



# CONCERTINA & SILENCIO

DESIGN MANUAL REV9

August 2023

SUPERIOR OUTDOOR LIVING PROVIDERS  
SINCE 1866

JC

*Johnson & Cousins*

**SKYLOUVRES™**

## DOCUMENT STATUS

The most recent version of this document (revision 9), as detailed in the document history, is approved by Richards Consulting Engineers. It is effective from 17<sup>th</sup> of August 2023 and supersedes all previous version of this document.

The previous version of this document (revision 8) will cease to have effect once revision 9 is released.

Document Revision	Date	Alterations
Revision 8	19/12/2019	-
Revision 9	17/08/2023	<ul style="list-style-type: none"><li>• Addition of baseplate on slab and baseplate on cantilever pile.</li><li>• Addition of connection into existing beams</li><li>• Combining Silencio and Concertina design manuals</li><li>• New rafter bracket on top of roof framing</li></ul>

## **JOHNSON & COUZINS CONCERTINA AND SILENCIO LOUVRE SYSTEM**

Johnson & Couzins have developed an opening louvre system for use in New Zealand. The system is manufactured out of aluminium and consists of a perimeter RHS frame with either heavy or light grade louvre fins spanning in one direction loading up the frame members. The louvre roof is typically supported on aluminium SHS posts and braced against an existing structure or by the posts cantilevering from their footings. The posts are able to cantilever from concrete footings, patio slabs or a timber deck.

Richards Consulting Engineers Limited has been engaged by Johnson and Couzins to prepare standard design tables and template details to assist with the design of the Concertina Louvre System.

### **DESIGN PHILOSOPHY**

The following design flow chart, design tables and calculations have been designed using wind speeds taken from NZS3604:2011 and open ground snows load of 0.9 kPa, 1.5 kPa and 2.0 kPa. The wind speeds shown in the tables are the Ultimate Limit State (ULS) design wind speeds. The associated pressures specific to the louvre fins and frame structure were calculated using AS/NZS 1170.2:2011, Structural Design Actions, Part 2: Wind Actions. The sectional capacities of the aluminium and stainless steel members have been determined using Aluminium Structures, Part 1: Limit State Design AS/NZS 1664.1:1997 and Steel Structures Standard, NZS3404: Part 1: 1997 respectively.

The louvre's lateral load resisting system will be provided by either cantilevering posts or by a supporting building.

The design of the louvre structure based on the tables within this document is in compliance with the New Zealand Building Code (NZBC) section B1.

### **SERVICEABILITY CRITERIA**

The following deflection limits were used for the following elements within the Concertina Louvre System:

- 15mm maximum perimeter beam deflections where shutters are located below
- 40mm maximum perimeter and central beam deflections under SLS wind loading
- 10mm maximum perimeter and central beam deflections under gravity loading
- 60mm maximum louvre fin deflections
- 100mm maximum lateral deflection of louvre frame support posts

### **DESIGN LOADS AND LOAD CASES**

The Ultimate Limit State wind speeds taken from NZS3604:2011 are as follows:

- Medium wind speed = 37m/s
- High wind speed = 44m/s
- Very high wind speed = 50m/s

The following design load cases have been applied to the louvre fins and frame members:

- 0.9G + Wu (ULS for wind uplift)
- 1.2G + S (ULS downward load case)
- 1.2G + 1.5Q (ULS downward load case)
- Ws (SLS for wind related deflection)

- $G + \psi_s Q$  (SLS for live load deflection)

Note: Earthquake cases do not govern due to the lightweight and flexibility of the louvre system.

### DESIGN LIMITATIONS

The following design assumptions apply to the design manual:

- The louvre fins will not be walked on.
- The pitch of the louvre frame is less than 10 degrees.
- The supporting frame has a maximum height of 2.7m.
- Standard Johnson & Couzins connections will be used.
- Johnson & Couzins will install the louvre.
- If the louvre is to be connected to the roof eaves, the eaves shall not overhang the wall plate further than 600mm and the louvre will be connected to the trusses/rafters only when the specifically designed rafter brackets are installed.

### DESIGN EXCLUSIONS

The following items are specifically excluded from this design manual:

- Weather and waterproofing of both the louvre and the supporting structure.
- Electronic services to the louvre.
- Connections within the Johnson and Couzins louvre system.
- Flutter effects caused by wind passing over the open louvres.
- Lateral and gravity resisting strength of the building providing support to the louvre system.
- The louvre design has allowed for screens to be installed on any side of the louvre, the screen design and fixing is by others

### MATERIAL AND SECTION PROPERTIES

The louvres will be made from aluminium with a 6060 alloy and a T5 temper. Note that “Truss Bracket Connection Detail – Type 3” is to be constructed from aluminium with a 6061 alloy and T6 temper.

The structural member properties are as follows:

200x50x3 RHS	$I_x = 6.56 \times 10^6 \text{ mm}^4$
300x50x3.5 RHS	$I_x = 21.73 \times 10^6 \text{ mm}^4$
Light louvre	$I_x = 0.054 \times 10^6 \text{ mm}^4$
Heavy louvre	$I_x = 0.151 \times 10^6 \text{ mm}^4$

### DURABILITY

The louvre system has been designed with an intended design life of not less than 20 years. Aluminum provides adequate durability for the life of the structure. All contact points between differing materials (Aluminium – Stainless Steel, Aluminium – Galvanised Steel and Galvanised Steel – Stainless Steel) shall have a grease barrier applied to them to prevent galvanic corrosion from occurring. The paved surfaces which the aluminium posts are fixed to are to be 225mm above adjacent unfinished ground surfaces (E1).

In a sea spray zone (as defined by NZS3604:2011) the aluminium shall be powder coated with Dulux Duratec by a Dulux registered applicator. Areas outside of the sea spray zone (including other corrosive environments) shall be coated in Dulux Duralloy.

There are three components required for corrosion to occur. An anode, a cathode and an electrically conductive liquid. In the case of the louvres, the anode is the aluminium and the cathode is the stainless or galvanised steel. It is the anode which corrodes sacrificially and therefore it is the aluminium which is at risk of corrosion, not the steel. A large anode with a small cathode such as a steel fixing into the louvre frame is low risk for corrosion due to the small area of the steel cathode relative to the aluminium. The connection of the flashings (steel) and the aluminium louvre is the potential area of concern for corrosion to occur, however, both the louvre frame and the flashings are powder coated. We consider the aluminium combined with powder coating provides sufficient protection between the two metal types to prevent galvanic corrosion occurring over the proposed 20 year design life.

We note that there is no effective verification method for B2 contained within the Building Code. However, we confirm that we have researched the corrosive effects between aluminium and other dissimilar metals and consider a minimum design life of 20 years to be appropriate provided the aluminium is powder coated and the grease barriers are applied to the metals.

#### **DESIGN MANUAL NOTES**

It is intended this manual will be used by people experienced with the Johnson & Couzins Louvre System. The louvre designer shall:

- Design the louvre layout within the maximum spans set out in the enclosed tables.
- Where supporting the louvre on the existing building they shall ensure the existing structure has adequate gravity and lateral load resisting capacity to support the additional loads.
- Only the attached connection details shall be used.
- No substitution with the products included in this manual is permitted.
- Where the louvre does not fit within the design manual criteria a Structural Engineer shall be engaged to specifically design the louvre and provide a site specific PS1. These include but are not limited to the situations below
  - Extra high wind zone
  - Greater than two bays
  - Over 50 m<sup>2</sup>
  - Located on a second story deck/first floor (excluding when fixed on all 4 sides)
  - Located at a height greater than 6m above ground level for cases.
  - Fixed to soffits greater than 600mm long
  - Located over windows/doors greater than 3m long
- The louvre will require a consent if located in a public place and if greater than 50 m<sup>2</sup>.

## **APPENDICIES**

- PS1
- Louvre Design Flow Chart
- Concept Layout
- Design Tables
- Details



# PRODUCER STATEMENT

## – PS1 DESIGN

**BUILDING CODE CLAUSE(S):** B1 only  
**ISSUED BY:** Richards Consulting Engineers Limited  
(Engineering Design Firm)

**JOB NUMBER:** 15227

**TO:** Johnson and Couzins Limited  
(Owner/Developer)

**TO BE SUPPLIED TO:** All Territorial Authorities within New Zealand  
(Building Consent Authority)

**IN RESPECT OF:** Johnson and Couzins Standard Design for their Concertina and Silencio Louvre System  
(Description of Building Work)

**AT:**  
(Address, Town/City)

**LEGAL DESCRIPTION:** N/A

We have been engaged by the owner/developer referred to above to provide (Extent of Engagement): refer to attached structural report for scope of work in respect of the requirements of the Clause(s) of the Building Code specified above for Part only, as specified in the Schedule, 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 (Verification method/acceptable solution) B1/VM1 and/or;
- Alternative solution as per the attached Schedule.

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

**On behalf of the Engineering Design Firm**, and subject to:

- Site verification of the following design assumptions:
- 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 Schedule, will comply with the relevant provisions of the Building Code and that;
- the persons who have undertaken the design have the necessary competency to do so.

I recommend the **CM0** level of **construction monitoring**.

I, (Name of Engineering Design Professional) Sam Richards, am

- CPEng number 228315 and hold the following qualifications BE(Hons)

The Engineering Design Firm holds a current policy of Professional Indemnity Insurance no less than \$200,000  
The Engineering Design Firm is a member of ACE New Zealand.

**SIGNED BY** (Name of Engineering Design Professional): Sam Richards  
(Signature below)

**ON BEHALF OF** (Engineering Design Firm): Richards Consulting Engineers Limited

Date: 17/08/2023

**Note:** This statement has been prepared solely for the Building Consent Authority named above and shall not be relied upon by any other person or entity. Any liability in relation to this statement accrues to the Engineering Design Firm only. As a condition of reliance on this statement, the Building Consent Authority accepts that the total maximum amount of liability of any kind arising from this statement and all other statements provided to the Building Consent 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.

## **SCHEDULE TO PS1**

Please include an itemised list of all referenced documents, drawings, or other supporting materials in relation to this producer statement below:

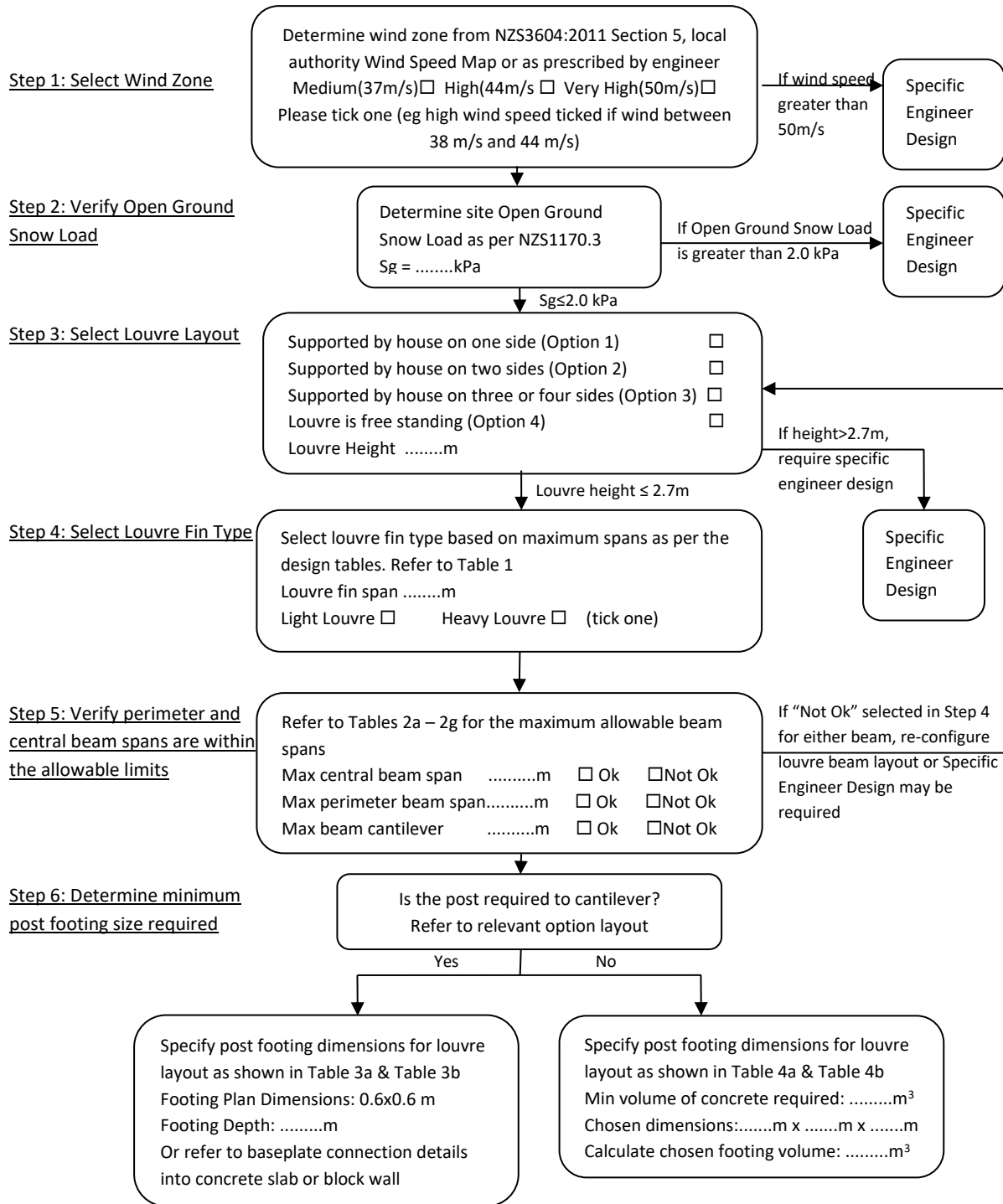
Johnson and Couzins design manual titled "Johnson and Couzins Silencio & Concertina Louvre Design Manual rev9" an dated 17/08/2023



Site address: .....

Designer's name: .....

### Louvre Design Flow Chart

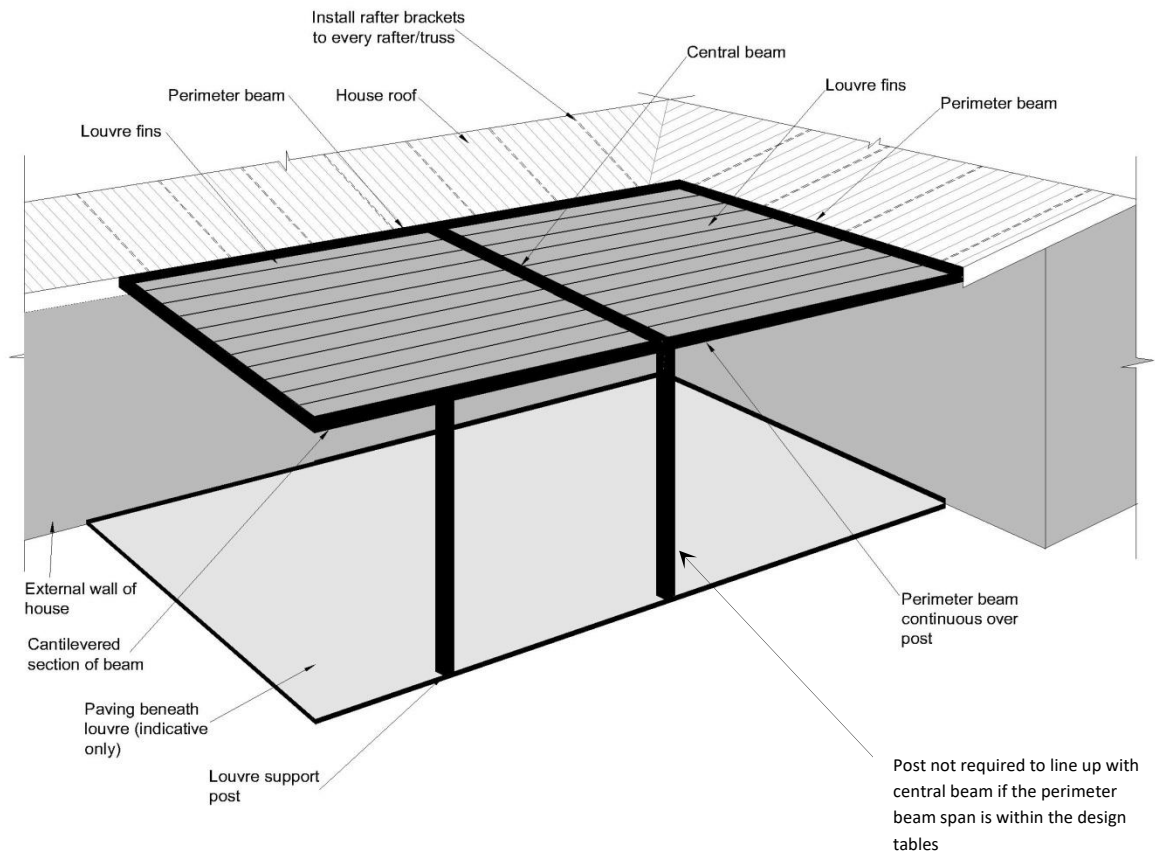


#### DESIGN MANUAL NOTES

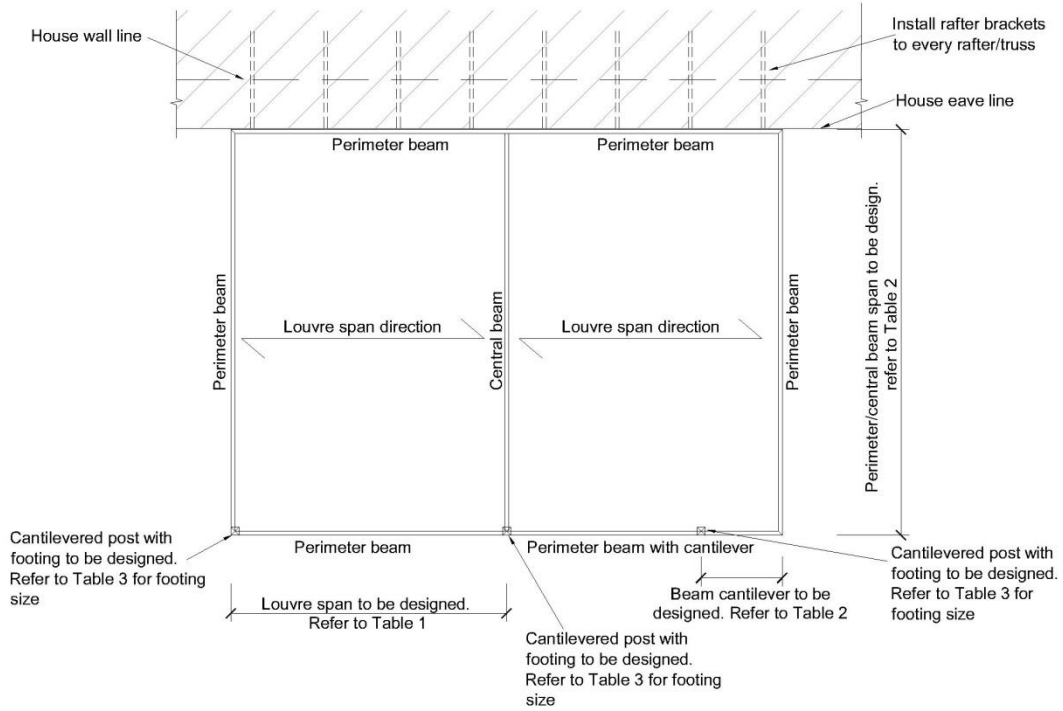
It is intended this manual will be used by people experienced with the Johnson & Couzins Silencio and Concertina Louvre System. The louvre designer shall:

- Design the louvre layout within the maximum spans set out in the enclosed tables.
- Where supporting the louvre on the existing building they shall ensure the existing structure has adequate gravity and lateral load resisting capacity to support the additional loads.
- Only the attached connection details shall be used.
- No substitution with the products included in this manual is permitted.
- Where the louvre does not fit within the design manual criteria a Structural Engineer shall be engaged to specifically design the louvre.

