

# EDGESMITH



FOR RESIDENTIAL AND COMMERCIAL BALUSTRADES

# PS1

## MERCURY

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

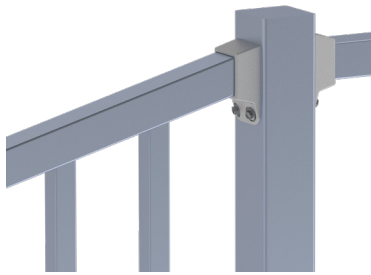
Rev No. 02 | Issue Date: September 2022



# MERCURY

## Balustrade System

The Mercury Balustrade Panel is made from proprietary aluminium extrusions and incorporates Edgesmith's patented system that allows the assembled panel to rake up to 30 degrees without losing rigidity. The Mercury Commercial balustrade system differs from the fence system of the same name in that it has a 50x40mm top rail. Not only does the larger section feel better under hand, it has internal stiffening webs that add a huge amount of rigidity to the panel with little extra weight. It is a panel without compromise.



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 5-9 for more details.

| Setting                                                                       | Application                                                              | Occupancy Type | Design Load | Post Centers | Posts                                             | Fixing Options                                    | Details |
|-------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------|-------------|--------------|---------------------------------------------------|---------------------------------------------------|---------|
| <b>Single Dwelling Residential</b>                                            | Timber Retaining Wall                                                    | A              | 0.35kN/m    | 2.4m         | Alu 65SHS x 2.5 mm 6063-T5<br>Steel 65SHS x 2.5mm | Bolt or Coach Screw                               | Pg. 13  |
|                                                                               | <b>Compliant Panel: Mercury Residential (40x40 top and bottom rails)</b> | In-ground      | A           | 0.35kN/m     | 2.4m                                              | Alu 65SHS x 2.5 mm 6063-T5<br>Steel 65SHS x 2.5mm | N/A     |
|                                                                               | Timber Deck                                                              | C3             | 0.75kN/m    | 1.2m         | Alu 65SHS x 2.5 mm 6063-T5<br>Steel 65SHS x 2.5mm | Bolt or Coach Screw                               | Pg. 12  |
| <b>Commercial, Parks, Schools and Single or Multi Dwelling Residential</b>    | Timber Retaining Wall                                                    | A, B, E, C3    | 0.75kN/m    | 2.4m         | Steel 65SHS x 2.5mm                               | Bolt or Coach Screw                               | Pg. 10  |
|                                                                               | In-ground                                                                | A, B, E, C3    | 0.75kN/m    | 2.4m         | Steel 65SHS x 2.5mm                               | N/A                                               | Pg. 10  |
| <b>Compliant Panel: Mercury Commercial (50x40 top and 40x40 bottom rails)</b> | Concrete                                                                 | A, B, E, C3    | 0.75kN/m    | 2.4m         | Steel 65SHS x 2.5mm                               | Screw Bolt or Chem Set Rod                        | Pg. 11  |
|                                                                               | Concrete Block Wall                                                      | A, B, E, C3    | 0.75kN/m    | 2.4m         | Steel 65SHS x 2.5mm                               | Chem Set Rod                                      | Pg. 11  |

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.

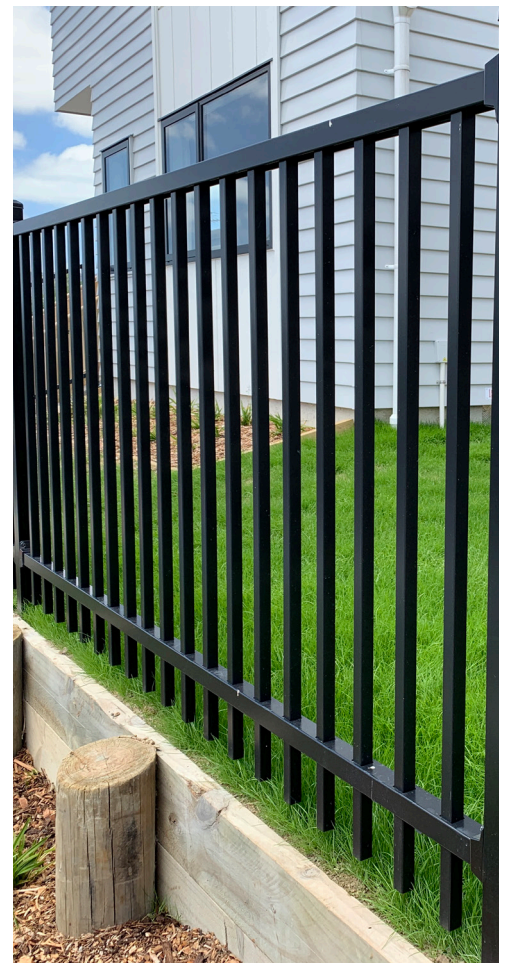
**Note 2:** The table above is only a guide. Please refer to SNZ TS 3404:2018, Figures 1 to 7 for specific corrosivity maps for further guidance.

## Inspection And Maintenance 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.

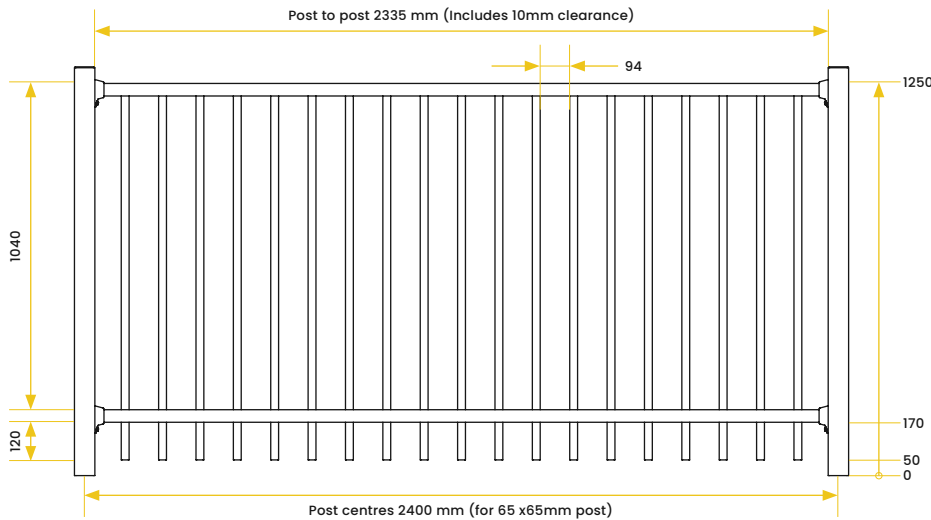
| Timeframe                              | Inspection / Maintenance                                                                                   |
|----------------------------------------|------------------------------------------------------------------------------------------------------------|
| 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.**

