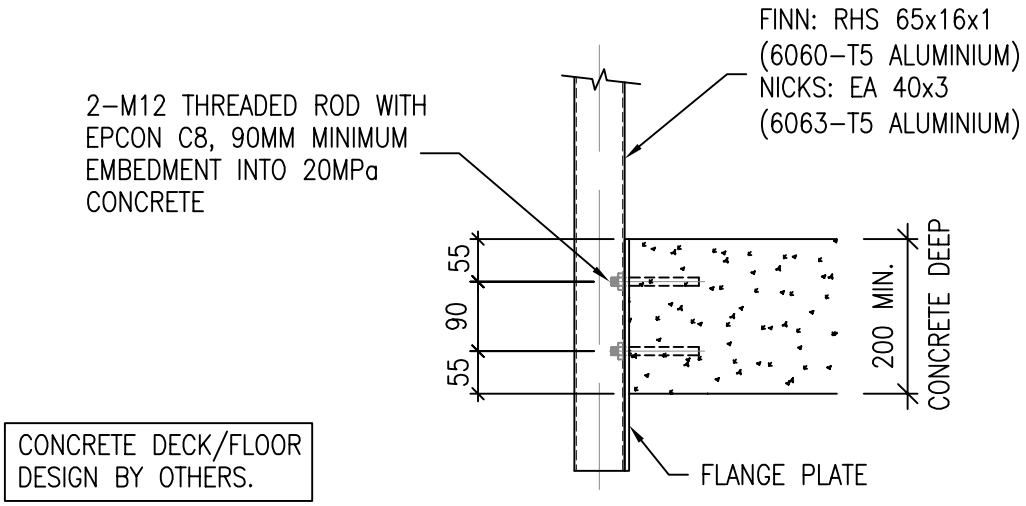
SCALE: NOT TO SCALE



STEEL BOUNDARY JOIST TORSIONAL RESTRAINTS AND CONNECTIONS TO DECK FRAMING (BY OTHERS).

