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Approved Building Consent Documents

Please Note: A copy of the stamped approved documents must be available on site for all inspections.

Inspection booking timeframes

Call received	before 3pm inspection will be done	after 3pm inspection will be done
Monday	Wednesday	Thursday
Tuesday	Thursday	Friday
Wednesday	Friday	Monday
Thursday	Monday	Tuesday
Friday	Tuesday	Wednesday

Building inspections and enquiries phone: 03 347 2839

Please ensure all work for inspection is ready the day before. Incomplete work requiring re-inspection will incur an additional inspection fee.

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Layout ID	Layout Name
dwg 01	Site Plan
dwg 02	Floor Plan
dwg 03	Elevations
dwg 04	Foundation Plan
dwg 05	Wall Setout Plan
dwg 06	Door/Window Schedule
dwg 07	Roof Plan
dwg 08	Electrical Plan
dwg 09	Bracing Plan
dwg 10	Drainage Plan
dwg 11	Cross Sections and Notes
dwg 12	Details Ribraft/Floor
dwg 13	Details Brick
dwg 14	Details Roofing
dwg 15	Details Roofing
dwg 16	Wet area Details
dwg 17	Hot Water Supply
dwg 18	Landscaping Plan

ecad
Design & Draughting
85 Lombard Street, PO Box 652, Palmerston North
P: 06 353 0217 E: office@emerge-arch.co.nz

Proposed New Residence

Jaspreet Singh & Inderjeet Kaur

Lot 33 - DP 535457

Branthwaite Drive, Branthwaite
Rolleston

generation HOMES
19 Holmes Hanover Lane, Halswell. P.O. Box 37163, Halswell, Christchurch
E: evanb@generation.co.nz E: nadjab@generation.co.nz
M: 021 840 088 M: 021 216 2198

Job no: EC691

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Planning Approved

22/11/2019 brownn

10.000 Datum — Datum to be confirmed on site by Generation Homes Construction Manager

BRANTHWAITE DRIVE

Boundary 25.46m
Selwyn District Council 49° height recession plane

10.115 Site Level

10.000 Site Level

9.895 Site Level

Boundary 5.72m

4m Setback to principal building

2m Setback

7.757

Site to be excavated as required to gain appropriate building platform height and compacted backfill placed to suit areas needing filling.

9.47 m²

10.105 Site Level

10.220 Site Level

4.68 m²

4m Setback to principal building

9.975 Site Level

Boundary 18.59m
Selwyn District Council 33° height recession plane

5,092

Boundary 22.58m
Selwyn District Council 53° height recession plane

PROPOSED RESIDENCE

10.370 Slab Level

225mm min above cleared ground level. final level to be determined on site with Generation Homes Site Manager

5,809

5.5m Setback to garage door

29.64 m²

new proposed vehicle crossing

STREET

10.240 Site Level

2m Setback

10.150 Site Level

10.055 Site Level

5.47 m²

0.50 m²

2,010

Selwyn District Council 39° height recession plane
Boundary 29.92m

SPECIFIC PROJECT NOTES

LEGAL DESCRIPTION:

LOT	**33**
DP	**535457**
SITE AREA	**662.64 sqm**
STREET #	**Branthwaite Drive**

AREAS:

SITE AREA	**662.64 sqm**
AREA OVER CLADDING	**170.52 sq m**
AREA OVER FRAMING	**161.99 sq m**
SITE COVERAGE ACHIEVED	**25.73 %**
SITE COVERAGE ALLOWABLE	**40 %**

ZONES:

WIND	**A (High)**
EARTHQUAKE	**2**
CORROSION	**B**
SNOW LOADING	**N4**
ENVIRONMENTAL ZONE	**Living Z**
GROUND CATEGORY	**TC1**

ALL SITE BOUNDARIES AND BEARINGS TO BE CONFIRMED AGAINST TITLE OR AS BUILTS WHEN AVAILABLE

Stabilised construction entranceway
A stabilised construction entranceway should be built using crushed rock aggregate before construction vehicles enter the site to prevent tracking of dirt onto the road and into the stormwater network. Minimum 3m wide and 100mm deep.

Temporary downpipes and surface drains
Temporary downpipes should be fitted as soon as the roof is installed and directed to the clean water system to further reduce nuisance.

Install private stormwater reticulation
Install private stormwater reticulation to enable clean stormwater to be discharged to the council stormwater network or soak holes.

NOTE:
Ensure Sediment control onsite by way of restricting run off of soil from building site. Ensure stockpiling of soil away from site falls or street and if needed block flow of sediment movement by sandbagging or similar action.

BUILDING CONSENT ISSUE 21/11/2019

Site Plan

Jaspreet Singh & Inderjeet Kaur
Lot 33, DP 535457, Rolleston

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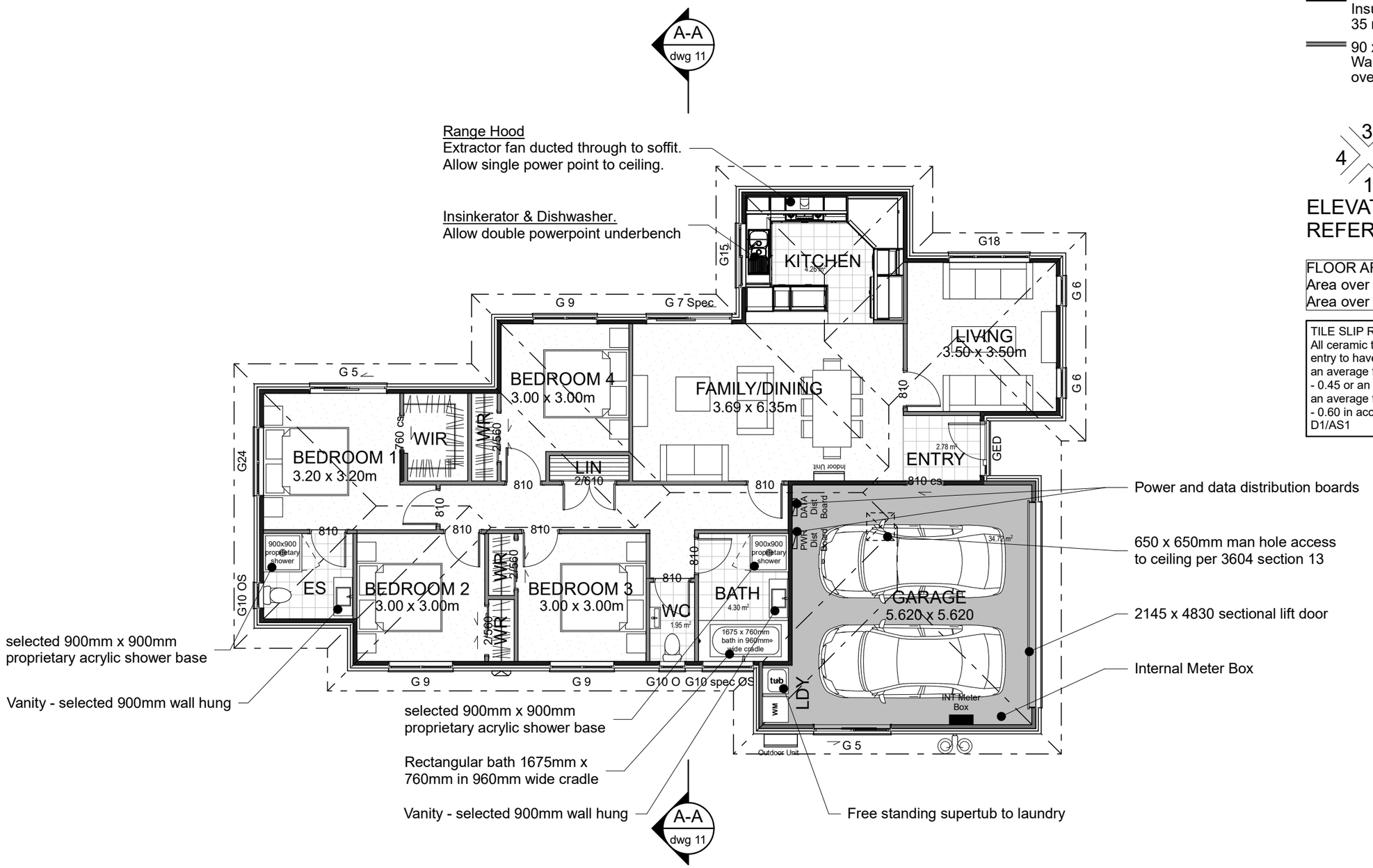

FLOOR PLAN LEGEND

90 x 45 SG8 R2.6 Pink Batts Insulated exterior Wall with 140 x 35 ribbon board over top plate

90 x 45 SG8 Un-Insulated interior Wall with 190 x 35 ribbon board over top plate

3
4 2
1

ELEVATIONS REFERENCE

FLOOR AREAS
Area over Cladding - 170.49 sq m
Area over Framing - 162.14 sq m

TILE SLIP RESISTANCE
All ceramic tiles to wet areas including entry to have a glazed profile finish to an average friction co-efficient of 0.10 - 0.45 or an unglazed smooth finish to an average friction co-efficient of 0.10 - 0.60 in accordance with TABLE 2 D1/AS1

NZBC F5 - CONSTRUCTION AND DEMOLITION HAZARD COMPLIANCE
Acceptable Solution F5/AS1 states no site barrier requirement for domestic dwellings up to 2 storeys above ground unless specific hazards exist.
GENERATION HOMES SITE SAFETY MANAGEMENT
All Generation Homes construction sites will provide a 2.0m high galvanised security chainlink netting fencing with maximum grid size of 50 x 50mm with posts at 2m spacings to all open unfenced boundary lines, including existing fencing under 1.8m high, to restrict pedestrian access and unauthorised entry by children. A securable chainlink gate will be present for access of contractors, vehicles and staff ONLY. It is expected that Generation Homes construction sites will be in close proximity to other demolition and construction sites with similar security standards or to neighbouring properties. It is also expected that the site be kept clean of rubbish and minimal damage done to the existing ground to form any ponding areas. Where ponding takes place; water run-off and absorption into the earthworks/ground would be planned by building up the site as required.

Temporary downpipes and surface drains
Temporary downpipes should be fitted as soon as the roof is installed and directed to the clean water system to further reduce nuisance.

Stabilised construction entranceway
A stabilised construction entranceway should be built using crushed rock aggregate before construction vehicles enter the site to prevent tracking of dirt onto the road and into the stormwater network. Minimum 3m wide and 100mm deep.

Install private stormwater reticulation
Install private stormwater reticulation to enable clean stormwater to be discharged to the council stormwater network or soak holes.

CONSTRUCTION & DEMOLITIONS NOTE:
All construction hazards shall be managed by the main contractor "GH CHRISTCHURCH SOUTH LTD" with their Site safety System "CSM". (Complete Safety Management) This approved system consists of Site Safety Induction, Hazard Identification, Task Analysis then moves on to Isolate, Eliminate or Minimise *it* solutions. This management system is administered and audited independently from the maincontractor. There are no demolition works within this project.

BUILDING CONSENT ISSUE **21/11/2019**

Floor Plan

Jaspreet Singh & Inderjeet Kaur

Lot 33, DP 535457, Rolleston

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Elevation 1

scale 1:100

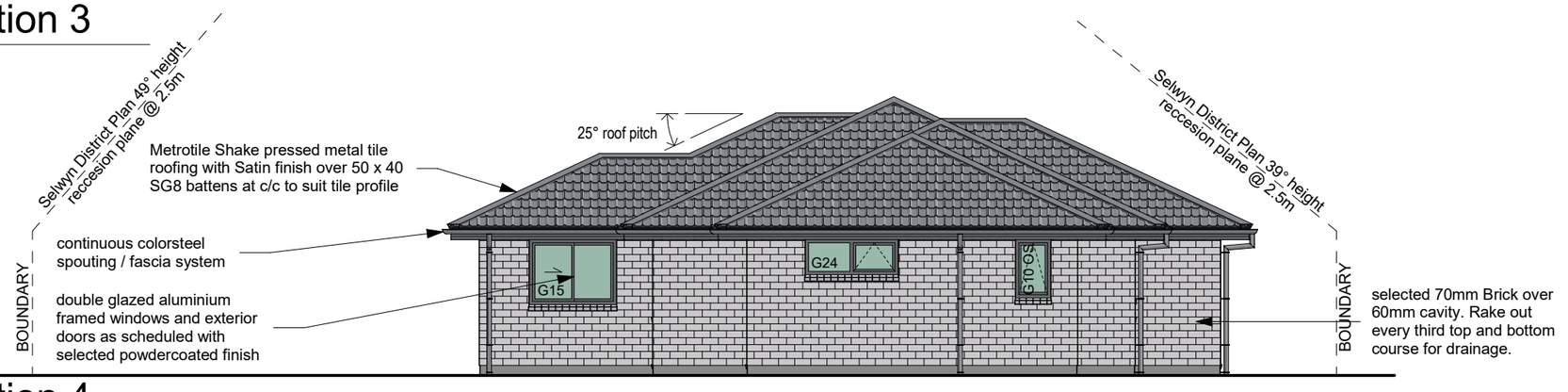
Elevation 2

scale 1:100

BUILDING ENVELOPE RISK MATRIX		
All Elevations (Worst Case)		
Risk Factor	**Risk Severity**	**Risk Score**
Wind zone (per NZS 3604)	High risk	1
Number of storeys	Low risk	0
Roof/wall intersection design	Low risk	0
Eaves width	Medium risk	1
Envelope complexity	Low risk	0
Deck design	Low risk	0
Total Risk Score:		**2**

Elevation 3

scale 1:100



Elevation 4

scale 1:100

BUILDING CONSENT ISSUE 21/11/2019

Elevations

Jaspreet Singh & Inderjeet Kaur

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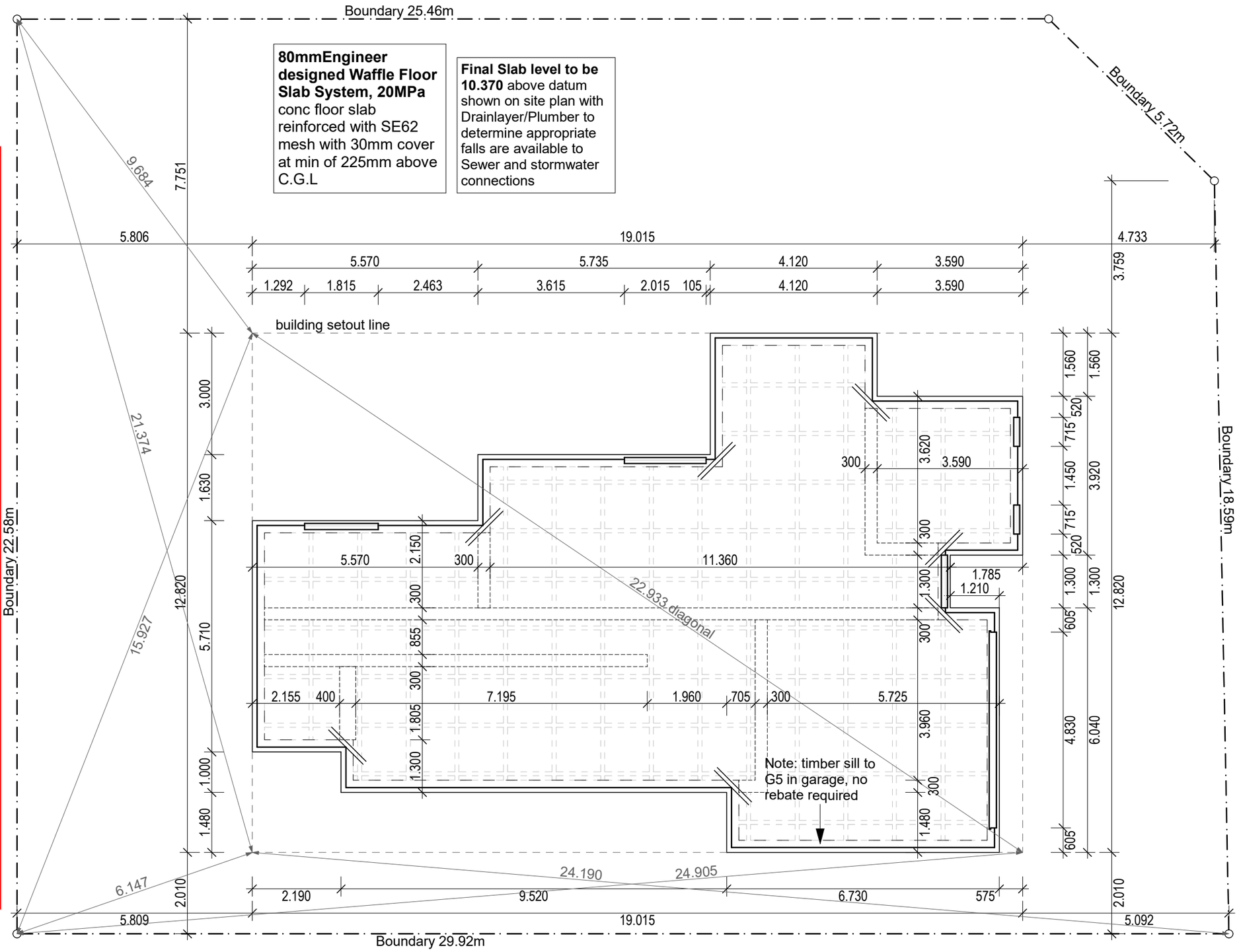
BRANTHWAITE DRIVE



FOUNDATION PLAN LEGEND

- Re-entrant corner steel (2x HD12) 1.2m long to all internal corners
- 80mm thick waffle floor slab outline
- Exterior line of foundation
- Internal line of foundations. (300W x 220D) as per engineers design
- Engineer designed slab thickening beneath loadbearing walls as per engineer drawings
- Full height joinery rebate / support step as per floor details and rebate note below

Refer to the Engineers Specific Detail Drawings for details

See engineers dwgs and comments for set out of internal footings for positioning under loadbearing walls

SETOUT VERIFICATION
THE WAFFLE FLOOR AND FOUNDATION CONTRACTOR IS TO VERIFY ALL SETOUT AND SITE LOCATION DIMENSIONING WITH THE GENERATION HOMES SITE MANAGER PRIOR TO FINALISING FORMWORK AND CONCRETE POURING. THE WAFFLE FLOOR CONTRACTOR MUST ALSO VERIFY ALL SLAB EDGE REBATES AND DOOR SILL REBATES AGAINST THE WALL SETOUT PLAN - DWG 05.

DOOR/WINDOW REBATE NOTE - BRICK:
WHERE BRICK CLADDING IS PRESENT AROUND A FULL HEIGHT WINDOW/DOOR, THE FOUNDATION REBATE IS TO BE 150mm WIDE x 15mm DEEP. REBATES ARE TO BE CONSTRUCTED AS PER FLOOR DETAILS - DWG 12.

SITE PREPARATION
REFER TO ATTACHED GEOTECHNICAL REPORT FOR SPECIFIC SITE PREPARATION DETAILS, BEARING DEPTH AND CAPACITY.

WAFFLE DESIGN
READ IN CONJUNCTION WITH ENGINEER DESIGN DRAWINGS SPECIFICATION AND CALCULATIONS.

PIPE PENETRATIONS IN FLOOR SLAB
WHERE PIPE PENETRATES VERTICALLY INTO THE SLAB, IT SHOULD BE SLEEVED OR WRAPPED WITH A COMPRESSIBLE MATERIAL (25mm MIN.) TO PROTECT IT FROM LATERAL MOVEMENT

GENERAL NOTE FOR BRICK:
OPENING DIMENSIONS ALWAYS REFERENCED TO OUTER EDGE OF FOUNDATION LINE. ALLOW 120mm REBATE TO FRAMING LINE

IMPORTANT
CHECK ALL DIMENSIONS AGAINST FLOOR PLAN, ANY DISCREPANSIES TO BE VERIFIED BY DESIGNER.

BUILDING CONSENT ISSUE 21/11/2019

Foundation Plan		
Jaspreet Singh & Inderjeet Kaur **Lot 33, DP 535457, Rolleston**		
GH CHRISTCHURCH SOUTH LTD		
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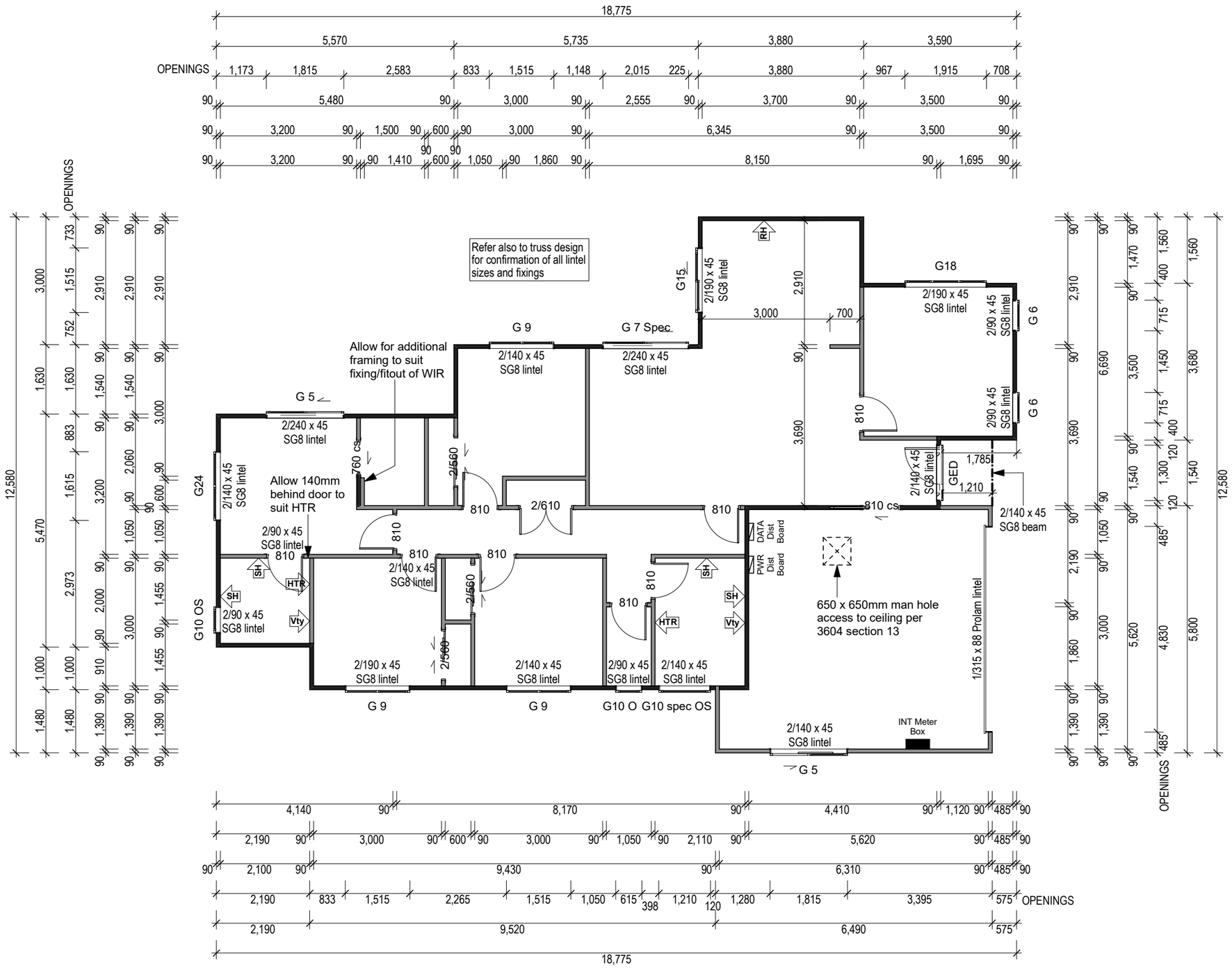

WALL SETOUT LEGEND

90 x 45 SG8 R2.6 Pink Batts insulated exterior wall with stud spacing at 600c/c. Bottom and Top Plates construction noted below

90 x 45 SG8 Un-Insulated interior Wall. Bottom and Top Plates construction noted below

2.462m wall height
2.415m Ceiling height

FIXTURES BLOCKING
allow to place extra nogs 800mm above floor for vanity fixing at all vanity / handbasin locations.
allow also to provide nogging as required for **shower enclosure** fixing, **heated towel rails, Range hoods, Dryers** where indicated

All wall framing to be constructed with 2 rows of dwangs

All framing and lintels to be SG8 grade unless specified otherwise

Top plate Construction
Exterior Wall: 90 x 45 SG8 H1.2 top plate with 140 x 35 ribbon board over
Interior Wall: 90 x 45 SG8 H1.2 top plate with 190 x 35 ribbon board over

Bottom plate Construction
All bottom plates shall be LVL grade timber

Refer to Truss Designers plans for Lintel and Beam Schedules

Truss location note
Ensure trusses are positioned to avoid range hood flue location and bathroom/Ensuite walls where "T.Vs" (terminal vents) need to pass through top plates (refer to drainage plan). Nogging required at 1.750 for range hood mounting C.O.S with supplier

CHECK ALL DIMENSIONS ON SITE PRIOR TO MANUFACTURE.
ANY DISCREPANCIES TO BE VERIFIED BY DESIGNER

BUILDING CONSENT ISSUE 21/11/2019

Wall Setout Plan		
Jaspreet Singh & Inderjeet Kaur **Lot 33, DP 535457, Rolleston**		
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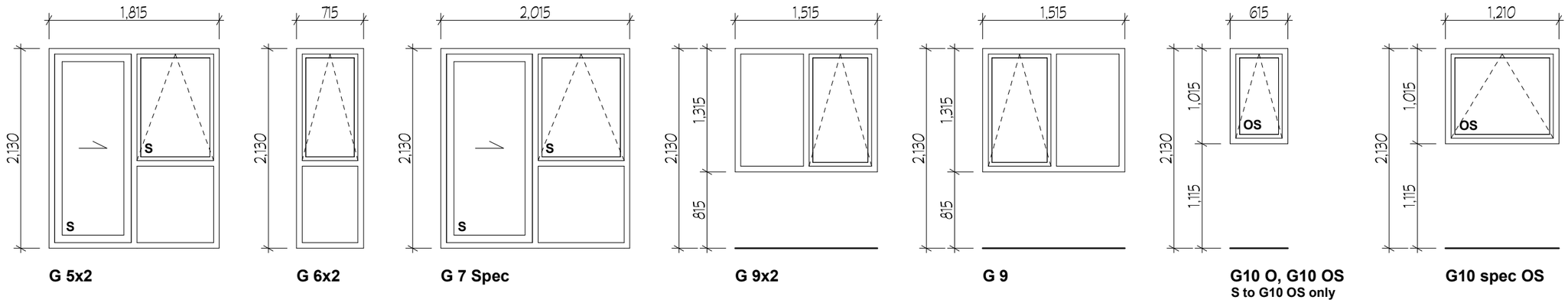
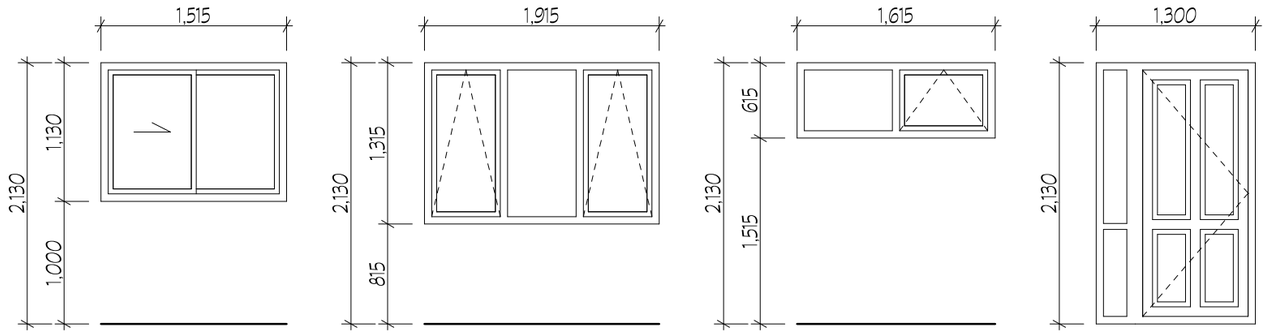


G 5x2 | **G 6x2** | **G 7 Spec** | **G 9x2** | **G 9** | **G10 O, G10 OS** (S to G10 OS only) | **G10 spec OS**



G15 | **G18** | **G24** | **GED**

DOOR & WINDOW NOTES:

NOTES:
Joinery to be Fairview Architectural Linear Suite (AL35)
All Glazing excluding garage to be Double Glazed
All joinery powder coated aluminium
All glazing to NZS 4223 part 1: 2008 and part 3:2016
All glazing to bathroom / WC to be selected obscure
All Jambs clear finger jointed 18mm pine
O - denotes window as drawn with obscure glass
S - denotes window as drawn with safety glass
DIMENSIONS SHOWN ARE TRIM SIZE

CONFIRM ALL SIZES ON SITE PRIOR TO MANUFACTURE

PLEASE NOTE: ALL MEASUREMENTS REFER TO THE TIMBER FRAME TRIMMED OPENING SIZE

NOTE:
Full height windows/doors to be installed in 15mm deep sill rebate in floor slab, except for joinery located in garages as noted on Foundation Plan.