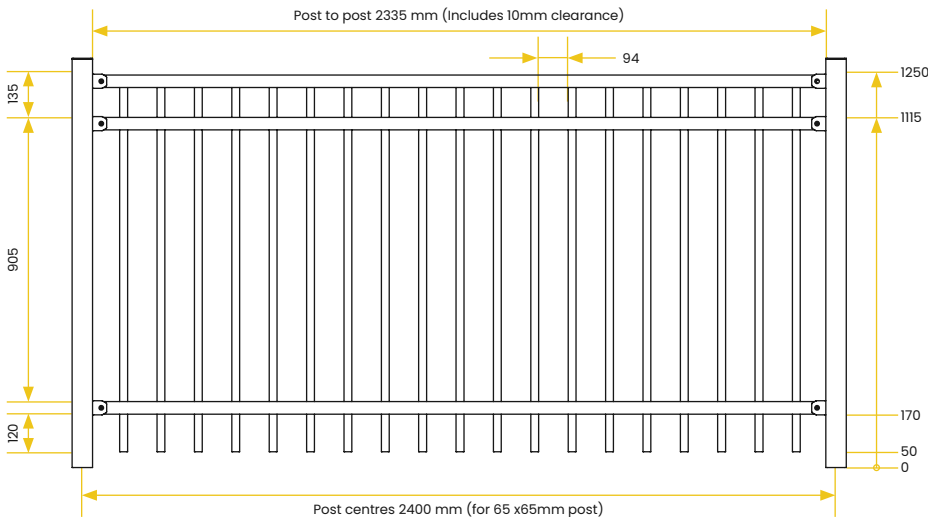




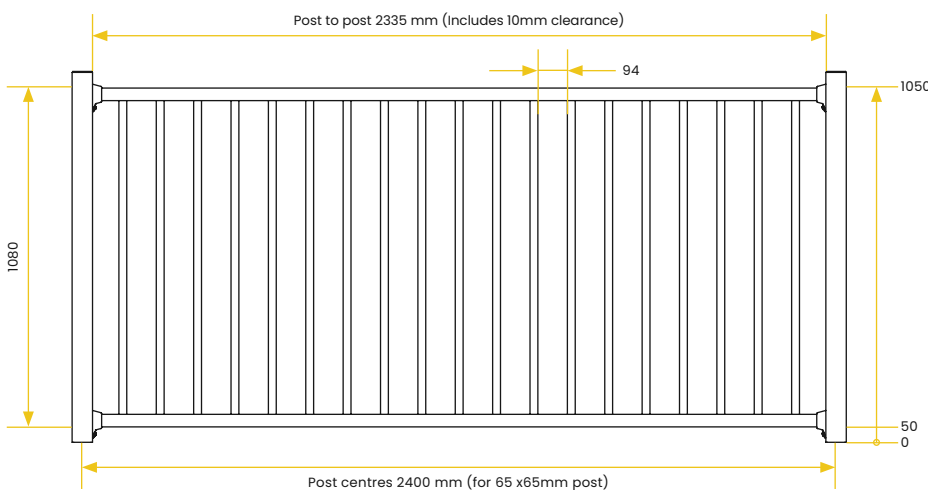
## The Mercury - 1.2mH 2 Rail



## The Mercury - 1.2mH 3 Rail



## The Mercury - 1.0mH 2 Rail



### Material:

- Aluminium
- Pickets SHS 25 x 1.2mm
- Top Rail 40 x 40 Channel (50 x 40 for Balustrade)
- Bottom Rails 40 x 40 Channel

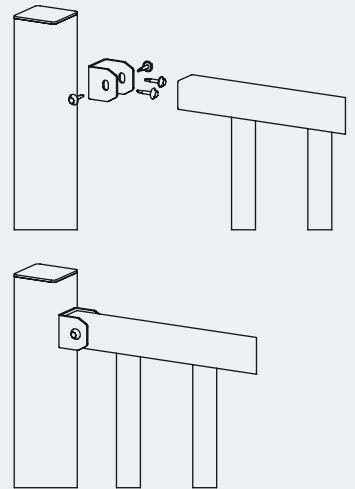
### Finish:

Powder Coated

### Bracket Fixings:

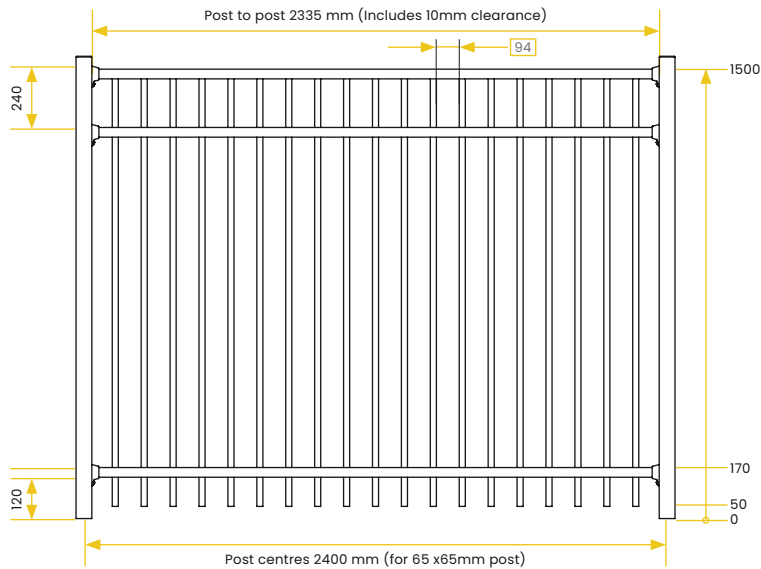
- Aluminium U-Brackets
- 12g Tek Screws or
- 14g Pentaforce Security
- Tek Screws (optional)

