



PROPOSED RESIDENCE FOR
Mark & Lisa Gasson,
380 Churchill East Road,
Rangiriri.

No.	Sheet	APPENDIX
1	SITE PLAN	GIB - CONSTRUCTION DETAILS
2	DRAINAGE PLAN	GIB - CONSTRUCTION DETAILS
3	FLOOR PLAN	GIB - GS1-N & BL1-H DETAILS
4	ELEVATIONS	GIB - AQUALINE TILED WALLS & CEILING NOTES
5	FOUNDATION	GIB - AQUALINE TILED SHOWER WALLS & BASE
5A	S1	GIB - AQUALINE BATH TILED UPSTAND & KITCHEN/LAUNDRY
5b	S2	ARDEX - WPM002 WATERPROOFING DETAILS
6	ROOF	ARDEX - WPM002 WATERPROOFING DETAILS
7	LINTEL/FIXINGS	ARDEX - WPM002 WATERPROOFING DETAILS
8	BRACING	ARDEX - WPM002 WATERPROOFING DETAILS
9	SECTIONS	LUMBERLOK LINTEL FIXINGS
10	PORTAL FRAME	LUMBERLOK STUD TO TOP PLATE FIXING
11	PORTAL FIXING DETAILS	LUMBERLOK PURLIN FIXING
12	EAVES, BARGE DETAIL, RIDGE BEAM	
13	WINDOW FLASHING - BRICK	
14	E2 - DOOR SILLS, RIDGE/HIP	
15	E2 - RIDGE, BARGE	
16	E2 - STOPENDS, VALLEY	
17	E2 - PIPE PENETRATION ROOF & WALLS	
18	E2 - CAVITY NOTES	
19	E2 - METER BOX, GENERAL WINDOW/DOOR CAVITY FIX	
20	E2 - VENEER NOTES, WEATHERBD. EXT. CNR	
21	E2 - WEATHERBD. INT. CNR, WB WINDOW FLASHINGS	

DJS Draughting Services Ltd. has undertaken this work on the instruction of the Client or their Representatives.
In doing this design any alterations made were on the instruction of the Client or their Representatives.
All drawings must be thoroughly checked by the Project Manager / Main Contractors to ensure drawing accuracy.
DJS Draughting Services Ltd has no instruction or obligation to inspect or supervise any of the work which is to be undertaken.
DJS Draughting Services Ltd accepts no liability for such work which is beyond our control to rectify or make good should this be necessary.
It is the responsibility of the Project Manager / Main Contractor to ensure workmanship for all trades is in accordance with accepted trade practice, relevant standards & Local Authority requirements. It is the responsibility of the Project Manager / Main Contractor to ensure all necessary Council & Third Party inspections are carried out during and on completion of all works.
Producer Statements are required as directed by the Local Authority from each trade on completion of works.
DJS Draughting Services Ltd accepts no liability for any building documents, town planning requirements or accuracy supplied by any Third Parties in this project preparation.

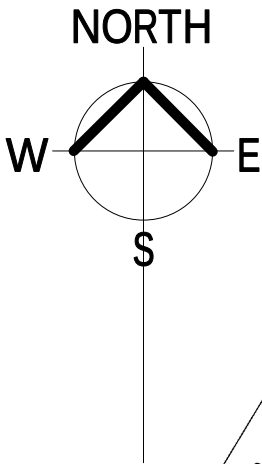


PROJECT NUMBER: 88118

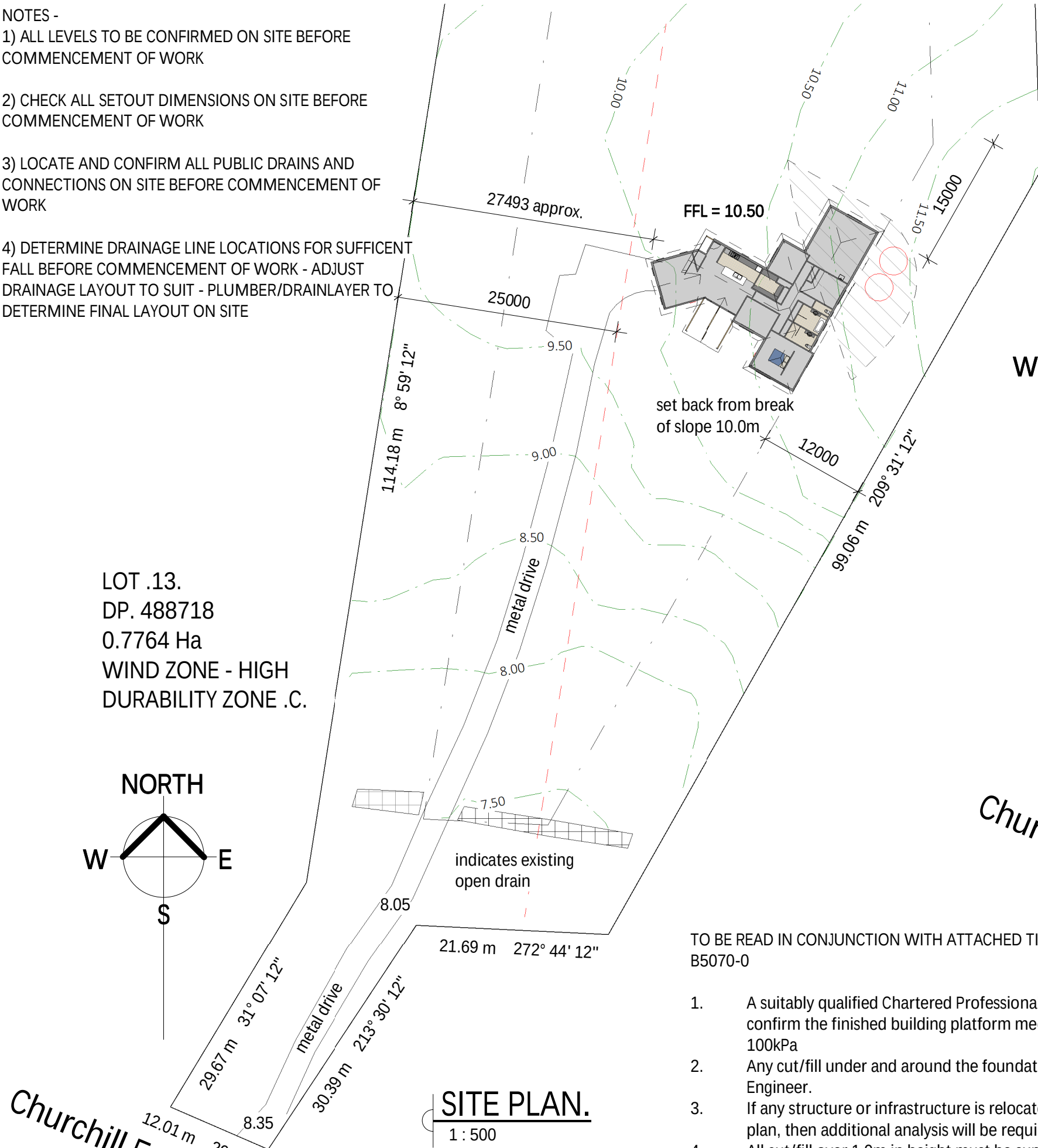
DATE: April 2018

- NOTES -
- 1) ALL LEVELS TO BE CONFIRMED ON SITE BEFORE COMMENCEMENT OF WORK
 - 2) CHECK ALL SETOUT DIMENSIONS ON SITE BEFORE COMMENCEMENT OF WORK
 - 3) LOCATE AND CONFIRM ALL PUBLIC DRAINS AND CONNECTIONS ON SITE BEFORE COMMENCEMENT OF WORK
 - 4) DETERMINE DRAINAGE LINE LOCATIONS FOR SUFFICIENT FALL BEFORE COMMENCEMENT OF WORK - ADJUST DRAINAGE LAYOUT TO SUIT - PLUMBER/DRAINLAYER TO DETERMINE FINAL LAYOUT ON SITE

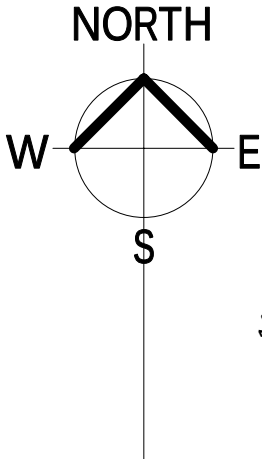
LOT .13.
DP. 488718
0.7764 Ha
WIND ZONE - HIGH
DURABILITY ZONE .C.



Churchill East Road



SITE PLAN.
1 : 500



Churchill East Road

SITE PLAN FULL
1 : 1000

TO BE READ IN CONJUNCTION WITH ATTACHED TILSLEY ENGINEERING LTD REPORT REF: B5070-0

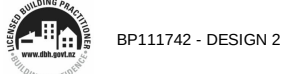
1. A suitably qualified Chartered Professional Engineer or their representative shall confirm the finished building platform meets the required bearing strength of 100kPa
2. Any cut/fill under and around the foundations to be inspected by a qualified Engineer.
3. If any structure or infrastructure is relocated outside of the area shown on the site plan, then additional analysis will be required prior to any works being undertaken.
4. All cut/fill over 1.0m in height must be supervised by a suitably qualified Chartered Professional Engineer or their representative.
5. No water shall be discharged into the ground within 5.0m of the foundations
6. Install an approved wastewater system such as Hynds Lifestyle.



DJS DRAUGHTING SERVICES LTD.

P O Box 682,
Pukekohe 2340
T: 09 238 3777
e: david@djsdraughting.co.nz

Registered Member: DANZ
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BP111742 - DESIGN 2

ALL CONSTRUCTION IS TO COMPLY WITH NZS 3604:2011 AND THE NZ BUILDING CODE.

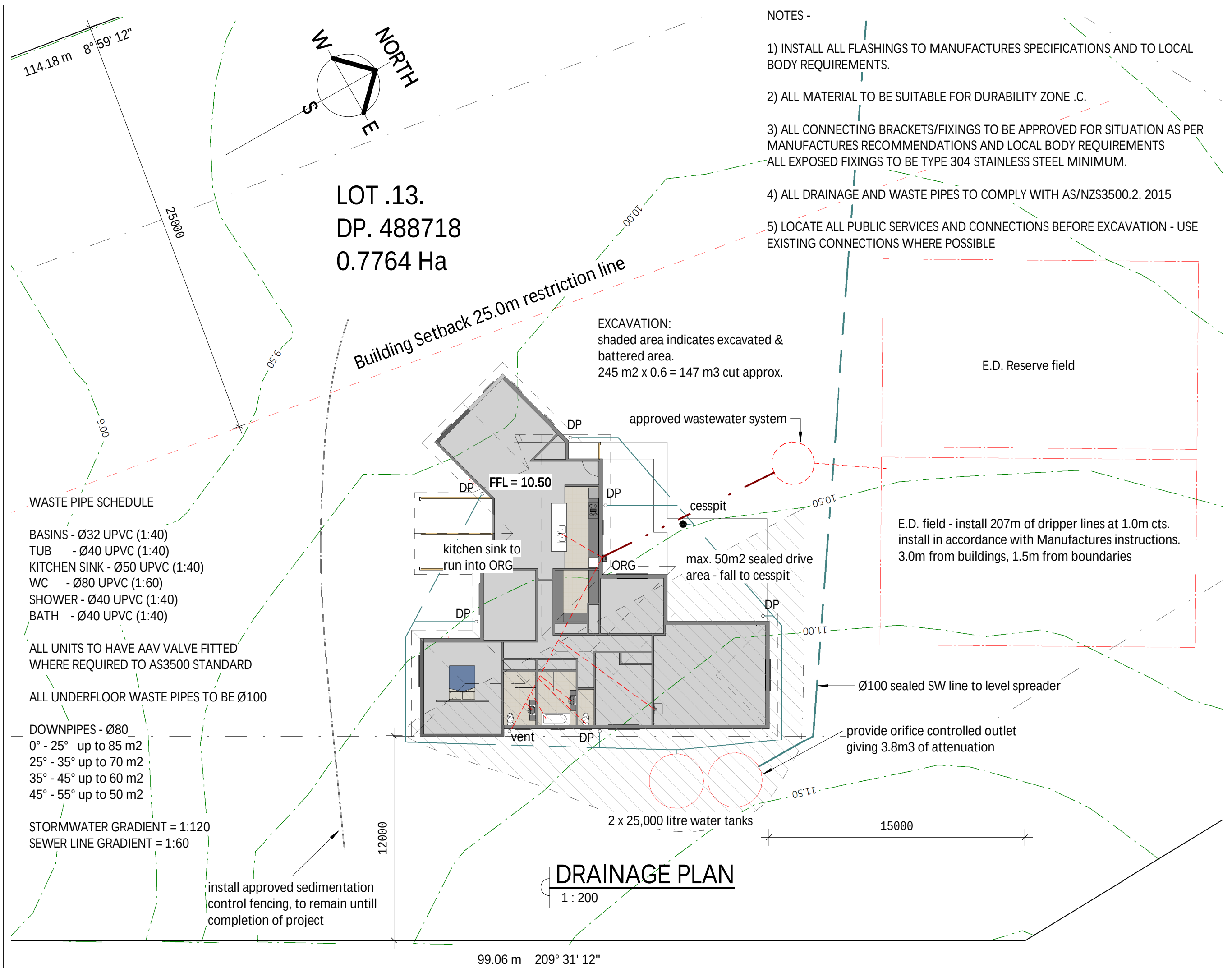
ALL MEASUREMENTS TO BE CHECKED AND VERIFIED BY CONTRACTOR BEFORE COMMENCEMENT OF WORK.

REFER TO ATTACHED E2 AND MANUFACTURER SPECIFIC DETAILS

ALL STRUCTURAL TIMBER TO BE SG8 GRADE OR BETTER

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380 Churchill East Rd;
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DRAWN	DJS
DATE	April 2018
JOB NO.	88118
AMMEND.	
SCALE AS SHOWN	
SHEET	1



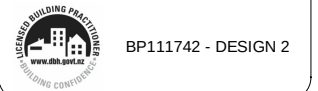
- NOTES -
- 1) INSTALL ALL FLASHINGS TO MANUFACTURES SPECIFICATIONS AND TO LOCAL BODY REQUIREMENTS.
 - 2) ALL MATERIAL TO BE SUITABLE FOR DURABILITY ZONE .C.
 - 3) ALL CONNECTING BRACKETS/FIXINGS TO BE APPROVED FOR SITUATION AS PER MANUFACTURES RECOMMENDATIONS AND LOCAL BODY REQUIREMENTS
ALL EXPOSED FIXINGS TO BE TYPE 304 STAINLESS STEEL MINIMUM.
 - 4) ALL DRAINAGE AND WASTE PIPES TO COMPLY WITH AS/NZS3500.2. 2015
 - 5) LOCATE ALL PUBLIC SERVICES AND CONNECTIONS BEFORE EXCAVATION - USE EXISTING CONNECTIONS WHERE POSSIBLE



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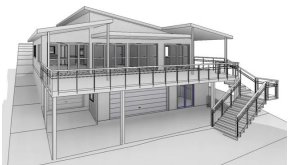
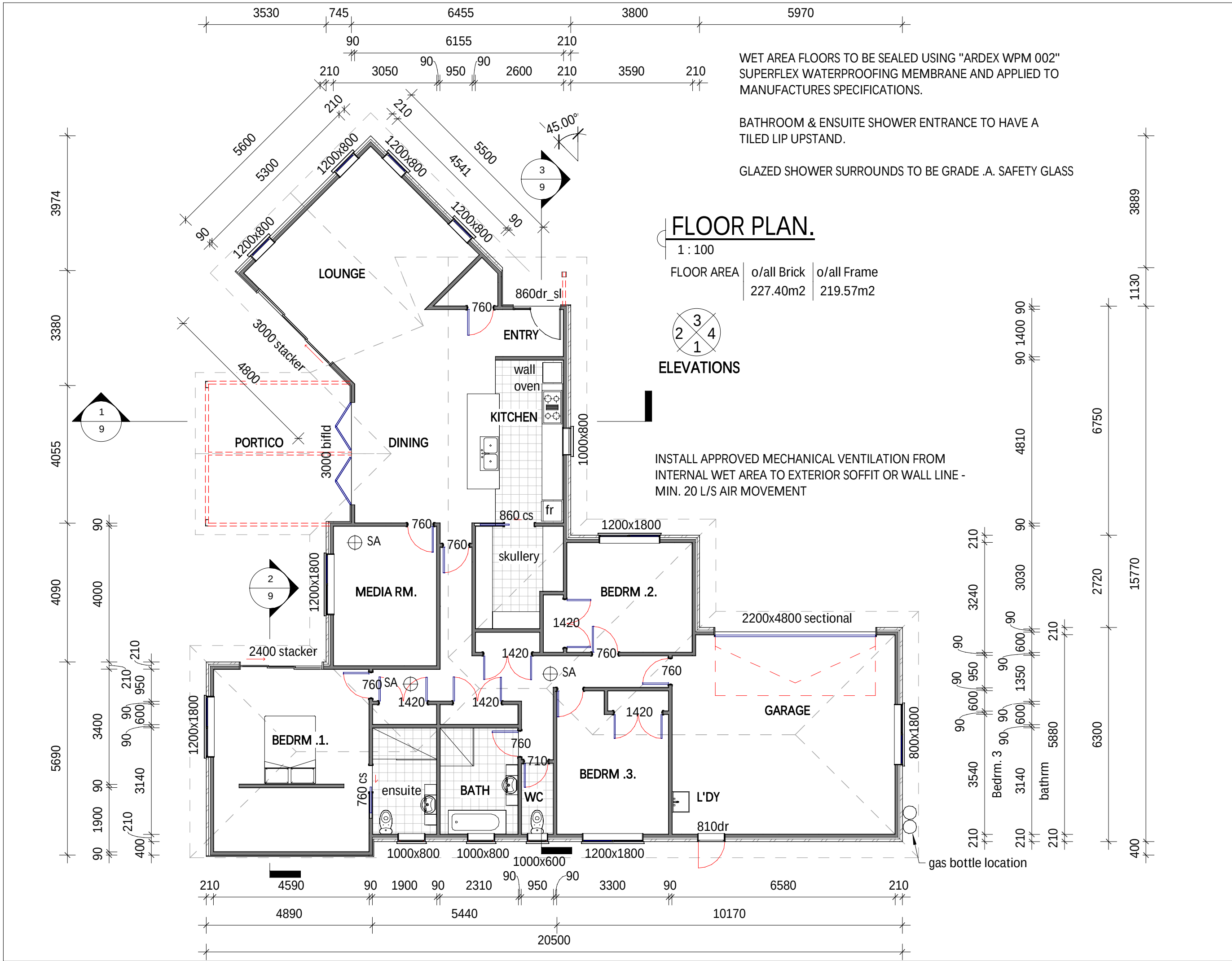