GROUND FLOOR VENTILATION

Room name	Floor Area	Openable area	% ratio	Complies
Bedroom 1	11.13	2.92	26%	NZBC G4/AS1
Bedroom 2	9	0.8	9%	NZBC G4/AS1
Bedroom 3	9	0.8	9%	NZBC G4/AS1
Bedroom 4	9.73	0.8	8%	NZBC G4/AS1
Bathroom	6.33	0.98	15%	NZBC G4/AS1
WC	1.95	0.44	23%	NZBC G4/AS1
Ensuite	4.2	0.44	10%	NZBC G4/AS1
Kitchen/Dining	34.51	3.6	10%	NZBC G4/AS1
Living	12.25	2.68	22%	NZBC G4/AS1
note floor to *openable* window ratio of no less than 5% NZBC G4 AS1 Natural ventilation				

GROUND FLOOR NATURAL LIGHT

Room name	Floor Area	Glazed area	% ratio	Complies
Bedroom 1	11.13	3.28	29%	NZBC G7/AS1
Bedroom 2	9	1.45	16%	NZBC G7/AS1
Bedroom 3	9	1.45	16%	NZBC G7/AS1
Bedroom 4	9.73	1.45	15%	NZBC G7/AS1
Bathroom	6.33	0.82	13%	NZBC G7/AS1
WC	1.95	0.34	17%	NZBC G7/AS1
Ensuite*	4.2	0.34	8%	NZBC G7/AS1
Kitchen/Dining/Family	34.51	4.2	12%	NZBC G7/AS1
Living	12.25	3.79	31%	NZBC G7/AS1
note floor to *glazed* window ratio of no less than 10% NZBC G7 AS1 Natural Light				
note * denotes room to have artificial light to provide a minimum illuminance of 20 lux				

NZBC H1/AS1 COMPLIANCE - SCHEDULE METHOD | **SCHEDULE METHOD NZS4218 "NON SOLID CONSTRUCTION"**

WALL FACE	WALL AREA	GLAZING AREA	% GLAZING		NZS4218 R-Values	R Values Provided	Compliance
	m^2	m^2	%				
Elevation 4 (North)	27.33	3.31	12.11%	Roof	R 3.3	R3.6	NZBC H1/AS1
Elevation 2 (South)	27.33	5.91	21.62%	Wall	R 2.0	R 2.6	NZBC H1/AS1
Elevation 3 (East)	46.22	12.85	27.80%	Floor	R 1.3	R 2.41	NZBC H1/AS1
Elevation 1 (West)	46.22	9.17	19.84%	Glazing	R 0.26	R 0.26	NZBC H1/AS1
TOTALS	**119.77**	**27.93**	23.32%	Skylights	R 0.31	N/A	NZBC H1/AS1

Note: - Total glazing areas for East, West and South facing walls are demonstrated above to be < 30 % allowing the use of the "Schedule Method" under H1/AS1 as means of compliance. Northern wall values shown above are for reference only and are not considered in the formula as is allowed in this method. Garage walls,glazing and openings are excluded from the formula

BUILDING CONSENT ISSUE 21/11/2019

Door/Window Schedule

Jaspreet Singh & Inderjeet Kaur
Lot 33, DP 535457, Rolleston

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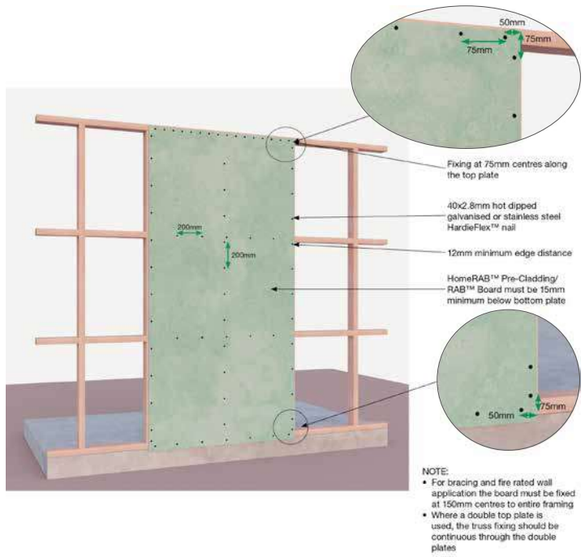
Figure 16: Stud to top plate connection



Roof Bracing Options

i) ROOF PLANE BRACE

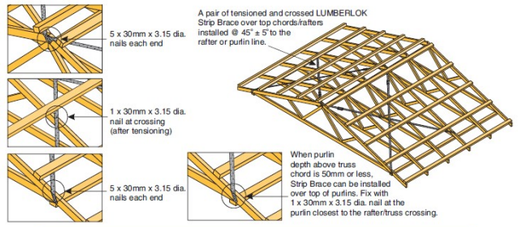
LUMBERLOK®

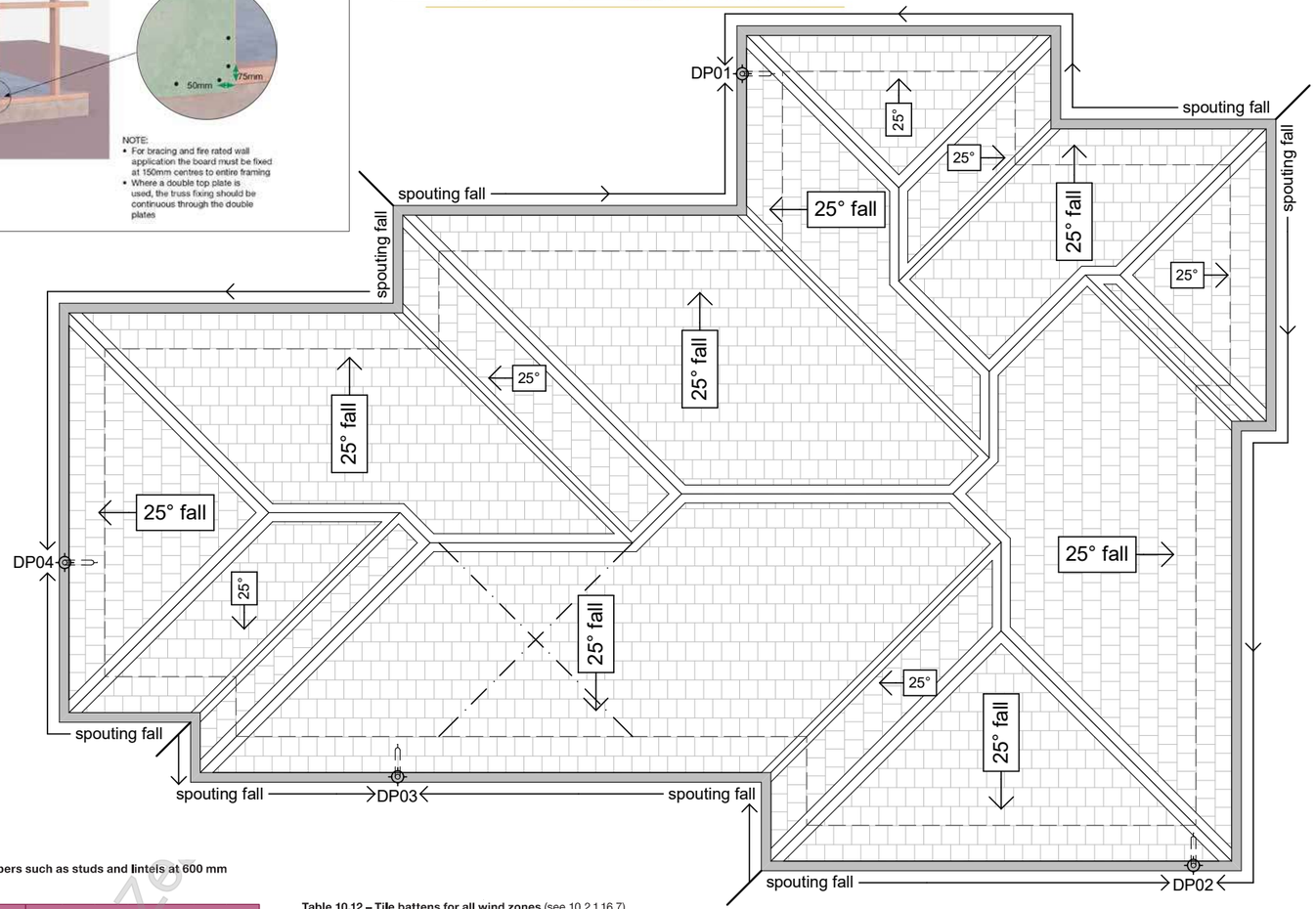
Each roof plane brace can be:

- A hip or valley rafter running continuously from ridge to the top plate in accordance with NZS 3604:2011 Clauses 10.2.1.3.2 or 10.2.1.3.3

OR

- A pair of tensioned and crossed LUMBERLOK Strip Brace running continuously from ridge to top plate installed as detailed below.





LEGEND - ROOF PLAN

Metrotile Shake pressed metal tile roofing with Satin finish over 50 x 40 SG8 battens at c/c to suit tile profile

standard tile flashings to roof as indicated, as per standard/architectural details

continuous colorsteel spouting / fascia system with direction of 1:100 fall shown ensure selected colorsteel spouting has minimum cross sectional area for compliance with NZBC E1/AS1

diagonal galv. Steel roof strap brace - 1 per 50m² of roof

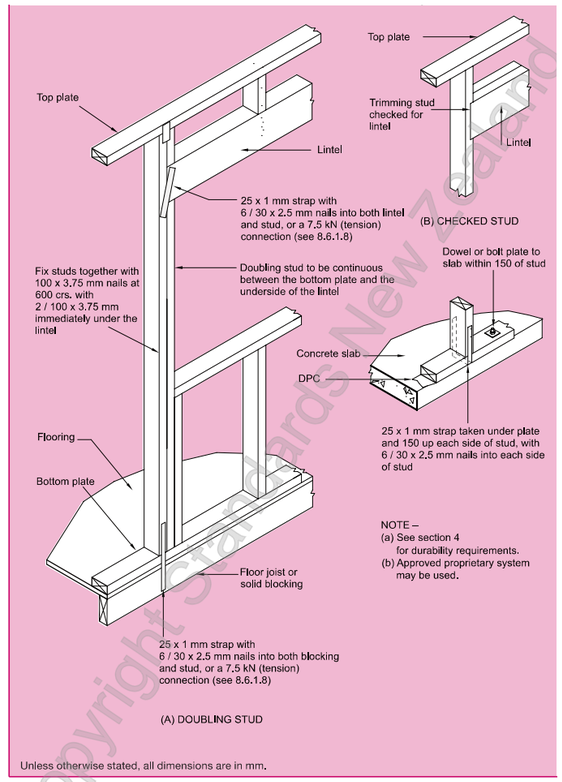


Figure 8.12 – Lintel fixing to prevent uplift (see 8.6.1.8 and table 8.14 (a) and (b))

Table 8.18 – Fixing of top plate of wall to supporting members such as studs and lintels at 600 mm centres (see 8.7.6 and figure 8.12)

Loaded dimension of wall (m)	Light roof										Heavy roof				
	Roof member spacing (mm)														
	900					1200					900				
	Wind zone					Wind zone					Wind zone				
	L	M	H	VH	EH	L	M	H	VH	EH	L	M	H	VH	EH
	Fixing type (see below)														
2.0	A	A	B	B	B	A	A	B	B	B	A	A	A	B	B
3.0	A	B	B	B	B	A	B	B	B	B	A	A	B	B	B
4.0	A	B	B	B	B	A	B	B	B	B	A	A	B	B	B
5.0	B	B	B	B	B	B	B	B	B	B	A	A	B	B	B
6.0	B	B	B	B	B	B	B	B	B	B	A	A	B	B	B

Fixing type	Fixing to resist uplift	Capacity of alternative fixing (kN)
A	2 / 90 x 3.15 end nails	0.7
B	2 / 90 x 3.15 end nails + 2 wire dogs	4.7

Table 10.12 – Tile battens for all wind zones (see 10.2.1.16.7)

Tile batten size		Maximum spacing and fixing in the following wind zones									
		Low		Medium		High		Very high		Extra high	
	Max. span	Spacing	Fixing	Spacing	Fixing	Spacing	Fixing	Spacing	Fixing	Spacing	Fixing
(mm)		(mm)		(mm)		(mm)		(mm)		(mm)	
Light roof cladding											
50 x 40	900	370	R	370	R	370	S	370	S	370	T
50 x 50	1200	370	R	370	S	370	T	370	T	370	T

Fixing type	Description	Alternative fixing capacity (kN)
R	1 / 90 x 3.15 gun nail	0.55
S	2 / 90 x 3.15 gun nails	0.8
T	1 / 10g self-drilling screw, 80 mm long	2.4

Tile battens to be H1.2 treated

DOWNPIPE WATER DISCHARGE SCHEDULE

determined by NZBC E1/AS1 section 4.0 downpipes - table 5

DP Name	roof area serviced by DP in plan	average roof angle	intended DP size for use (min. internal dia)	max. allowable roof area by DP size	gains compliance
DP01	57.84m²	25-35°	74mm	70 m²	E1/AS1
DP02	49.33m²	25-35°	74mm	70 m²	E1/AS1
DP03	50.14m²	25-35°	74mm	70 m²	E1/AS1
DP04	45.61m²	25-35°	74mm	70 m²	E1/AS1

Cross sectional calculation of Continuous Colourstel Spouting
- Quarter Round Spouting (6300mm²):
Flow Capacity= 57.84m² (Roof Area) x 0.83 (flow load factor)= 48.01 l/min
Minimum Gutter Area in m² = (48.01 (FC) / 0.0016)^0.8 = 3817.42mm²

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Roof Plan

Jaspreet Singh & Inderjeet Kaur

Lot 33, DP 535457, Rolleston

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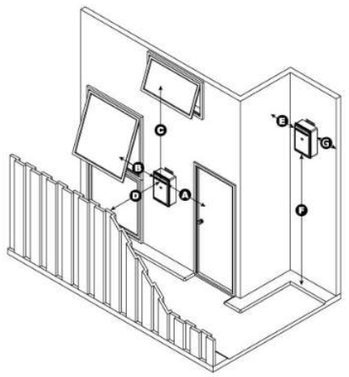
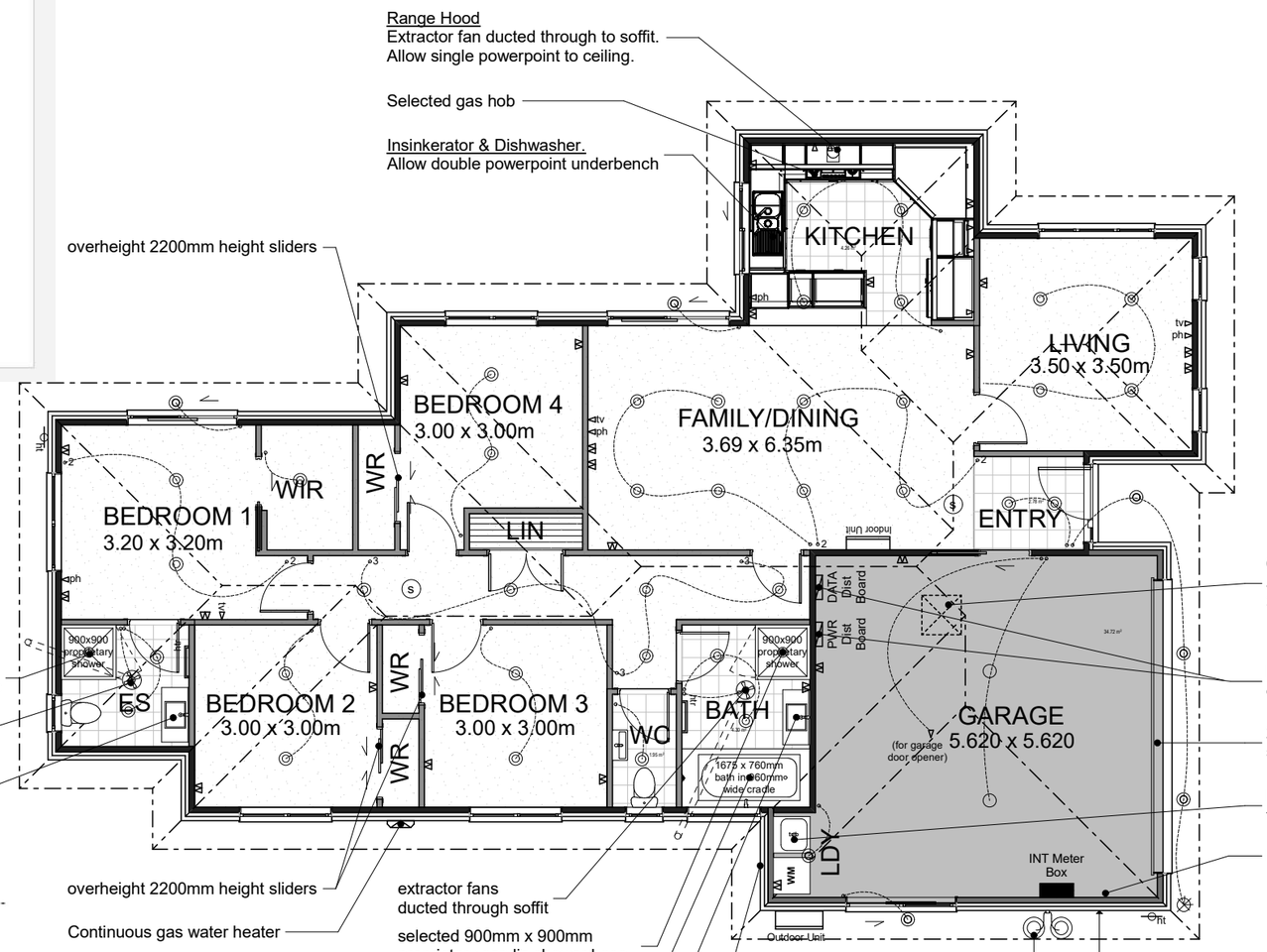
Clearances

The following diagram has been provided to assist you in determining where (and if) an external continuous flow water heater can be positioned. If in doubt, prior to purchase, consult a licensed gasfitter. They will have access to 'Clearances Required for Flue Terminals' from the NZ Gas Installation standards (NZS 5261 2003).



Dimension	Infinity VT models Infinity HD200 models Infinity EF models	Infinity HD250 models
A	Min. 300 mm	Min. 500 mm
B	Min. 300 mm	Min. 500 mm
C	Min. 1.5 m	Min. 1.5 m
D	Min. 500 mm	Min. 500 mm
E	Min. 300 mm	Min. 300 mm
F	Min. 300 mm	Min. 300 mm
G	Min. 300 mm	Min. 300 mm



ELECTRICAL NOTES

DOWNLIGHTS:
- All downlights are to comply with Electrical Safety Regulations 2010 - CA80, CA135, IC or IC-F models only.

KITCHEN ISLAND:
- Provide double outlet under bench for dishwasher and wastemaster along with a single outlet in ceiling for rangehood

CONSTRUCTION:
- Ensure any Gas meter, Meter box or Distribution board penetrations of linings/ claddings are kept clear of bracing elements.
- Ensure also bottom plate penetrations for these services entrydo not occour within bracing element locations.
- Ensure bracing elements are kept min 40mm clear of garage door openings to allow fitting of aluminium jamb extrusions.
- Gas meters to be located within 3m of the front corner of garage.

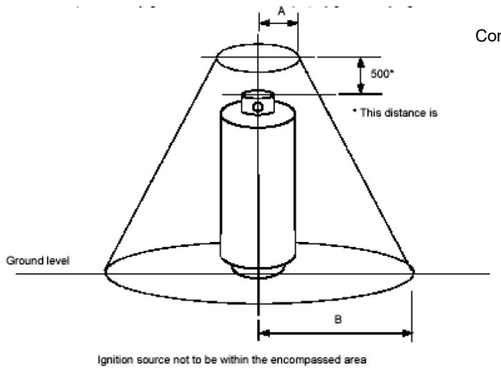
NZBC G10 &G11:
All provisions of all piped services inclusive of gas shall be installed so as to meet the performance standards as required in G10.2 and G11.2

Gas installation and materials to comply with NZS5601.1: 2013

Freeview TV ariel to be installed by contractor- refer to Generation Homes variation list

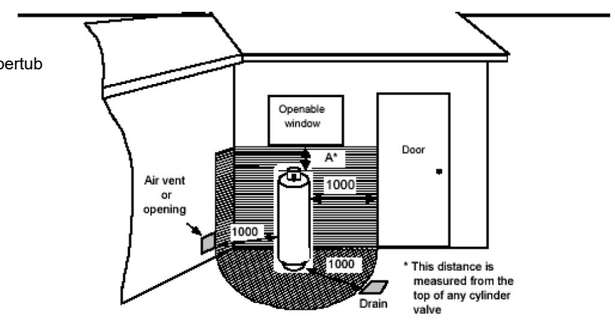
ELECTRICAL LEGEND

- LED ceiling light - exterior recessed
- LED ceiling light - recessed
- ceiling light - incandescent batton
- exterior light on senor
- ceiling extractor fan
- wall switch
- 2 way wall switch
- 3 way wall switch
- single power outlet
- double power outlet
- tv jack/data jack/sky plug/free view (final output to be confirmed by Generation Homes)
- phone jack/data jack (final output to be confirmed by Generation Homes)
- smoke alarm
- heated towel rail
- internal meter board
- power distribution board
- data distribution board
- exterior hose tap
- air conditioning indoor unit
- air conditioning outdoor unit
- 2 / 45kg gas bottle
- continuous gas water heater



	Exchange cylinder	In Situ Fill Cylinder
A	500	1500
B	1500	3500

Figure F 2 — Minimum Clearance to Ignition Sources (mm)



	Exchange cylinder	In Situ Fill Cylinder
A	150	500

Figure F 3 –Minimum Clearance to a Drain or Openings into a Building (mm)

BUILDING CONSENT ISSUE **21/11/2019**

Electrical Plan

Jaspreet Singh & Inderjeet Kaur

Lot 33, DP 535457, Rolleston

GH CHRISTCHURCH SOUTH LTD

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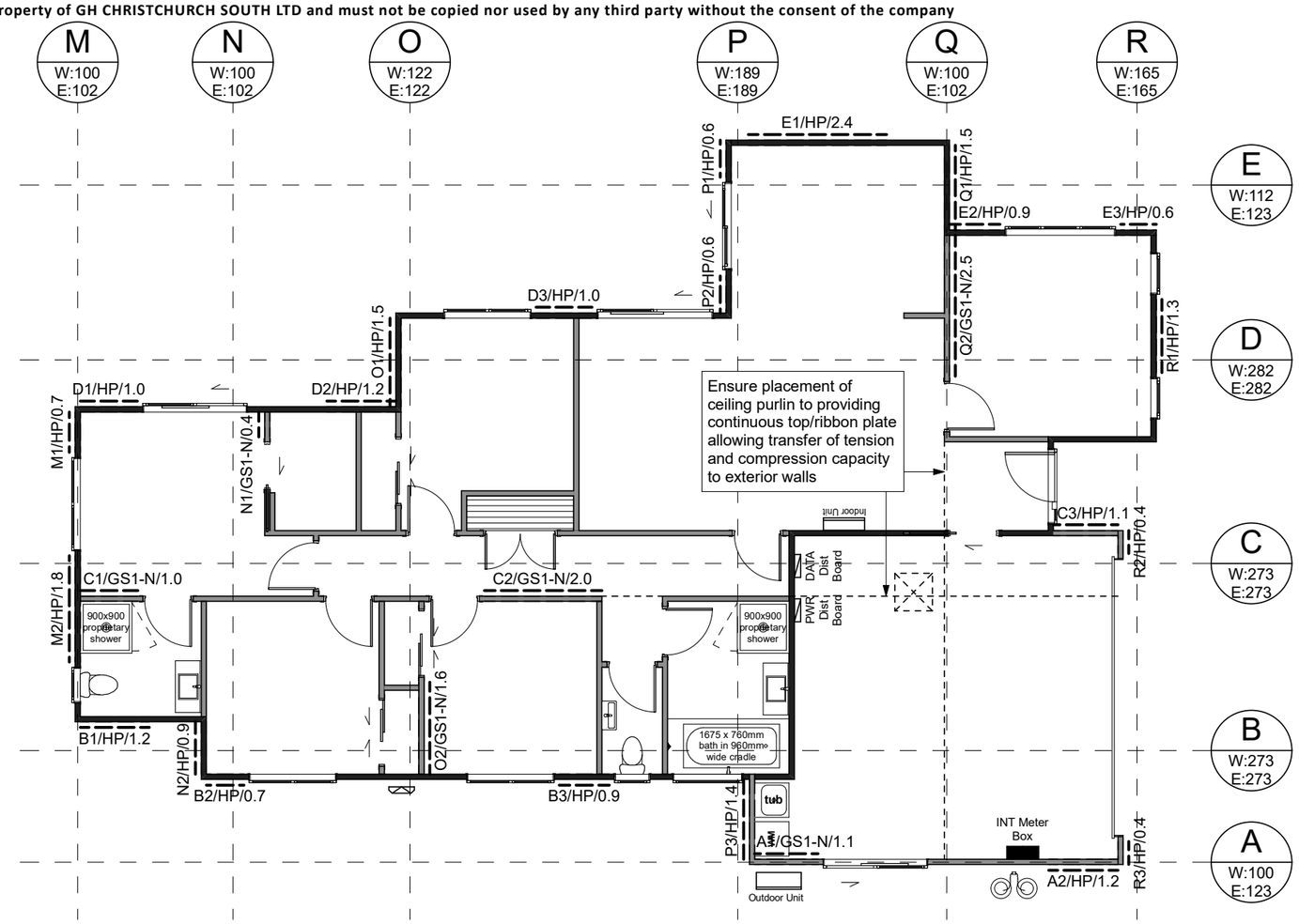
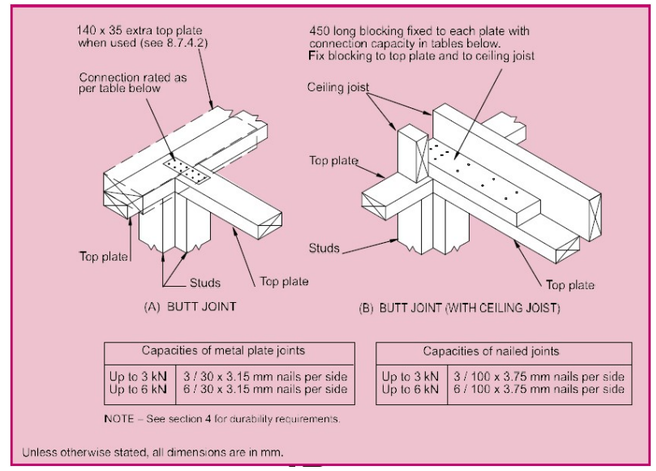


Each *wall* that contains one or more *wall bracing elements* shall be connected at the *top plate* level, either directly, or through a *framing* member in the line of the *wall*, to *external walls* at right angles to it. *Top plate* fixing(s) of the *capacity* in tension or compression along the line of the *wall bracing element* are given as follows:

(a) For each *wall* containing *wall bracing elements* with a total *bracing capacity* of not more than 125 *bracing units*: to at least one such *external wall* by a fixing as shown in figure 8.16 of 6 kN *capacity*;

(b) For each *wall* containing *wall bracing elements* with a total *bracing capacity* of not more than 250 *bracing units*: to at least 2 *external walls* by fixings as shown in figure 8.16 each of 6 kN *capacity*;

(c) For each *wall* containing *wall bracing elements* with a total *bracing capacity* of more than 250 *bracing units*: to at least 2 *external walls* by fixings as shown in figure 8.16 each having a rating of not less than 2.4 kN per 100 *bracing units*.