### Bracket Details:

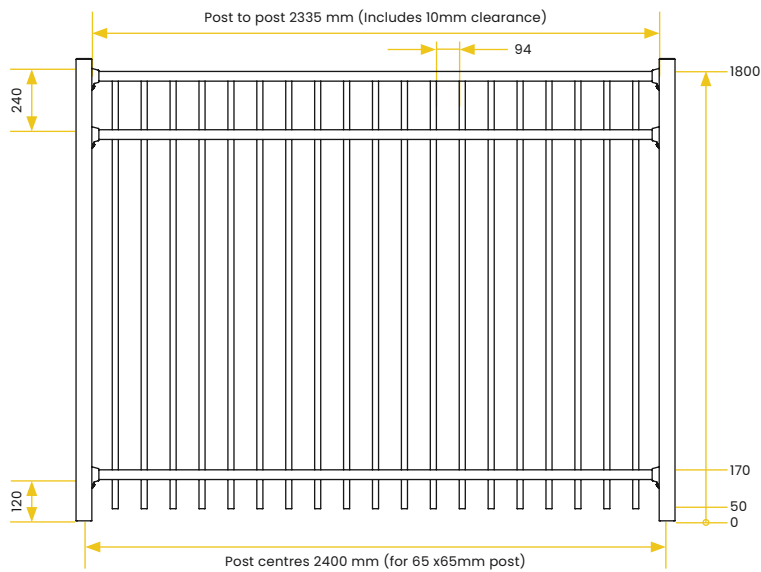




## The Mercury - 1.5mH 3 Rail



## The Mercury - 1.8mH 3 Rail



### Material:

- Aluminium
- Pickets SHS 25 x 1.2mm
- Top Rail 40 x 40 Channel  
(50 x 40 for Balustrade)
- Bottom Rails 40 x 40 Channel

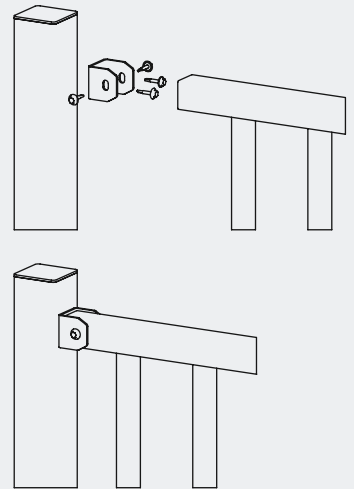
### Finish:

Powder Coated

### Bracket Fixings:

- Aluminium U-Brackets
- 12g Tek Screws or
- 14g Pentaforce Security
- Tek Screws (optional)

### Bracket Details:







Te Kahui  
Whaihangā  
New Zealand  
Institute of  
Architects



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 Local Authority  
(Building Consent Authority)

IN RESPECT OF: The Mercury Residential & Commercial Balustrade System  
(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 Mercury Residential & Commercial Balustrade System and corresponding connections to concrete, masonry, timber & ground using concrete piles.  
(Extent of Engagement)

Services in respect of the requirements of Clause(s) B1 (Structure) 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 was designed based on strength only & for situations that fall strictly within the limitations set out in clause F4 of the building code and based on minimum barrier loads shown in Table 3.3 AS/NZS 1170.1 for Occupancy Type A (for Residential 0.35 kN/m); C3 (for Residential 0.75 kN/m), and Occupancy Types A, B, E & C3 (for Commercial). The balustrade supporting structure/members are to accommodate loads induced by the barrier. Components are not exposed to environments that adversely affect the durability of steel bolts/screws along with washer and nuts...
- (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, Tony O'Brien (AC Author NO: 1966) am:  CPEng 251875 #  Reg Arch #

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:

Approved by Tony O'Brien [signature] p.p. [Signature]  
(Name of Design Professional) All Rights Reserved

ON BEHALF OF OBD Consultants Job Ref: 20021 Date 12/09/2022  
(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.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, ENGINEERING NEW ZEALAND AND NZIA