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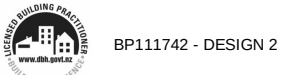
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SHEET	2



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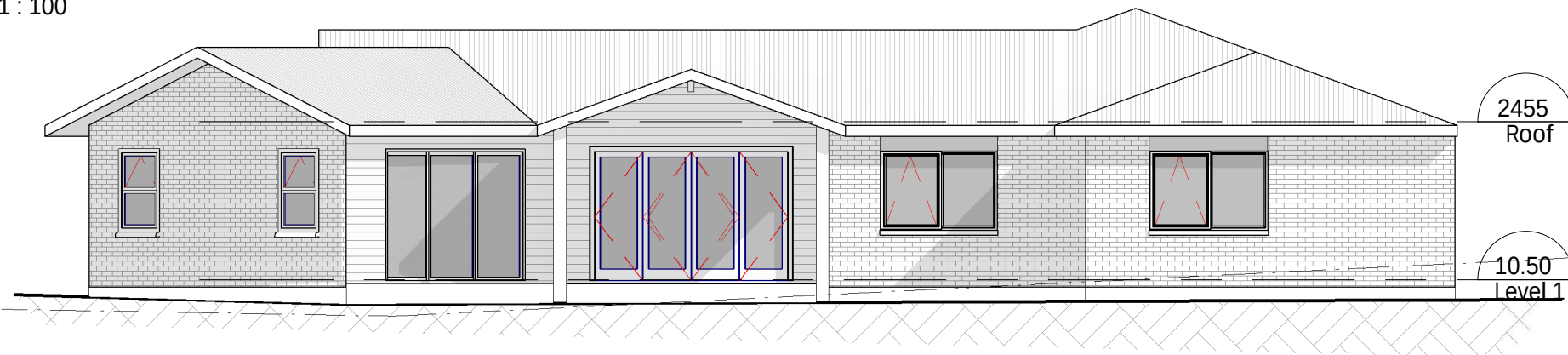
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SCALE AS SHOWN	
SHEET	3



ELEVATION .1.

1 : 100



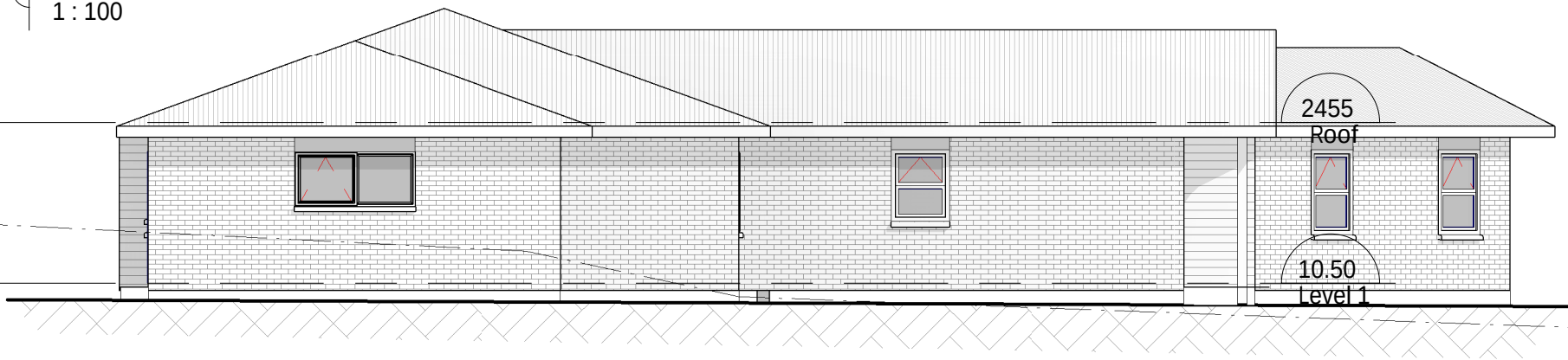
ELEVATION .2.

1 : 100



ELEVATION .3.

1 : 100



ELEVATION .4.

1 : 100

20° coloursteel roof
600 o/hang from frame
70 series brick exterior, timber BB weatherbd.
conc. floor
2400 wall height

Elevation Insulation			
Elev.	Bearing	Walls m2	Joinery m2
1	East	34.6 m ²	4.4 m ²
2	South	44.6 m ²	16.3 m ²
3	West	34.9 m ²	11.7 m ²
4	North	38.6 m ²	4.2 m ²

ALL NEW WINDOW/DOOR ALUMINIUM JOINERY IS TO BE TO NEW ZEALAND STANDARDS FOR MANUFACTURE AND INSTALLATION, NO IMPORTED JOINERY IS TO BE USED.
NZS3504: 1979, NZS4284: 2008, NZS4211: 2008 & E2/VM1 1.2f

H1 ENERGY EFFICENCY
INSULATION TO COMPLY WITH H1/AS1 - ZONE .1.
SEE FULL CALCULATIONS IN SPECIFICATIONS

MINIMUM "R" VALUES - ZONE .1. - REFERENCE ONLY

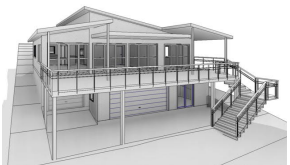
CEILING / ROOF = R2.9
EXTERIOR WALLS = R1.9
FLOOR = R1.3
VERTICAL GLAZING = R0.26

GARAGE EXCLUDED FROM CALCULATIONS -
INSULATE WALL SEPERATING GARAGE FROM DWELLING

VERTICAL GLAZING REQUIREMENT:

EAST (E1), WEST(E3), SOUTH(E2) = 32.4M2 / 114.1 M2 = 28%
NORTH (E4) = 4.2 M2 / 38.6 M2 = 11%
TOTAL INCLUDING NORTH = 36.6 M2 / 152.7 M2 = 24%

INSULATION VALUES REQUIRED FOR PROJECT
TOTAL GLAZING IS UNDER 30% - USE SCHEDULE METHOD.
(R VALUES AS PER PINK BATTS INSTALLATION GUIDE)
CEILINGS/ROOF = R2.4 PINK BATTS CLASSIC
EXTERIOR WALLS = R3.2 PINK BATTS CLASSIC
FLOOR = R1.3 (CONC. SLAB)
VERTICAL GLAZING = R0.26 (USE DOUBLE GLAZING)



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BP111742 - DESIGN 2

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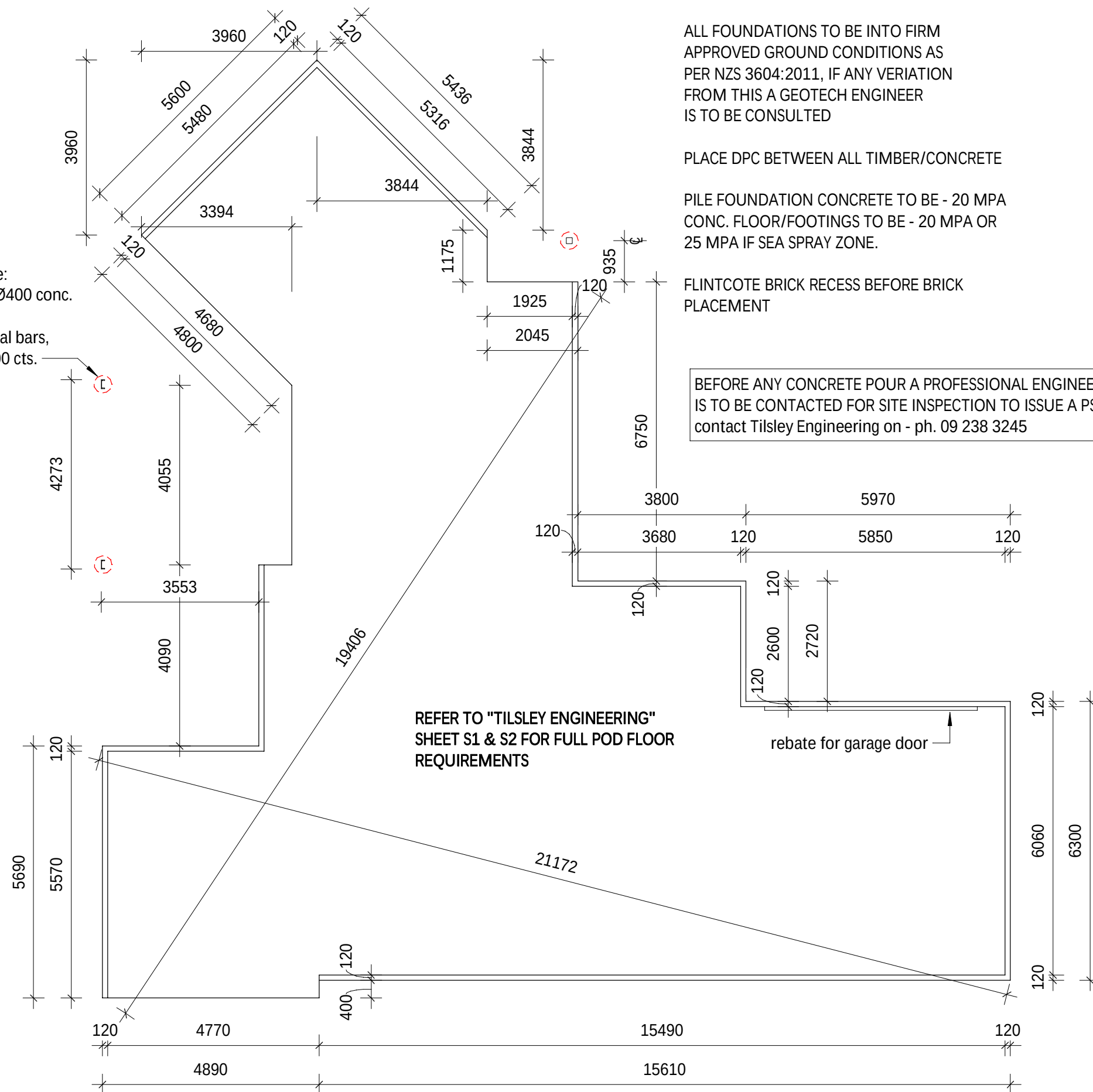
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SHEET	4



ALL FOUNDATIONS TO BE INTO FIRM
APPROVED GROUND CONDITIONS AS
PER NZS 3604:2011, IF ANY VARIATION
FROM THIS A GEOTECH ENGINEER
IS TO BE CONSULTED

PLACE DPC BETWEEN ALL TIMBER/CONCRETE

PILE FOUNDATION CONCRETE TO BE - 20 MPA
CONC. FLOOR/FOOTINGS TO BE - 20 MPA OR
25 MPA IF SEA SPRAY ZONE.

FLINTCOTE BRICK RECESS BEFORE BRICK
PLACEMENT

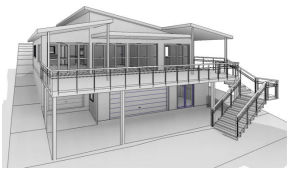
BEFORE ANY CONCRETE POUR A PROFESSIONAL ENGINEER
IS TO BE CONTACTED FOR SITE INSPECTION TO ISSUE A PS4
contact Tilsley Engineering on - ph. 09 238 3245

REFER TO "TILSLEY ENGINEERING"
SHEET S1 & S2 FOR FULL POD FLOOR
REQUIREMENTS

rebate for garage door —

MINIMUM CLEARANCES -
225 MIN. TO UNPAVED AREA
150 MIN. TO PAVED AREA
100MM MIN. CLEARANCE FROM
CLADDING EDGE TO PAVED AREA
175MM MIN. CLEARANCE FROM
CLADDING EDGE TO UNPAVED AREA

MINIMUM CLEARANCES - BRICK
150 MIN. TO UNPAVED AREA
100 MIN. TO PAVED AREA



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SP111742 - DESIGN 2

ALL CONSTRUCTION IS TO COMPLY WITH
NZS 3604:2011 AND THE NZ BUILDING CODE.

ALL MEASUREMENTS TO BE CHECKED AND
VERIFIED BY CONTRACTOR BEFORE
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**REFER TO ATTACHED E2 AND
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**ALL STRUCTURAL TIMBER TO BE
SG8 GRADE OR BETTER**

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DRAWN	DJS
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AMMEND.	
SCALE AS SHOWN	
SHEET	5

- IMPORTANT NOTES:
1. ALL FILL SHALL BE CHECKED AND CERTIFIED BY A CHARTERED PROFESSIONAL ENGINEER PRIOR TO COMMENCING WORK.
 2. PRE- POUR INSPECTION MUST BE CARRIED OUT BY A CHARTERED PROFESSIONAL ENGINEER TO ISSUE PS4.
 3. THE CUT BUILDING PLATFORM MUST BE KEPT AT OR CLOSE TO ITS SATURATED WATER CONTENT.
 4. THE POTENTIAL EFFECT OF SEASONAL GROUND MOVEMENT ON BRITTLE CLADDINGS SHOULD BE CONSIDERED BY CLADDING DETAILERS.
 5. POSITION OF SAW CUT IS CRITICAL. CUT SHALL BE DIRECTLY UNDERNEATH WALL, AND NOT PASS THROUGH TILED AREA.
 6. CONTRACTOR TO CONFIRM LOCATION AND DIMENSIONS OF REBATES (IF ANY) SUCH AS GARAGE DOOR REBATE, BRICK VENEER REBATE, JOINERY REBATE, SHOWER REBATE ETC WITH ARCH'S DRAWING PRIOR TO COMMENCEMENT TO WORK. CONTRACTOR TO ALSO CONFIRM LOCATION OF LOAD BEARING WALLS WITH ARCH'S DRAWING.
 7. RIB-RAFT FOUNDATION CONSTRUCTION SHALL BE IN ACCORDANCE WITH FIRTH'S SPECIFICATION.
 8. CONTRACTOR TO CONSULT WITH FIRTH TO DETERMINE APPROPRIATE SHRINKAGE REDUCING ADMIXTURE AND ADDITIVES TO REDUCE THE POTENTIAL OF CRACKING IN THE POLISHED AREA (IF ANY).

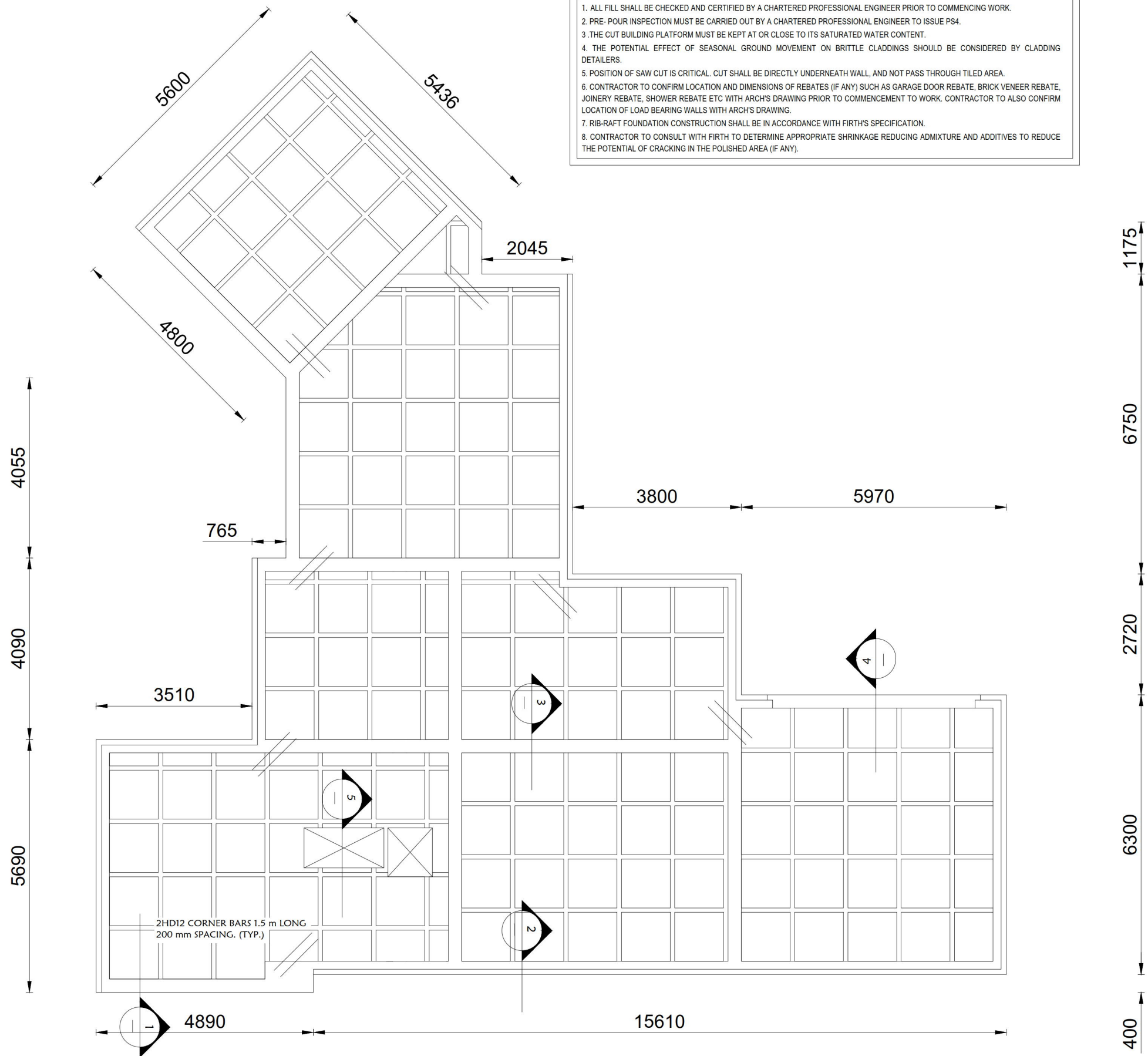
- NOTES:
1. Remove topsoil & grass sods, loose soil pockets and tree slumps. Fill all holes with compacted metal to form a level sub-base.
 2. Do not scale from drawing, refer to architectural drawings for overall dimensions.
 3. All setout dimensions & levels to be confirmed on site by contractor prior to construction.
 4. All plumbing, drainage and central heating pipes to be placed as per location on architectural drawings.
 5. In case of any discrepancy between architectural drawings and this drawing, Tilsley Engineering Ltd must be contacted immediately and no further works shall be undertaken until the discrepancy is eliminated.
 6. In case of any unexpected ground conditions, contractor must consult a geotechnical engineer immediately.
 7. Hardfill to be compacted in layers of 200 mm max. Hardfill to be extended 1000 mm min beyond perimeter.
 8. Where underfloor heating is installed floor topping shall be increased to 110 mm.
 9. Concrete must be cured using appropriate curing method(s) for a minimum of seven days.
 10. All concrete strength shall be 20 MPa or 25 MPa in sea spray zone.
 11. Polystyrene pods shall be 1100x1100x220 deep.
 12. If recess floor for shower is required, the polystyrene pods thickness shall be reduced to maintain constant slab thickness. Recesses shall be trimmed with 2HD12 all around.
 13. Rib-Raft may crack due to various reasons of ambience and construction. This does not affect the structural integrity of the foundations.
 14. Steel bars cast against and/or exposed to ground shall have 50 mm cover. Bars with no DPM in ground shall have 75 mm cover.
 15. Surface finishes to be in accordance with NZS 3144:1987.
 16. Reinforcement grades to NZS 4671:
HD: Deformed bars grade 500 MPA
D: Deformed bars grade 300 MPA
 17. Planting trees should be avoided near the foundation, and must be kept a distance of 1.5 x the mature height of the tree from the footing.