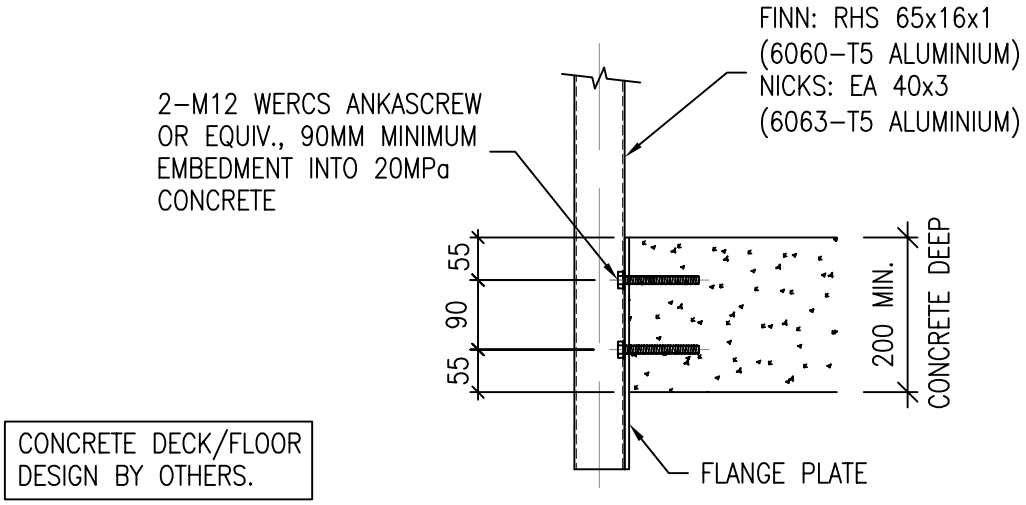
4 / – TYPE SF4 – FLANGE PL. SIDE FIXED TO STEEL BOUNDARY JOIST USING BOLTS

SCALE: NOT TO SCALE



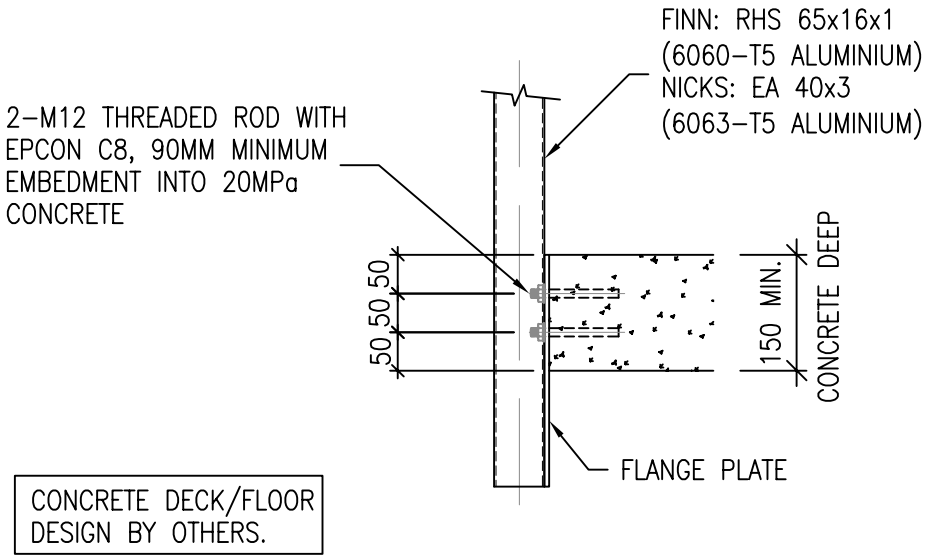
5 – TYPE SF5 – FLANGE PL. SIDE FIXED TO 200MM CONCRETE USING CHEMSET THREADED ROD