12 September 2022

Auckland Council  
Private Bag 92300  
Victoria Street West  
Auckland 1142

To the Building Official,  
Auckland Council

**The Mercury Residential & Commercial Balustrade System at Throughout New Zealand (C2, C3 & C4 Zones)**

OBD Reference: 20021

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,

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



## DESIGN DOCUMENT SCHEDULE

JOB NO: 20021

| DRAWING LIST                                          |                                                |                  |               |
|-------------------------------------------------------|------------------------------------------------|------------------|---------------|
| SHEET NUMBER                                          | SHEET NAME                                     | CURRENT REVISION | REVISION DATE |
| <b>The Mercury Residential (0.35 kN/m) Balustrade</b> |                                                |                  |               |
| SK-01                                                 | The Mercury 1.2mH Raking Aluminium Fence Panel | -                | 13.10.2020    |
| G01                                                   | General Notes                                  | B                | 13.10.2020    |
| S01                                                   | Connection Type 1A                             | B                | 13.10.2020    |
| S02                                                   | Connection Type 1B                             | B                | 13.10.2020    |
| S03                                                   | Connection Type 2                              | B                | 13.10.2020    |
| S04                                                   | Connection Type 3                              | B                | 13.10.2020    |
| <b>The Mercury Residential (0.35 kN/m) Balustrade</b> |                                                |                  |               |
| SK-02                                                 | The Mercury 1.2mH Raking Aluminium Fence Panel | -                | 13.10.2020    |
| G01                                                   | General Notes                                  | B                | 13.10.2020    |
| S01                                                   | Connection Types 1A & 1B                       | B                | 13.10.2020    |
| S02                                                   | Connection Types 2 & 3                         | B                | 13.10.2020    |
| S03                                                   | Connection Types 4A & 4B                       | B                | 13.10.2020    |
| S04                                                   | Connection Type 5A                             | B                | 13.10.2020    |
| S05                                                   | Connection Type 5B                             | B                | 13.10.2020    |
| S06                                                   | Connection Type 6                              | B                | 13.10.2020    |
| S07                                                   | Connection Type 7                              | B                | 13.10.2020    |
| <b>The Mercury Commercial Balustrade</b>              |                                                |                  |               |
| SK-03                                                 | The Mercury 1.2mH Raking Aluminium Fence Panel | -                | 13.10.2020    |
| G01                                                   | General Notes                                  | B                | 13.10.2020    |
| S01                                                   | Connection Types 1A & 1B                       | B                | 13.10.2020    |
| S02                                                   | Connection Types 2, 3 & 4                      | B                | 13.10.2020    |
| S03                                                   | Connection Type 5                              | B                | 13.10.2020    |
| S04                                                   | Connection Type 6                              | B                | 13.10.2020    |
| S05                                                   | Connection Type 7                              | B                | 13.10.2020    |

Date: 12/09/2022

By: 







### GENERAL NOTES

- (1) THE BALUSTRADE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE ARCHITECT'S AND ENGINEER'S DRAWINGS.
- (2) ALL DIMENSIONS AND LEVELS ARE TO BE CHECKED ON SITE AGAINST THE ARCHITECT'S AND ENGINEERS DRAWINGS PRIOR TO COMMENCING WORK – ANY VARIATIONS OR DISCREPANCIES ARE TO BE REFERRED TO THE CONSULTANT FOR RESOLUTION.
- (3) THE EXISTING SUPPORTING STRUCTURE DETAILS ARE NOT COVERED BY THESE DRAWINGS. IT IS ASSUMED THAT THE EXISTING SUPPORT STRUCTURE CAN ACCOMMODATE THE ADDITIONAL LOADS INDUCED BY THE BARRIER. IN ADDITION, THE EXISTING STRUCTURE MUST HAVE THE REQUIRED MINIMUM PROPERTIES AS FOLLOWS:  $f_c = 20$  MPa (FOR CONCRETE),  $f_m = 12$  MPa (FOR MASONRY), GROUP J5 MATERIAL (FOR TIMBER).
- (4) THESE DRAWINGS ONLY COVER THE INSTALLATION/CONNECTION DETAILS OF THE MERCURY COMMERCIAL BALUSTRADE SYSTEM.
- (5) A MINIMUM OF 48 HOURS NOTICE IS REQUIRED FOR ANY CONSTRUCTION MONITORING OBSERVATIONS. A PS4 CANNOT BE PROVIDED (PRODUCER STATEMENT CONSTRUCTION REVIEW), IF THE CONSULTANT IS NOT INFORMED OF THE REQUIRED INSPECTIONS THAT THE LOCAL TERRITORIAL AUTHORITY MAY REQUIRE.
- (6) REMOVE ALL EXCESS MATERIALS AND RUBBISH FROM SITE AND REINSTATE ANY DAMAGE ON COMPLETION OF WORKS.
- (7) ALL DAMAGE TO EXISTING STRUCTURE CAUSED BY CONSTRUCTION ARE TO BE REINSTATED.
- (8) ALL WORKS ARE TO COMPLY WITH THE NEW ZEALAND BUILDING CODE (NZBC).

### DURABILITY – STEEL FIXINGS & COMPONENTS

- (9) HOT-DIPPED GALVANIZED BOLTS/FIXINGS CAN BE USED FOR LOCATIONS THAT FALL UNDER TYPICAL ATMOSPHERIC CATEGORIES B & C SO LONG AS THE MAINTENANCE PROGRAM AS DETAILED FOR THE DESIGN IS STRICTLY ADHERED TO. REFER TO TABLE 1 & 2 BELOW.
- (10) GRADE 304 STAINLESS STEEL BOLTS/FIXINGS ARE TO BE USED FOR LOCATIONS THAT FALL UNDER TYPICAL ATMOSPHERIC CATEGORY D OR IN CATEGORY C LOCATIONS WHERE ITEMS ARE DEEMED TO BE SHELTERED AND UNABLE TO BE WASHED REGULARLY AS REQUIRED BY THE MAINTENANCE PLAN. REFER TO TABLE 1 & 2 BELOW.
- (11) FOR FIXINGS REQUIRED IN AREAS OF TYPICAL ATMOSPHERIC CATEGORIES OTHER THAN B, C & D, OR IN WET LOCATIONS WHERE STEEL WILL REMAIN WET FOR EXTENDED PERIODS OF TIME, SUCH AS CREVICES, LOW POINTS & POCKETS NOT DRAINED, THESE WILL REQUIRE SPECIFIC ENGINEERING DESIGN (SED) WHERE MORE DURABLE GRADE 316 OR HIGHER STAINLESS STEEL OR SILICON BRONZE FIXINGS MAYBE MORE SUITABLE. REFER TO TABLE 1 & 2 BELOW.
- (12) FOR FIXINGS AND COMPONENTS THAT ARE TO HAVE DIRECT CONTACT WITH PRESERVED TIMBER (PT), ESPECIALLY WHEN THE PRESERVATIVE TREATMENT USES COPPER AZOLE-BASED (CuAz) OR ALKALINE COPPER QUATERNARY-BASED (ACQ) PRESERVATIVES AND A HIGH TIMBER MOISTURE CONTENT IS EXPECTED, THEN GRADE 304/316 STAINLESS STEEL FIXINGS ARE RECOMMENDED. IF GALVANIZED FIXINGS ARE USED WHERE MOISTURE CONTENT OF THE PRESERVED TIMBER (PT) WAS EXPECTED TO BE LOW BUT SUBSEQUENTLY FOUND TO BE HIGH THEN THEIR INSPECTION SHOULD BE CARRIED OUT REGULARLY AS PART OF THE MAINTENANCE PROGRAM. THIS WOULD INVOLVE REMOVING ANY HIGH-RISK COMPONENTS SUCH BOLTS OR COACH SCREWS FIXED INTO OBVIOUS DAMP AND WET TIMBERS WHICH MAY OR MAY NOT BE CLOSE TO THE GROUND OR EVEN HIGHER THAN 600MM FROM THE GROUND. THE EMBEDDED THREAD AND SHAFT NEEDS TO BE REMOVED AND INSPECTED CLOSELY AT MINIMUM 5 YEARLY INTERVALS. IF SIGNS OF CORROSION ARE FOUND ON OVER 1%-2% OF THE SURFACE AREA THEN THE FIXING IS TO BE REPLACED WITH A STAINLESS-STEEL EQUIVALENT OR A GALVANIZED BOLT WITH ADDITIONAL SURFACE PROTECTION WHILE CONTINUING THE SAME MAINTENANCE PROGRAM TO MONITOR OR UNTIL SATISFACTORY. IN SOME SPECIFIC ENGINEERING DESIGN (SED) CASES, MORE DURABLE MATERIALS SUCH AS SILICON BRONZE MAYBE REQUIRED.
- (13) PREVENT CONTACT BETWEEN ALL DISSIMILAR MATERIALS (i.e. GALVANIZED STEEL AND ALUMINIUM OR GALVANIZED STEEL AND STAINLESS STEEL) BY SEPARATING WITH NEOPRENE WASHERS OR SIMILAR APPROVED.
- (14) ALL CHEMSET CONCRETE ANCHORS ARE TO BE FIXED TO MANUFACTURER'S SPECIFICATIONS.