Job No.	5071		
Drawn By	M.W.		
Approved By	A.G.		
No.	Revision/Issue		Date

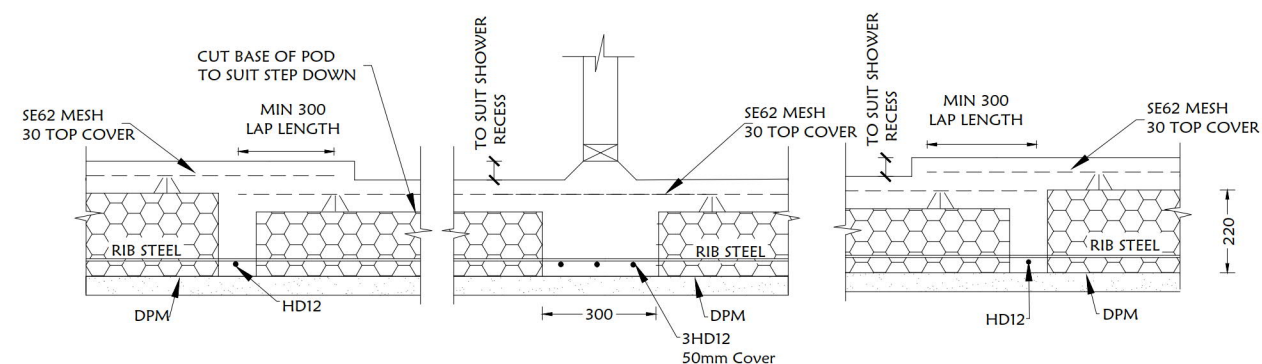
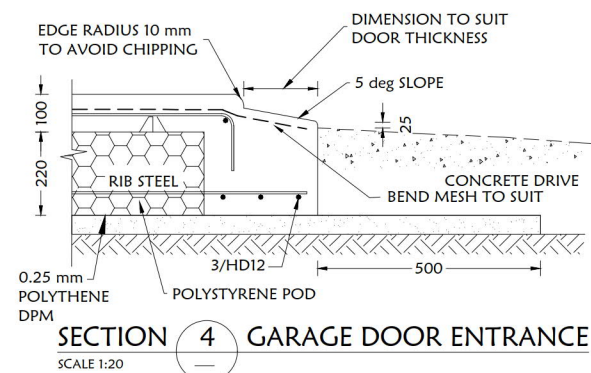
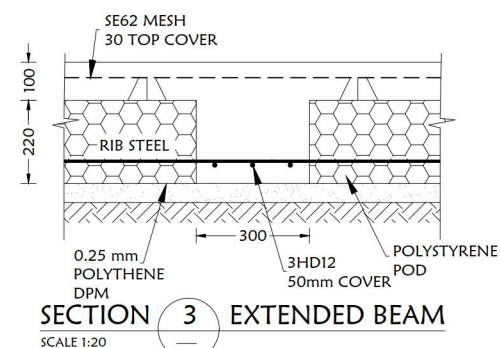
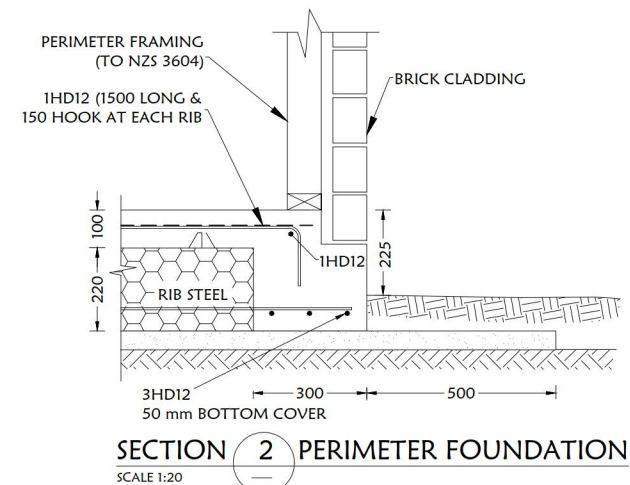
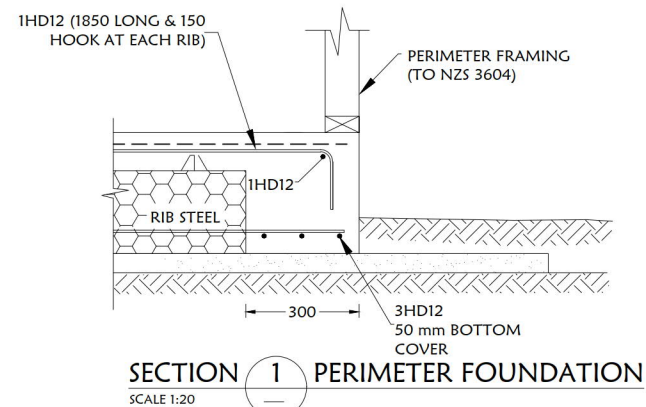
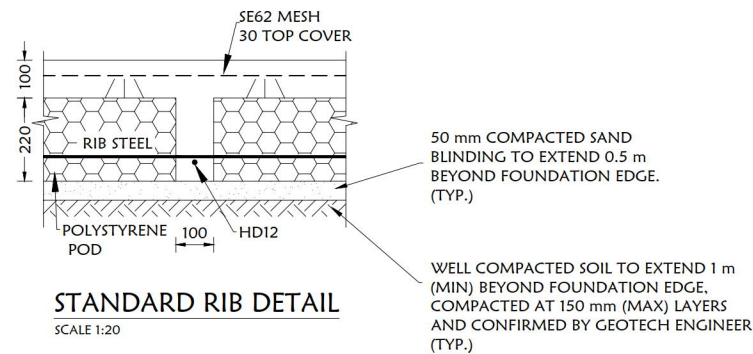
TILSLEY ENGINEERING LTD
27 Roulston Street
PO Box 392
Pukekohe
Tel: 09 238 3245
info@tilsleyengineering.co.nz

Project Name and Address
Res - Gasson
380 Churchill East Rd,
R.D.2.
Te Kauwhata

Project	Found.	Sheet
Date	15/02/2018	51
Scale	As Shown	



Alireza Gholamhoseini
No. TSG0095



SECTION 5 SHOWER REBATE DETAIL
SCALE 1:20
MAX 50 mm SHOWER REBATE

Alireza Gholamhoseini
No. TSG0095

NOTES:

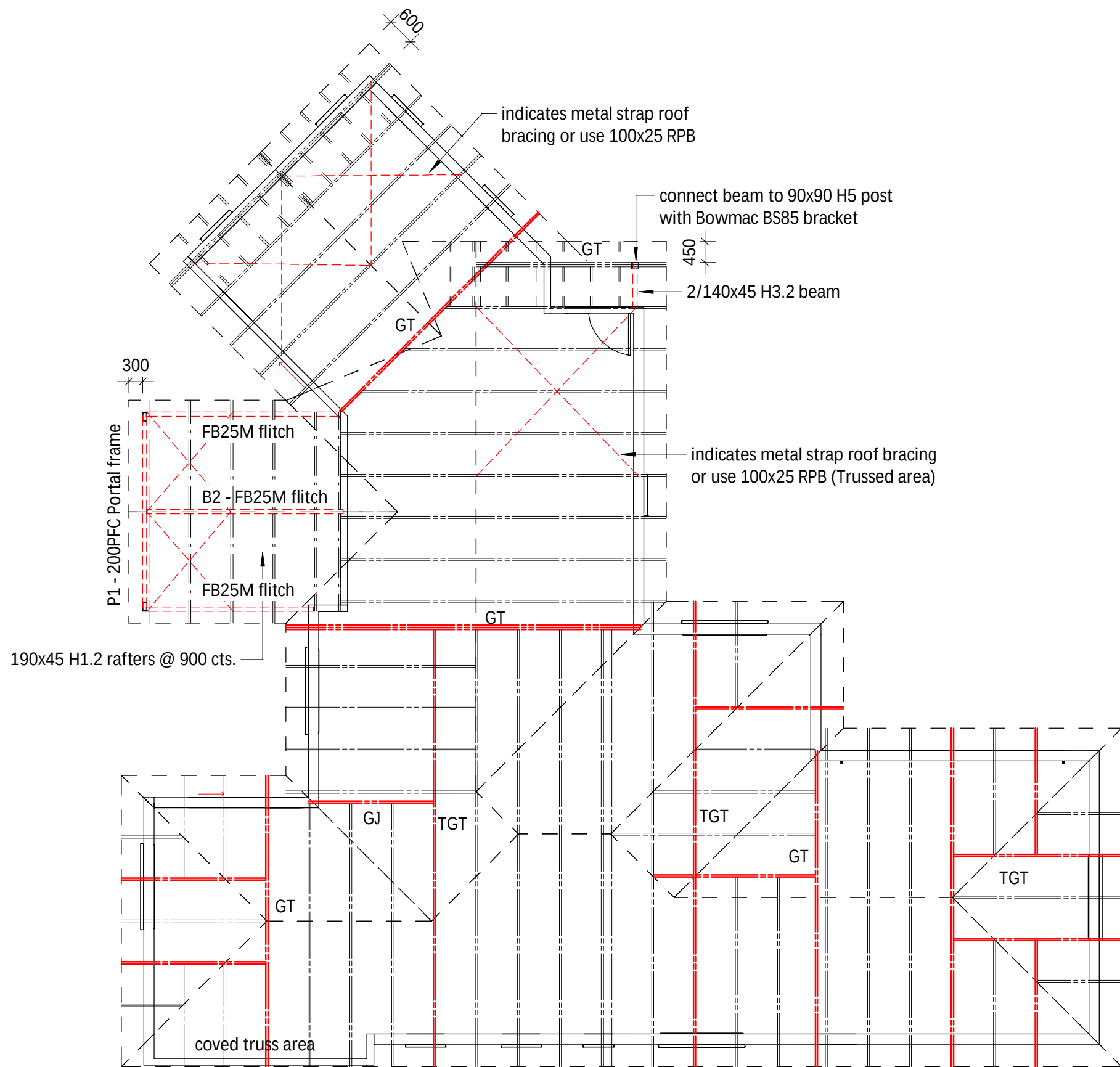
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Project Name and Address
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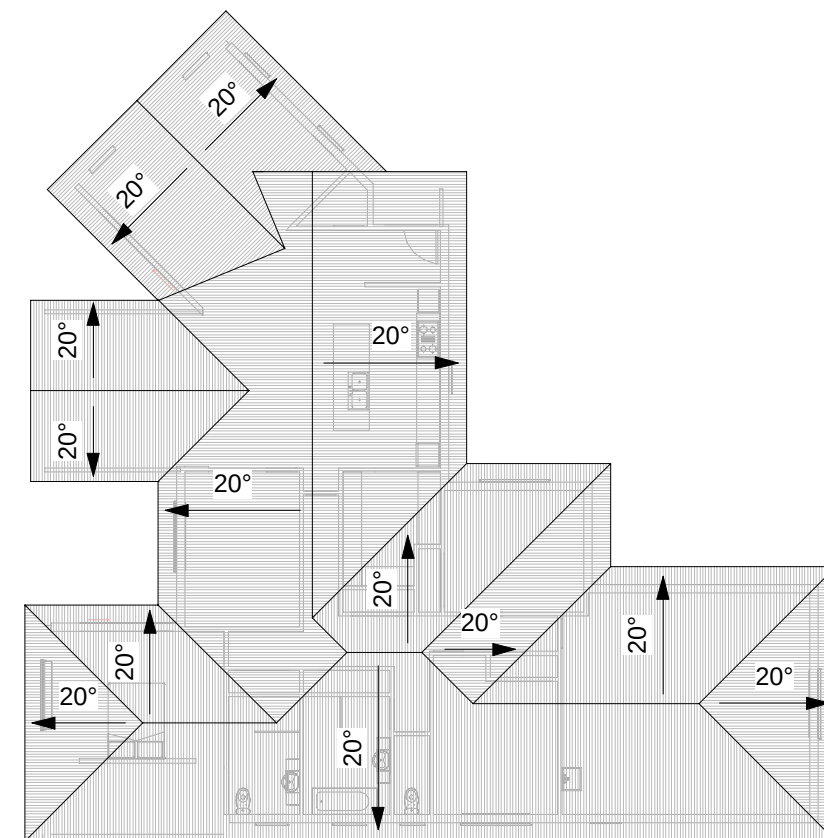
Project	Found.	Sheet	52
Date	15/02/2018		
Scale	As shown		



ROOF PLAN.
1 : 100

ROOF FRAMING NOTES -
ALL TRUSS DESIGN NUMBERS TO BE SUPPLIED
TO LOCAL AUTHORITY BEFORE COMMENCEMENT
OF WORK

ALL TRUSS/ROOF FRAMING FIXING TO BE TO
MANUFACTURES DETAILS AND NZS 3604:2011



ROOF FALLS
1 : 200



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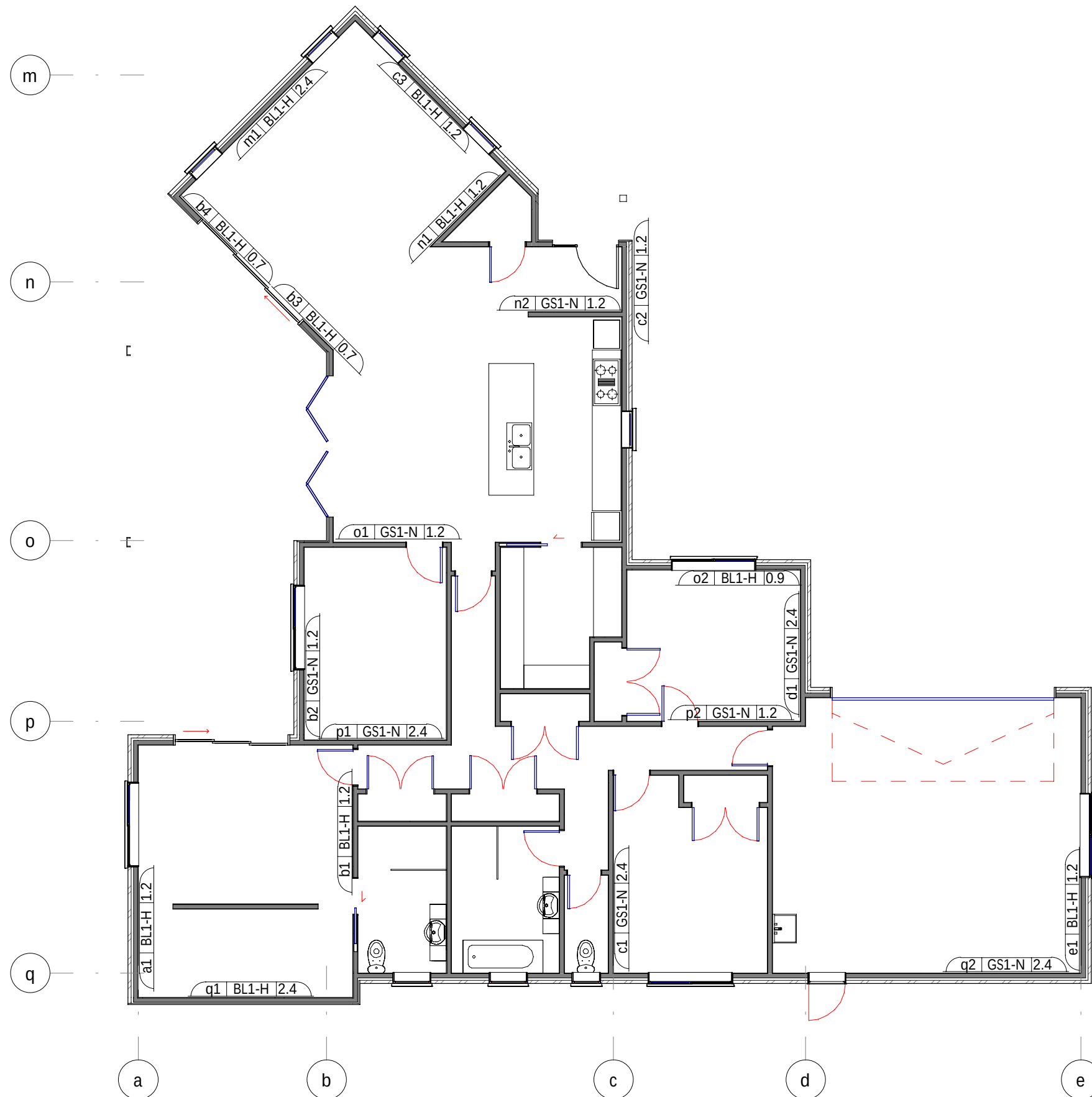
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SCALE AS SHOWN	
SHEET	6



BRACING PLAN.

