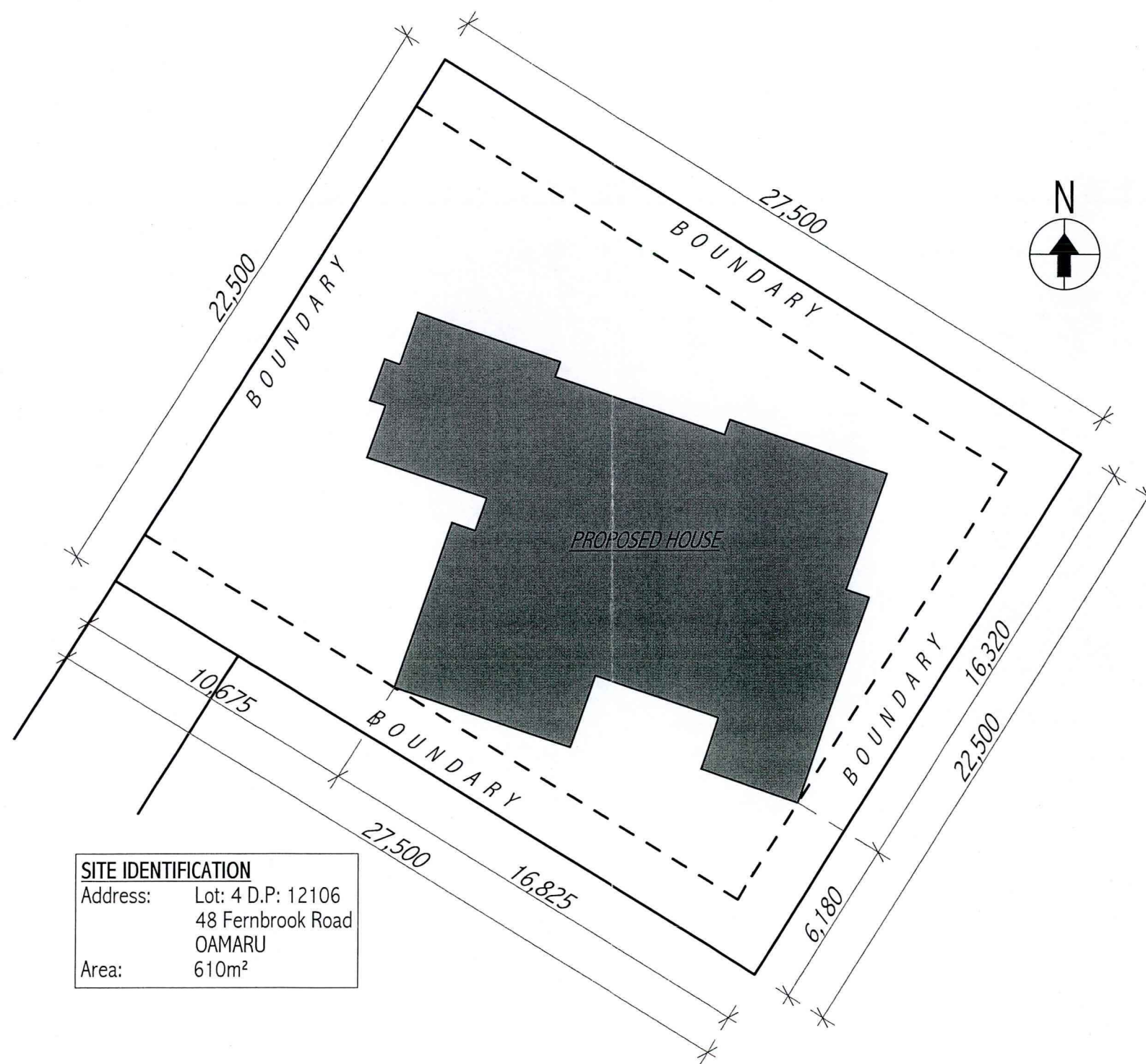




SITE IDENTIFICATION
 Address: Lot: 4 D.P: 12106
 48 Fernbrook Road
 OAMARU
 Area: 610m²

SITE PLAN NOTE:

- Site plan is produced from information provided by others and should be checked prior to construction on site



I.R. McRae Ltd.
 P.O. Box 581,
 Timaru,
 New Zealand.
 Head Office/Factory- Rothwell St. Timaru, New Zealand
The Kitset Professionals
 Ph : (0800) 62 7239
 Fax : (03) 684 6461
 Email : enquiries@mcraway.co.nz

*All construction to comply with NZS 3604:1999
 Do NOT scale off drawings. (Only use figured dimensions)
 All dimensions in millimetres unless otherwise stated.
 All items shown not necessarily quoted for, to be read in
 conjunction with quotation schedule listing.
 Check manufactures instructions before installing products*

Proposed dwelling for
P. R. Bishop Builders Ltd.
#0877

Site Address
 Lot: 4 D.P: 12106
 48 Fernbrook Road
 Oamaru

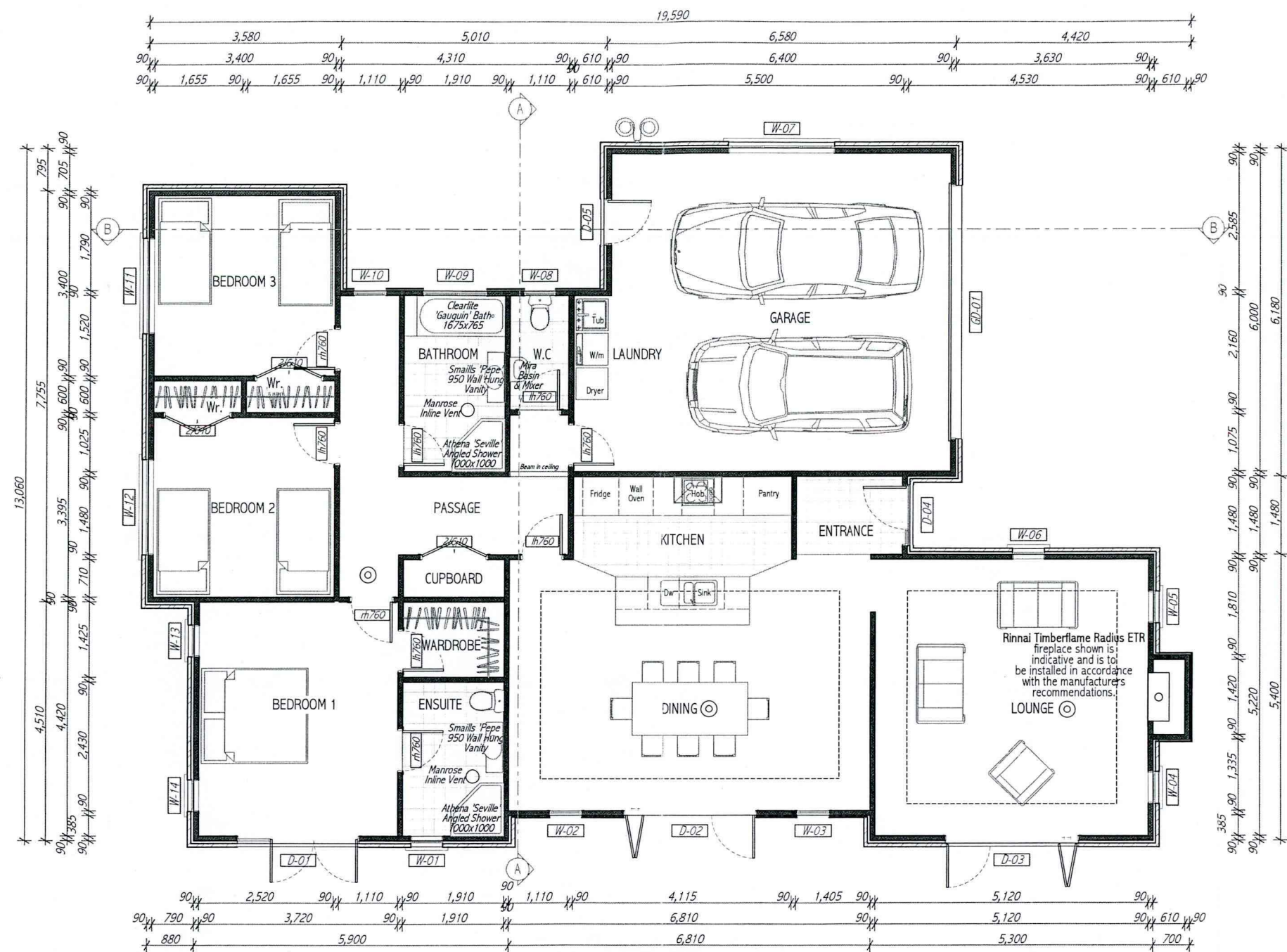
Series
Limelight
 Design Base
Campion

Sheet title
Site Plan

Drawn by
 L.S

Date
 1 August 2007

CONSTRUCTION ISSUE
 Scale
 1:200
 2007/052
1 of 17



FLOOR PLAN

Floor area:- 151.43m²
Garage area:- 43.12m²
Total area:- 194.55m²

NOTES:- All dimensions to the outside of timber framing
⊙ = Battery powered smoke alarm to conform to NZBC:F/AS1 Section 3

FLOOR PLAN NOTE:

- All frame and trusses are to be manufactured from MSG8 timber unless otherwise stated on the truss or frame layout



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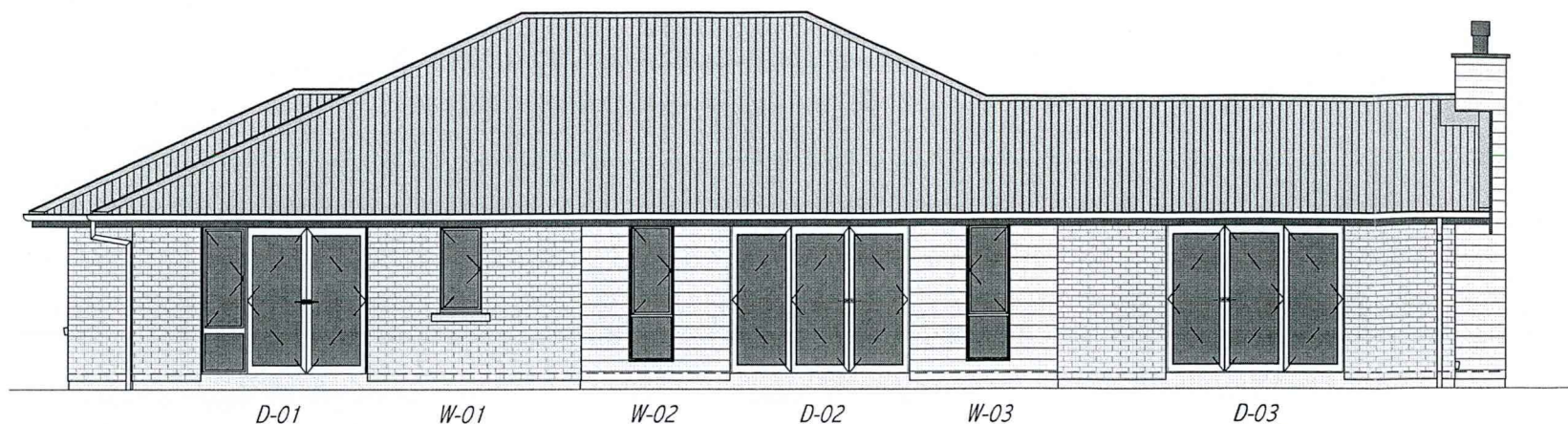
Proposed dwelling for
P. R. Bishop Builders Ltd.
#0877

Site Address
Lot: 4 D.P: 12106
48 Fernbrook Road
Oamaru

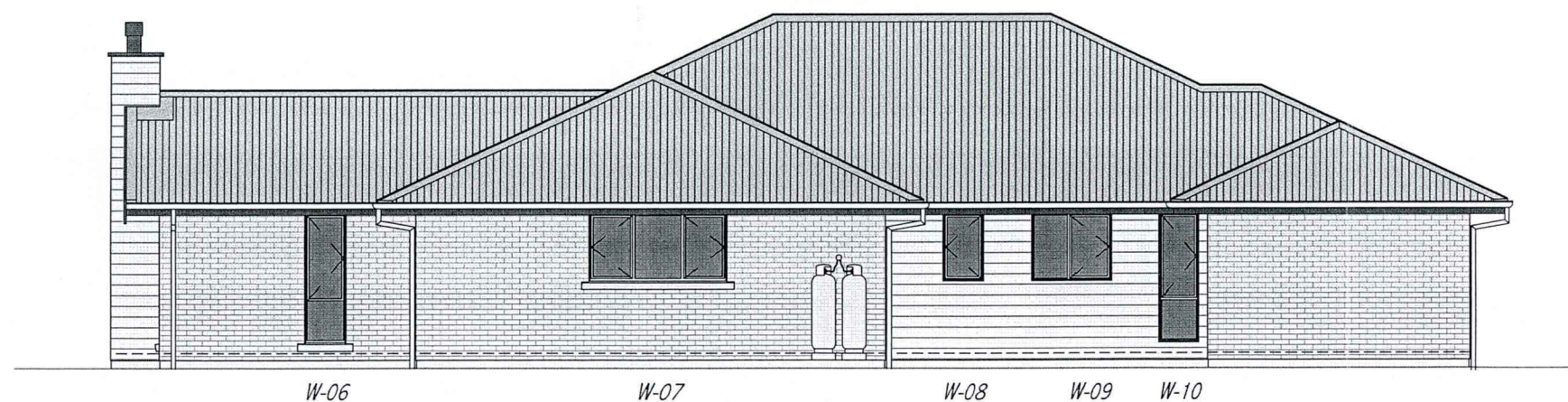
Series
Limelight
Design Base
Campion

Sheet title
Floor Plan
Drawn by L.S Date 1 August 2007

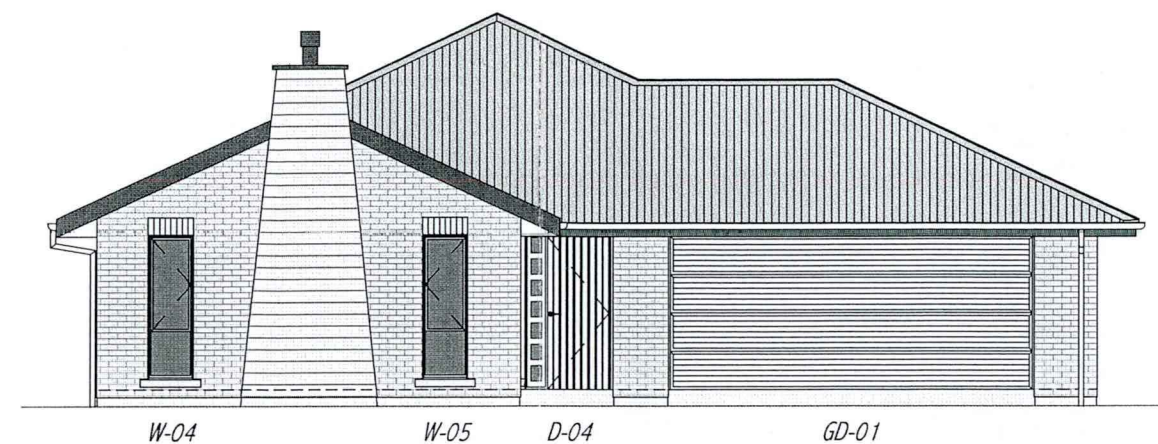
CONSTRUCTION ISSUE
Scale 1:100
2007/052
2 of 17