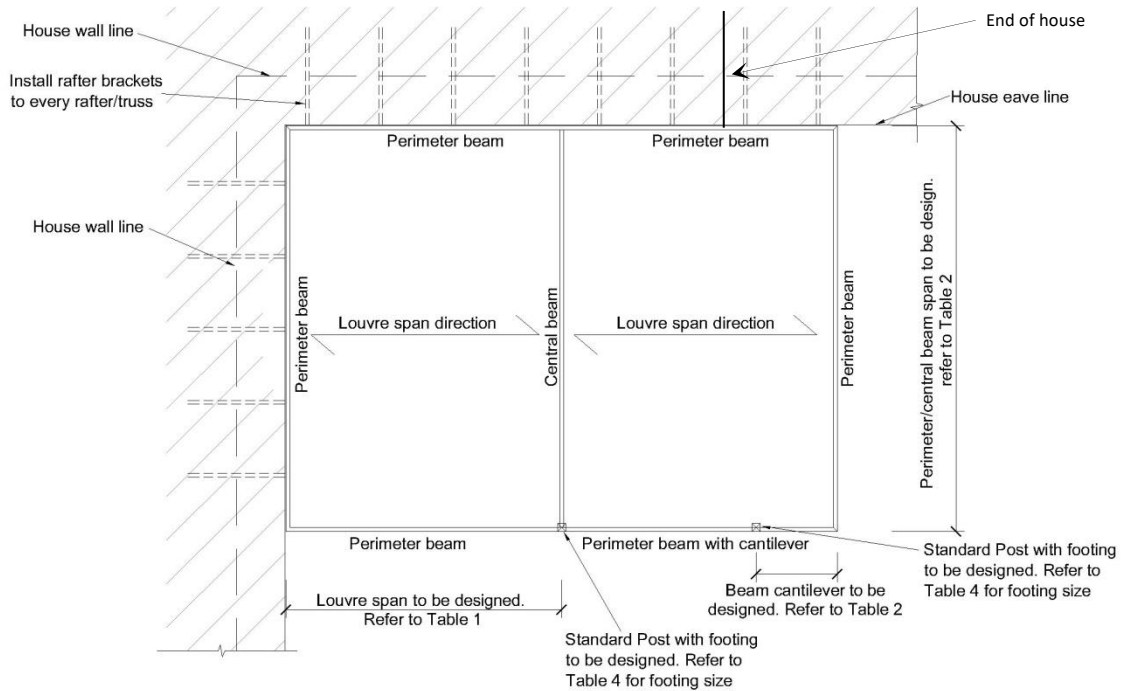
## CONCEPT LOUVRE LAYOUT



**LOUVRE LAYOUT OPTION 1 – LOUVRE SUPPORTED ON ONE SIDE OF THE HOUSE**



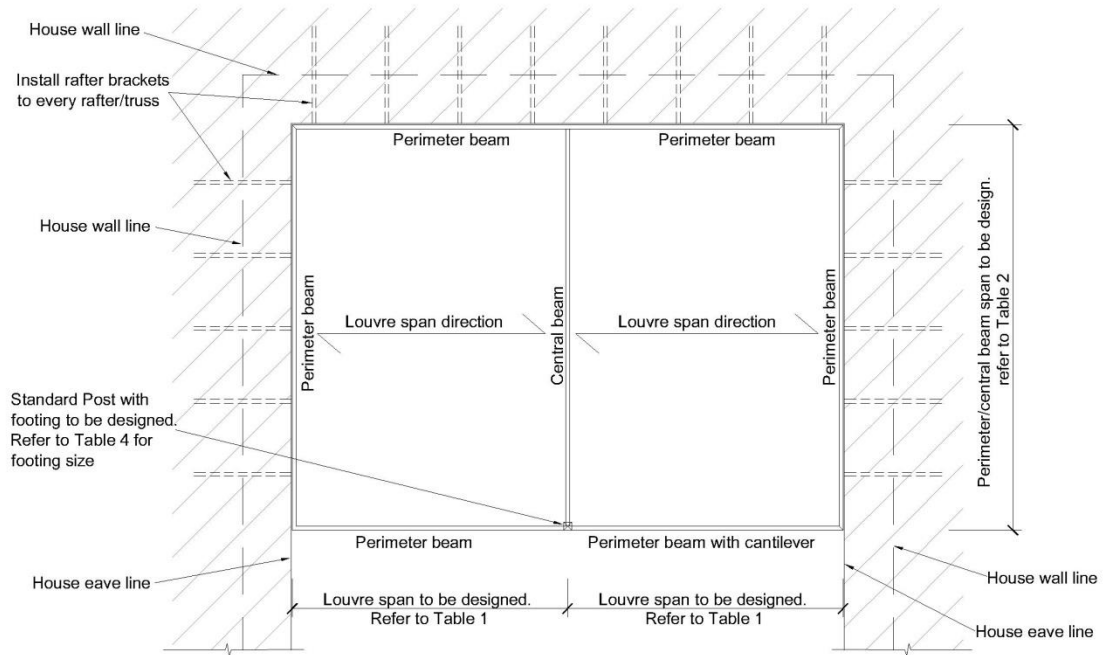
**LOUVRE LAYOUT OPTION 2 – LOUVRE SUPPORTED ON TWO SIDES OF THE HOUSE**



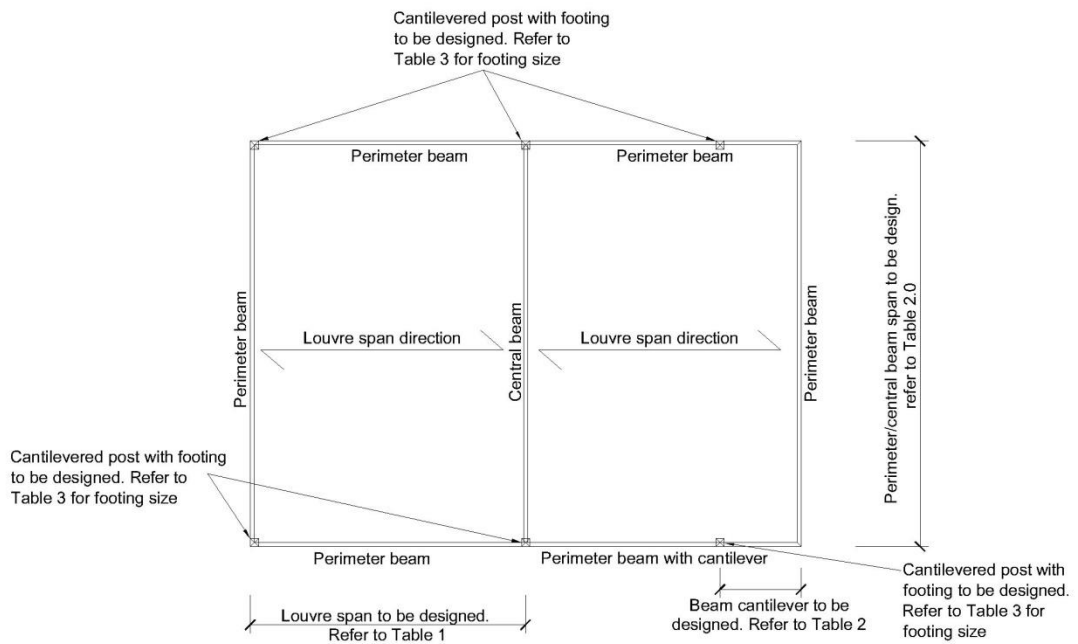
**Notes:**

Louvre considered to be supported on two sides if the end of the house is within 1.5m from the edge of the louvre.

**LOUVRE LAYOUT OPTION 3 – LOUVRE SUPPORTED ON THREE SIDES OF THE HOUSE (LOUVRE CAN ALSO BE SUPPORTED ON FOUR SIDES)**



**LOUVRE LAYOUT OPTION 4 – LOUVRE IS FREESTANDING**



## LOUVRE FIN SPANS

Table 1a – Johnson & Couzins Silencio Maximum Louvre Fin Spans

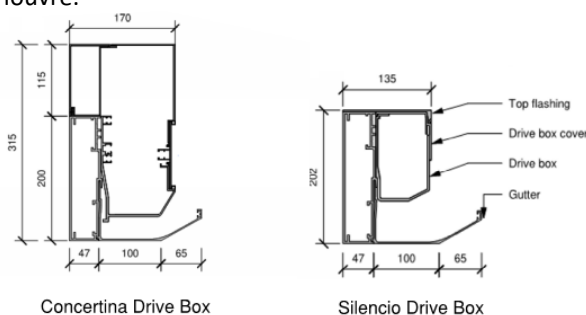
Louvre Fin Type	Medium wind zone (37m/s)	High wind zones (44 m/s)	Very High wind zone (50 m/s)
Light Louvre	3.4 m	3.0 m	2.6 m
Heavy Louvre	4.4 m	4.1 m	3.8 m (4.07m louvre)

Table 1b – Johnson & Couzins Concertina Maximum Louvre Fin Spans

Louvre Fin Type	Medium wind zone (37m/s)	High wind zones (44 m/s)	Very High wind zone (50 m/s)
Light Louvre	3.4 m	3.0 m	2.6 m
Heavy Louvre	3.645 m	3.645 m	3.645 m (4m)

### Notes:

1. Site wind speed is to be verified by others.
2. Includes allowance to resist up to 2.0 kPa open ground snow load.
3. A maximum louvre fin deflection of 60mm has been used. Specific Engineering Design is required for louvres which will be located within areas sensitive to deflections.
4. All spans shown above are maximum values.
5. The concertina span is to be limited to 3.645m for dive box operation
6. The louvre fins will not be walked on – including during maintenance or installation
7. The maximum louvre fins span is from taken the drive box, this allow for the total louvre size to be 0.27m great for Silencio and 0.34m greater for Concertina. The Images below show the drive box for Silencio and Concertina louvres. An example of one maximum louvre size is shown above in the table above for a Silencio louvre.



## LOUVRE FRAME MEMBER SPANS

### General Notes:

1. Site wind speed is to be verified by others.
2. Perimeter beam supports half of the louvre span while a central beam supports louvres on both sides.
3. Spans calculated rely on correct selection of louvre fin.
4. A maximum beam deflection limit of 30mm has been used for members aside from Table 2e. Specific Engineering Design is required for louvres which will be located within areas sensitive to deflections.
5. All spans shown above are maximum values.
6. It has been assumed that the louvres will remain in an “open” position during a heavy snow event.

Table 2a – Johnson & Couzins Max Single Beam (200x50x3 RHS) Spans with Snow Load  $\leq 0.9$ kPa

Beam Location	Medium wind zone (37m/s)		High wind zone (44m/s)		Very High wind zone (50m/s)	
	Light Louvre	Heavy Louvre	Light Louvre	Heavy Louvre	Light Louvre	Heavy Louvre
Perimeter	6.2 m	5.7 m	5.6 m	4.8 m	5.2 m	4.3 m
Central	4.9 m	4.4 m	4.3 m	3.7 m	4.0 m	3.4 m
Cantilever	1.9 m	1.8 m	1.9 m	1.8 m	1.9 m	1.7 m

Table Specific Notes:

1. Includes allowance to resist up to 0.9 kPa open ground snow load.
2. Refer to the “General Notes” for all other notes which are not specific to this particular table.

**Table 2b – Johnson & Couzins Max Single Beam (200x50x3 RHS) Spans with Snow Load ≤ 1.5kPa**

Beam Location	Medium wind zone (37m/s)		High wind zone (44m/s)		Very High wind zone (50m/s)	
	Light Louvre	Heavy Louvre	Light Louvre	Heavy Louvre	Light Louvre	Heavy Louvre
Perimeter	5.9 m	5.1 m	5.6 m	4.8 m	5.2 m	4.3 m
Central	4.8 m	4.1 m	4.3 m	3.7 m	4.0 m	3.4 m
Cantilever	1.7 m	1.4 m	1.8 m	1.5 m	1.9 m	1.6 m

Table Specific Notes:

1. Includes allowance to resist up to 1.5 kPa open ground snow load.
2. Refer to the “General Notes” for all other notes which are not specific to this particular table.

**Table 2c – Johnson & Couzins Max Single Beam (200x50x3 RHS) Spans with Snow Load ≤ 2.0kPa**

Beam Location	Medium wind zone (37m/s)		High wind zone (44m/s)		Very High wind zone (50m/s)	
	Light Louvre	Heavy Louvre	Light Louvre	Heavy Louvre	Light Louvre	Heavy Louvre
Perimeter	5.1 m	4.5 m	5.5 m	4.5 m	5.2 m	4.3 m
Central	4.2 m	3.6 m	4.3 m	3.7 m	4.0 m	3.4 m
Cantilever	1.5 m	1.3 m	1.6 m	1.3 m	1.7 m	1.4 m

Table Specific Notes:

1. Includes allowance to resist up to 2.0 kPa open ground snow load.
2. Refer to the “General Notes” for all other notes which are not specific to this particular table

**Table 2d – Johnson & Couzins Max Double Beam (2/200x50x3 RHS) Spans with Snow Load ≤ 2.0kPa**

Beam Location	Medium wind zone (37m/s)		High wind zone (44m/s)		Very High wind zone (50m/s)	
	Light Louvre	Heavy Louvre	Light Louvre	Heavy Louvre	Light Louvre	Heavy Louvre
Perimeter	7.4 m	6.3 m	7.0 m	6.3 m	6.8 m	6.2 m
Central	6.2 m	5.8 m	5.8 m	5.4 m	5.7 m	5.2 m
Cantilever	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m

Table Specific Notes:

1. Includes allowance to resist up to 2.0 kPa open ground snow load.
2. These beam spans are relevant for double beams made from a 200x50x3 and a 300x50x3.5 beam.
3. Refer to the “General Notes” for all other notes which are not specific to this particular table.

**Table 2e– Johnson & Couzins Max Double Beam (300x50x3.5 RHS) Spans with Snow Load ≤ 0.9kPa**

Beam Location	Medium wind zone (37m/s)		High wind zone (44m/s)		Very High wind zone (50m/s)	
	Light Louvre	Heavy Louvre	Light Louvre	Heavy Louvre	Light Louvre	Heavy Louvre
Perimeter	7.1 m	6.3 m	6.2 m	5.4 m	5.8 m	4.8 m
Central	4.9 m	4.4 m	4.3 m	3.8 m	4.1 m	3.4 m
Cantilever	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m

Table Specific Notes:

1. Includes allowance to resist up to 0.9 kPa open ground snow load.
2. Refer to the “General Notes” for all other notes which are not specific to this particular table.

**Table 2f– Johnson & Couzins Max Double Beam (300x50x3.5 RHS) Spans with Snow Load ≤ 1.5 kPa**

Beam Location	Medium wind zone (37m/s)		High wind zone (44m/s)		Very High wind zone (50m/s)	
	Light Louvre	Heavy Louvre	Light Louvre	Heavy Louvre	Light Louvre	Heavy Louvre
Perimeter	6.6 m	5.7 m	6.2 m	5.4 m	5.8 m	4.8 m
Central	4.9 m	4.4 m	4.3 m	3.8 m	4.1 m	3.4 m
Cantilever	1.8 m	1.8 m	1.8 m	1.8 m	1.8 m	1.8 m

Table Specific Notes:

1. Includes allowance to resist up to 1.5 kPa open ground snow load.
2. Refer to the “General Notes” for all other notes which are not specific to this particular table.

**Table 2g– Johnson & Couzins Max Double Beam (300x50x3.5 RHS) Spans with Snow Load ≤ 2.0kPa**

Beam Location	Medium wind zone (37m/s)		High wind zone (44m/s)		Very High wind zone (50m/s)	
	Light Louvre	Heavy Louvre	Light Louvre	Heavy Louvre	Light Louvre	Heavy Louvre
Perimeter	5.8 m	5.0 m	6.2 m	5.2 m	5.8 m	4.8 m
Central	4.5 m	3.9 m	4.3 m	3.8 m	4.1 m	3.4 m
Cantilever	1.6 m	1.6 m	1.6 m	1.6 m	1.6 m	1.6 m

Table Specific Notes:

1. Includes allowance to resist up to 2.0 kPa open ground snow load.
2. Refer to the “General Notes” for all other notes which are not specific to this particular table.