1 : 100

* ALL WORK MUST COMPLY WITH THE NZ BUILDING CODES, NZS 3604:2011 AND ALL APPROVED DOCUMENTATION.

* KITCHEN FACILITIES AS REQUIRED BY NZBC G.3.

* LAUNDRAY FACILITIES AS REQUIRED BY NZBC G.2.

* ALL WET AREA'S MUST COMPLY WITH NZBC E3.

* USE AQUALINE LINING'S IN ALL WET AREA'S.

* FRAMING AND LINTELS TO NZS 3604:2011 - ALL SG8 MINIMUM.

* LINTELS SIZED USING THE "MITEK" GANGLAM AND FLITCH BEAM CHARTS.

* ALL TIMBER MUST COMPLY WITH B2/AS1.

* PLACE APPROVED DPC BETWEEN ALL TIMBER AND CONCRETE.

* ALL FRAMING TO BE H1.2 MINIMUM TREATMENT WITH H3.1 BOTTOM PLATES IN WET AREA'S.

* EXTERNAL TIMBERS (NOT IN GROUND CONTACT) TO BE H3.2 MINIMUM.

* GROUND CONTACT TIMBER TO BE H5 MINIMUM TREATMENT.

* APPROVED BUILDING WRAP TO BE USED AND FIXED TO MANUFACTURES SPECIFICATIONS.

* PROVIDE 1.0M HIGH HANDRAIL BARRIER TO DECK AREA IF OVER 1.0M OFF FINISHED GROUND.

* PROVIDE DOMESTIC SMOKE ALARMS TO COMPLY WITH THE NZ BUILDING CODE.

* ALL FIXINGS TO COMPLY WITH NZS 3604:2011 AND TO SPECIFIC LUMBERLOK/MITEK OR SPECIFIC MANUFACTURES DETAILS.

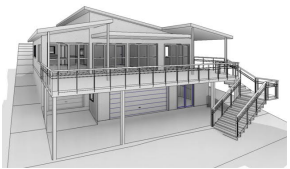
* ALL INSULATION TO COMPLY WITH H1/AS1 REQUIREMENTS.

* ALL EXTERNAL WINDOWS/DOORS (EXCEPT GARAGE AREA) TO BE "DOUBLE GLAZED" TO PROVIDE H1/AS1 R0.26 RATING & TO NZS 4223: PART 3: 2016 FOR GLAZING STANDARDS (ALL GLAZING WITHIN 700mm OF THE FLOOR OR WET AREA ROOMS TO BE SAFETY GLASS)

* ALL DOUBLE GLAZED JOINERY TO BE INSTALLED TO "WANZ" DETAILS

* ALL EXPOSED FIXINGS TO BE STAINLESS STEEL AS SPECIFIED IN NZS 3604:2011

* LINTEL, STUD & TOP PLATE FIXING AS LUMBERLOK FIXING SCHEDULE CHARTS.



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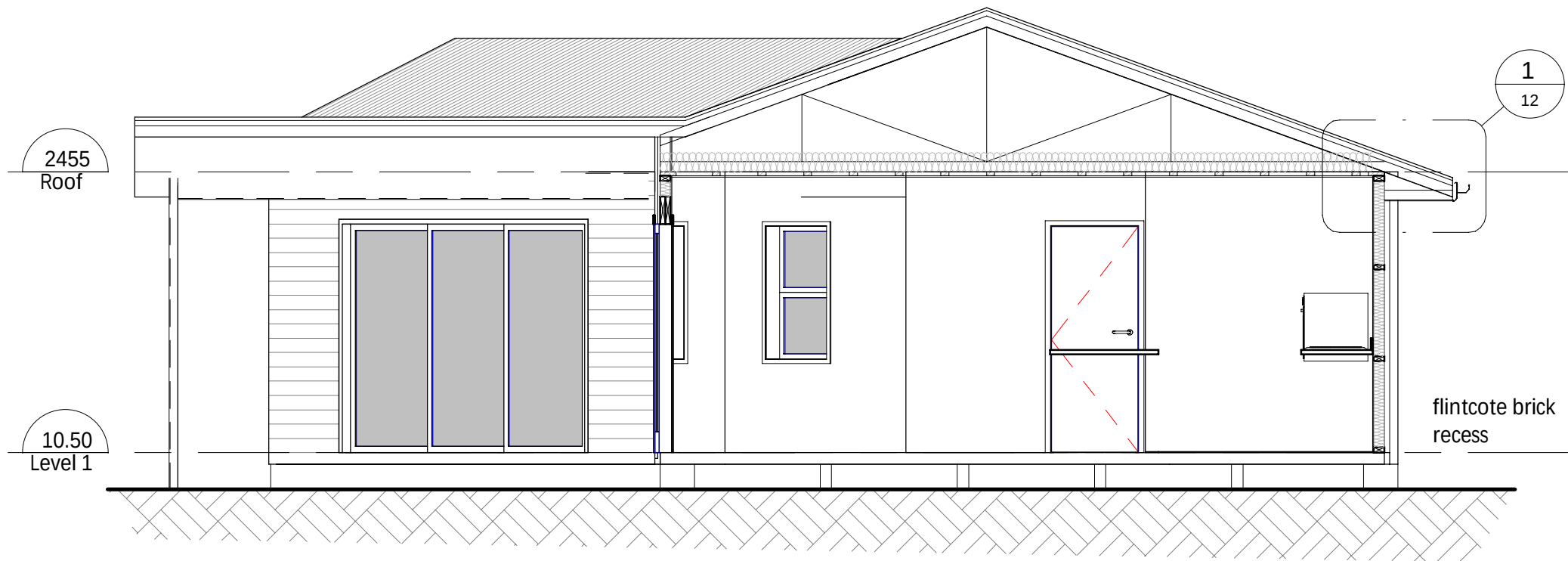
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ALL STRUCTURAL TIMBER TO BE SG8 GRADE OR BETTER

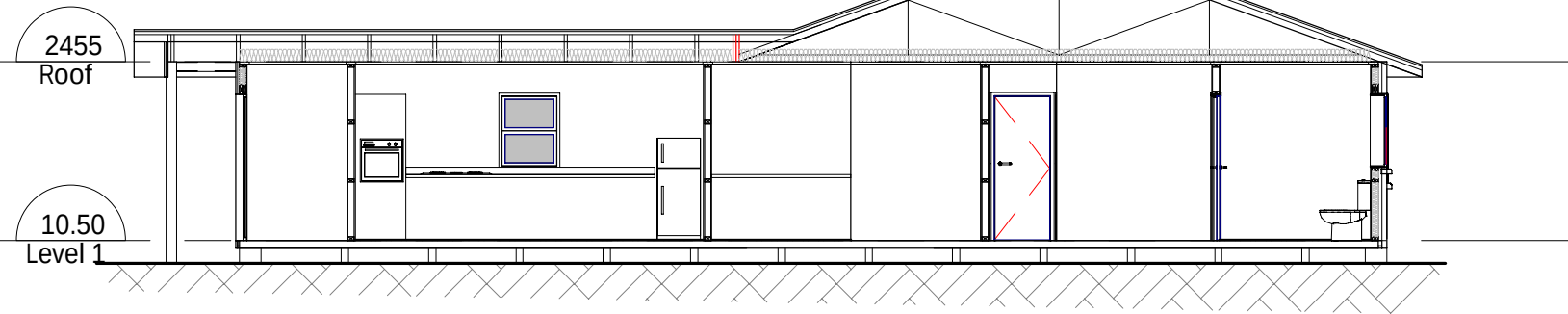
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SHEET	8



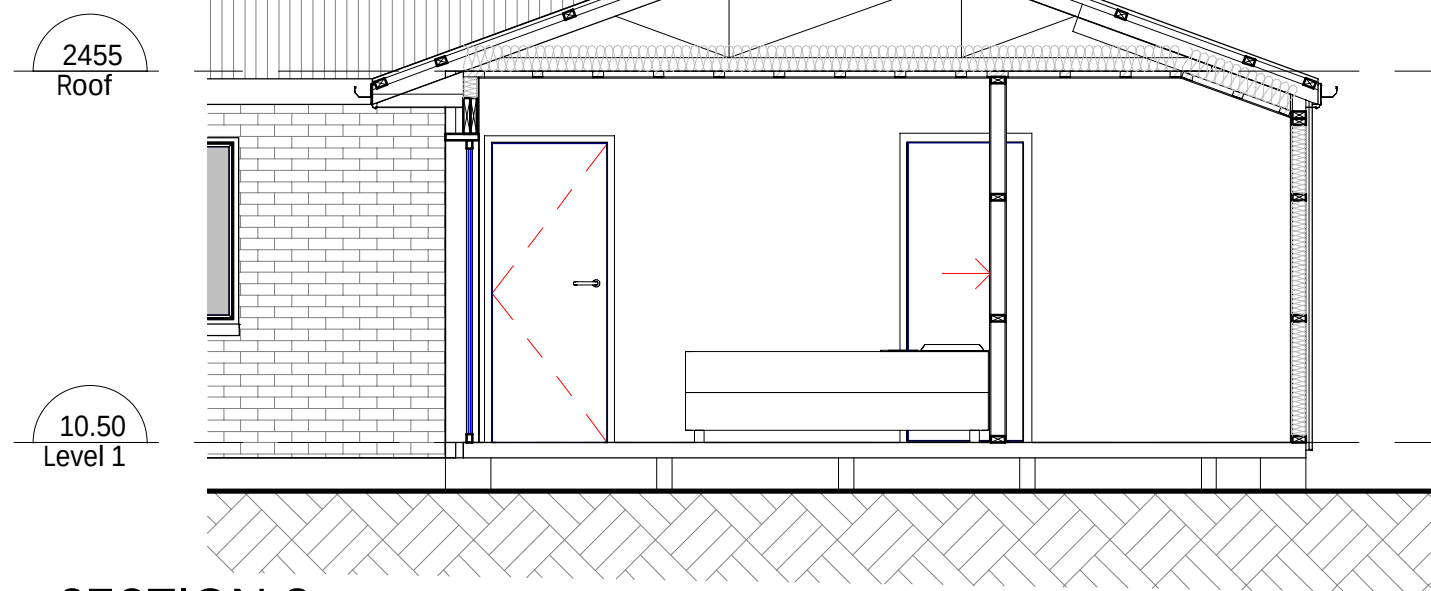
SECTION 1

1 : 50



SECTION 3

1 : 100



SECTION 2

1 : 50

20° COLOURSTEEL ROOFING ON THERMAKRAFT 215 UNDERLAY
ON 70X45 H1.2 PURLINS @ 900 CTS. ON GANGNAIL H1.2 TRUSSES @ 900 CTS.

HARDIES SOFFIT LINING
COLOURSTEEL FASCIA/GUTTER SYSTEM

GIB BOARD CEILING LINING ON 70X35 BATTENS @ 400 CTS.
R3.2 PINK BATTS CLASSIC CEILING INSULATION

GIB BOARD INTERIOR WALL LINING ON
90X45 H1.2 FRAMING, ALL FRAMING TO BE
TREATED AS PER NZBC ACCEPTABLE SOLUTIONS E2/AS1 & B2/AS1
NOGS @ 800 CTS.
ALL STRUCTURAL TIMBER TO BE MIN. SG8 GRADE
STUDS @ 600 CTS TO 2420 STUD HEIGHT
(WET AREA BOTTOM PLATES TO BE H3.1)

USE GIB "AQUALINE" TO WALLS AND CEILINGS IN ALL WET AREA'S
PRONE TO WATER SPLASH

R2.4 PINK BATTS CLASSIC EXTERIOR WALL INSULATION
R0.26 GLAZING INSULATION (DOUBLE GLAZED)

70 SERIES BRICK VENEER & BB TIMBER WEATHER BOARDS
OVER 20MM H3.1 CAVITY BATTENS
OVER THERMAKRAFT WATERGATE-PLUS BUILDING WRAP

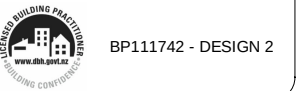
POD FLOOR TO ATTACHED "TILSLEY ENGINEERING" DESIGN -
SEE SHEETS S1 & S2



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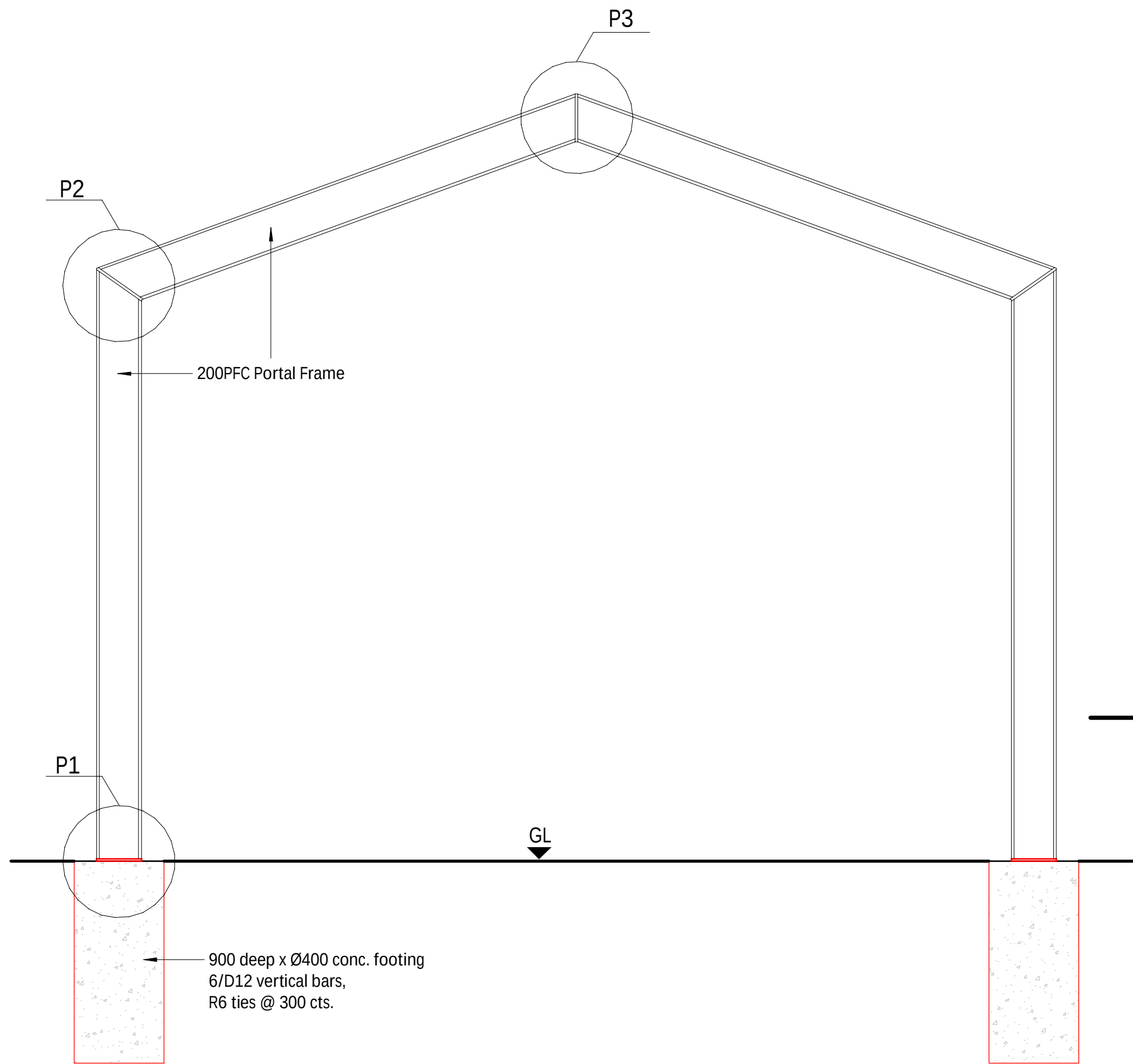
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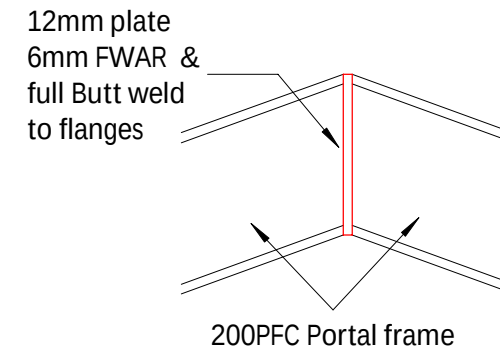
ALL STRUCTURAL TIMBER TO BE
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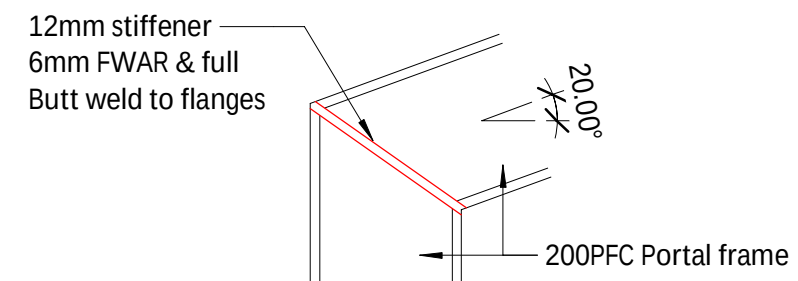
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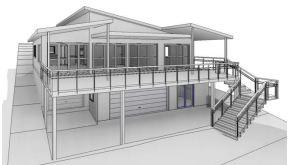
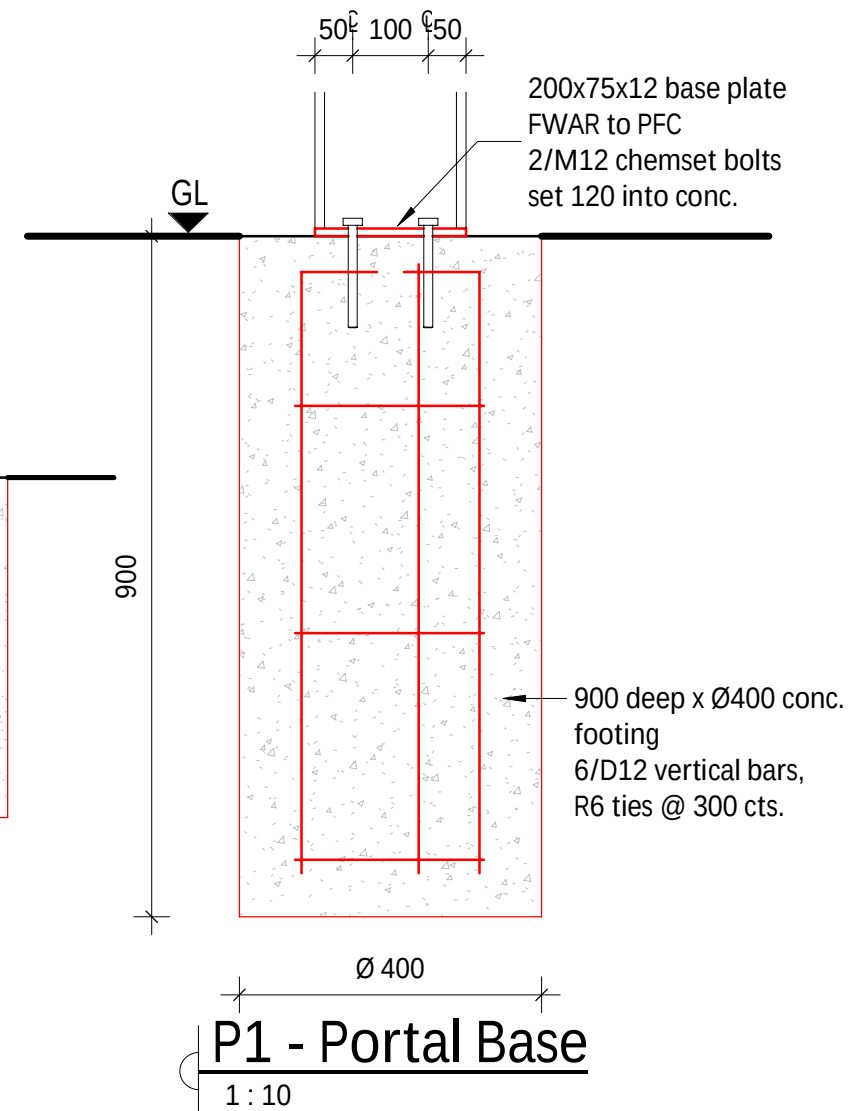
Portal Frame
1 : 20