SCALE: NOT TO SCALE



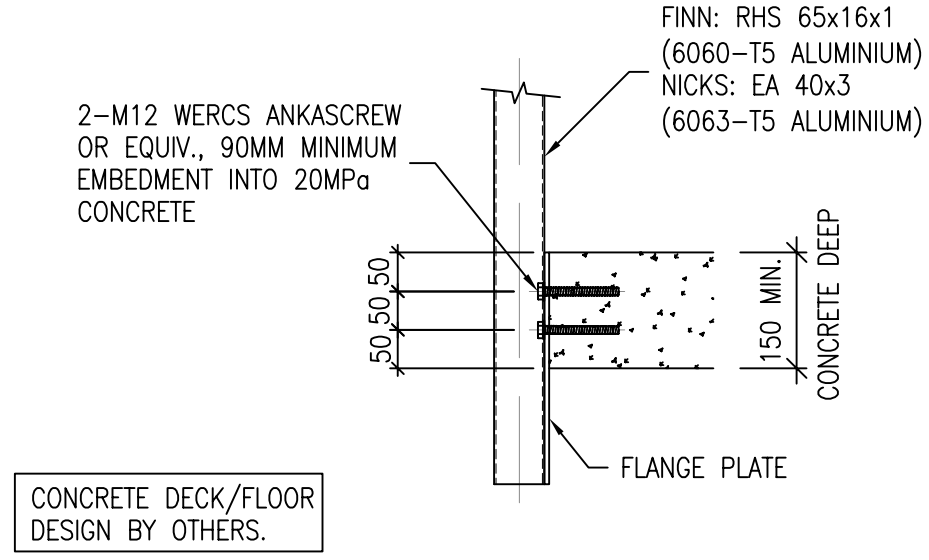
6 – TYPE SF6 – FLANGE PL. SIDE FIXED TO 200MM CONCRETE USING SCREWS

SCALE: NOT TO SCALE



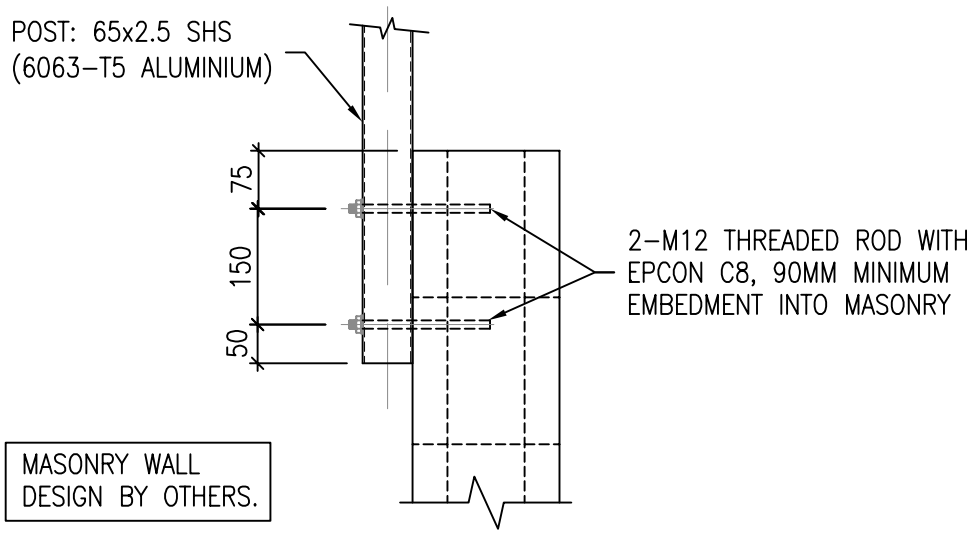
7 – TYPE SF7 – FLANGE PL. SIDE FIXED TO 150MM CONCRETE USING CHEMSET BOLT

SCALE: NOT TO SCALE



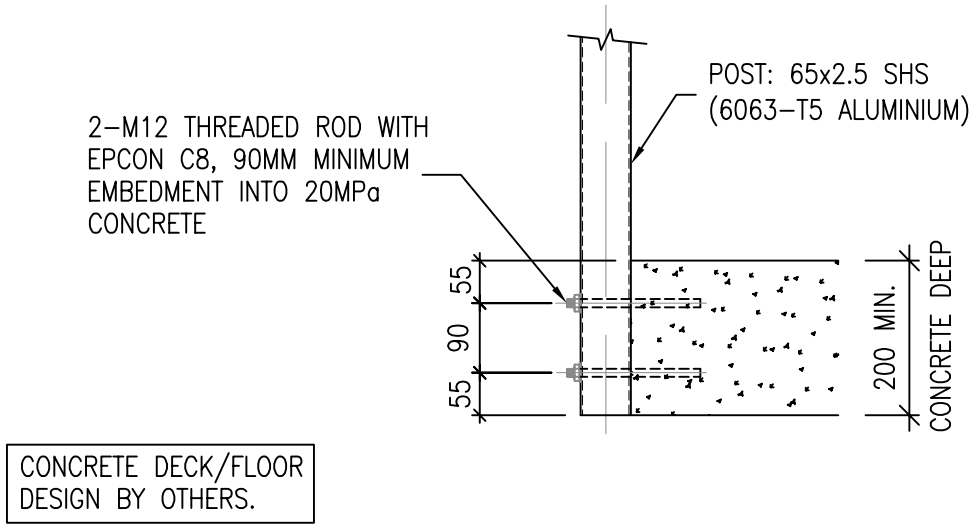
8 – TYPE SF8 – FLANGE PL. SIDE FIXED TO 150MM CONCRETE USING SCREWS

SCALE: NOT TO SCALE