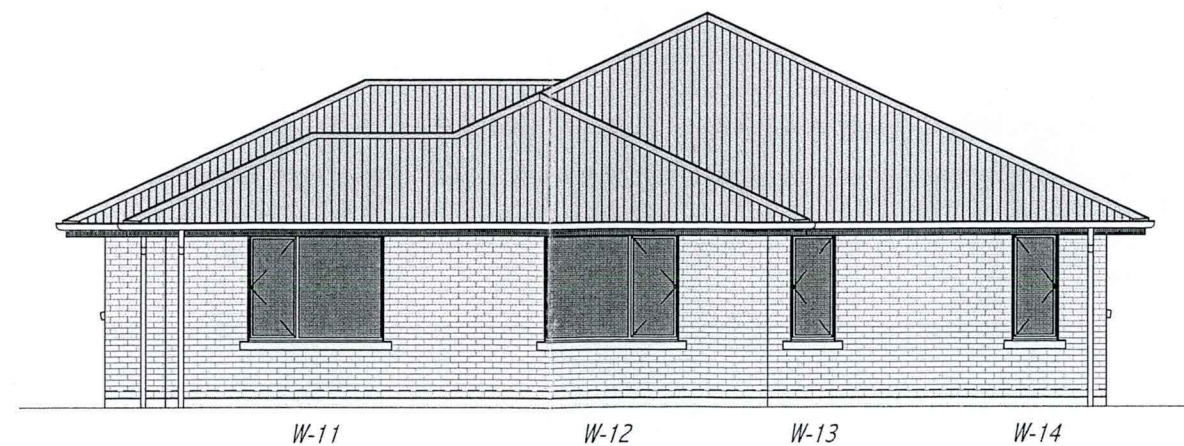
DINING ELEVATION



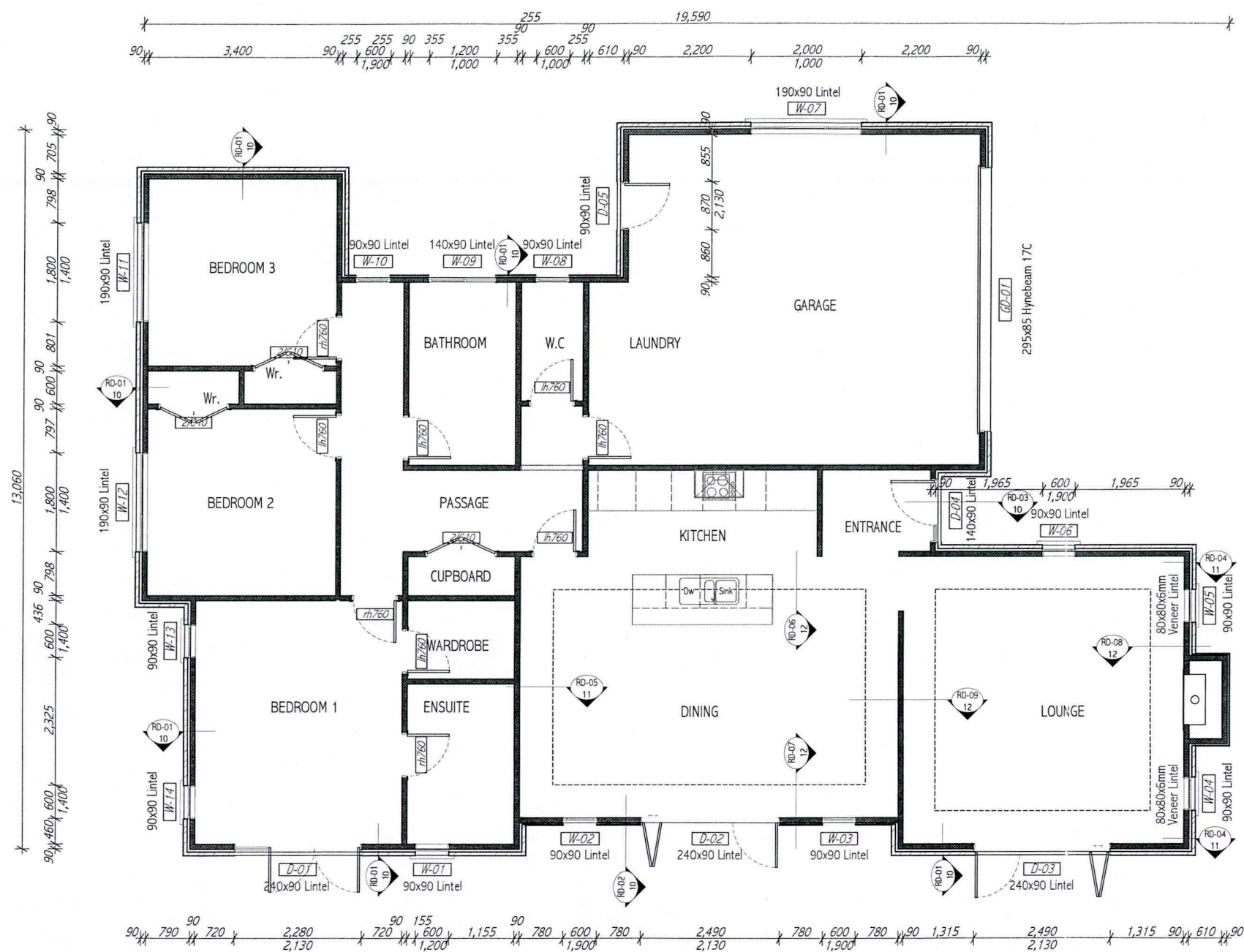
GARAGE ELEVATION



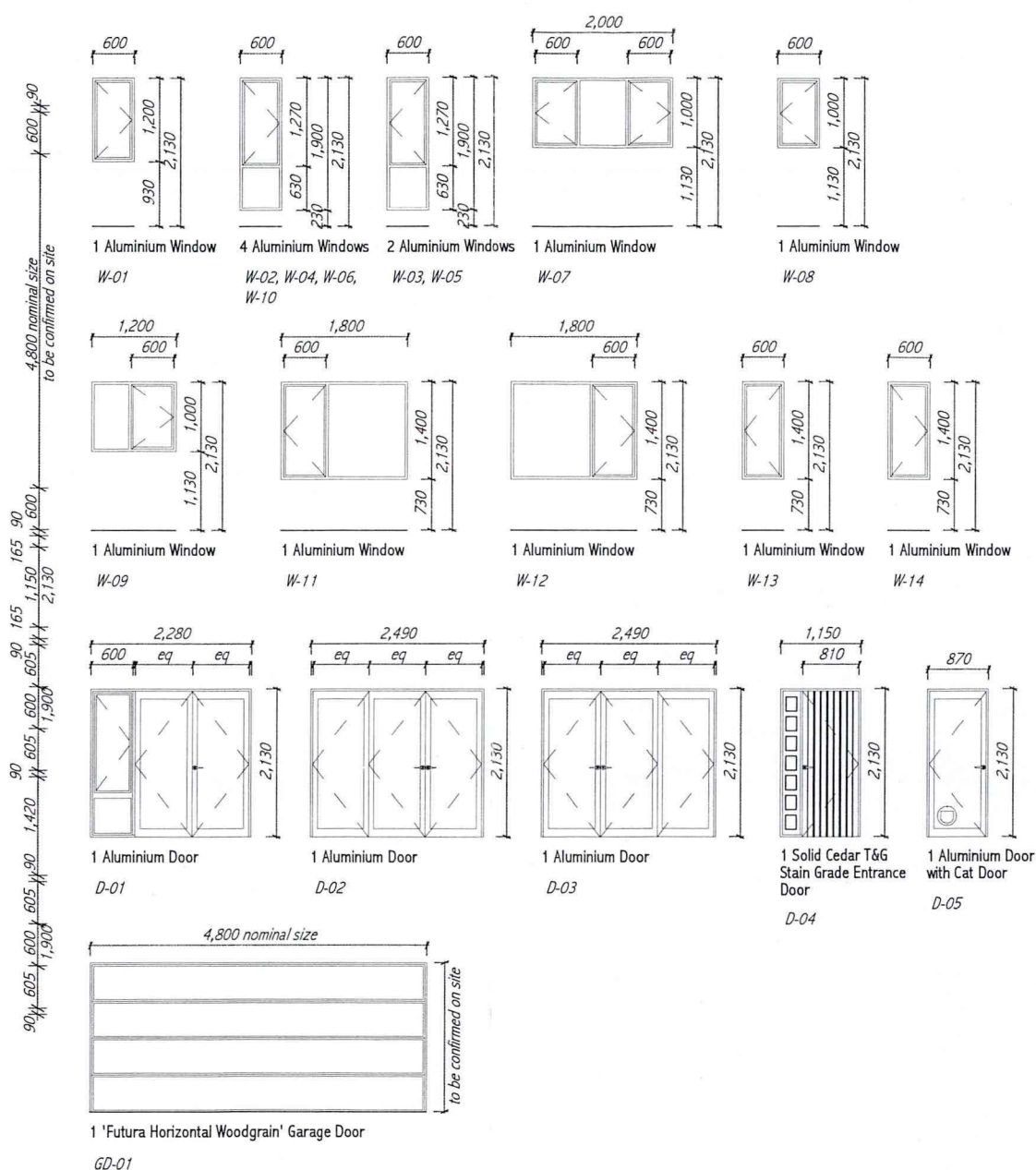
LOUNGE ELEVATION



BEDROOM ELEVATION



DOOR AND WINDOW SCHEDULE



WINDOW AND DOOR SCHEDULE NOTES:

- All window and door dimensions to over the timber reveal
- All window and doors shown in elevation are viewed from the outside
- DOUBLE GLAZING TO ALL EXTERIOR JOINERY EXCEPT GARAGE
- ALL LINTELS TO BE MSG8 TIMBER

Job Number: 0877

Job Description: BISHOP BUILDERS LTD

Run by: McRaeway Homes on 23/07/2007, at 11:15:23 a.m.

Phone:

This design was carried out for domestic or secondary element design using Limit State techniques in accordance with AS/NZS1170.0-2002, and AS1720.1-1997, and using recommendations only of AS1684.1-1999

Section L1, TG Lintel Design, GARAGE DOOR LINTEL - (GD-01)

Use preferred section size 295x85 HYNEBEAM 17C from Hyne & Son Pty Ltd

DIMENSIONAL DETAILS:

Span type is Single Span for an overall length of 4.8 metres

Supported truss spacing is 0.9 metres, with main roof load width of 3.89 metres

Lintel is supporting a TG2400 positioned 1.8 metres from the left end

The lintel design did not rely on assistance from top plate stiffness

DESIGN DETAILS:

Roofing material of Sheet (20)

Roof pitch of 25 deg

Wind Classification for this project is High

Temperature Factor (K6) = 1.00

Defined Snow Load Region is N5

Ground Snow Load is: Ultimate = 0.45kPa,

Exposure Coefficient C_e = 1.0

Ceiling material of 13mm P'Board (20)

Design ultimate wind pressure is 1.382 kPa

Design serviceability wind pressure is 0.913kPa

Altitude = 0 m; Snow Loading is for Sub-Alpine region and Serviceable = 0.29kPa.

The Shape Coefficient μ_i = 0.49**CERTIFICATION:**

I hereby certify that above nominated section size has been designed applying the accepted principles of structural mechanics in accordance with the relevant building codes and industry standards as stated below:

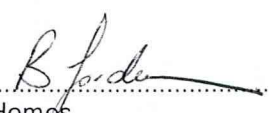
AS/NZS 1170	Part 0: Structural design actions - General Principles 2002
	Part 1: Structural design actions - Permanent, imposed and other actions 2002
	Part 2: Structural design actions - Wind actions - 2002
AS 1684	Residential Timber Framed Construction - 1999
AS 1720	Timber Structures - Part 1: Design - 1997
AS 4055	Wind Loads for Housing - 1992
NZS 3603	Timber Structures Standard - 1993 for NZ Timber Strengths and capacity factors
GLTAA	Industry recommendations from the GLTAA - "Unified Design Criteria"

The design actions, methods, assumptions and other criteria used in this structural design are precedent upon AS1720.1-1997 and AS1170-2002, in preference to other Standards listed above. Deflection limits recommended in AS1684.1-1999 have not been followed for this design.

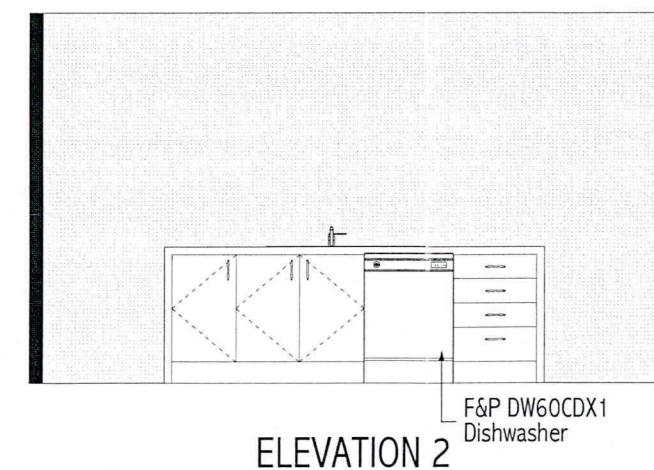
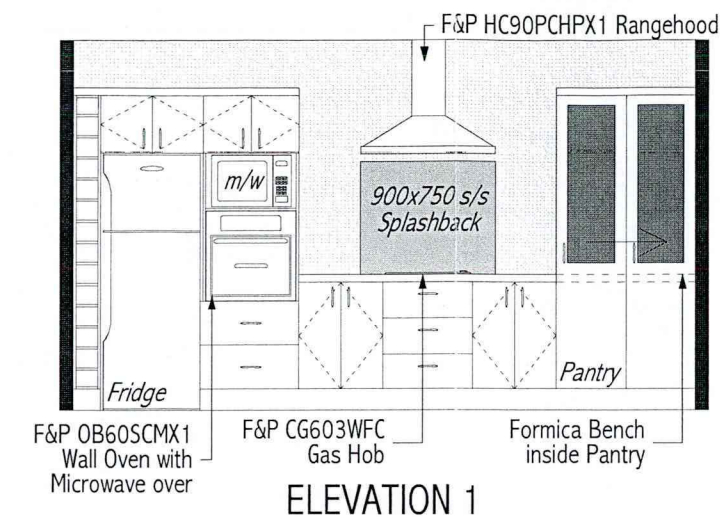
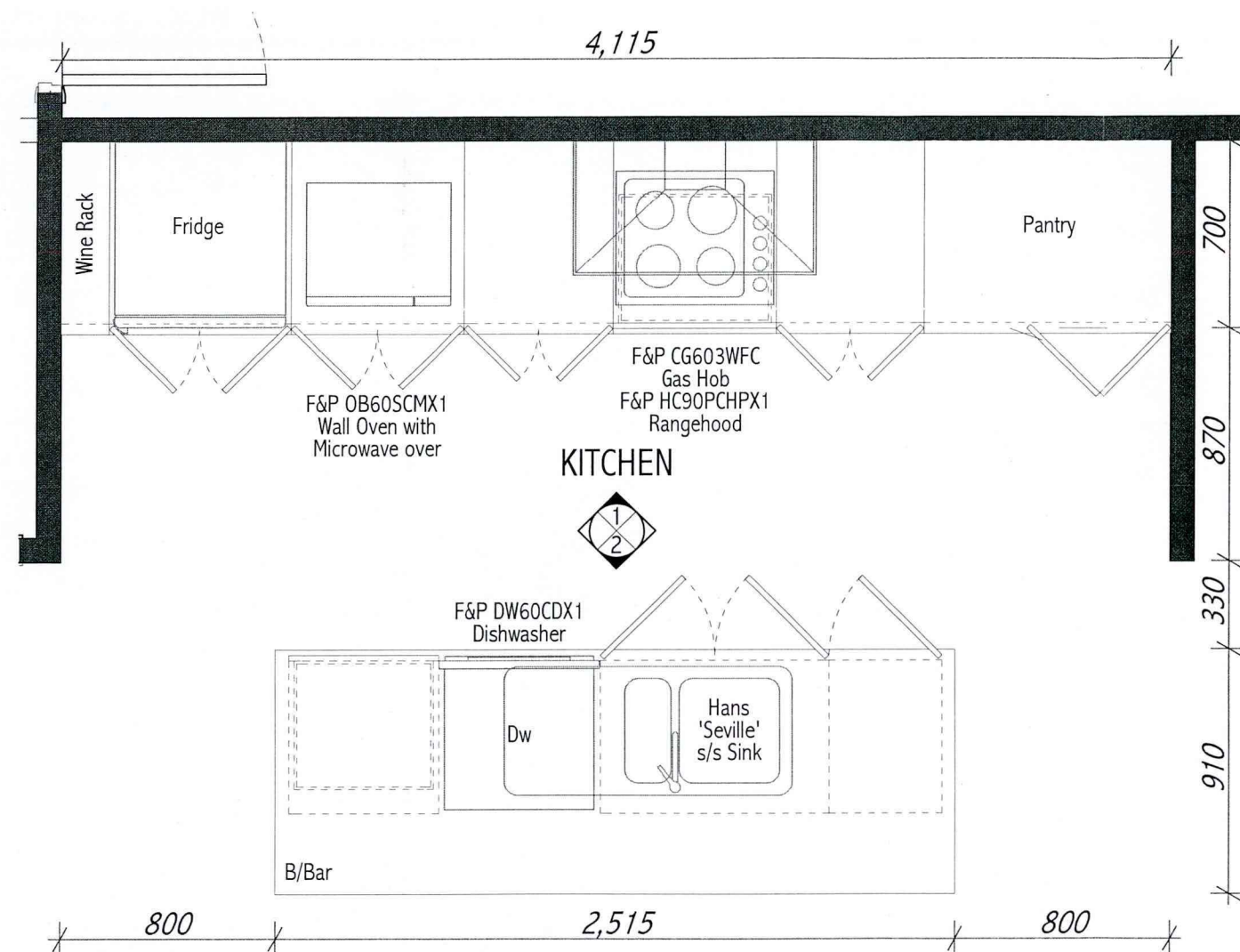
The nominated section size has been designed for the loading and dimensional data stated above. Hyne & Son Pty Ltd

and Hunt Robinson Pty Ltd cannot accept liability for loss or damage, either direct or consequential, arising from the use of this product in an application not consistent with the input data.

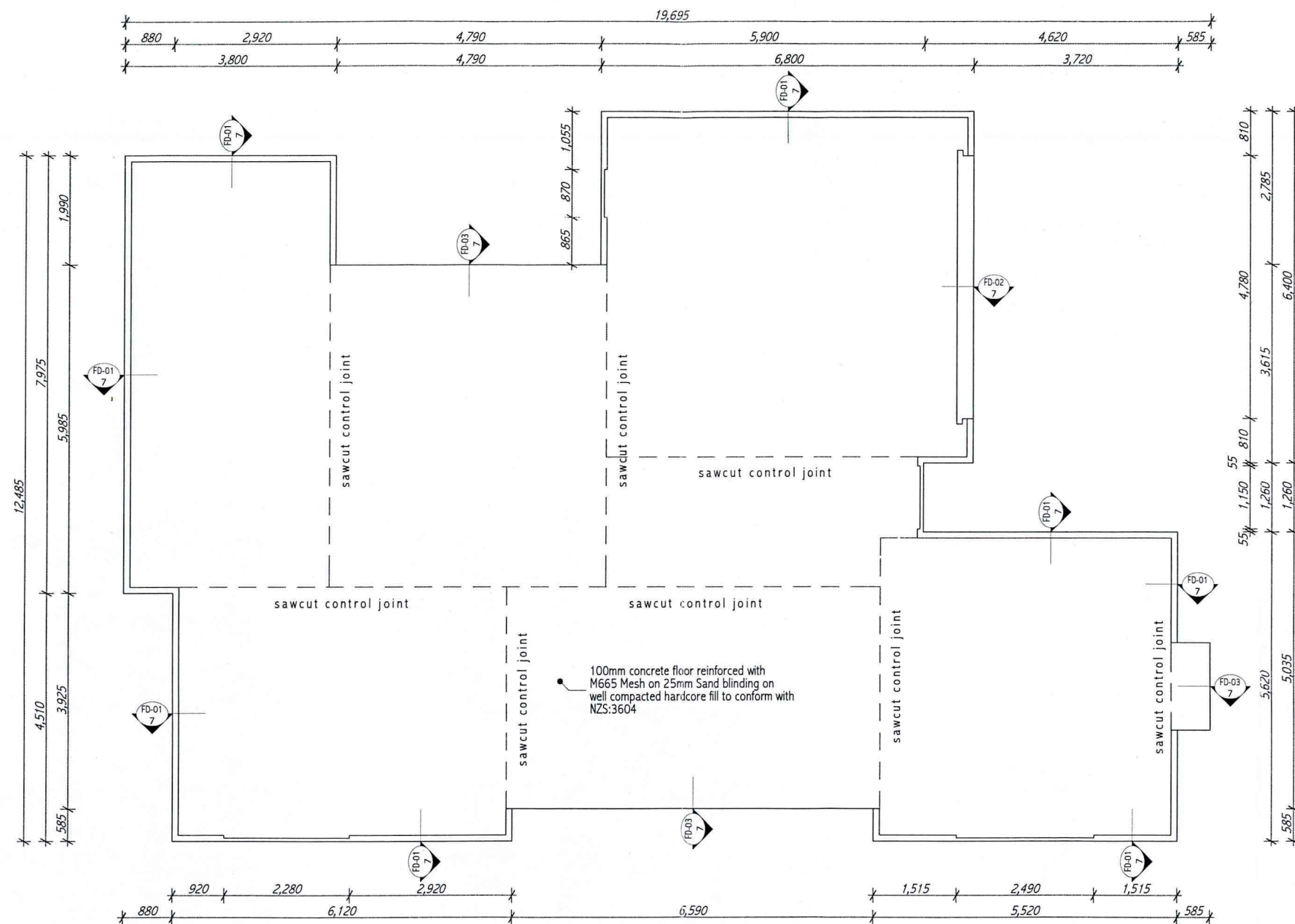
HUNT ROBINSON Consulting Engineers
Stephen J Hunt BE(Civil)
(MIEAust #368737), (NPER),
(RPEQ #3731)

