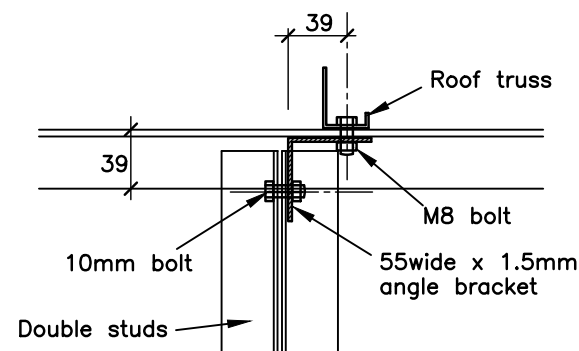
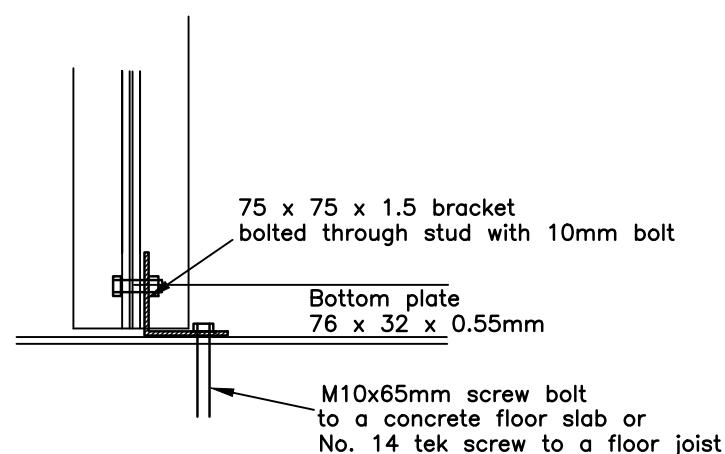
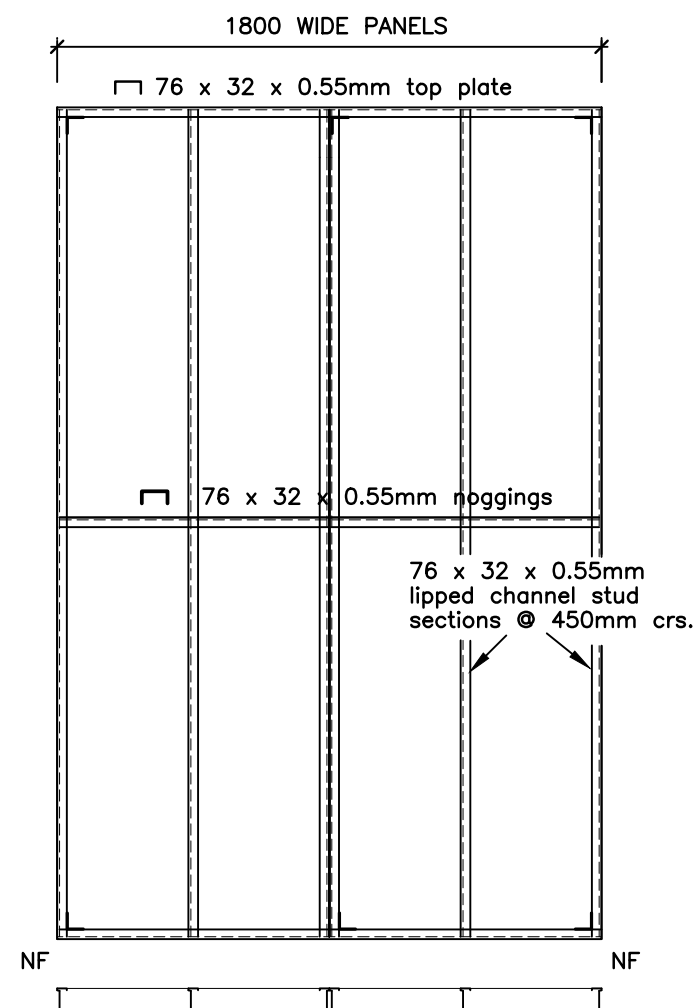




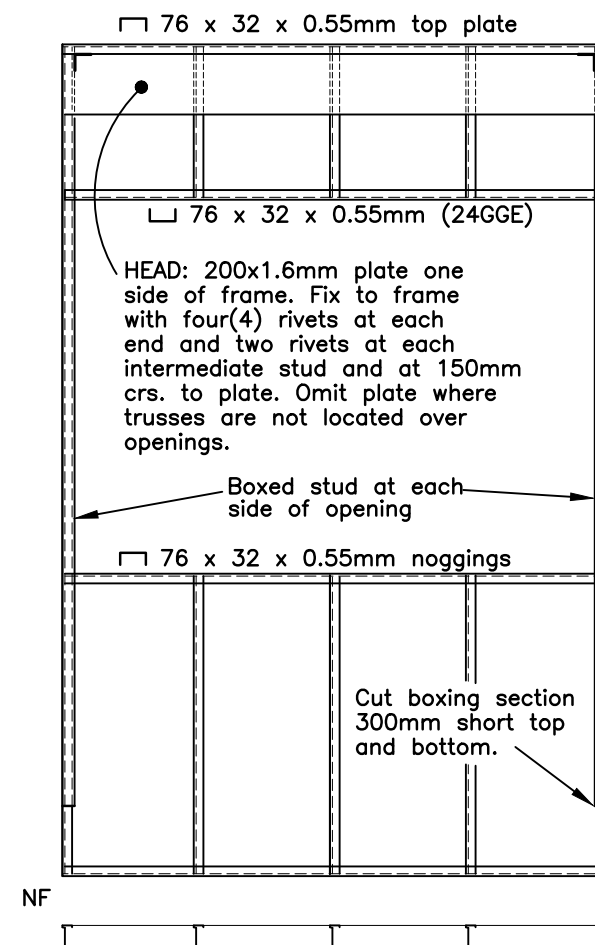
TRUSS HOLD DOWN



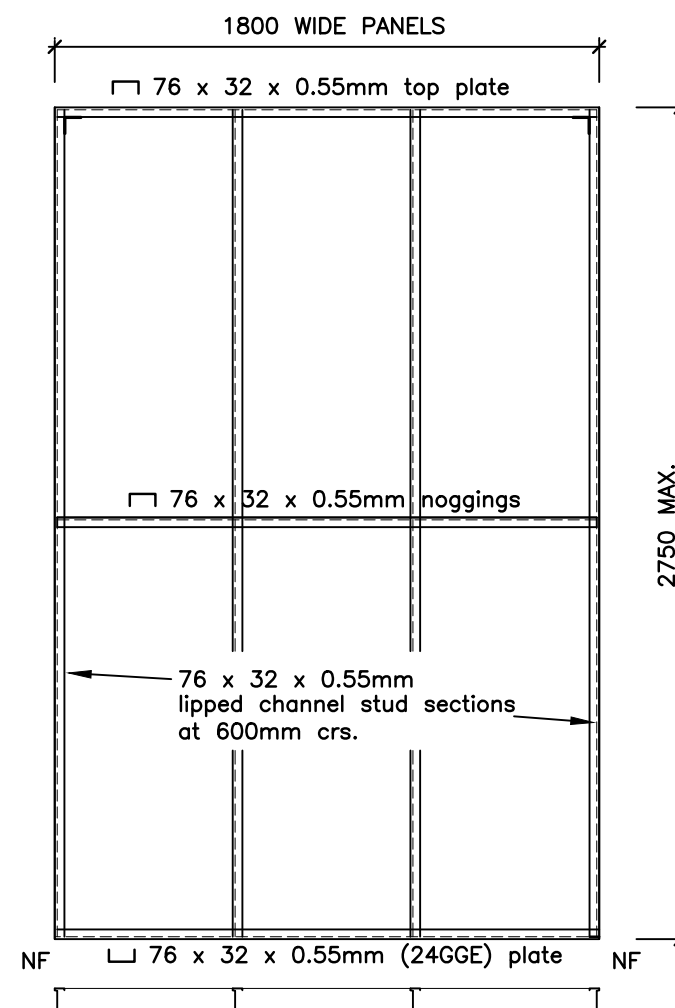
NF – NOMINAL HOLD DOWN



LOAD BEARING PANEL EXTERNAL WALL

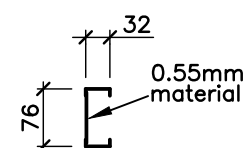


LOAD BEARING PANEL WITH OPENING



NON-LOAD BEARING PANEL INTERNAL WALL

LOCATION OF HOLD DOWNS	HOLD DOWN TYPE
AT ENDS OF BRACING PANELS (UNO)	Nominal
AT ENDS OF SHEET BRACED PANELS	Structural
AT ENDS & @1800cc OF DOUBLE SIDED STRAP BRACES	Structural @ 1800cc
UNDER TRUSS LOCATIONS	Nominal
EITHER SIDE OF OPENNINGS (JAMB STUDS)	Nominal
AT PANEL JOINTS	Nominal
AT 1200 CENTRES (MAX) ON EXTERNAL WALLS	50mm Screw Bolts
AT 1200 CENTRES (MAX) ON INTERNAL WALLS	50mm Screw Bolts
DESIDE LARGE OPENNINGS WITH SHS JAMBS	Structural



WALL STUDS

ALL MEMBERS TO BE OF G450 STEEL (Min yield strength of 450MPa)

NF – NOMINAL HOLD-DOWN COMPRISES OF 75 x 75 x 1.5mm BRACKETS BOLTED TO FRAME WITH M8 BOLTS & FIXED TO CONCRETE SLAB WITH M10 x 65mm SCREWBOLTS.