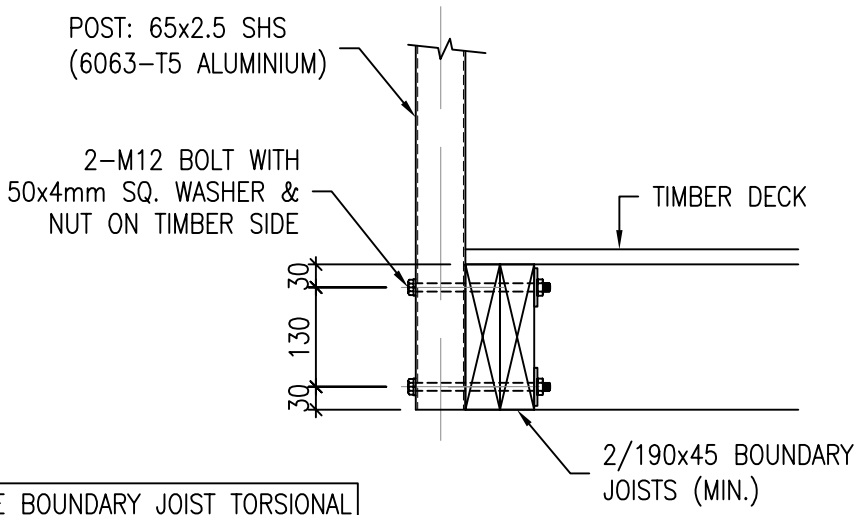
9 – TYPE SF9 – POST SIDE FIXED TO MASONRY WITH CHEMSET THREADED ROD

SCALE: NOT TO SCALE



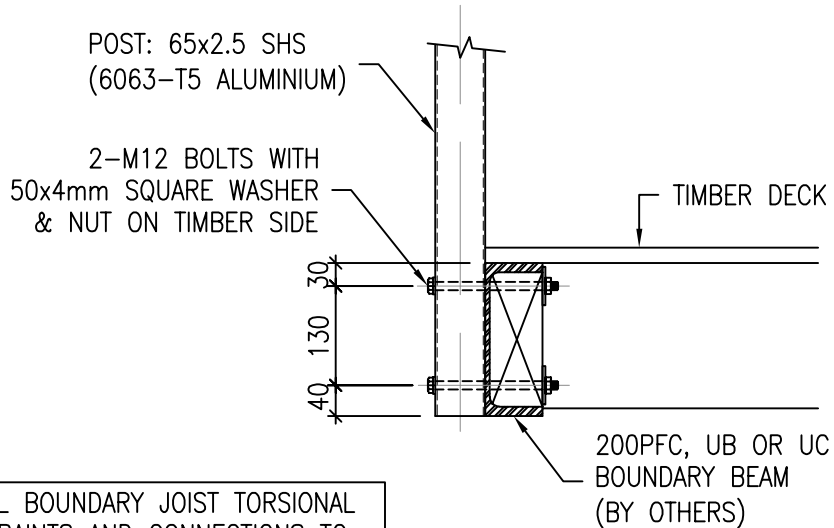
10 – TYPE SF10 – POST SIDE FIXED TO 200MM CONCRETE USING CHEMSET THREADED ROD

SCALE: NOT TO SCALE



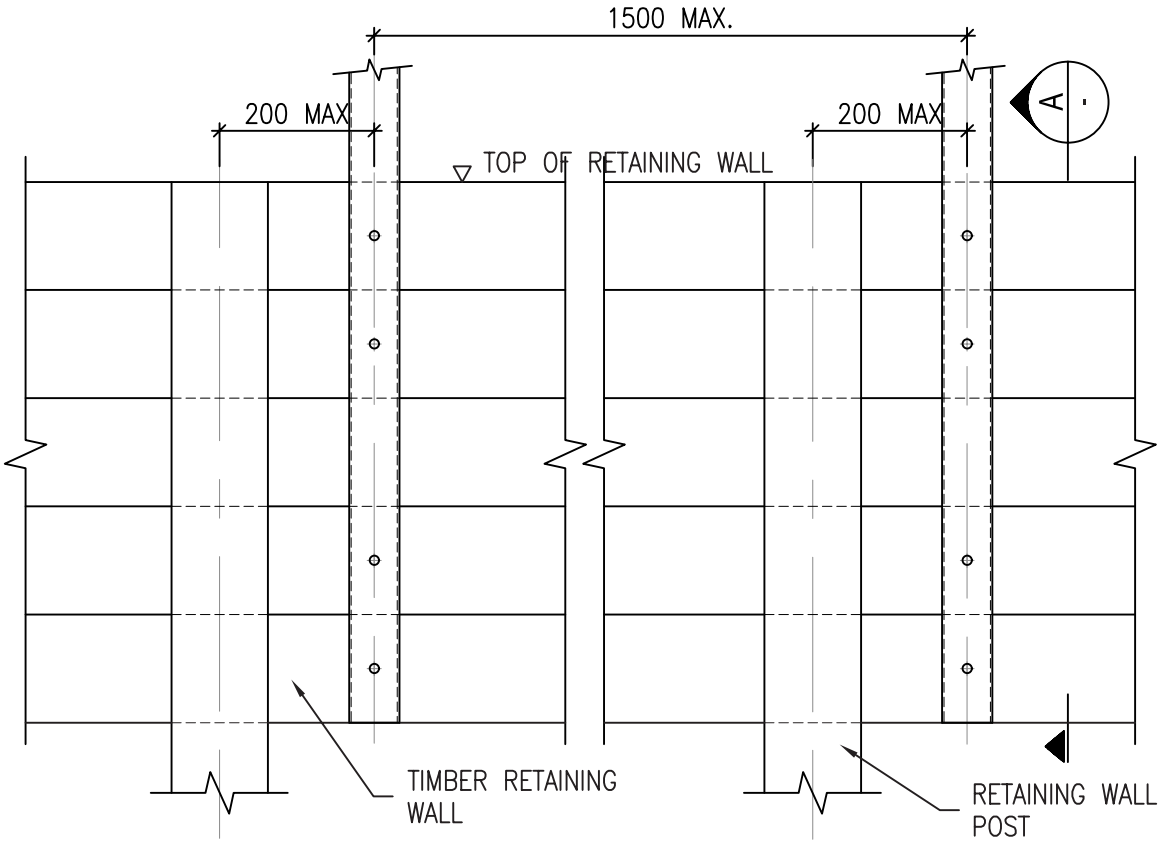
DOUBLE BOUNDARY JOIST TORSIONAL RESTRAINTS AND CONNECTIONS TO DECK FRAMING (BY OTHERS).