Capacities of metal plate joints	
Up to 3 kN	3 / 30 x 3.15 mm nails per side
Up to 6 kN	6 / 30 x 3.15 mm nails per side

Capacities of nailed joints	
Up to 3 kN	3 / 100 x 3.75 mm nails per side
Up to 6 kN	6 / 100 x 3.75 mm nails per side

NOTE – See section 4 for durability requirements.

Unless otherwise stated, all dimensions are in mm.

BRACING CALCULATIONS

TABLE: Default

Location of Storey	*Single*
Room in Roof Space	*No*
Building Width (BW)	*13.8m*
Building Length (BL)	*20.0m*
Gross Floor Area (GFA)	*170.5m2*
Floor Height to Apex	*5m*
Roof Height Above Eaves	*3m*
Roof Pitch	*0 - 25°*
Roof Style	*Hip*
Double Top Plate	*Yes*
Floor Load	*2kPa*
Cladding Weights:	
- Subfloor	*Concrete Floor*
- Wall	*Heavy*
- Roof	*Light*
Wind Zone	*High*
Earthquake Zone	*2*
Soil Class	*E - Very Soft*
W along	*60BU/m*
W along x BW	*827BU*
W across	*60BU/m*
W across x BL	*1199BU*
EQ	*7BU/m2*
EQ x GFA	*1228BU*

BRACING ALONG

Required Line	W BU	EQ BU	Provided Brace	Type	W BU/m	EQ BU/m	Length m	Height m	Angle	Achieved W BU	Achieved EQ BU
A	100	123	*A-1*	*GS1-N*	*50*	*55*	*1.1*	*2.4*	-	*55*	*60*
			A-2	*HP*	*133*	*104*	*1.2*	*2.4*	-	*160*	*125*
										215	185
B	273	273	*B-1*	*HP*	*133*	*104*	*1.2*	*2.4*	-	*160*	*125*
			B-2	*HP*	*99*	*103*	*0.7*	*2.4*	-	*65*	*67*
			B-3	*HP*	*99*	*103*	*0.9*	*2.4*	-	*86*	*90*
										310	282
C	273	273	*C-1*	*GS1-N*	*50*	*55*	*1.0*	*2.4*	-	*50*	*55*
			C-2	*GS1-N*	*70*	*60*	*2.0*	*2.4*	-	*143*	*122*
			C-3	*HP*	*99*	*103*	*1.1*	*2.4*	-	*111*	*115*
										304	293
D	282	282	*D-1*	*HP*	*99*	*103*	*1.0*	*2.4*	-	*98*	*102*
			D-2	*HP*	*133*	*104*	*1.2*	*2.4*	-	*160*	*125*
			D-3	*HP*	*99*	*103*	*1.0*	*2.4*	-	*96*	*100*
										354	327
E	112	123	*E-1*	*HP*	*141*	*67*	*2.4*	*2.4*	-	*338*	*161*
			E-2	*HP*	*99*	*103*	*0.9*	*2.4*	-	*87*	*90*
			E-3	*HP*	*99*	*103*	*0.6*	*2.4*	-	*61*	*64*
										486	315
			Total						**Achieved**	**1669**	**1401**
									Required	**827**	**1228**

BRACING ACROSS

Required Line	W BU	EQ BU	Provided Brace	Type	W BU/m	EQ BU/m	Length m	Height m	Angle	Achieved W BU	Achieved EQ BU
M	100	102	*M-1*	*HP*	*99*	*103*	*0.7*	*2.4*	-	*70*	*72*
			M-2	*HP*	*133*	*104*	*1.8*	*2.4*	-	*246*	*192*
										315	264
N	100	102	*N-1*	*GS1-N*	*50*	*55*	*0.4*	*2.4*	-	*22*	*24*
			N-2	*HP*	*99*	*103*	*0.9*	*2.4*	-	*90*	*94*
										112	118
O	122	122	*O-1*	*HP*	*133*	*104*	*1.5*	*2.4*	-	*205*	*160*
			O-2	*GS1-N*	*70*	*60*	*1.6*	*2.4*	-	*112*	*96*
										316	256
P	189	189	*P-1*	*HP*	*99*	*103*	*0.6*	*2.4*	-	*64*	*66*
			P-2	*HP*	*99*	*103*	*0.6*	*2.4*	-	*64*	*66*
			P-3	*HP*	*133*	*104*	*1.4*	*2.4*	-	*185*	*145*
										312	277
Q	100	102	*Q-1*	*HP*	*133*	*104*	*1.5*	*2.4*	-	*196*	*153*
			Q-2	*GS1-N*	*70*	*60*	*2.5*	*2.4*	-	*172*	*147*
										367	300
R	165	165	*R-1*	*HP*	*133*	*104*	*1.3*	*2.4*	-	*169*	*132*
			R-2	*HP*	*85*	*91*	*0.4*	*2.4*	-	*34*	*36*
			R-3	*HP*	*85*	*91*	*0.4*	*2.4*	-	*34*	*36*
										237	205
			Total						**Achieved**	**1660**	**1420**
									Required	**1199**	**1228**

Calculations based on *NZS3604:2011*

REFER TO ARCHITECTURAL SPECIFICATION AS REQUIRED FOR GIB AND JAMES HARDIES HOMERAB MANUFACTURERS BRACING DETAILS

Note to contractors

- Ensure any meter box or distribution board penetrations of interior linings are kept clear of bracing elements
- Ensure also bottom plate penetrations for services entry do not occur within bracing elements
- Ensure bracing elements are kept min 40mm clear of garage door openings to allow fitting of aluminium jamb extrusions
- Refer to specification for fixing of hold-downs and James Hardies HOMERAB or GIB bracing elements as required.

BUILDING CONSENT ISSUE **21/11/2019**

Bracing Plan

Jaspreet Singh & Inderjeet Kaur

Lot 33, DP 535457, Rolleston

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BRANTHWAITE DRIVE

SEWER CONNECTION

Boundary 25.46m

Boundary 5.72m

Boundary 18.59m

Boundary 22.58m

Boundary 29.92m

100mm Ø Main Vented Sewer Drain

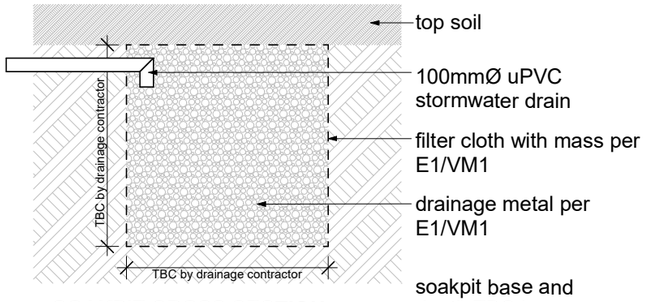
100mm Ø Vented Branch Sewer Drain

100mm Ø Storm Water Drain

100mm Ø Main Vented Sewer Drain

100mm Ø Storm Water Drain

100mm Ø Storm Water Drain



SOAKPIT CROSS SECTION

DP01

DP02

DP03

DP04

Falls

65 Ø Direct connect to 100 Ø @slab edge

TV

IJ

IB

GT

CE

SwS

40 Ø

900x900 proprietary shower

1675 x 760mm bath in 960mm wide cradle

Indoor Unit

DATA Dist Board

PWR Dist Board

Outdoor Unit

WM

INT Meter Box

Strip drain

new proposed vehicle crossing

SOAK PIT

2,000

1,800

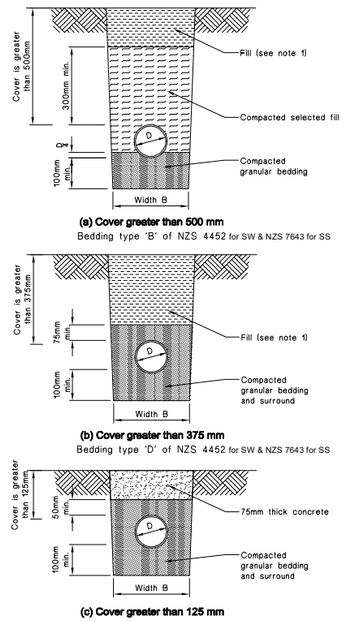
0.50 m²

LEGEND - DRAINAGE (AS/NZS3500 - Part 2&3)

- 100mm Ø Storm Water Drain 1 in 90 minimum fall
- 100mm Ø Main Vented Drain 1 in 60 minimum fall
- 65/40mm Ø Fixture Waste Drain 1 in 40 minimum fall
- CE Cleaning Eye
- TV 50mm Ø Terminal Vent
- IJ Inspection Junction
- IB Inspection Bend
- GT Gully Trap. Lowest acts as ORG
- Strip drain to collect run off from Driveway
- SwS Type one surface water sump recieving run off from strip drain and discharging to stormwater line as per NZBC E1 3.6 & Fig 8 shown

BEDDING & BACKFILLING DETAILS FOR SW & SS

NOTE:
1. Fill shall be:
-Ordinary fill where drains are located below gardens and open country.
-Compacted selected hardfill where the drains are located below residential driveways and similar areas subjected to light traffic.



(a) Cover greater than 500 mm
Bedding type 'B' of NZS 4452 for SW & NZS 7643 for SS

(b) Cover greater than 375 mm
Bedding type 'D' of NZS 4452 for SW & NZS 7643 for SS

(c) Cover greater than 125 mm

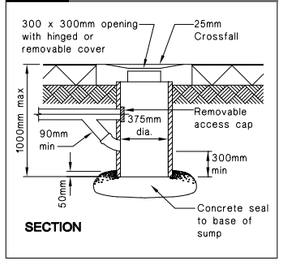
SOAKPIT CALCULATION LOT 33 BRANTHWAITE			
RC	Coefficient	Rainfall index	Area of runoff
12.582	0.9	60.0	0.0233
Vsk	Area of soakpit	Soakage rate	
10.8	3.60	3000.0	
Vst (open hole)			
1.782			
Vst (rock filled)			
4.688442			
Excavate soak pit to approx *2.0m x Width 1.8m x Depth 1.4m*			

In all instances where terminal vents pass through top plates 'Thru-Top plate' is to be used

Confirm invert levels of service connections on site prior to any excavation of drainage runs

In all instances where fixture waste drains are direct connected to main drains at slab edge contractors are to ensure the connection point / pipes are set to a level below any concrete paving in the area

Figure 8: Type-one Surface Water Sump Paragraph 3.6.2



SECTION

BUILDING CONSENT ISSUE 21/11/2019

Drainage Plan

Jaspreet Singh & Inderjeet Kaur

Lot 33, DP 535457, Rolleston

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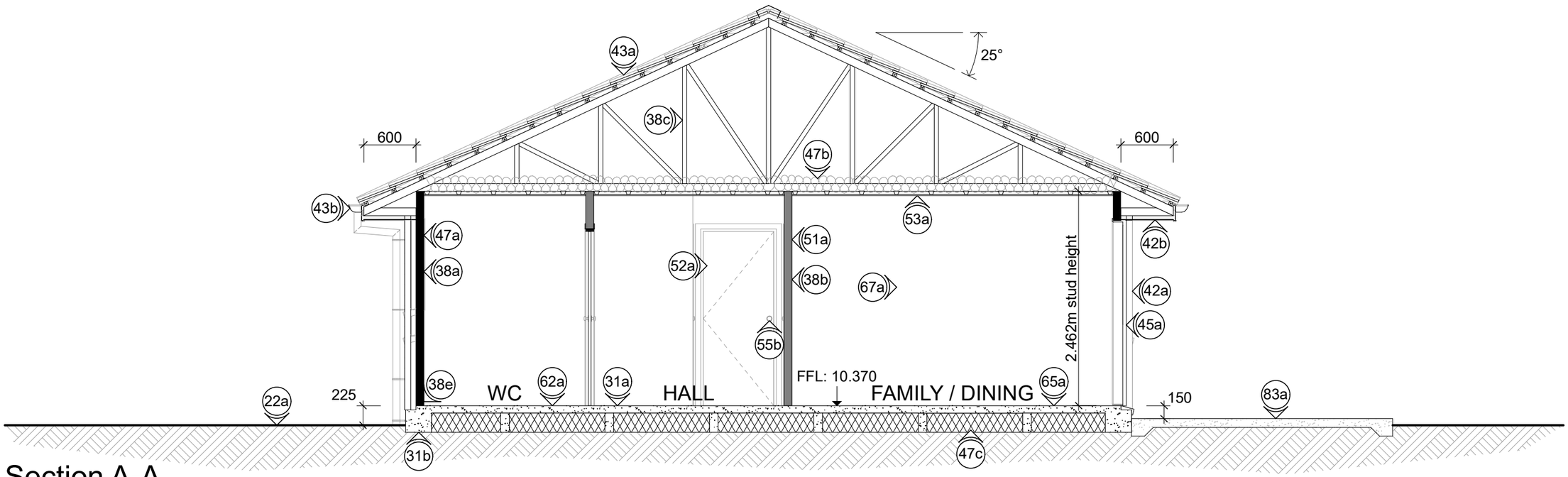

Section A-A

scale 1:50

CONSTRUCTION NOTES -LOT 33 DP 535457 - Jaspreet Singh & Inderjeet Kaur

2 SITE

22 Preparation & Groundwork

22a Building Platform - form a level platform allowing a minimum of 1m between any edge of the building and a slope, to comply with the engineers design.

23 Foundations

23a concrete footing size and strength per engineer design and to posts and buttresses

3 STRUCTURE

31 Concrete

31a **Engineered waffle concrete slab** with grade SE62 reinforcing mesh over 1100 x 1100 x 220mm deep Polystyrene PODS at 1.2m c/c as per Engineered design and specification
Refer to engineer design for concrete strength requirements, size and placement of all reinforcing, additional footings, and construction details.
Refer to Architectural drawings & details for size and placement of joinery rebates to slab edges

31b **Concrete ring footing**.
Refer to Engineer's design for concrete strength requirements, size and placement of all reinforcing, localised deepening of footings for exiting drains, and construction details.

38 Timber

38a 90 x 45 SG8 H1.2 exterior wall framing, studs at 600 c/c & 2 row of dwangs. Ensure 90 x 45 top plate and 140 x 35 ribbon board

38b 90 x 45 SG8 H1.2 interior wall framing with studs at 600 c/c & 2 row of dwangs. Ensure 90 x 45 top plate and 190 x 35 ribbon board

38c Pre-fabricated SG8 H1.2 treated trusses at 900 c/c as per truss design.

38d Timber Beams as noted on Floor Plan and as detailed

38e All bottom plates shall be LVL grade timber

4 ENCLOSURE

42 Cladding

42a **selected 70mm Brick over 60mm cavity** wall cladding over 4.5mm James Hardies HomeRAB board continuous around building envelope

42b 4.5mm HardieSoffit™ lining with PVC jointers at sheet joints and blocking as required.

43 Roofing

43a **Metrotile Shake pressed metal tile roofing with Satin finish over 50 x 40 SG8 battens at c/c to suit tile profile**
with standard flashings as selected - over **Thermakraft 215 roofing underlay**
Also with galv. strap brace to roof plane to comply with Miitek manual.

43b Continuous Colorsteel quarter Round Spouting with 180mm colorsteel fascia system and 80mmØ Round Colorsteel downpipes.

45 Doors, Windows

45a double glazed aluminium framed windows and exterior doors as scheduled with selected powdercoated finish , architraves as detailed.

46 Glazing

46a Double glazing with safety glazing as required to comply with NZS4223

47 Insulation

47a R2.6 Pink Batts 90mm wall thermal insulation

47b R3.6 Pink Batts 180mm ceiling thermal insulation

47c R2.41 220mm polystyrene underfloor insulation system

5 INTERIOR

51 Wall Linings

51a 10mm standard GIB wall linings generally

51b 10mm Aqualine GIB wall lining to wet areas

52 Partitions & Doors

52a All int. doors shall be ex150 x 30 pine FJP framed with architraves, door leaves to be hollowcore flush panel PQ MDF

53 Ceilings

53a 13mm GIB ceiling linings throughout over Rondo metal battens at 600 c/c direct fixed to truss bottom chord with GIB grabber screw fastenings. Level 4 stopped finish to ceilings with selected cornice finish

55 Joinery Fixtures & Hardware

55a Kitchen Joinery and all fixtures, hardware etc as per Generation Homes specific kitchen plans - confirm all measurements on site prior to any manufacturing

55b Door hardware as selected by owner

55c All bathroom, laundry, and other joinery that is supplied under contract to be constructed shall be confirmed in accordance with signed GH contract.

57 Furniture & Appliances

57a Kitchen appliances as covered by GH contract shall be supplied and installed

6 FINISH

62 Tiling

62a Floor tile selection to Bathroom, Ensuite, Kitchen and Toilet and Entry as per clients selections. contractor to lay tiles

65 Carpeting

65a Selected carpet as per project specification and as per GH contract

67 Painting, Decorating & Coating

67a Paint and coatings as selected and specified in GH Contract

7 SERVICES

71 Liquid

71a Refer to drainage plan for water supply to all fixtures

74 Drainage

74a Refer to drainage plan for waste pipe size, selections and type

77 Electrical

77a Refer to electrical plan for requirements and notes

8 EXTERNAL

82 Roads & Paving

82a Concrete driveway formed as per indicated layout on site plan

83 Landscaping

83a Exterior paving & driveways, formed as indicated on Landscaping Plan

BUILDING CONSENT ISSUE 21/11/2019

Cross Sections and Notes

Jaspreet Singh & Inderjeet Kaur

Lot 33, DP 535457, Rolleston

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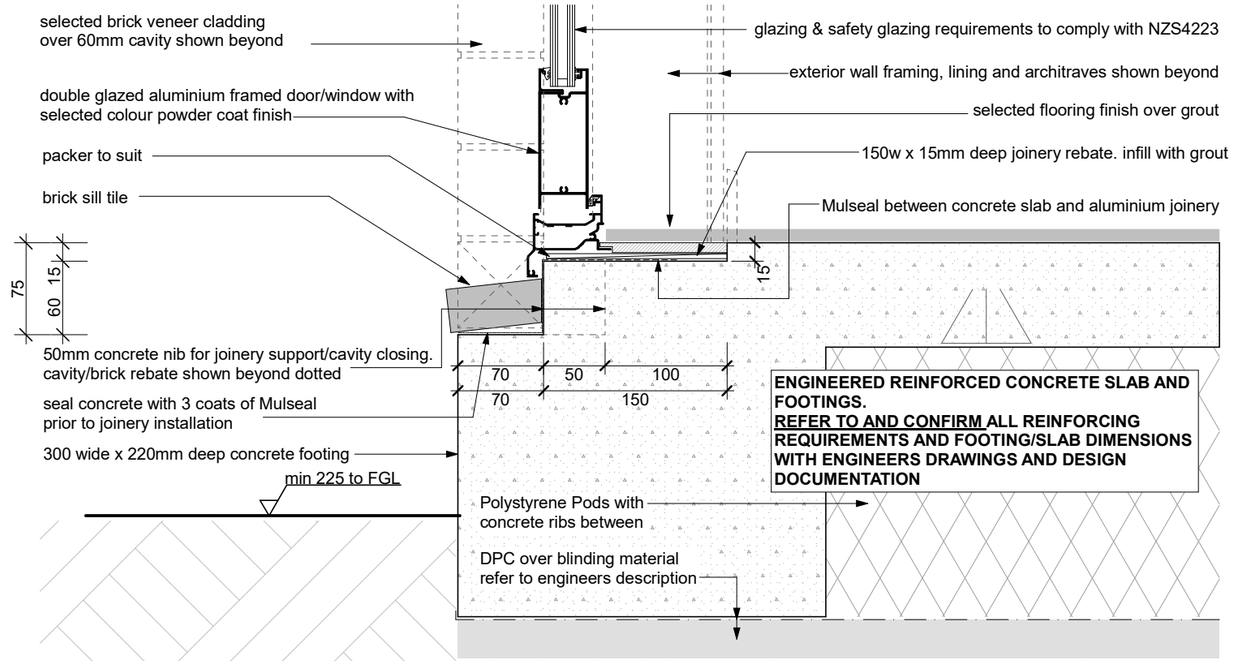
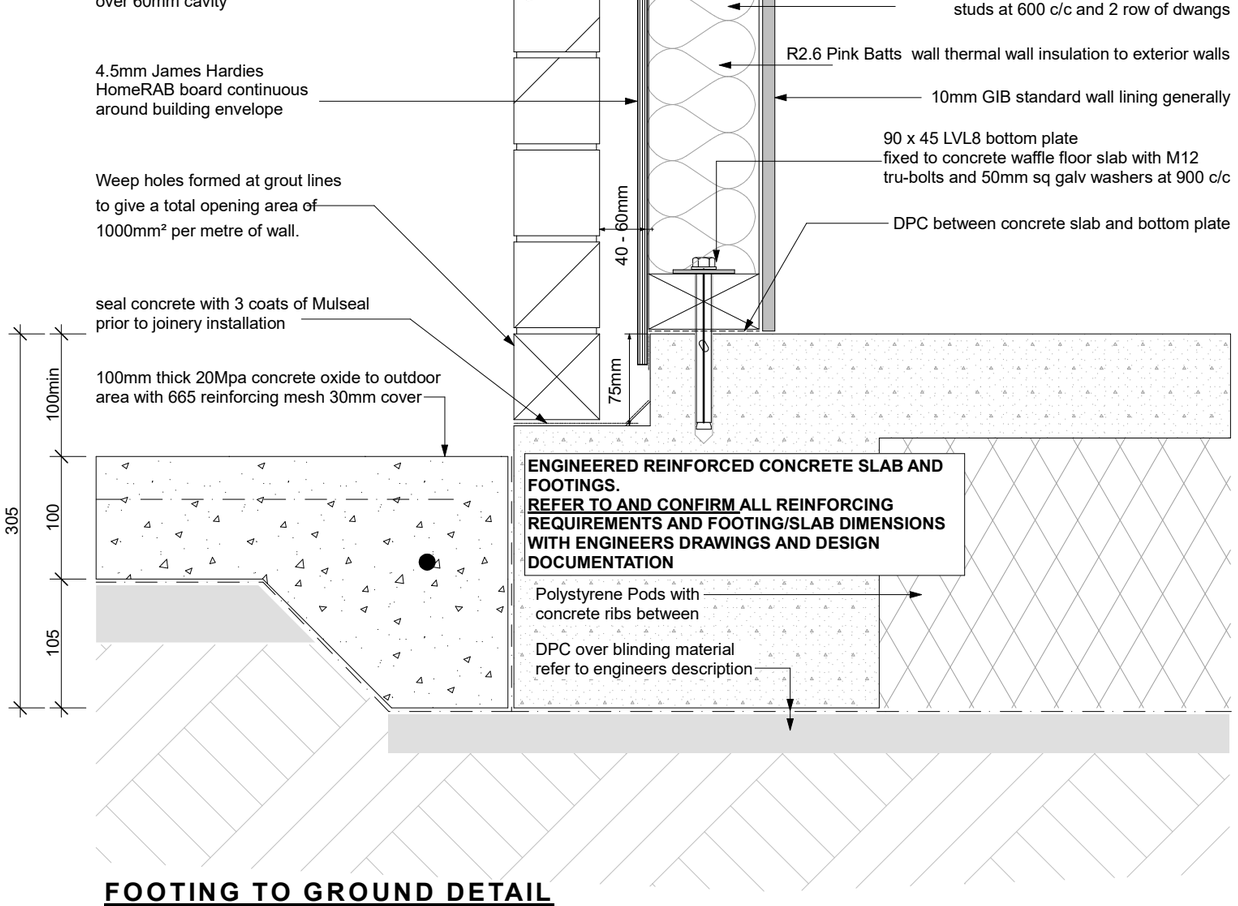
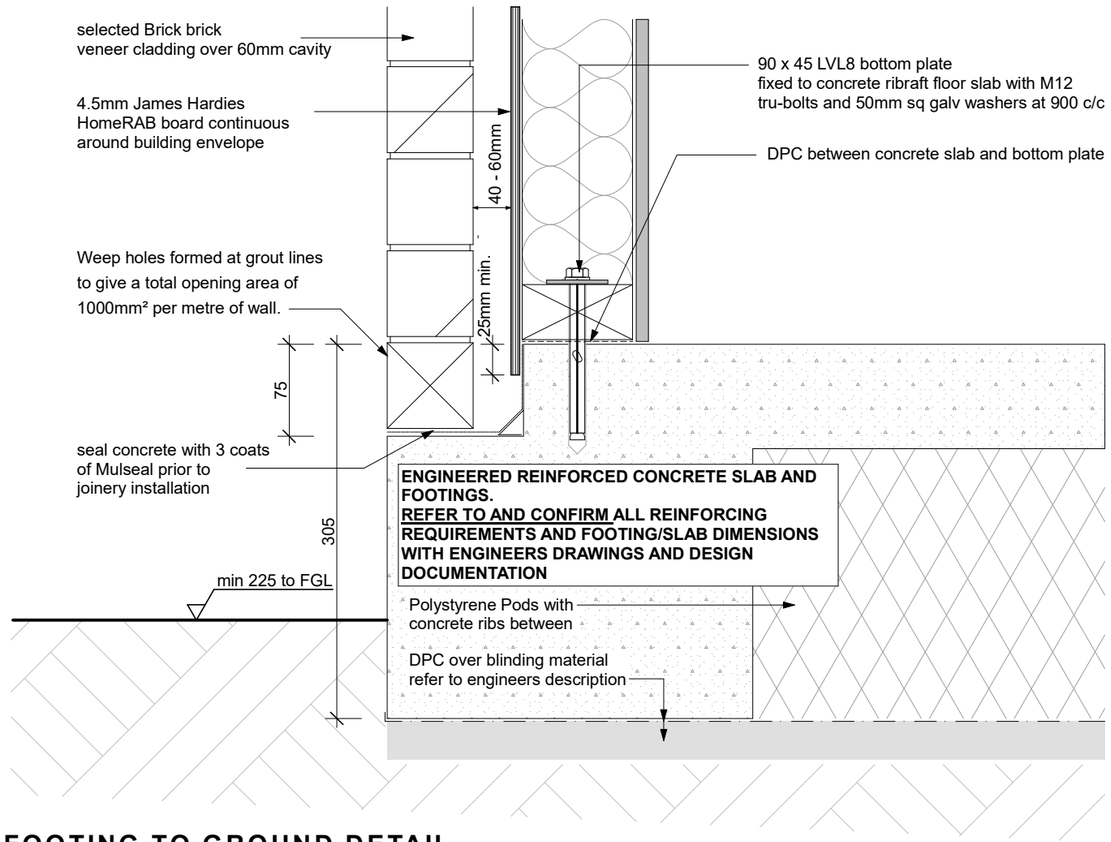