SF – STRUCTURAL HOLD-DOWN COMPRISES OF 75 x 75 x 5.0mm BRACKETS TEK SCREWED TO A JOIST OR BLOCKING WITH ONE No. 14 TEK SCREW AND A 37 X 0.8mm GAL STRAP FIXED TO STUD AND BEARERS WITH 2/No. 14 TEK SCEWS AT EACH END.
(Note: TEK SCREWS AT EACH END NOT NEEDED FOR BRICK OR BLOCK VENEER)
FIX ANGLE BRACKET TO CONCRETE SLAB WITH M10 x 75mm SCREWBOLTS.

REFER TO DRAWING 106535-2 FOR BRACING DETAILS

NOTE:

- 1) LOADEARING STUDS MUST BEAR DIRECTLY OVER A FLOOR JOIST OR ON A CONCRETE SLAB
- 2) ALL WALL FRAMING MATERIAL INCLUDING ROOF BATTENS TO BE G550 STEEL
- 3) FRAMING HAS BEEN DESIGNED FOR N1-N4 & C2 WIND AREAS IN ACCORDANCE WITH AS4055 and AS/NZS4600 COLD FORMED STEEL STRUCTURES
- 4) TRUSSES ARE ONLY TO BEAR DIRECTLY OVER DOUBLE WALLS OR WINDOW HEADS
- 5) ONLY ONE HOLD DOWN FIXING IS REQUIRED AT EACH JUNCTION



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SCALE	NTS
DATE	27.04.23
DRAWN	J Blaikie
DESIGNED	TB Hall
APPROVED	

CLIENT: PAAL HOMES

**STEEL WALL & ROOF FRAMING
WALL FRAMING DETAILS
N1-N4 & C2 WIND AREAS**

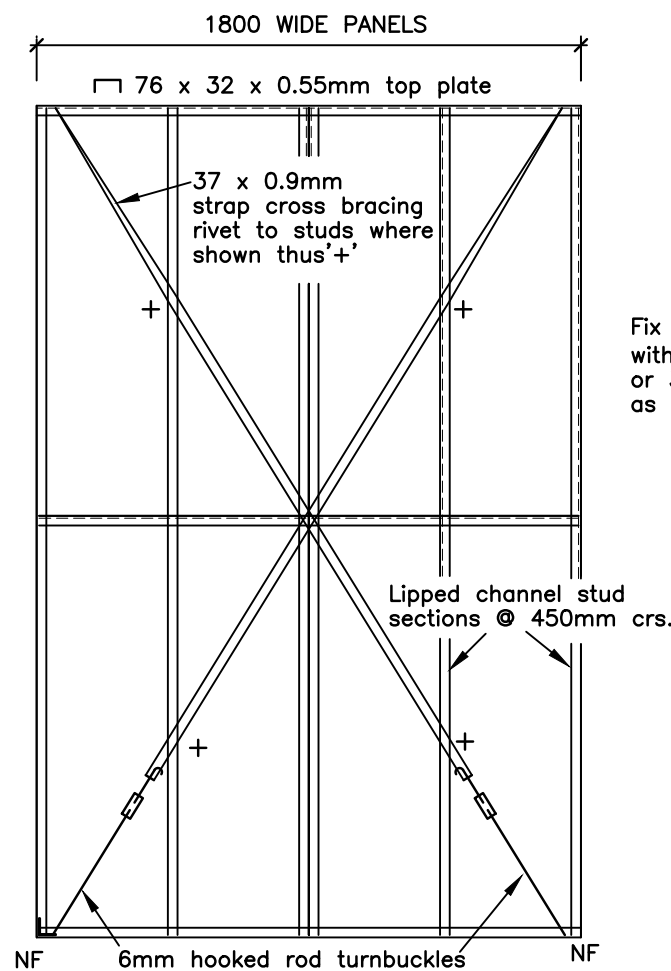
STEEL STUD WALL FRAMING

DRAWING NUMBER

106535-1

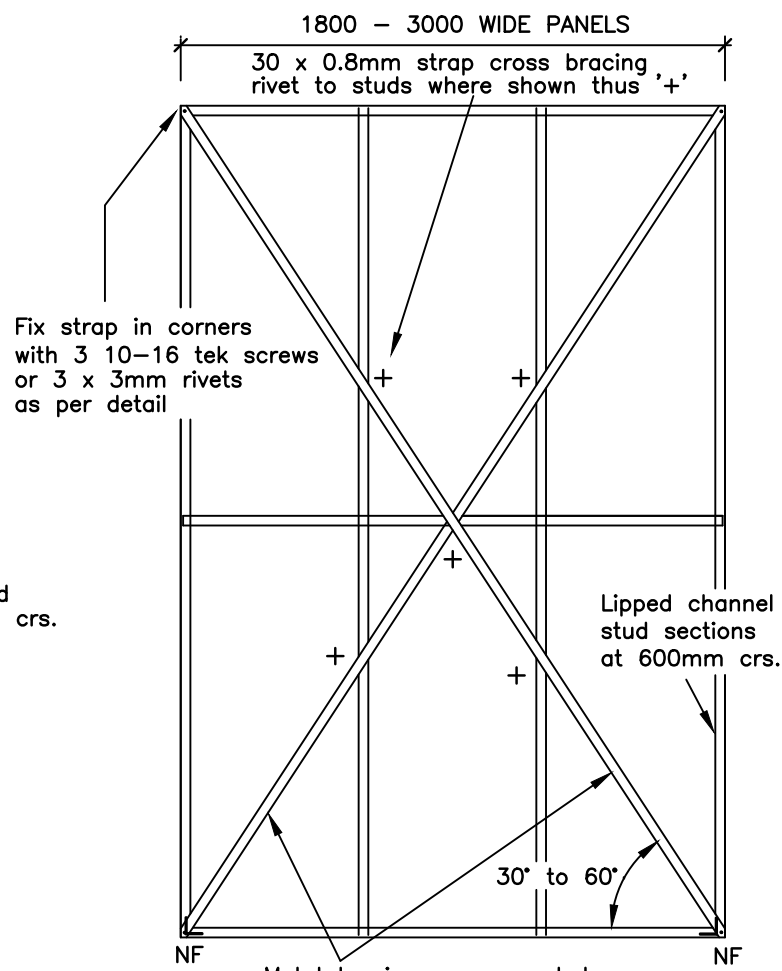
ISSUE

B



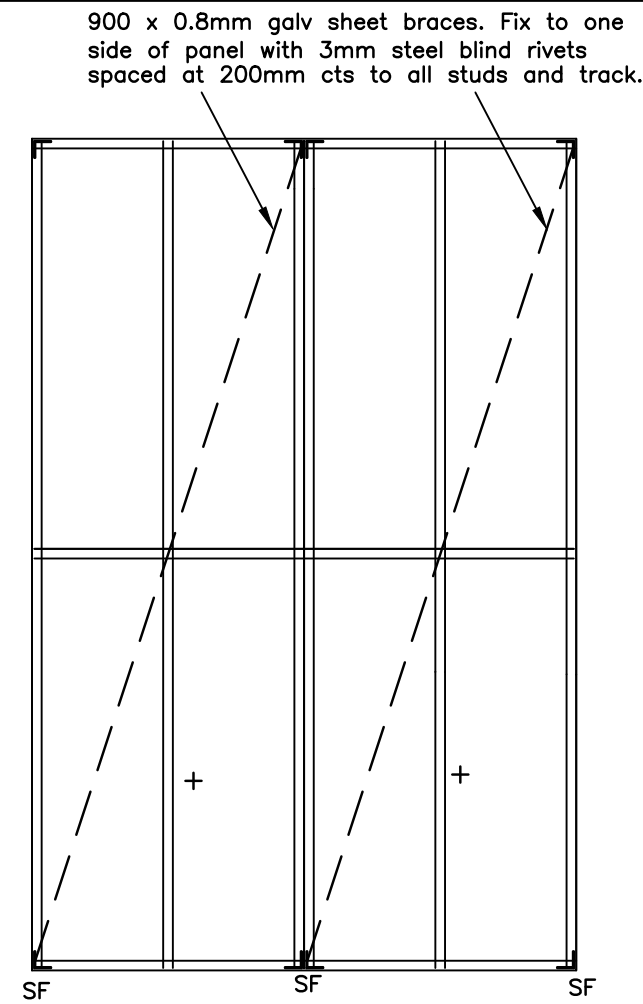
Use 75 x 75 x 1.5 brackets on all corners
Nominal fixing (NF) to floor and frame.
External wall shown, studs at 600mm for internal.