## CANTILEVERED POST FOOTING SIZES

**Table 3a – Min cantilevered post footing dimensions – Central post between two bays of louvres**

Louvre Fin Type	Medium wind zone (37m/s)	High wind zones (44 m/s)	Very High wind zone (50 m/s)
Louvre	1300 mm deep	1450 mm deep	1550 mm deep

Notes:

1. Site wind speed to be verified by others. All cantilevered footings are to be 600mm square.
2. Footing depths calculated rely on correct selection of louvre fin.
3. A maximum lateral deflection limit of 100mm has been used for the louvre posts. Specific design is required for louvres which will be located within areas sensitive to deflections.
4. The 75x75x5 SHS stainless steel insert shall extend a minimum of 1600mm above ground level inside of the aluminium post for a medium wind zone and 1800mm above ground level for a high wind and very high (height of socket inside of the aluminium post).

**Table 3b – Min cantilevered post footing dimensions required – Corner post**

Louvre Fin Type	Medium wind zone (37m/s)	High wind zones (44 m/s)	Very High wind zone (50 m/s)
Heavy Louvre	1000 mm deep	1100 mm deep	1300 mm deep

Notes:

1. Site wind speed to be verified by others. All cantilevered footings are to be 600mm square.
2. Footing depths calculated rely on correct selection of louvre fin.
3. A maximum lateral deflection limit of 100mm has been used for the louvre posts. Specific design is required for louvres which will be located within areas sensitive to deflections.

4. The 75x75x5 SHS stainless steel insert will extend a minimum of 400mm above ground level inside of the aluminium post for a medium wind zone, 900mm above ground level for a high wind, 1400mm for very high wind zone (height of socket inside of the aluminum post).

## STANDARD POST FOOTING SIZES

**Table 4a – Mass of concrete per m<sup>2</sup> of louvre area– No slab beneath louvre**

Louvre Fin Type	Medium wind zone (37m/s)	High wind zones (44 m/s)	Very High wind zone (50 m/s)
Louvre	0.035	0.055	0.068

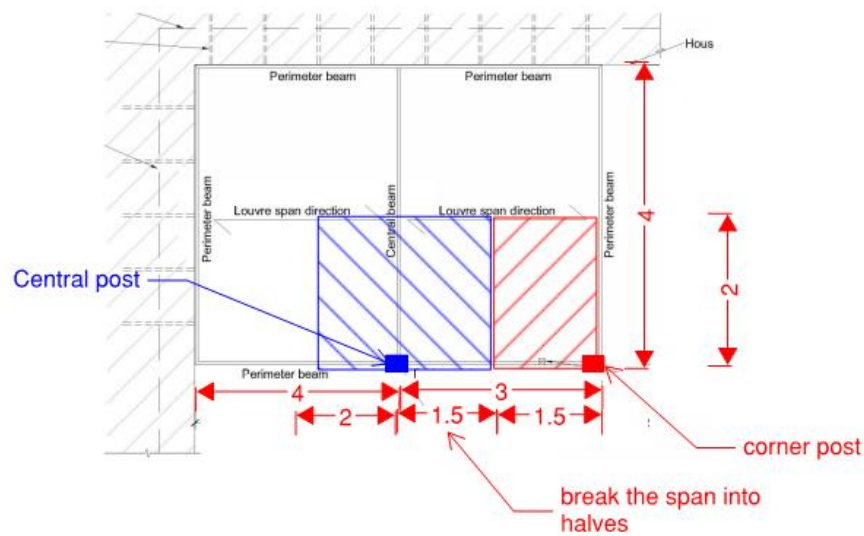
Notes:

1. These footings do not cantilever and provide resistance to vertical loads only.
2. For corner posts, the required volume of concrete can be halved.
3. Site wind speed to be verified by others.
4. Concrete volumes calculated rely on correct selection of louvre fin.
5. Concrete footings have been designed using a concrete weight of 24 kN/m<sup>3</sup>.
6. Mass of louvre has been calculated with G = 0.2 kPa
7. A combination factor of 0.9G - Wind was used.
8. Cfig of 1.2 has been used.
9. Posts which are located in the center of a louvre (ie a 2x2 bay louvre) require Specific Engineering Design.
10. If a minimum 100mm thick slab, with a minimum size of 2x2m is located under the louvre post then no additional footing is required
11. Presented values must be times by the area of the louvre the post is supporting.
12. Refer following design calculation example



## EXAMPLE CALCULATION FOR STANDARD CONCRETE FOOTING

Example louvre below with dimensions, assume the site is located in a high wind zone.



### Step 1 – Wind zone

Louvre is within high wind – 0.055 mass of concrete per m<sup>2</sup> of louvre required

### Step 2 – find area each post supports

Corner post -  $A = 1.5 * 2 = 3 \text{ m}^2$

Central post -  $A = (2 * 2) + (1.5 * 2) = 7 \text{ m}^2$

### Step 3 - Find size of concrete required for each post

Corner post =  $3 * 0.055 = 0.165 \text{ m}^3$

Central post =  $7 * 0.055 = 0.385 \text{ m}^3$

### Step 4 – choose footing size and check against required size

Corner post – try  $0.6 * 0.6 * 0.5 \text{m}$ , size =  $0.6 * 0.6 * 0.5 = 0.180 > 0.165 \text{ m}^3$  OK

Central post – try  $0.7 * 0.7 * 0.8 \text{m}$ , mass =  $0.7 * 0.7 * 0.8 = 0.392 > 0.385 \text{ m}^3$  OK

### Step 5 – Summary

Corner post size –  $0.6 \times 0.6 \times 0.5 \text{m}$  concrete square

Central post –  $0.7 \times 0.7 \times 0.8 \text{m}$  concrete square

# STANDARD DETAILS JOHNSON AND COUNZINS

## STRUCTURAL DRAWING LIST

Job No 15227

SHEET LIST			
DWG NO	TITLE	REV	Date
S4.01	DETAILS	1	18/08/2023
S4.02	DETAILS	1	18/08/2023
S4.03	DETAILS	1	18/08/2023
S4.04	DETAILS	1	18/08/2023
S4.05	DETAILS	1	18/08/2023
S4.06	DETAILS	1	18/08/2023
S4.07	DETAILS	1	18/08/2023
S4.08	DETAILS	1	18/08/2023
S4.09	DETAILS	1	18/08/2023
S4.10	DETAILS	1	18/08/2023
S4.11	DETAILS	1	18/08/2023
S4.12	DETAILS	1	18/08/2023
S4.13	DETAILS	1	18/08/2023
S4.14	DETAILS	1	18/08/2023
S4.15	DETAILS	1	18/08/2023
S4.16	DETAILS	1	18/08/2023



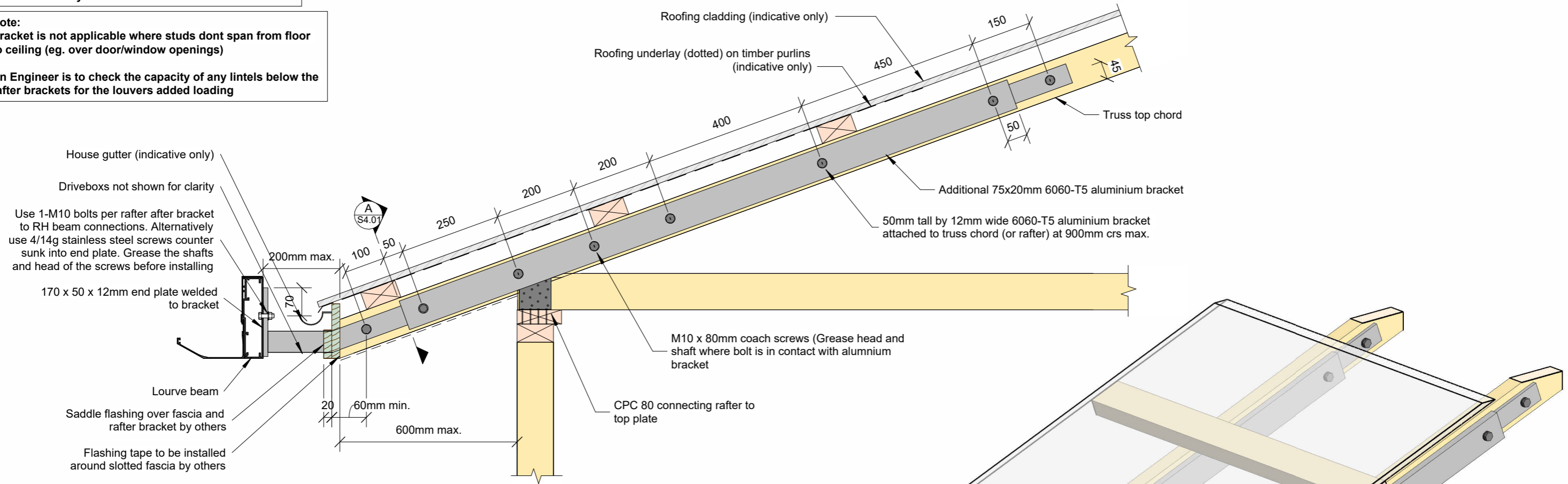
Christchurch office: (03) 347 1624  
Auckland office: (09) 3911324  
Website: rcengineers.co.nz  
Email: rce@rcengineers.co.nz

REV 1  
18/08/2023  
**BUILDING CONSENT**

Note: Wall cladding and building and building wrap not shown for clarity

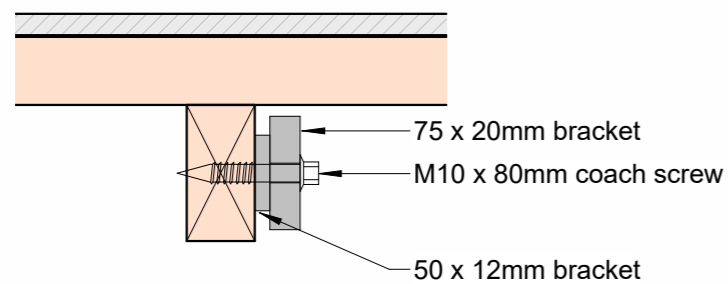
Note: Bracket is not applicable where studs dont span from floor to ceiling (eg. over door/window openings)

An Engineer is to check the capacity of any lintels below the rafter brackets for the louvers added loading



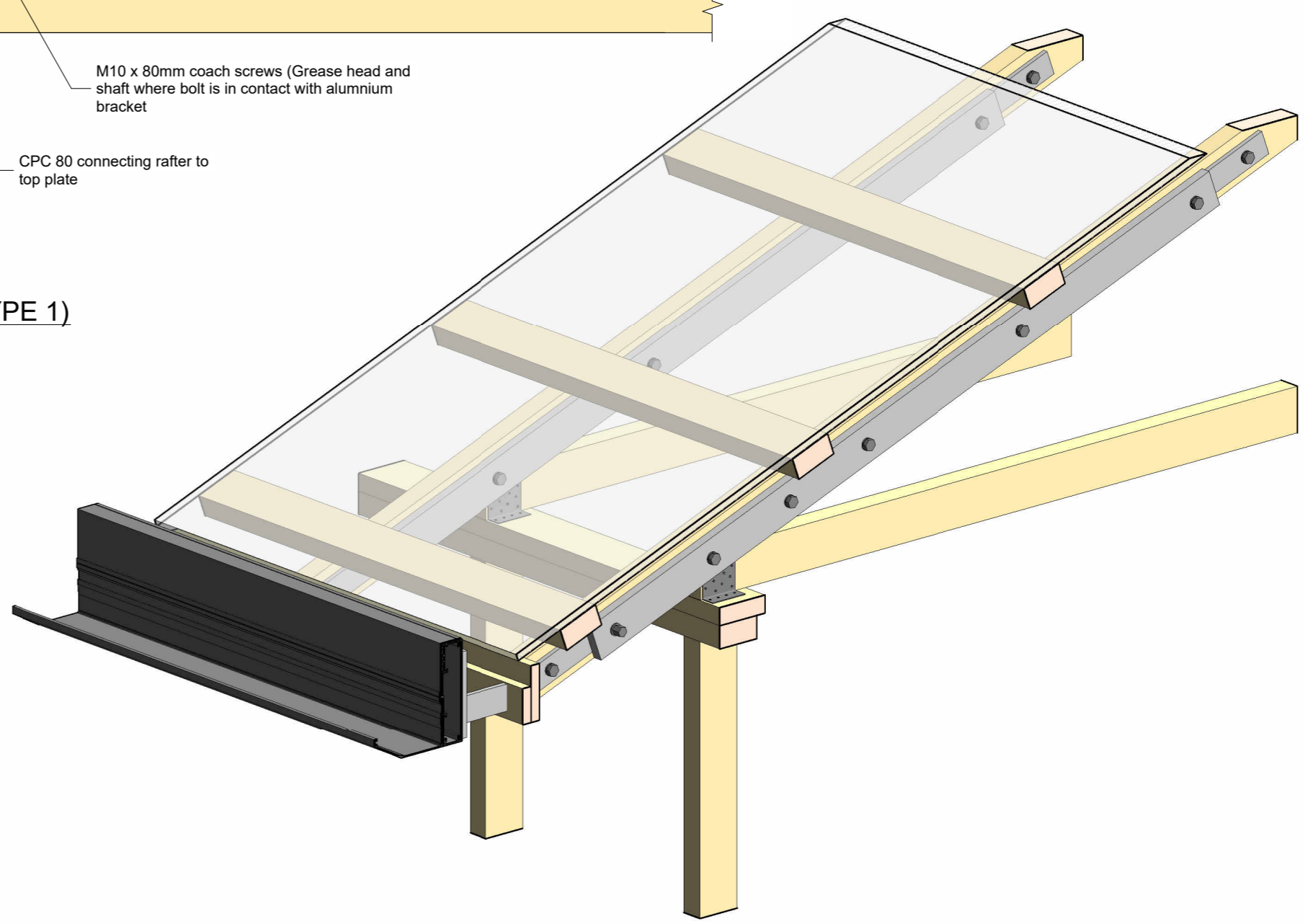
**TRUSS BRACKET CONNECTION - RAKING SOFFIT (TYPE 1)**

1 : 10



**A TRUSS BRACKET CONNECTION DETAIL**

S4.01 1 : 5



THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS



Christchurch office: (03) 347 1624  
 Auckland office: (09) 3911324  
 Website: rcengineers.co.nz  
 Email: rce@rcengineers.co.nz

PROJECT TITLE  
**STANDARD DETAILS**  
**JOHNSON AND COUNZINS**

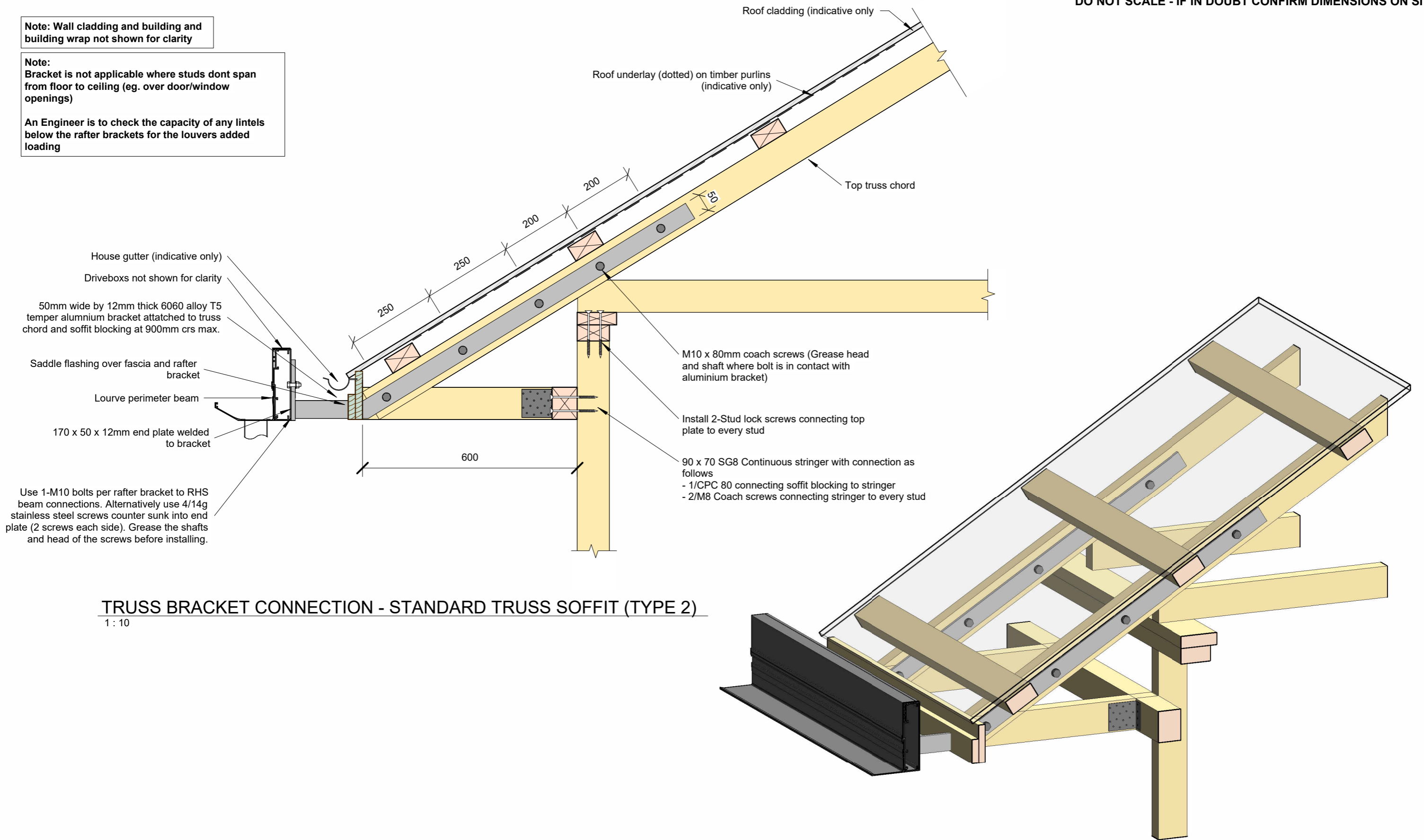
DRAWING TITLE  
**DETAILS**

REV NO.	REVISION	DATE	APPROVED	PROJECT NO.	DESIGNED
1	CONTENT ISSUE	18/08/2023	SR	15227	AS
				SCALE @ A3	As
				REV NO.	indicated
				<b>1</b>	<b>S4.01</b>
				DRAWN	CH
				SHEET NO.	