TABLE 1: TYPICAL ATMOSPHERIC CATEGORY

| ENVIRONMENT LIMITATIONS                                                                                                                                                                                                                                                                                                                                                 | MACROCLIMATE CORROSION CATEGORY (SNZ TS 3404:2018 & AS/NZS 2312.1:2014) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| MORE THAN 20KM TO 50KM FROM SALT WATER ON WEST & SOUTH COAST OF SOUTH ISLAND, 5KM TO 50KM FROM SALT WATER ON EAST COAST OF BOTH ISLANDS & SOUTH COASTS OF NORTH ISLAND & ALL HARBOURS OR OTHERWISE INLAND MORE THAN 50KM.                                                                                                                                               | C2                                                                      |
| WITHIN 20KM OF BREAKING SURF ALONG THE WEST & SOUTH COASTS OF SOUTH ISLAND, OR WITHIN 5KM OF SALT WATER ALONG EAST COAST OF BOTH ISLANDS, OR WITHIN 5KM OF SALT WATER WEST & SOUTH COASTS OF THE NORTH ISLAND, & ALL HARBOURS.                                                                                                                                          | C3                                                                      |
| WITHIN 500M INLAND OF BREAKING SURF, OR WITHIN 50M OF CALM SALT WATER SUCH AS HARBOUR FORSHORES. THIS AREA MAY BE EXTENDED INLAND BY PREVAILING WINDS AND LOCAL CONDITIONS.                                                                                                                                                                                             | C4                                                                      |
| WITHIN 200M OF BREAKING SURF ON THE WEST AND SOUTH COASTS OF THE SOUTH ISLAND, OR WITHIN 100M OF BREAKING SURF ON THE WEST AND SOUTH COASTS OF THE NORTH ISLAND, OR WITHIN 50M OF BREAKING SURF ON ALL OTHER COASTS, OR WITHIN 500M OF GEOTHERMAL SOURCE OR WITHIN SPACES OF HIGH HUMIDITY OR CORROSIVE ENVIRONMENTS. CONTACT YOUR SUPPLIER/ENGINEER FOR MORE GUIDANCE. | SED<br>C5-I, C5-M, CX/T                                                 |

NOTE 1: ABOVE ENVIRONMENTS MAY BE EXTENDED INLAND BY PREVAILING WINDS & LOCAL CONDITIONS.

REFER TO SNZ TS 3404:2018 FIGURES 1 TO 7 FOR SPECIFIC CORROSION MAPS FOR FURTHER GUIDANCE. FOR CONFIRMATION OF A SITE-SPECIFIC ATMOSPHERIC CORROSION CATEGORY (FOR EXAMPLE, FOR SITES THAT ARE SHELTERED FROM MARINE INFLUENCE BY THE LOCAL TOPOGRAPHY), THEN SITE-SPECIFIC TESTING CAN BE CARRIED OUT AS DESCRIBED IN HERA REPORT R4-133.

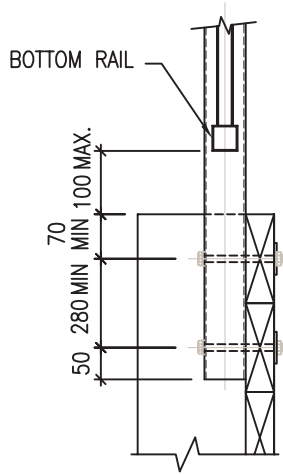
TABLE 2: DURABILITY PROVISION

| TYPICAL ATMOSPHERIC CATEGORY | C4                     | C3                          | C2                          | ALL OTHERS |
|------------------------------|------------------------|-----------------------------|-----------------------------|------------|
| EXPOSED (NOTE 2)             | ALL FIXINGS TYPE 304SS | HOT DIPPED GALVANIZED STEEL | HOT DIPPED GALVANIZED STEEL | SED        |
| SHELTERED (NOTE 2)           | ALL FIXINGS TYPE 304SS | ALL FIXINGS TYPE 304SS      | HOT DIPPED GALVANIZED STEEL | SED        |

NOTE 2: REFER TO SNZ TS 3404:2018 FOR DEFINITION OF "SHELTERED" & "EXPOSED". WHERE ITEMS ARE IN SHELTERED LOCATIONS THESE CAN BE TREATED AS EXPOSED IF REGULAR WASHING DOWN IS CARRIED OUT AS PART OF THE REGULAR MAINTENANCE PROGRAM.