PAAL STANDARD BRACING PANEL



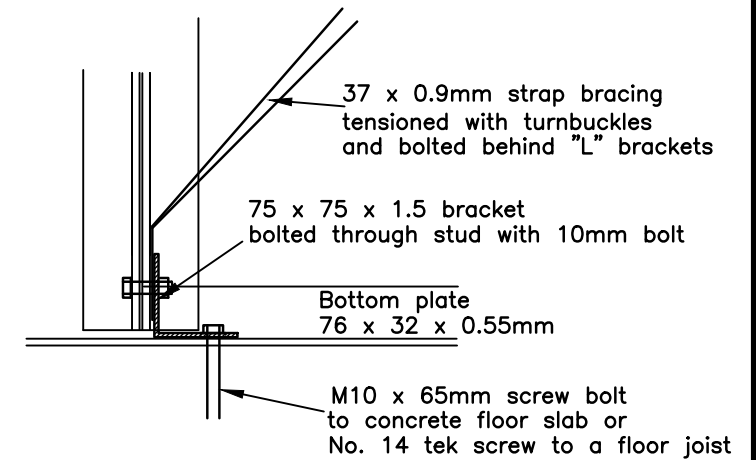
Metal tensioners as needed.
Use 75 x 75 x 1.5 brackets on all corners
Nominal fixing for single sided strapping
Structural fixing for double sided strapping
internal wall shown.

STRAP BRACED PANEL

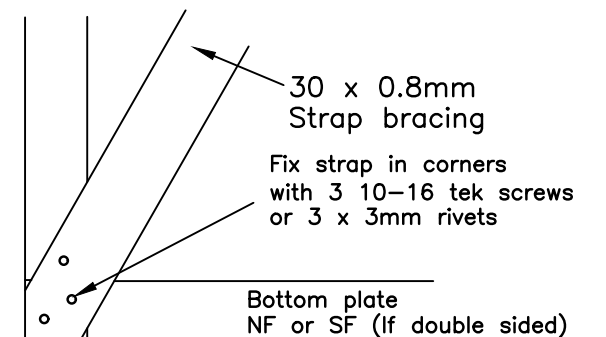


Use 75 x 75 x 1.5 brackets on top corners
Use 75 x 75 x 5 brackets at bottom
Structural fixing (SF) to floor as shown.

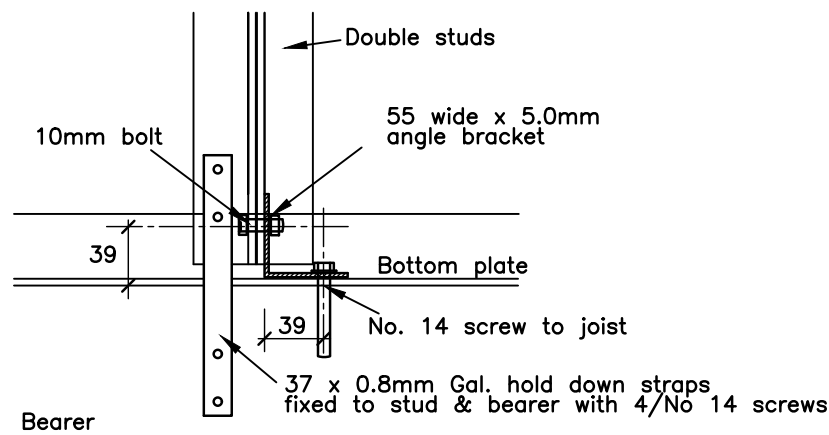
METAL SHEET BRACED PANEL



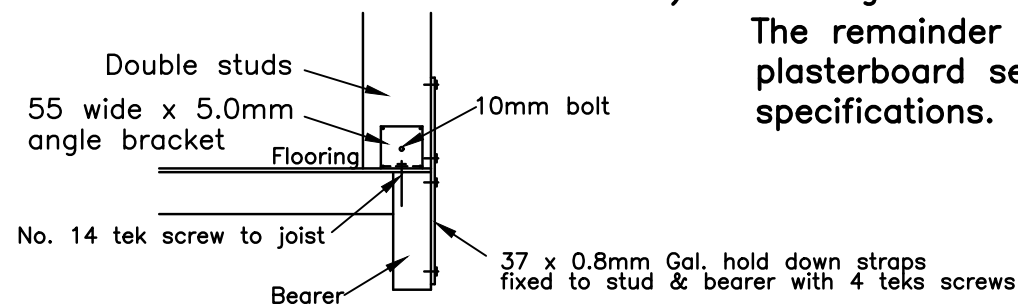
NF - NOMINAL HOLD DOWN



STRAP BRACED DETAIL



FLOOR HOLD DOWN (STRUCTURAL)



FLOOR HOLD DOWN (STRUCTURAL)

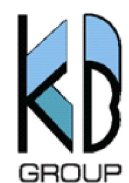
NOTES

- 1) Framing details to be in accordance with NCC 2022 Vol.2 H1D6(3) Requirements for wall bracing to be calculated in accordance with the requirements of AS4055 for the relevant wind area.
- 2) Bracing as detailed to constitute at least 40% of the raking forces. The remainder may be obtained by nominal bracing provided by plasterboard secured in accordance with the manufacturer's specifications.

BRACE TYPE	WIDTH	RESISTANCE	HOLD-DOWN
PAAL STANDARD	1.8m	2.75 kN/m	Nominal
SINGLE STRAP	1.8-3.6m	2.7 kN/m	Nominal @ 1800cc
DOUBLE STRAP	1.8-3.6m	5.4 kN/m	Structural @ 1800cc
0.9 SHEET BRACE	0.9m	4 kN	Structural
1.8 SHEET BRACE	1.8m	10 kN	Structural @ 900cc

REFER TO DRAWING 106535-3 FOR N4 & C2 AREAS FOR WALL FRAMING FIXING DETAILS

TIMBER/STEEL FRAMED FLOORS



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Peter R ANDRESEN BE, MIE Aust, CP Eng NER



SCALE NTS

DATE 27.04.23

DRAWN J Blaikie

DESIGNED TB Hall

APPROVED

CLIENT: **PAAL HOMES**

STEEL WALL & ROOF FRAMING

WALL FRAMING DETAILS

BRACING DETAILS FOR N1-N4, C2 wind areas

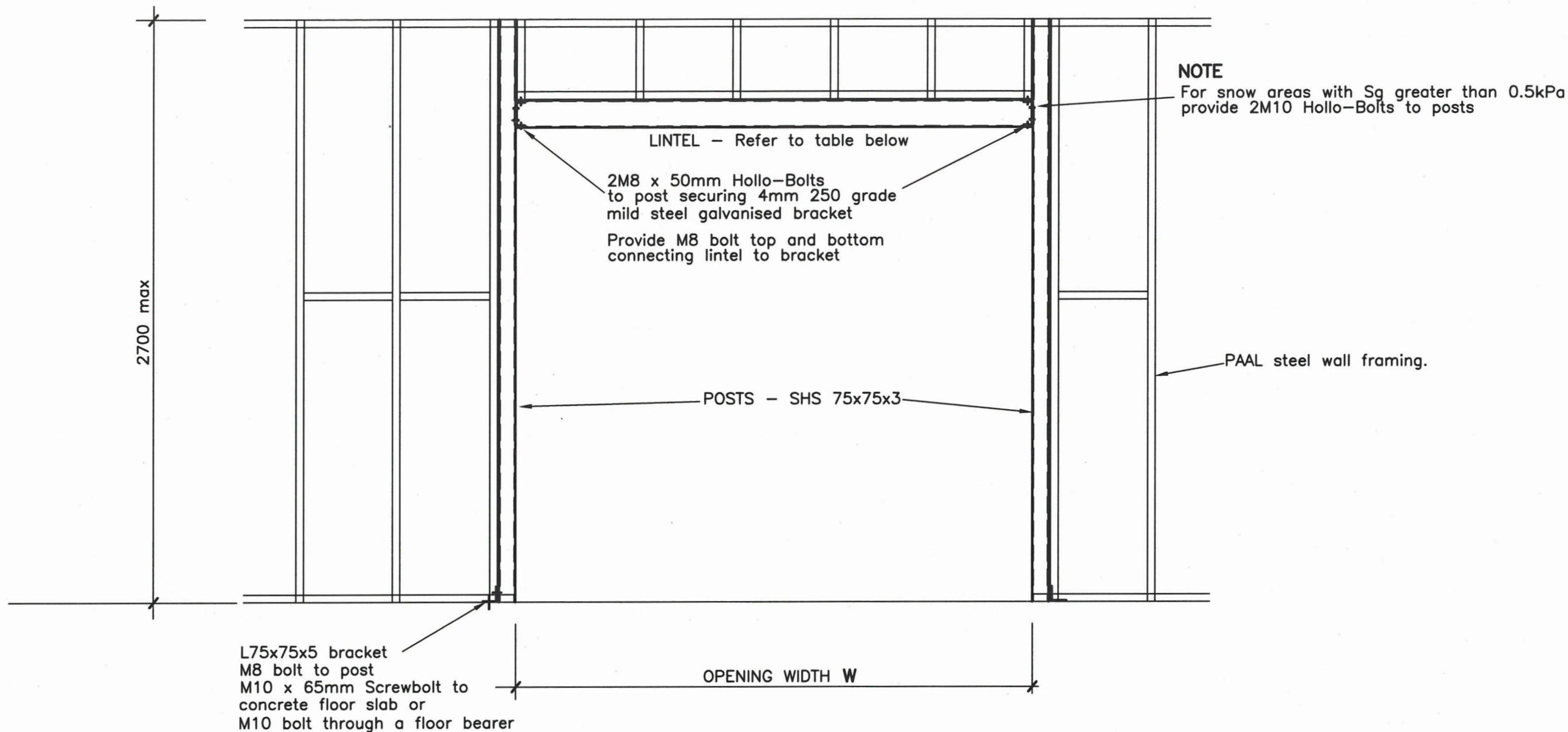
STEEL STUD WALL FRAMING

DRAWING NUMBER

106535-2

ISSUE

D



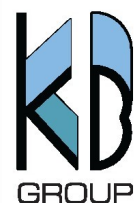
WIDTH W max	LINTEL SIZE	
	$S_g = 1.5 \text{ kPa max}$	$S_g = 2.6 \text{ kPa max}$
2400 mm	RHS 125x75x3	RHS 125x75x4
3000 mm	RHS 125x75x4	RHS 125x75x5
3600 mm	RHS 125x75x5	150 PFC