P3 - Portal Apex
1 : 10



P2 - Portal Knee
1 : 10



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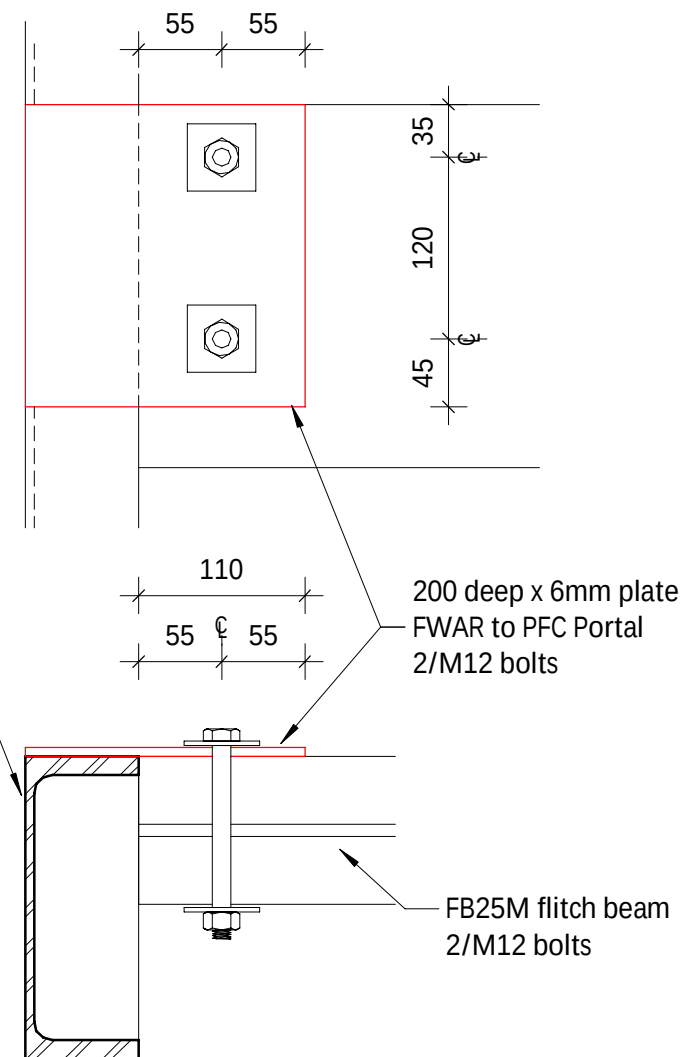
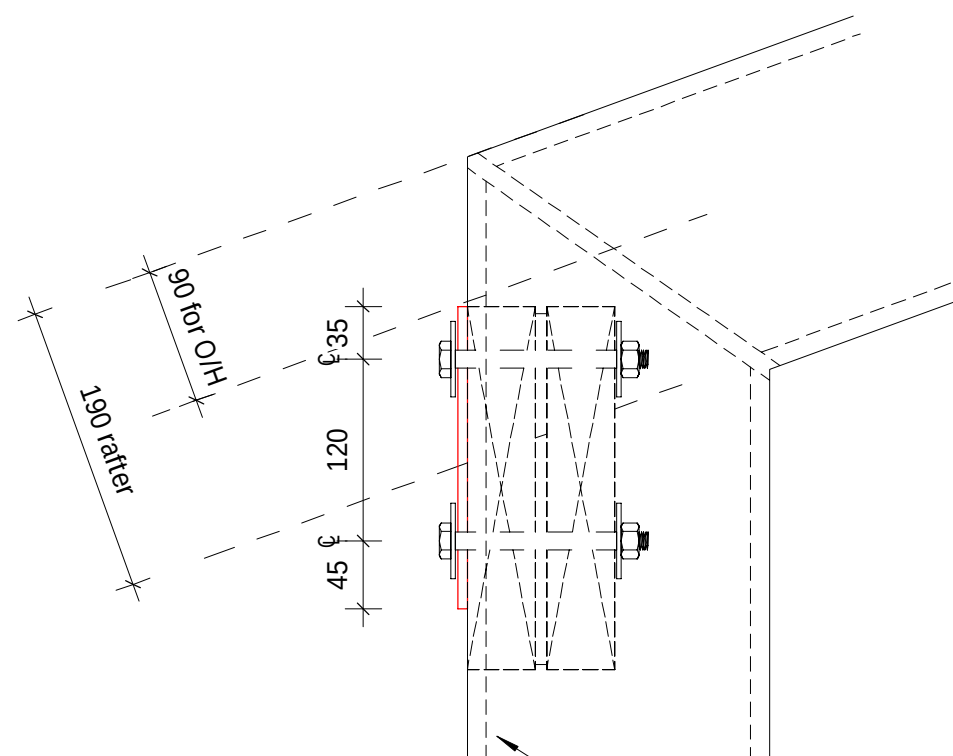
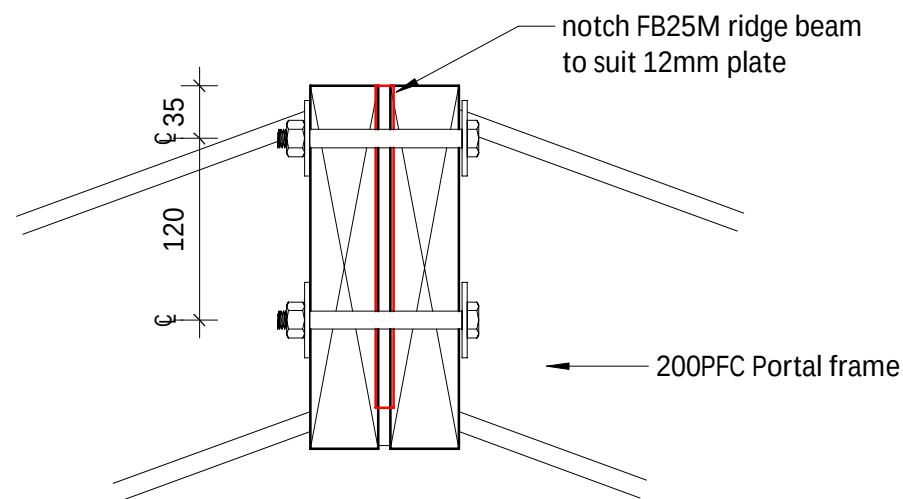
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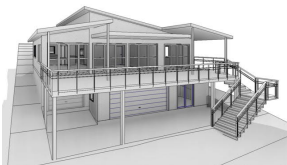


FB25M Rafter Beam to Portal

1:5

FB25M Ridge Beam to Portal

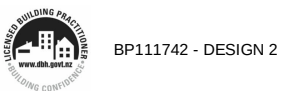
1:5



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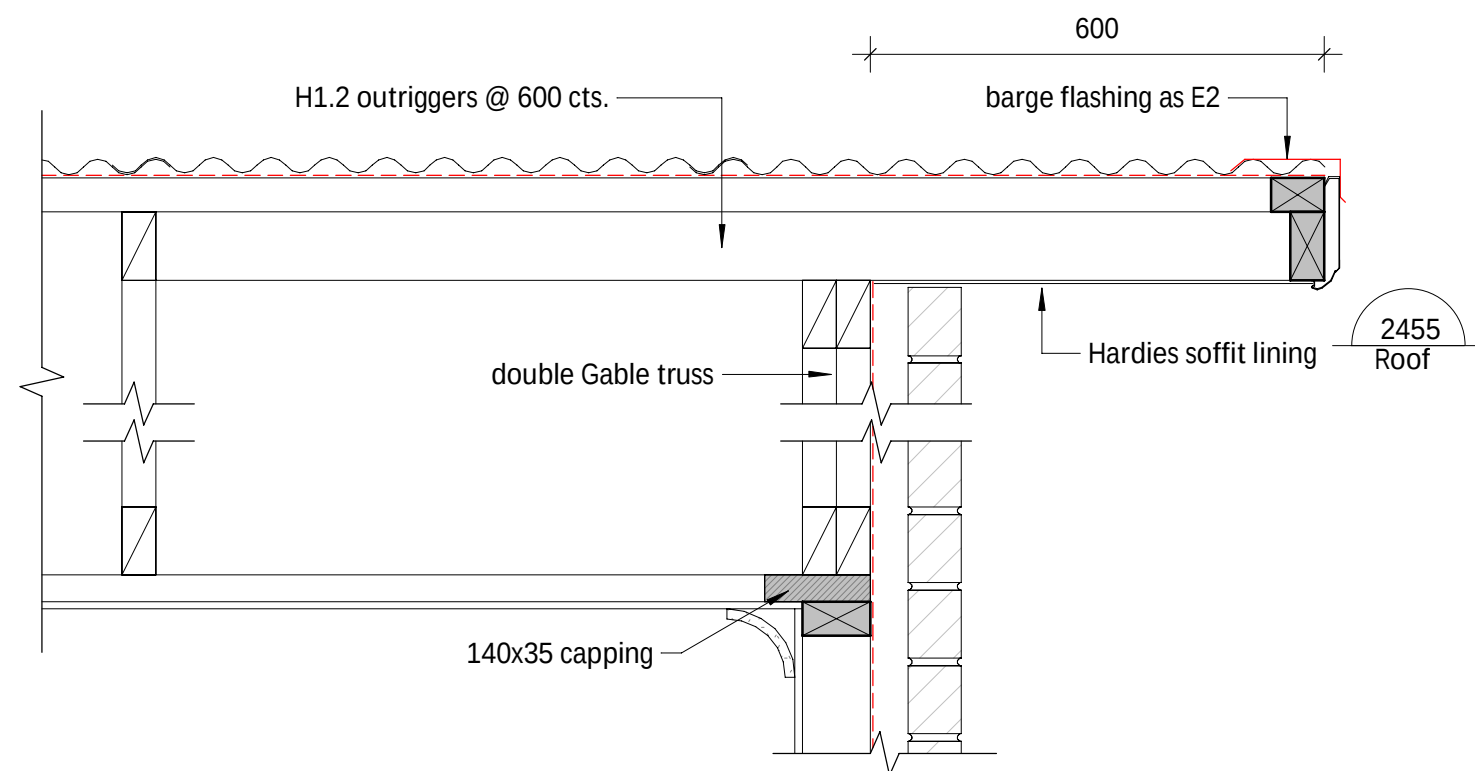
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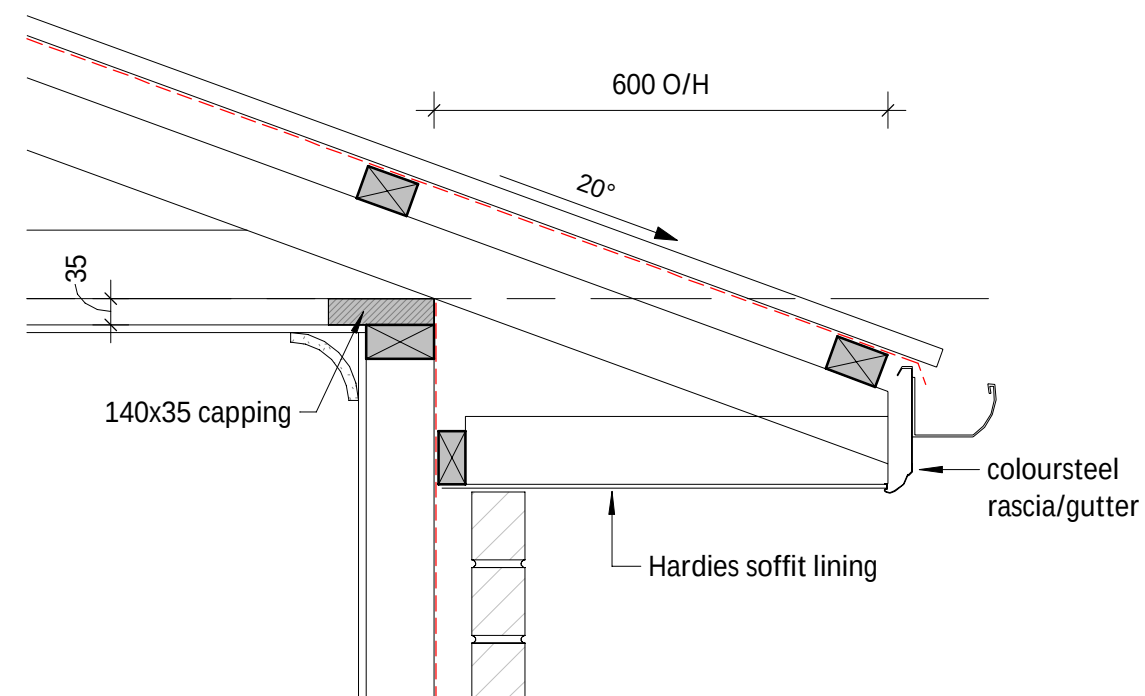
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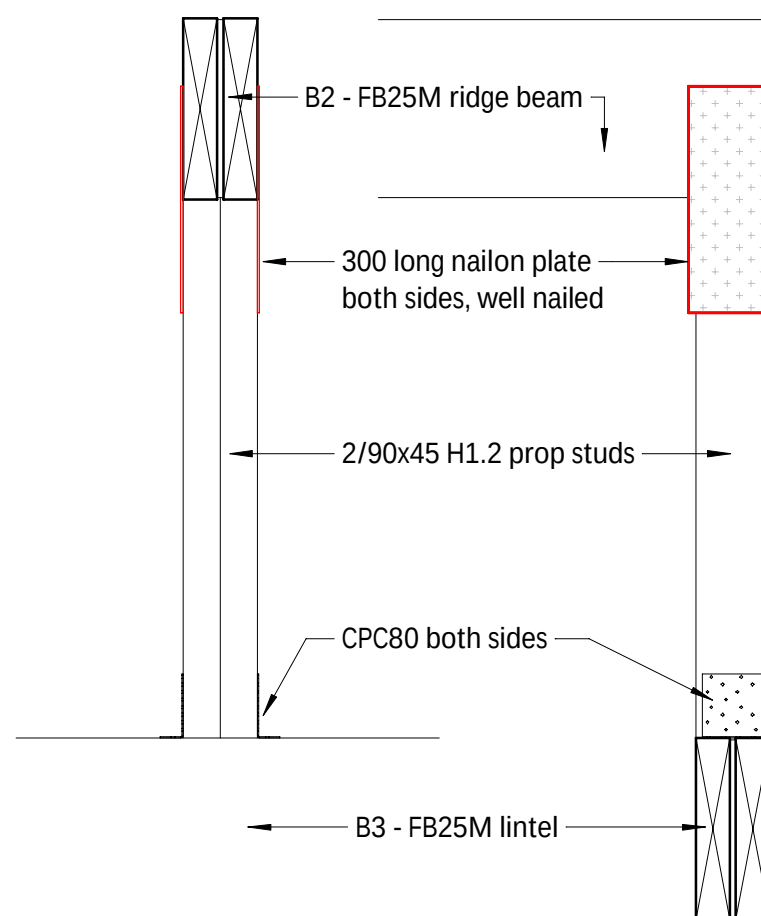
Gable End