Note: Wall cladding and building and building wrap not shown for clarity

Note: Bracket is not applicable where studs dont span from floor to ceiling (eg. over door/window openings)

An Engineer is to check the capacity of any lintels below the rafter brackets for the louvers added loading



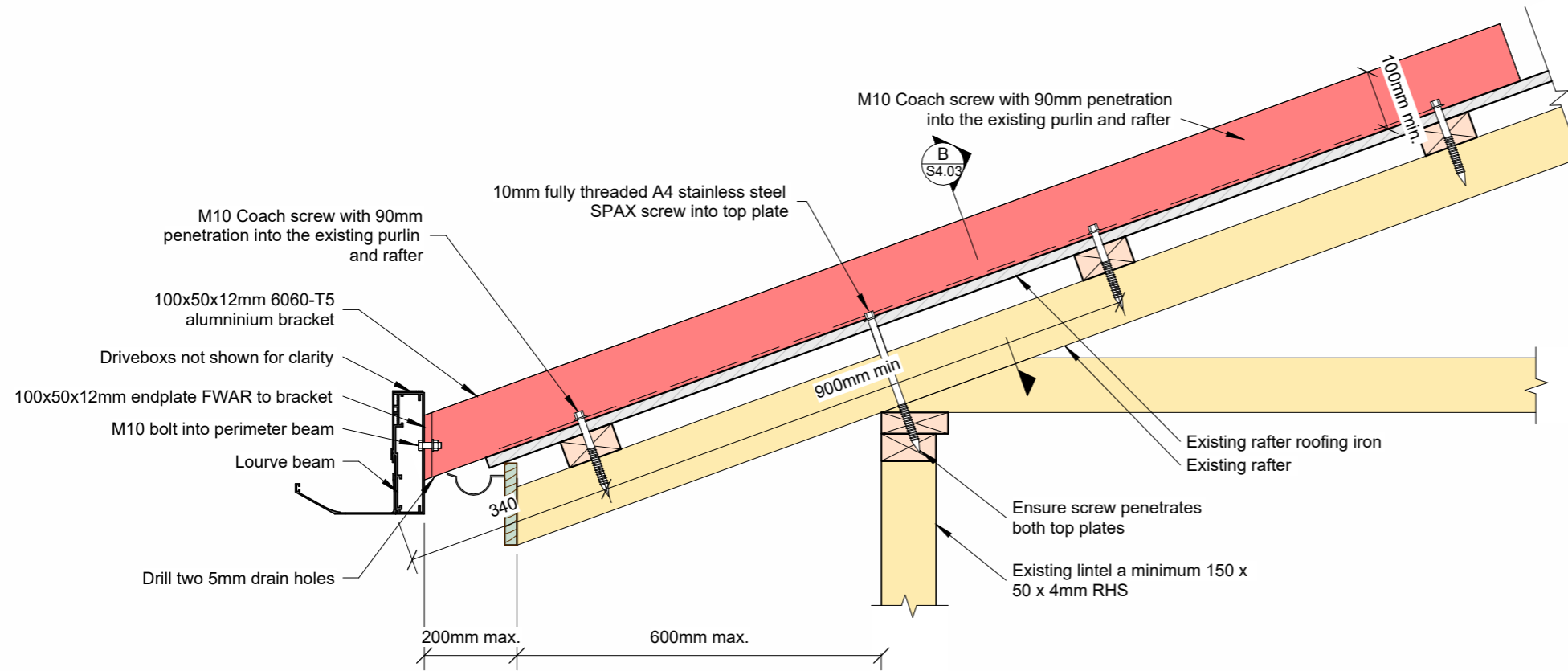
TRUSS BRACKET CONNECTION - STANDARD TRUSS SOFFIT (TYPE 2)

1 : 10

TRUSS BRACKET CONNECTION - STANDARD TRUSS SOFFIT (TYPE 2)

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS

REV NO.	REVISION	DATE	APPROVED	PROJECT NO.	DESIGNED
1	CONTENT ISSUE	18/08/2023	SR	15227	AS
				SCALE @ A3 1 : 10	DRAWN IB
				REV NO. 1	SHEET NO. S4.02



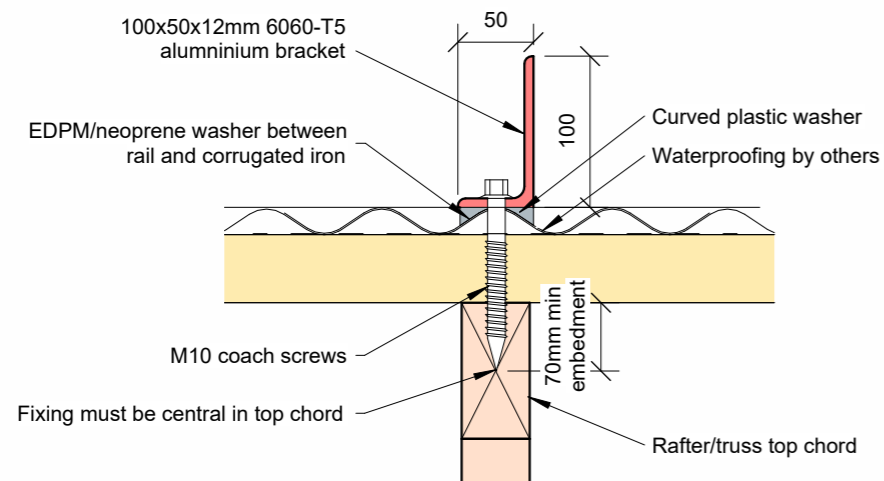
**ROOF BRACKET DETAIL**  
1 : 10

Note: Wall cladding and building and building wrap not shown for clarity

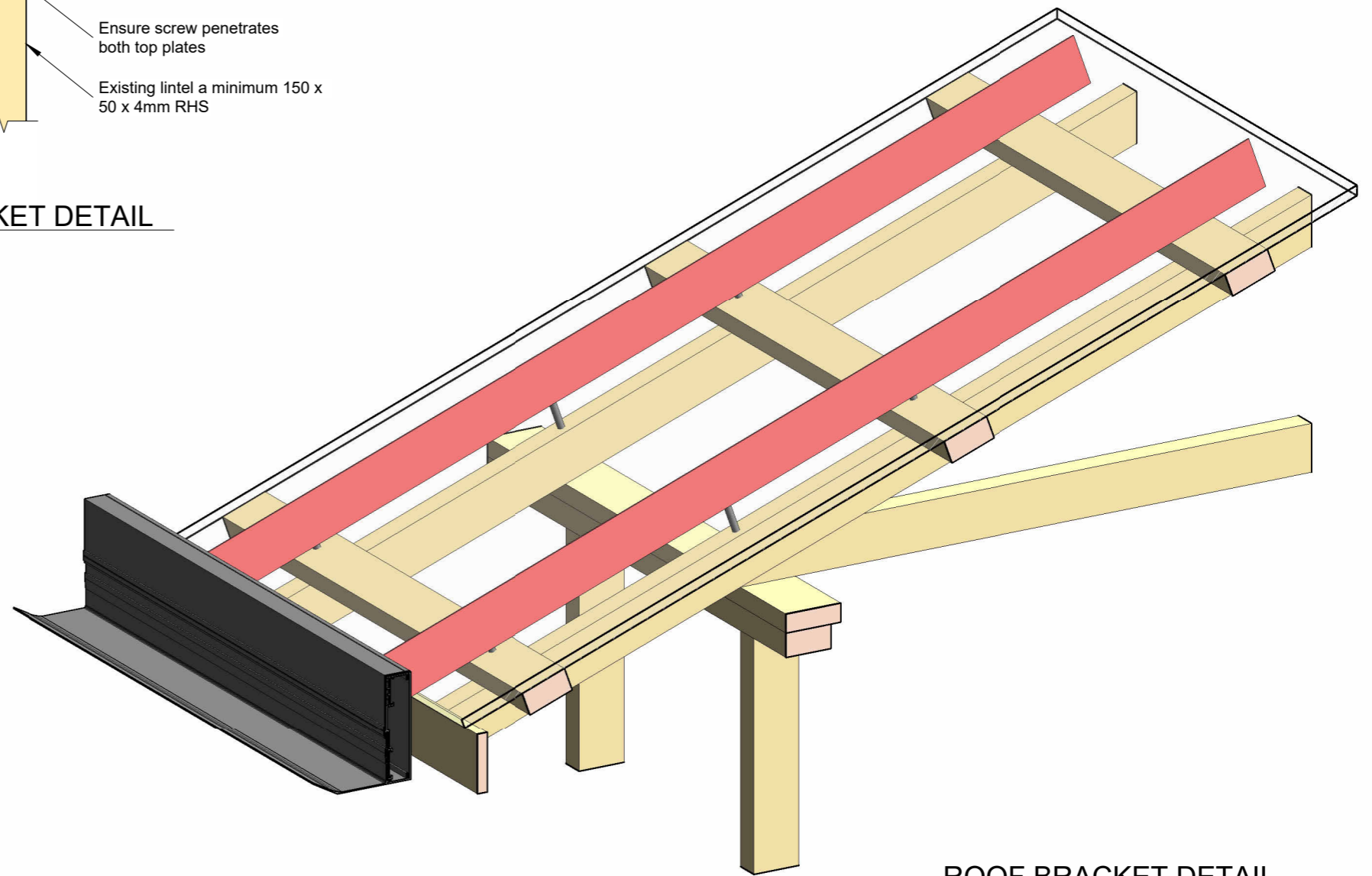
Note: Bracket is not applicable where studs dont span from floor to ceiling (eg. over door/window openings)

An Engineer is to check the capacity of any lintels below the rafter brackets for the louvers added loading

Specific engineering design required for very high wind zone and open ground snow loads greater than 0.9 kPa bracket must be 900mm crs maximum



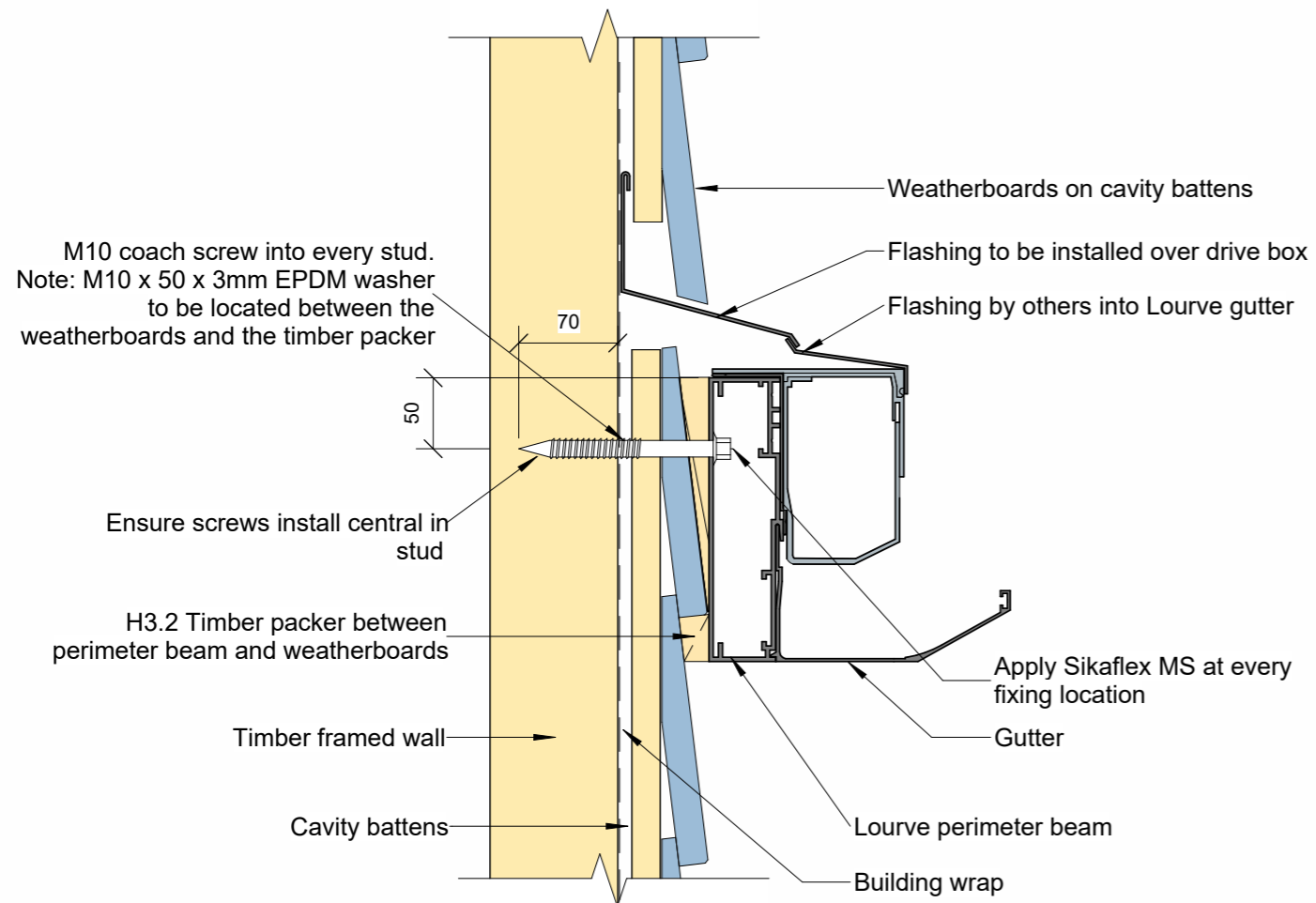
**ROOF BRACKET DETAIL B**  
1 : 5



**ROOF BRACKET DETAIL**

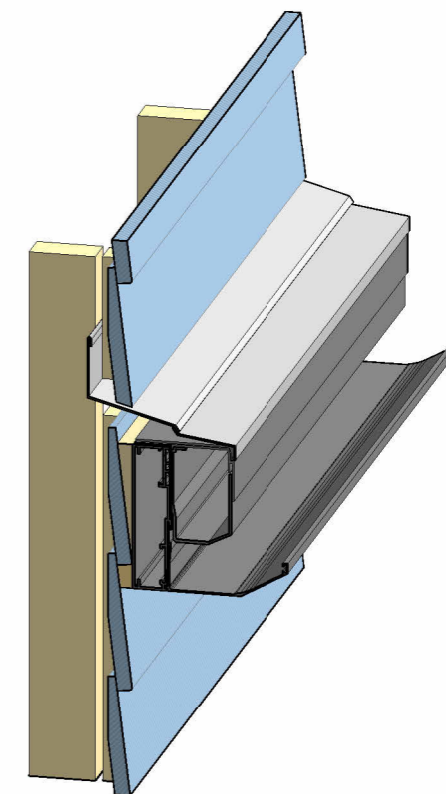
THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS

REV NO.	REVISION	DATE	APPROVED	PROJECT NO.	DESIGNED
1	CONTENT ISSUE	18/08/2023	SR	15227	AS
				SCALE @ A3 As indicated	DRAWN IB
				REV NO. 1	SHEET NO. S4.03



Waterproofing by others

**PERIMETER BEAM TO WEATHERBOARD**  
1 : 5



**PERIMETER BEAM TO WEATHERBOARD**

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS

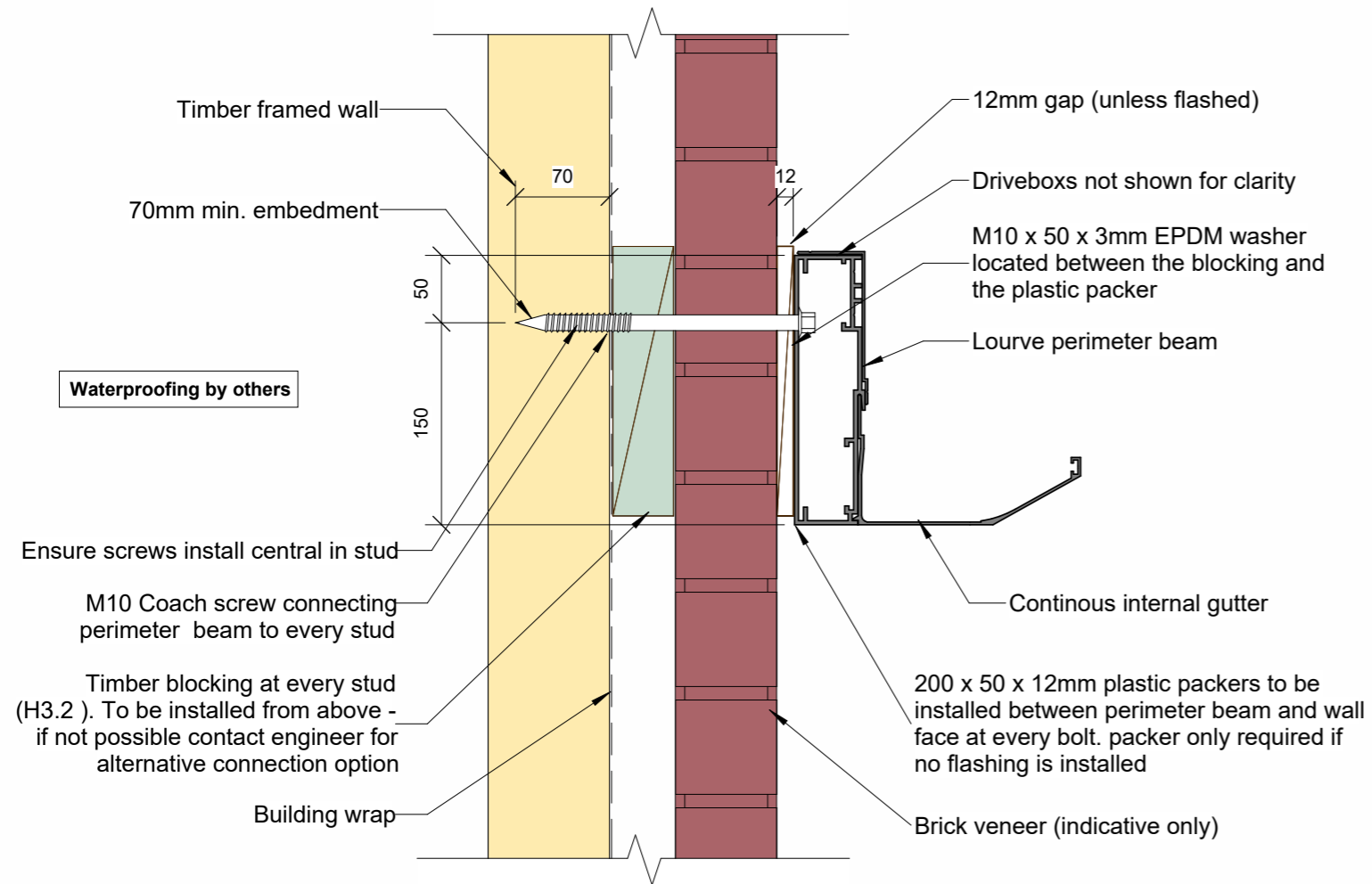


Christchurch office: (03) 347 1624  
Auckland office: (09) 3911324  
Website: rcengineers.co.nz  
Email: rce@rcengineers.co.nz