DOOR SILL TO GROUND DETAIL



FOOTING TO GROUND DETAIL



FOOTING TO GROUND DETAIL

BUILDING CONSENT ISSUE 21/11/2019

Details Ribraft/Floor

Jaspreet Singh & Inderjeet Kaur

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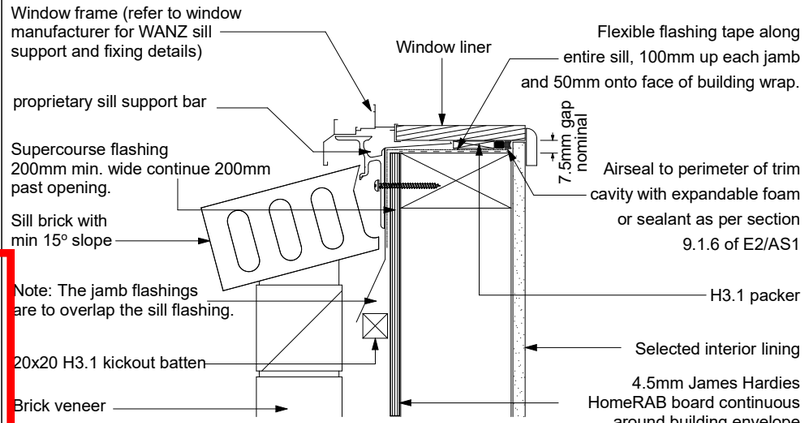
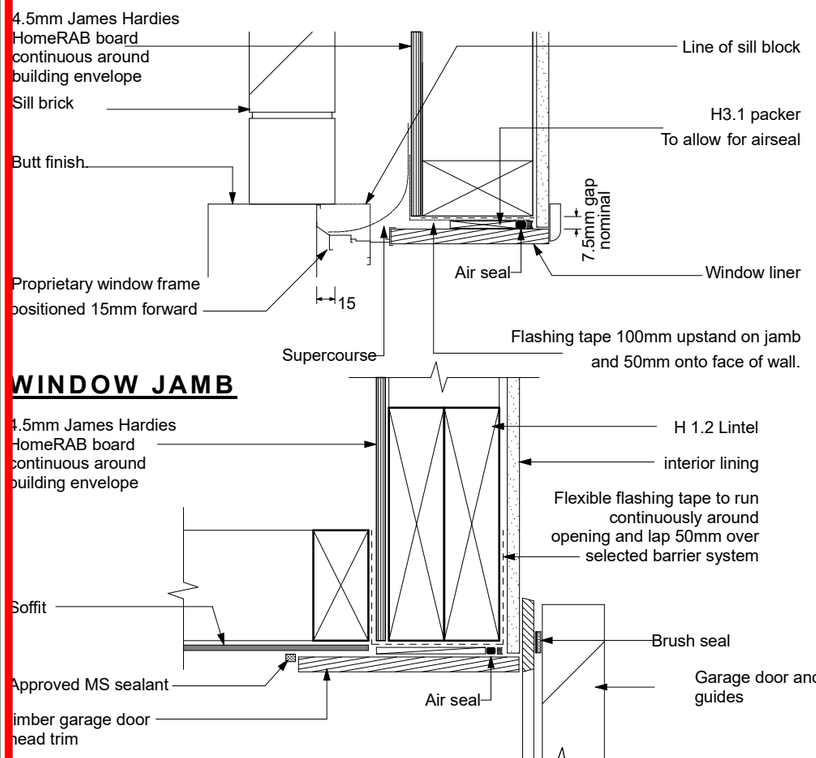
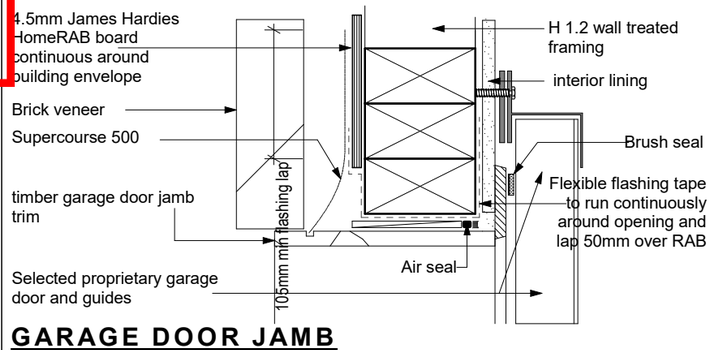


WINDOW SILL

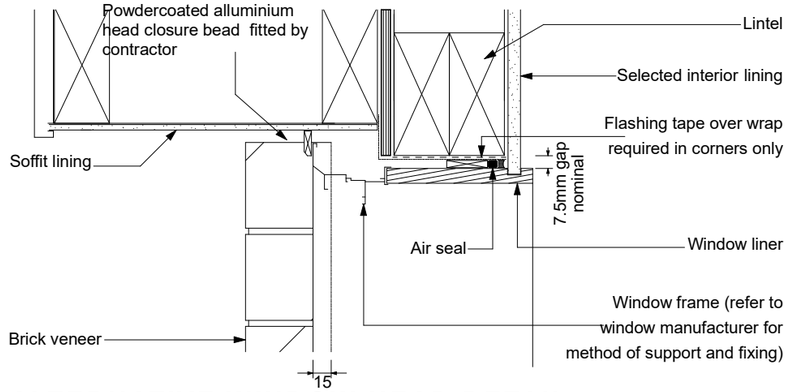


WINDOW JAMB

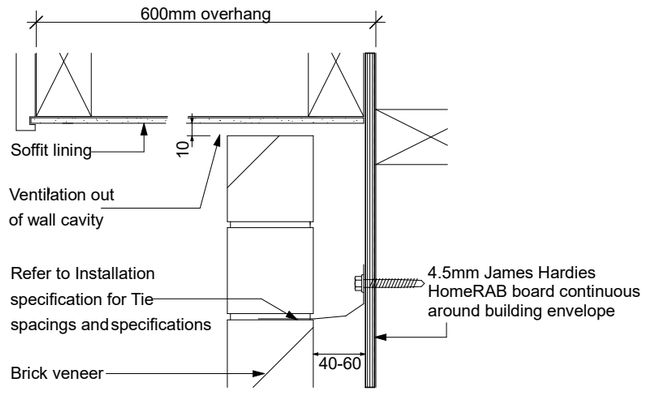
GARAGE DOOR HEAD



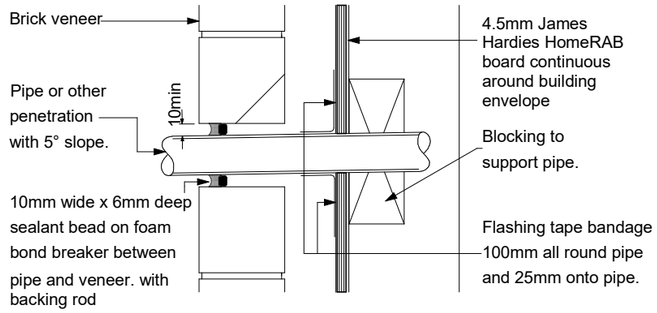
GARAGE DOOR JAMB



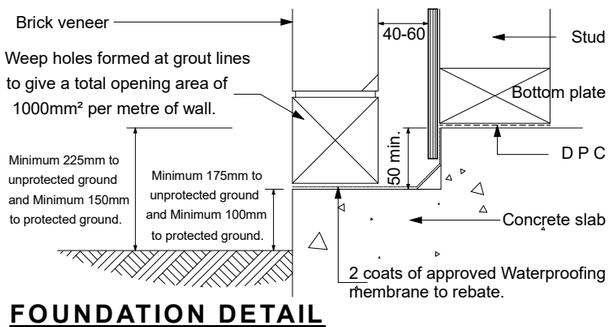
ALTERNATIVE WINDOW HEAD DETAIL



SOFFIT DETAIL



PIPE PENETRATION DETAIL



FOUNDATION DETAIL

STANDARD BRICK CLADDING DETAILS NOTES:

1). Specific materials for use. Refer to details for construction;
- Brick Veneer: selected 70mm Brick over 60mm cavity with 10mm selected colour mortar
- Brick Ties: Galvanised Steel**
- Building Wrap: 4.5mm James Hardies HomeRAB board continuous around building envelope
- Cavity Zone: 40 - 60mm cavity between brick and framing
- Flashing Tape: Protectowrap flashing system
- Insulation: R2.6 Pink Batts thermal wall insulation
  R3.6 Pink Batts thermal ceiling insulation
- Interior Lining: 10mm GIB std generally, 10mm aqualine to wet zones
- Roofing: Metrotile Shake pressed metal tile roofing with Satin finish over 50 x 40 SG8 battens at c/c to suit tile profile battens to suit tile profile

Roof Structure: 90 x 45 SG8 H1.2 trusses at 900 c/c as per registered manufacturers design and specs
- Soffit Lining: 4.5mm Hardiesoffit lining with PVC jointers at sheet joints and blocking as required
- Spouting & Fascia: continuous colorsteel spouting / fascia system
- Wall Framing: 90 x 45 SG8 H1.2 exterior wall framing with studs at 600 c/c & 2 row of dwangs.
  90 x 45 SG8 H1.2 interior wall framing with studs at 600 c/c & 2 row of dwangs
- Window Liner: H3.1 FJP PQ window liner

2). Refer to other construction details for roof construction and floor construction

****ALL BRICK TIES AND BRICK LINTELS IN COASTAL ZONE "D" SHALL BE STAINLESS STEEL AS PER NZBC E2 AS1 TABLE 20 REQUIREMENTS**

BUILDING CONSENT ISSUE 21/11/2019

Details Brick
Jaspreet Singh & Inderjeet Kaur
Lot 33, DP 535457, Rolleston
GH CHRISTCHURCH SOUTH LTD

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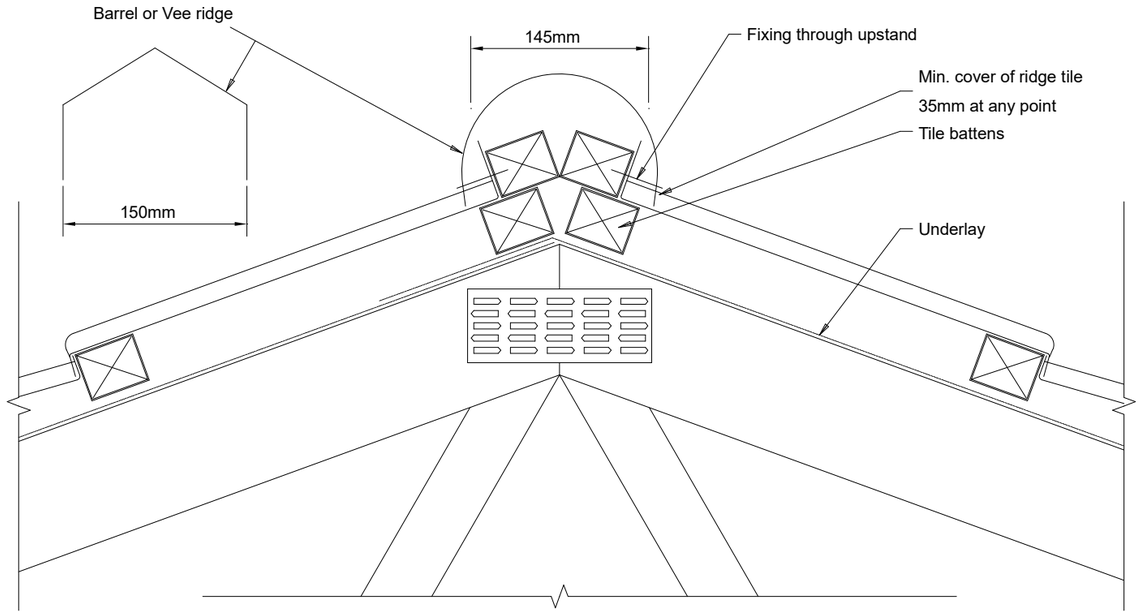
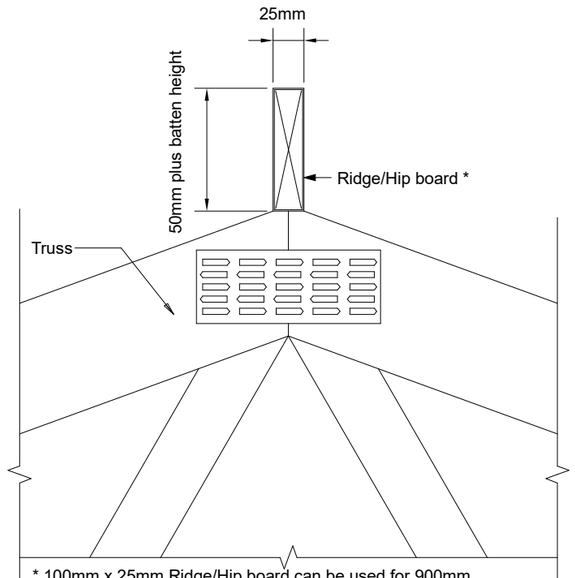


TYPICAL RIDGE/HIP DETAIL



* 100mm x 25mm Ridge/Hip board can be used for 900mm Truss Spacing where 50mm x 40mm tile battens are used.

Note:
Builder to supply and install Ridge/Hip boards. Care must be taken when installing the Ridge/Hip boards to ensure that they are straight, true and securely fixed.

8-03 TYPICAL BARGE HIP/RIDGE

Metrotile
ROOFING SYSTEMS

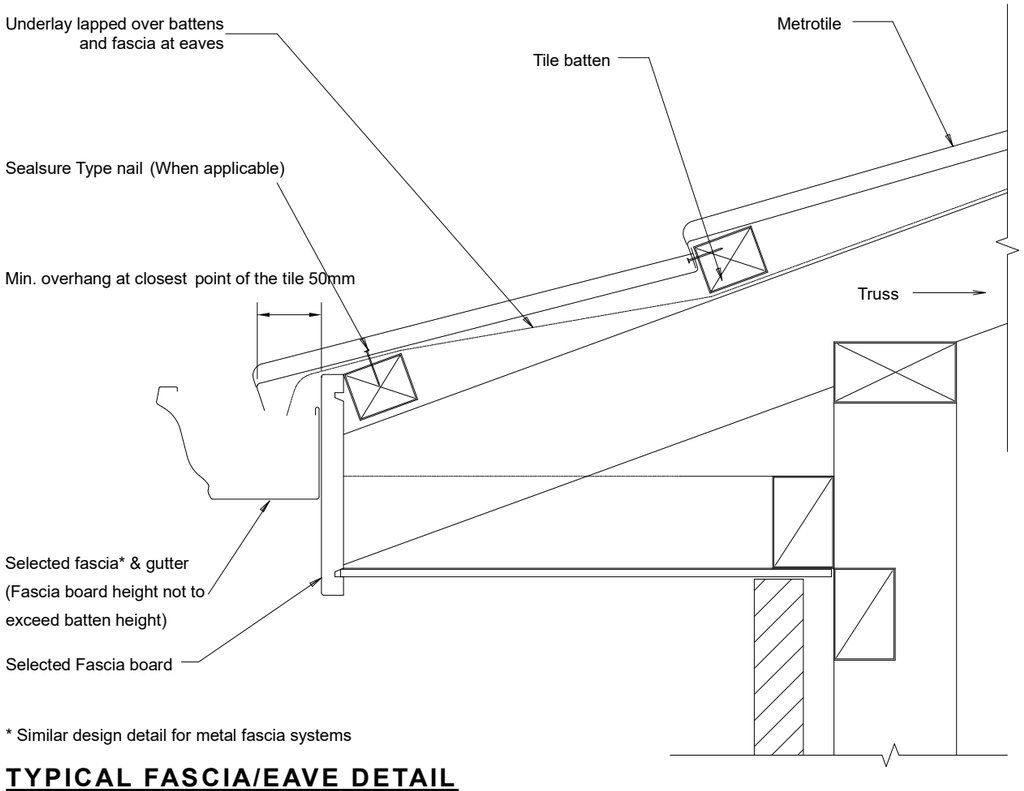
STANDARD ROOFING DETAILS

NOTES:

1). All details shown are standard details attained from the Metro Roofing technical information website.

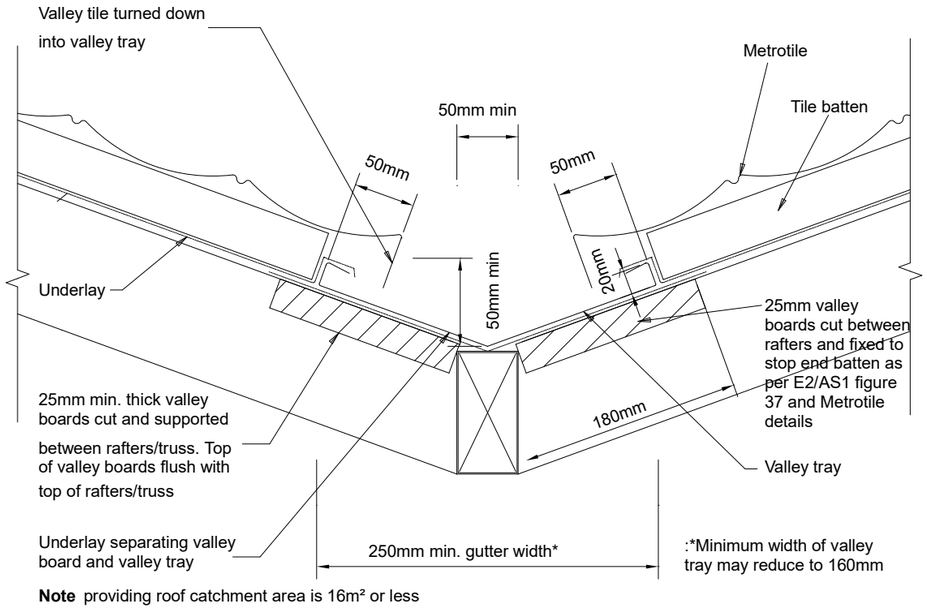
2). Specific materials for use. Refer to details for construction;
- Insulation: R2.6 Pink Batts thermal wall insulation
  R3.6 Pink Batts thermal ceiling insulation
- Roofing: Metrotile Shake pressed metal tile roofing with Satin finish over 50 x 40 SG8 battens at c/c to suit tile profile
- Roof Structure: 90 x 45 SG8 trusses at 900 c/c as per registered manufacturers design and specification
- Roofing Underlay: **Thermakraft 215 roofing underlay**
- Soffit Lining: 4.5mm Hardies Soffit lining with PVC jointers at sheet joints and blocking as required
- Spouting & Fascia: Continuous colorsteel spouting / fascia system
- Wall Framing: 90 x 45 SG8 H1.2 exterior wall framing with studs at 600 c/c & 2 row of dwangs.
  90 x 45 SG8 H1.2 interior wall framing with studs at 600 c/c & 2 row of dwangs
- Valley Boards: All timber valley boards to be SG8 H3.1 treated
- Valley Tray: Custom folded colorsteel valley flashing with colour to match roofing selection

3). Refer to other drawings for typical/standard details for claddings and foundations.



* Similar design detail for metal fascia systems

TYPICAL FASCIA/EAVE DETAIL



Note providing roof catchment area is 16m² or less

TYPICAL VALLEY DETAIL

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Details Roofing		
Jaspreet Singh & Inderjeet Kaur **Lot 33, DP 535457, Rolleston**		
GH CHRISTCHURCH SOUTH LTD		
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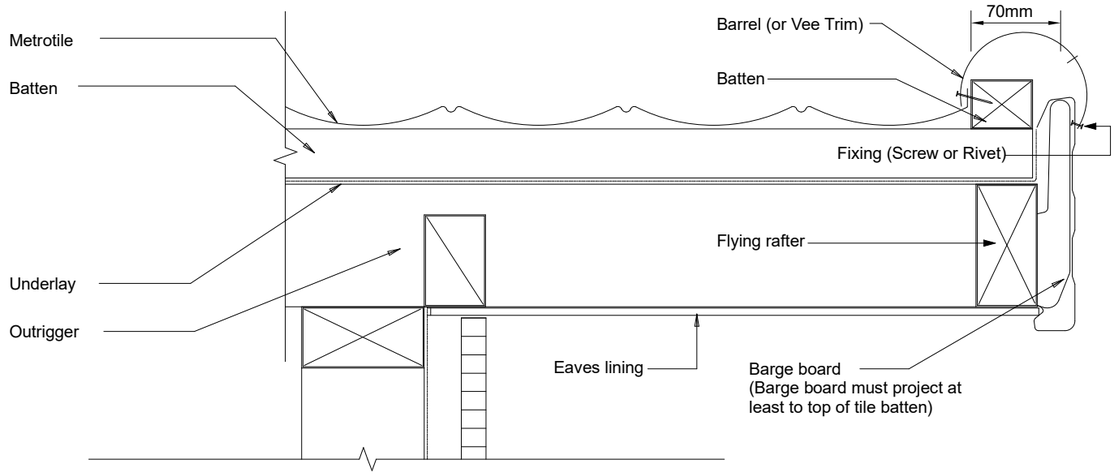
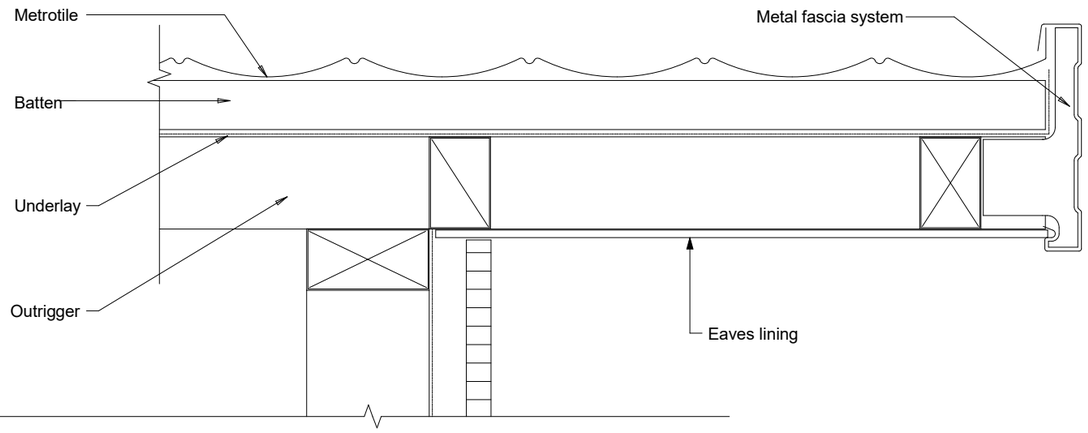
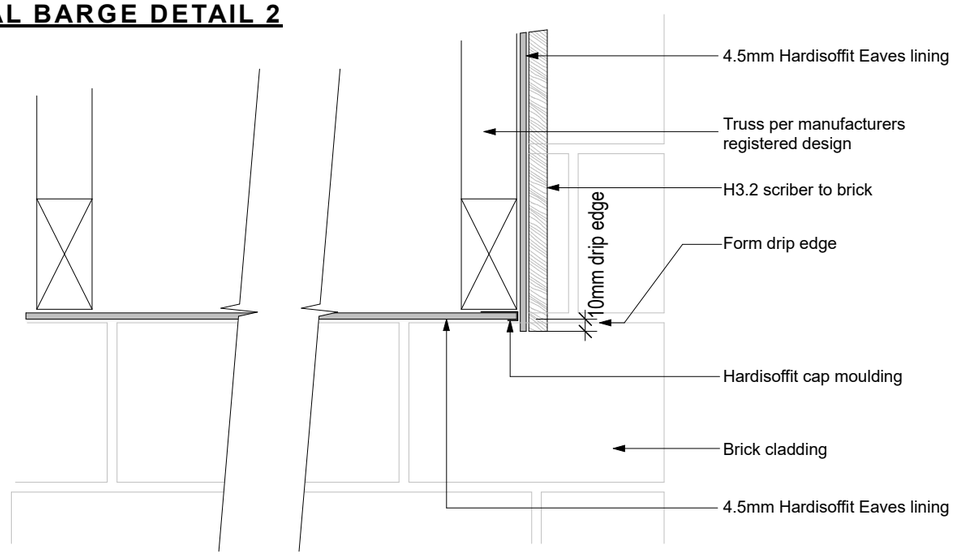


TYPICAL BARGE DETAIL 1



TYPICAL BARGE DETAIL 2



TYPICAL GABLE SOFFIT CLOSURE DETAIL

Dektite Aluminium

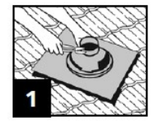
The best solution for stone chip and pressed metal tiles

- The base is 99.9% pure grade aluminium making it strong, malleable and easy to install.
- Environmentally friendly, ideal where potable water is collected.
- The best solution for stone chip and pressed metal tiles.
- EPDM withstands temperatures from -50ºC - 115ºC and up to 150ºC intermittently.

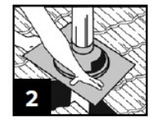
Code	Base (mm)	Pipe (mm)	Pitch	Colour
TFA 12-70	500 x 600	12-70	0-45°	BLACK (EPDM)
TFA 50-170	600 x 600	50-170	0-45°	
TFA 110-220	764 x 764	110-200	0-45°	
TFA 160-300	764 x 764	160-300	0-45°	
TFA 300-450	965 x 965	300-450	0-45°	

Page 10

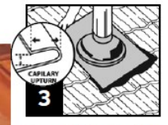
Installation Instructions:



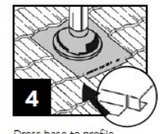
Trim Dektite cone to suit pipe size using sharp tin snips.