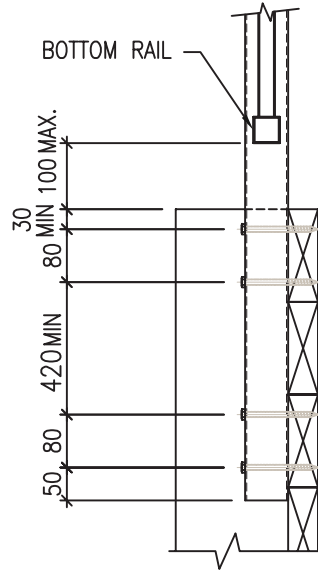
### Side Fix to Timber Retaining Wall - Commercial



**Post:** PBS-2.0-2CTR

**Option 1 - Bolt:**

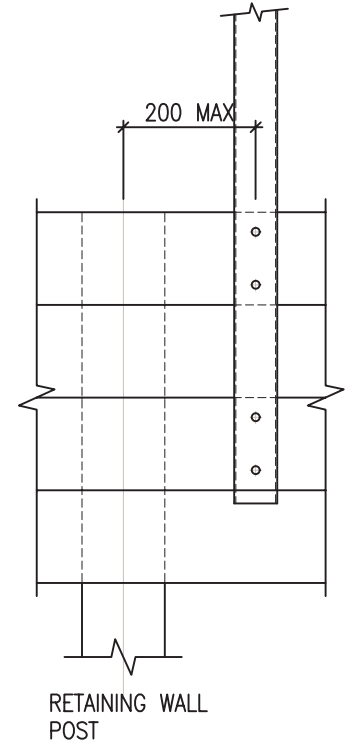
2xM12 with 50x50x4mm sq washer on timber side.  
(drawing SK-03 S04)



**Post:** PBS-2.2-4CTR

**Option 2 - Coach Screws:**

4xM12, min 50mm penetration into timber. (drawing SK-03 S03)

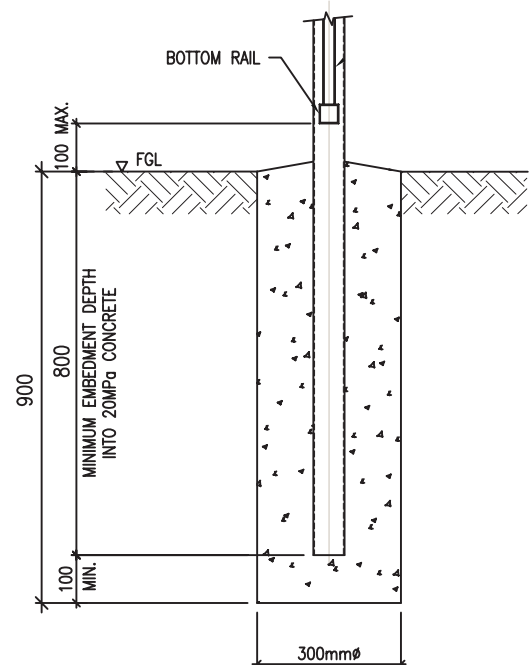


### Concreted in ground - Commercial

(drawings SK-03 S05 and SK-02 S07)

**Note:**

Post footing to be embedded in good ground with min 100kPa allowable bearing as defined by NZS 3604:2001

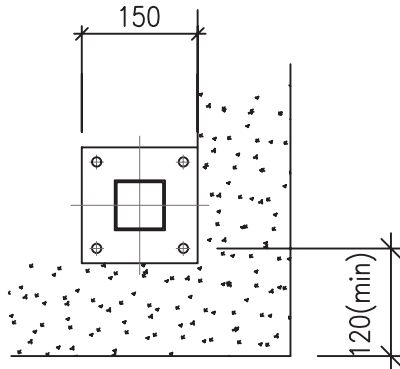


### Post Details for Balustrade - Commercial

| Zone Class                                                           | Loading  | Panels                           | Posts                                           | Fasteners                                                |
|----------------------------------------------------------------------|----------|----------------------------------|-------------------------------------------------|----------------------------------------------------------|
| B, E, C3<br>School, Park, Multi- Dwelling<br>Residential, Commercial | 0.75kN/m | Mercury Commercial,<br>Chief MK2 | 65shs x 2.5mm Steel<br><b>Post centers 2.4m</b> | <500m from sea - 304SS,<br>>500m from sea - 304SS or HDG |

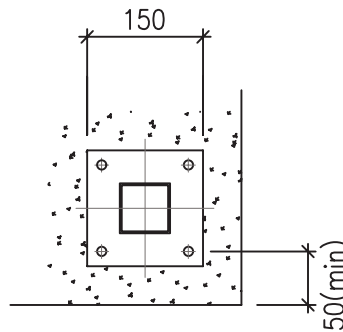


## Top Fix to Concrete



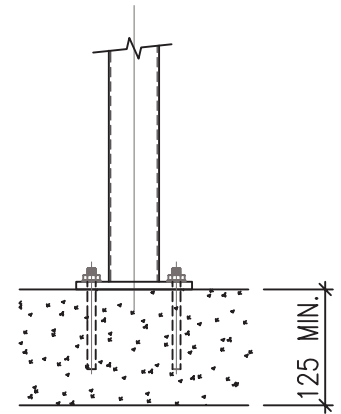
### Option 1 - Screw Bolts:

4xM12 Ramset Weracs Ankascrew or equivalent, 90mm min embedment into 20MPa concrete. (drawings SK-02 S01 and SK-03 S01)



### Option 2 - Chemset Rod:

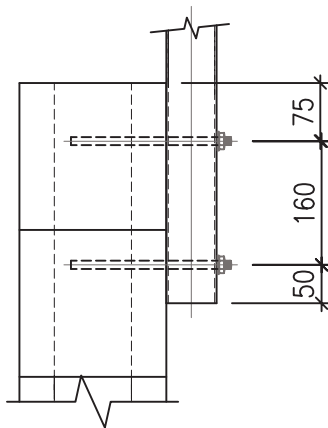
4xM10 threaded rod with epcon C8 or equivalent, 90mm min into 20MPa concrete. (drawings SK-02 S01 and SK-03 S01)