Checked by: 
for McRaeway Homes

Date Checked: 23/7/07



KITCHEN NOTE:
- Kitchen may vary due to manufacturers recommendations



FOUNDATION LAYOUT

FOUNDATION NOTE:

- Sawcut control joints shown are indicative and are to comply with NZS:3604



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Proposed dwelling for
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Site Address
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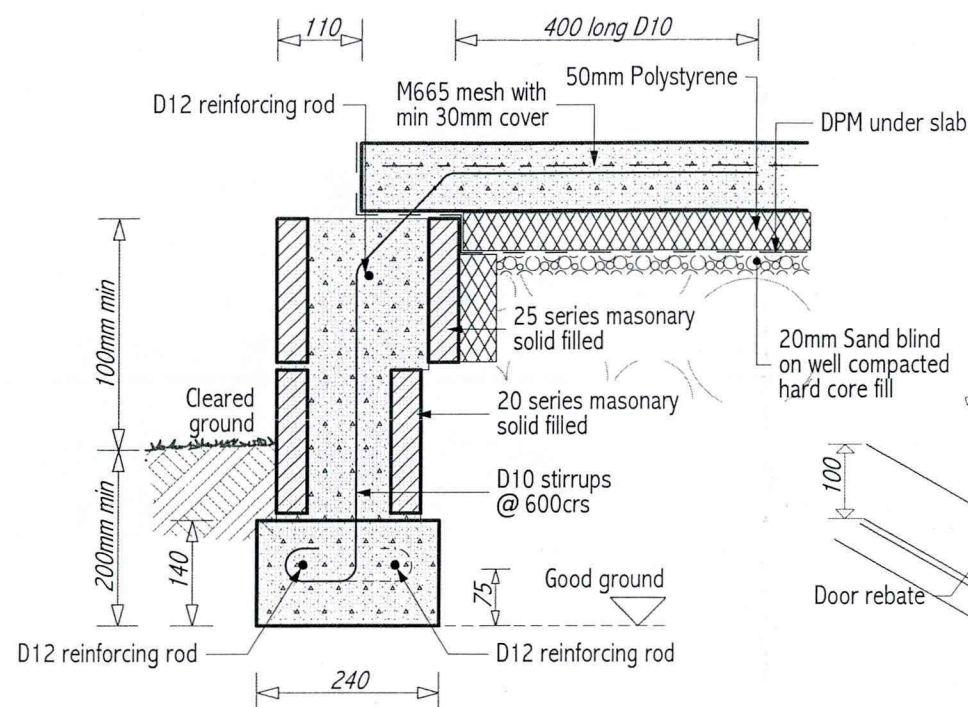
Series
Limelight
Design Base
Campion

Sheet title
Foundation Layout
Drawn by L.S Date 1 August 2007

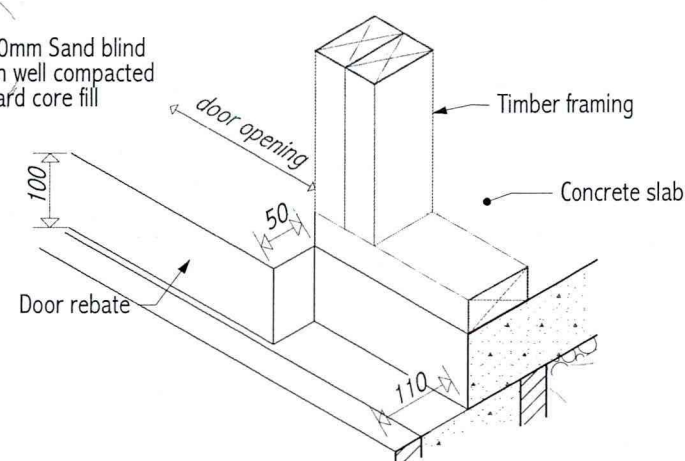
CONSTRUCTION ISSUE
Scale 1:100
2007/052
6 of 17

CONCRETE NOTES

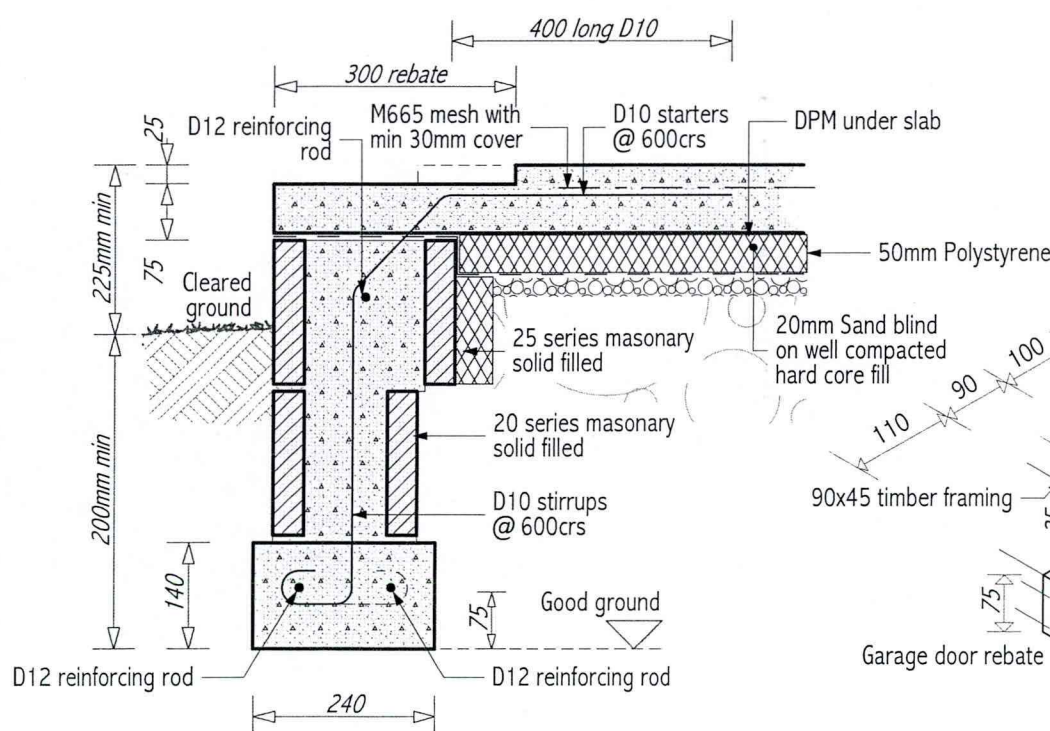
- Concrete strength to comply to NZS 3604:1999
- The finished ground level surrounding the building shall have a fall of 1 in 25 away from the building for at least 1m.
- Refer to concrete footing sections for minimum height of slab to ground.
- The maximum plan dimension of slab cast in one operation shall be 18m. (Where slab has a total length longer than 18m a free joint is shown on the slab plan and must be used.)
- Granular fill under slab shall be at least 75mm thick nor more than 600mm deep layer of fill passing through a 19mm sieve with not more than 5% shall pass a 2.2mm sieve.
- The damp-proof membrane (DPM) shall have a vapour flow resistance not less than 90MNs/g. And must be laid to the requirement of NZS 3604:1999
- Concrete Slab is to have a minimum thickness of 100mm with reinforcing Mesh 665 (Or complies with NZS 3422) lapped by 225mm at sheet joins and shall extend to within 75mm of the outside edge of slab with minimum of 30mm & maximum of 40mm top cover.
- All internal corners to have 2x D10 supplementary reinforcing bars 1.2m long as described in NZS 3604:1999 Section 7, Paragraph 7.5.8.6.4 supplementary reinforcing for reinforced slabs.
- The maximum plan dimension of reinforced concrete slabs between construction joints, or shrinkage control joints is 6m.
- REFER TO NZS 3604:1999 BEFORE ANY CONSTRUCTION OF CONCRETE FOUNDATIONS IS UNDERTAKEN !!!