1 : 10



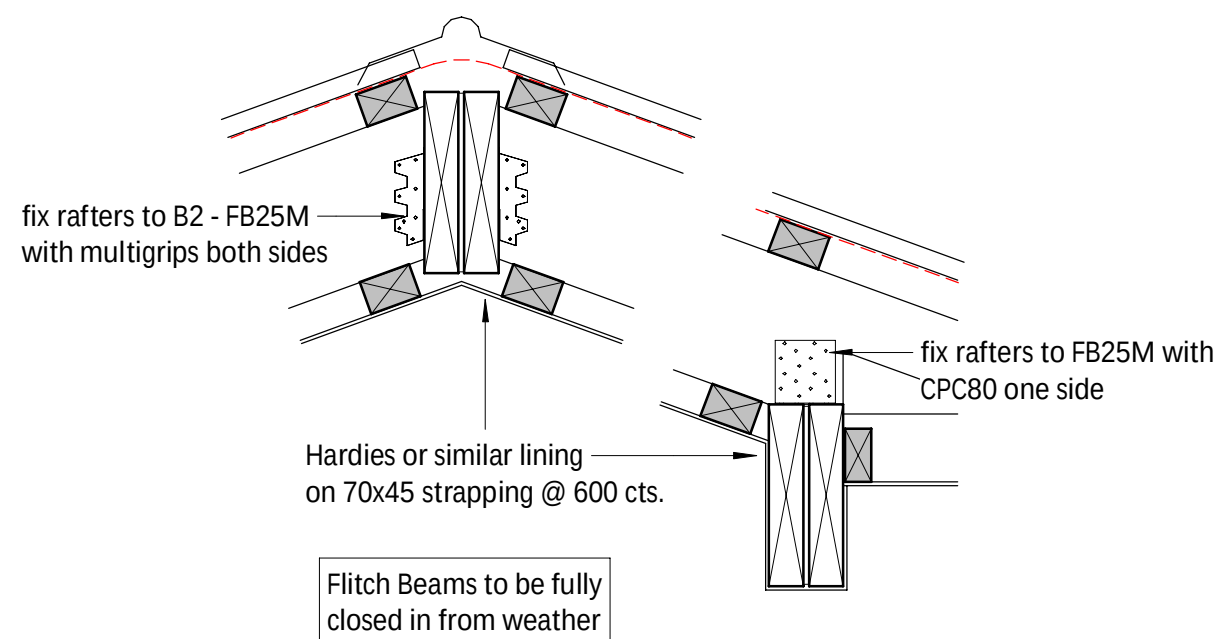
Eaves Detail

1 : 10



Ridge Flitch Beam to Lintel

1 : 10



Rafter to FB25M

1 : 10



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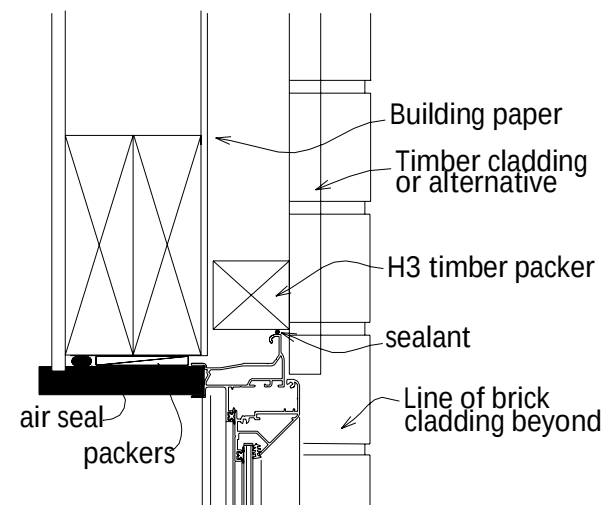
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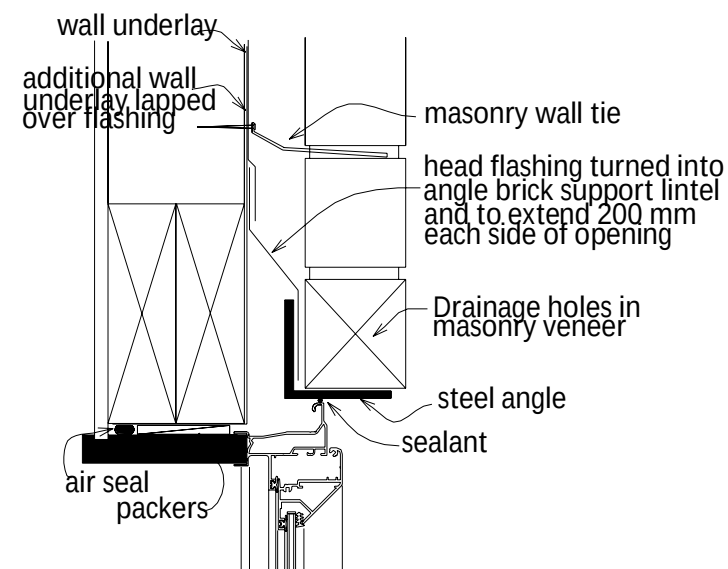
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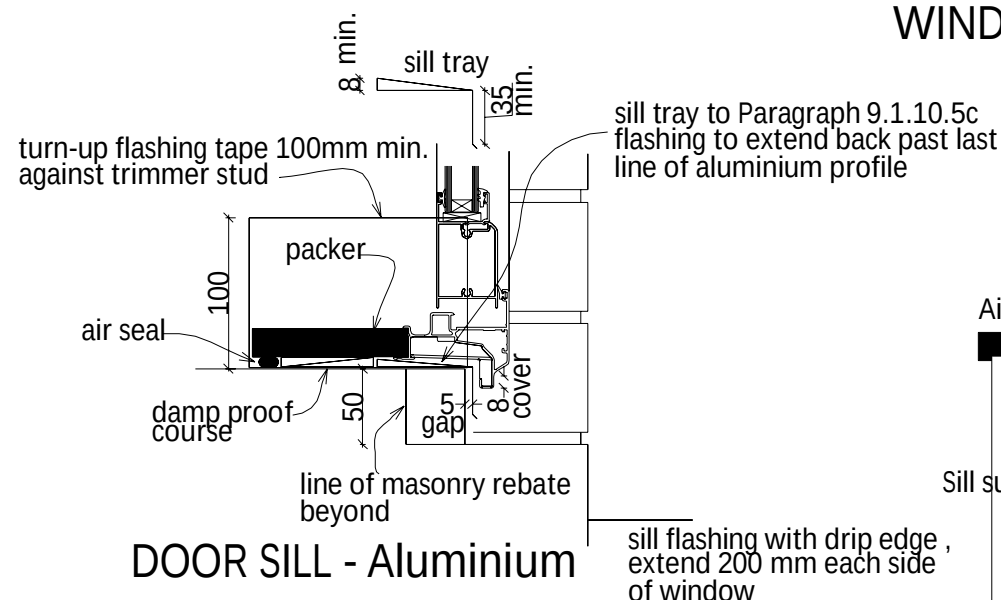
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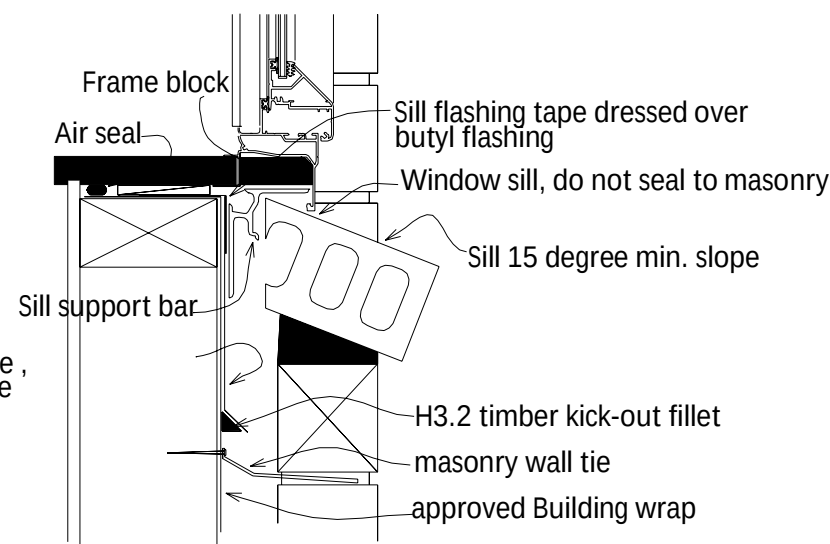
WINDOW HEAD - Aluminium
Timber cladding above



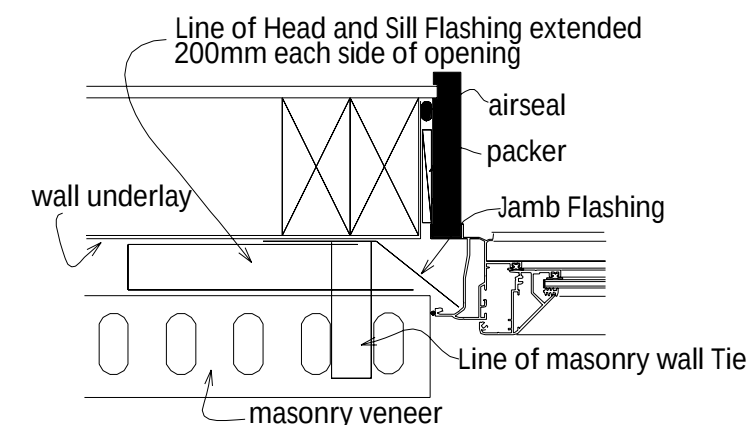
WINDOW HEAD - Aluminium
Brick over



DOOR SILL - Aluminium



WINDOW SILL - Aluminium



WINDOW JAMB - Aluminium

Window Flashing - Brick

1 : 5

MASONRY VENEER VENTILATION REQUIREMENTS -
base & openings - open perpend that are:
minimum 75mm in height x width of vertical mortar joint and at centers not exceeding 800mm (minimum ventilation area of 100 mm²/m wall length) and fitted with vermin proofing where gaps greater than 13mm exist
top - vented as similar to base requirements or a 3mm minimum gap between top of course and soffit lining with a cover bead to outside that maintains a minimum 1 mm gap to masonry
Under openings exceeding 2.4 metres wide vent through gaps in perpend positioned at 1/3 points along the openings except opening ends. Where these vent openings are used, protect from water entry using cantilevered sill bricks.



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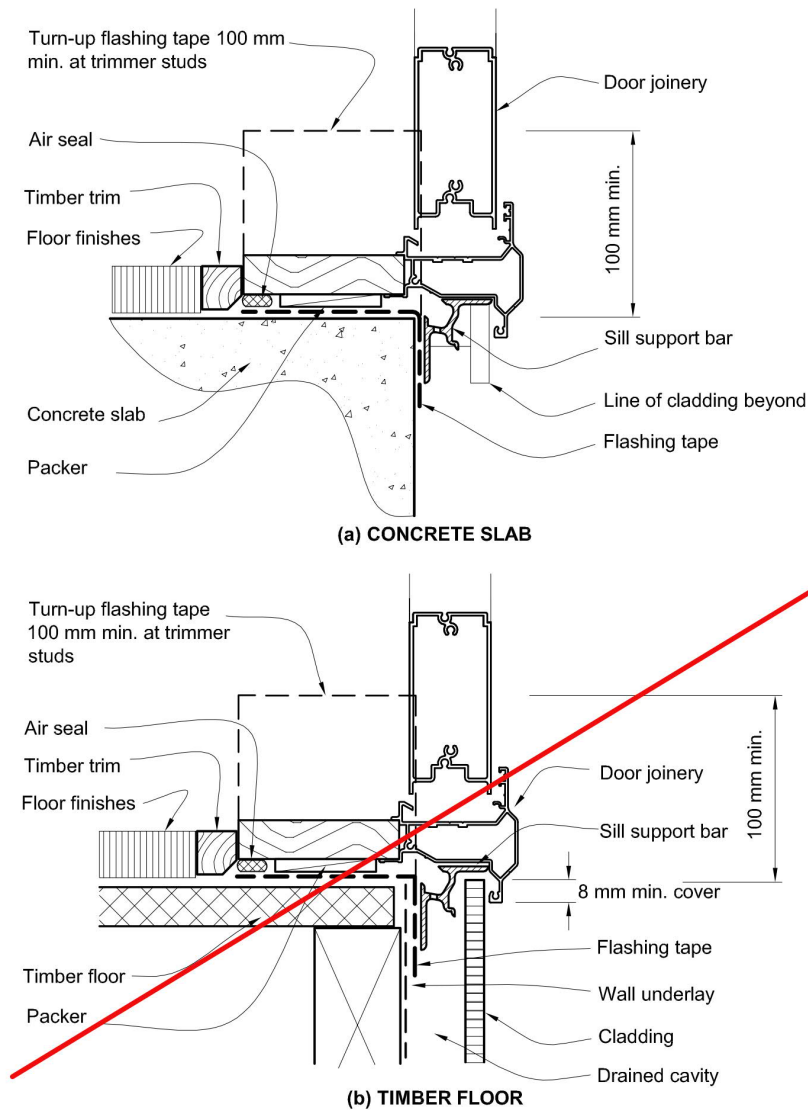
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Figure 17C: Door sills for cavity construction
Paragraph 9.1.10.5, Figures 73C, 85, 86, 91, 99, 116 and 128



56A 80

Amend 5
Aug 2011

Amend 2
Jul 2005

Amend 5
Aug 2011

COMMENT:

Reduced cover for barge and apron flashings may be applicable for specifically designed roofs in low wind zones.

Refer to the New Zealand Metal Roof and Wall Cladding Code of Practice for additional guidance on ridge to hip flashings.

Amend 2
Jul 2005

Amend 2
Jul 2005

Amend 5
Aug 2011

Figure 44: Apron flashing and change in pitch for profiled metal
Paragraphs 4.5, 8.4.11, 8.4.12, Table 7

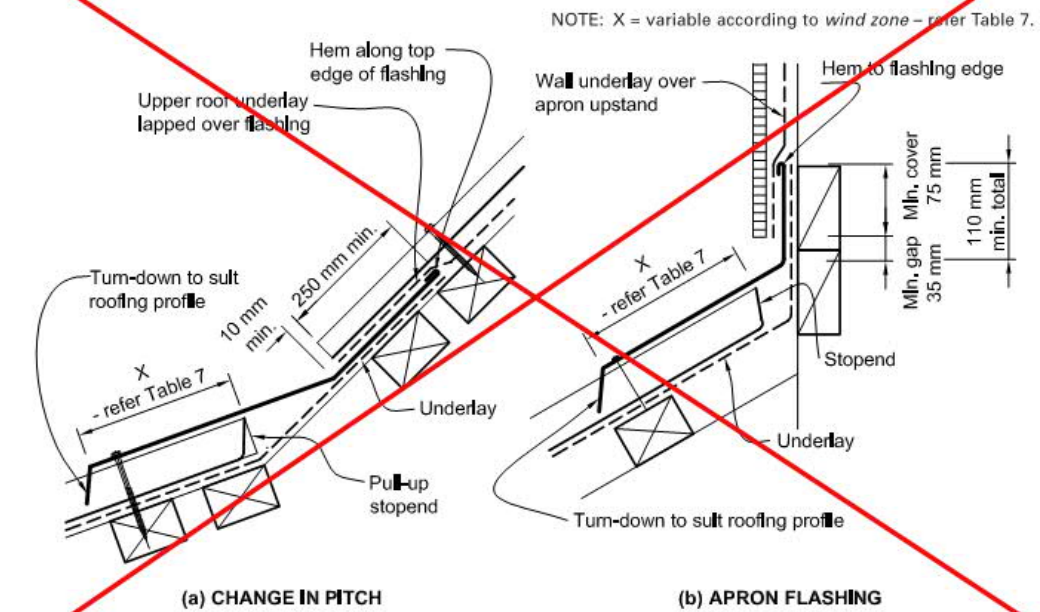
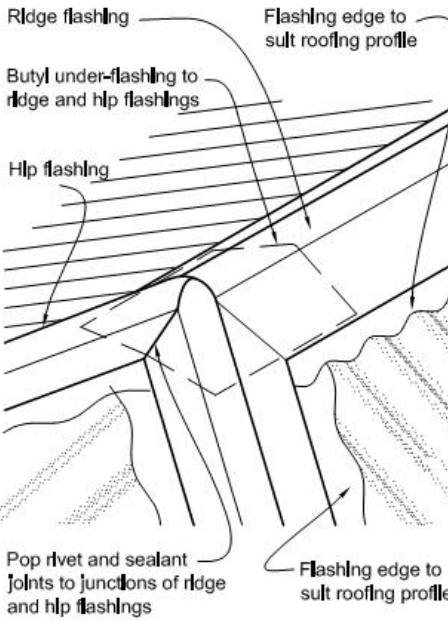


Figure 43: Ridge to hip flashings
Paragraphs 8.4.11 and 8.4.12

NOTE: Flashing cover varies according to wind zone - refer Table 7.
For other ridge to hip flashings refer to New Zealand Metal Roofing and Wall Cladding Code of Practice.