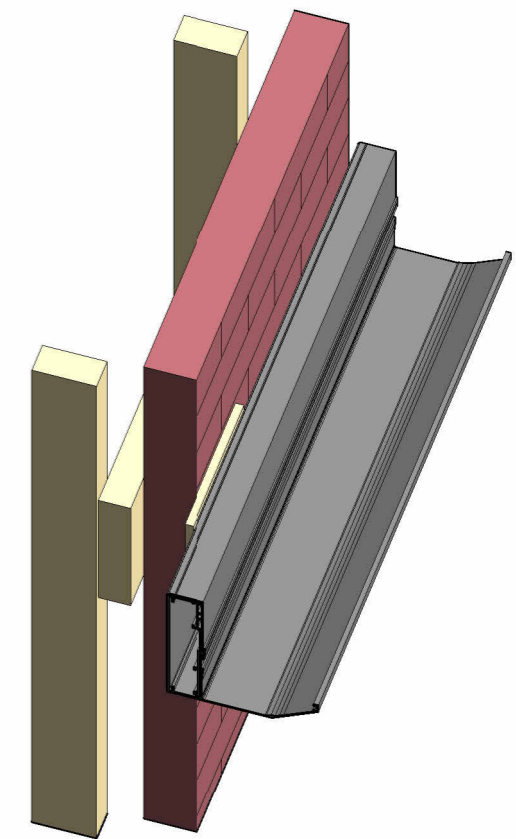
PROJECT TITLE  
STANDARD DETAILS  
JOHNSON AND COUNZINS

DRAWING TITLE  
DETAILS

REV NO.	REVISION	DATE	APPROVED	PROJECT NO.	DESIGNED
1	CONTENT ISSUE	18/08/2023	SR	15227	AS
				SCALE @ A3 1 : 5	DRAWN IB
				REV NO. 1	SHEET NO. S4.04



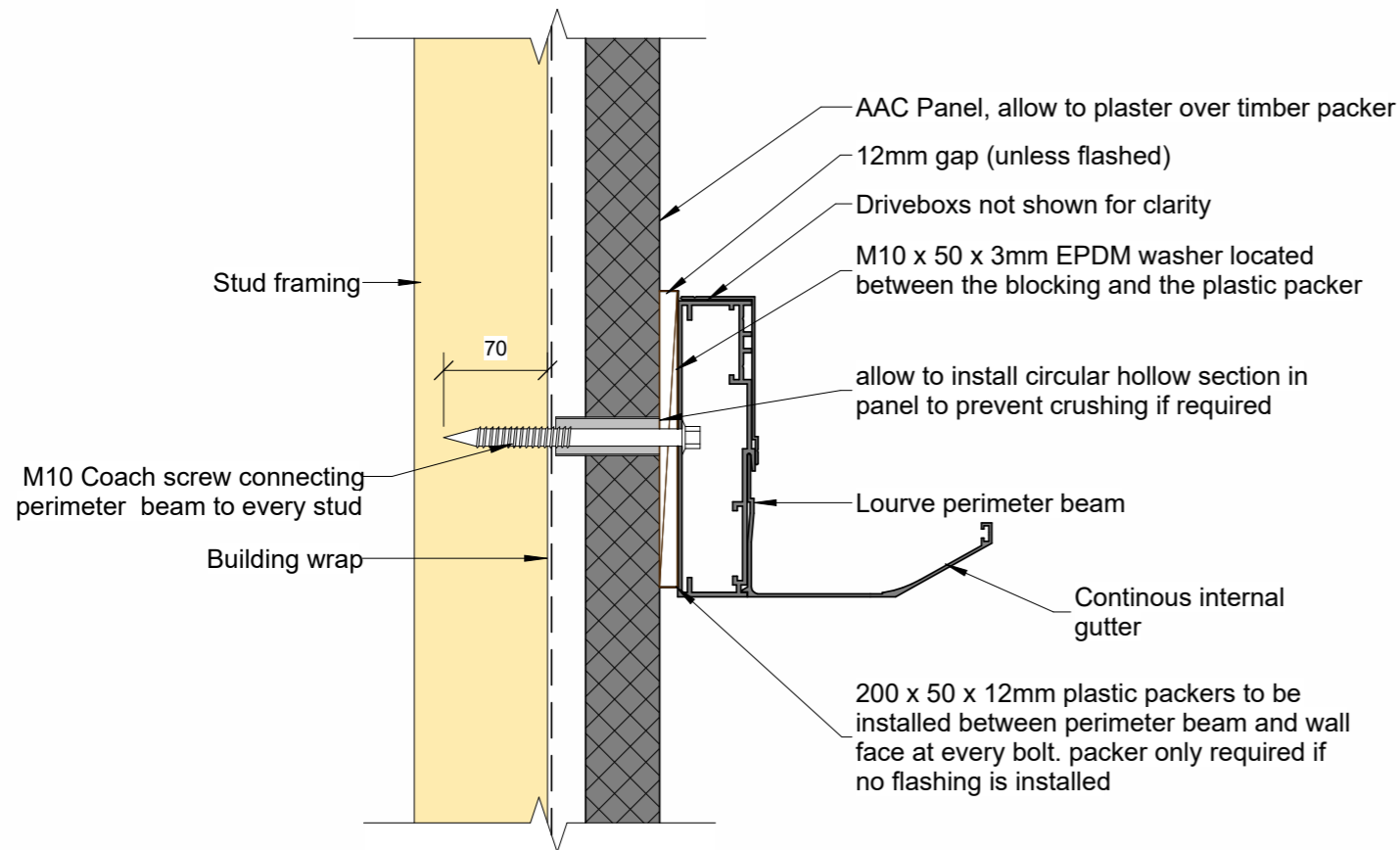
**PERIMETER BEAM TO BRICK**  
1 : 5



**PERIMETER BEAM TO BRICK**

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS

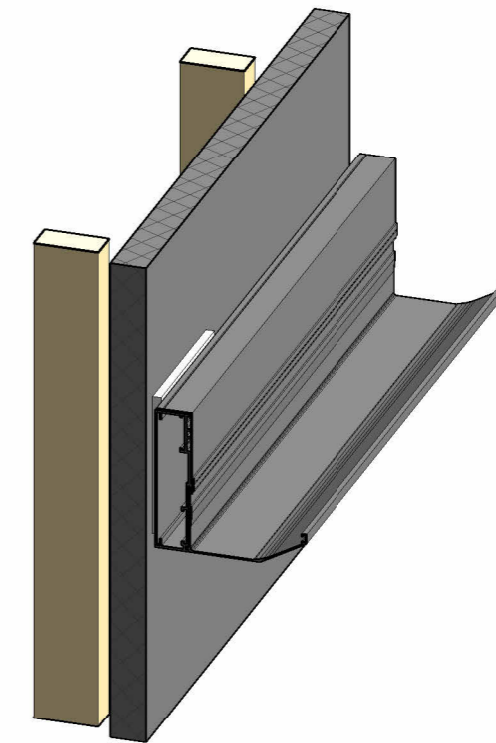
REV NO.	REVISION	DATE	APPROVED	PROJECT NO.	DESIGNED
1	CONTENT ISSUE	18/08/2023	SR	15227	AS
				SCALE @ A3 1 : 5	DRAWN IB
				REV NO. 1	SHEET NO. S4.05



**PERIMETER BEAM TO AAC PANEL**  
1 : 5

**Note:**

- This detail can be used and adjusted to suit plaster and polystyrene cladding systems
- If 12mm gap is not desired a flashing is to be installed by building designer

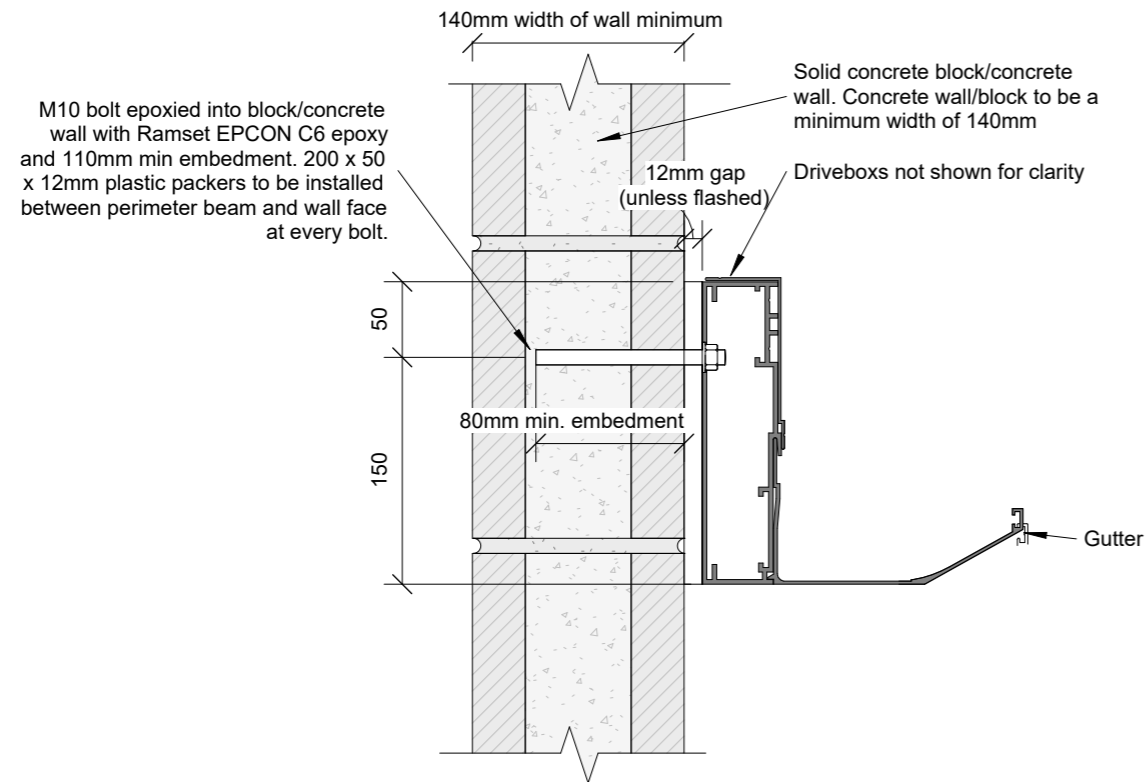


**PERIMETER BEAM TO AAC PANEL**

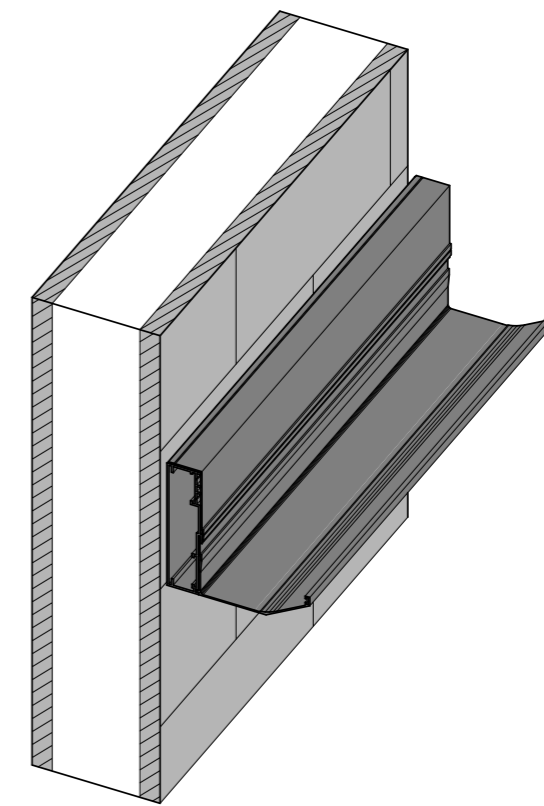
THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS

REV NO.	REVISION	DATE	APPROVED	PROJECT NO.	DESIGNED
1	CONTENT ISSUE	18/08/2023	SR	15227	AS
				SCALE @ A3 1 : 5	DRAWN IB
				REV NO. 1	SHEET NO. S4.06





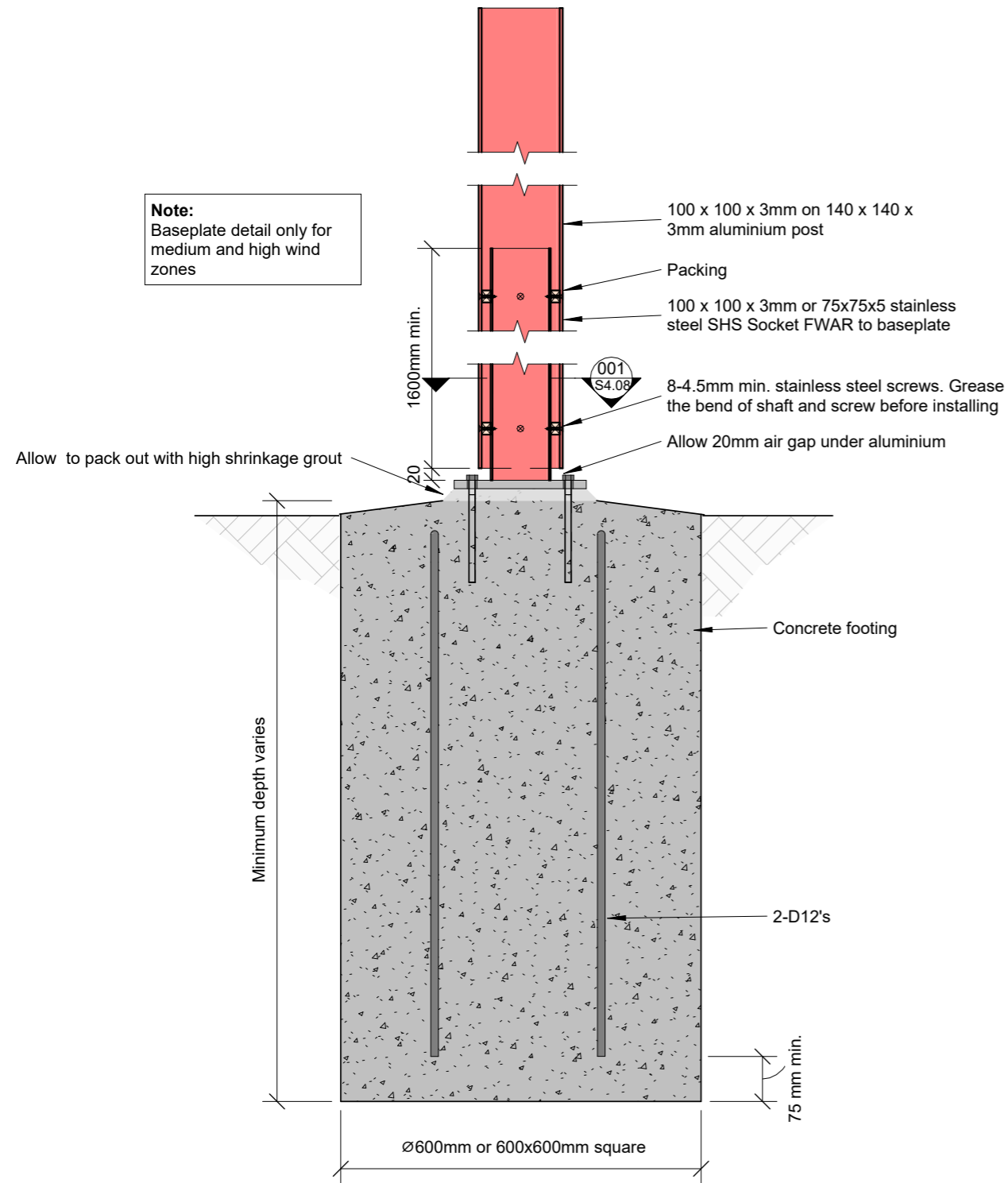
**PERIMETER BEAM TO CONCRETE BLOCK WALL**  
1 : 5



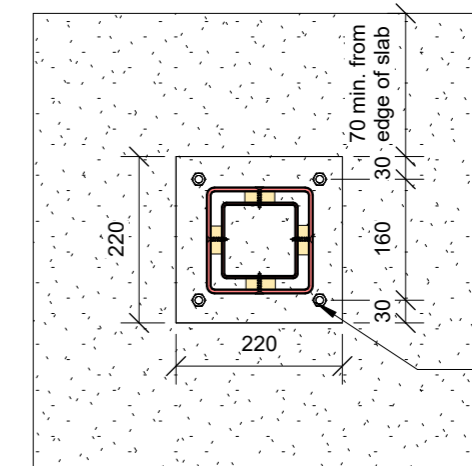
**PERIMETER BEAM TO CONCRETE BLOCK WALL**

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS

REV NO.	REVISION	DATE	APPROVED	PROJECT NO.	DESIGNED
1	CONTENT ISSUE	18/08/2023	SR	15227	AS
				SCALE @ A3 1 : 5	DRAWN IB
				REV NO. 1	SHEET NO. S4.07