ALL BOLTS GRADE 8.8S

DESIGN LOADING

- METAL CLAD ROOFS maximum truss span = 9.0m
- WIND AREAS – N1 to N4 & C2 AREAS IN ACCORDANCE WITH AS 4055
- SNOW LOADS S_g – Ground Snow loading as specified by AS1170.3.2003
Design based on a minimum roof pitch of 20°

ISSUE A – 6.10.22 – Design includes snow loads S_g up to 2.6 kPa



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Peter R ANDRESEN BE, MIE Aust, CP Eng NER



SCALE 1:20 @ A3 sheet
DATE 25.3.2020
DRAWN TBH
DESIGNED TBH
APPROVED *[Signature]*

PAAL HOMES Phone 02 4735 4377

LINTELS OVER EXTERNAL WALL OPENINGS
N1 to N4 & C2 WIND AREAS – AS 4055

STRUCTURAL DETAILS

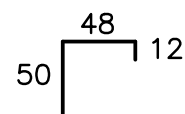
DRAWING NUMBER

106662-1

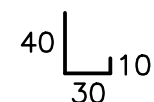
ISSUE

A

TOP CHORD

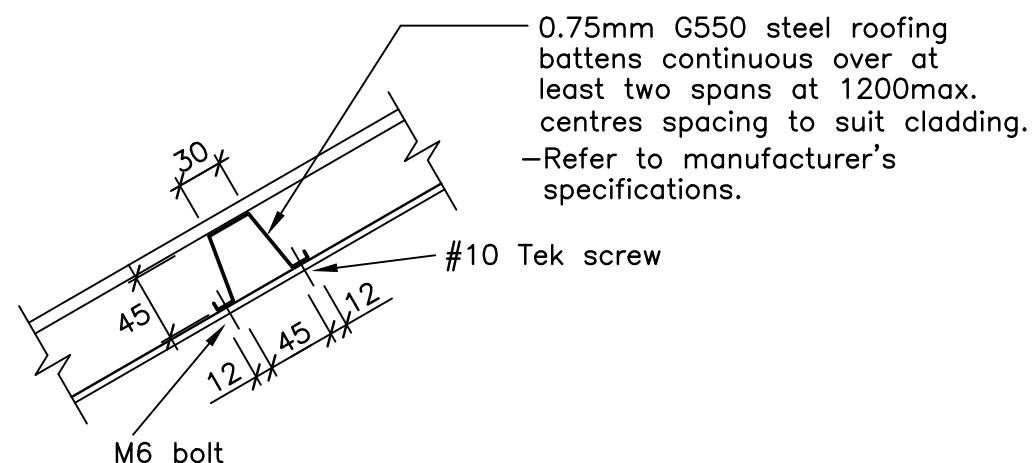


All material thickness 1.9mm
G450 steel.

BOTTOM CHORD &
WEB SECTIONS

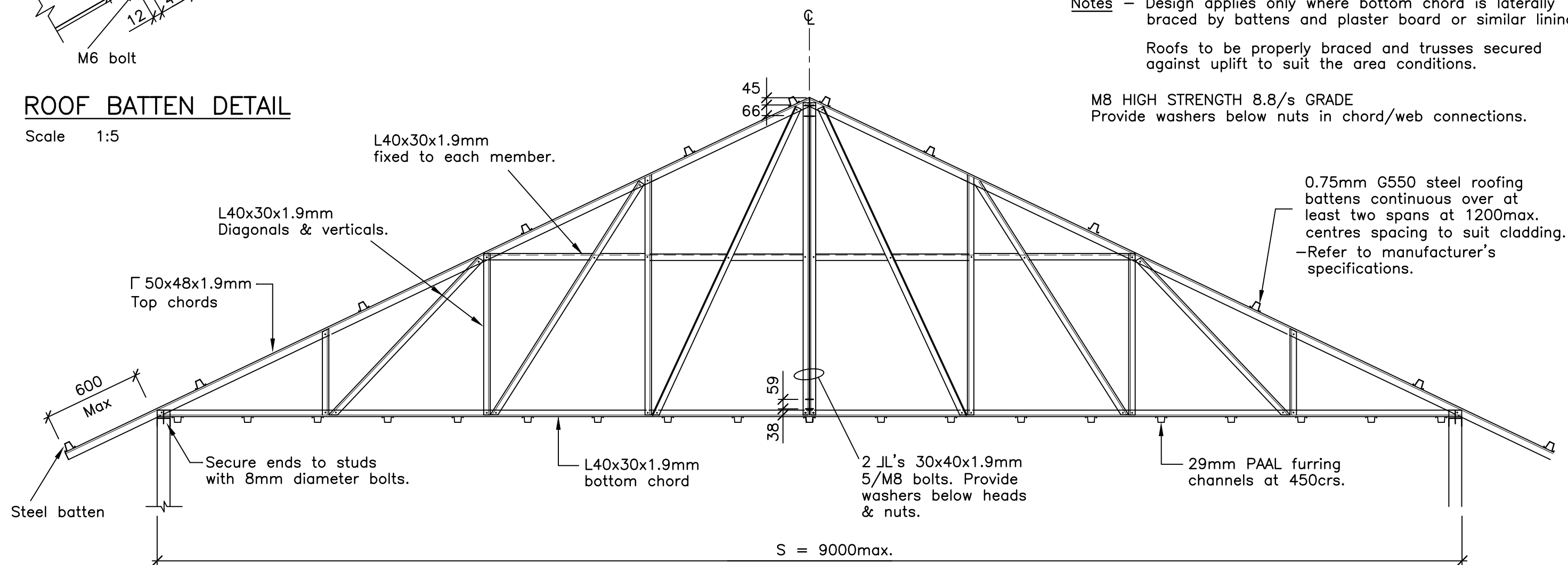
TRUSS SPACING 30° ROOF PITCH

ROOF COVERING	WIND LOAD AS4055	GROUND SNOW LOAD S_g AS/NZS 1170.3	TRUSS SPACING mm	
			SPAN 'S' = 8.1m max.	'S' = 9.0m max
METAL	N1-N3	Zero	1800	1800
METAL	N1-N3	0.1 – 1.5kPa	1800	900
METAL	N1-N4	1.6 – 2.6kPa	900	900
METAL	N4, C2	Zero	900	900



ROOF BATTEN DETAIL

Scale 1:5



Notes – Design applies only where bottom chord is laterally braced by battens and plaster board or similar lining.

Roofs to be properly braced and trusses secured against uplift to suit the area conditions.

M8 HIGH STRENGTH 8.8/s GRADE
Provide washers below nuts in chord/web connections.

0.75mm G550 steel roofing battens continuous over at least two spans at 1200max. centres spacing to suit cladding.
—Refer to manufacturer's specifications.

TRUSS DETAIL



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Peter R ANDRESEN BE, MIE Aust, CP Eng NER

Member of:



SCALE	NTS
DATE	26.7.24
DRAWN	C Liu
DESIGNED	TB Hall
APPROVED	

CLIENT: PAAL HOMES

STANDARD STEEL WALL & ROOF FRAMING

STEEL ROOF TRUSSES

9000mm max. span – 20° to 30° roof pitch

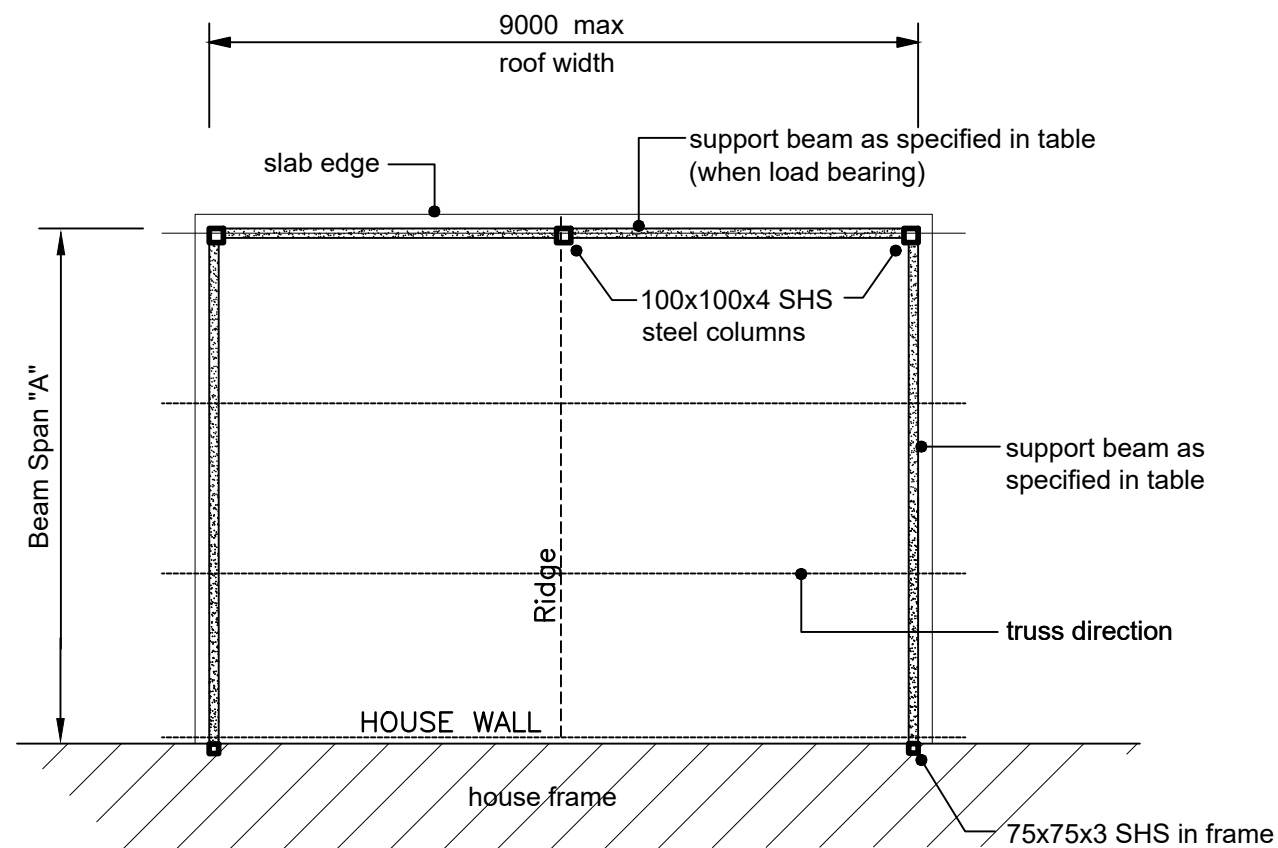
MAIN TRUSS DETAIL N1-N4, C2

DRAWING NUMBER

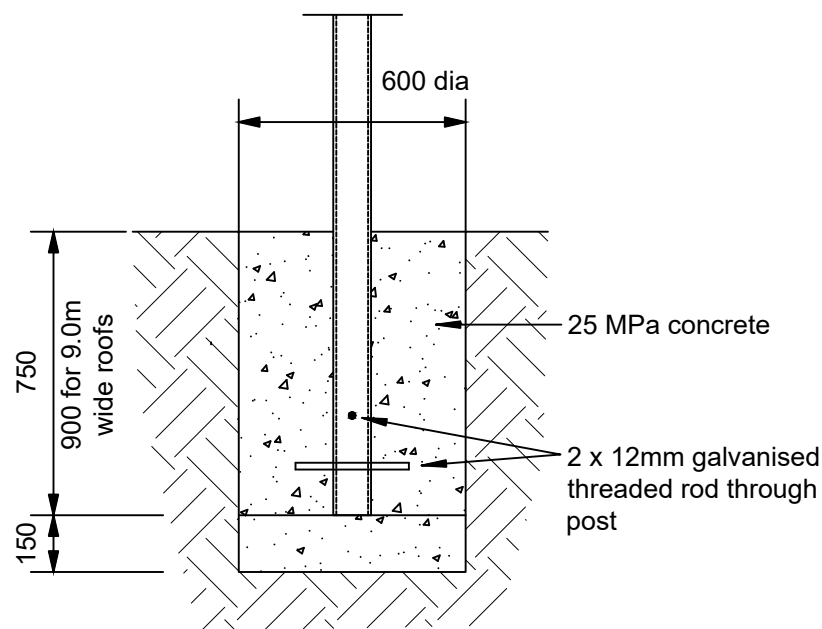
106535-10

ISSUE

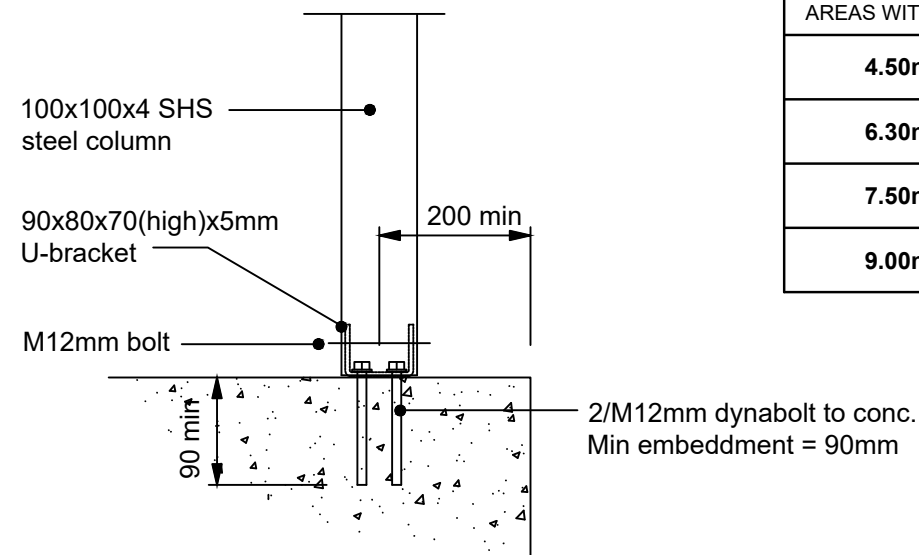
B



PLAN— ALFRESCO AWNING



Column detail - embedded



Column detail - surface fixed

ALFRESCO BEAM SIZES

up to N3	SUPPORT BEAM SPAN			
ROOF WIDTH (max.)	Beam Span "A" max			
	3.6m	4.5m	5.4m	6.3m
AREAS WITH NO SNOW LOADING				
4.50m	125x75x3 RHS	125x75x3 RHS	150 PFC	150 PFC
6.30m	125x75x3 RHS	125x75x3 RHS	150 PFC	150 PFC
7.50m	125x75x3 RHS	150 PFC	150 PFC	180 PFC
9.00m	125x75x3 RHS	150 PFC	150 PFC	180 PFC
AREAS WITH GROUND SNOW LOADING $S_g = 0$ to 1.5 kPa				
4.50m	125x75x3 RHS	125x75x5 RHS	150 PFC	180 PFC
6.30m	125x75x3 RHS	150 PFC	150 PFC	180 PFC
7.50m	125x75x5 RHS	150 PFC	180 PFC	200 PFC
9.00m	125x75x5 RHS	150 PFC	180 PFC	200 PFC
AREAS WITH GROUND SNOW LOADING $S_g = 1.6$ to 2.8 kPa				
4.50m	125x75x5 RHS	150 PFC	180 PFC	200 PFC
6.30m	150 PFC	150 PFC	180 PFC	230 PFC
7.50m	150 PFC	180 PFC	200 PFC	230 PFC
9.00m	150 PFC	180 PFC	200 PFC	230 PFC

Design suitable for a metal clad roof with a lined ceiling in N1 to N3 wind areas in accordance with AS4055:2021.

READ IN CONJUNCTION WITH PAAL HOMES DETAILS

Queensland Registration : Trevor B Hall RPEQ 5081



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SCALE NTS
DATE 27.3.23
DRAWN J.Blaikie
DESIGNED T.B.Hall
APPROVED *T.B.Hall*

CLIENT: PAAL HOMES PTY LTD

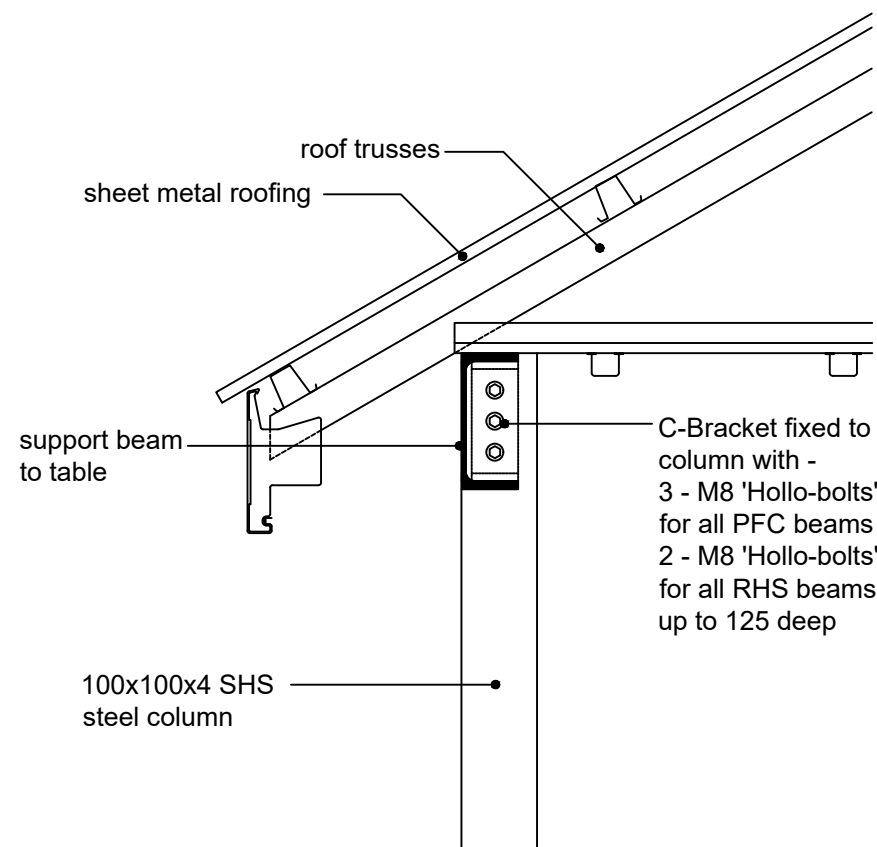
**STEEL FRAMING DETAILS
ROOF WIDTH to 9.0m maximum
FOR N1 to N3 wind areas**