After lubricating the flue with water, slide Dektite down to the tile level.



Form an anti-capillary fold then place upper edge of base under up-stream tiles.



Dress base to profile, cut tabs on the bottom corners and fold under to stop wind lift .

Metrotile ROOFING SYSTEMS

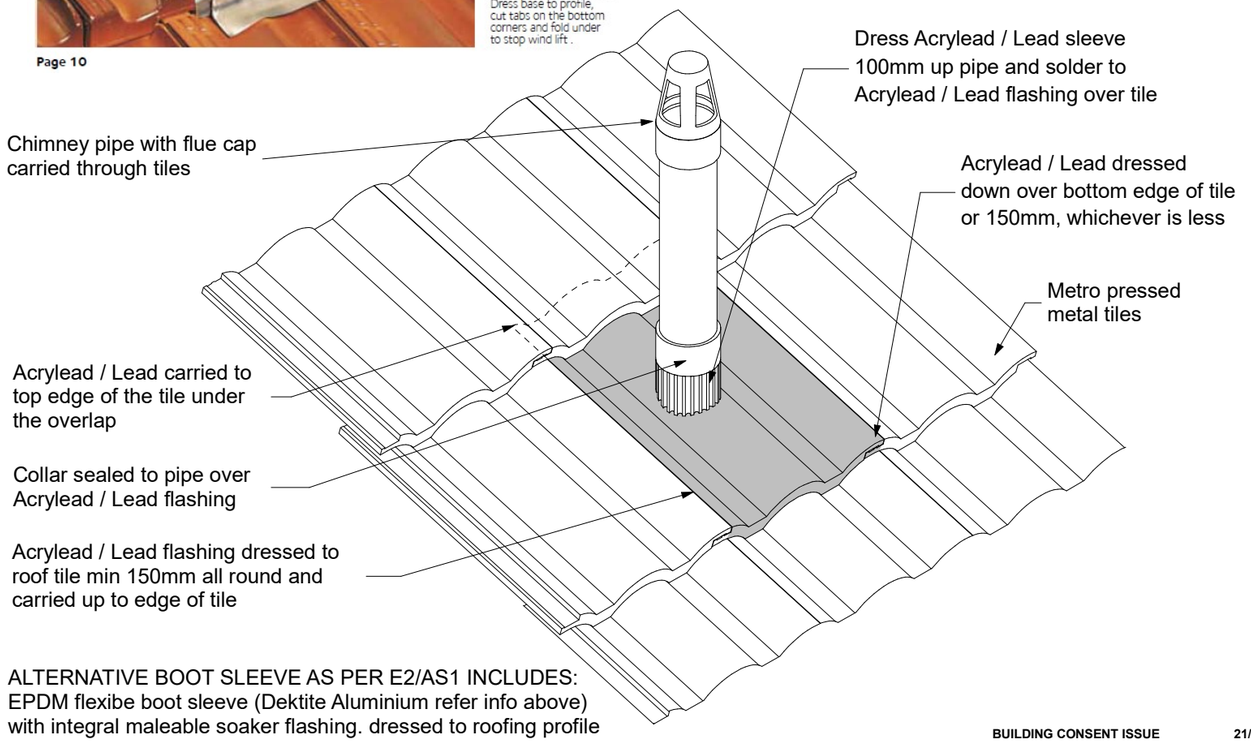
STANDARD ROOFING DETAILS

NOTES:

1). All details shown are standard details attained from the Metro Roofing technical information website.

2). Specific materials for use. Refer to details for construction;
- Insulation: R2.6 Pink Batts thermal wall insulation
  R3.6 Pink Batts thermal ceiling insulation
- Roofing: Metrotile Shake pressed metal tile roofing with Satin finish over 50 x 40 SG8 battens at c/c to suit tile profile
- Roof Structure: 90 x 45 SG8 trusses at 900 c/c as per registered manufacturers design and specification
- Roofing Underlay: **Thermakraft 215 roofing underlay**
- Soffit Lining: 4.5mm Hardies Soffit lining with PVC jointers at sheet joints and blocking as required
- Spouting & Fascia: Continuous colorsteel spouting / fascia system
- Wall Framing: 90 x 45 SG8 H1.2 exterior wall framing with studs at 600 c/c & 2 row of dwangs.
  90 x 45 SG8 H1.2 interior wall framing with studs at 600 c/c & 2 row of dwangs
- Valley Boards: All timber valley boards to be SG8 H3.1 treated
- Valley Tray: Custom folded colorsteel valley flashing with colour to match roofing selection

3). Refer to other drawings for typical/standard details for claddings and foundations.



ALTERNATIVE BOOT SLEEVE AS PER E2/AS1 INCLUDES:
EPDM flexibe boot sleeve (Dektite Aluminium refer info above) with integral maleable soaker flashing. dressed to roofing profile

TYPICAL ROOF PENETRATION DETAIL

BUILDING CONSENT ISSUE 21/11/2019

Details Roofing		
Jaspreet Singh & Inderjeet Kaur **Lot 33, DP 535457, Rolleston**		
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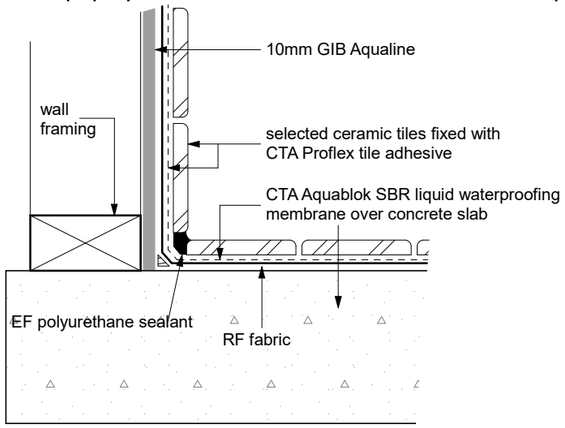
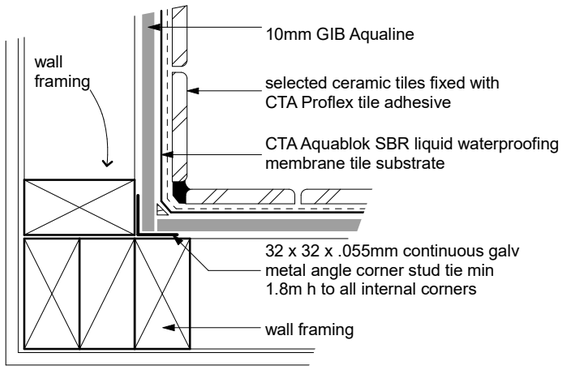
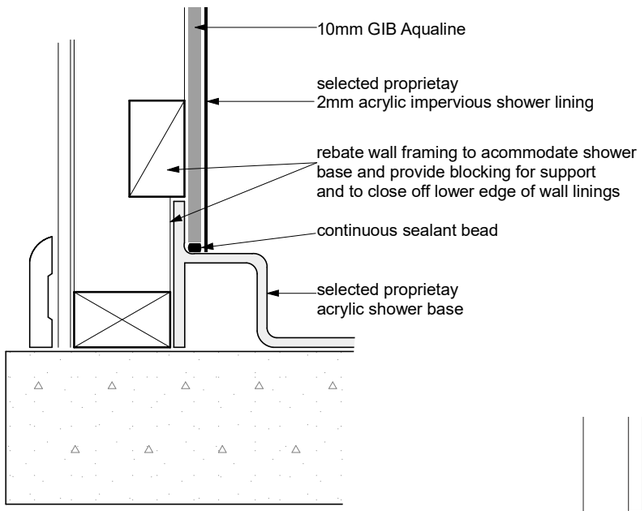


TYPICAL HORIZONTAL / VERTICAL TILE AND WATER-PROOFING JUNCTION



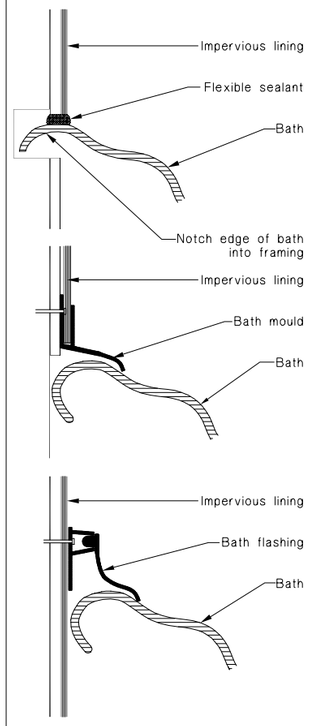
TYPICAL WATER-PROOFING INTERNAL CORNER DETAIL (PLAN VIEW)



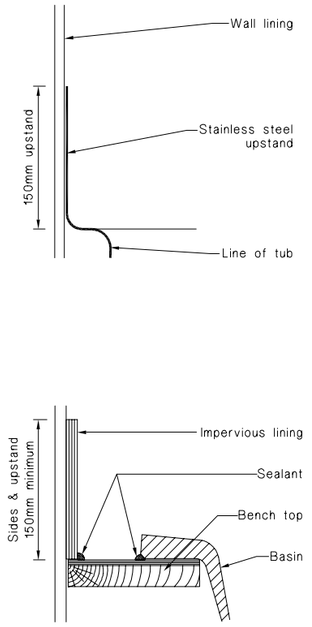
TYPICAL SHOWERBASE DETAIL

WATERSPLASH PREVENTATIVE CONSTRUCTION METHODS E3 AS1

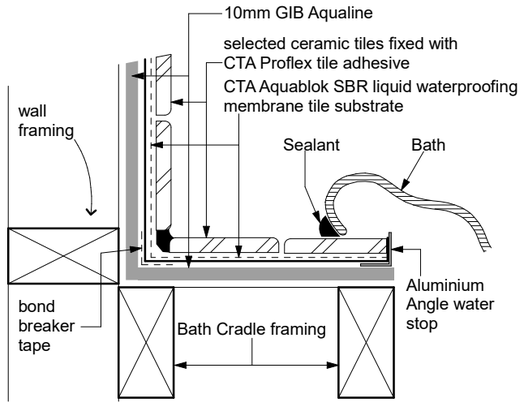
Figure 3: Baths, Basins, Tubs and Sinks, Joints against Wall Linings
Paragraph 3.2.2



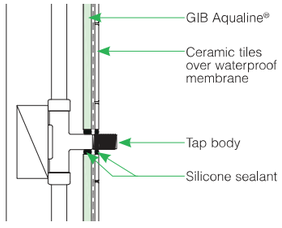
(a) Junctions of bath and wall



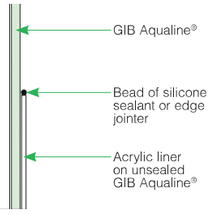
(b) Tub, sink and basin



TYPICAL BATH/CRADLE DETAIL



DETAIL AT SHOWER PENETRATIONS



DETAIL AT TOP OF IMPERVIOUS LINER

BEST FOR:

- Shower recesses
- Bathroom floor areas
- Laundries
- Kitchens
- Balconies
- Patios
- Steel (suitably primed)
- Concrete, cement render, plaster
- Wet area wall lining board
- Hardie/CSR sheet flooring
- Brick
- Light weight aggregate block
- Plasterboard, MDF
- Plywood sheet flooring

Aqua Blök

Aqua Blok is a waterborne flexible waterproof membrane designed for use under tiled finishes that is capable of accommodating expected structural movement.

SURFACE PREPARATION
All surfaces to be waterproofed must be firm, clean, dry, sound and smooth. All grease, oil, wax, curing compounds, dust, droppings, loose material, paint and any other contaminants must be removed. Fibrous cement sheeting, water resistant plasterboard, marine ply and level 3 treated ply must be fixed in accordance with the manufacturer's installation directions. Concrete must be allowed to cure for 28 days and cement render and sand / cement screeds must be allowed to cure for 7 days prior to the application of Aqua Blok. Porous substrates must first be primed using an appropriate water based primer. Damp or moist substrates and dense non – porous substrates must be primed using "Aqua Blok Epoxy Seal".
Apply an appropriate neutral cure silicone as a bond breaker to the wall/wall joints, the wall/floor joints, and wherever there is a change in the direction of the substrate. All sheet joints and fixings must also be filled with neutral cure silicone before applying a coat of Aqua Blok over all sheet joints, extending 100mm either side of the joints.

Static crack treatment
For cracks less than 1mm, clean thoroughly before filling with an appropriate neutral cure silicone. Aqua Blok cannot span gaps. For dynamic cracks/expansion joints and control joints contact the CTA Technical Department for further advice.

APPLICATION - Internal Wet Areas
Aqua Blok must be applied using a brush or roller.
A minimum thickness of 1mm dried film thickness of Aqua Blok is required for optimum waterproofing properties. The surface onto which Aqua Blok is applied must be continuous. Aqua Blok cannot span gaps. A minimum of two coats of Aqua Blok is required.

Shower Recesses
Apply Aqua Blok to the internal vertical corners of the shower using a brush extending at least 100mm either side of the joint. Ensure the corner is well coated. This must extend past the height of the shower rose. It is important to coat around the tap protrusions in the wall. The wall/floor joint must be coated with Aqua Blok. The membrane must extend onto the floor at least 100mm and onto the wall 100mm. Aqua Blok must extend a minimum of 25mm above the height of the hob. The walls should then be coated. Once the wall/wall junctions, wall/floor junctions, tap protrusions and walls are coated, then the shower floor must be coated. When coating the floor, the Aqua Blok must be dressed down into the floor waste a minimum of 50mm. The floor must be coated with the Aqua Blok ensuring a minimum dry film thickness of 1mm is achieved. Apply a final coat to ensure there are no imperfections in the membrane.

Walls of Wet Areas (excluding joints)
Aqua Blok must be applied at 0.5 litre per M² per coat. The minimum dry film thickness must be a minimum of 0.5mm.

Floors of Wet Areas
Apply Aqua Blok to the wall/floor joints and sheet flooring joints and fixings using a brush, extending at least 100mm either side of the joints. Once these areas are dry, the entire floor area can be coated. Sufficient Aqua Blok must be applied onto the surface to achieve a 1mm dried film thickness. Aqua Blok must be applied at 1 litre per M² per coat. Two coats are required.

Roofs
Aqua Blok is recommended as a waterproofing membrane for non-trafficable areas. Application is recommended as for "Floors of Wet Areas". There must be sufficient falls for effective drainage to eliminate ponding.

BUILDING CONSENT ISSUE 21/11/2019

Wet area Details
Jaspreet Singh & Inderjeet Kaur
Lot 33, DP 535457, Rolleston
GH CHRISTCHURCH SOUTH LTD
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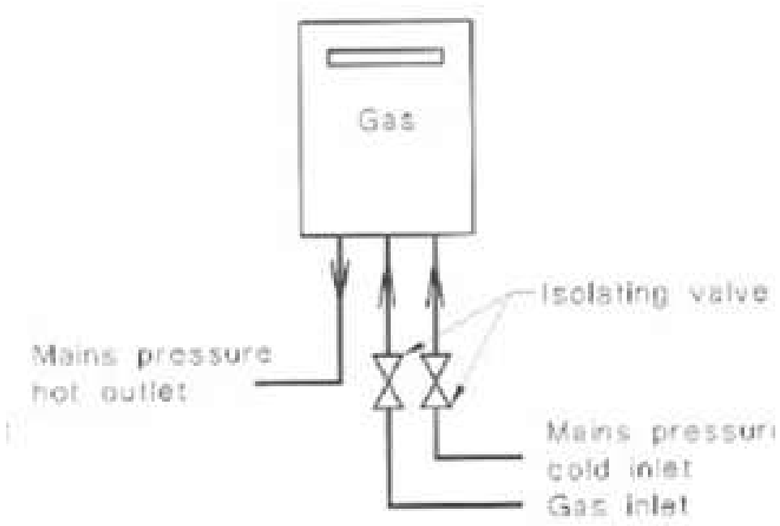

3.11.3 Lagging exposed to the weather

Where lagging is exposed to the weather, it shall be of a weatherproof type, or otherwise surrounded by a weatherproof enclosure which shall be not less durable than 0.50 mm galvanized steel sheet to AS 1397 and lapped so that water will not enter the joint.

3.11.4 Lagging of buried piping

Piping buried in the ground shall be insulated by means of an inert waterproof lagging. Where lagging is cut for jointing purposes, the joint shall be wrapped with a durable inert waterproof tape. All absorptive insulation material shall be effectively protected against moisture penetration by an outer cover of polyethylene sheeting or similar waterproof material.

3.11.5 Lagging of encased piping

All hot water piping including relief drainpipes encased in plaster or similar material, which may restrict movement due to expansion or contraction, shall be lagged throughout the whole buried length.

3.11.6 Piping to be lagged

Piping to be lagged shall be suitably wrapped where there is a danger of burns or to adequately retain heat losses. Lagging is relative to the piping material used and local authority requirements.

3.11.7 Insulation of piping

The insulation of piping and fittings shall be surrounded by an insulating material complying with Tables 3.1 and 3.2 as appropriate to the weather conditions likely to be experienced.

Where particularly severe weather conditions are possible over extended periods of time, the thickness of the insulation may need to be increased, or electrical heat tracer wires may need to be attached to the piping prior to the insulation being applied.

NOTE: In situations where the building, or part of the building, is not in use over the winter months, and no heating of the inside areas is maintained, it may be necessary to drain the pipes to prevent damage by freezing of the water. For effective drainage to occur, it is essential for air to freely enter the pipes, and for all draw-off taps and float valves to be left open when draining is being carried out.

3.12 WATER HEATER INSTALLATION

3.12.1 General

This Clause sets out the requirements for the installation of water heaters their location, support, cold water service valves and the vent or drain lines. It does not apply to solar water heaters.

3.12.2 Water heaters

Water heaters shall be installed in accordance with the manufacturer's instructions and shall comply with the requirements of AS 1056.1 or NZS 4602, NZS 4603, NZS 4606.1, NZS 4607, AS 1361, AS 3142 or AS 4552(AG 102), as appropriate. Oil-fired water heaters shall comply with AS 1690.

3.12.3 Selection of anode

If a replacement anode is required, reference shall be made to the appropriate manufacturer.

3.12.4 Working Pressure

Water heaters shall be installed so that the maximum rated working pressure is not exceeded during normal operation. Reference shall be made to the heater label for the relevant information.

3.12.5 Auxiliary controls

Auxiliary controls shall be mounted in accordance with the manufacturer's instructions and shall be adjusted as required.

3.4 WATER TEMPERATURE

3.4.1 Storage temperature

Hot water shall be stored at a minimum of 60°C so as to inhibit the growth of legionella bacteria.

3.4.2 Sanitary fixtures delivery temperature

All new hot water installations shall, at the outlet of all sanitary fixtures, used primarily for personal hygiene purposes, deliver hot water not exceeding 50°C.

NOTE: Compliance with these temperature limits is not mandatory for kitchen sinks and laundry tubs which should be set at preferably 60°C.

3.5 REFERENCED DOCUMENTS

The documents referenced in this Section are listed in Section 1, Clause 1.2.

3.6 LIMITATIONS ON THE USE OF PIPES AND FITTINGS

3.6.1 General

Limitations on the use of pipes and fittings shall also comply with the manufacturer's installations specifications.

3.6.3 Copper pipes

The following limitations apply to the use of copper pipes and fittings (see AS 1432 or NZS 3501):

(a) AS 1432 Type D shall only be used in the as-drawn condition except that local annealing, incidental to the making of joints, is permitted.

(b) AS 1432 Type D shall not be bent nor shall it be used to form compression joints.

(c) Bends in AS 1432 Types A, B and C shall be of uniform radii and free from wrinkling and flattening.

(d) Where installed below the ground in corrosive situations, pipes shall be protected in accordance with Clause 2.12.

TABLE 3.2

MINIMUM THICKNESSES FOR THERMAL INSULATION TO PREVENT FREEZING OF WATER IN PIPES

Pipe size	Thermal conductivity of insulating material, W/m.K				
	0.03	0.04	0.05	0.06	0.07
DN	Minimum thickness required, mm				
15	9	14	20	29	40
18	6	9	12	15	20
20	4	6	8	10	12
25	3	4	5	6	8
32	2	3	4	5	6

NOTE: The insulation thicknesses were calculated using the equations given in BS 5422 to just prevent freezing of water initially at 15°C if exposed to an ambient temperature of –5°C for a period of 8 h.

3.6.7 Polybutylene (PB)

The following limitations apply to the use of polybutylene pipes and fittings:

(a) Pipes and fittings shall not be less than Class 16.

(b) Pipes and fittings shall not be used within 1 m of the inlet to, or outlet from, a water heater.

(c) Pipes and fittings shall not be used where subject to direct sunlight.

(d) Pipes and fittings shall not be used in areas subject to contamination by petroleum products.

(e) Pipes and fittings shall not be used in continuously circulating hot water loops operating above 60°C. or for branch lines within 1 m of such loops, unless specified by the manufacturer as being suitable for this application.

(f) Pipes and fittings shall not be used for temperature pressure relief valve (TPR) drain lines.

(g) Pipes and fittings shall not be used downstream of an instantaneous water heater without a protection device to control maximum hot water temperature.

NOTE: Classes and temperature ratings for different working pressures are given in AS/NZS 2642.2.

3.6.8 Polyethylene (PE)

NOTE: Polyethylene pipes and fittings should not be used in hot water reticulation systems or within 1 m of the inlet to, or outlet from, a water heater. The inclusion of metallic isolating or control or safety valves within the nominated zone should not alter this requirement. Plastics valves or devices should not be permitted to be installed in the nominated zone.

BUILDING CONSENT ISSUE 21/11/2019

Hot Water Supply

Jaspreet Singh & Inderjeet Kaur

Lot 33, DP 535457, Rolleston

GH CHRISTCHURCH SOUTH LTD

DATE NOV '19 | SCALES: 1:5 | EC691 - dwg 17

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BRANTHWAITE DRIVE

Boundary 25.46m
Selwyn District Council 49° height recession plane

Planted Barked Garden 34.55 m²

1,500

21,230 | 1,233 | 1,000 | 2,000

Boundary 5.72m

4m Setback to principal building

2m Setback

6,248

Hydroseed Grassed Site Area 373.30 m²

5,806 | 3,117 | 2,453 | 2,580 | 3,155 | 4,120

Plain Grey Concrete patios 9.47 m²

3,000

120

1,510

Plain Grey Concrete patios 4.68 m²

Boundary 22.58m
Selwyn District Council 53° height recession plane

PROPOSED RESIDENCE

4m Setback to principal building

Planted Barked Garden 13.19 m²

2,000 | 1,000 | 8,312

Boundary 18.59m
Selwyn District Council 33° height recession plane

LB

5.5m Setback to garage door

Plain grey reinforced Concrete Driveway 29.64 m²

4,500

new proposed vehicle crossing

2,781

Hydroseed Grassed Site Area 15.89 m²

Planted Barked Garden 5.56 m²

1,480 | 600 | 1,410

2m Setback

Plain Grey Concrete patio 5.47 m²

Concrete pad for gas bottles 0.50 m²

Selwyn District Council 39° height recession plane

Boundary 29.92m

1,000 | 2,425 | 790 | 1,000 | 1,525 | 3,656 | 2,000

STREET

SPECIFIC PROJECT NOTES

LEGAL DESCRIPTION:

LOT	**33**
DP	**535457**
SITE AREA	**662.64 sqm**
STREET #	**Branthwaite Drive**

AREAS:

SITE AREA	**662.64 sqm**
AREA OVER CLADDING	**170.52 sq m**
AREA OVER FRAMING	**161.99 sq m**
SITE COVERAGE ACHIEVED	**25.73 %**
SITE COVERAGE ALLOWABLE	**40 %**

PAVING FALLS
Form paved areas with falls directed away from building

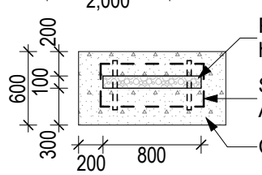
PAVING SLIP RESISTANCE
All exterior plain concrete paved areas to have a broomed or wood float finish to an average friction co-efficient of 0.65 - 0.85 and all exterior exposed aggregate finish to have an average friction co-efficient of 0.60 - 0.90 in accordance with TABLE 2 D1/AS1

FENCING
All boundary fencing to be confirmed and completed by owners and comply with subdivision covenants and Local Territorial Authorities rules.

LANDSCAPING
All soft landscaping is owner supplied - Refer GH variation list for effected items other than listed on this plan

LANDSCAPING LEGEND

- Plain Grey Reinforced Concrete Driveway 29.54 m² used
- Plain Grey Concrete Patio 20.00 m² used
- Prepared and Hydroseeded Grassed Site Area 389.28 m² used - By owner supply
- Prepared and Planted Bark Garden area 53.30 m² used - By owner supply 1 plant per m² std allowance with wooden garden edging as required
- 1.8m high treated and dressed Pinus radiata screening 29.48 LM used
- Clothesline - Folding frame type To be confirmed by Generation Homes
- LB — Letter box - metal with numbers



AC Pad Detail

BUILDING CONSENT ISSUE 21/11/2019

Landscaping Plan

Jaspreet Singh & Inderjeet Kaur

Lot 33, DP 535457, Rolleston

GH CHRISTCHURCH SOUTH LTD

DATE **NOV '19** | *SCALES:* **1:100, 1:5** | **EC691 - dwg 18**

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1.0 GENERAL NOTES:

1. The term 'The Engineer/SED' noted on these drawings, refers to the project specific structural engineer that is responsible for the design

2. The structural drawings shall be read in conjunction with the structural specification and the drawings/ documentation of other disciplines (other project drawings). Any discrepancies shall be referred to the engineer for resolution prior to the construction of work incorporating any discrepancy.

3. Substitution for or amendment of specified details or materials shall not be carried out without approval of the engineer.

4. The standards listed on the structural drawings refer to their latest issue including amendments that are current at the time of preparing the drawings

5. The contractor / builder is responsible for identifying the location of all existing services, confirming dimensions and setout requirements, and considering site conditions before and during construction.

6 The contractor / builder shall ensure that all inspections listed on the inspection schedule are completed before proceeding with further work. Failure to ensure that the inspections have been completed may result in the need for additional testing (including destructive) at the contractor / builders cost to establish compliance. Procerto Group may not be able to issue a PS4 for the work if inspections have not been completed.

7 The presence, location and details of nibs, upstands, recesses, plinths, penetrations, inserts, sleeves, chases, rebates, cast-in fixings, brackets, holes, flashings, damp-proofing, waterproofing, fire protection, corrosion protection, etc. are not necessarily shown on the structural drawings. Refer to the other project drawings or structural spec for these items.

8 The location, size and details of all penetrations, recesses, sleeves, holes, etc. in structural members, must be approved by the engineer prior to construction commencing unless shown on the structural drawings. These items shall be cast-in, formed, or shop fabricated and shall not be cut or cored on site unless noted otherwise on the project drawings or approved by the engineer.

2.0 DESIGN CRITERIA:

1 All residential construction work shall comply with the requirements of NZS 3604:2011, the New Zealand Building Code and approved documents and all other Acts, Regulations, Standards, and By Laws that are current at the time of construction. Please contact the engineer for clarification of any issues or where a standard detail is not applicable.

2 The protection and durability requirements of the various materials to be used on site shall comply with Section 4 of NZS 3604:2011. Refer to the drawings and specifications for any additional requirements.