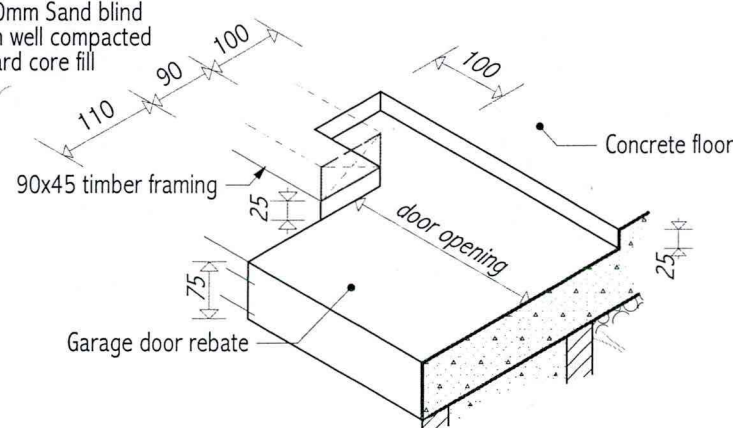
**TYPICAL 70 SERIES BRICK VENEER
FOUNDATION EDGE
DETAIL FD-01**



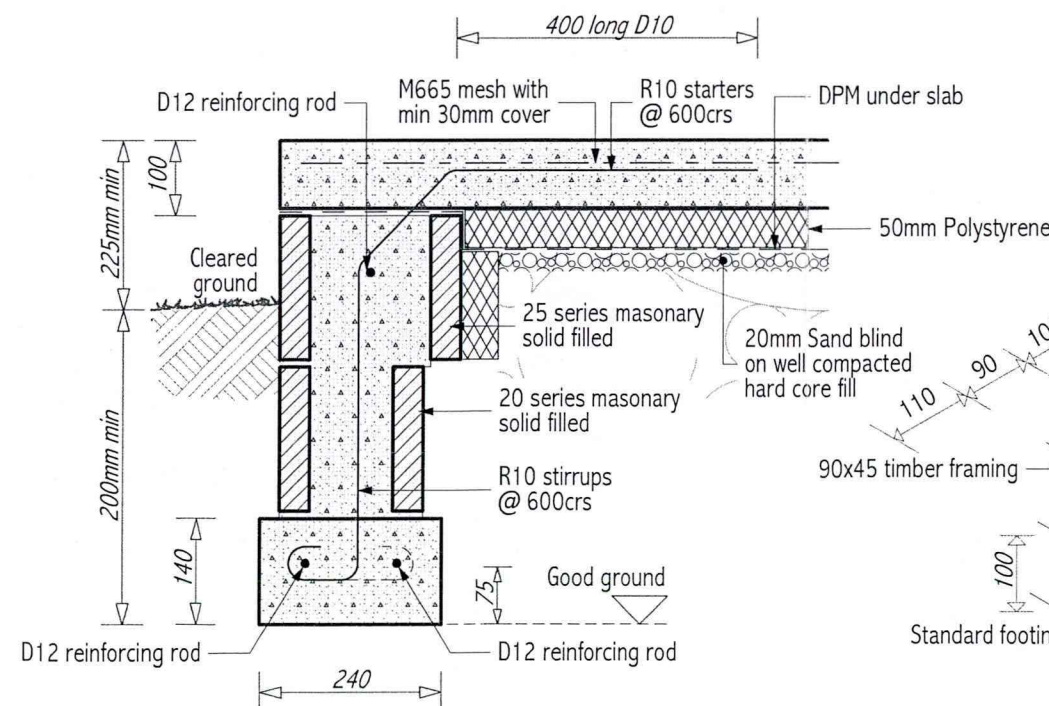
ALUMINIUM DOOR RECESS DETAIL BRICK



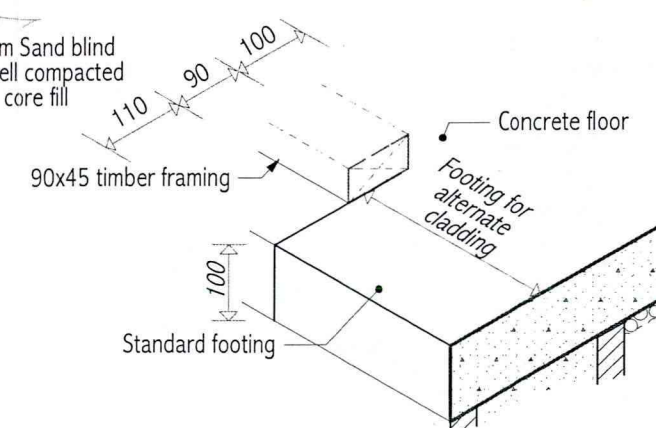
**TYPICAL GARAGE DOOR SLAB REBATE DETAIL
DETAIL FD-02**



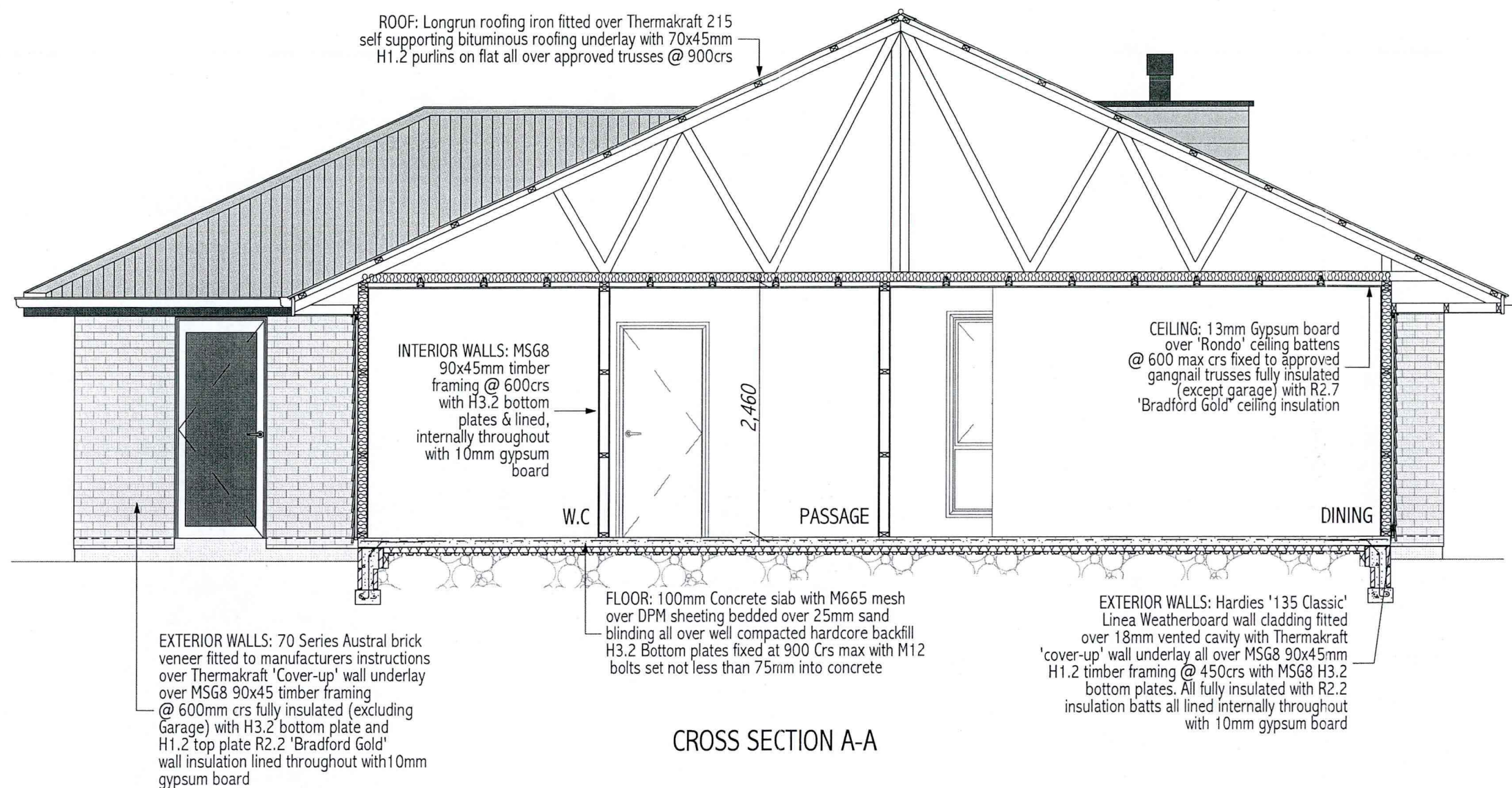
**GARAGE DOOR REBATE DETAIL
DETAIL FD-02**

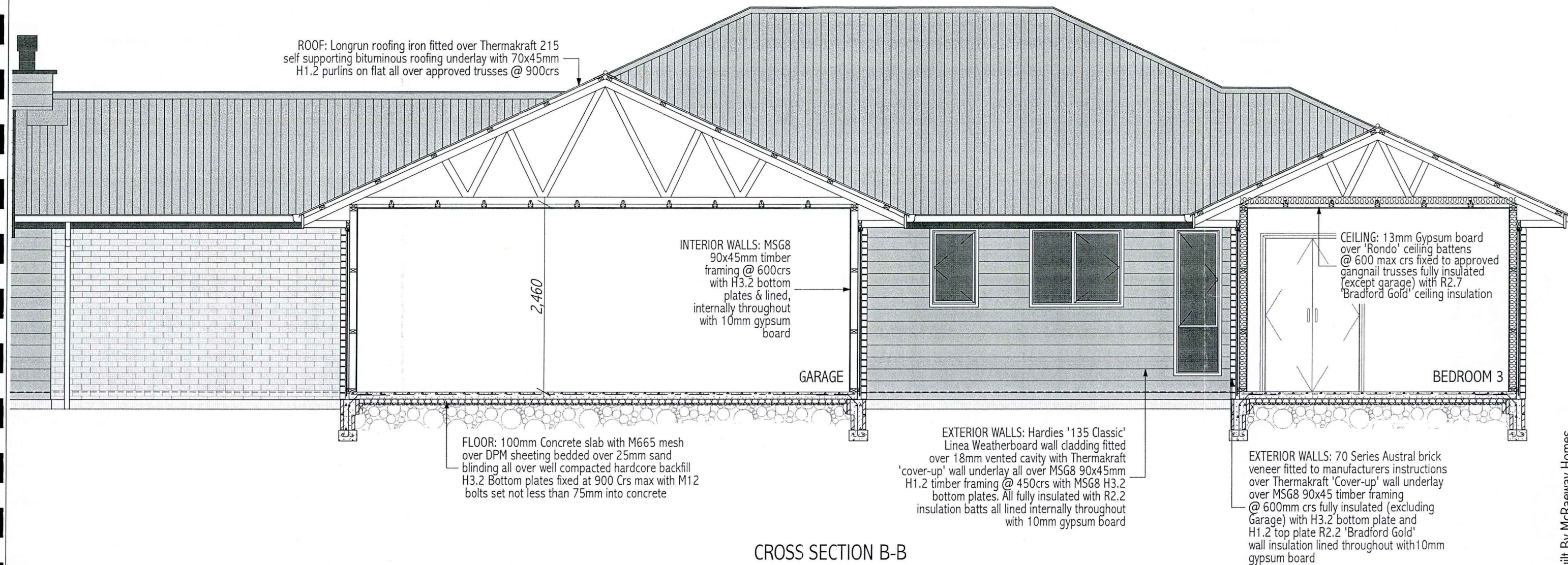


**TYPICAL FOUNDATION EDGE DETAIL FOR
DIRECT FIXED ALTERNATE CLADDING
DETAIL FD-03**

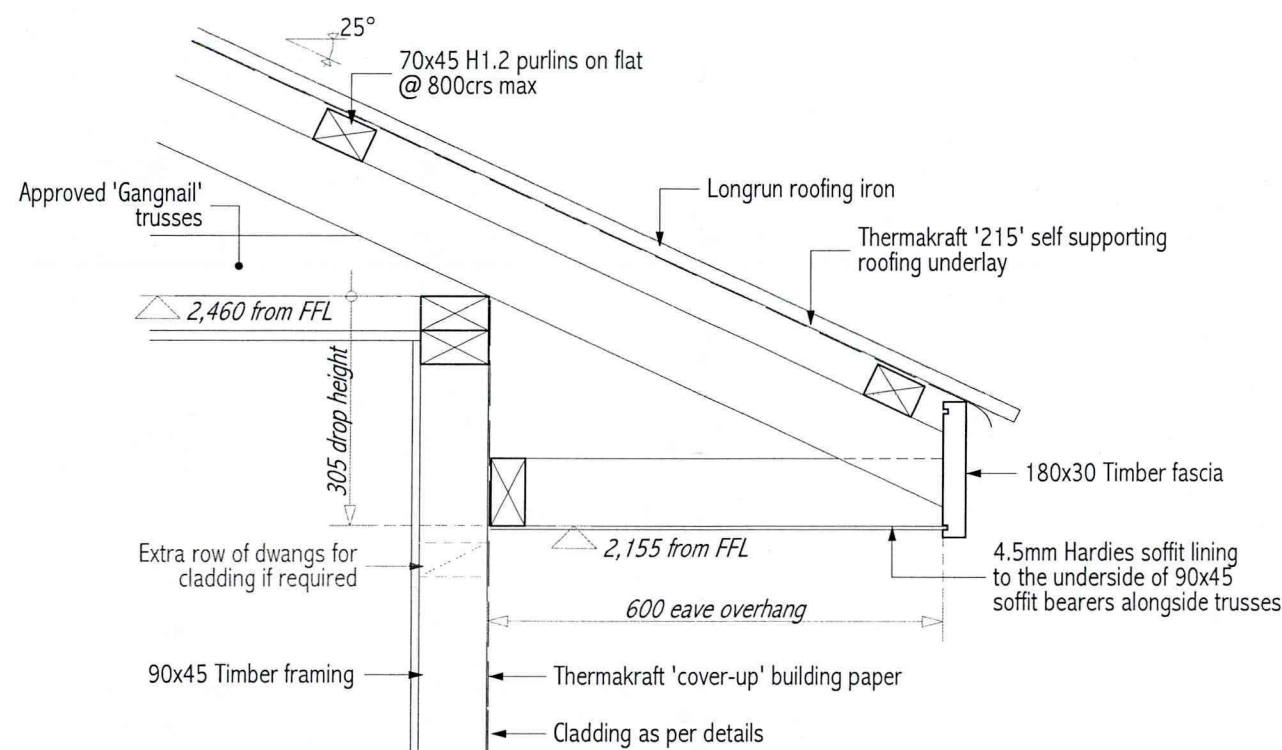


CLADDING CHANGE FOOTING DETAIL



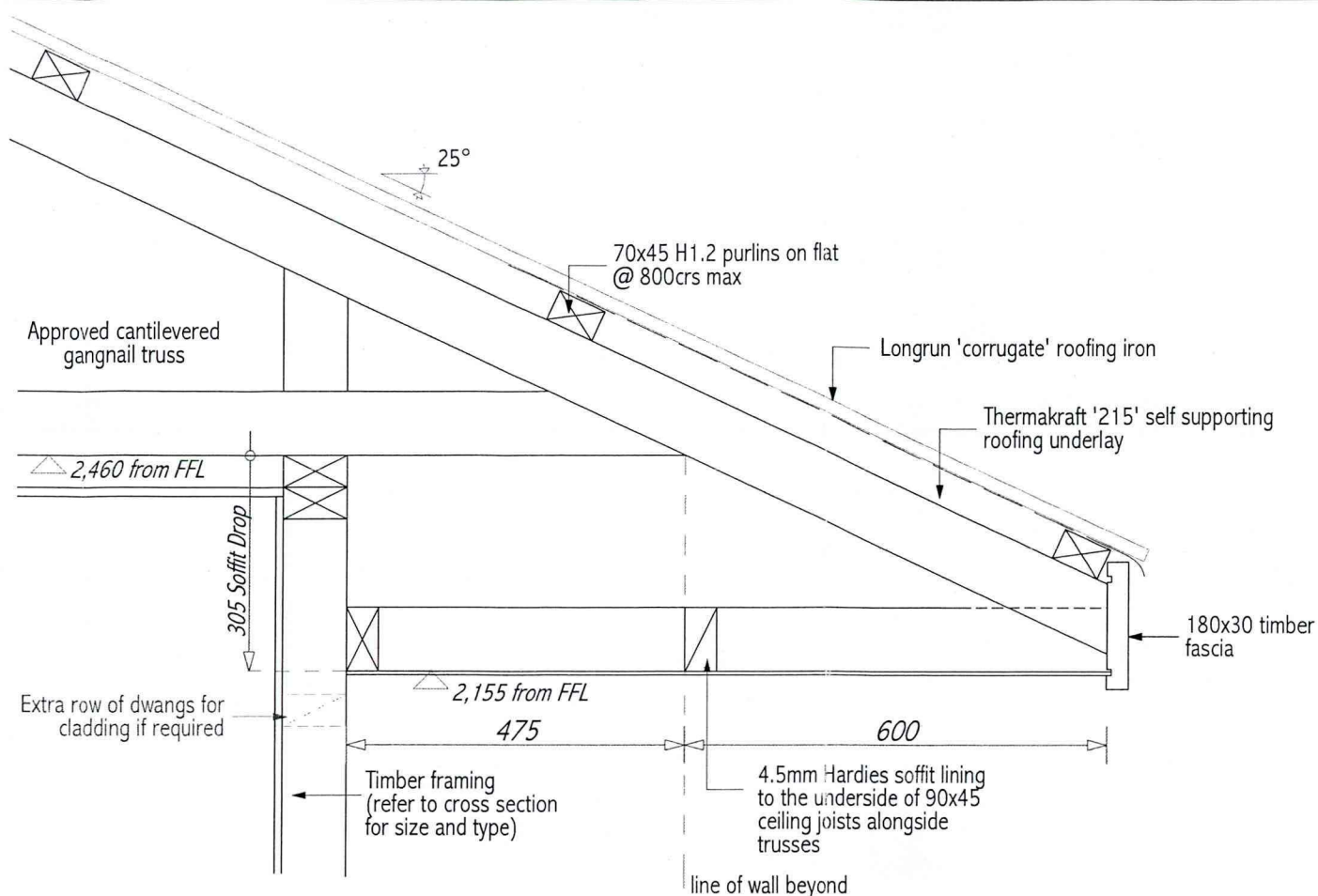


All Plans Are Copyright And May Only Be Built By McRaeWay Homes



600mm SOFFIT OVERHANG DETAIL

DETAIL RD-01

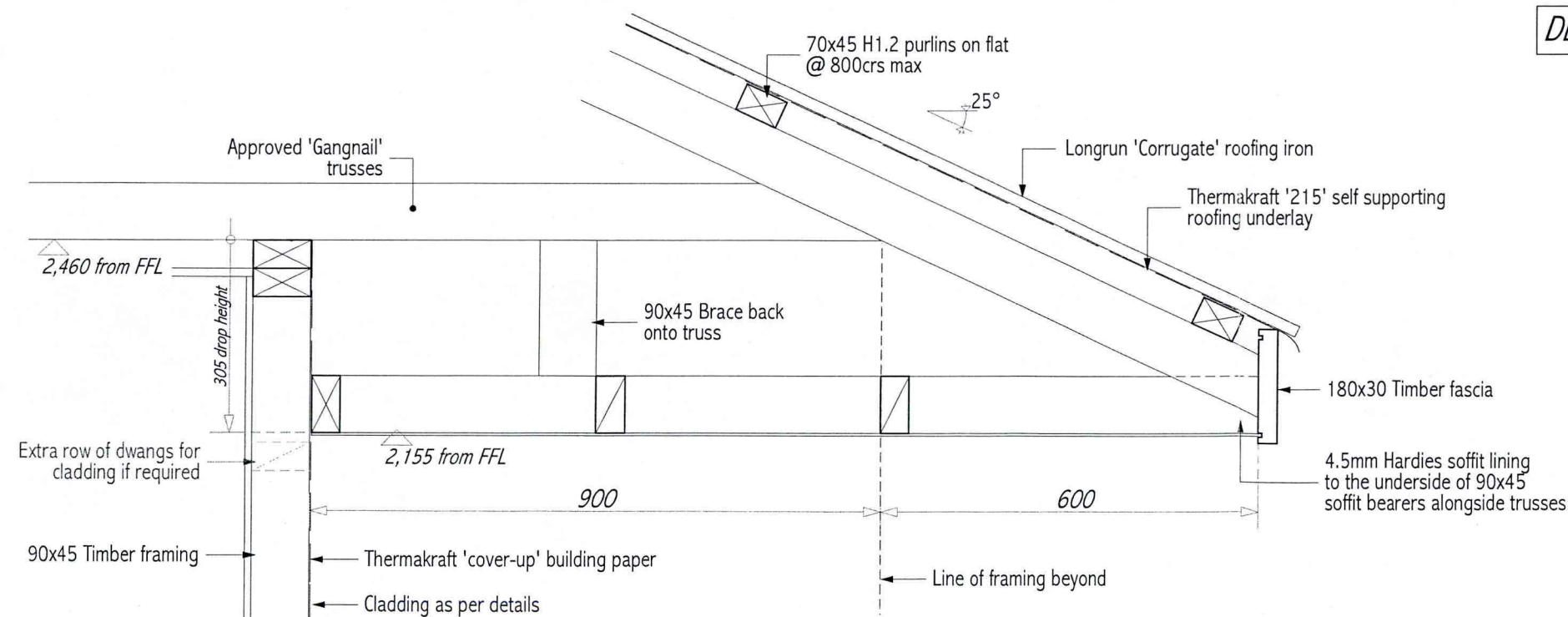


475 CANTILEVERED TRUSS WITH 600mm SOFFIT OVERHANG DETAIL

NOTE:

18x18mm eave moulding may be supplied

DETAIL RD-02

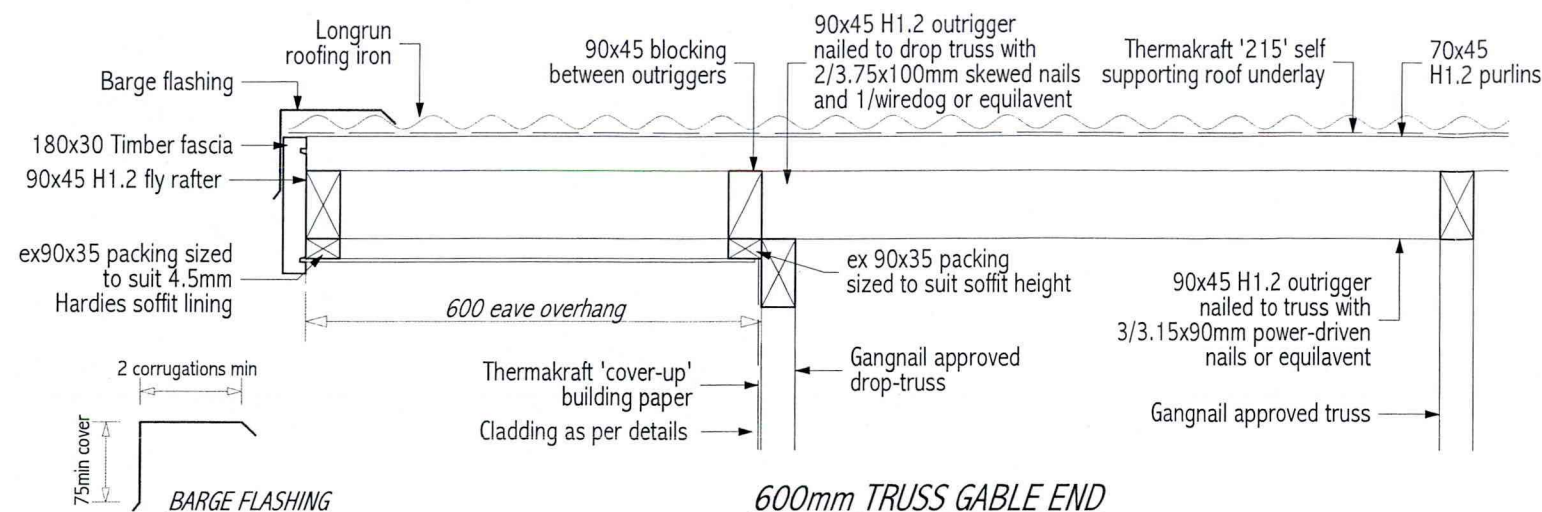


900 CANTILEVERED TRUSS WITH 600mm SOFFIT OVERHANG DETAIL

NOTE:

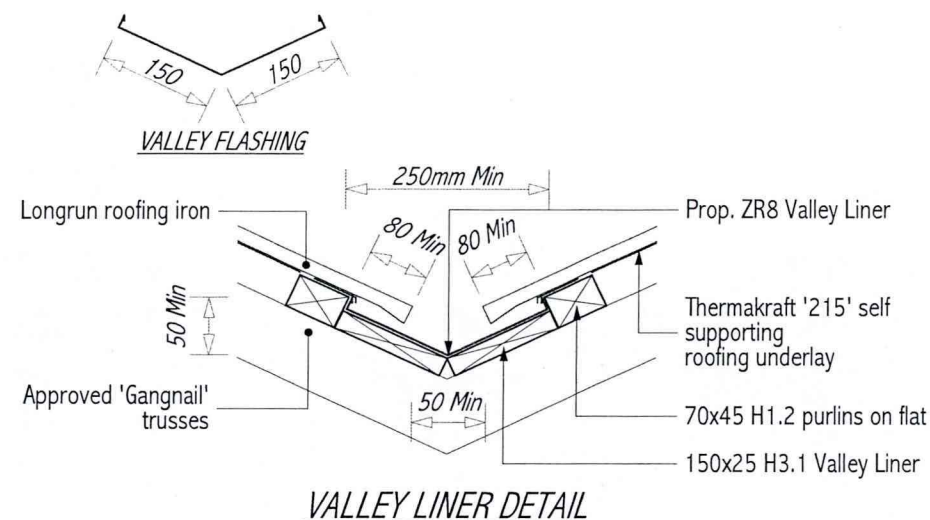
18x18mm eave moulding may be supplied

DETAIL RD-03

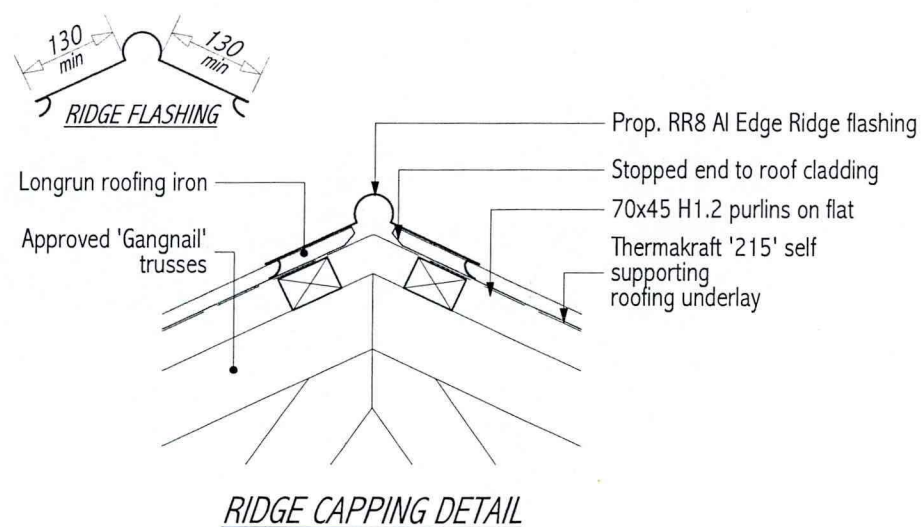


600mm TRUSS GABLE END

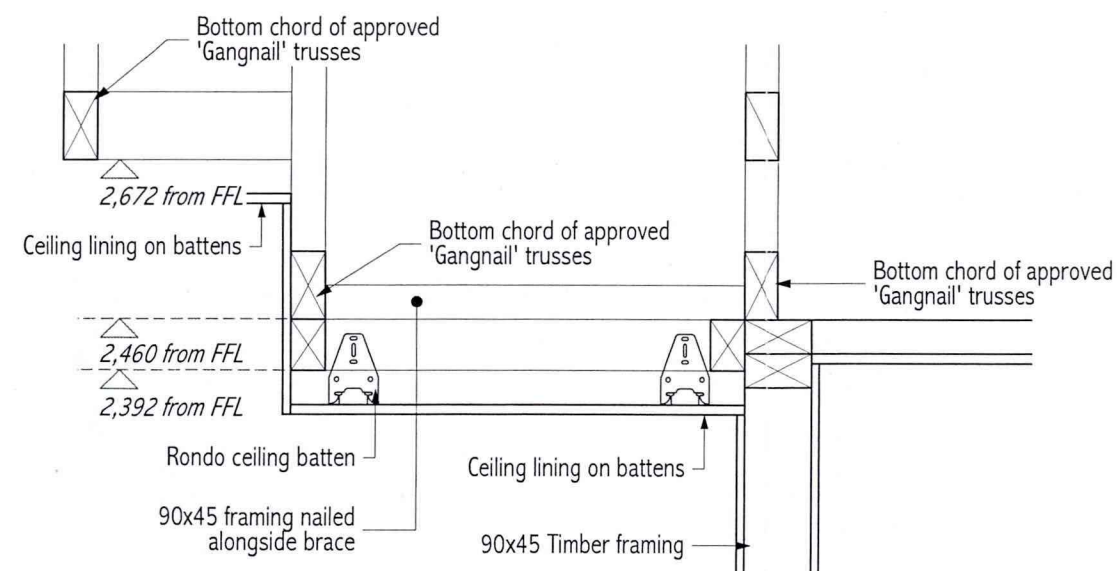
DETAIL RD-04



VALLEY LINER DETAIL

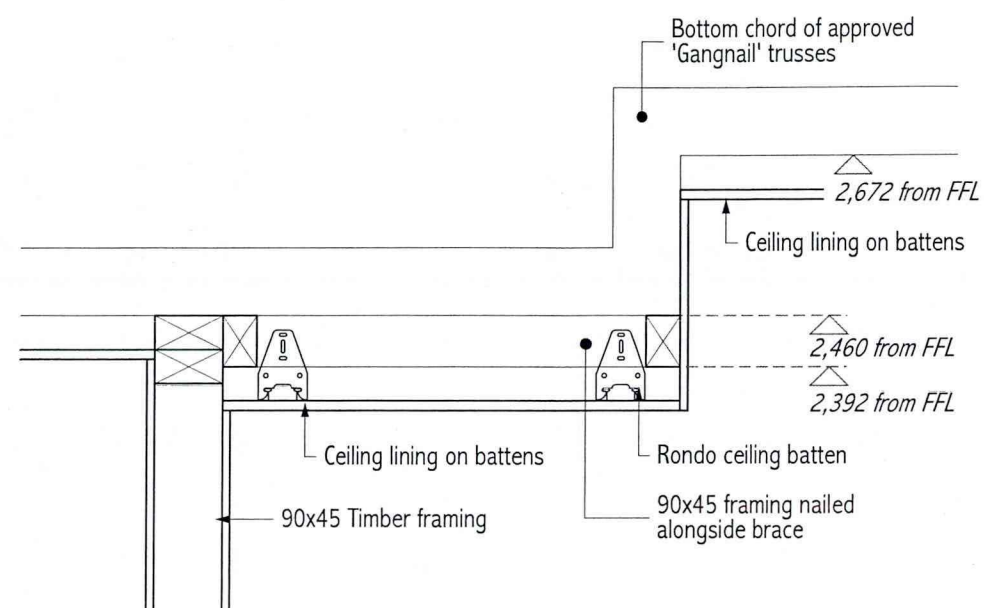


RIDGE CAPPING DETAIL



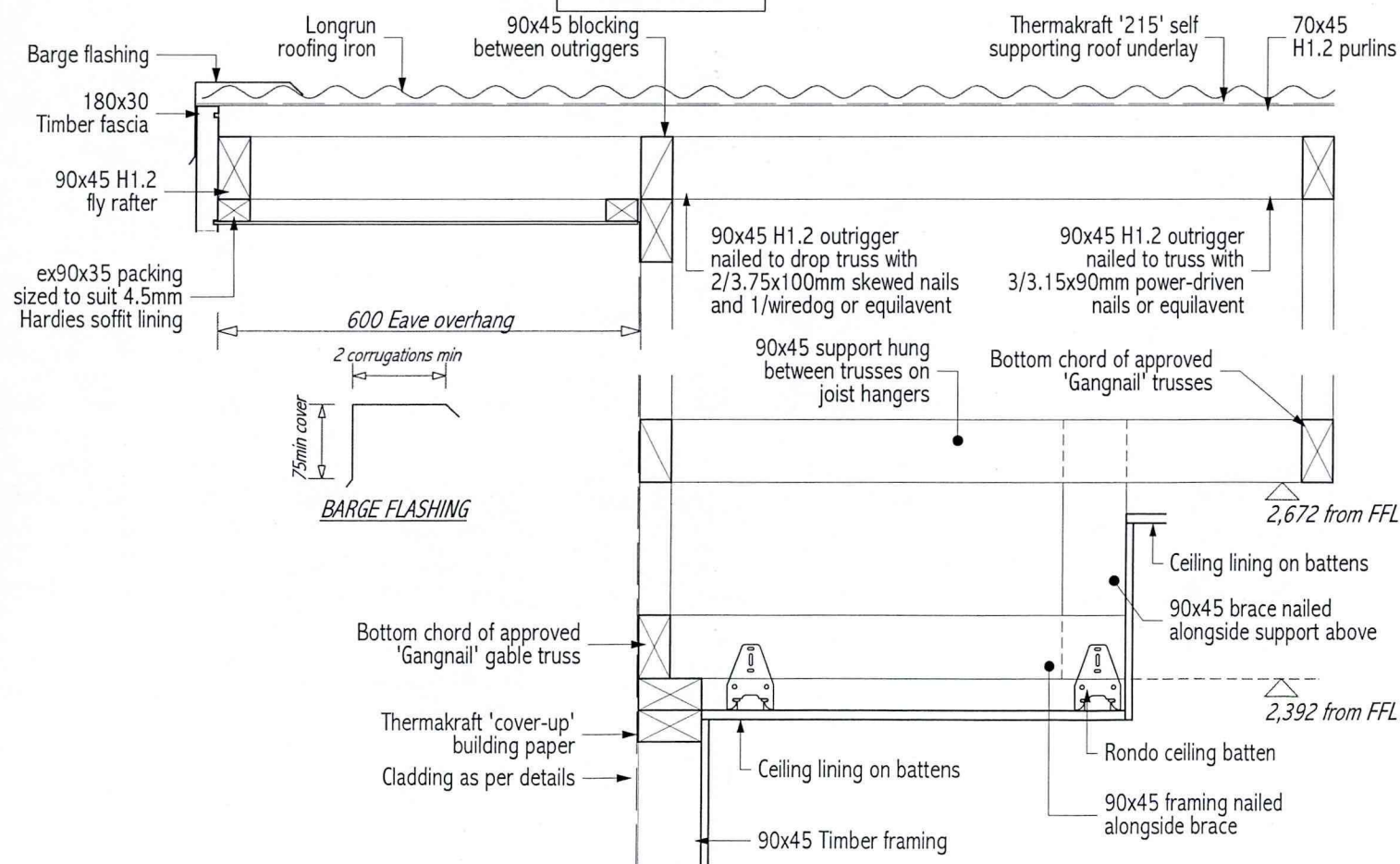
TRUSS TO INTERNAL WALL DETAIL

DETAIL RD-05



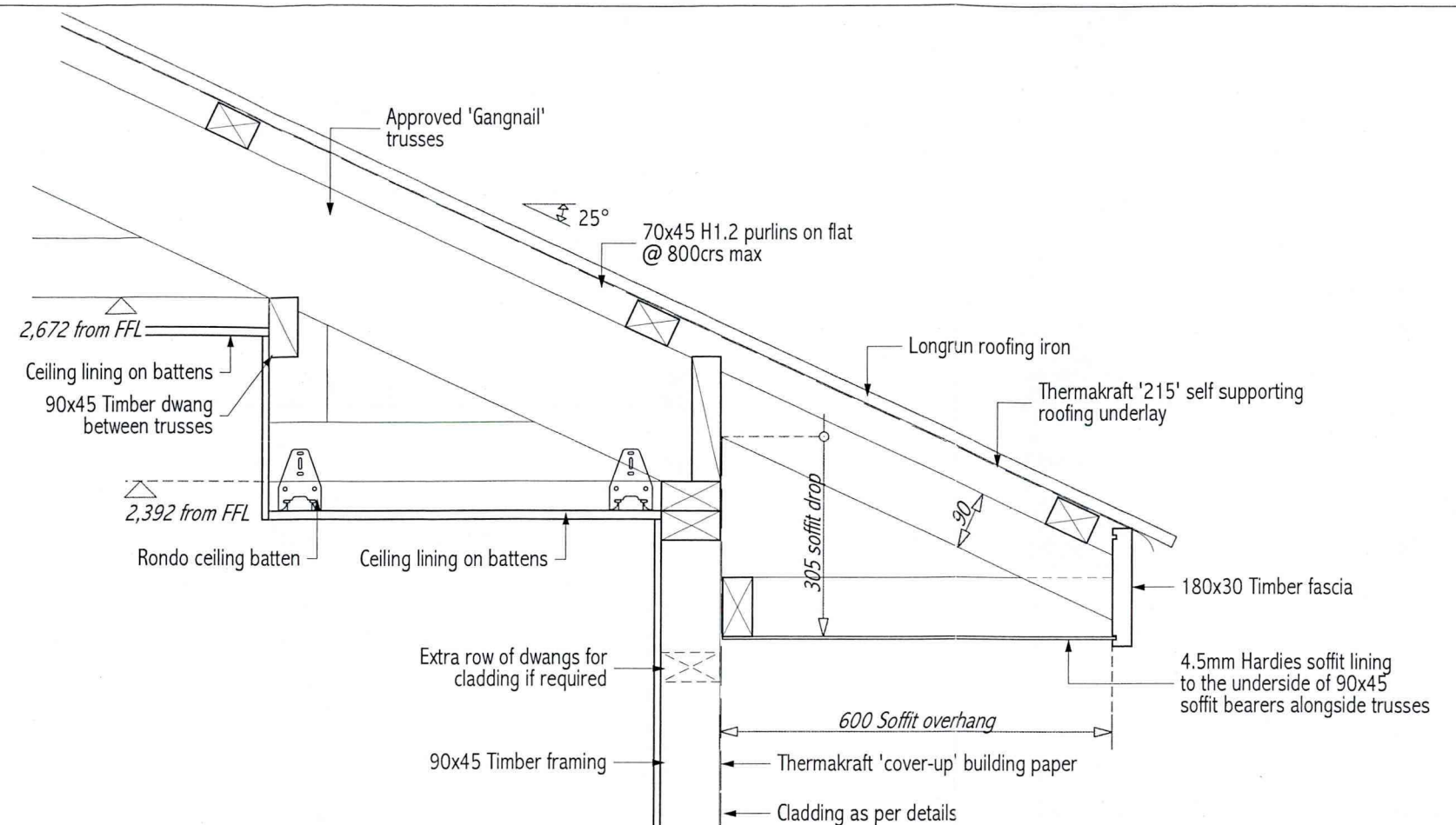
TRUSS TO INTERNAL WALL DETAIL

DETAIL RD-06



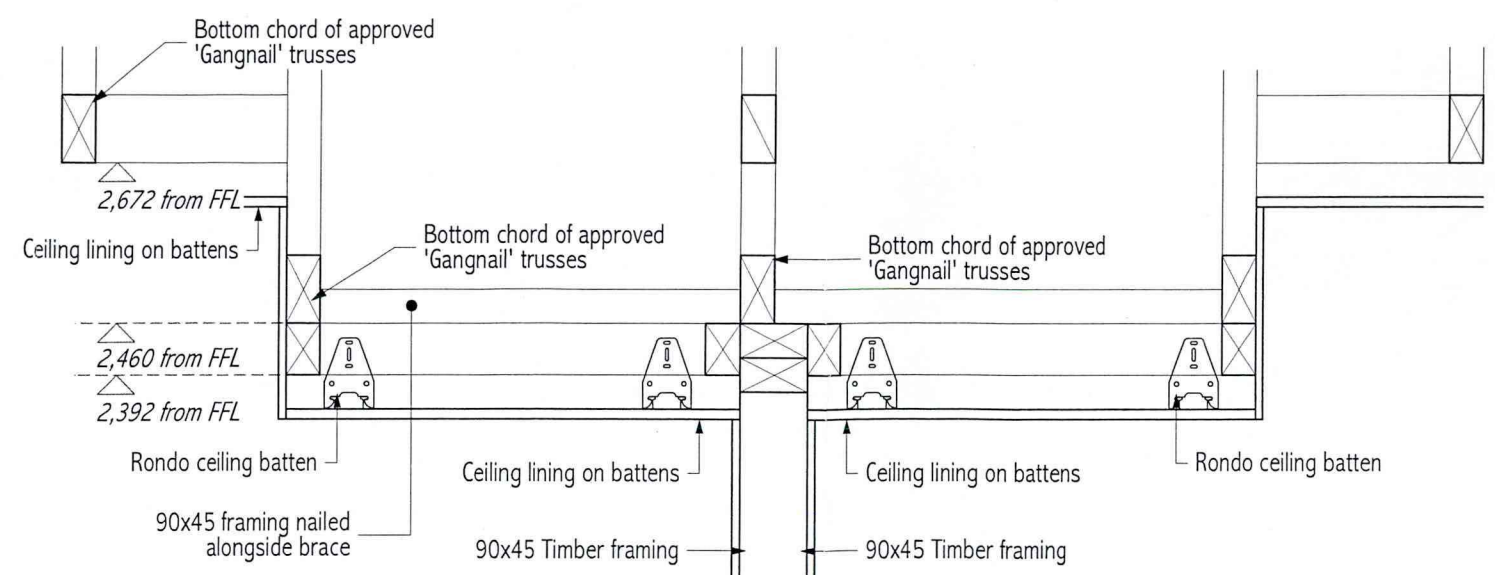
COVED CEILING TO GABLE END DETAIL

DETAIL RD-08



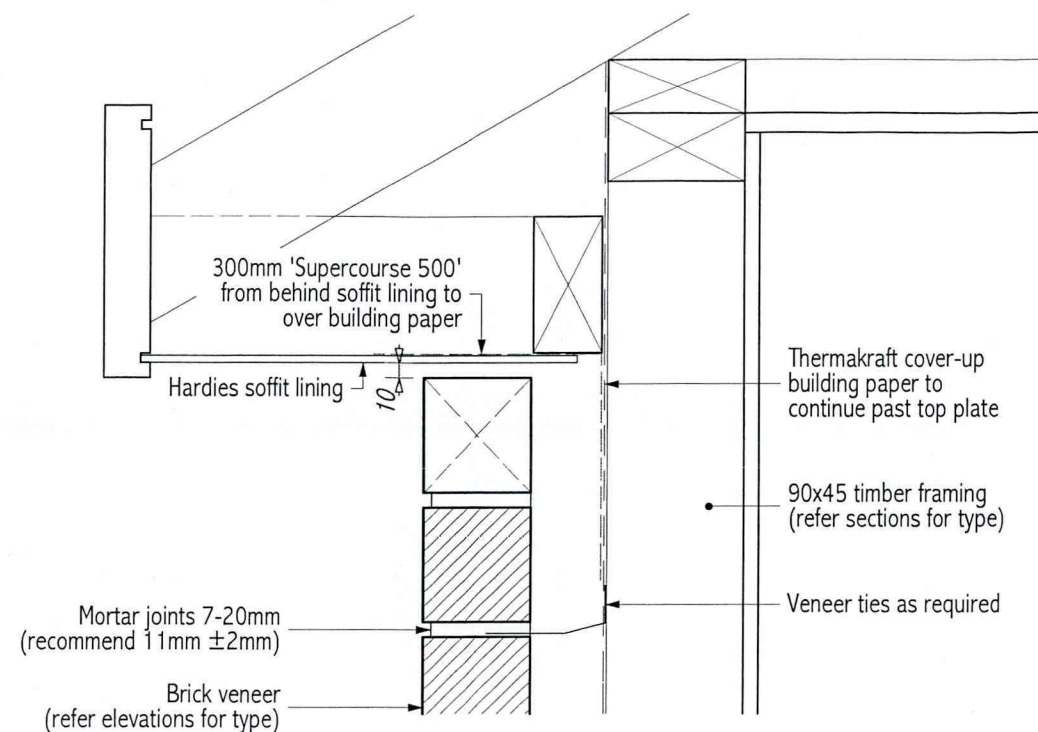
COVED CEILING TO SOFFIT OVERHANG DETAIL

DETAIL RD-07



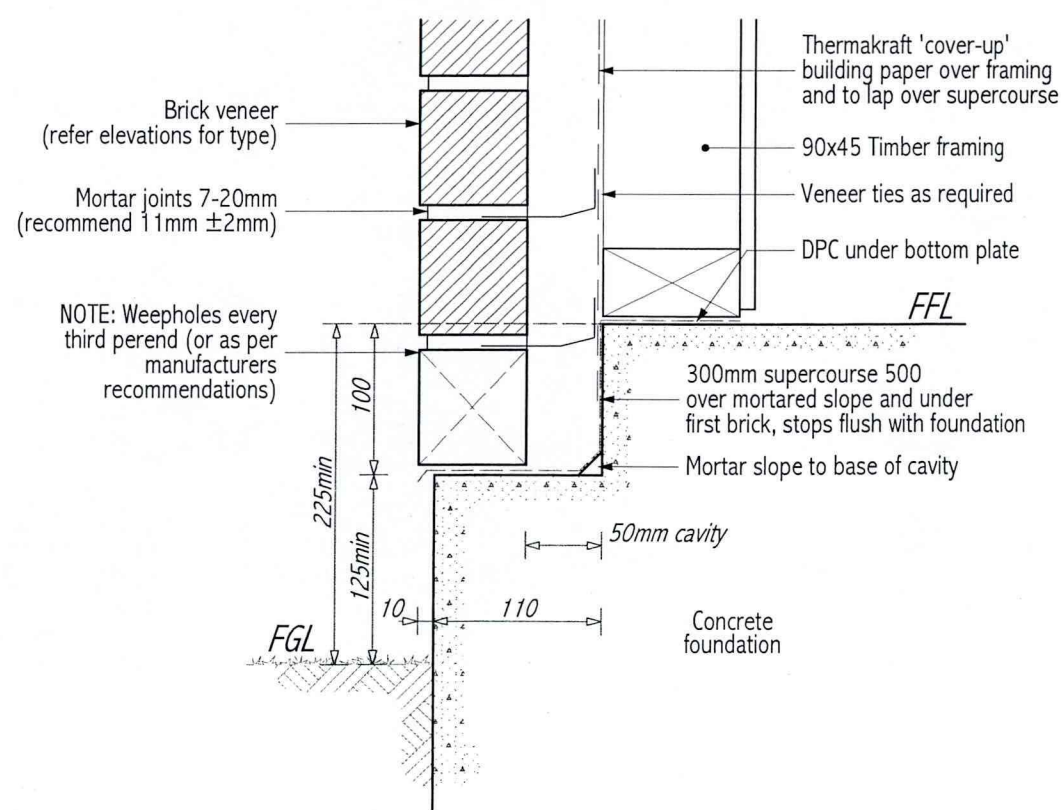
TRUSS TO INTERNAL WALL DETAIL

DETAIL RD-09

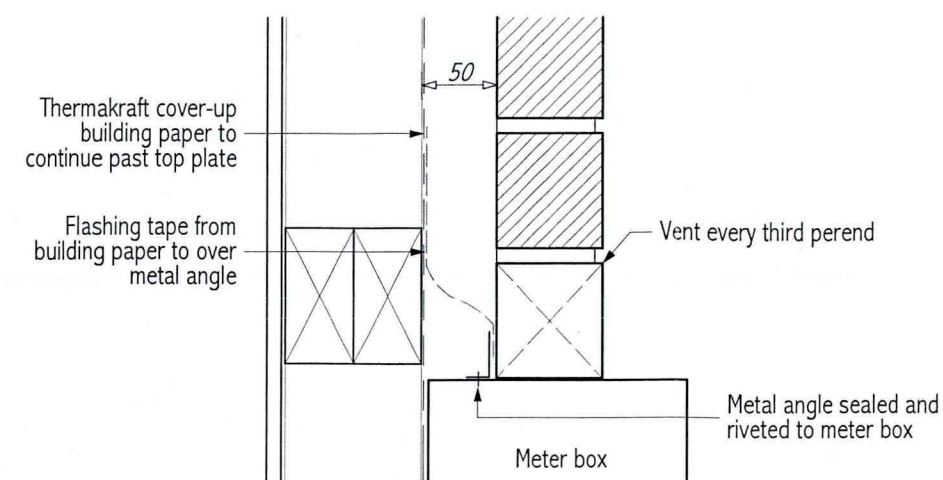