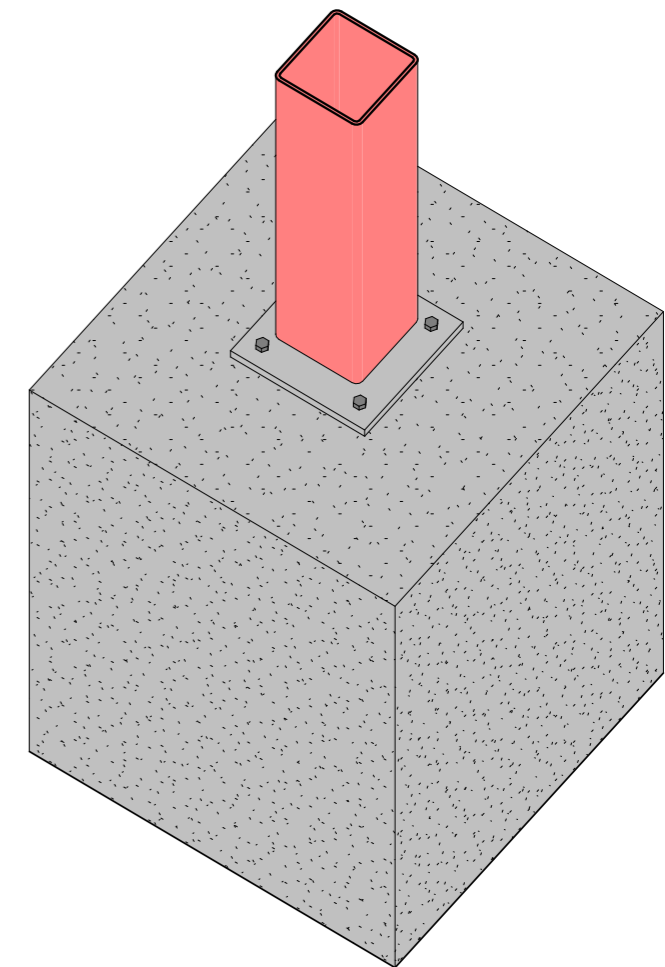


**BRACED CANTILEVER POST FOOTING**  
1 : 10



Grade 8.8 M10 x 150 chemset 801 Xtreme

**CANTILEVER FOOTING**  
1 : 10

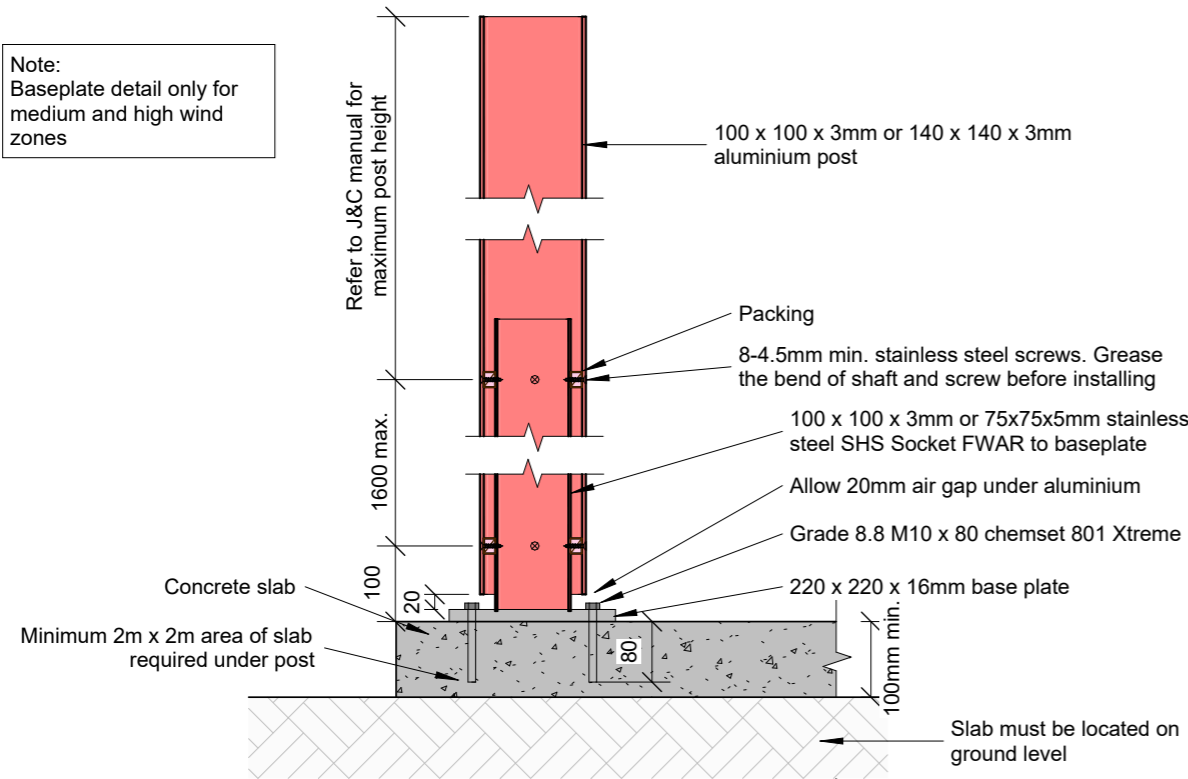


**BRACED CANTILEVER POST FOOTING**

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS

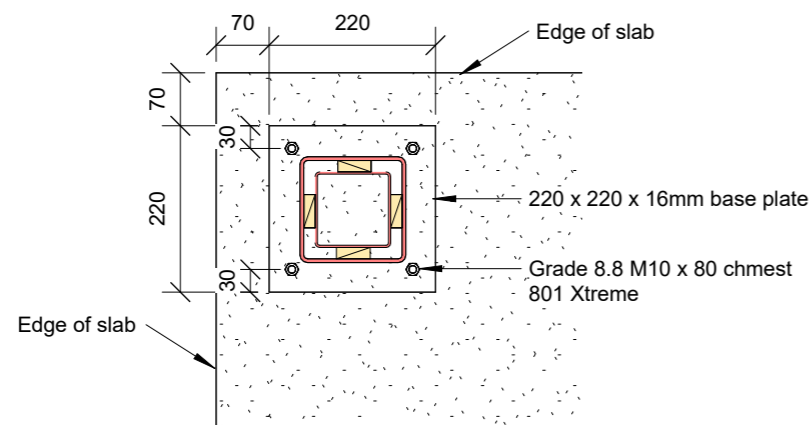
REV NO.	REVISION	DATE	APPROVED	PROJECT NO.	DESIGNED
1	CONTENT ISSUE	18/08/2023	SR	15227	AS
				SCALE @ A3 1 : 10	DRAWN IB
				REV NO. 1	SHEET NO. S4.08

Note:  
Baseplate detail only for  
medium and high wind  
zones



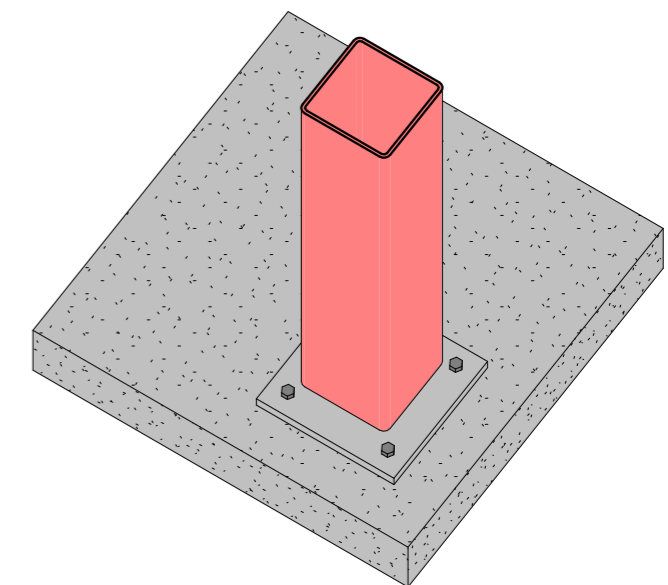
**BRACED BASE PLATE SOCKET ON SLAB DETAIL**

1 : 10



**BASEPLATE SOCKET ON SLAB DETAIL**

1 : 10



**BASE PLATE SOCKET ON SLAB DETAIL**

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS

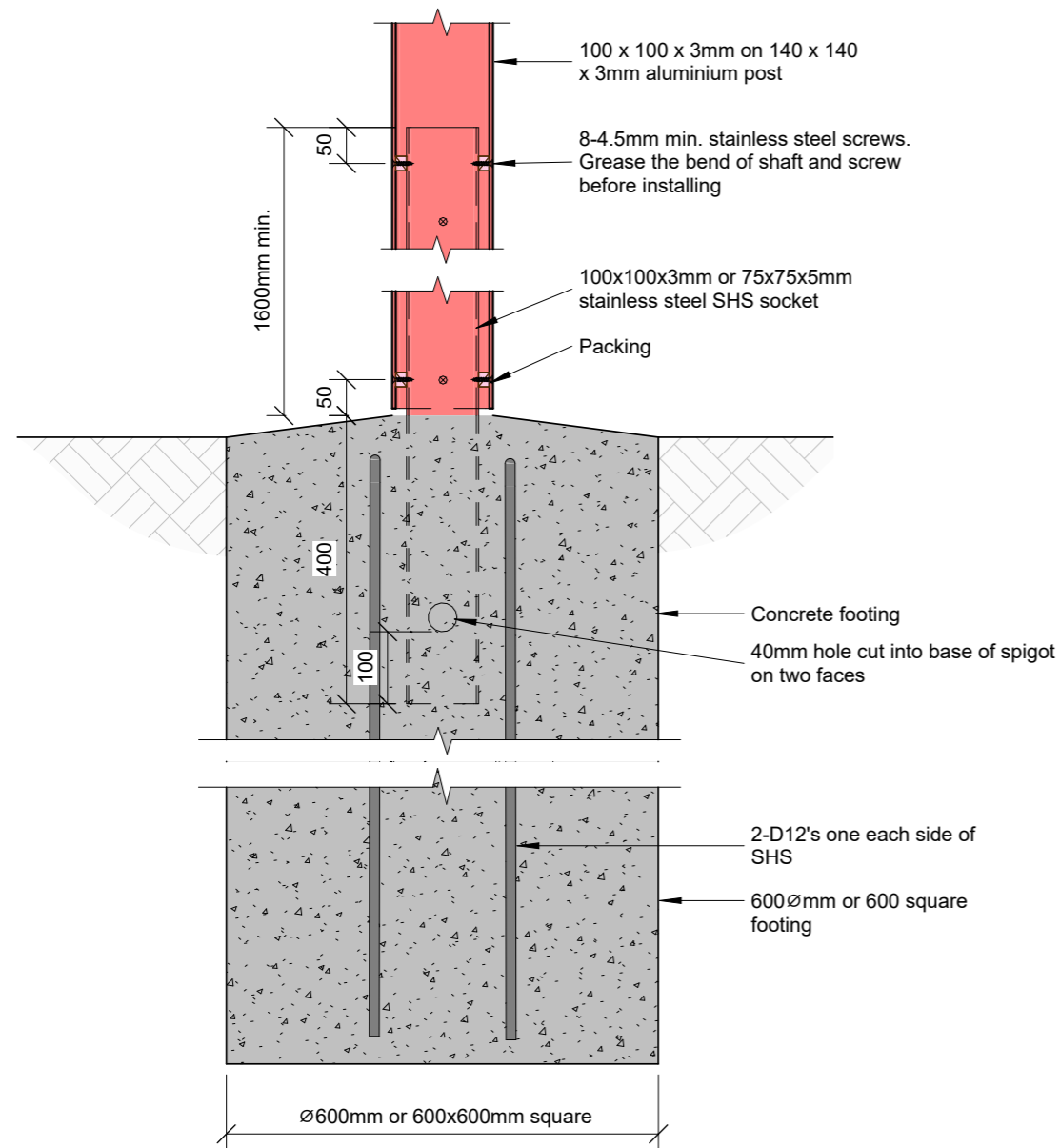


Christchurch office: (03) 347 1624  
Auckland office: (09) 3911324  
Website: rcengineers.co.nz  
Email: rce@rcengineers.co.nz

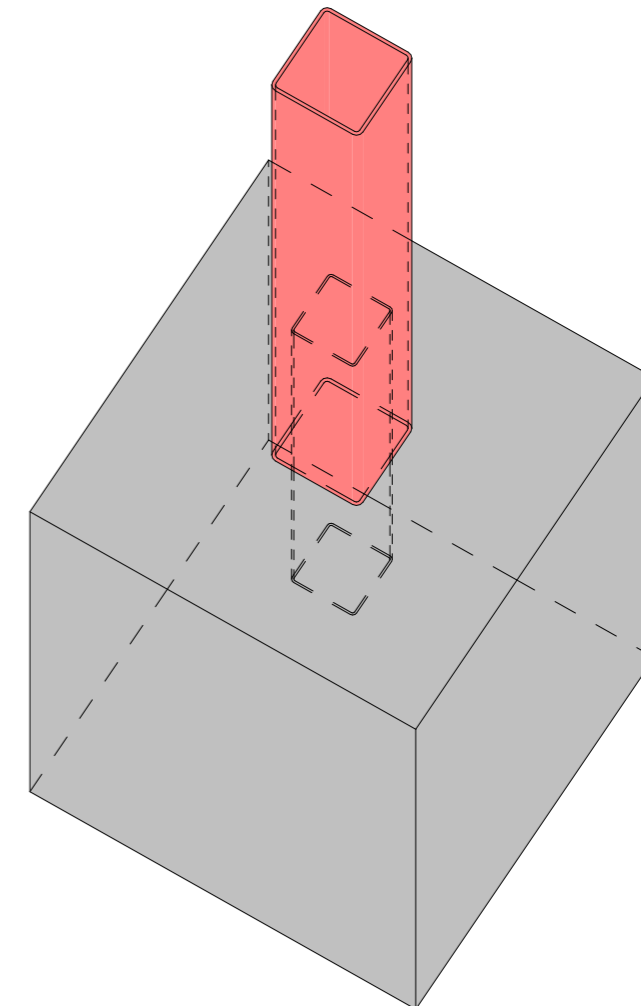
PROJECT TITLE  
STANDARD DETAILS  
JOHNSON AND COUNZINS

DRAWING TITLE  
DETAILS

REV NO.	REVISION	DATE	APPROVED	PROJECT NO.	DESIGNED
1	CONTENT ISSUE	18/08/2023	SR	15227	AS
				SCALE @ A3 1 : 10	DRAWN IB
				REV NO. 1	SHEET NO. S4.09



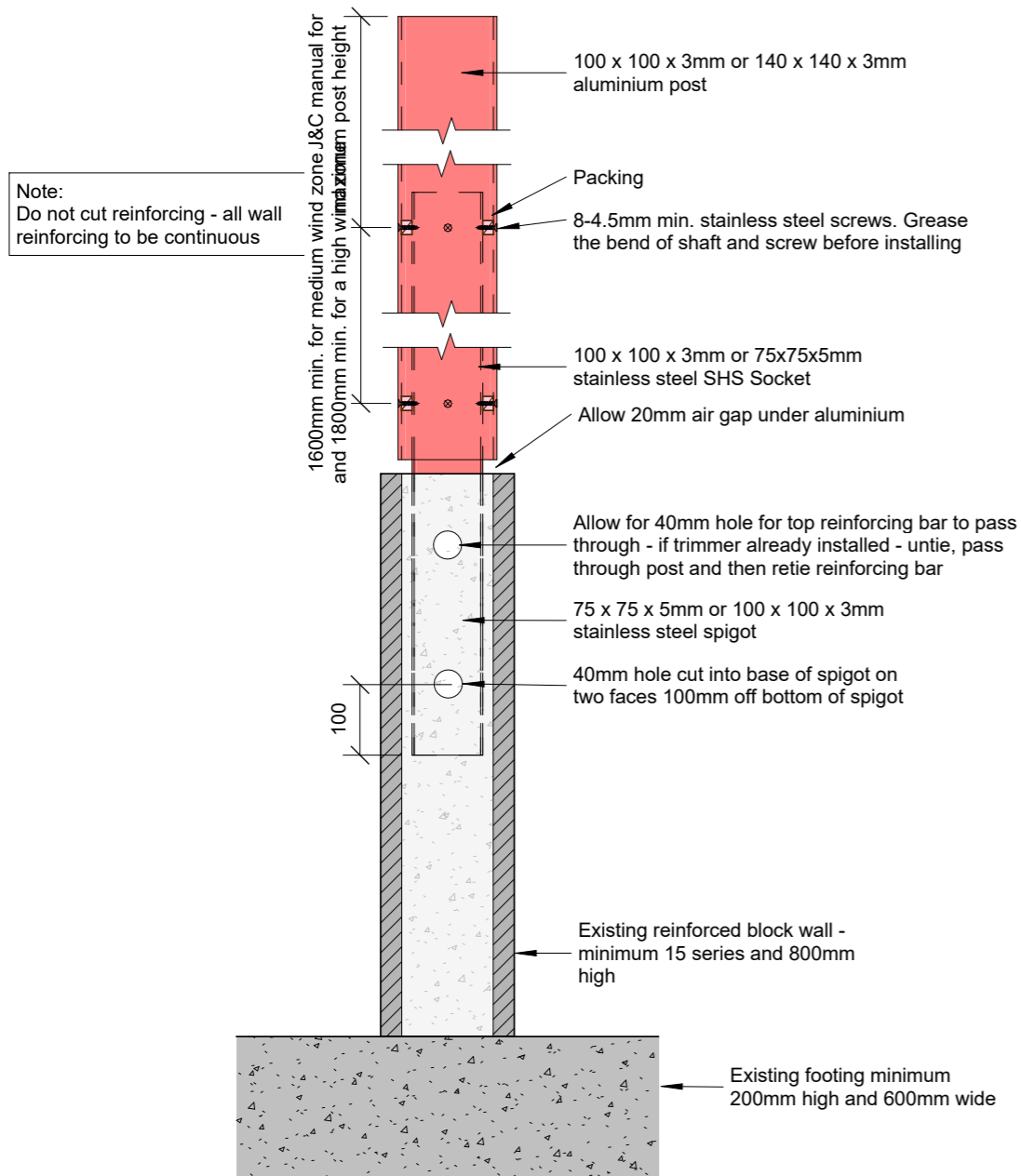
**BRACED POST FOOTING**  
1 : 10



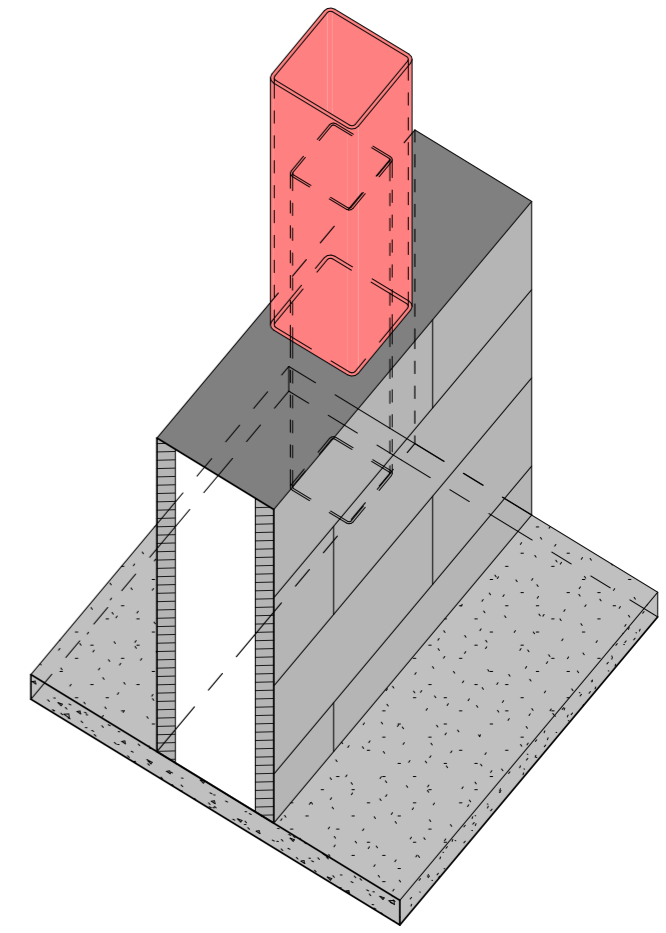
**BRACED POST FOOTING**

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS

REV NO.	REVISION	DATE	APPROVED	PROJECT NO.	DESIGNED
1	CONTENT ISSUE	18/08/2023	SR	15227	AS
				SCALE @ A3 1 : 10	DRAWN IB
				REV NO. 1	SHEET NO. S4.10