STEEL ALFRESCO/CARPORT DETAIL

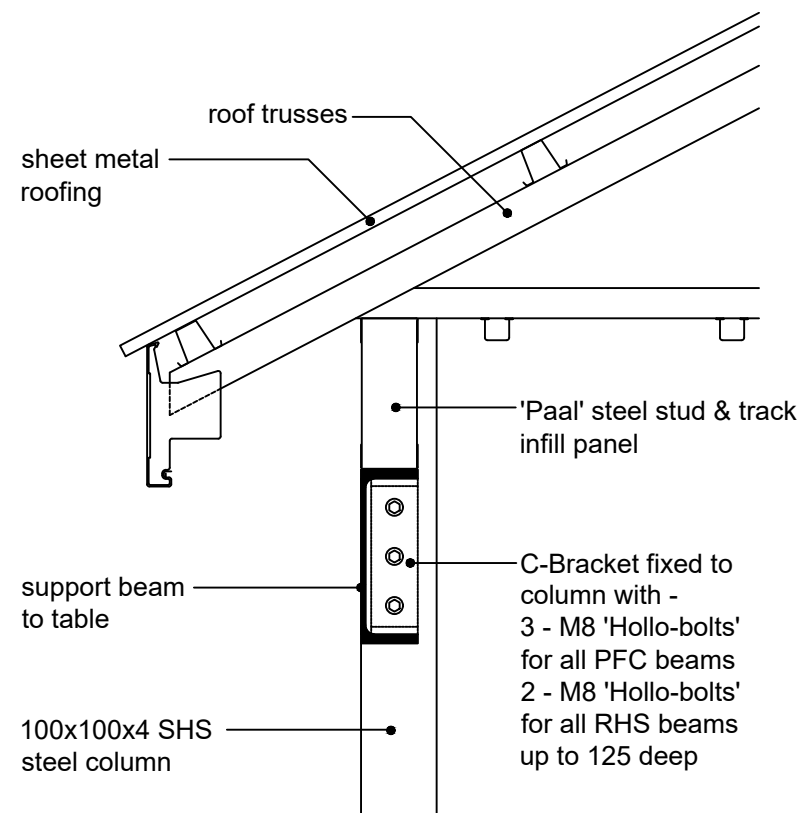
DRAWING NUMBER

106535-21

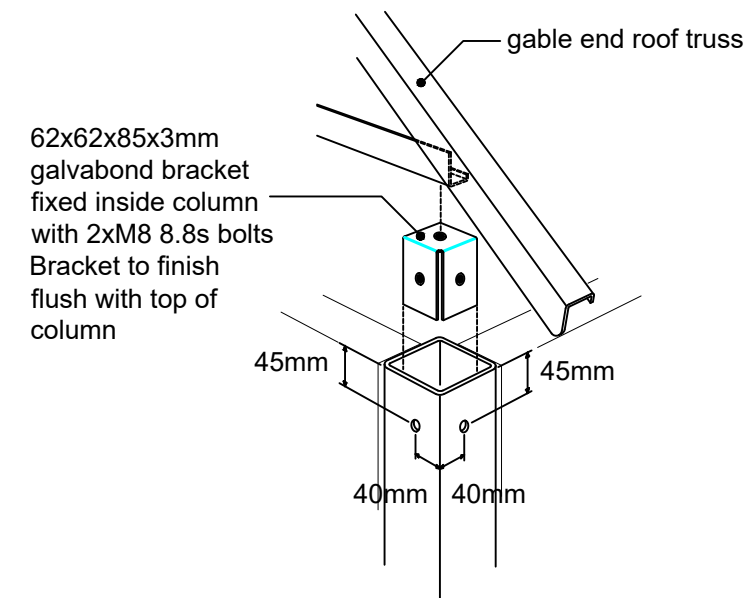
ISSUE



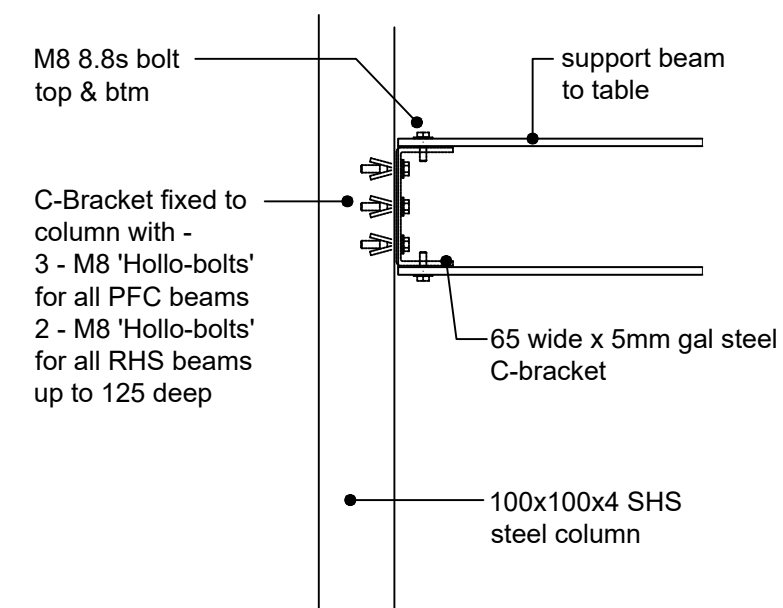
Eave beam detail - Beam only



Eave beam detail - With infill panel



Gable end truss fixing over column
(where applicable)



Beam fixing detail

Design suitable for a metal clad roof with a lined ceiling
in N1- N3 & C2 wind areas in accordance with AS4055:2021.

Queensland Registration: Trevor B. Hall RPEQ5081



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Member of:



SCALE	NTS
DATE	27.3.23
DRAWN	TBH
DESIGNED	T.B.Hall
APPROVED	<i>T.B.Hall</i>

CLIENT: PAAL HOMES PTY LTD

STEEL FRAMING DETAILS
ALFRESCO ROOF WIDTH 4.5m to 9.0m
FOR N1 to N4 & C2 wind areas

STEEL ALFRESCO/CARPORT DETAILS

DRAWING NUMBER

106535-22

ISSUE

AREAS WITH SNOW LOADING N1–N3 WIND AREAS GROUND SNOW LOADING $S_g=1.6$ to 2.8 kPa			
VERANDAH WIDTH	RAFTERS SIZE	HIP RAFTERS SIZE	RAFTERS SPACING
1500–1650	C10012	C10012	900
1700–2400	C10019	C10019	900
2450–2750	RHS100x50x3	RHS100x50x3	900

AREAS WITH SNOW LOADING N1–N3 WIND AREAS GROUND SNOW LOADING $S_g=0$ to 1.5 kPa				
VERANDAH WIDTH	RAFTERS SIZE	HIP RAFTERS SIZE	RAFTERS SPACING SNOW LOADING	
			$S_g= 0$ to 0.75 kPa	$S_g= 0.76$ to 1.50 kPa
1500–1650	C10010	C10010	1800	900
1700–2400	C10012	C10012	1800	900
2450–3000	C10019	C10019	1800	900

AREAS WITH NO SNOW LOADING				
VERANDAH WIDTH	RAFTERS SIZE	HIP RAFTERS SIZE	RAFTERS SPACING WIND AREA	
			N1 – N3	N4, C2
1500–1650	C10010	C10010	1800	900
1700–2400	C10010	C10012	1800	900
2450–3000	C10019	C10019	1800	900
3050–3600	C10019	RHS 100x50x3 for N1 – N3 wind areas 100PFC for N4–C2 areas	1800	900

FRAMING DESIGNED TO SUPPORT METAL CLAD ROOFS WITH CEILING LINING
IN ACCORDANCE WITH THE REQUIREMENTS OF AS 4055 & AS/NZS 1170.2 & 3