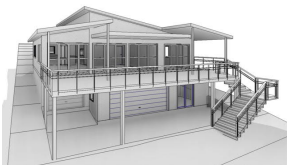
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Amend 2
Jul 2005

Amend 2
Jul 2005

Errata 2
Dec 2011

Errata 2
Dec 2011



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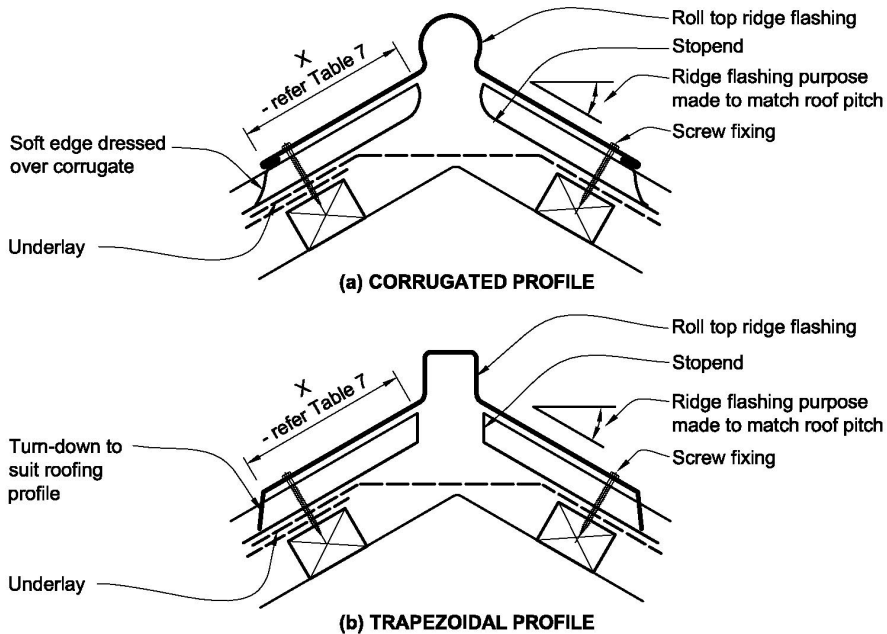
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Amend 2
Jul 2005

Figure 46: Ridge and hip flashings for profiled metal
Paragraphs 4.4, 4.5, 8.4.11, 8.4.12, Table 7



Amend 2
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Amend 5
Aug 2011

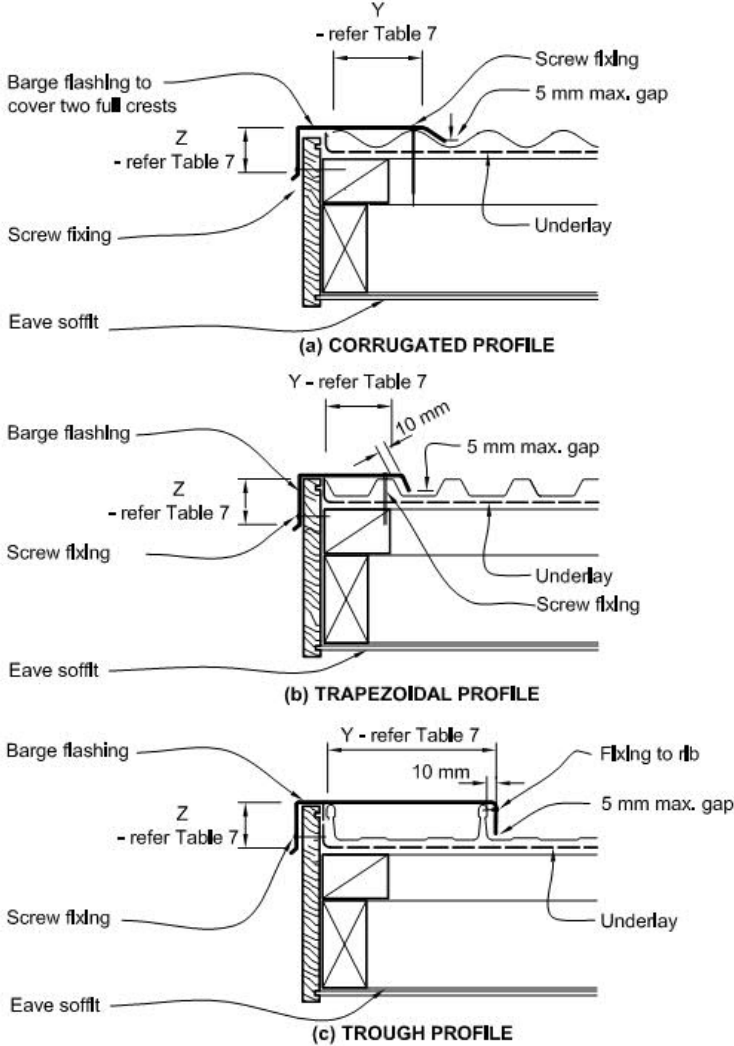
X = 130mm min.

DEPARTMENT OF BUILDING AND HOUSING

24 December 2011

81

Figure 47: Barge flashings for profiled metal
Paragraphs 8.4.11, 8.4.12, Table 7



Amend 2
Jul 2005

Amend 2
Jul 2005

Amend 2
Jul 2005

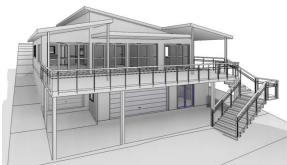
Amend 5
Aug 2011

Y = 2 crests, finish in next trough
Z = 50mm min.

82

1 August 2011

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8.4.13 Stopends

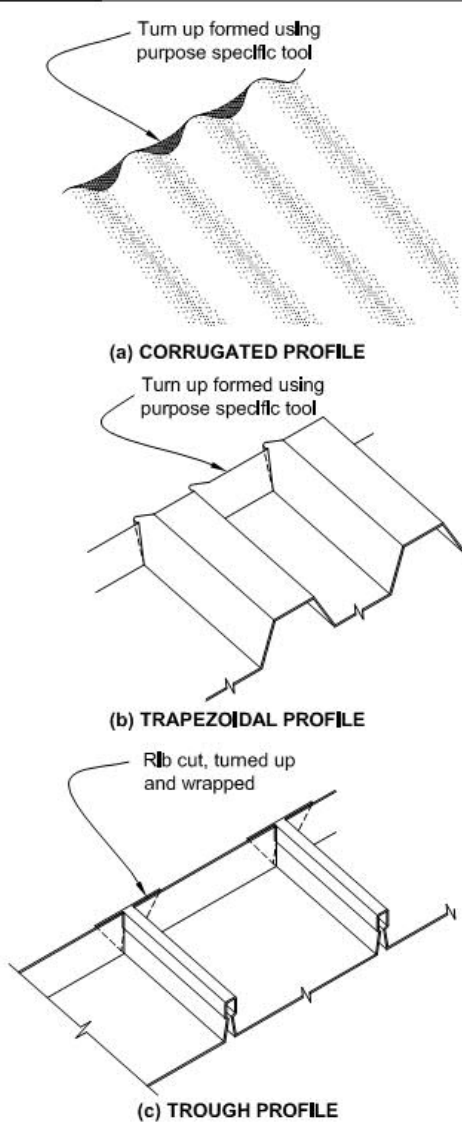
The top ends of profiled metal roof cladding shall have stopends as shown in Figure 49 for trapezoidal and trough profile metal roof cladding, where:

- a) The roof pitch is less than 25°, or
- b) The building is in a High/Very High/Extra High wind zone.

Amend 5
Aug 2011

Amend 5
Aug 2011

Figure 49: Profiled metal stopends
Paragraph 8.4.13, Figure 92



Amend 5
Aug 2011

8.4.14 Turn-downs at gutters

The lower ends of trapezoidal and trough profile roofing shall be turned down at gutters, where the roof pitch is less than 10°.

The turn-down shall be 30° from the plane of the sheet.

COMMENT:

Specific tools are available and should be used to turn up or turn down ends. Care should be taken to ensure the sheet does not split.

Refer to the New Zealand Metal Roof and Wall Cladding Code of Practice for guidance on methods.

Amend 5
Aug 2011

Amend 2
Jul 2005

8.4.15 Profile closure

Preformed compressible seals shall not be used at the eaves.

COMMENT:

Refer to the New Zealand Metal Roof and Wall Cladding Code of Practice for guidance.

Amend 5
Aug 2011

8.4.16 Hidden, valley and internal gutters

Hidden, valley and internal gutters shall be in accordance with Paragraph 8.1.6.

8.4.16.1 Hidden gutters

Parallel hidden gutters shall be as shown in Figure 50 and Paragraph 8.1.6.2.

8.4.16.2 Valley gutters

Valley gutters shall be in accordance with catchment areas shown in Table 8, and as shown in Figure 51 and Paragraph 8.1.6.2.

COMMENT:

Refer to the New Zealand Metal Roof and Wall Cladding Code of Practice for additional guidance on sizing, materials and fixing.

8.4.16.3 Internal gutters

Internal gutters shall be as shown in Figure 52 and Paragraph 8.1.6.1.

Amend 2
Jul 2005
Amend 5
Aug 2011

Amend 5
Aug 2011

Figure 50: Parallel hidden gutter for profiled metal
Paragraphs 4.3, 4.5, 8.1.6.2 and 8.4.16

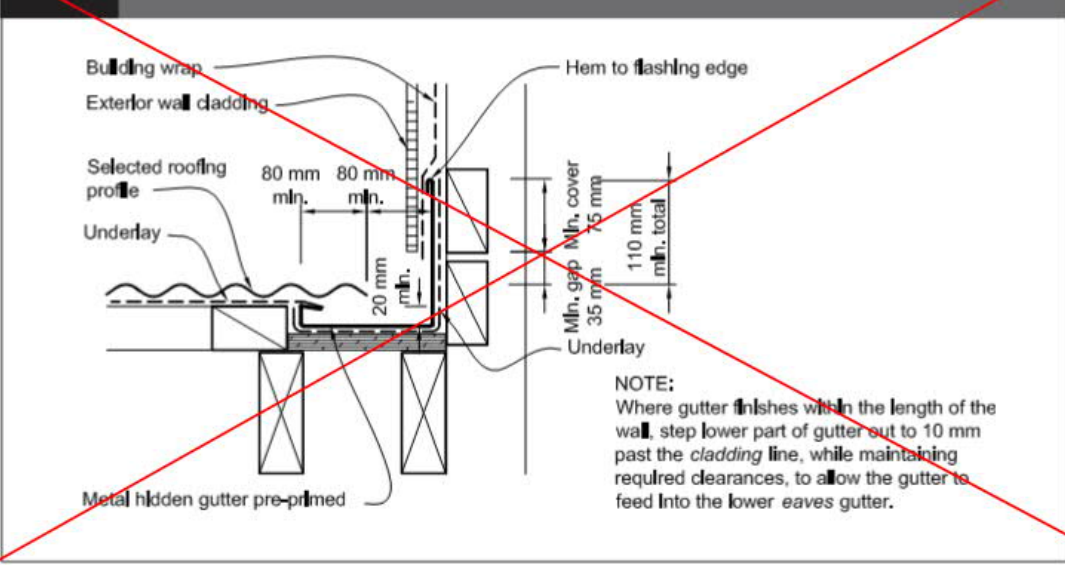
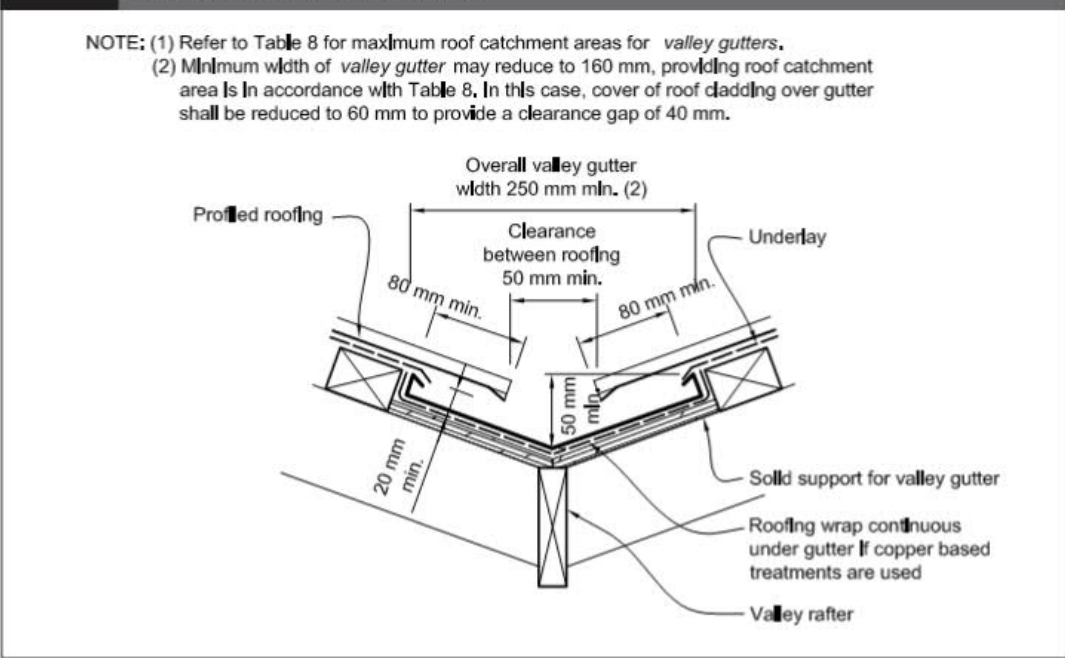


Figure 51: Valley gutters for profiled metal
Paragraphs 4.3, 4.5, 8.1.6.2 and 8.4.16



Amend 5
Aug 2011

Amend 2
Jul 2005

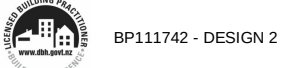
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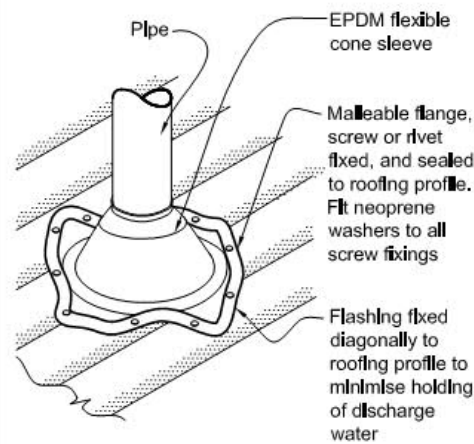
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Figure 53: Flashing for small pipes
Paragraphs 8.3.10, 8.4.17, 9.6.8.5 and 9.6.9.6



NOTE:
(1) Max. roof pitch for this flashing 45°, minimum pitch 10° if base of flange covers one or more complete troughs.
(2) For pipes up to 85 mm diameter.

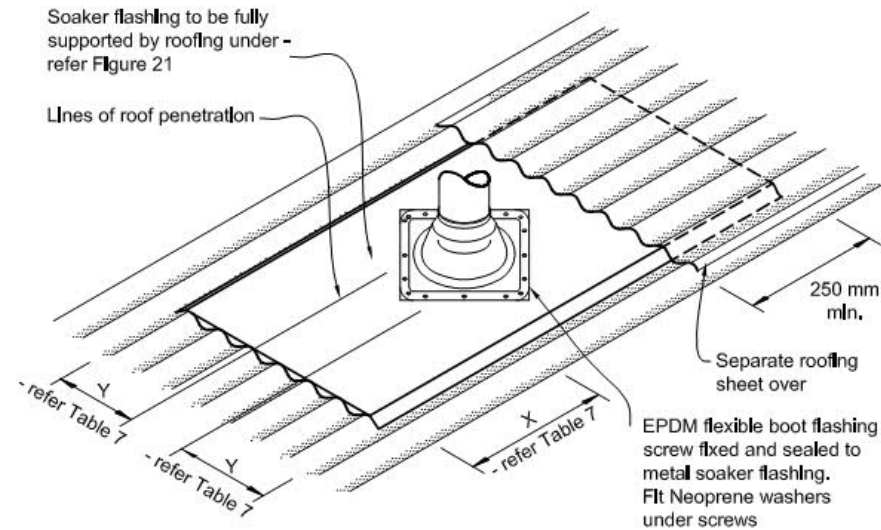
Amend 5
Aug 2011

Figure 54: Soaker flashing for pipe penetrations
Paragraph 8.4.17

NOTE: (1) Suitable for pipes from 86 mm to 500 mm diameter.
(2) Suitable only for roof pitches of 10° or more.

Soaker flashing to be fully supported by roofing under - refer Figure 21

Lines of roof penetration



X = 130mm min.
Y = 2 crests, finish in next trough

Amend 2
Jul 2005

Amend 5
Aug 2011

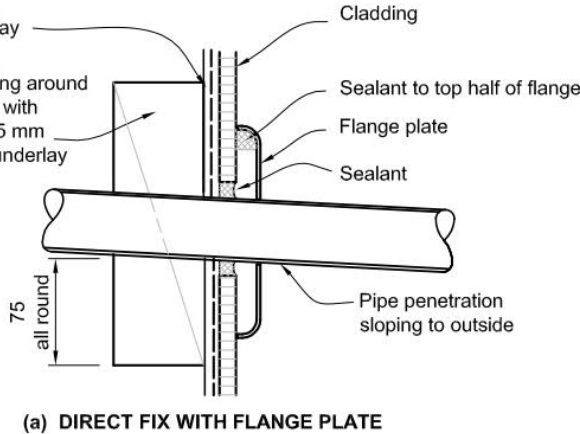
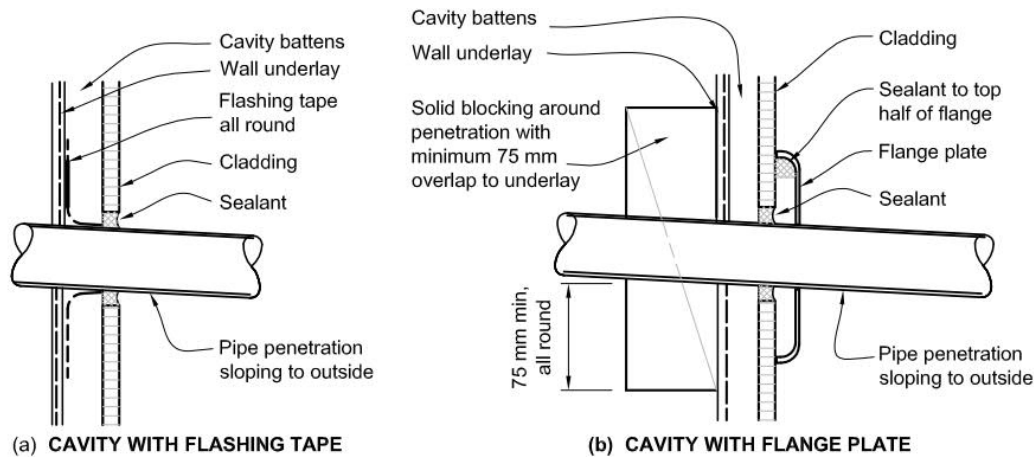
Amend 5
Aug 2011

Amend 5
Aug 2011

Amend 2
Jul 2005

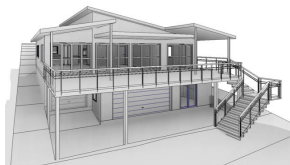
Amend 5
Aug 2011

Figure 68: General pipe penetration
Paragraph 9.1.9.3, Figure 126



COMMENT:

Where possible, pipe penetrations, meterboxes and similar penetrations should be located in sheltered areas of the building, such as a porch, or be installed behind a weatherproof glazed panel.