**BLOCK ON SLAB**  
1 : 10



**BLOCK ON SLAB**

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS

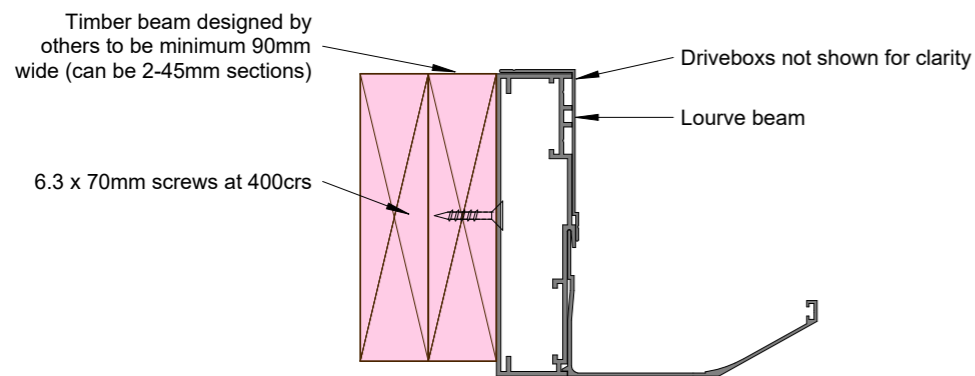


Christchurch office: (03) 347 1624  
Auckland office: (09) 3911324  
Website: rcengineers.co.nz  
Email: rce@rcengineers.co.nz

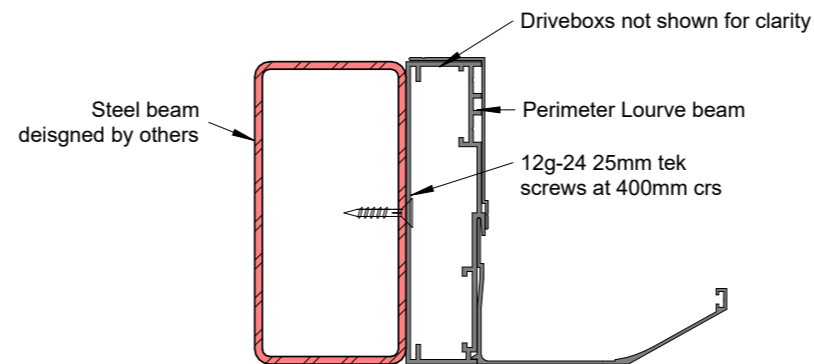
PROJECT TITLE  
STANDARD DETAILS  
JOHNSON AND COUNZINS

DRAWING TITLE  
DETAILS

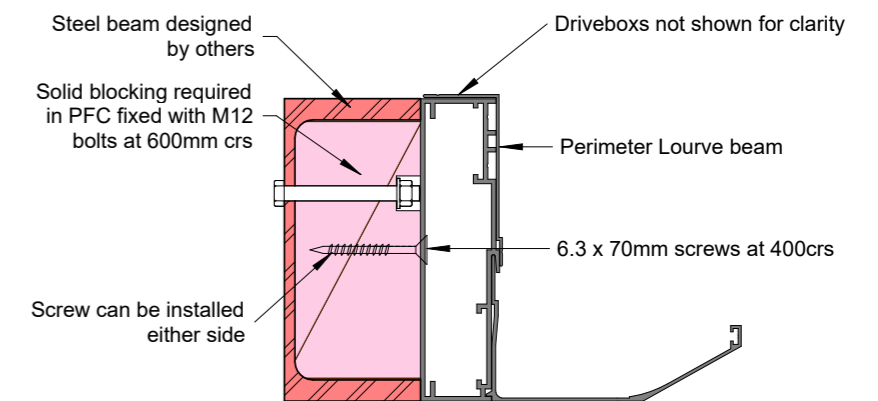
REV NO.	REVISION	DATE	APPROVED	PROJECT NO.	DESIGNED
1	CONTENT ISSUE	18/08/2023	SR	15227	AS
				SCALE @ A3 1 : 10	DRAWN IB
				REV NO. 1	SHEET NO. S4.11



**Note:**  
Beam must be deisgned for Louve load



**Note:**  
typical existing beam examples shown - these fixings can be used for other beams designed by others if similar



**Note:**  
Use the same detail for PFC facing the other way

**BEAMS BY OTHERS DETAILS**  
1:5

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS

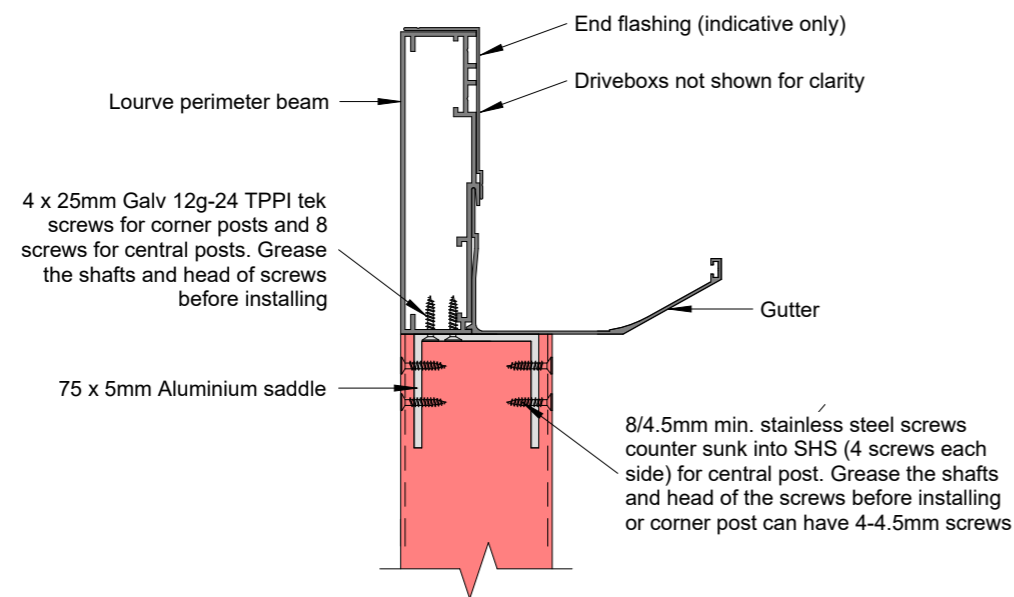


Christchurch office: (03) 347 1624  
Auckland office: (09) 3911324  
Website: rcengineers.co.nz  
Email: rce@rcengineers.co.nz

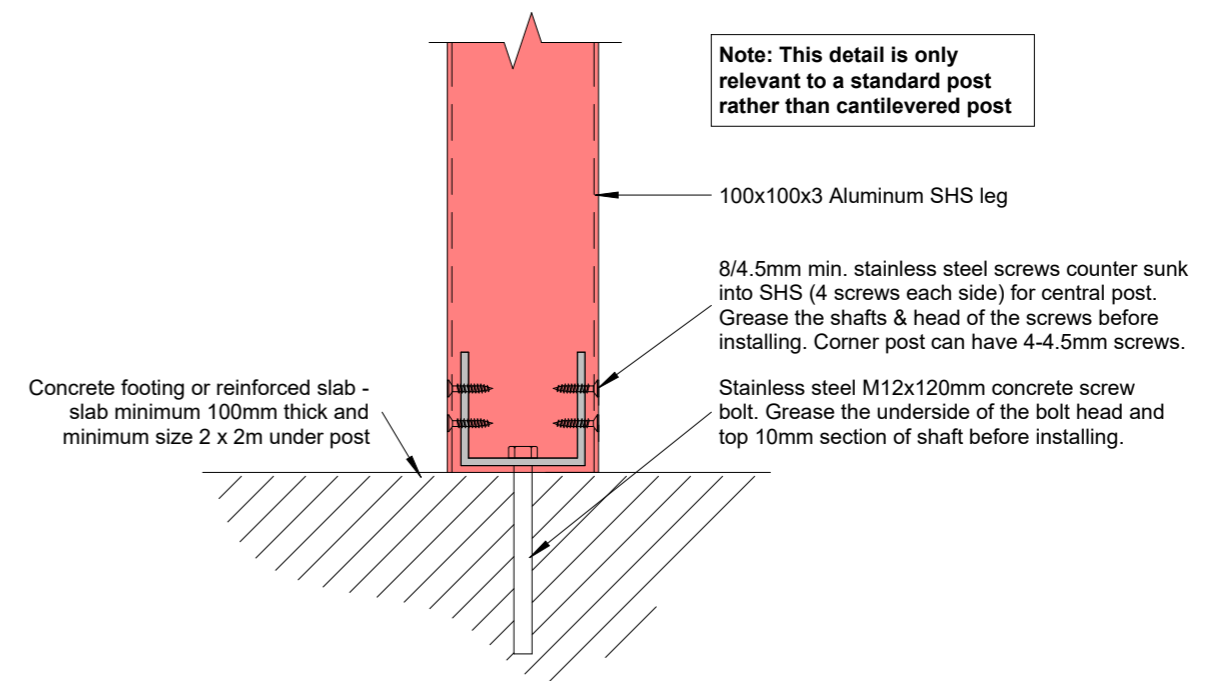
PROJECT TITLE  
STANDARD DETAILS  
JOHNSON AND COUNZINS

DRAWING TITLE  
DETAILS

REV NO.	REVISION	DATE	APPROVED	PROJECT NO.	DESIGNED
1	CONTENT ISSUE	18/08/2023	SR	15227	AS
				SCALE @ A3 1:5	DRAWN IB
				REV NO. 1	SHEET NO. S4.12



**SILENCIO LOURVE PERIMETER BEAM TO LEG DETAIL**  
1 : 5



**LOURVE STANDARD POST BASE CONNECTION**  
1 : 5

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS

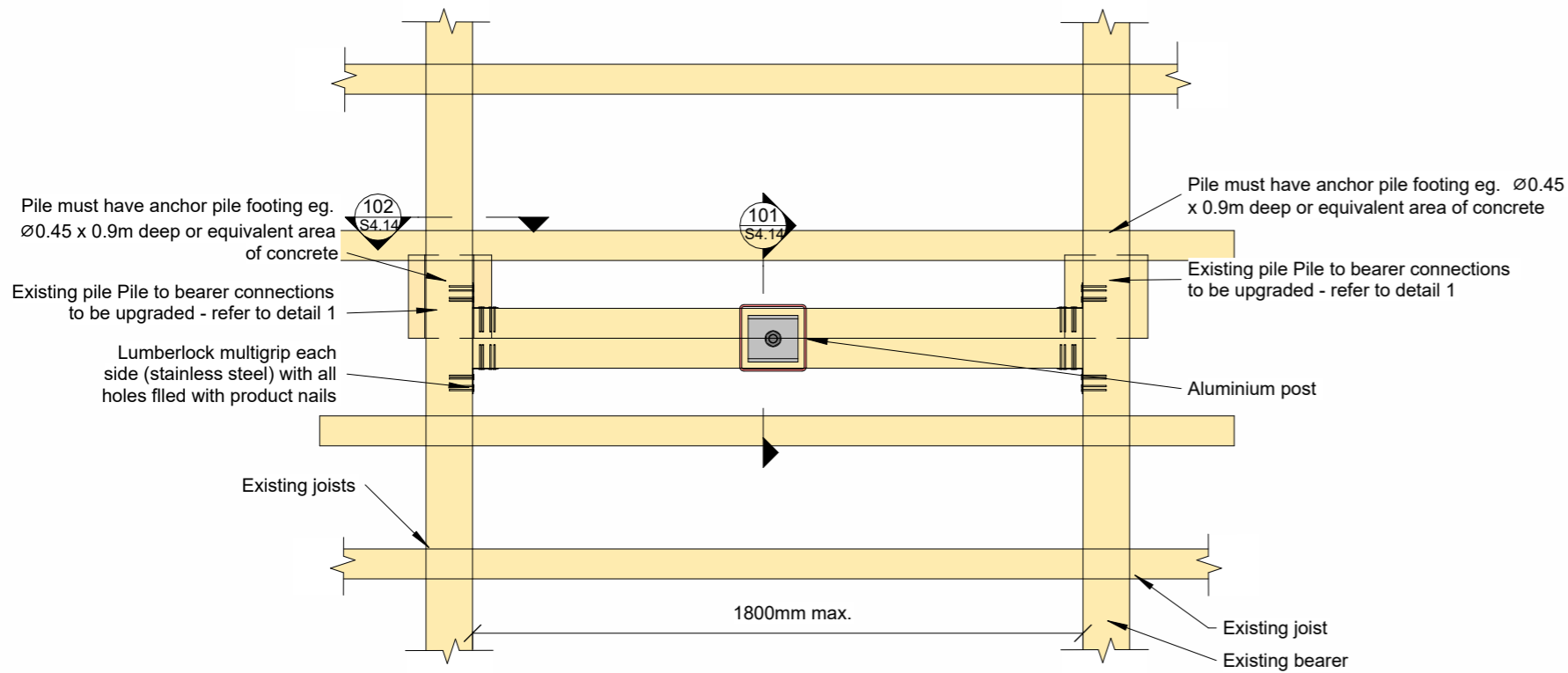


Christchurch office: (03) 347 1624  
Auckland office: (09) 3911324  
Website: rcengineers.co.nz  
Email: rce@rcengineers.co.nz

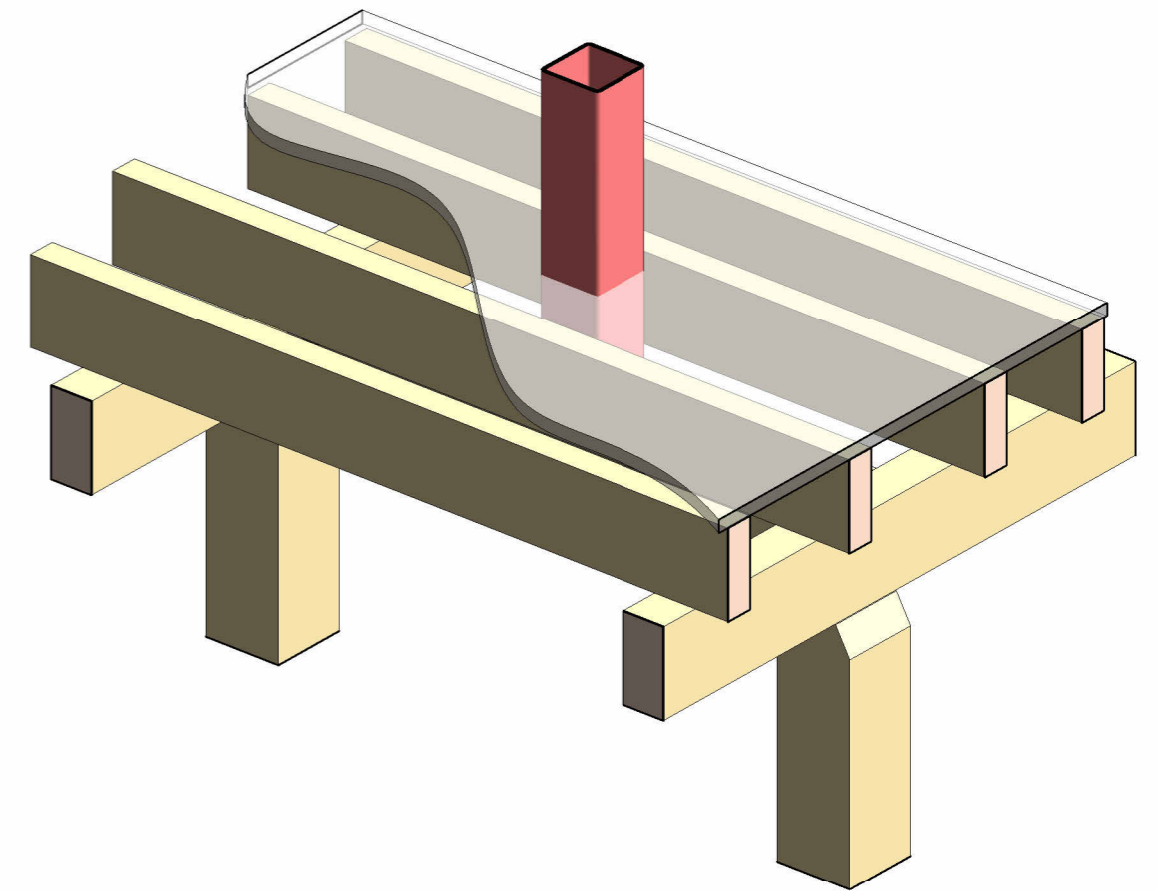
PROJECT TITLE  
STANDARD DETAILS  
JOHNSON AND COUNZINS

DRAWING TITLE  
DETAILS

REV NO.	REVISION	DATE	APPROVED	PROJECT NO.	DESIGNED
1	CONTENT ISSUE	18/08/2023	SR	15227	AS
				SCALE @ A3 1 : 5	DRAWN IB
				REV NO. 1	SHEET NO. S4.13