DESIGN ENGINEER Trevor B.Hall BSc (Eng), FIE Aust, CP Eng NER RPEQ 5081



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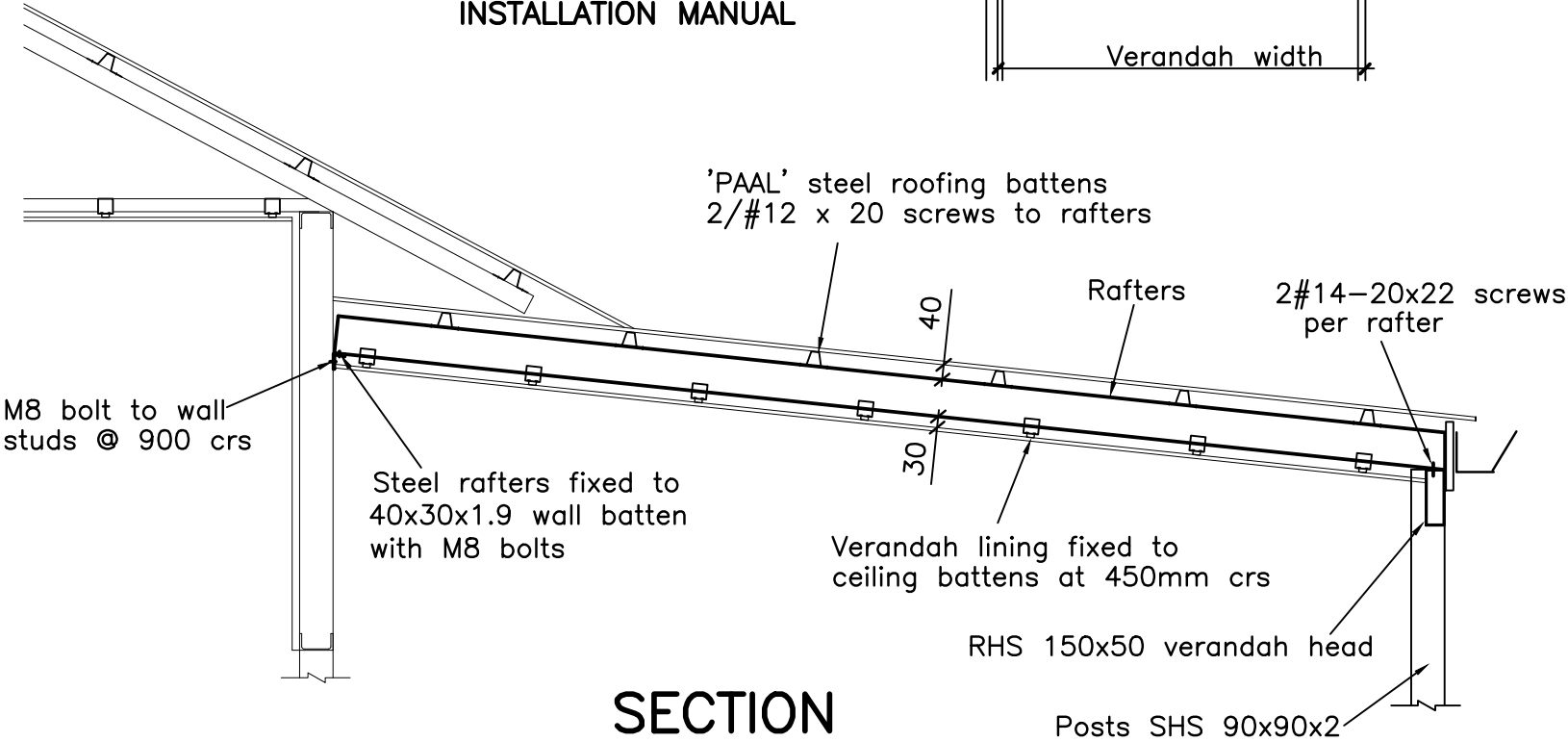
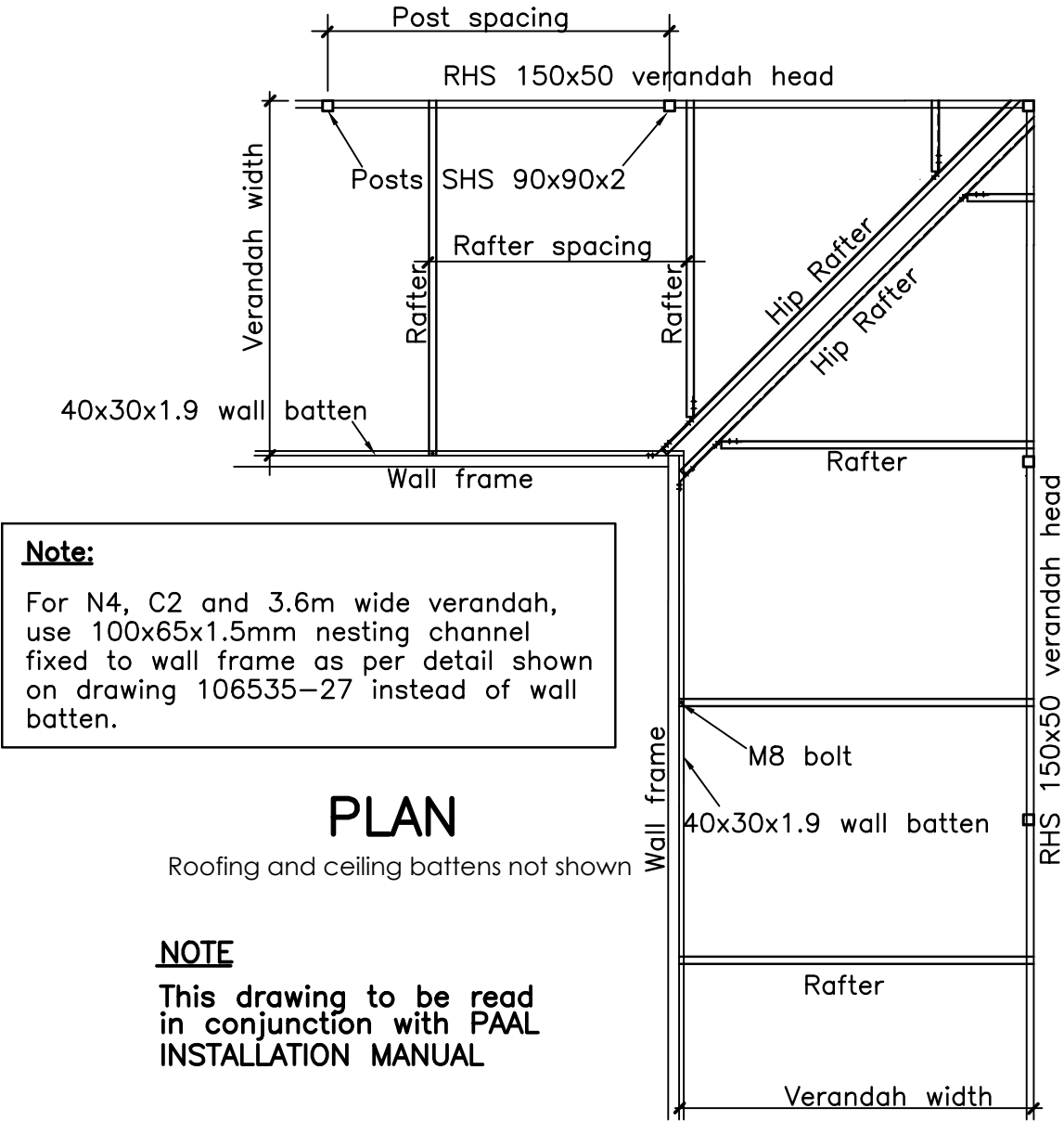
Directors:
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Peter R ANDRESEN BE, MIE Aust, CP Eng NER