## Side Fix to Block Wall

### Chemset Rod:

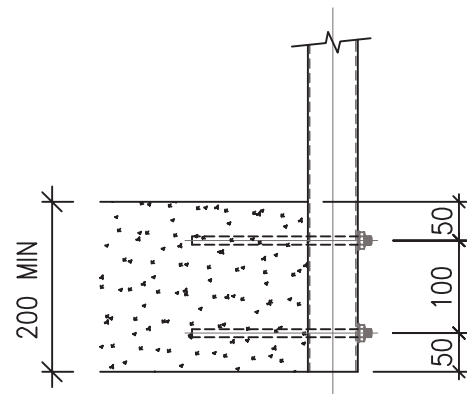
2xM12 threaded rod with epcon C8 or equivalent, 100mm min into masonry. (drawing SK-03 S02)



## Side Fix to Concrete

### Chemset Rod:

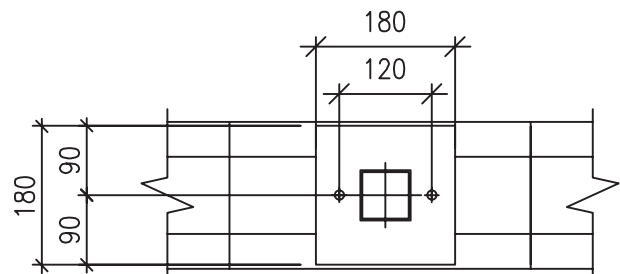
2xM12 threaded rod with epcon C8 or equivalent, 110mm min into 20MPa concrete. (drawing SK-03 S02)



## Top Fix to Block Wall

### Chemset Rod:

2xM12 threaded rod with epcon C8 or equivalent, 100mm min into masonry. (drawing SK-03 S02)

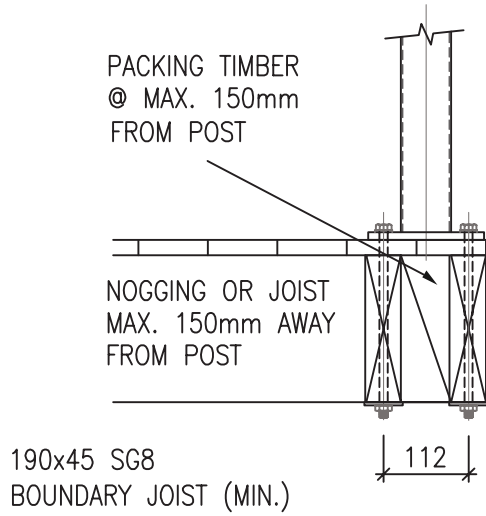


## Post Details for Balustrade - Commercial and Residential

| Zone Class                                                             | Loading  | Panels                           | Posts                                                                | Fasteners                                                |
|------------------------------------------------------------------------|----------|----------------------------------|----------------------------------------------------------------------|----------------------------------------------------------|
| B, E, C3<br>Parks, Schools, Multi- Dwelling<br>Residential, Commercial | 0.75kN/m | Mercury Commercial,<br>Chief-MK2 | 65shs x 2.5mm Steel<br>10mm thick flange<br><b>Post centers 2.4m</b> | <500m from sea - 304SS,<br>>500m from sea - 304SS or HDG |



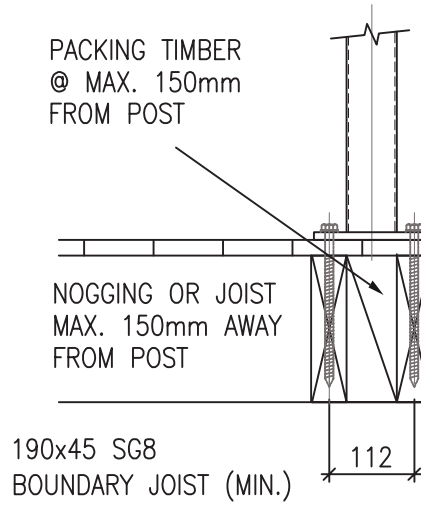
### Top Fix to Timber Deck - Residential



**Post:** PF1.3x65x2.5 (Steel) or PAF1.3x65x2.5-PC (Alu)

**Option 1 - Bolts:**

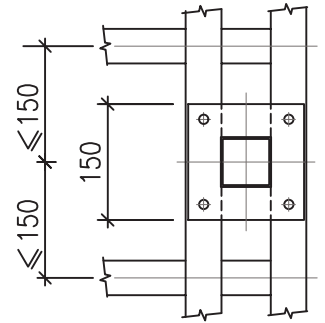
4xM10 with 50x50x4mm sq washer on timber side. (drawing SK-02 S03)



**Post:** PF1.3x65x2.5 (Steel) or PAF1.3x65x2.5-PC (Alu)

**Option 2 - Coach Screws:**

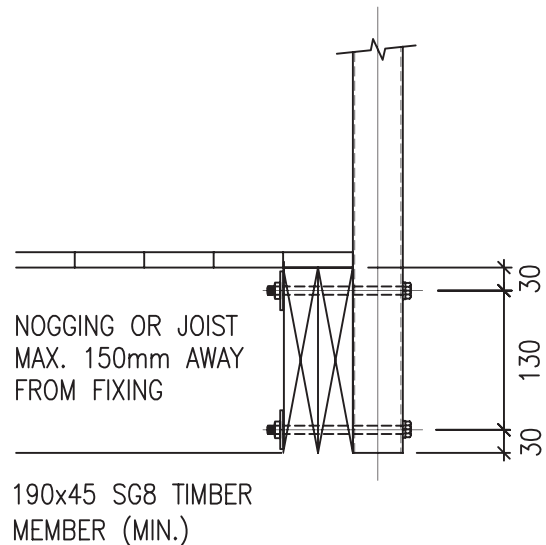
4xM12, min 150mm penetration into timber. (drawing SK-02 S03)