3 The standard structures are designed in accordance with the requirements of the New Zealand building code, to the loads and conditions specifically laid out in the general notes to the structural drawings. The standard design must be reviewed prior to its application to a specific site and altered as the final designer finds necessary. A number of conditions must be validated for application to a specific site. Refer to calculation documents for validation items.

4 Each potential site requires specific assessment of the site specific design criteria to validate the use of the structural component of the standard design. Refer to geotechnical report for site validation items.

3.0 SETOUT AND DIMENSIONS:

1 Unless set out information is specifically noted on the structural drawings, refer to the other project drawings for setout information (e.g. set out of grids, levels, slopes, offsets, penetrations, etc.).

2 The orientation of structural members shall be as noted / depicted on the structural drawings.

3 Any dimensional discrepancies shall be referred to the engineer for resolution.

4 Do not scale the project drawings.

5 All dimensions are in millimetres UNO.

4.0 STRUCTURAL MEMBER REFERENCES:

Structural members are generally noted on the structural drawings using the following notation:

Foundation pads / pile caps	plan size x depth
Strip foundations	depth x depth
Steel beams	section designation
Steel columns	section designation
Masonry walls	structural thickness
Slabs on grade	structural thickness

5.0 TEMPORARY WORKS:

1 Unless specifically detailed on the structural drawings, all information shown on the structural drawings reflect details in their final form and location. The information presented reflects the design for the permanent works only and does not include for any staging or construction procedure or temporary works.

2 The contractor shall be responsible for all temporary works, including those designs, programmes and methodology necessary for the construction and erection of such works.

3 The contractor shall refer to the structural drawings and specification for any specific or general requirements.

6.0 SHOP DRAWING SUBMISSIONS:

1. The contractor shall produce shop drawings of all prefabricated / proprietary components for review by the engineer prior to fabrication / construction.

2. Shop drawing review indicates only that the supplied interpretation of the design has been reviewed without the need for further modification, other than the corrections indicated on the drawings returned. This does not relieve the contractor of the responsibility for ensuring the correctness of the drawings, site dimensions, the co-ordination of other services and trades, or for compliance with the contract documents. Nor can it be construed as authorising departures from the contract documents.

3. The contractor shall be responsible for the accuracy of all shop drawings and details. For submission requirements refer to the specification.

7.0 ABBREVIATIONS:

ADDNL	Additional	LG	Long
ALT	Alternate	LL	Live load (Q)
APPROX	Approximate / approximately	MA	Microalloyed reinforcement
ARCH	Architect / architectural	MAX	Maximum
B	Bottom	MIN	Minimum
BEGL	Below existing ground level	MS	Mild steel
BGL	Below ground level	M##	Metric bolt (##=bolt diameter)
BLDG	Building	MWS	Masonry wall (structural)
BM	Beam	N.B.	Nominal bore
C	Central	NA or N/A	Not applicable
c/c	Centre to centre	NF	Near face
CAR	Cover all round	NOM	Nominal
CBT	Coach bolt	No.	Number of
CHS	Circular hollow section	O/A	Overall
CJ	Construction Joint	O/H	Overhead
CL	Centre line	OD	Outside diameter
COL	Column	OPP	Opposite
CONC	Concrete	PC	Precast concrete
CONN	Connection	PCD	Pitch circle diameter
CONT	Continuous	PFC	Parallel flange channel
COS	Check on site	PL	Plate
crs.	Centres	RAD	Radius
CSW	Countersunk	RC	Reinforced concrete
CT	Tee beam cut from UC	REF	Refer, reference
CVR	Cover	REINF	Reinforcement / reinforcing
CWB	Custom welded beam	RHS	Rectangular hollow section
CWC	Custom welded column	RL	Reduced level
db	Bar diameter	RSA	Rolled steel angle
DET	Detail	RSC	Rolled steel cannel
DHS	Dimond hi-span purlins	R.S.D	Refer services drawings
DIA/Dia.	Diameter	S/S	Stainless steel
DIAG	Diagonal	SDL	Super-imposed dead load
DIM	Dimension	SECT	Section
DIST	Distance	SED	Specific engineer designed
DL	Dead load	SHS	Square hollow section
DOS	Determine on site	SIM	Similar
DP	Down pipe	SJ	Saw cut joint
DPM	Damp proof membrane	SLL	Structural slab level
DRG	Drawing	SLS	Serviceability limit state
EA	Equal angle	SP	Structural purpose category weld
EF	Each face	SQ	Square
EL or elev	Elevation	STA	Starter
EW	Each way	STD	Standard
EX	Out of	STG	Stagger
FB	Flybrace	STIFF	Stiffener
FDN	Foundation	STRP(S)	Stirrup(s)
FF	Far face	SYMM	Symmetrical
FFL	Finished floor level	T	Top
FL	Flat	T.O	Top of
FLG	Flange	T.O.C	Top of concrete
FRC	Fibre reinforced concrete	T.O.G	Top of grating
FRR	Fire resistance rating	T.O.R.C	Top of rough concrete
FPBW	Full penetration butt weld	T.O.S	Top of steel
FSBW	Full strength butt weld	TFB	Taper flange beam
FW	Fillet weld	TFC	Taper flange column
FWAR	Fillet weld all round	THK	Thick
GA	Gauge	TRM	Trimmer
GL	Ground level	TYP	Typical
GP	General purpose category weld	U/G	Underground
GR	Grade	U/S	Underside
H.D. BOLT	Holding down bolt	UA	Unequal angle
H.D. GALV	Hot dip galvanised	UB	Universal beam
HORIZ or (H)	Horizontal	UC	Universal column
ID	Inside diameter	ULS	Ultimate limit state
IL	Invert level	UNO	Unless noted otherwise
IP	Intersection point	VERT or (V)	Vertical
LAP	Lap at random		
Ld	Development length		

8.0 EARTHING:

1. For earthing details refer electrical engineer's details and specification.

2. Note that welding of earthing or lighting protection to main structural reinforcement shall not be permitted without the approval of the engineer.

3. The contractor shall provide min. D20 additional bars to form earthing link, refer electrical engineer's details.

9.0 FOUNDATION NOTES:

1. Foundations shall be located centrally below walls and columns UNO.

2. Prior to placing concrete the contractor shall request inspection of the prepared foundation trench / base by the engineer to confirm that the base of the foundations is located within the assumed founding soils. Over excavation and backfilling with engineering fill or site concrete may be necessary where soft soil / fill is encountered.

3. No services shall be routed below foundations unless noted or detailed on the structural drawings. The contractor shall notify the engineer where the services conflict with the structural requirements.

4. All foundations shall be constructed on 50mm thick 10MPa concrete blinding / site concrete. Note - slabs on grade do not require concrete blinding.

5. All footings shall be constructed and backfilled as soon as possible to avoid softening or drying out of the soil by exposure.

11.0 CONCRETE NOTES:

11.1 GENERAL

a. Refer to the structural specification for:
- Quality assurance, inspection and testing requirements
- Concrete supply and production requirements
- Shop drawing submission requirements
- Requirements for the support of construction work from other permanent works
- Requirements for the manufacture, fabrication and placement of reinforcement
- Concrete placing, finishing and curing requirements
- Requirements for slabs poured on grade
- Requirements for the grouting of bolts and starter bars
- Requirements for specialist finishes or coatings
- Requirements for the repair of defective concrete
- Site mixed concrete requirements
- Additional tolerances
- Project specific requirements

11.2 CONCRETE GRADES, SUPPLY AND PRODUCTION

a. Concrete grades are specified as '28 day specified compressive strengths' as defined in NZS 3109. All concrete supply and production shall be in accordance with NZS 3104.

b. Concrete batch strength certificates may be requested by Procerto Group and the contractor shall ensure that they are available. If concrete strength certificates are not available the contractor shall take core samples and have them tested at a certified facility at their own cost.

c. All other concrete shall be 'special' concrete with a grade of 20MPa UNO on the structural drawings, except that site or blinding concrete may be a 'prescribed mix' concrete with a minimum grade of 10MPa.

11.3 CONSTRUCTION

a. In addition to the concrete notes drawings and the specification requirements, all concrete work described on the structural drawings shall be constructed in accordance with the requirements of NZS 3101 and NZS 3109 (including any referenced standards). Note that in some cases the requirements of the specification and structural drawings may exceed the minimum requirements for concrete construction documented in the NZS 3101 and NZS 3109 standards. In these cases, the requirements of the specification and structural drawings shall take precedence over the provision of the standards.

b. No concrete shall be placed until the engineer has had the opportunity to observe that the drawings and specifications have been complied with.

c. All construction joints shall be type 'B' construction joints prepared in accordance with NZS 3109. Methods which avoid scabbling are preferred for intentionally roughening the concrete surface at construction joints.

11.4 CONCRETE SURFACE FINISHES

a. UNO on the structural drawings or shown on other project drawings, surface finishes shall be as follows (refer NZS 3114 for definitions) :

i)	formed foundation surfaces	F1
ii)	formed surfaces of beams, columns and walls	F3
iii)	uniformed interior slab finishes	U3
iv)	uniformed exterior slab finishes	U5

b. Refer to architectural drawings for other requirements. The contractor is to confirm the required finishes before commencing the concrete pour.

11.5 CONCRETE COVER TO REINFORCEMENT FOR DURABILITY AND FIRE PROTECTION

a. UNO on the structural drawings, minimum concrete covers shall be as follows :

i) The minimum concrete cover for concrete cast directly on or against the ground shall be 75mm.
ii) The minimum concrete cover when a damp proof membrane is used between the ground and the cast concrete shall be 50mm.
iii) The minimum concrete cover for formed (e.g. cast against formwork) or free surfaces (e.g. top surface of slab, etc) shall be as noted in table A.

Table A : Standard reinforcement covers

Construction Type/Method	Exposure situation in final constructed state	
	Exposed to earth or weather	Not exposed to earth or weather
Cast in place	MIN 75 cover	MIN 50 cover

b. The minimum concrete cover shall be measured to the edge of chamfers, recesses, rebates, etc where applicable.

c. No reinforcement or wire ties shall project into the minimum concrete cover thickness.

11.6 REINFORCEMENT CLASS, MANUFACTURING PROCESS AND RESTRICTIONS

a. All reinforcement bars shall be Grade 300E or Grade 500E to AS/NZS 4671, except that welded wire mesh shall have a minimum grade of 485MPa UNO on the structural drawings.

b. All Grade 500 reinforcement bars shall be manufactured using the micro alloy MA process, unless specifically approved otherwise by the engineer. Grade 500 MA reinforcement bars hall not be straightened or rebent without following a rebending procedure approved by the engineer.

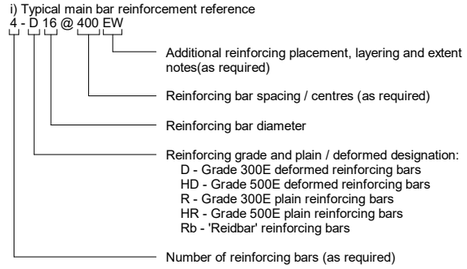
c. If the use of Grade 500 reinforcement bars is approved by the engineer they shall not be welded (including tack welds), hot-dipped galvanised, threaded, hot bent, straightened or re-bent after initial bending.

d. The replacement of reinforcement which has been detailed on the structural drawings with an equivalent strength welded wire mesh or with equivalent strength of reinforcement bars of a different grade shall not be permitted under any circumstances.

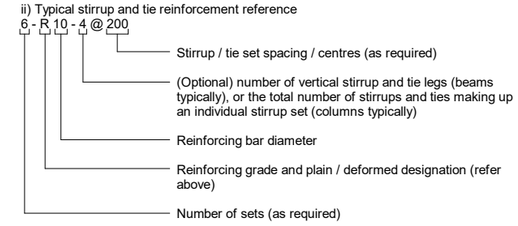
11.7 REINFORCEMENT NOTATION AND DESIGNATION EXPLANATION

Reinforcement is generally represented on the structural drawings as follows:

i) Typical main bar reinforcement reference

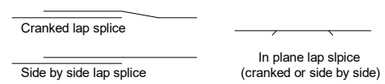


ii) Typical stirrup and tie reinforcement reference



iii) Typical hook representation

iv) Typical lap splice representation



11.8 PLACEMENT OF REINFORCEMENT

a. Reinforcement shall be clean and free from mud, loose rust / mill scale, concrete laitance oil, etc at the time concrete is placed.

b. All reinforcement shall be adequately secured against displacement at intersections using annealed iron wire ties with a diameter of greater than 1.25mm, or by approved clips.

c. Supports shall be used to maintain the correct position of reinforcement during the placement and compaction of concrete. The number of rigid supports shall not be less than:

i) slab reinfocring - two supports per square metre
ii) footing reinforcing - one line of support per metre length

d. Splicing of reinforcement, whether by lapping, welding or mechanical splice, shall only be carried out as shown on the structural drawings or as specifically approved by the engineer.

e. Welded wire mesh and reinforcement in slabs on grade and in toppings shall be spliced as required, but not through slab joints.

f. All bars terminating at slab edge/beam end/top of pile cap or column shall be provided with a hook uno

11.9 WELDING OF REINFORCEMENT

a. Welding of reinforcement (including tack welding) shall only be carried out with the express approval of the engineer.

b. No welding of earthing or lighting protection to structural reinforcement shall be permitted without the approval of the engineer.

c. Where the welding of reinforcing has been approved or is detailed on the structural drawings, the welding shall use approved qualified welding procedures and be carried out by suitably qualified welders. All details of the welding shall be in accordance with the requirements of AS/NZS 1554.3.

procerto BUILDING PROJECT CERTAINTY

Revision	Amendment	Approved	Revision Date
A	For Consent		05.11.19

ENGINEERING NEW ZEALAND OFFICIAL MEMBER
Procerto Group Limited
182 Papanui Road,
Merivale, Christchurch
CPEng 127491

Drawn/ Designed	Date
GRH	6/11/2019 4:32:57 PM
Project No.	Scale
J000545	1 : 1 @A3

Project
Generation Homes Ltd
1 Richmond Avenue, Christchurch
Branthwaite Lot 33

Title
STRUCTURAL NOTES

	Sheet No.	Revision
Consent	S.0.01	Rev A

www.procerto.co.nz

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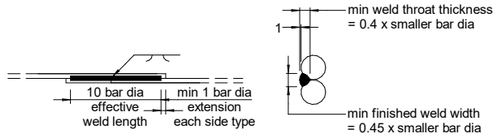
The minimum weld size (throat thickness), finished weld width and weld length for single and double sided welded lap splices suitable for the splicing of stirrups and spirals (where detailed on the structural drawings) shall be as follows:

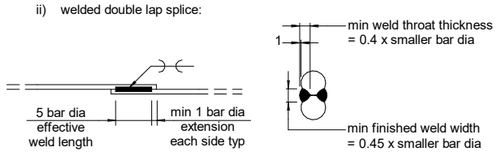
a.

i) welded single lap splice:



b.

ii) welded double lap splice:



All welding of reinforcement shall be category sp welds.

Welds shall not be located closer than 3 bar diameters from the start of a bend or any portion of a bar which has been bent and subsequently re-straightened.

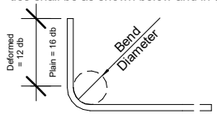
11.10 BENDING OF REINFORCEMENT

All reinforcing bars shall be cold bent using proper bending tools of the correct diameter to guard against notching of bars.

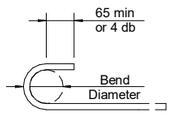
Reinforcing bars partially embedded in concrete shall not be site bent unless shown on the structural drawings or specifically approved by the engineer.

Where reinforcing bars are required to be bent and re-straightened for transportation or to aid construction sequencing etc, the bars shall be initially bent to a minimum bend diameter of twice that noted in table 'b' below, with the start of the bend being a minimum of 3 bar diameters from the member face.

Unless noted otherwise on the structural drawings bend for all bars except stirrups and ties shall be as shown below and in table B below:



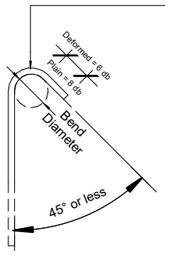
standard 90° hook



standard 180° (semi-circular) hook

Table B : Standard bar bends - main bars		
Reinforcing grade	bar diameter	minimum bend diameter
Grade 300 & 500	6 to 20	5 bar diameters
	25 to 32	6 bar diameters
Grade 300 & 500 5 bar diameters Or after bending	6 to 16	5 bar diameters
	20 to 32	8 bar diameters

Unless noted otherwise on the structural drawings the bends for stirrups and ties shall be as shown below and in table C below.



Unless noted otherwise all hooks on stirrups, ties and spirals must be anchored and fit closely around main bars, the diameter of the bar bend shall be equal to that of the enclosed bar, but not less than the values in table C below.

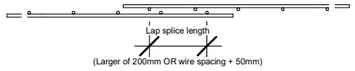
Standard 135° stirrup and tie hook

Table C : Standard bar bends - ties & stirrups			
Reinforcing grade	bar diameter	minimum bend diameter	
		plain bars	deformed bars
Grade 300 & 500	6 to 20	2 bar diameters	4 bar diameters
Grade 300 & 500 5 bar diameters Or after bending	6 to 16	2 bar diameters	5 bar diameters

11.11 LAP SPLICES OF PLAIN AND DEFORMED WELDED WIRE MESH

Unless noted otherwise on the structural drawings, plain or deformed welded wire mesh shall be lap spliced as required at the ends and sides of sheets as noted below. All welded wire mesh shall be lapped using contact laps with wires aligned between adjacent sheets.

a. the minimum lap splice length for welded wire mesh made up of plain wires shall consist of a minimum overlap between outermost cross wires of the larger of 200mm or the wire spacing + 50mm as shown below.



b. the minimum lap splice length for welded wire mesh made up of deformed wire shall be either as noted above for welded wire mesh with plain wires, or based on the maximum wire diameter making up the welded wire mesh as shown below and in table D below.

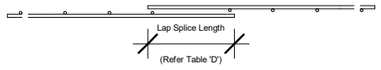
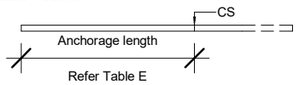


Table D : Standard welded wire mesh lap lengths							
Concrete Grade	Mesh Grade	Lap Type	Deformed Wire Diameter				
			up to 4 dia	up to 6 dia	up to 8 dia	up to 10 dia	up to 12 dia
30MPa	485	Type 'M1' lap	300	400	550	650	750
		Type 'M2' lap	250	350	400	500	600
Type 'M1' lap		for horizontal welded wire mesh where more than 300mm of fresh concrete is cast in the member below the bar					
Type 'M2' lap		for all other situations					

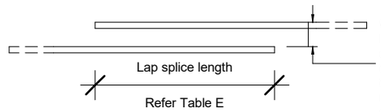
11.12 REINFORCEMENT ANCHORAGE AND LAP SPLICES WITH DEFORMED STRAIGHT BARS

a. Unless noted otherwise on the structural drawings the minimum anchorage length for straight anchorages past the critical section (shown cs) shall be as shown below and in table F below.



b. Unless noted otherwise on the structural drawings the minimum lap splice length for cranked and side by side laps shall be as shown below and in table E below.

i) All other reinforcement shall be lapped with side by side lap splices as follows.

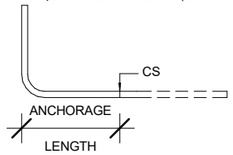


Where the clear spacing between the bars exceeds 3 bar diameters in a non-contact lap, then the lap splice length from table 'e' shall be increased by a minimum of 1.5 x the bar spacing.

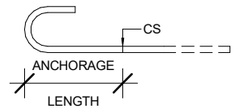
Table E : Standard Reinforcement Lap Lengths (Ld)								
Concrete Grade	Reinforcing Grade	Lap Type	Deformed bar diameter					
			10	12	16	20	25	32
Grade 30 MPa Concrete	Grade 300	type 'l1' lap	400	500	650	800	950	1200
		type 'l2' lap	350	400	500	600	750	950
	Grade 500	type 'l1' lap	650	800	1000	1250	1550	1950
		type 'l2' lap	500	600	800	1000	1200	1550
Type 'l1' lap		for horizontal reinforcement where more than 300mm of fresh concrete is cast in the member below the bar						
Type 'l2' lap		for all other situations						

11.13 REINFORCEMENT ANCHORAGE WITH STANDARD HOOKS

a. Unless noted otherwise on the structural drawings the minimum anchorage length for hooks past the critical section (shown cs) shall be as shown below and in table F below.



Standard 90° hook



Standard 180°(semi-circular) hook

Table F : Standard Reinforcement Anchorage								
Concrete Grade	Reinforcing Grade	Hook Type	Deformed bar diameter					
			10	12	16	20	25	32
Grade 30 mpa Concrete	Grade 300	Type 'h1' hook	150	150	200	250	300	350
		Type 'h2' hook	200	200	250	350	400	500
	Grade 500	Type 'h1' hook	200	250	300	350	450	550
		Type 'h2' hook	300	350	400	500	600	750
Type 'l1' lap		for side cover normal to the plane of the hook of greater than or equal to 60mm, and with end cover to the hook extension of greater than or equal to 40mm						
Type 'l2' lap		for all other situations						

12.0 STEELWORK NOTES:

12.1 MATERIALS

a. All steel members are to be grade 300 or grade 350 steel to as 1163, AS/NZS 3678 and AS/NZS 3679 or equivalent. (refer specification).

b. All gusset plates, cleats & stiffeners shall be 10mm thick UNO. & grade 250 steel to AS/NZS 3678 or equivalent, except where noted.

12.2 FABRICATION SHALL COMPLY WITH NZS 3404, AS MODIFIED BELOW

a. Straightness of members after fabrication & before erection uno shall not deviate more than:

Struts, columns	= l/1000
Other members	= l/600

b. Length shall not deviate from the true length by:

Struts with end bearing	= ± 1mm
Other members up to l = 9.0m	= + 0mm, - 3mm
Other members over l = 9.0m	= + 0mm, - 5mm

12.3 MEMBER LOCATION & DIMENSION SET-OUT

a. All columns, beams, braces & struts of UB, UC, CHC, RHS, SHS or other symmetrical form shall be located on grid or dimension centre lines UNO.

b. All PFC shall have back web face on grid or dimension centre line UNO.

c. All EA & UA shall have centroid on grid or dimension centre line UNO.

12.4 ERECTION

a. All erection work shall comply with NZS3404, AS4100 and SAA MA1.9.

b. Plumbness of struts/columns shall be within L/1000 of true vertical.

c. Steel beams shall be placed with natural hog/precamber upwards.

d. Padded slings shall be used to handle all corrosion-protected steelwork.

e. Non-shrink grout shall be used to fill all spaces between concrete or masonry and steel steel bearing plates. Grout shall have a minimum compressive strength of 50mpa at 28 days determined from the cylinders moulded, cured and tested in accordance with section 5 of NZS 3112 part 4 UNO.

12.5 BOLTING

a. All holes shall be drilled & shall be 2mm larger than the bolt diameter for bolts under 30mm dia., 3mm larger for m30 bolts & larger UNO. Holes in baseplates may be 6mm larger than the bolt diameter UNO.

b. All bolts shall have at least three threads projecting through both sides of nut.

c. All bolts shall be M20-8.8/s UNO.

d. All bolts, nuts & washers shall be hot dip galvanised by the manufacturer to conform to AS 1214.

e. Tightening procedure shall comply with NZS 3404. Bolting abbreviations are to NZS 3404 procedures:

Table A : Standard bolting notations						
Bolt number	M	Bolt dia.	Strength grade	Threads in bearing plane	Tightening procedure	Faying Face
one or more	isometric thread profile	10 12 16 20 24 30 36	4.6 commercial 8.8 high strength	N or no symbol (threads included) X (threads excluded from bearing plane)	S (snug tight) T (fully tight) (half turn of nut or equivalent)	no special requirement F (friction type joint) B (bearing type) joint)
examples are:		2-m30-8.8n/tb. 2-m30-8.8x/tb.			1-m16-4.6/s 6-m24-8.8/tf	

12.6 BENDING OF FLAT OR PLATE

a. Bent flat or plate shall be bent around a round former of minimum radius of 2.5 x plate or flat thickness.

12.7 WELDING SHALL COMPLY WITH AS/NZS 1554.1

a. Minimum weld size shall be :

For 12mm plate & under	5mm continuous fillet UNO.
For 16mm plate & over	6mm continuous fillet UNO.

b. All fillet welds to be sp to AS/NZS 1554.1 UNO. All butt welds to be sp to AS/NZS 1554.1 UNO.

c. Welding to all sections less than 40mm thick shall be with electrodes e48xx to as 1553 UNO.

d. Welding to all sections greater than 40mm thick shall be with electrodes e48xxlh to AS 1553 UNO.

e. For work exposed to the weather, seal welds shall be made whether shown on the drawings or not, unless specifically not required.

12.8 PRECAMBERED STEEL BEAMS

a. Refer cb1se040 for precamber requirements

12.9 FIRE PROTECTION

a. For steelwork fire rating requirements refer to specification.

12.10 PAINTING

a. All steelwork to be primed unless noted on the drawings.

b. Steelwork embedded in concrete must not be painted.

c. For finishing paint systems to steelwork refer to specification.

12.11 NON-STRUCTURAL STEELWORK (METAL WORK)

a. Non-structural steelwork is typically not shown on the structural drawings. For metal work to support architectural finishes, flashings, fixing plates etc. Refer architectural drawings.

12.12 FIXING OF TIMBER TO STEELWORK

a. Provide holes for fixing timberwork to steelwork as required. The details of fixing requirements where not specifically detailed on the structural drawings shall be in accordance with the requirements of NZS 3604. UNO provide M12 bolts at max 900 centres, sleeve all holes through hollow sections.

13.0 CONCRETE MASONRY NOTES:

13.1 GENERAL

a. Masonry units shall be manufactured in accordance with AS/NZS 4455. All masonry walls shall be constructed to the requirements of NZS 4210: for grade 'B' masonry.

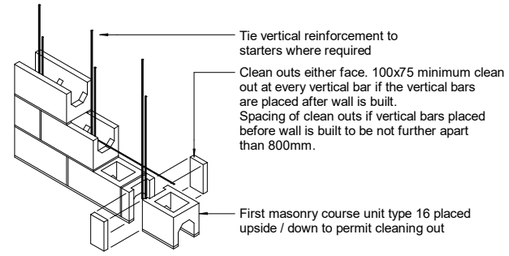
b. All masonry shall be laid stretcher (running) bond throughout unless noted otherwise on the drawings.

c. All masonry grout to be 17.5 mpa min strength at 28 days.

d. All masonry cells shall be filled with grout unless noted on the drawings. (all cells filled construction). Use open end bond beam blocks throughout.

e. Reinforcement lap length
Grade 300 reinforcement = 40 bar diameter lap length
Grade 500 reinforcement = 70 bar diameter lap length

f. All reinforcement starters to be accurately located and spaced to suit masonry modules. Bending reinforcement at slab level to align with masonry unit cores will not be permitted. For required tolerances on placement of reinforcement refer to the specification.