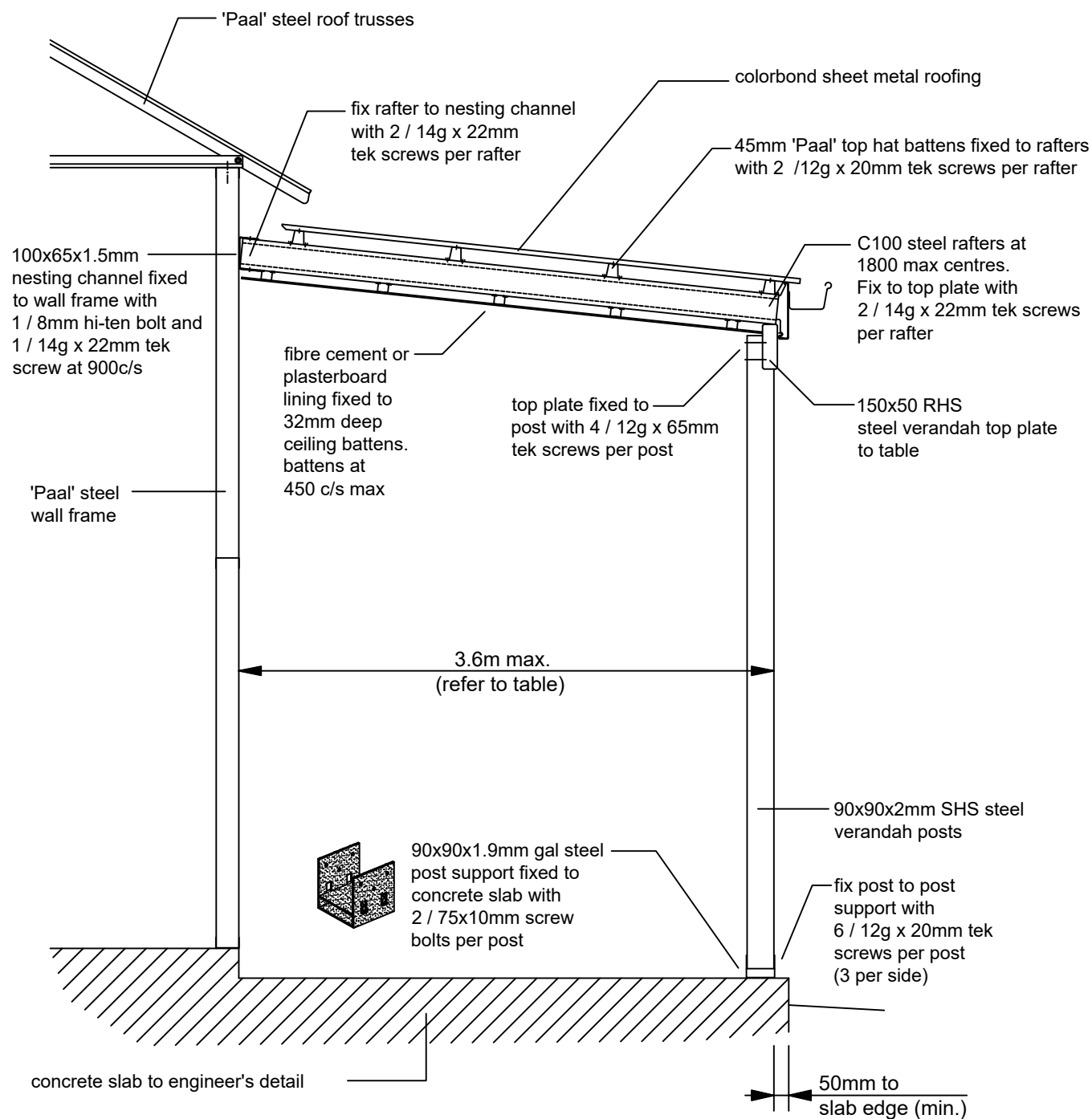
A.C.N 002 419 767
A.B.N 36 822 442 203



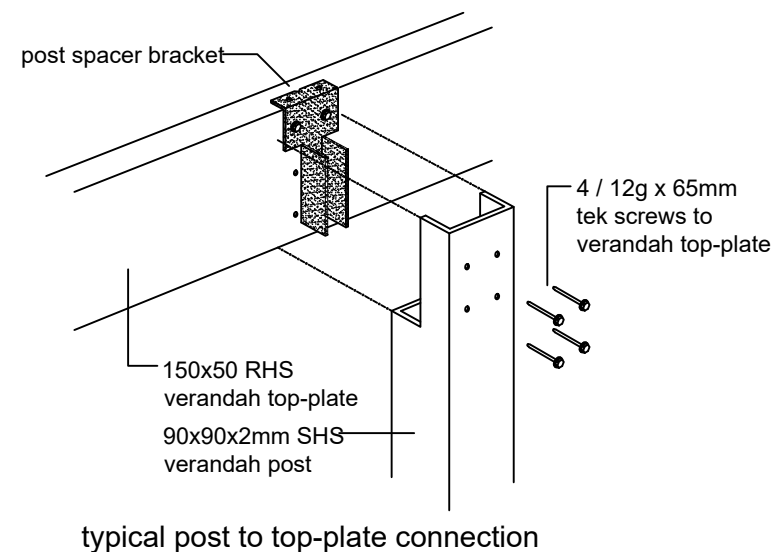
SCALE	1:20 , 1:50
DATE	30.3.23
DRAWN	TBH
DESIGNED	TB Hall
APPROVED	<i>[Signature]</i>

PAAL KIT HOMES PTY LTD 113–115 RUSSELL ST EMU PLAINS NSW Ph 02 4736 4377 STEEL FRAMING FOR DWELLINGS VERANDAH ROOF FRAMING – 3.6m MAXIMUM WIDTH	DRAWING NUMBER
	106535–24
	ISSUE

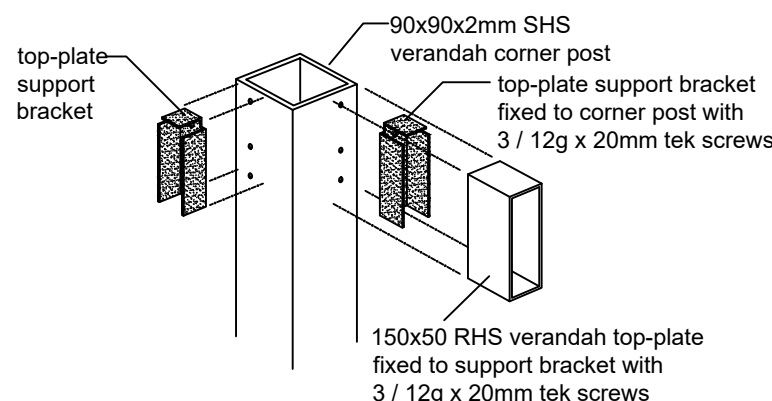




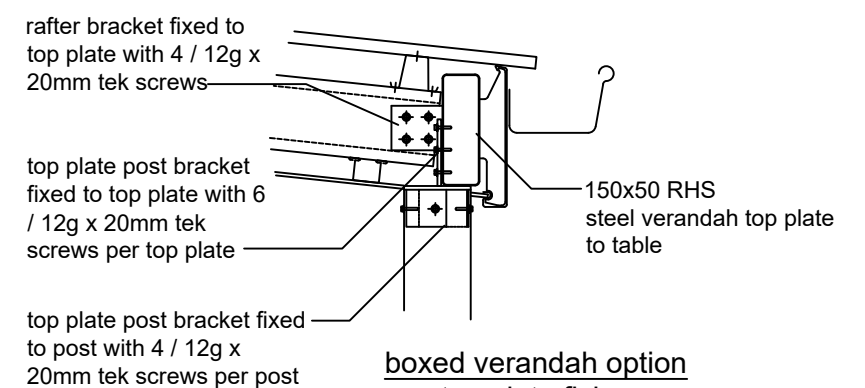
verandah section
'un-boxed' verandah top plate



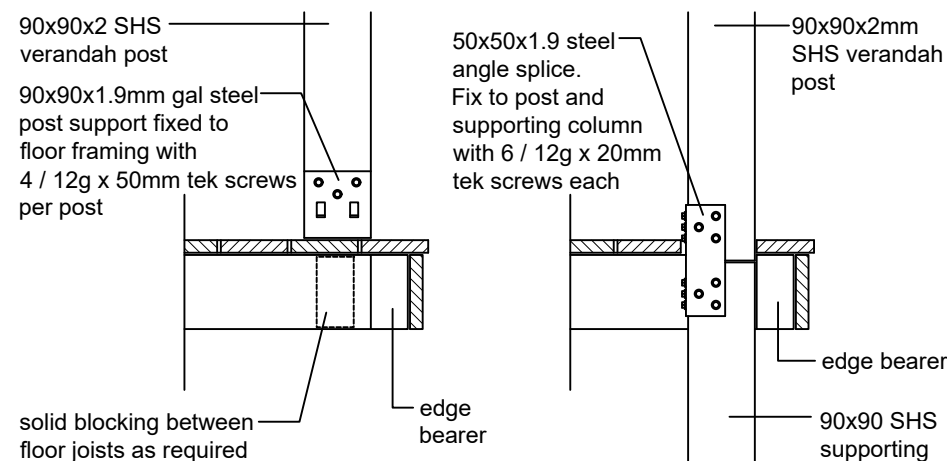
typical post to top-plate connection



corner post to top-plate connection



boxed verandah option
top plate fixing



fixing to framed floor

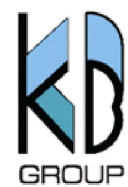
fixing to sub-floor
90x90 support pier

VERANDAH TOP PLATE SPAN			up to N3
VERANDAH WIDTH	150x50x2mm MAX. POST SPACING	150x50x3mm MAX. POST SPACING	
AREAS WITH NO SNOW LOADING			
up to 2400mm	3600	6000	
2450 - 3600mm	3000	4000	
AREAS WITH GROUND SNOW LOADING $S_g = 0$ to 1.5 kPa			
up to 2400mm	3300	4500	
2450 - 3600mm	2500	3000	
AREAS WITH GROUND SNOW LOADING $S_g = 1.6$ to 2.8 kPa			
up to 2400mm	1800	2400	
2450 - 3600mm	1200	1500	

VERANDAH TOP PLATE SPAN			N4 C2
VERANDAH WIDTH	150x50x2mm MAX. POST SPACING	150x50x3mm MAX. POST SPACING	
AREAS WITH NO SNOW LOADING			
up to 2400mm	2700	4000	
2450 - 3600mm	2000	2700	
AREAS WITH GROUND SNOW LOADING $S_g = 0$ to 1.5 kPa			
up to 2400mm	2700	4000	
2450 - 3600mm	2000	2700	
AREAS WITH GROUND SNOW LOADING $S_g = 1.6$ to 2.8 kPa			
up to 2400mm	1800	2400	
2450 - 3600mm	1200	1500	

NOTE - REFER TO ENGINEERS DETAIL 106535-24 FOR RAFTER SIZE AND SPACING

DESIGN ENGINEER Trevor B.Hall BSc (Eng), FIE Aust, CP Eng NER RPEQ 5081



KNEEBONE, BERETTA & HALL PTY LTD

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A.C.N 002 419 767
A.B.N 36 822 442 203



SCALE 1:20 , 1:50

DATE 30.3.23

DRAWN TBH

DESIGNED TB Hall

APPROVED *Trevor B Hall*

PAAL KIT HOMES PTY LTD

113-115 RUSSELL ST EMU PLAINS NSW Ph 02 4736 4377

STEEL FRAMING FOR DWELLINGS

VERANDAH ROOF FRAMING - 3.6m MAXIMUM WIDTH

DETAILS FOR N1 - N4, C2 WIND AREAS

DRAWING NUMBER

106535-27

ISSUE