11 – TYPE SF11 – POST SIDE FIXED TO TIMBER JOIST USING STEEL BOLTS
SCALE: NOT TO SCALE



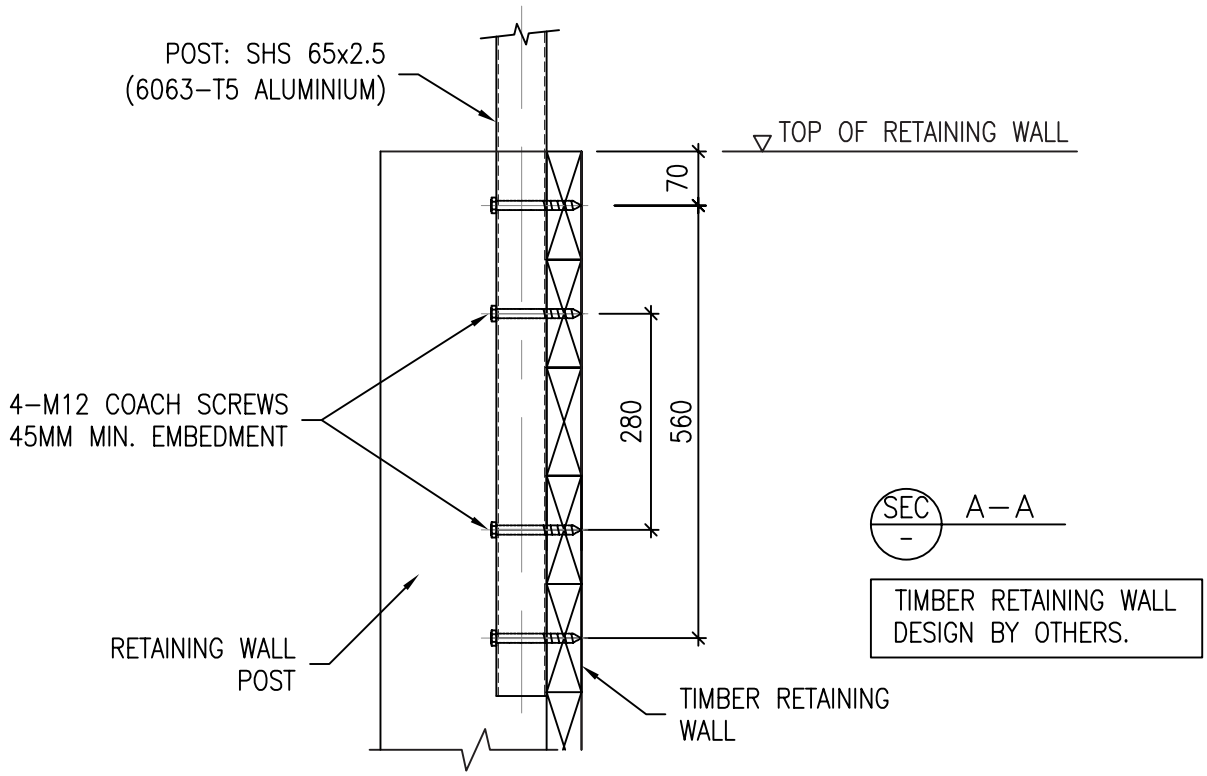
STEEL BOUNDARY JOIST TORSIONAL RESTRAINTS AND CONNECTIONS TO DECK FRAMING (BY OTHERS).