70 SERIES VENEER SOFFIT DETAIL

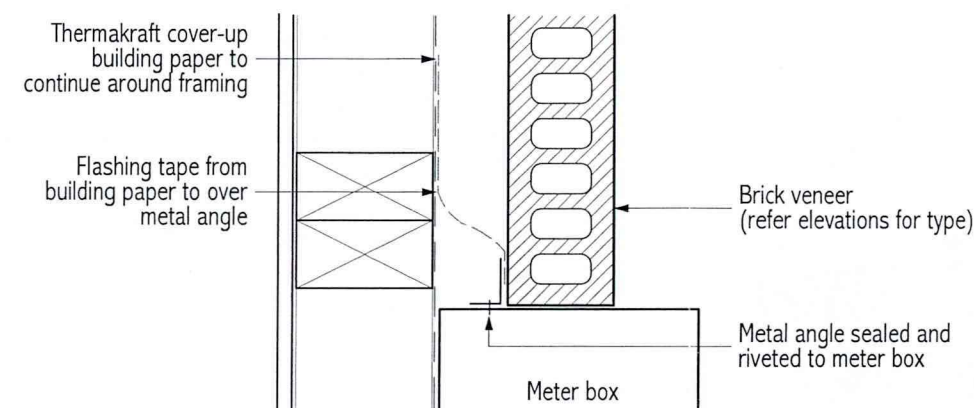
NOTE:
Rake joints max. 6mm
Tool joints smooth



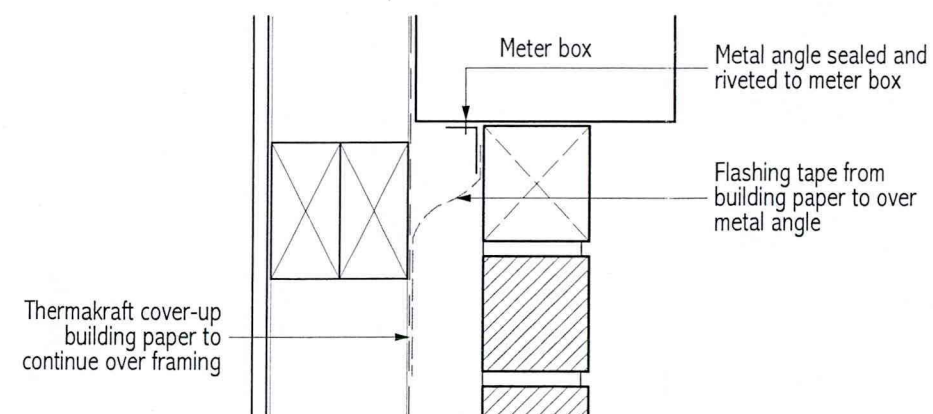
70 SERIES VENEER FOOTING DETAIL



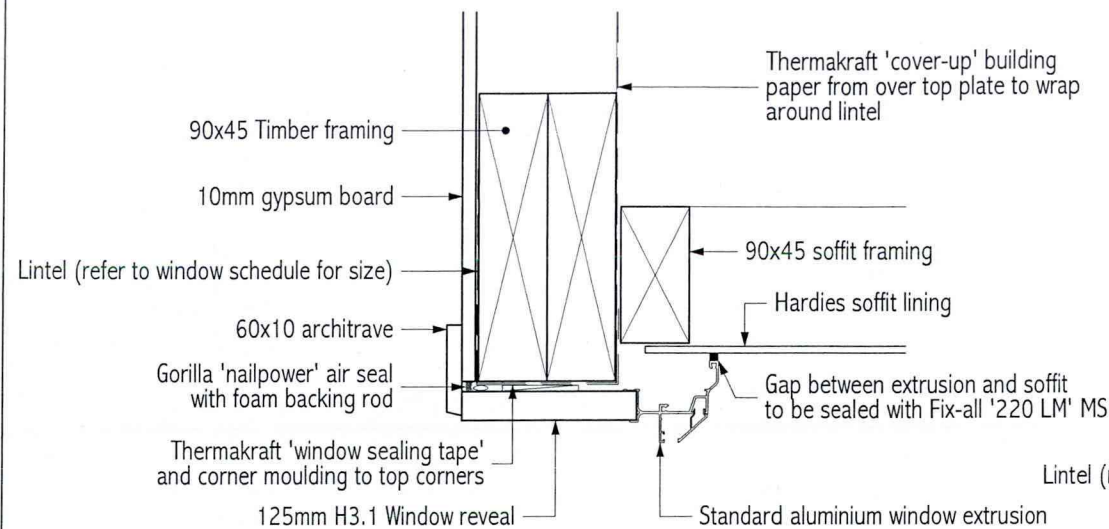
METER BOX HEAD DETAIL



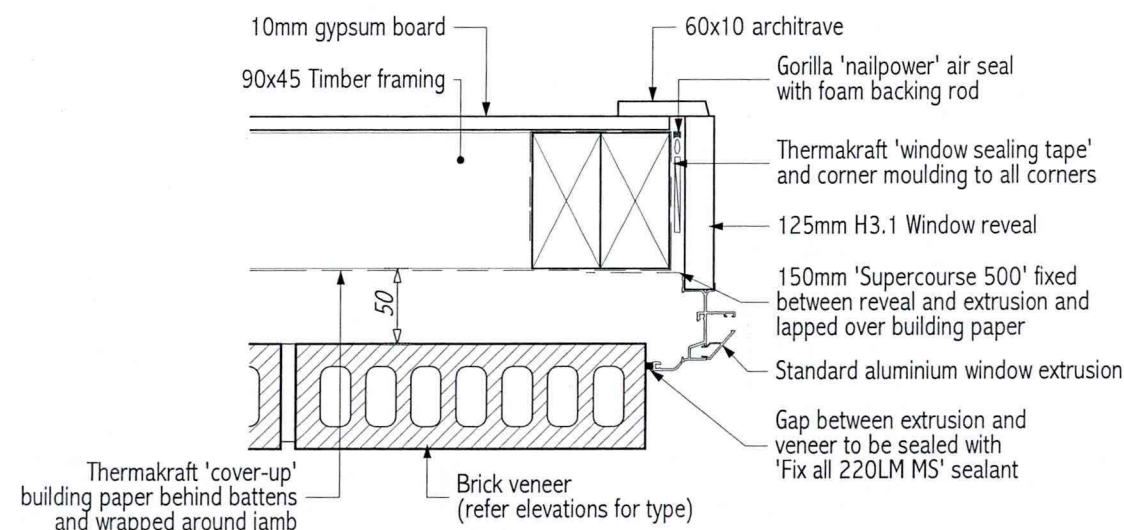
METER BOX JAMB DETAIL



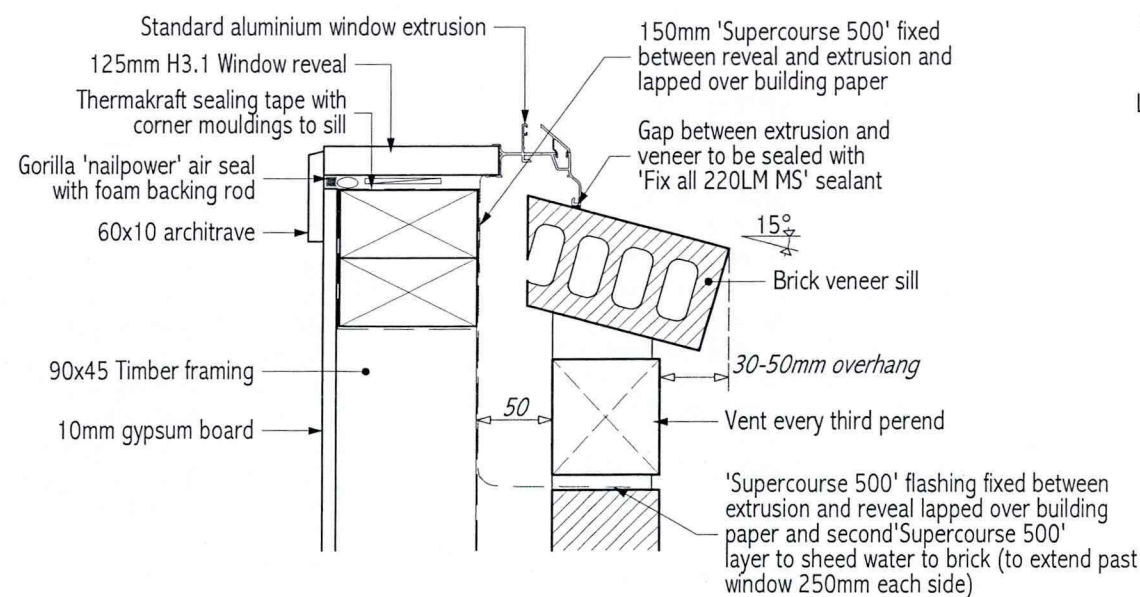
METER BOX SILL DETAIL



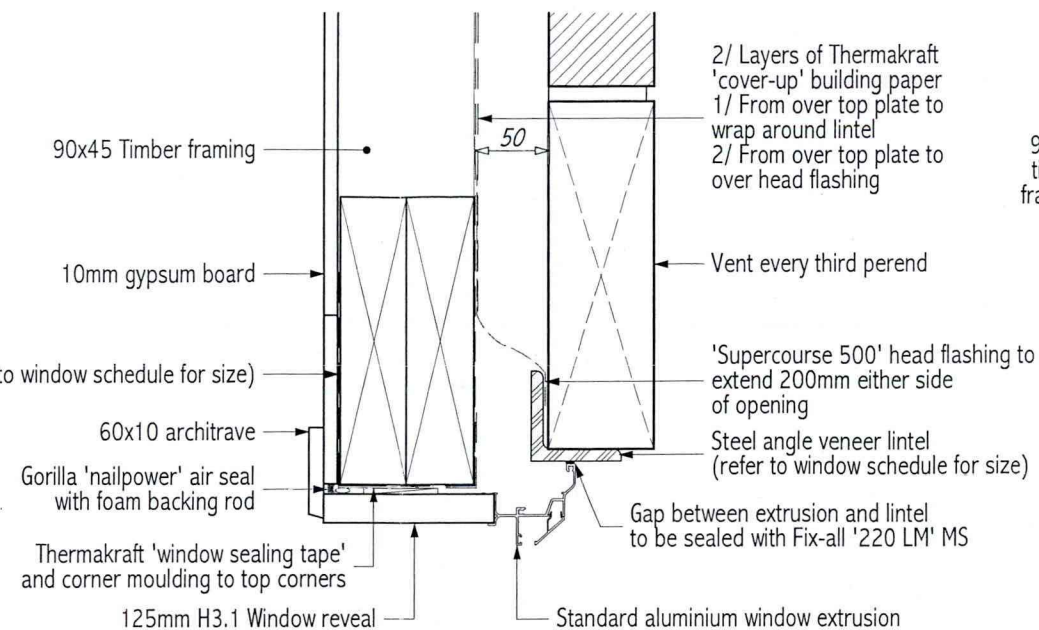
70 SERIES VENEER HEAD TO SOFFIT DETAIL



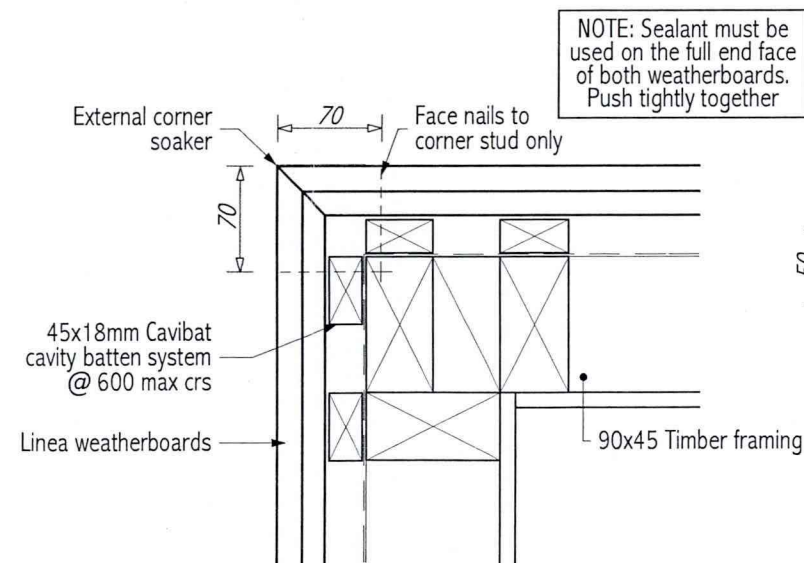
70 SERIES VENEER JAMB FLASHING DETAIL



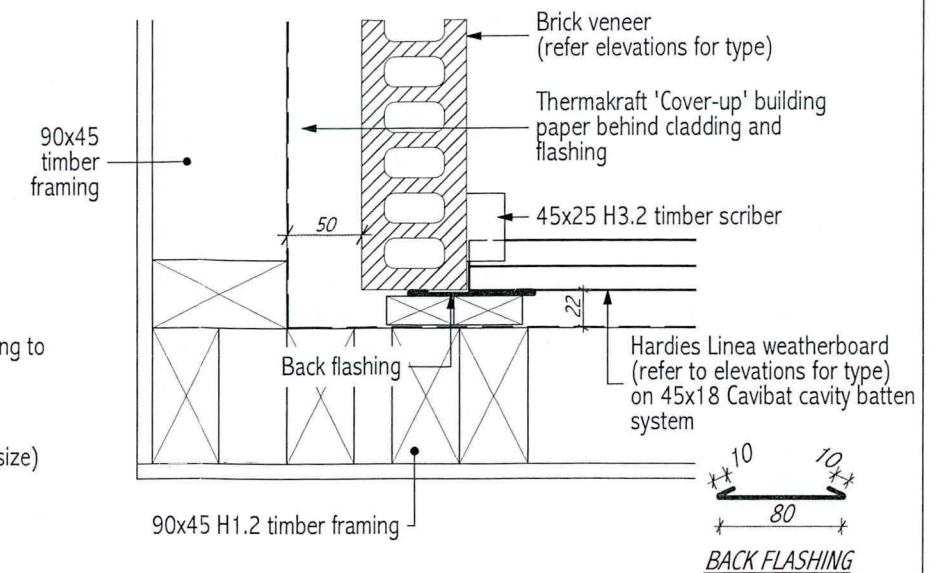
70 SERIES VENEER SILL FLASHING DETAIL



70 SERIES VENEER SOLDIER COURSE HEAD FLASHING DETAIL



LINEA EXTERNAL CORNER DETAIL

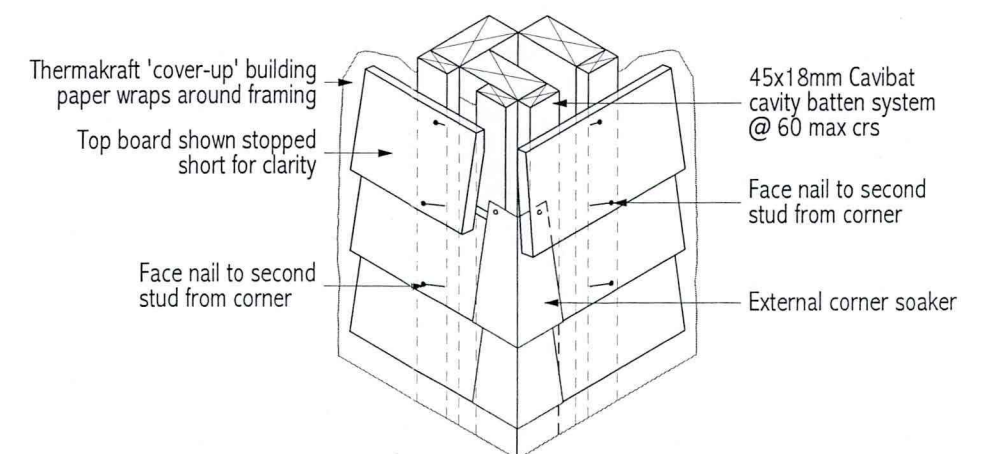
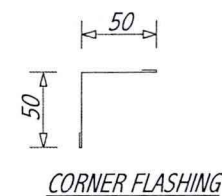