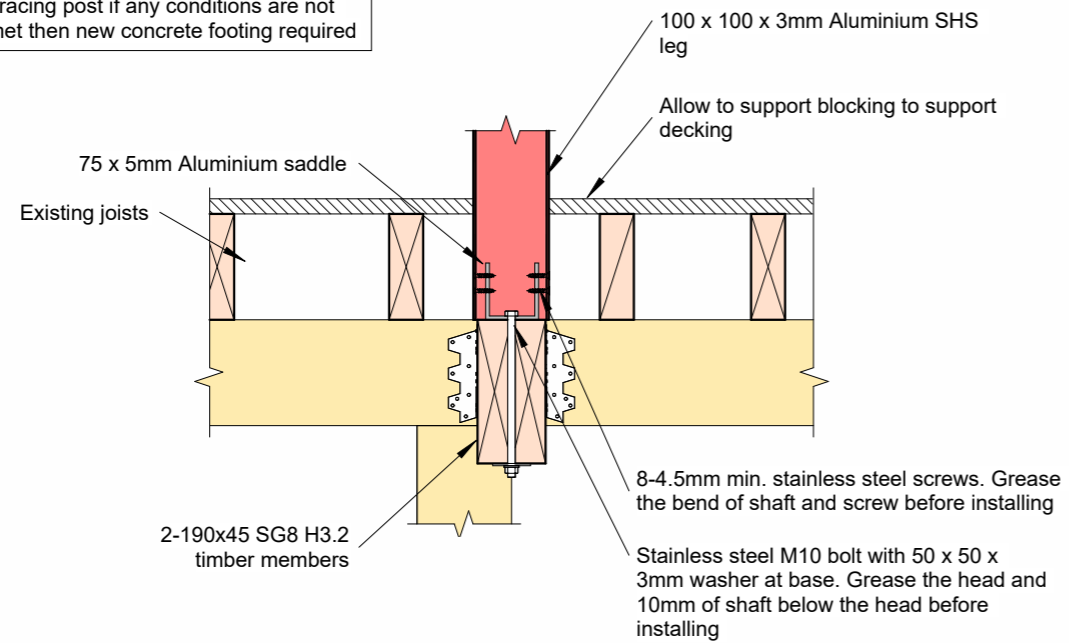


**LOURVE POST TO DECK CONNECTION PLAN**  
1 : 10

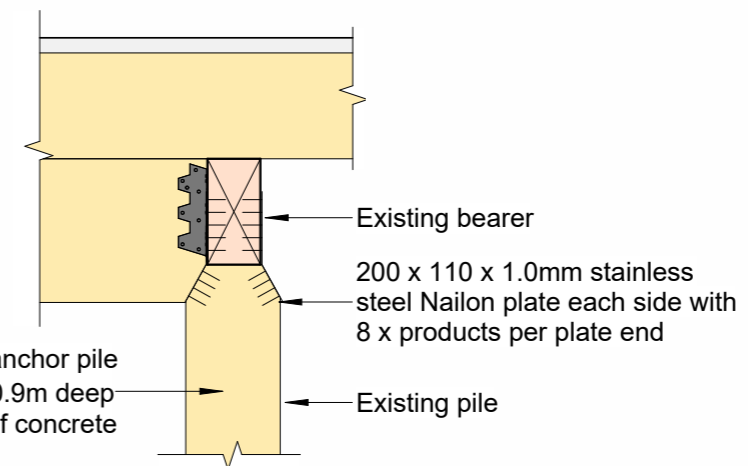


**LOURVE TO POST DECK CONNECTION**

**Note:**  
Connection can not be used for bracing post if any conditions are not met then new concrete footing required



**101 POST CONNECTION**  
S4.14 1 : 10

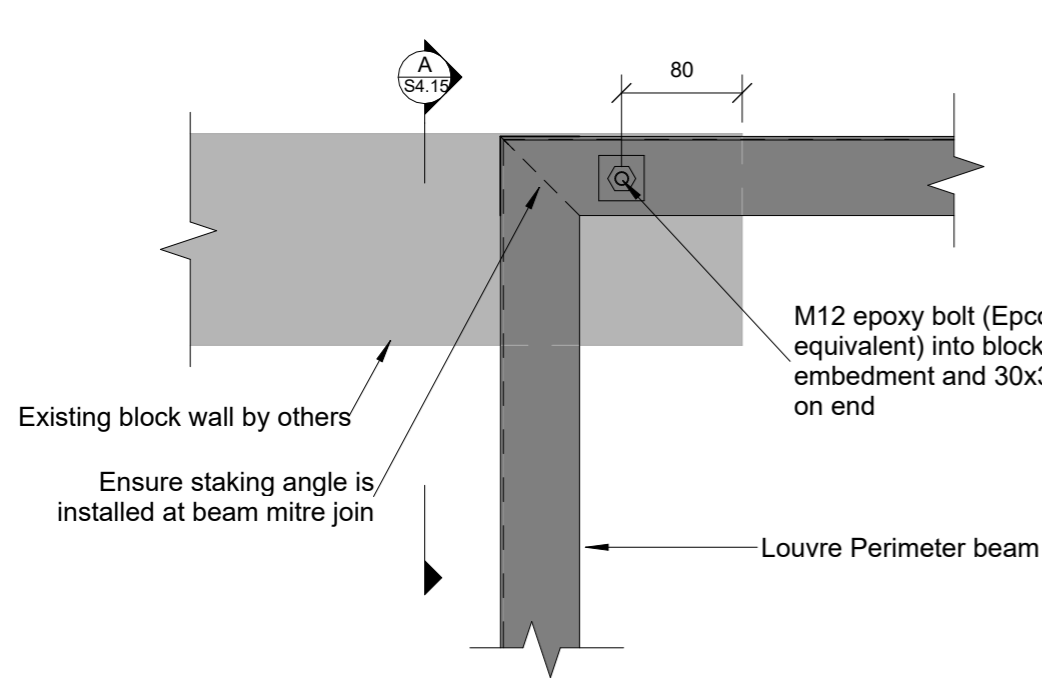


**102 PILE CONNECTION**  
S4.14 1 : 10

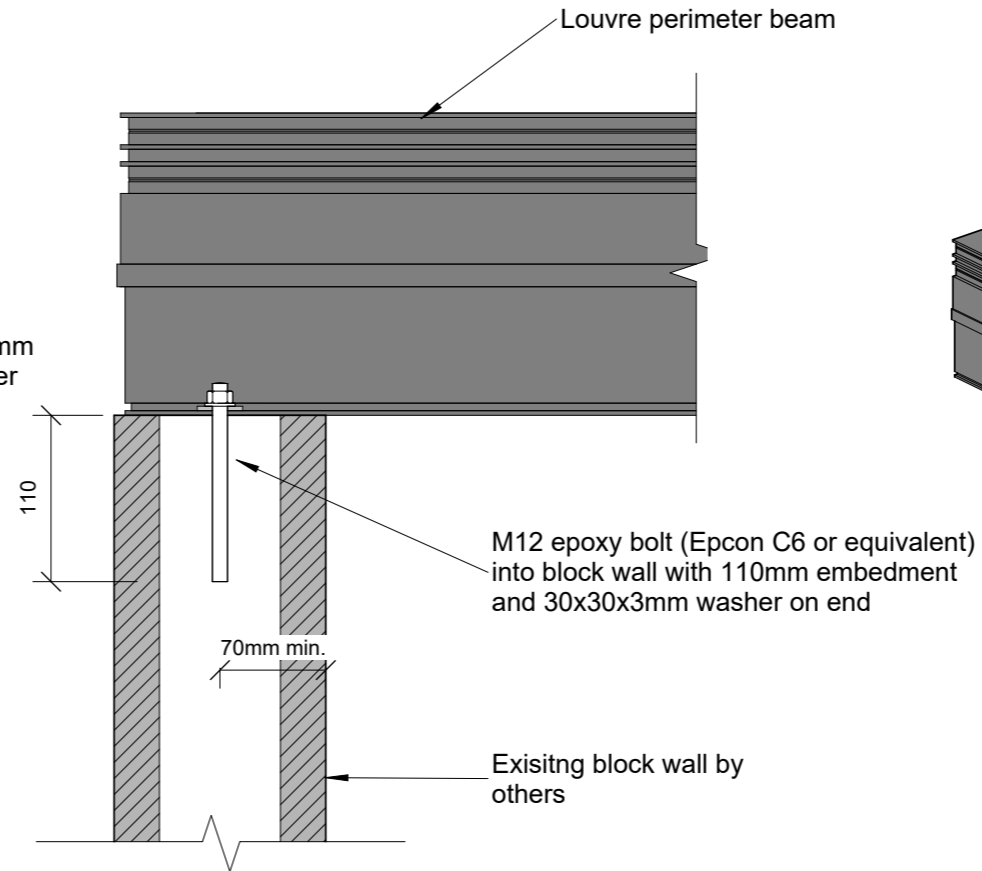
THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS

REV NO.	REVISION	DATE	APPROVED	PROJECT NO.	DESIGNED
1	CONTENT ISSUE	18/08/2023	SR	15227	AS
				SCALE @ A3 1 : 10	DRAWN IB
				REV NO. 1	SHEET NO. S4.14

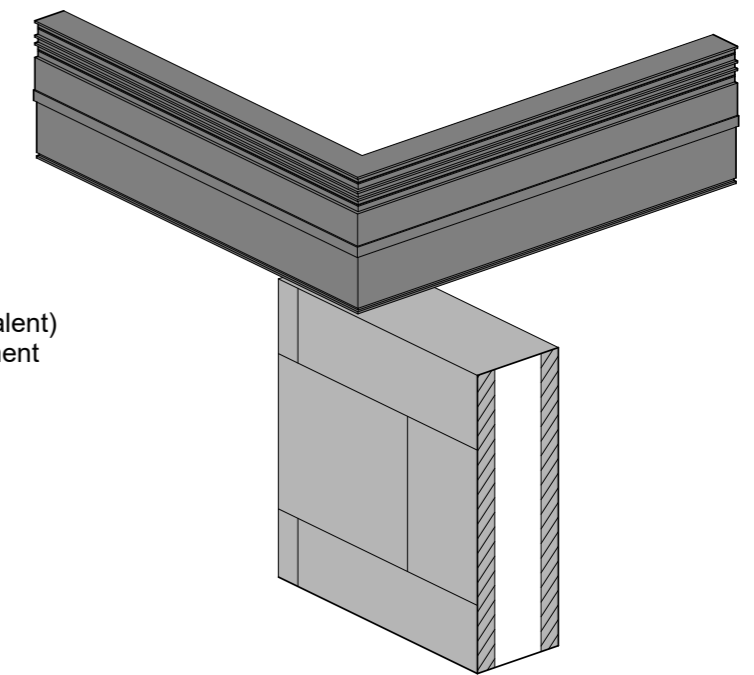




LOUVRE TO BLOCK DETAIL  
1 : 5



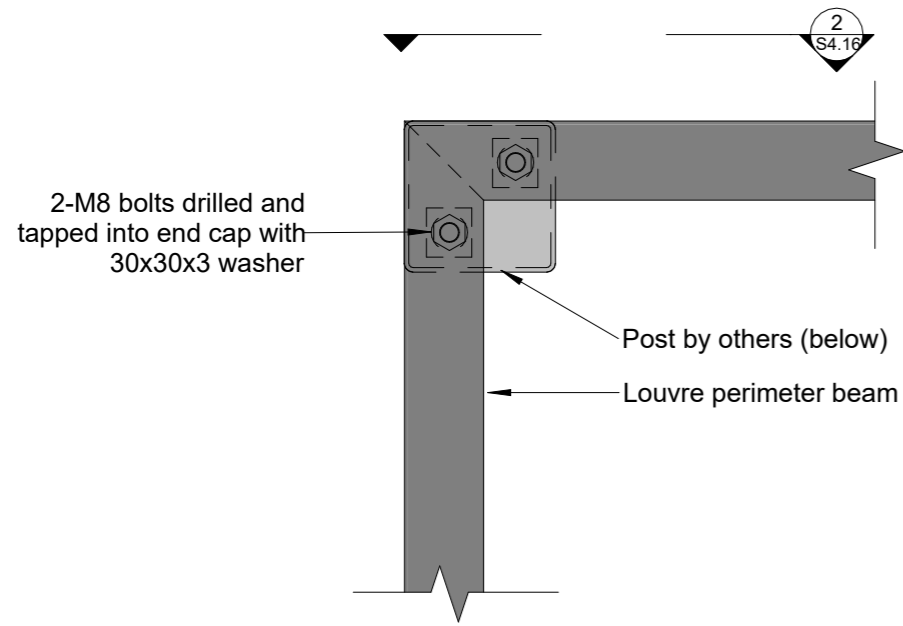
LOUVRE TO BLOCK DETAIL  
1 : 5



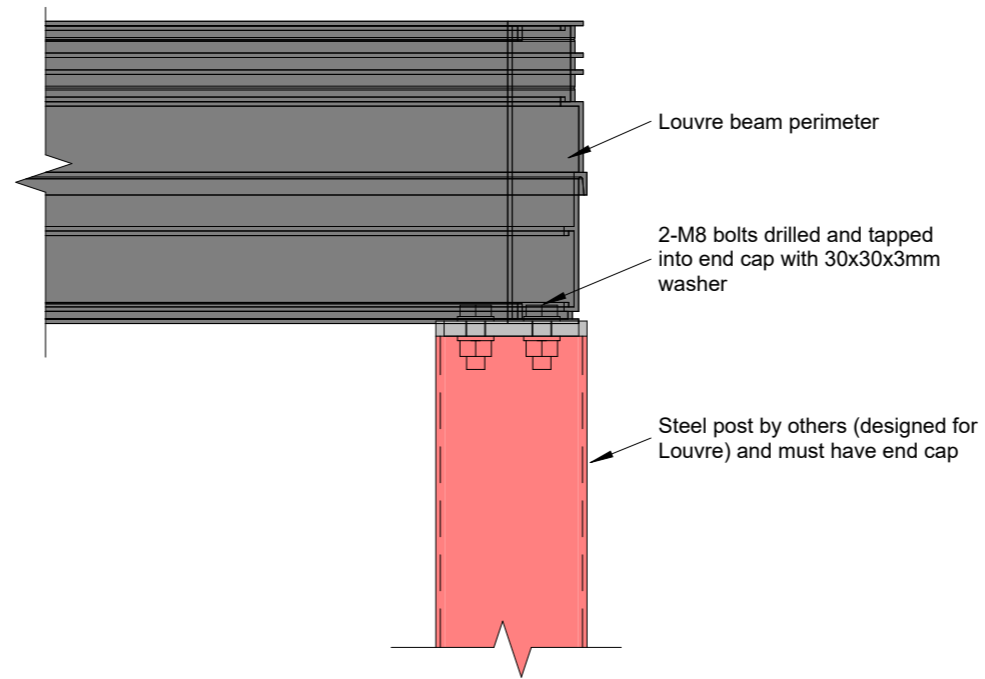
LOUVRE TO BLOCK

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS

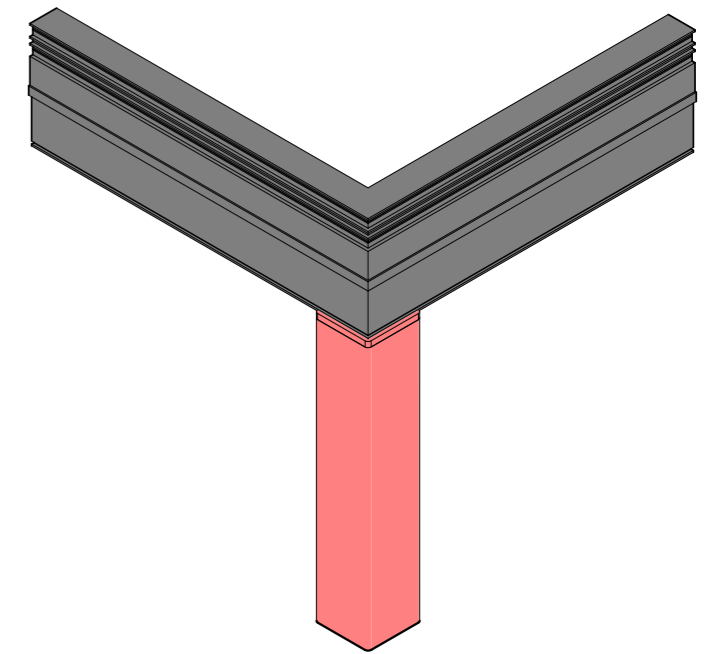
REV NO.	REVISION	DATE	APPROVED	PROJECT NO.	DESIGNED
1	CONTENT ISSUE	18/08/2023	SR	15227	AS
				SCALE @ A3 1 : 5	DRAWN IB
				REV NO. 1	SHEET NO. S4.15



LOUVRE TO POST DETAIL  
1:5



LOUVRE TO POST DETAIL  
1:5



LOUVRE TO SHS POST

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS

REV NO.	REVISION	DATE	APPROVED	PROJECT NO.	DESIGNED
1	CONTENT ISSUE	18/08/2023	SR	15227	AS
				SCALE @ A3 1:5	DRAWN IB
				REV NO. 1	SHEET NO. S4.16