12 – TYPE SF12 – POST. SIDE FIXED TO STEEL BOUNDARY JOIST USING BOLTS
SCALE: NOT TO SCALE



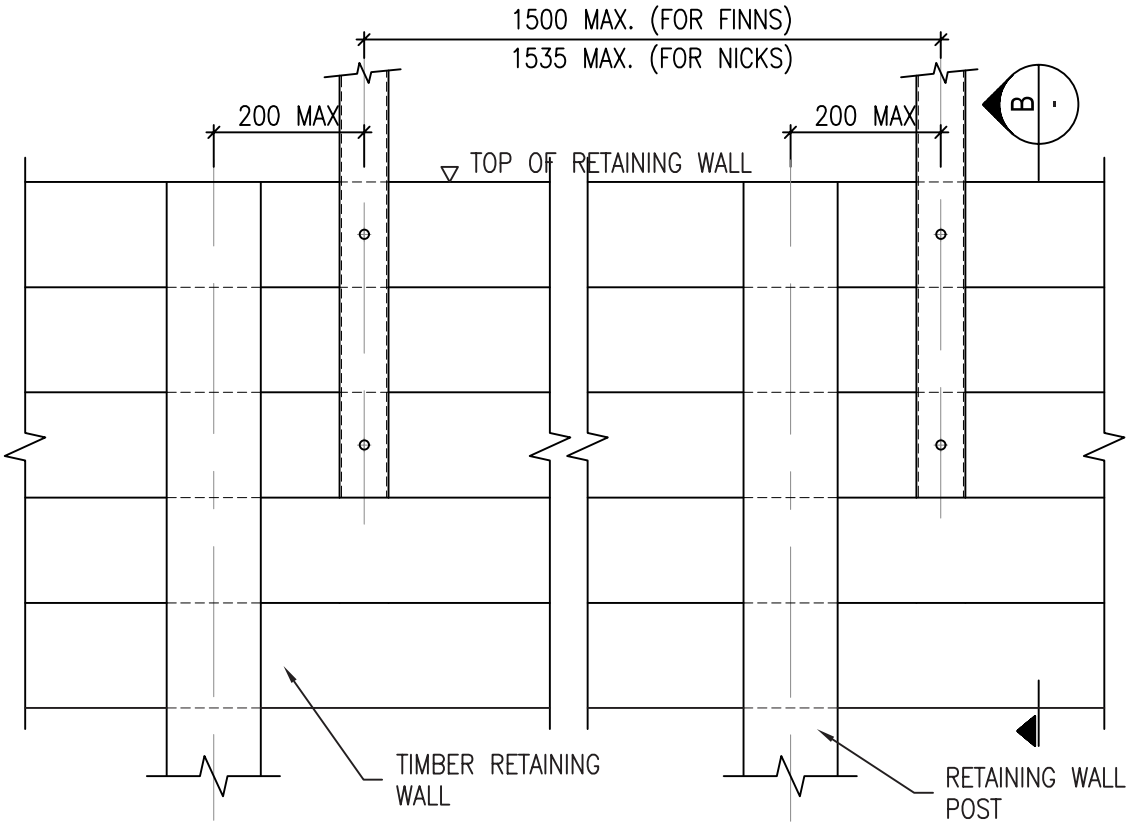
13 – TYPE SF13 – POST SIDE FIXED TO TIMBER RETAINING WALL USING COACH SCREWS

SCALE: NOT TO SCALE



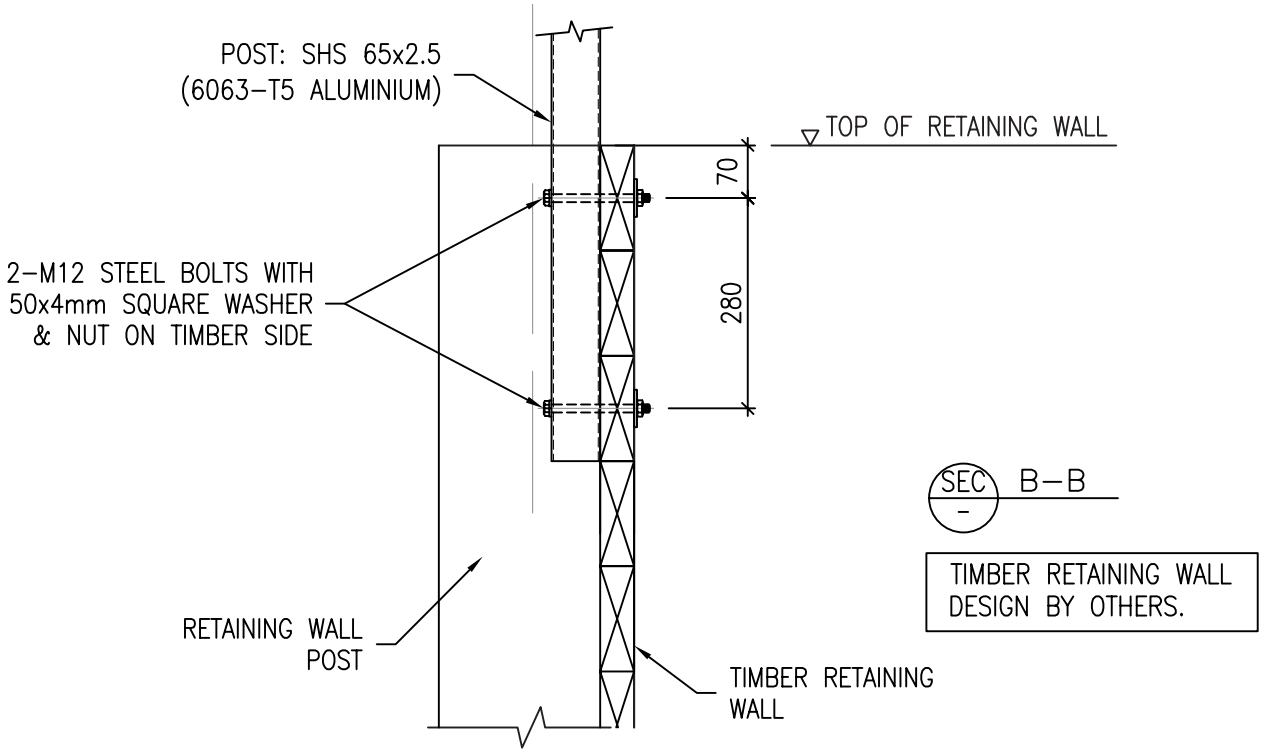
SEC – A–A

TIMBER RETAINING WALL DESIGN BY OTHERS.