LINEA/BRICK INTERNAL CORNER DETAIL

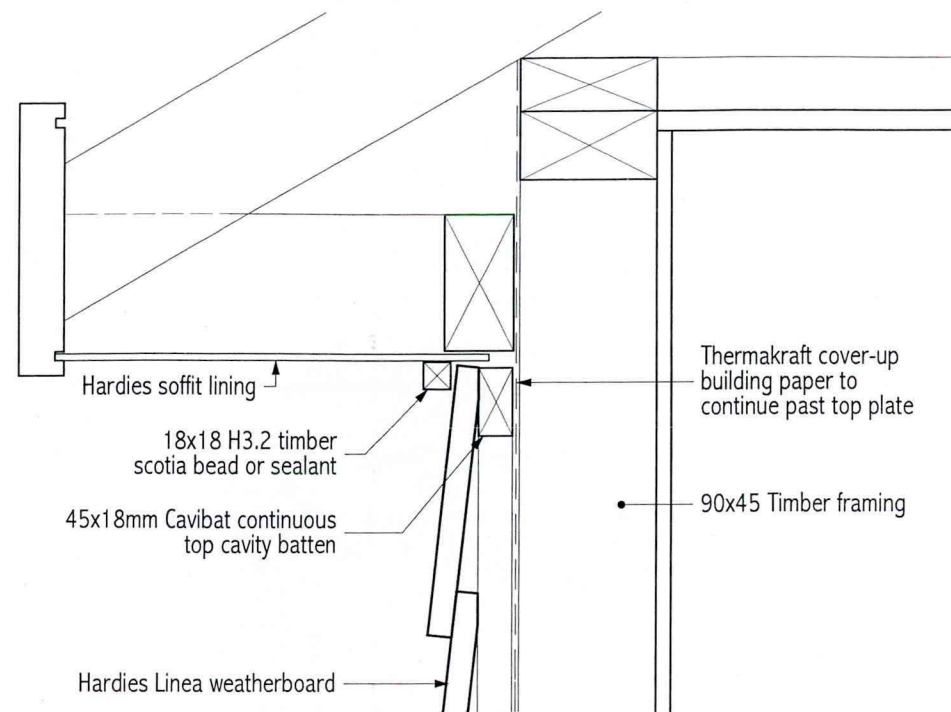
Gap between claddings to be sealed with 'Fix All 220LM MS' polymer sealant

NOTE: Sealant must be used on the full end face of both weatherboards. Push tightly together

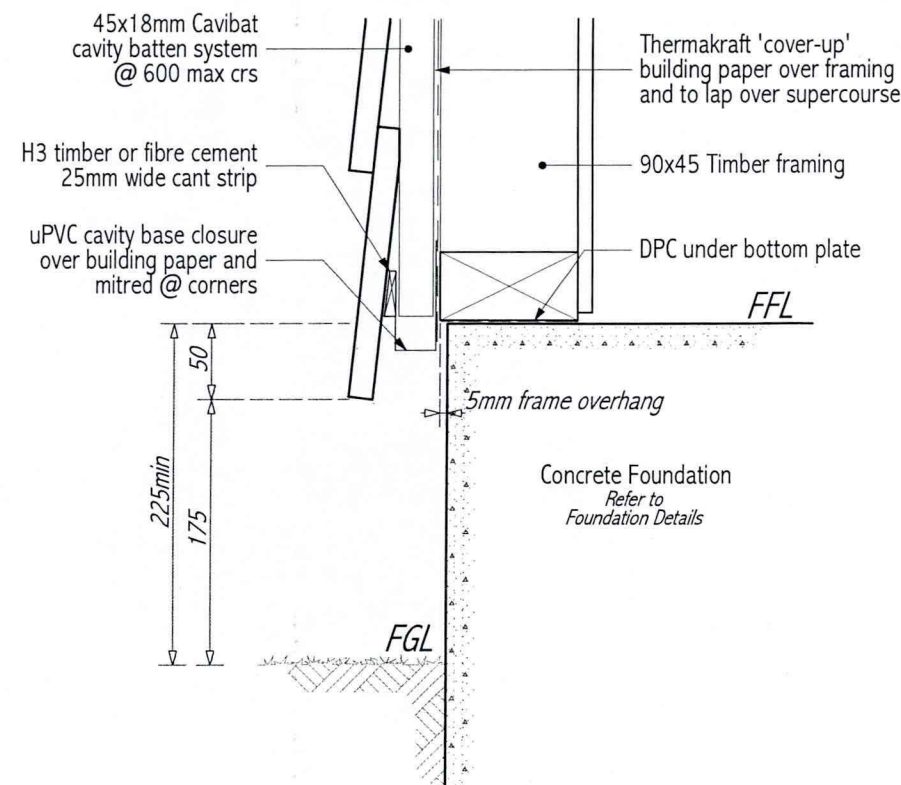
NOTE: Where applicable, corner flashings are not to be continuous over solid floor joists.



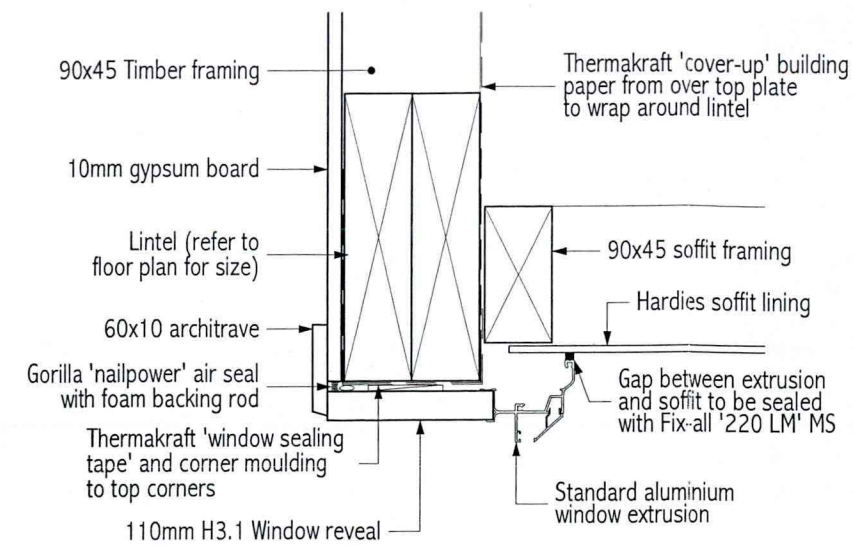
LINEA EXTERNAL CORNER SOAKER DETAIL



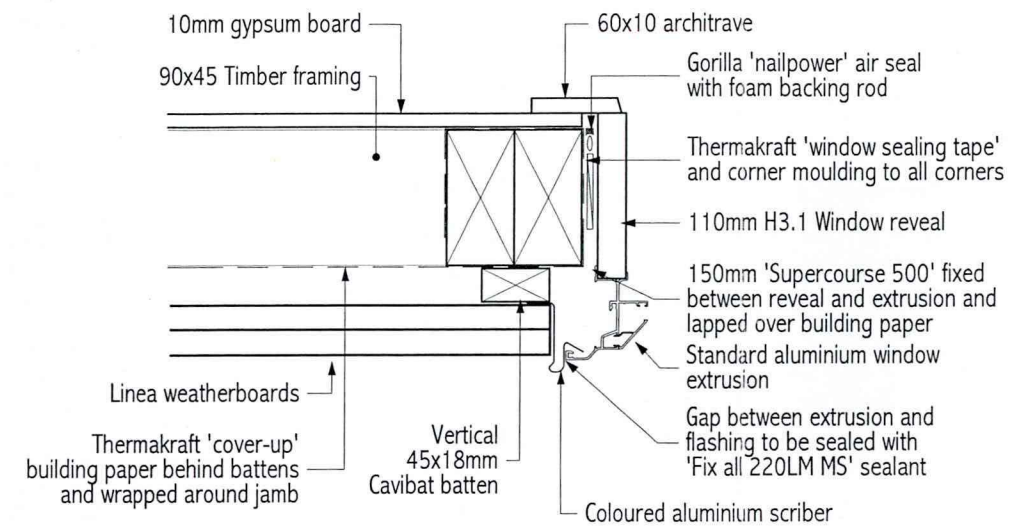
LINEA WEATHERBOARD SOFFIT DETAIL



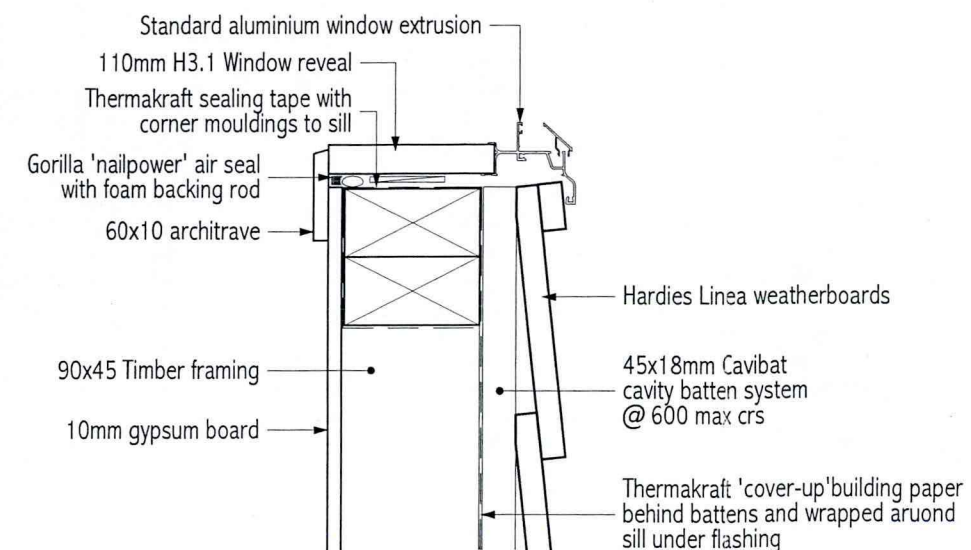
LINEA WEATHERBOARD FOOTING DETAIL



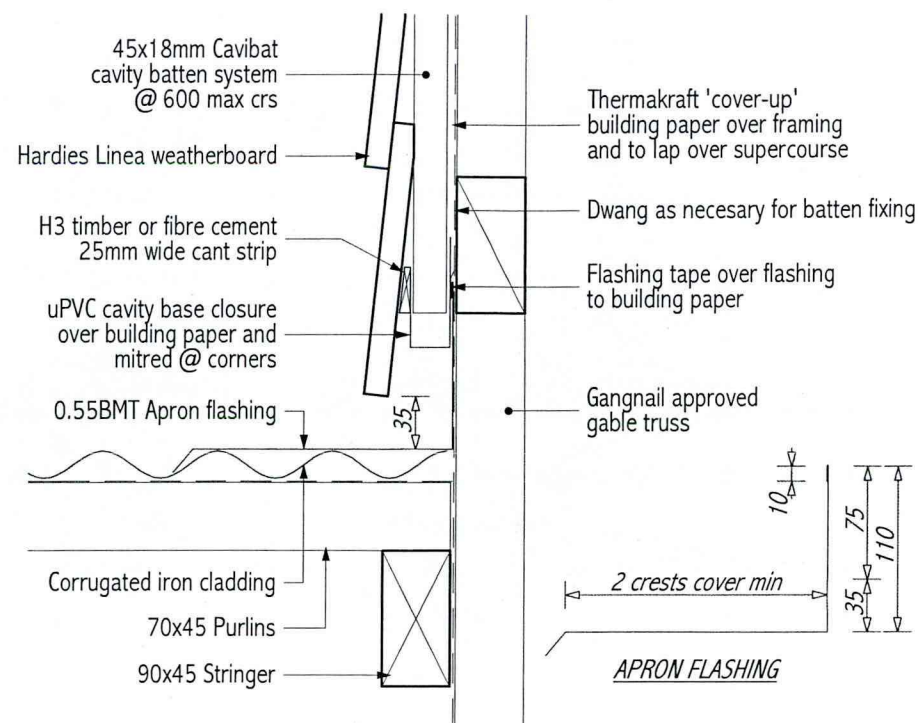
LINEA HEAD TO SOFFIT DETAIL



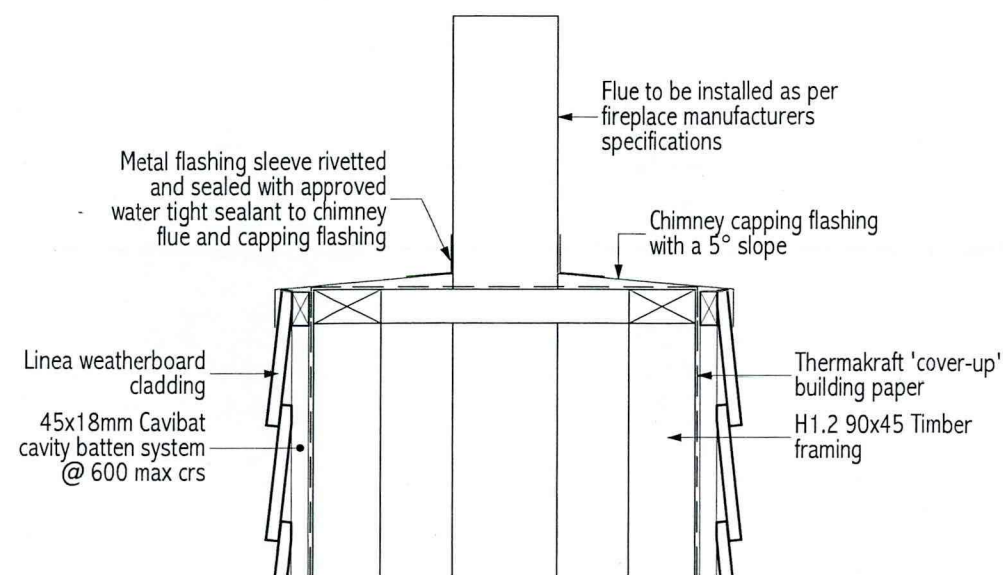
LINEA JAMB FLASHING DETAIL



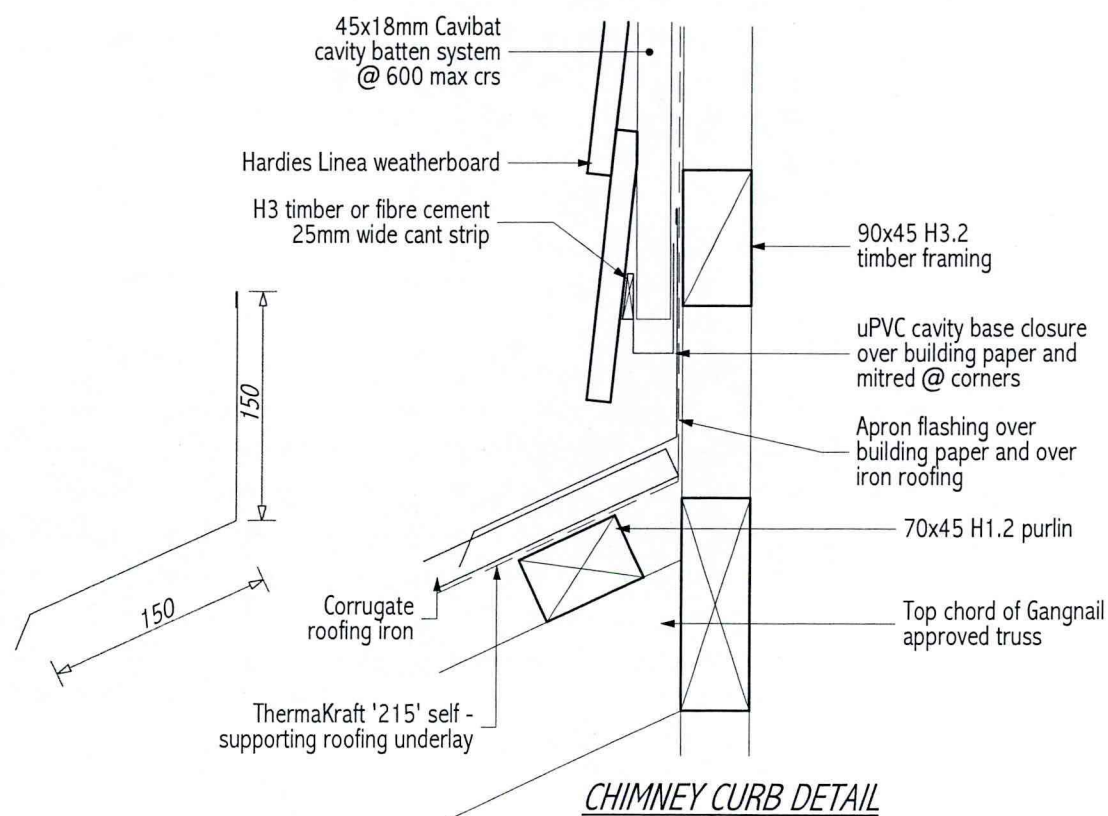
LINEA SILL FLASHING DETAIL



LINEA TERMINATION TO ROOF DETAIL



CAPPING FLASHING DETAIL



CHIMNEY CURB DETAIL

GIB® Wall Bracing Calculation Sheet A

single storey

V85A

GIB® EzyBrace™

GIB® Bracing Systems, 2006

Job Details

Name	BISHOP BUILDERS LTD	
Street and Number	48 FERNBROOK ROAD	
Lot and DP Number	LOT 4 DP 12106	
City/Town/District	OAMARU	
Designer and date	B. M. JORDAN	23-Jul-07
Company Name	McRAEWAY HOMES	

Building Specification

Location of Storey	single	▼	
Floor Loading	2 kPa	▼	
Foundation Type	slab	▼	
Building Height to Apex (m)	5	▼	
Roof Height above Eaves (m)	2	▼	
Stud Height (m)	2.4	▼	
Cladding Weight (top or single)	heavy	▼	
Cladding Weight (lower)	light	▼	not applicable (single storey building)
Cladding Weight (subfloor)	light	▼	not applicable (slab)
Roof Weight	light	▼	
Roof Pitch (degrees)	0-25	▼	
Room in Roof Space	no	▼	
Building Length (m)	19.59		
Building Width (m)	13.03		
Gross Building Plan Area (m2)	194.55		

Building Location

Wind Zone	High		Earthquake Zone	
Region	R1	▼	B	▼
Terrain	Coastal	▼		
Exposure	Sheltered	▼		
Topography	Moderate	▼		

Bracing Units required for Wind

per m	subfloor	walls
W along	n/a	64 BUs/m
W across	n/a	54 BUs/m
Totals	subfloor	walls
W along	n/a	834 BUs
W across	n/a	1058 BUs