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Revision	Amendment	Approved	Revision Date
A	For Consent		05.11.19

ENGINEERING NEW ZEALAND OFFICIAL MEMBER
Procerto Group Limited
182 Papanui Road,
Merivale, Christchurch
CPEng 127491

Drawn/ Designed	Date
GRH	6/11/2019 4:32:57 PM
Project No.	Scale
J000545	As indicated @A3

Project
Generation Homes Ltd
1 Richmond Avenue, Christchurch
Branthwaite Lot 33

Title
STRUCTURAL NOTES

	Sheet No.	Revision
Consent	S.0.02	Rev A

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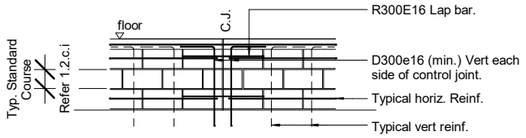
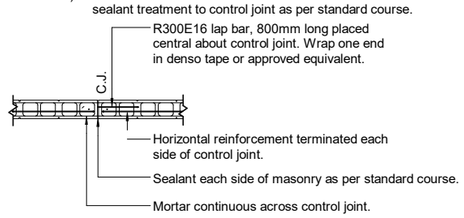
13.2 MASONRY WALL CONTROL JOINTS

a. Provide control joints at a maximum of 5.0m centres.

b. Standard masonry control joint (c.j.):



i) standard course :
sealant treatment to control joint as per standard course.



13.3 PENETRATIONS

Allow for making all necessary penetrations and embedment of all necessary conduits and fixings in masonry walls.

Penetrations shall generally be formed in walls rather than cut after.

14.0 TIMBER NOTES:

14.1 GENERAL

UNO on the project drawings these notes and details shall comply with NZS 3604:2011.

All dimensions shall be verified on site by the contractor before commencement of work.

Structural drawings to be read in conjunction with the drawings of other discaplines. (e.g. Architect, mechanical, building services, electrical, etc.)

These standard details are not complete in themselves and reference should be made to specific details within the contract drawings.

Unless otherwise specified on the project drawings, these standard details and notes shall apply.

14.2 TOLERANCES

Green gauged and dry dressed timber:

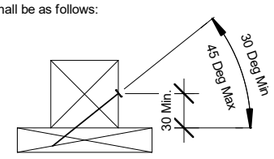
a.	Width (b)	+/-0.5mm
b.	Depth (d)	+/-0.5mm
c.	Length (l) factor	+/-1.5mm per 1000mm when length is a critical
d.	Bow	$(L/80)^2$ x 1/b mm
e.	Crook	$(L/80)^2$ x 1/d mm
f.	Twist	L/(300 x b) mm per mm width of face of timber
g.	Cup	as per NZS 3631

14.3 PENETRATION OF NAILS AND SCREWS

All nails shall be flathead type uno.

Nails shall be fully driven.

Skew nails shall be as follows:

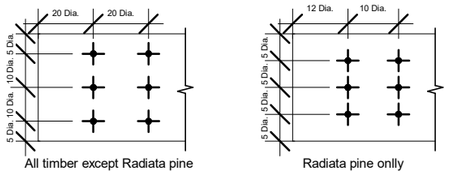


The minimum presentation of a nail into the piece of timber receiving the point of the nail should be 0.5 times the length of the nail to achieve maximum effect. penetration should not be less that 0.4 times the length of the nail.

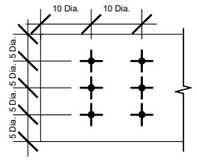
The minimum presentation of a screw into the piece of timber receiving the screw point should be 7 times the shank diameter to achieve maximum effect. penetration shall not be less than 4 times the shank diameter to NZS 3603 and NZS 3604

14.4 EDGE DISTANCES FOR NAILS, SCREWS AND BOLTS:

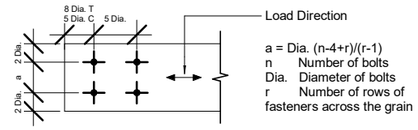
Minimum spacing of nails - No Preboring



b. Minimum spacing of nails and screws - Prebored to 0.8Dia. (All Timber)



c. Minimum spacing of bolts - Loaded parallel to grain (All Timber)



d. Minimum spacing of bolts - Loaded perpendicular to grain (All Timber)

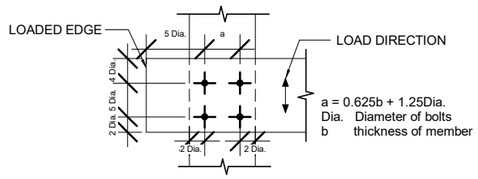
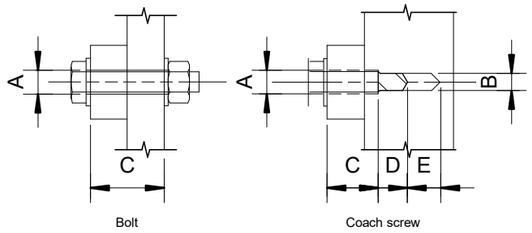


TABLE C : Bolt Spacing (mm)					
12mm diameter		16mm diameter		20mm diameter	
Spacing (B)	Spacing (a)	Thickness (B)	Spacing (a)	Thickness (B)	Spacing (a)
47 69 - 144	45 60	47 69 94 - 144	48 65 80	47 69 94 119 - 144	54 68 82 100

14.5 COACH SCREW AND BOLT INSTALLATION



Dimensions show extent of pre-drilled holes

a. Hole diameter (bolt diameter + 2mm)
b. Root diameter of thread
c. Length of shank
d. Length of thread to NZS 3606
e. 2 x root diameter

14.6 WASHERS

a. Provide mild steel washers between bolt head and nut and contact surface as per table D:

TABLE D: Washers to suit bolt size	
Max bolt dia mm	Min washer size
8	25 x 25 x 1.5 mm
12	50 x 50 x 3 mm
20	65 x 65 x 5 mm
GREATER THAN 20	75 x 75 x 8 mm

procerto BUILDING PROJECT CERTAINTY

Revision	Amendment	Approved	Revision Date
A	For Consent		05.11.19

Procerto Group Limited
182 Papanui Road,
Merivale, Christchurch
CPEng 127491

Drawn/ Designed	Date
GRH	6/11/2019 4:32:58 PM
Project No.	Scale
J000545	As indicated @A3

Project
Generation Homes Ltd
1 Richmond Avenue, Christchurch
Branthwaite Lot 33

Title
STRUCTURAL NOTES

Consent	Sheet No.	Revision
	S.0.03	Rev A

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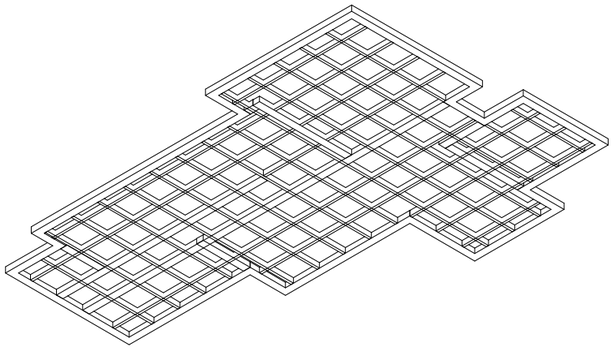

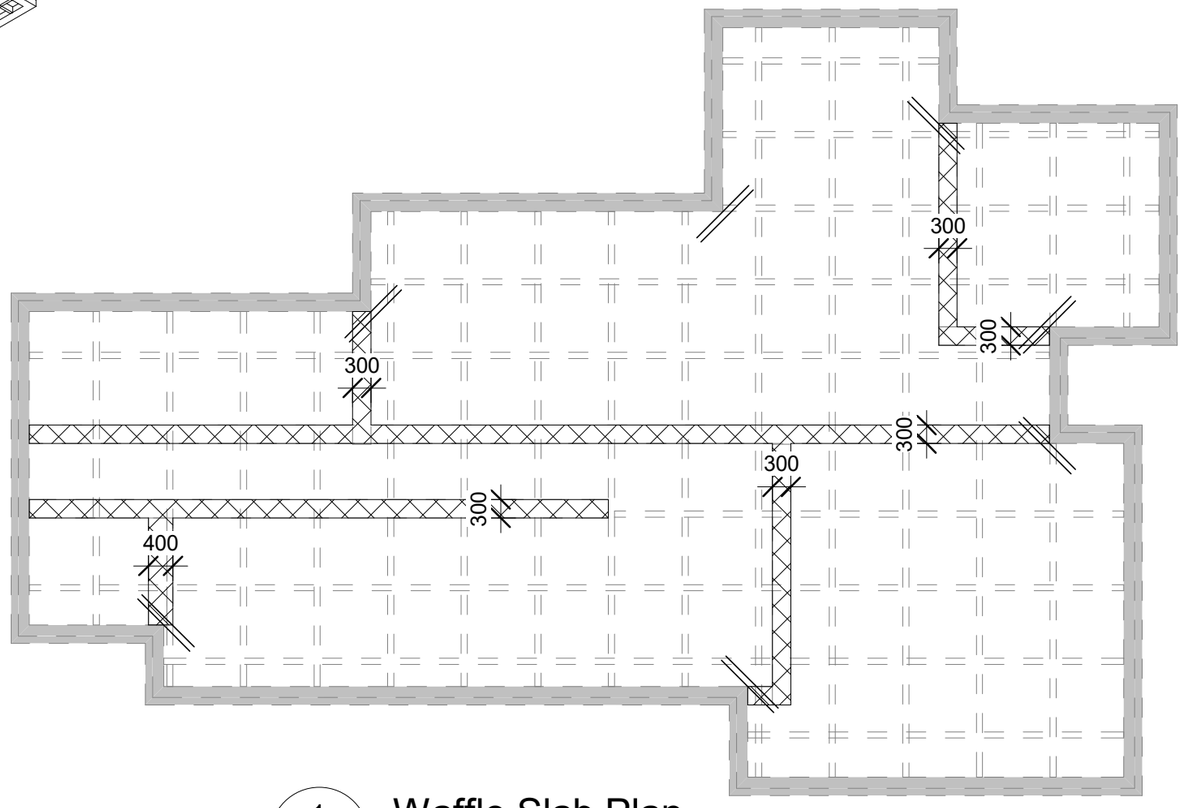

1 Waffle Slab Plan
1 : 100

Legend:

	1.	Edge Thickening
	2.	Internal Thickening
	3.	2-HD12 bars 1200 long
AR	4.	Architectural Rebate (Refer Architects drawings)
SC	5.	Sawcut (Refer detail)
FJ	6.	Free Joint (Refer Detail)

Concrete General Notes:

1. All details not specifically described on these drawings shall comply with the Firth RibRaft Technical Manual dated Jan 2012. Contact the engineer where a standard detail is not applicable.
2. All service pipes shall be laid within the pods and NOT in the hardfill or improved ground. All penetrations shall be carried out in accordance with the Firth Ribraft Technical Manual dated Jan 2012.
3. Where underfloor or inslab heating is to be installed the floor slab shall be increased to 130mm thick.
4. Sawcutting is to extend to no more than 1/4 of the depth of the slab or 25mm (whichever is the smaller)
5. Polystyrene pods shall be a maximum of 1100mm x 1100mm x 220mm.
6. Do not use polystyrene spacers as bar chairs.
7. For areas with polished floors contact the engineer for further details

Concrete Pour Notes:

1. Foundation and slab to be poured in a single pour to provide a 28 day strength of 20MPa.

Curing and Protection Notes:

1. Take care to protect and cure all concrete adequately and in accordance with NZS 3109.
2. Apply a curing compound to all concrete floor slabs immediately on completion of the surface finishing (or cure by ponding).

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Revision	Amendment	Approved	Revision Date
A	For Consent		05.11.19

SHEET LIST

Number	Name	Revision
S.0.01	STRUCTURAL NOTES	A
S.0.02	STRUCTURAL NOTES	A
S.0.03	STRUCTURAL NOTES	A
S.1.01	STRUCTURAL SLAB PLAN	A
S.5.01	SLAB STRUCTURAL DETAILS	A
S.5.02	SLAB PIPE PENETRATION DETAILS	A

Project Specific Information:	
Geotechnical report provided by:	Procerto Group Ltd
Geotechnical report date issued:	05 November 2019
Foundation build recommendation:	Excavate to 400mm BEGL
Inspection required by:	Christchurch City Council and Procerto Group

Procerto Group Ltd
182 Papanui Road,
Merivale, Christchurch
CPEng 127491

Drawn/ Designed	Date
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Project No.	Scale
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Project
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Branthwaite Lot 33

Title
STRUCTURAL SLAB PLAN

	Sheet No.	Revision
Consent	S.1.01	Rev A

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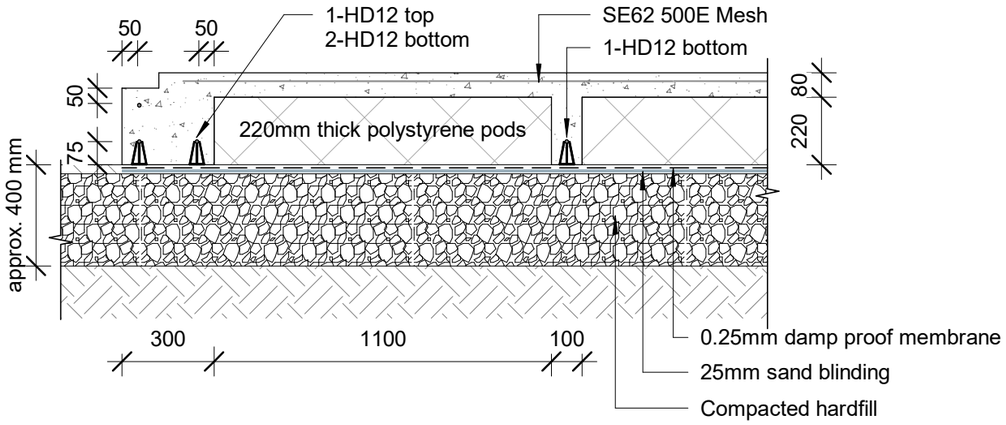
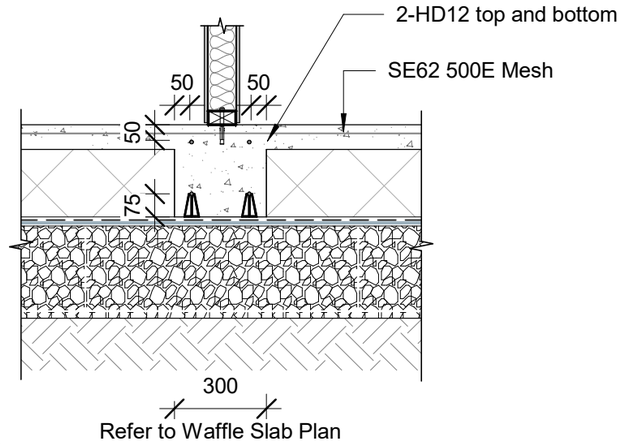


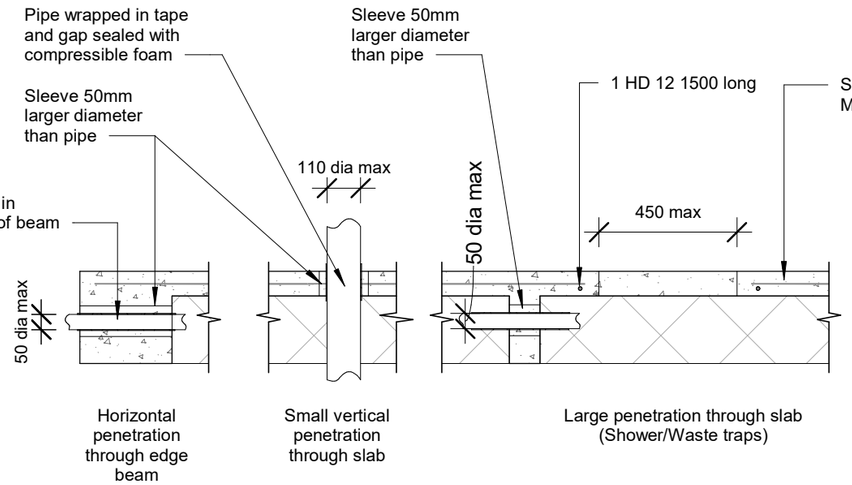
1 Detail - Rebate Edge & Int. Rib
1 : 20



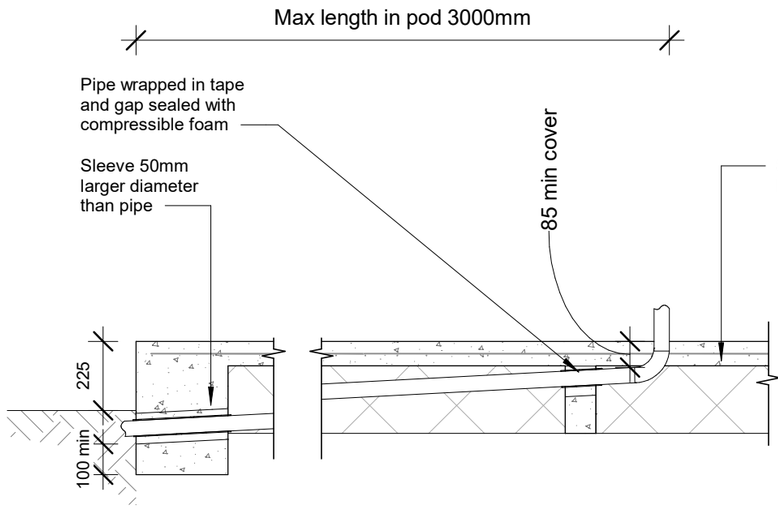
2 Detail - Int.Thickening
1 : 20

Reinforcment Notes:

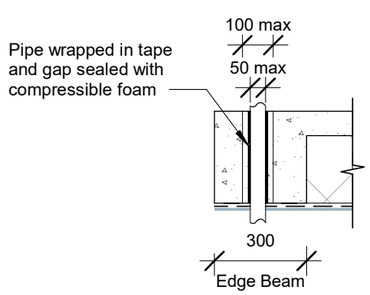
1. HD12 "L" shaped bars are to be placed at all intersections of concrete beams.
2. Number of bars to match main bars and to return at least 300mm along outside of beam.
3. All mesh is to be trimmed to have two longitudinal bars to the edge beam and to extend to within 50mm of the slab edge.



3 Detail - Pipe Penetrations Typical
1 : 20



5 Detail - Pipe within Floor
1 : 20



4 Detail - Pipe Vertical Penetration
1 : 20

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Revision	Amendment	Approved	Revision Date
A	For Consent		05.11.19

Procerto Group Limited
182 Papanui Road,
Merivale, Christchurch
CPEng 127491

Drawn/ Designed	Date
GRH	6/11/2019 4:32:59 PM
Project No.	Scale
J000545	As indicated @A3

Project
Generation Homes Ltd
1 Richmond Avenue, Christchurch
Branthwaite Lot 33

Title
SLAB STRUCTURAL DETAILS

Consent	Sheet No.	Revision
	S.5.01	Rev A

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Layout is null and void if trusses not supplied by PlaceMakers

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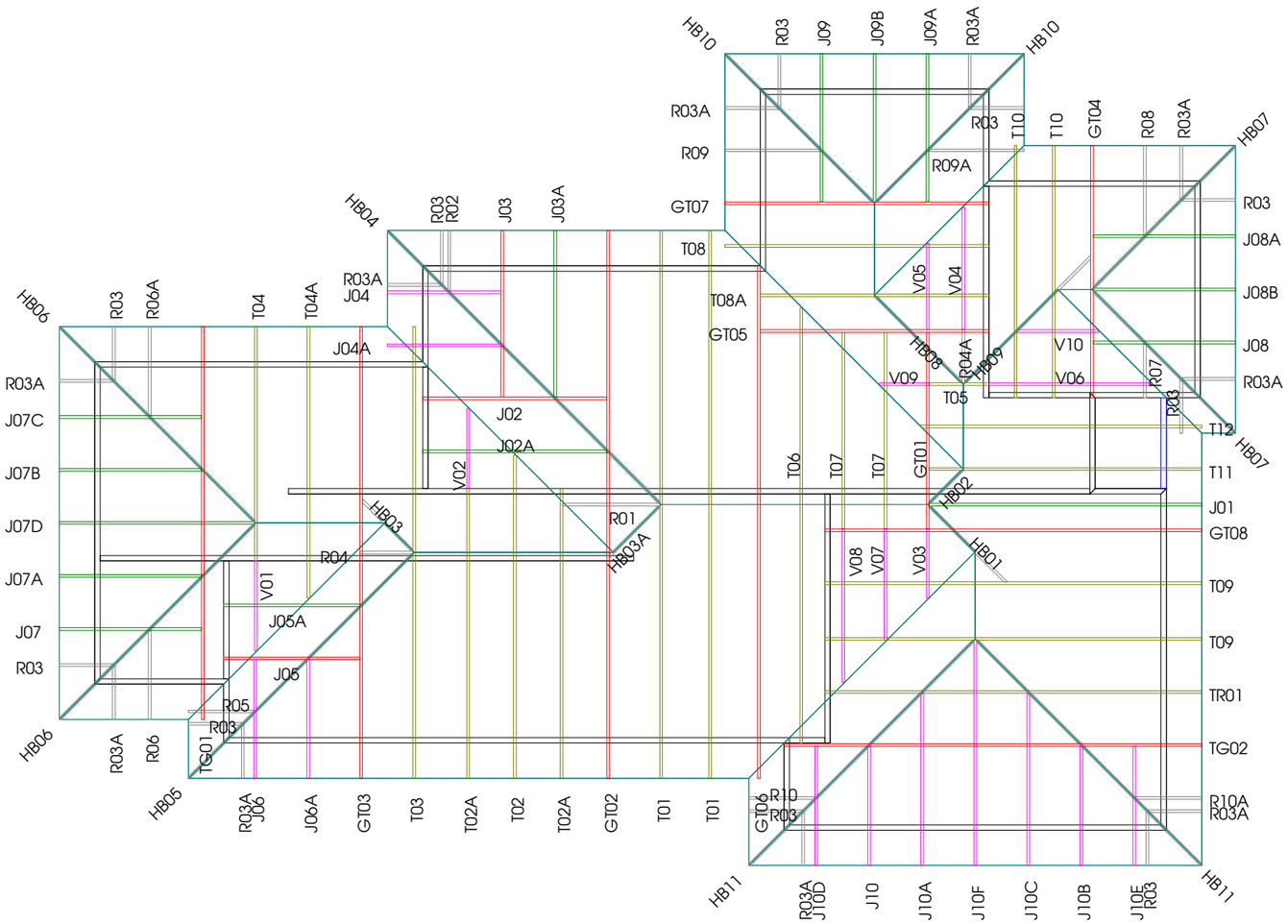


PrimeCad v4.7.301

PlaceMakers® Know how. Can do.

Site Address :
Lot 33A Branthwaite
33 Branthwaite Drive
Rolleston
Selwyn

Sheet Title :
For Building Consent
Buildable Truss Layout

Date : 22 Oct,2019 | Drawn : Robert Wenham
Scale : 1: 100 | System : MiTek 20/20

Job Details:

Roof Pitch	: 25.000 Deg		Truss Centres	: 900	mm
Roof Material	: MetroTile Shake		Roof Live Load	: 0.250	kPa
Ceiling Material	: Gib Board 13mm		Floor Live Load	:	kPa
Wind Zone	: High		Wind Speed	: 44.0	m/s
Roof Snow Load	: 0.441 kPa				

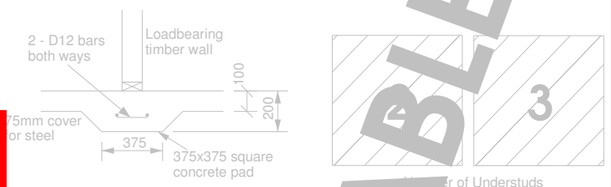
MiTek™

Job Title : 00177446
Sheet : 1
Revision Number :

SDC - Approved Building Consent Document - BC192253 - Pg 27 of 31 - 8/01/2020 - parkea

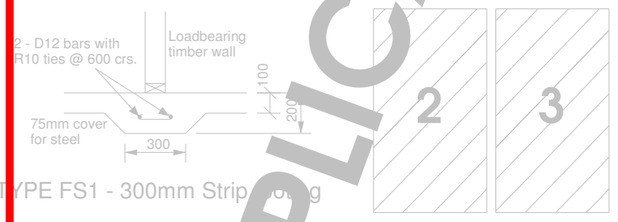
Slab Thickening Details

NOT APPLICABLE



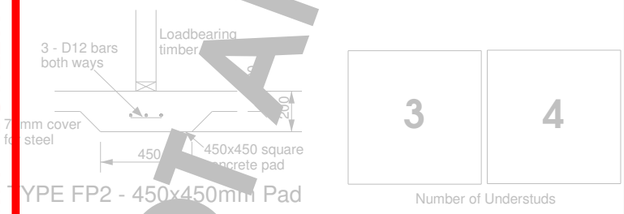
TYPE FP1 - 375x375mm Pad

Number of Understuds



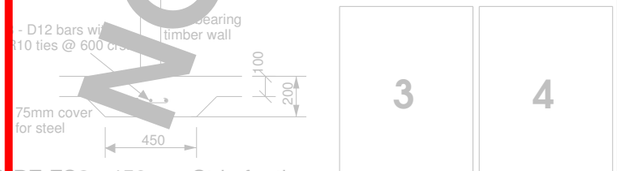
TYPE FS1 - 300mm Strip footing

Number of Understuds



TYPE FP2 - 450x450mm Pad

Number of Understuds



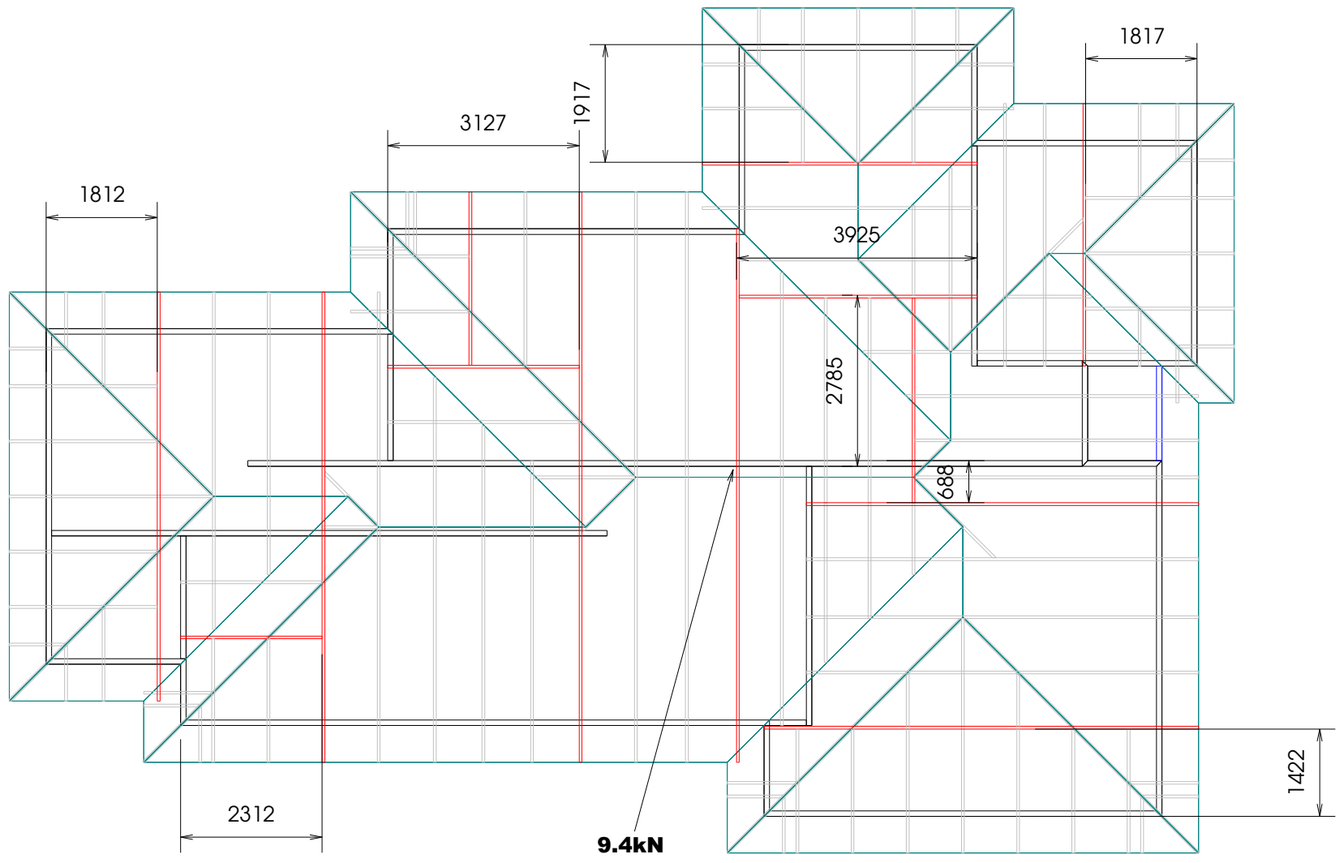
TYPE FS2 - 450mm Strip footing

Number of Understuds

NOTES:

- All point loads exceeding 8.0kN are indicated.
- All walls shown to be considered load bearing.
- Refer to Rib-raft floor design for slab thickening.