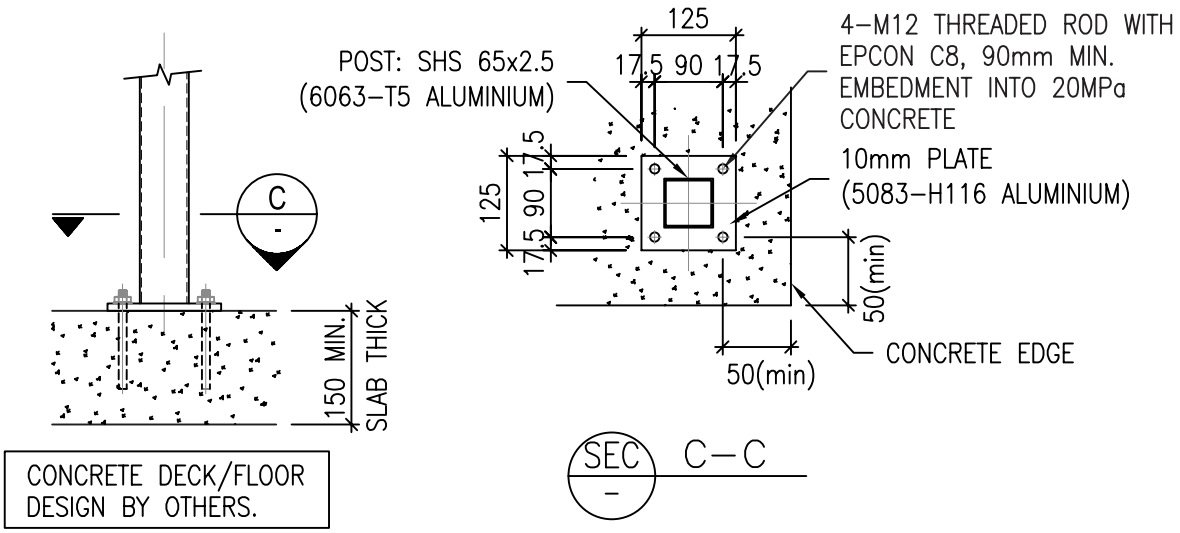
14 – TYPE SF14 – POST SIDE FIXED TO TIMBER RETAINING WALL USING BOLTS

SCALE: NOT TO SCALE



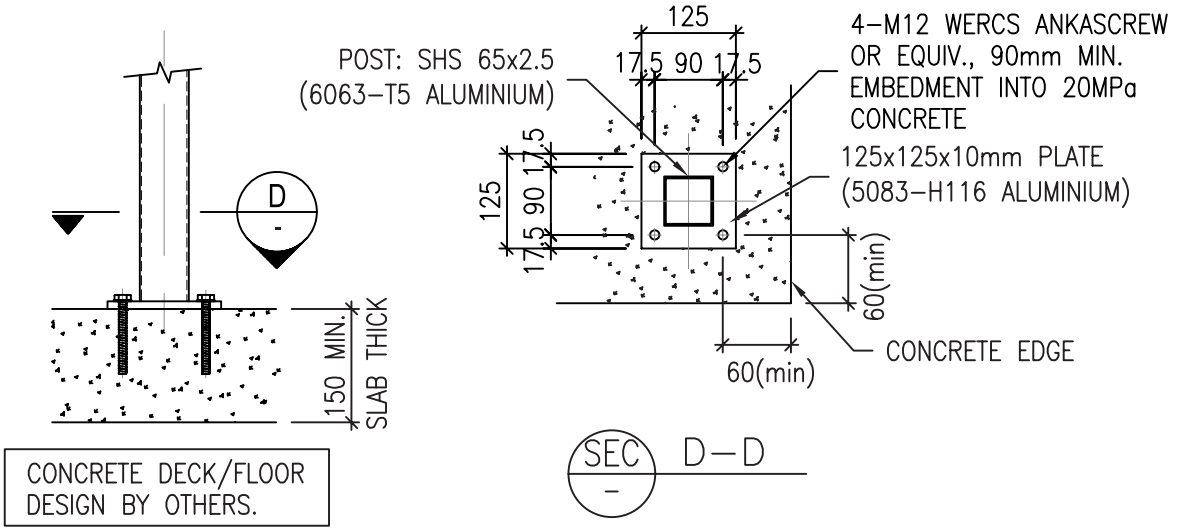
SEC – B–B

TIMBER RETAINING WALL DESIGN BY OTHERS.