### Side Fix to Timber Deck - Residential

**Bolts:**

2xM12 with 50x50x4mm sq washer on timber side. (drawing SK-02 S02)



### Deck Designed by Others

### Post Details for Balustrade - Residential

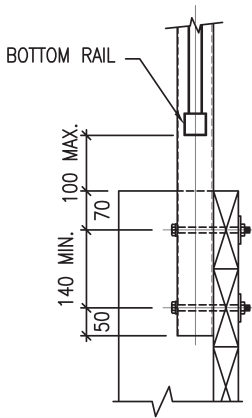
| Zone Class                          | Loading  | Panels                            | Posts                                                                                      | Fasteners                                                |
|-------------------------------------|----------|-----------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------|
| A<br>Single Dwelling<br>Residential | 0.75kN/m | Mercury Commercial or Residential | 65shs x 2.5mm Steel or 65shs x 2.5 mm 6063-T5, 150x10mm Flange<br><b>Post centers 2.4m</b> | <500m from sea - 304SS,<br>>500m from sea - 304SS or HDG |





## Side Fix to Timber Retaining Wall - Residential

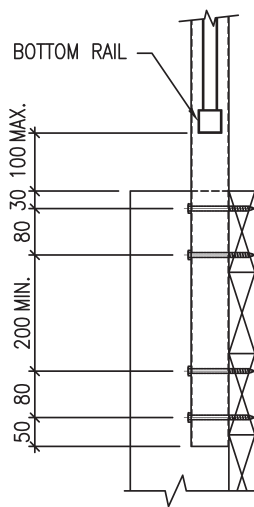
SIDE



**Post:** PBS-1.8-2RTR (Steel) or  
PBA-1.8-2RTR (Alu)

### Option 1 - Bolts:

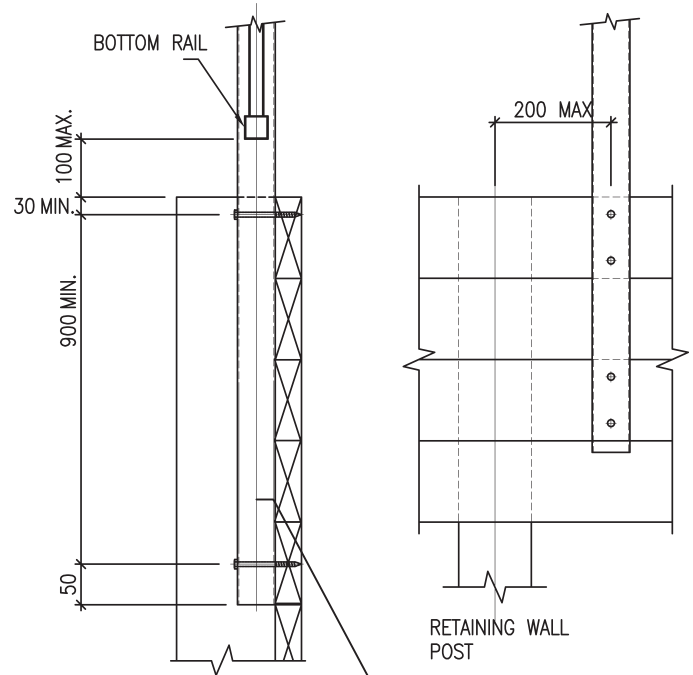
2xM12 with 50x50x4mm  
sq washer on timber side.  
(drawings SK-01 S03 and  
SK-02 S06)



**Post:** PBS-2.0-4RTR (Steel)  
or PBA-2.0-4RTR (Alu)

### Option 2 - Coach Screws:

4xM12, min 50mm penetration  
into timber. (drawings SK-01  
S02 and SK-02 S05)



### Option 3 - Coach Screws:

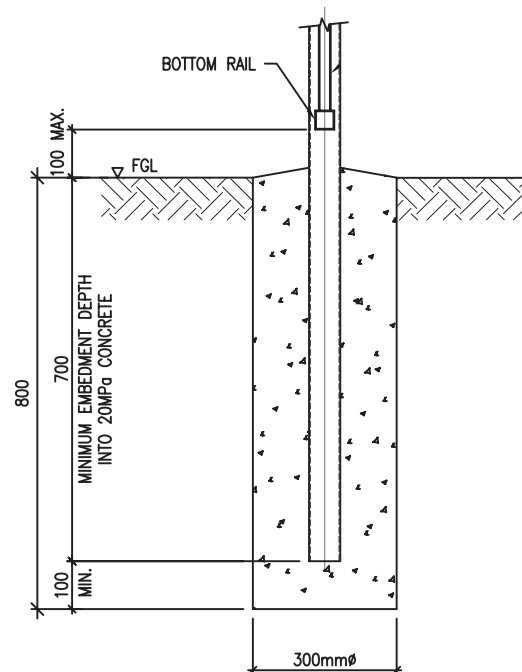
2xM12, min 50mm penetration  
into timber. (drawing SK-01 S01)

**Post:** PBS-2.5-2RTR (Steel)  
or PBA-2.5-2RTR (Alu)

## Concreted in ground - Residential (drawing SK-01 S04)

### Note:

Post footing to be embedded in good ground with min  
100kPa allowable bearing as defined by NZS 3604:2001



## Post Details for Balustrade - Residential

| Zone Class                          | Loading  | Panels                               | Posts                                                                          | Fasteners                                                |
|-------------------------------------|----------|--------------------------------------|--------------------------------------------------------------------------------|----------------------------------------------------------|
| A<br>Single Dwelling<br>Residential | 0.35kN/m | Mercury Commercial<br>or Residential | 65shs x 2.5mm Steel,<br>65shs x 2.5 mm 6063-T5 Alu<br><b>Post centers 2.4m</b> | <500m from sea - 304SS,<br>>500m from sea - 304SS or HDG |



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