Layout is null and void if trusses not supplied by PlaceMakers



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PlaceMakers® Know how. Can do.

Site Address :
Lot 33A Branthwaite
33 Branthwaite Drive
Rolleston
Selwyn

Sheet Title :
For Building Consent
Slab Thickening

Date : 22 Oct,2019 | Drawn : Robert Wenham
Scale : 1: 100 | System : MiTek 20/20

Job Details:

Roof Pitch	: 25.000 Deg	Truss Centres	: 900 mm
Roof Material	: MetroTile Shake	Roof Live Load	: 0.250 kPa
Ceiling Material	: Gib Board 13mm	Floor Live Load	: kPa
Wind Zone	: High	Wind Speed	: 44.0 m/s
Roof Snow Load	: 0.441 kPa		

MiTek™

Job Title : 00177446
Sheet : 2
Revision Number :

Lintel Fixing Details

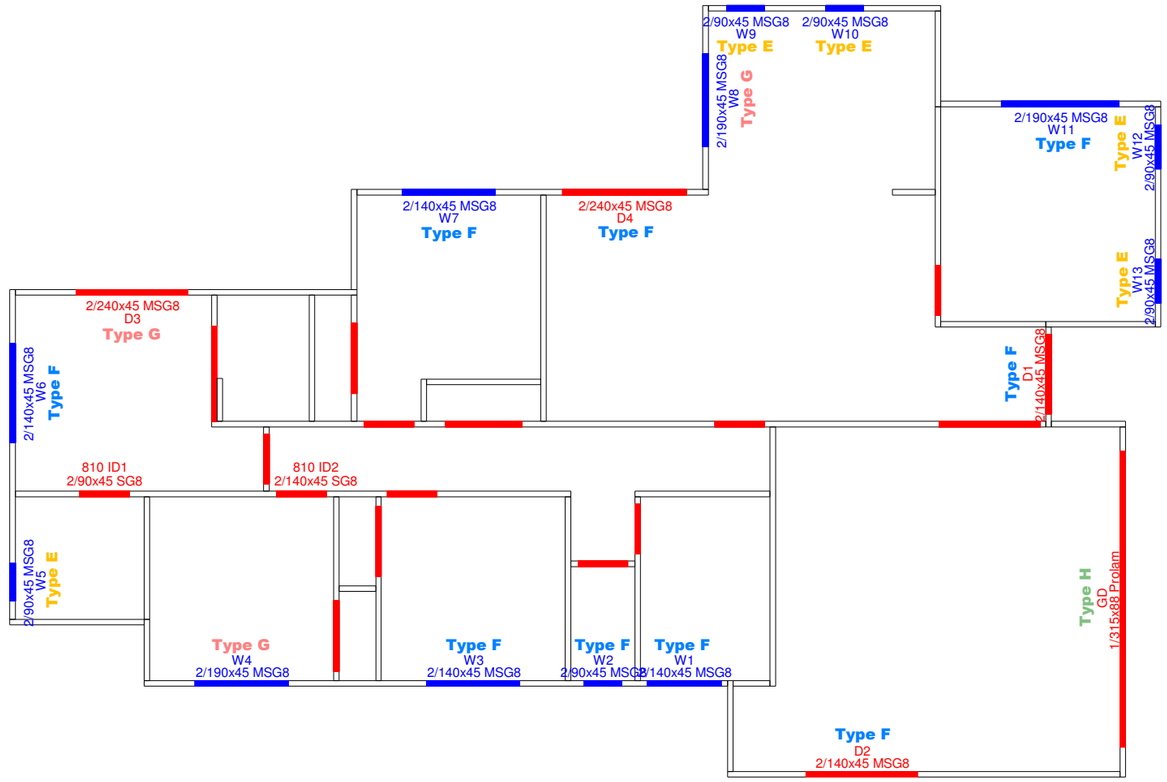
TYPE E
1.4kN

TYPE F
4.0kN

TYPE G
7.5kN

TYPE H
13.5kN

Layout is null and void if trusses not supplied by PlaceMakers



NOTES:

Refer to:
Lintel Fixing Schedule 01/2018
pages 73 & 74, Structrual Fixings
On-site Guide for Buildng Code
Compliance 2018 Edition

(Alternative to NZS 3604:2011
Table 8.14 & Figure 8.12)

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PlaceMakers® Know how. Can do.

Site Address :
Lot 33A Branthwaite
33 Branthwaite Drive
Rolleston
Selwyn

Sheet Title :
For Building Consent
Lintel Fixing

Date : 22 Oct,2019
Drawn : Robert Wenham
Scale : 1: 100
System : MiTek 20/20

Job Details:

Roof Pitch	: 25.000 Deg	Truss Centres	: 900	mm
Roof Material	: MetroTile Shake	Roof Live Load	: 0.250	kPa
Ceiling Material	: Gib Board 13mm	Floor Live Load	:	kPa
Wind Zone	: High	Wind Speed	: 44.0	m/s
Roof Snow Load	: 0.441 kPa			

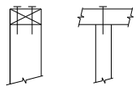
MiTek™

Job Title :
00177446
Sheet :
3
Revision Number :

Stud to top plate fixing details

Type A is minimum fixing required unless specified otherwise

FIXING TYPE A
0.7kN



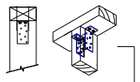
2/90x3.33 plain steel wire nails driven vertically into stud.

FIXING TYPE B
4.7kN

2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.

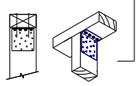
AND

Plus 2x LUMBERLOK CPC40



OR

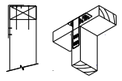
Plus LUMBERLOK 6 kN Stud Anchor (CPC80)



Recommended for internal wall options to avoid lining issues.

OR

Plus LUMBERLOK Stud Strap (One face only)

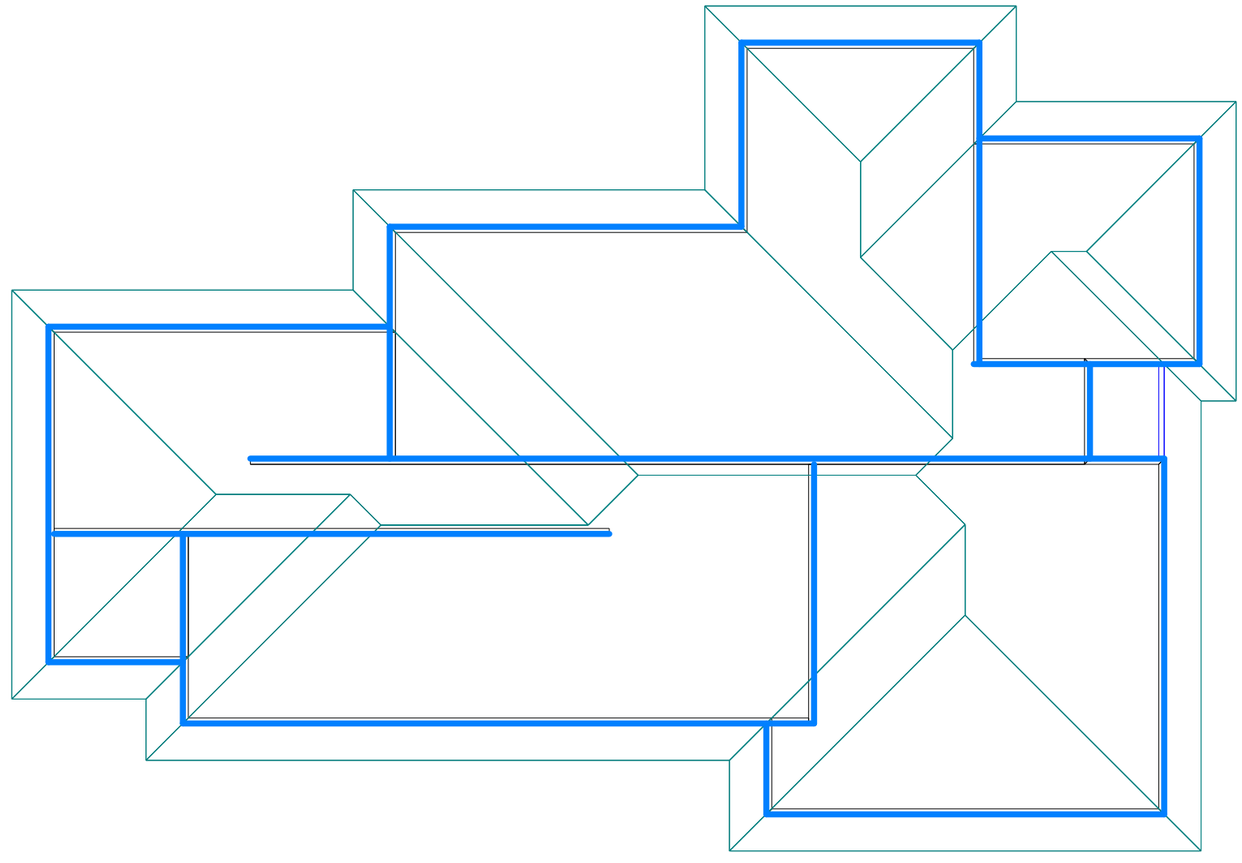


NOTES:

Refer to:
- LUMBERLOK Wall Fixing Chart - Stud to Top Plate Fixing Schedule 09/2011

(Alternative to NZS3604:2011 Table 8.18)

Layout is null and void if trusses not supplied by PlaceMakers



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PlaceMakers® Know how. Can do.

Site Address :
Lot 33A Branthwaite
33 Branthwaite Drive
Rolleston
Selwyn

Sheet Title :
For Building Consent
Stud To Top Plate Fixing

Date : 22 Oct,2019 | Drawn : Robert Wenham
Scale : 1: 100 | System : MiTek 20/20

Job Details:

Roof Pitch	: 25.000 Deg	Truss Centres	: 900	mm
Roof Material	: MetroTile Shake	Roof Live Load	: 0.250	kPa
Ceiling Material	: Gib Board 13mm	Floor Live Load	:	kPa
Wind Zone	: High	Wind Speed	: 44.0	m/s
Roof Snow Load	: 0.441 kPa			

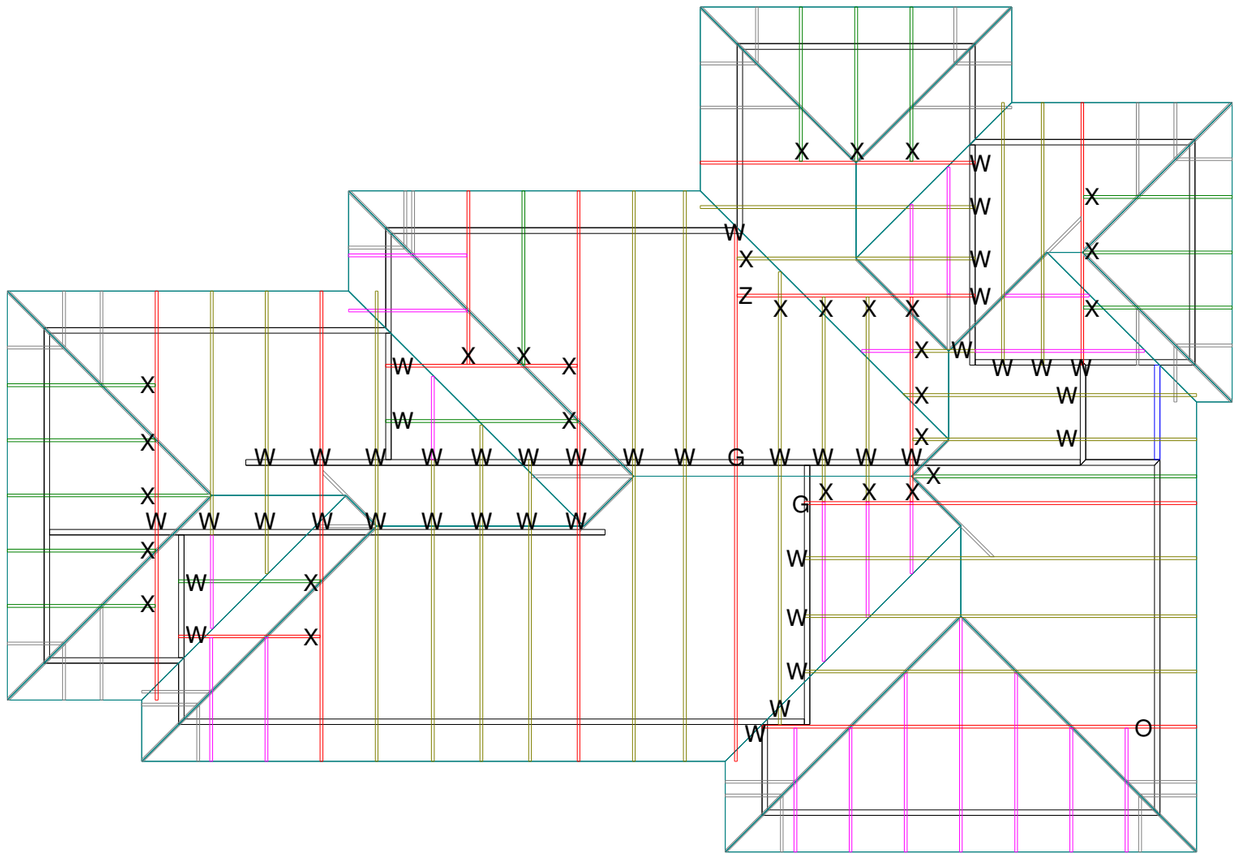
MiTek™

Job Title : 00177446
Sheet : 4
Revision Number :

Truss Fixings

- X - LUMBERLOK JH47x90 Joist Hanger
- Z - LUMBERLOK JH47x120 Joist Hanger
- P - LUMBERLOK JH47x190 Joist Hanger
- E - LUMBERLOK JH95x165 Joist Hanger
- O - Pair of LUMBERLOK CT200 Ceiling Ties
- H - LUMBERLOK CT400 Cyclone Tie
- B - LUMBERLOK CT600 Cyclone Tie
- M - Pair of LUMBERLOK Multi Grips
- NP - LUMBERLOK Nailon Plate
- N - LUMBERLOK N21 Diagonal Cleat
- W - Pair of LUMBERLOK CPC40 Cleats
- K - LUMBERLOK TTP 16kN Truss to Top Plate set
- G - LUMBERLOK TTP 9kN Truss to Top Plate set

Layout is null and void if trusses not supplied by PlaceMakers



NOTES:

All other areas must have at the minimum 2/ 90x3.15mm skew nails + 2 wire dogs (4.7kN) for truss to top plate connections.

Refer to:
LUMBERLOK Timber Connectors Characteristic Loadings Data brochure 03/4

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PlaceMakers® Know how. Can do.

Site Address :
Lot 33A Branthwaite
33 Branthwaite Drive
Rolleston
Selwyn

Sheet Title :
For Building Consent
Truss Fixings

Date : 22 Oct,2019 | Drawn : Robert Wenham
Scale : 1: 100 | System : MiTek 20/20

Job Details:

Roof Pitch	: 25.000 Deg		Truss Centres	: 900	mm
Roof Material	: MetroTile Shake		Roof Live Load	: 0.250	kPa
Ceiling Material	: Gib Board 13mm		Floor Live Load	:	kPa
Wind Zone	: High		Wind Speed	: 44.0	m/s
Roof Snow Load	: 0.441 kPa				

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MiTek™

Job Title : 00177446
Sheet : 5
Revision Number :

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LUMBERLOK®

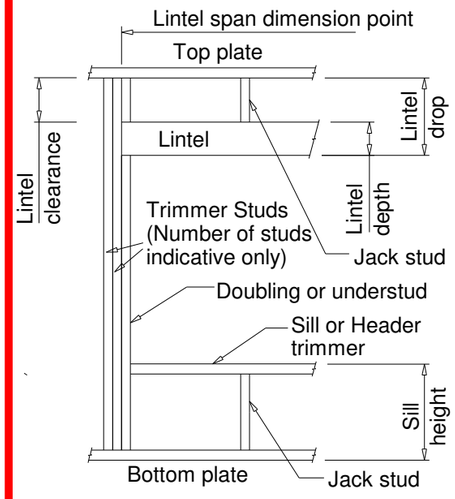
01/2017

LINTEL FIXING SCHEDULE
ALTERNATIVE TO TABLE 8.14 & FIGURE 8.12
NZS 3604:2011

NOTE:

- All fixings are designed for vertical loads only. Dead loads include the roof weight and standard ceiling weight of 0.20 kPa.
- Refer to Table 8.19 NZS 3604:2011 for nailing schedule to resist horizontal loads.
- These fixings assume the correct choice of rafter/truss to top plate connections have been made.
- All fixings assume bottom plate thickness of 45mm maximum. Note: TYLOK options on timber species.
- Wall framing arrangements under girder trusses are not covered in this schedule.
- All timber selections are as per NZS 3604:2011

DEFINITIONS



Lintel Supporting Girder Trusses:

Roof Tributary Area	Light Roof Wind Zone			Heavy Roof Wind Zone		
	L, M, H	VH	EH	L, M, H	VH	EH
8.6 m²	G	G	H	G	G	H
11.6 m²	G	H	H	G	G	H
12.1 m²	G	H	H	G	H	H
15.3 m²	H	H	-	G	H	H
19.1 m²	H	-	-	G	H	-
20.9 m²	H	-	-	H	H	-
21.8 m²	H	-	-	H	-	-
34.3 m²	-	-	-	H	-	-

Notes:
1) Roof Tributary Area = approx. 1/2 x (Total roof area on girder and rafter trusses supported by Lintel)
2) Assumed girder truss is at mid-span or middle third span of lintel
3) Use similar fixings for both ends of lintel
4) All other cases require specific engineering design.

SELECTION CHART FOR LINTEL FIXING

Lintel Span	Loaded Dimension (See Fig. 1.3 NZS 3604:2011)	Light Roof Wind Zone					Heavy Roof Wind Zone				
		L	M	H	VH	EH	L	M	H	VH	EH
1.0	2.0	E	E	E	F	F	E	E	E	E	F
	3.0	E	E	F	F	F	E	E	E	F	F
	4.0	E	F	F	F	G	E	E	F	F	F
	5.0	E	F	F	G	G	E	E	F	F	G
	6.0	E	F	F	G	G	E	E	F	F	G
1.2	2.0	E	E	F	F	F	E	E	E	F	F
	3.0	E	E	F	F	F	E	E	F	F	F
	4.0	E	F	F	G	G	E	E	F	F	G
	5.0	E	F	F	G	G	E	E	F	F	G
	6.0	F	F	G	G	H	E	E	F	G	G
1.5	2.0	E	E	F	F	F	E	E	E	F	F
	3.0	E	F	F	F	G	E	E	F	F	F
	4.0	E	F	F	G	G	E	E	F	F	G
	5.0	F	F	G	G	H	E	E	F	G	G
	6.0	F	F	G	H	H	E	E	F	G	H
2.0	2.0	E	F	F	F	G	E	E	F	F	F
	3.0	E	F	F	G	G	E	E	F	F	G
	4.0	F	F	G	G	H	E	E	F	G	G
	5.0	F	F	G	H	H	E	E	F	G	H
	6.0	F	G	G	H	H	E	F	G	H	H
2.4	2.0	E	F	F	G	G	E	E	F	F	G
	3.0	F	F	G	G	H	E	E	F	G	G
	4.0	F	F	G	H	H	E	E	F	G	H
	5.0	F	G	G	H	H	E	F	G	H	H
	6.0	F	G	H	H	-	E	F	G	H	H
3.0	2.0	E	F	F	G	G	E	E	F	F	G
	3.0	F	F	G	H	H	E	E	F	G	H
	4.0	F	G	G	H	H	E	F	G	H	H
	5.0	F	G	H	H	-	E	F	G	H	H
	6.0	F	G	H	-	-	E	F	G	H	-
3.6	2.0	F	F	G	G	H	E	E	F	G	G
	3.0	F	F	G	H	H	E	F	G	G	H
	4.0	F	G	H	H	-	E	F	G	H	H
	5.0	F	G	H	-	-	E	F	G	H	-
	6.0	G	H	H	-	-	E	F	H	-	-
4.2	2.0	F	F	G	G	H	E	E	F	G	G
	3.0	F	G	H	H	-	E	F	G	H	H
	4.0	F	G	H	-	-	E	F	G	H	-
	5.0	G	H	H	-	-	E	F	H	-	-
	6.0	G	H	-	-	-	E	F	H	-	-
4.5	2.0	F	F	G	H	H	E	E	F	G	H
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	5.0	G	H	-	-	-	E	F	H	-	-
	6.0	G	H	-	-	-	E	F	H	-	-
4.8	2.0	F	F	G	H	H	E	E	F	G	H
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	5.0	G	H	-	-	-	E	F	H	-	-
	6.0	G	H	-	-	-	E	F	H	-	-
5.1	2.0	F	F	G	H	H	E	F	G	G	H
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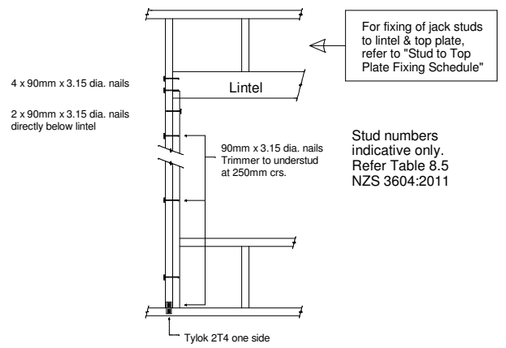
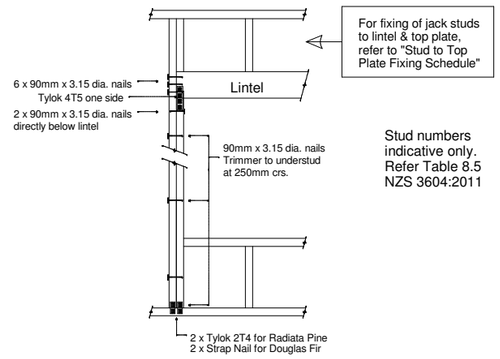
	6.0	G	H	-	-	-	E	G	H	-	-
5.4	2.0	F	F	G	H	H	E	F	G	G	H
	2.8	F	G	H	H	-	E	F	G	H	H
	3.0	F	G	H	-	-	E	F	G	H	-
	4.0	G	H	H	-	-	E	F	H	-	-
	5.0	G	H	-	-	-	E	F	H	-	-
	6.0	G	H	-	-	-	E	G	H	-	-

LINTEL FIXING OPTIONS

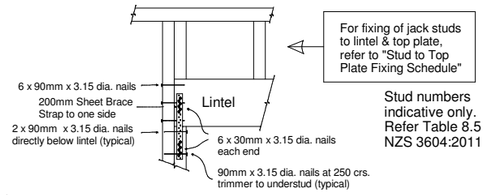
TYPE E 1.4kN

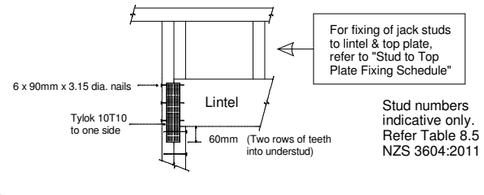


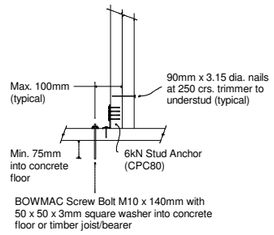
TYPE F 4.0kN

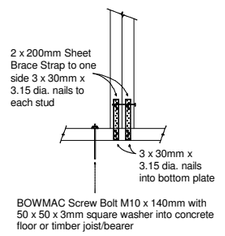


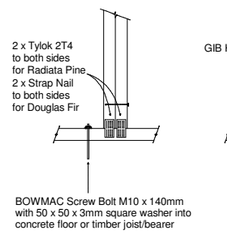
TYPE G 7.5kN

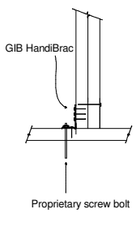


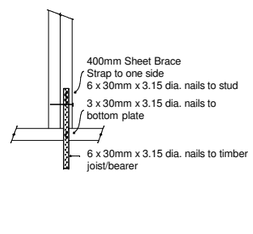




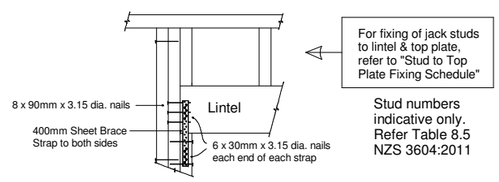


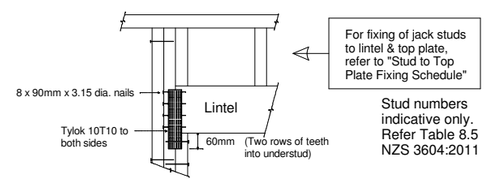


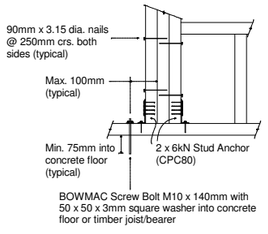


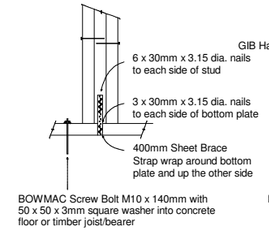


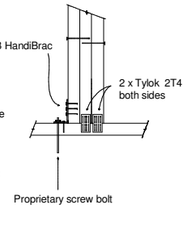
TYPE H 13.5kN

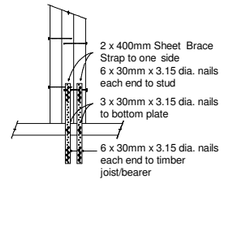












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