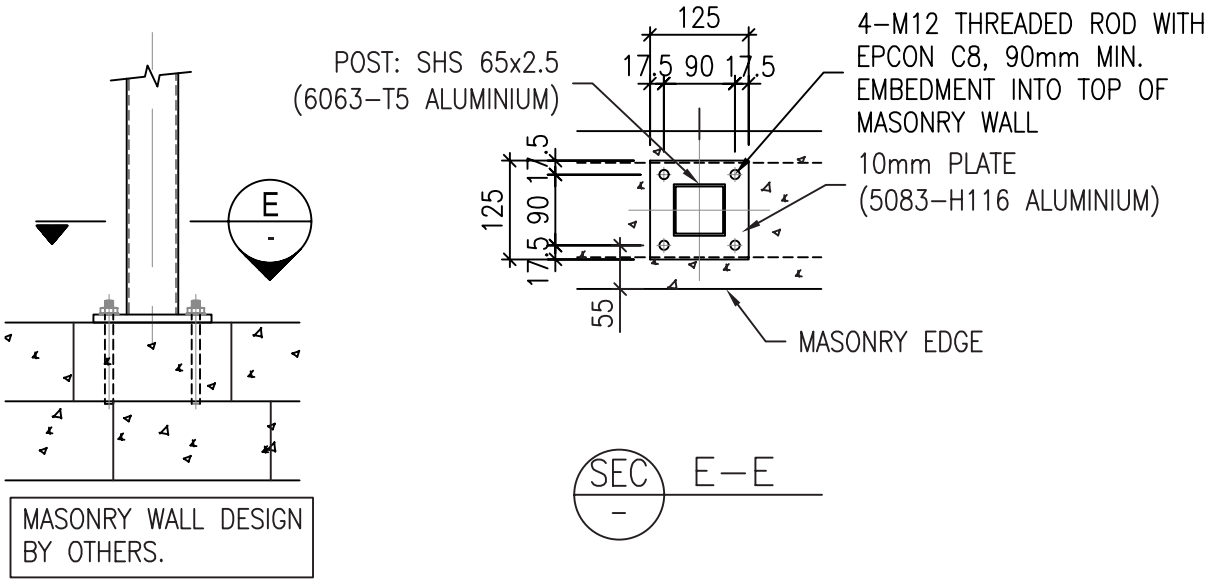
15 – CONNECTION TYPE TF1 – TOP FIXED TO 150MM CONCRETE USING CHEMSET THREADED ROD

SCALE: NOT TO SCALE



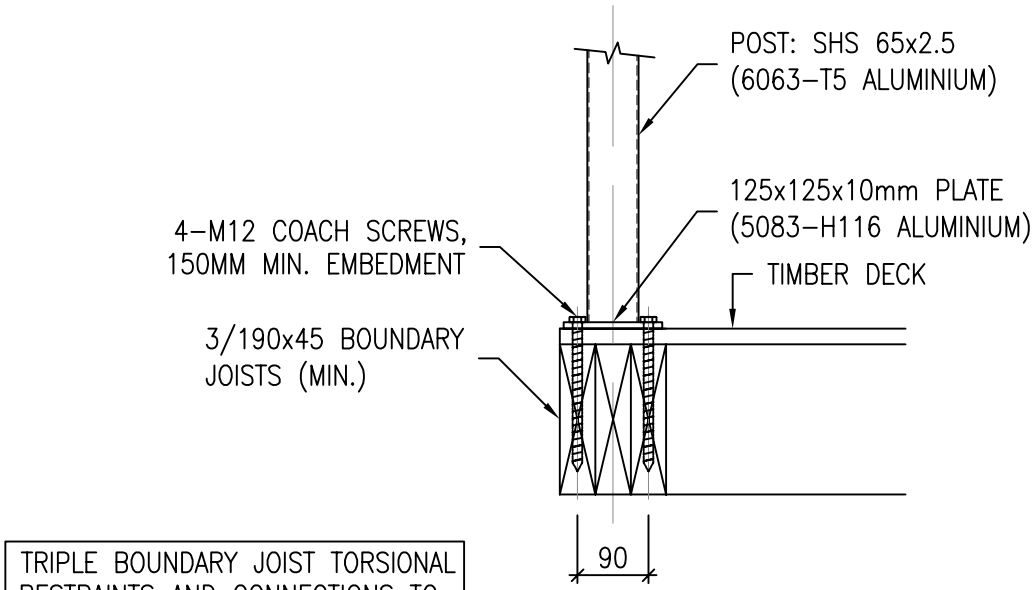
16 – CONNECTION TYPE TF2 – TOP FIXED TO 150MM CONCRETE USING SCREWS

SCALE: NOT TO SCALE



17 – CONNECTION TYPE TF3 – TOP FIXED TO MASONRY USING CHEMSET THREADED ROD

SCALE: NOT TO SCALE



18 – CONNECTION TYPE TF4 – TOP FIXED TO TIMBER BOUNDARY JOIST USING COACH SCREW

SCALE: NOT TO SCALE

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