Bracing Units required for Earthquake

per m2	subfloor	walls
E	n/a	3.9 BUs/m2
Totals	subfloor	walls
E along	n/a	759 BUs
E across	n/a	759 BUs

GIB® Wall Bracing Calculation Sheet B					single storey			V85A	
GIB® EzyBrace™					GIB® Bracing Systems, 2006				
Along									
Wall or Bracing Line	Bracing Elements provided							Wind	Earthq.
1	2	3	4	5	7	8	6	9W	10EQ
Line Label	Minimum BUs Req/Ach	Bracing Element No.	Supplier	Bracing Type	Element Length L (m)	Element Height H (m)	Angle to Bracing line (degrees)	BUs Achieved	BUs Achieved
A	152	1	GIB®	GS1a	1.8	2.4		117	99
		2	Flexibrace	FX 2-4	1.2	2.4		113	72
line totals		3	Flexibrace	FX 2-4	1.2	2.4		113	72
W	343	4							
EQ	243	5							
B	70	1	Flexibrace	FX 2-2	0.6	2.4		70	45
		2	GIB®	GS2	1.8	2.4		144	126
line totals		3							
W	214	4							
EQ	171	5							
C	132	1	Flexibrace	FX 2-2	0.6	2.4		70	45
		2	Flexibrace	FX 2-2	0.6	2.4		70	45
line totals		3	GIB®	GS1a	1.8	2.4		117	99
W	256	4							
EQ	189	5							
D	180	1	Flexibrace	FX 2-2	0.6	2.4		70	45
		2	Flexibrace	FX 2-2	0.6	2.4		70	45
line totals		3	Flexibrace	FX 2-2	0.6	2.4		70	45
W	278	4	Flexibrace	FX 2-2	0.6	2.4		70	45
EQ	180	5							
E	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
F	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
G	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
H	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
								Wind	Earthq.
Totals Achieved								1091	783
								OK	OK
Totals Required (from Sheet A)								834	759

GIB® Wall Bracing Calculation Sheet B

single storey

V85A

GIB® EzyBrace™

GIB® Bracing Systems, 2006

Across									
Wall or Bracing Line		Bracing Elements provided						Wind	Earthq.
1	2	3	4	5	7	8	6	9W	10EQ
Line Label	Minimum BUs Req/Ach	Bracing Element No.	Supplier	Bracing Type	Element Length L (m)	Element Height H (m)	Angle to Bracing line (degrees)	BUs Achieved	BUs Achieved
M	123	1	Flexibrace	FX 2-2	0.6	2.4		70	45
		2	Flexibrace	FX 2-2	0.6	2.4		70	45
line totals		3	GIB®	GS1a	1.8	2.4		117	99
W	256	4							
EQ	189	5							
N	88	1	Flexibrace	FX 2-2	0.6	2.4		70	45
		2	Flexibrace	FX 2-4	1.2	2.4		113	72
line totals		3	Flexibrace	FX 2-2	0.6	2.4		70	45
W	252	4							
EQ	162	5							
O	96	1	Flexibrace	FX 2-2	0.6	2.4		70	45
		2	Flexibrace	FX 2-2	0.6	2.4		70	45
line totals		3	Flexibrace	FX 2-4	1.2	2.4		113	72
W	252	4							
EQ	162	5							
P	146	1	Flexibrace	FX 2-1	0.4	2.4		42	28
		2	Flexibrace	FX 2-1	0.4	2.4		42	28
line totals		3	GIB®	GS2	2.4	2.4		216	192
W	300	4							
EQ	248	5							
Q	54	1	Flexibrace	FX 2-1	0.4	2.4		42	28
		2	Flexibrace	FX 2-1	0.4	2.4		42	28
line totals		3	Flexibrace	FX 2-1	0.4	2.4		42	28
W	168	4	Flexibrace	FX 2-1	0.4	2.4		42	28
EQ	112	5							
R	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
S	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
T	enter	1							
		2							
line totals		3							
W		4							
EQ		5							

							Wind	Earthq.
Totals Achieved							1228	873

						OK	OK
Totals Required (from Sheet A)						1058	759



Design Steps 4 and 5 – Bracing Units Achieved (Wind and Earthquake)

MARCH 2006

The next step is to place selected wall bracing systems on the bracing lines. A range of GIB® Bracing Systems have been tested and the specifications and Bracing Unit ratings are listed on the next page. GIB® Standard Plasterboard systems often represent the majority of the wall bracing elements. GIB Braceline® systems are used for narrow walls or when high Bracing Unit ratings are required.

Wall Heights other than 2.4m

The published Bracing Unit ratings are based on a 2.4 metre height. For other heights, the ratings must be multiplied by a factor $f = 2.4$ divided by actual wall height. The Bracing Unit ratings for walls higher than 2.4 metres will reduce, and the Bracing Unit rating for lower walls will increase. Factor f must not be greater than 1.3.

For example:

The Bracing Unit rating of a 2.7 metre high wall is obtained by multiplying the values in Tables 1 and 2 by $f = 2.4/2.7 = 0.89$
The Bracing Unit rating of a 3.6 metre high wall is obtained by multiplying the values in Tables 1 and 2 by $f = 2.4/3.6 = 0.67$
The Bracing Unit rating of a 2.0 metre high wall is obtained by multiplying the values in Tables 1 and 2 by $f = 2.4/2.0 = 1.2$
The Bracing Unit rating of a 1.5 metre high wall is obtained by multiplying the values in Tables 1 and 2 by $f = 2.4/1.5 = 1.6$
However, note that f is not permitted to be greater than 1.3, so adopt $f = 1.3$

The height of walls with a sloping top plate can be taken as the average height.

GIB® Bracing Systems – EzyBrace™ Specification Numbering System

The EzyBrace™ Specification Numbering System is designed to make specification of GIB® Bracing Systems by designers and identification on site by builders and building officials more transparent. Note: The EzyBrace™ Specification Numbering System (and sub-components thereof) are protected by copyright.

GS = GIB® Standard Plasterboard
BL = GIB Braceline®
BLP = GIB Braceline® / Plywood
BLG = GIB Braceline® / GIB® Standard Plasterboard

1 = lined one side
2 = lined both sides
a = angle brace

Therefore,

GS1a = GIB® Standard Plasterboard one side with an angle brace
GS2 = GIB® Standard Plasterboard both sides
BL1 = GIB Braceline® one side
BL1a = GIB Braceline® one side with an angle brace
BLP = GIB Braceline® one side, Plywood on the other
BLG = GIB Braceline® one side, GIB® Standard Plasterboard on the other

Panel Hold-downs

Panel hold-down details are illustrated on page 29. GIB® Standard Bracing Systems (GS1a and GS2) do not require hold-downs. All bracing systems incorporating GIB Braceline® require a panel hold-down at both ends of the bracing element.



Design Steps 4 and 5 – Bracing Units Achieved (Wind and Earthquake)

MARCH 2006

TABLE 1: Bracing Unit Ratings for 10mm GIB® Standard Plasterboard and any other 10mm and 13mm GIB® plasterboard.

TYPE	LENGTH (m)	LINING REQUIREMENT	OTHER REQUIREMENTS		BU PER METRE	
	MINIMUM		DIAGONAL BRACE		WIND	EARTHQUAKE
GS1a	1.8	10mm GIB® Standard Plasterboard one face fixed horizontal or vertical	yes		65	55
	2.4				75	65
GS2	1.2	10mm GIB® Standard Plasterboard both sides fixed horizontal or vertical ¹	no		70	60
	1.8				80	70
	2.4				90	80

TABLE 2: Bracing Unit Ratings for 10mm GIB Braceline®, 10mm GIB Noiseline® and 10mm GIB Toughline® (fixed with GIB Braceline® screws or GIB Braceline® nails)

TYPE	LENGTH (m)	LINING REQUIREMENT	OTHER REQUIREMENTS		BU PER METRE	
	MINIMUM		DIAGONAL BRACE	HOLD-DOWNS	WIND	EARTHQUAKE
BL1	0.4	GIB Braceline® one face fixed horizontal or vertical ²	no	yes	120	115
	0.6		no	yes	125	115
BL1a	1.8	GIB Braceline® one face fixed horizontal or vertical ²	yes	yes	130	115
BLP	0.6	GIB Braceline® one face fixed horizontal or vertical, 7mm D-D plywood on the other ^{1,2}	no	yes	145	135
	0.9				145	145
BLG	0.6	GIB Braceline® one face, 10mm GIB® Standard on the other face, linings fixed horizontal or vertical ^{1,2}	no	yes	145	130
	1.2				150 ³	130

- Notes:
- Where linings are specified on both faces, each face must be fastened as a bracing element.
 - GIB Aqualine® can be used in place of GIB Braceline® in bracing elements 900mm or longer, provided the perimeter of the element is fixed with GIB Braceline® nails or screws spaced at 100mm centres generally, using the GIB Braceline® corner fixing pattern.
 - A maximum of 150 BU/m is recommended for any bracing system used with NZS 3604:1999 construction. Higher ratings generate loads beyond the capacity of NZS 3604:1999 timber foundation and slab details. If ratings exceed 150 BU/m, hold downs and foundations must be the subject of specific structural engineering design.

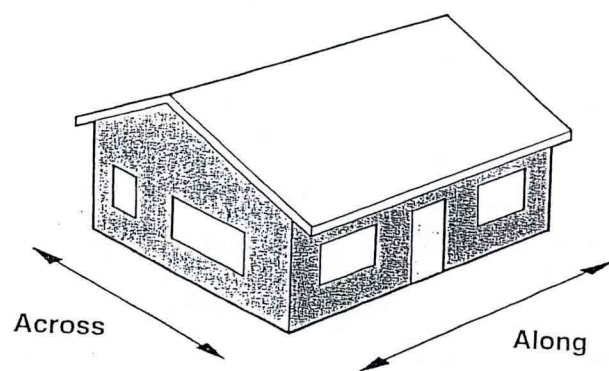
In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow system specifications.

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Bracing for buildings need to be considered for both WIND and EARTHQUAKE demand.

To determine the Bracing Unit Demand (BU's) refer to Section 5 NZS 3604:1999 or contact the local Territorial Authority for particular Wind/Seismic zonings.

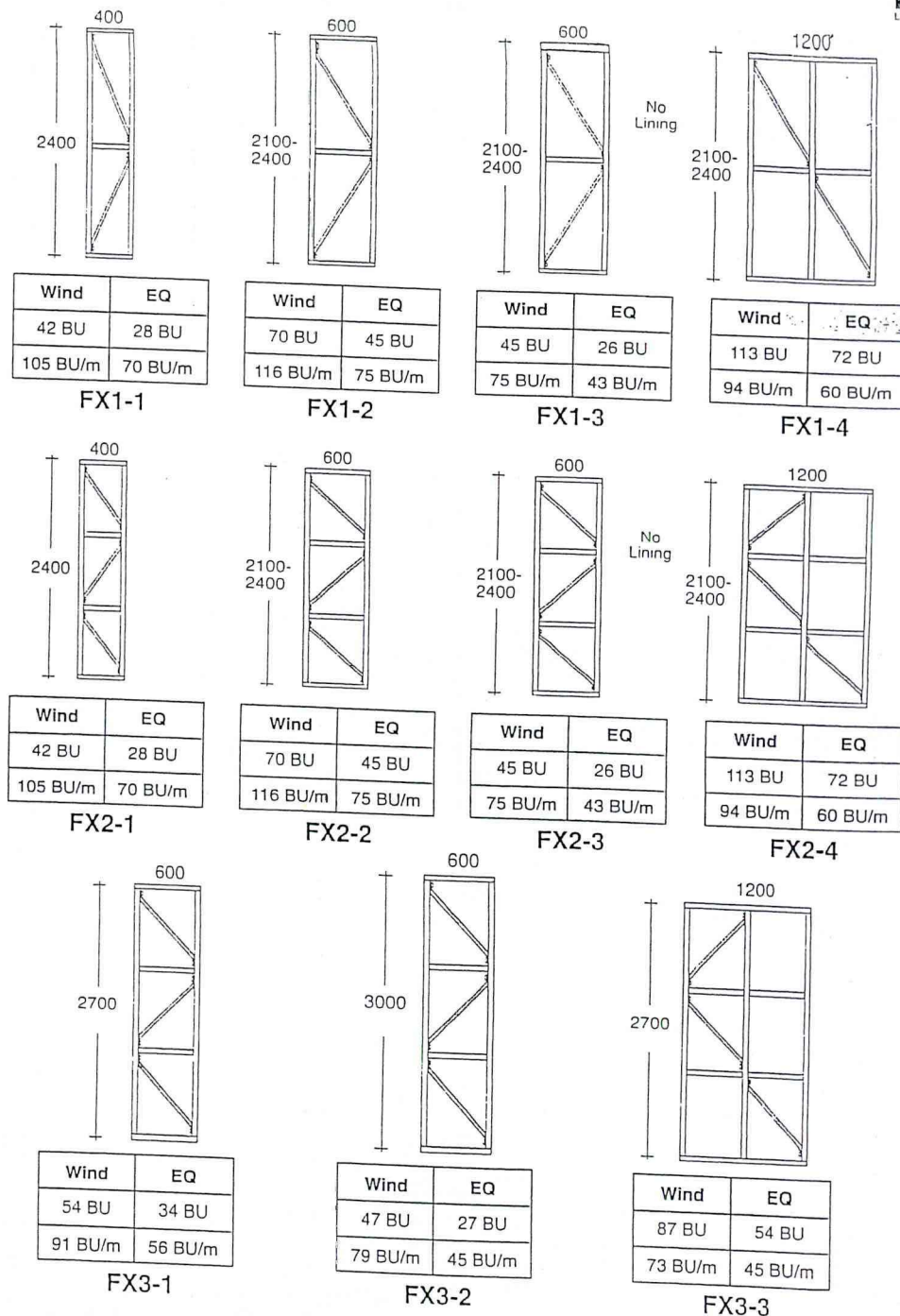
A total Bracing Unit Demand (BU) is required for WIND in both directions 'Across' and 'Along' the ridge line. In addition a BU demand is required for EARTHQUAKE based on m² of building floor area.



From the FLEXIBRACE Selection Charts select the number(s) of FLEXIBRACE options best suited to the building style and incorporate into the wall frames where convenient for both directions as required.

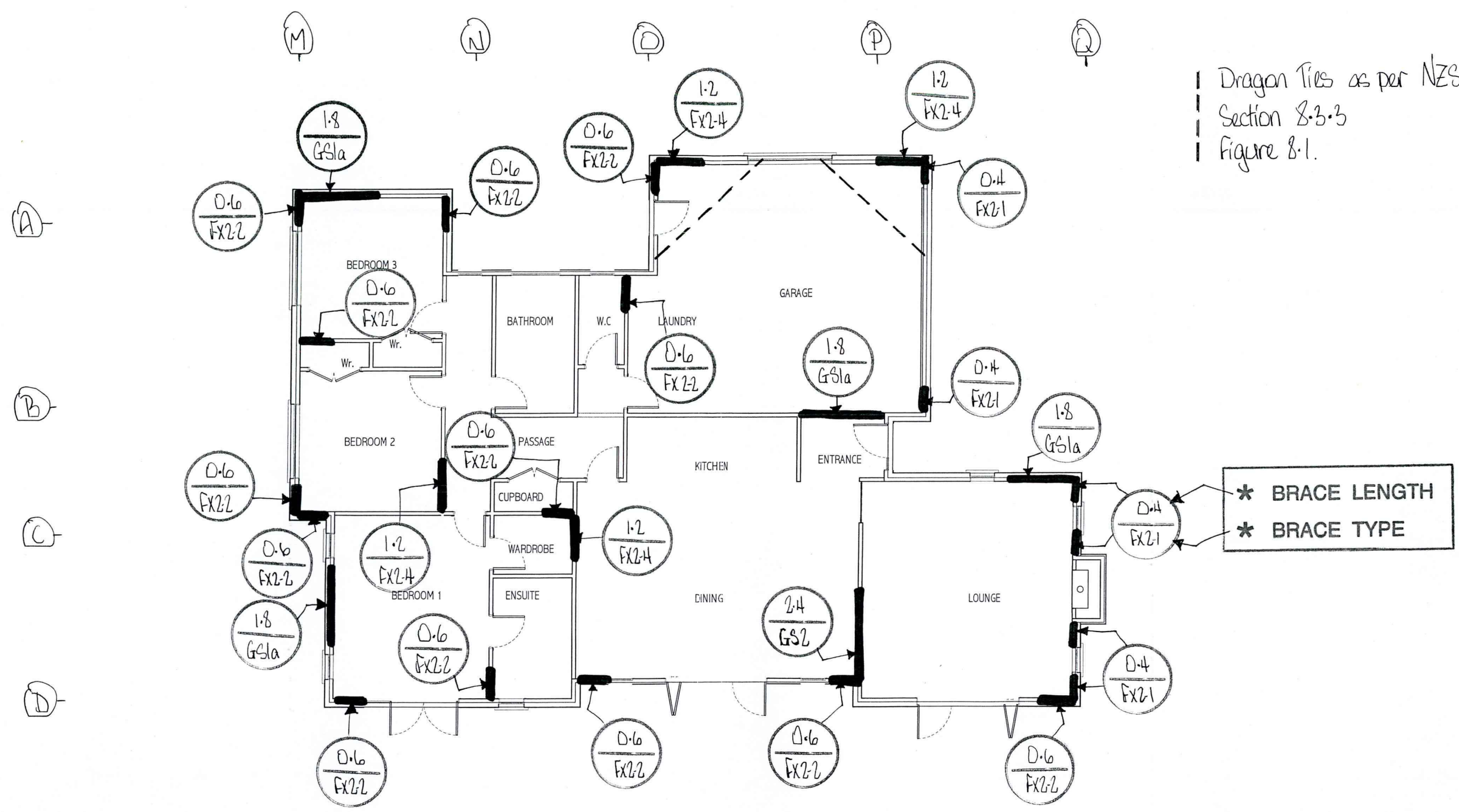
NB: The combined BU's available from the FLEXIBRACE options selected must have a total BU value that is equal to or exceeds the actual bracing demand.

- Calculate required number of BU's for WIND and EARTHQUAKE.
- Select FLEXIBRACE options and allocate to wall frames.
- Ensure that number of FLEXIBRACE units selected is equal to or exceeds calculated BU demand.
- Specify FX1, FX2 or FX3 depending on framing specifics.



NB: shaded area denotes 10mm Gib® Standard plasterboard. Refer to Winstone technical information for correct fixing details.

Dragon Tiles as per NZS:3604
 Section 8.3.3
 Figure 8.1.



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