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BP111742 - DESIGN 2

ALL CONSTRUCTION IS TO COMPLY WITH
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ALL MEASUREMENTS TO BE CHECKED AND
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COMMENCEMENT OF WORK.

REFER TO ATTACHED E2 AND
MANUFACTURER SPECIFIC DETAILS

ALL STRUCTURAL TIMBER TO BE
SG8 GRADE OR BETTER

PROPOSED RESIDENCE FOR,
Mark & Lisa Gasson
380 Churchill East Rd;
Rangiriri.

DRAWN	DJS
DATE	April 2018
JOB NO.	88118

AMMEND.	
SCALE AS SHOWN	
SHEET	17

COMMENT:

External air pressures in higher *wind zones* can transfer to interior linings, and exceed recommended loadings prescribed by some *lining* manufacturers. Rigid *underlays* will protect *linings* from undue air pressure loadings, and help ensure cavity depths are maintained for the proper functioning of the *drained cavity*.

9.1.8 Drained cavities

Based on the *risk score* for an *external wall* calculated as per Paragraph 3.1, a *wall cladding* may require the inclusion of a *drained cavity*. Where a *drained cavity* is required, it shall meet the requirements of Paragraphs 9.1.8 to 9.1.9.4.

COMMENT:

Cavities manage occasional ingress of water past the *cladding*, but should not act as gutters or drains.

9.1.8.1 Limitations

This Acceptable Solution is limited to systems where:

- a) *Cavity battens* are fixed, by the *cladding* fixings, to the *wall framing*,
- b) *Claddings* are fixed through the *cavity battens* into the *wall framing*, and
- c) The *drained cavity* behind *claddings*, except in *masonry veneer*, is not vented at the top.

Systems where the *cladding* is fixed into the *cavity batten* only are outside the scope of this Acceptable Solution.

9.1.8.2 Requirements

Where a *drained cavity* is required, it shall:

- a) Be installed over a *wall underlay*, either flexible or rigid, that:
 - i) complies with Table 23, and
 - ii) is fixed to *wall framing*,
- b) Be formed using vertical *cavity battens*,
- c) Restrict air movement between the *drained cavity* and:
 - i) floor, *wall* and *roof framing*,
 - ii) attic *roof* space, and
 - iii) subfloor space,
- d) Be drained and open to the exterior at the bottom of cavities,
- e) Use vermin-proofing at the cavity base as per Paragraph 9.1.8.3 and Figure 66,

Figure 66: Cavity base closer/vermin proofing Paragraph 9.1.8.2

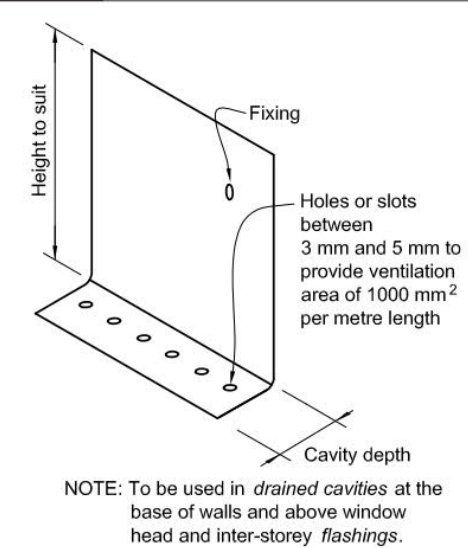
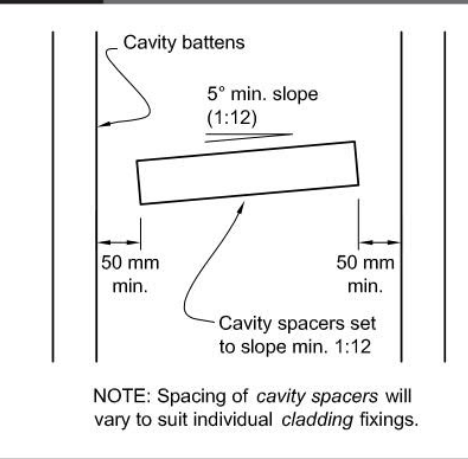


Figure 67: Cavity spacers Paragraphs 9.1.8.2 and 9.1.8.4



- f) Use *cavity spacers* as shown in Figure 67, where fixing is required between *cavity battens*. Alternative *cavity spacers* to those described in Paragraph 9.1.8.2 are permitted. Refer to Paragraph 9.1.8.4 f).

COMMENT:

Solid horizontal *cavity spacers* risk obstruction of air flow in cavities and risk bridging moisture across the *cavity*.

9.1.8.3 Vermin-proofing

Vermin-proofing shall be provided above window and door heads and at the base of the *drained cavity*. Figure 66 provides one example of an appropriate cavity closer.

Aluminium, stainless steel or uPVC in accordance with Paragraph 4.1 shall be used where vermin-proofing material is not readily accessible or replaceable.

Vermin-proofing shall:

- a) Provide holes or slots between 3 mm and 5 mm,
- b) Provide an area of opening of 1000 mm² per lineal metre of *wall*, and
- c) Be positioned to allow a minimum *drip edge* to the *wall cladding* of:
 - i) 10 mm at the base of *walls*, and
 - ii) 15 mm above window and door head *flashings*.

COMMENT:

It is important the openings in vermin-proofing are kept clear and unobstructed in order to maintain draining and venting of the cavity. The closure shown is only one option for vermin-proofing. Provided openings are as specified, other dimensions can vary, so allowing the use of other shapes such as channels and right-angles.

9.1.8.4 Cavity battens and jamb battens

Cavity battens shall:

- a) Be nominal 20 mm (between limits of 18 mm and 25 mm in thickness),
- b) Be a minimum 45 mm wide,
- c) Be fixed, by the *cladding* fixings, through the *wall underlay* into the *framing*,
- d) If timber, comply with B2/AS1,
- e) If polystyrene, comply with Paragraph 9.9.3.1, and be protected from any incompatible vapours from timber treatment.

Cavity battens and/or *cavity spacers* that meet E2/VM1 Class 1 testing and B2/AS1, permit air circulation are allowed. The Class 1 test must include a horizontal *cladding* joint supported on a cavity spacer batten of a proposed type.

Jamb battens shall:

- f) be nominal 20 mm (between limits of 18 mm and 25 mm in thickness), minimum 45 mm wide, and of timber complying with B2/AS1. Refer to Figure 72A.

COMMENT:

The solvents from freshly LOSP-treated timber may melt polystyrene, so these should not be used together. Solid horizontal cavity spacers risk obstruction of air flow in cavities and risk bridging moisture across the cavity.

Battens will be fixed by the *cladding* fixings, which will penetrate the *wall framing*. Battens will therefore need only temporary fixing until the *cladding* is fixed. Polystyrene battens may be temporarily adhered to the *wall underlay*.

9.1.8.5 Wall framing behind cavities

Dwangs shall be at a maximum of 1350 mm centres generally and maximum 480 mm centres for *direct-fixed* vertical weatherboard profiles, and vertical metal corrugated and symmetrical *trapezoidal claddings*.

Where *stud* spacings are greater than 450 mm, and flexible *wall underlays* only are used, an intermediate means of restraining the flexible *wall underlay* and insulation from bulging into the *drained cavity* shall be installed. Acceptable means of achieving this are by using:

- a) 75 mm galvanized mesh or wire galvanized in accordance with AS/NZS 4534,
- b) Polypropylene tape or galvanized wire at 300 mm centres fixed horizontally and drawn taut, or
- c) Vertical cavity battens at 300 mm centres maximum.

9.1.9 Penetrations

9.1.9.1 Penetrations through cavities

Window penetrations through cavities shall meet the requirements of Paragraph 9.2 to Paragraph 9.9.

9.1.9.2 Other cavity penetrations

Where penetrations of the *wall cladding* are wider than the *cavity batten* spacing, allowance shall be made for air flow between adjacent cavities by leaving a minimum gap of 10 mm between the bottom of the vertical *cavity batten* and the *flashing* to the opening.

9.1.9.3 Pipes and service penetrations

Pipes and service penetrations shall be made *weathertight* by using methods shown in Figures 68 and 69. *Flashing* tape complying with Paragraph 4.3.11, and sealant complying with:

- a) Type F, Class 20LM or 25LM of ISO 11600, or
- b) low modulus Type II Class A of Federal Specification TT-S-00230C.

Amend 5
Aug 2011

Amend 2
Jul 2005

Amend 5
Aug 2011

Amend 2
Jul 2005

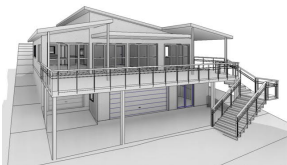
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Jul 2005

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Aug 2011

Amend 5
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Aug 2011

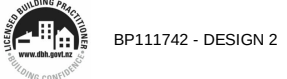
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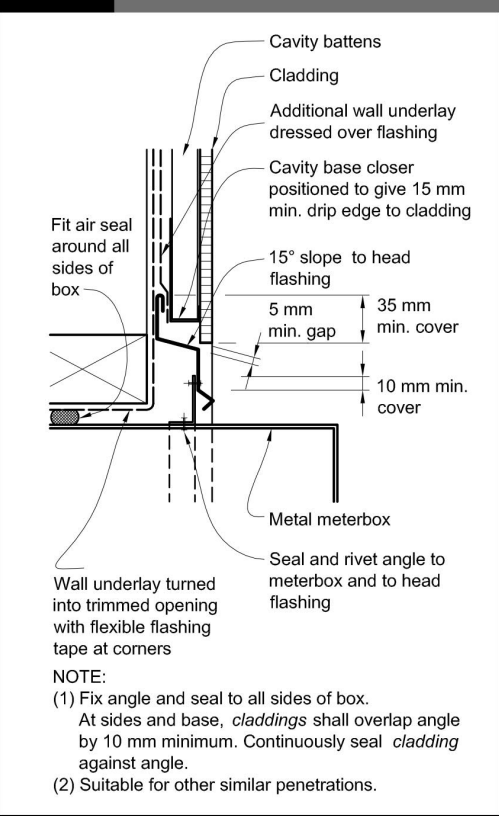
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Figure 69: General meterbox and similar penetrations
Paragraphs 9.1.9.3, 9.6.8.5 and 9.6.9.6



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Aug 2011

9.1.9.4 Inter-storey junctions

Inter-storey junctions in *claddings* over *drained cavities* shall be formed for *walls*:

- a) Up to a maximum of two storeys or 7 metres in height, as shown for the specific *wall claddings* in Paragraph 9.2 to Paragraph 9.9, or
- b) Over two storeys or 7 metres by using an inter-storey *flashing* bridging the *drained cavity* as shown in Figure 70.

COMMENT:

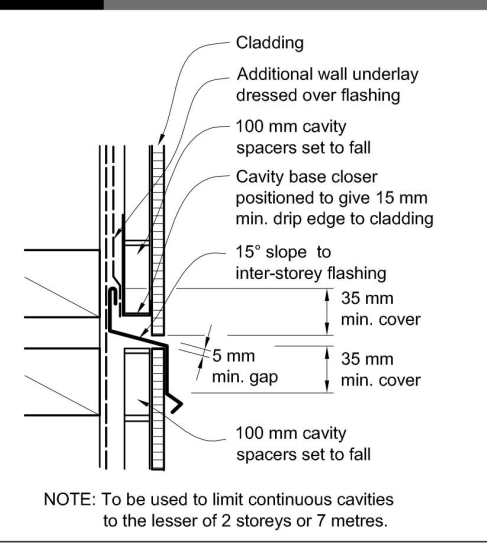
A *drained cavity* height is limited to manage the moisture handled by the cavity before it is directed to the outside.

Amend 5
Aug 2011

Amend 5
Aug 2011

Amend 5
Aug 2011

Figure 70: General inter-storey junction
Paragraphs 4.6.1.7, 9.1.9.4, Figure 16



Amend 5
Aug 2011

9.1.10 Windows and doors

Windows and doors shall comply with the requirements of NZS 4211, and reveals shall comply with NZS 3602. *Flashings* shall comply with Paragraph 4.0. Window details specific to particular *claddings* are given in Paragraph 9.2 to Paragraph 9.9. Door details shall be based on window details and shown in Figures 17A–D.

Amend 5
Aug 2011

After installation, the flange forming the window or door facing shall have an overlap to the surrounding *cladding* material or associated back *flashings* of

- a) For jambs – 10 mm minimum
- b) For sills – 8 mm minimum.

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9.1.10.1 Scope

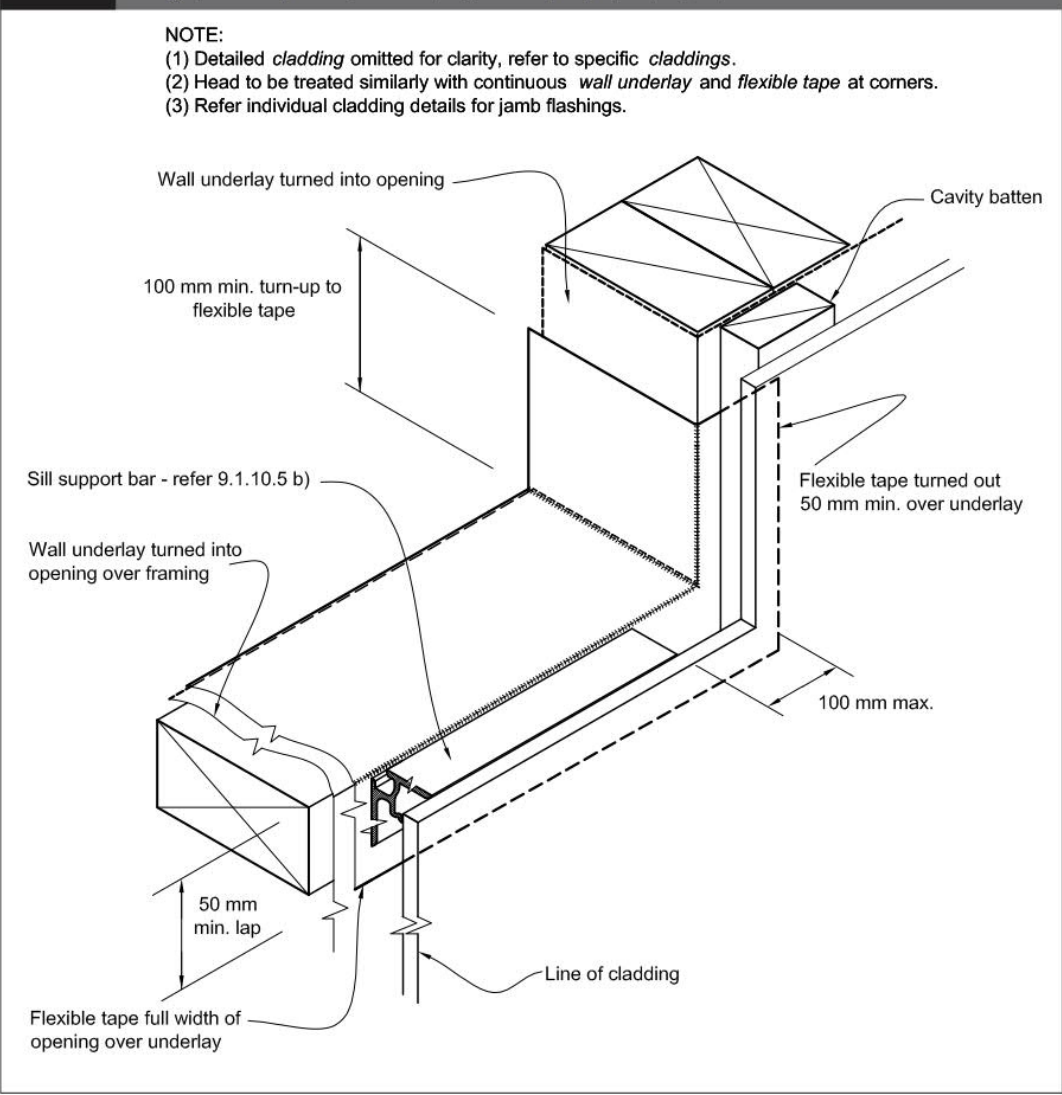
This Acceptable Solution is limited to aluminium window and door joinery that:

- a) Has horizontal window and door heads only
- b) Has maximum frame dimensions of 5000 mm wide or 5000 mm high, and a maximum overall frame area, for any one frame, of 13.5 m², or
- c) For sills to floor level, has maximum width of 6 m and maximum overall frame area is 16 m².

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Aug 2011

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Jul 2005

Figure 72B: General window and door opening with drainage cavity
Paragraphs 9.1.5, 9.1.9.3, 9.1.10.2, Figures 73C, 76, 85, 86, 91, 99, 116 and 128



Errata 2
Dec 2011

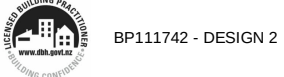
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9.2 Masonry Veneer

9.2.1 Limitations

This Acceptable Solution is limited to *masonry veneer cladding* attached to *timber wall framing* outlined in NZS 3604. *Masonry veneer* is either:

- a) Clay brick, or
- b) Concrete brick or block.

COMMENT:

Natural stone bricks or blocks may be suitable. However, they are not part of this Acceptable Solution. Refer to the manufacturer's recommendations for *specific design* information.

Refer to Paragraph 1.5 for qualification of installers.

9.2.2 General

- 1) The materials and workmanship of *masonry veneer* shall be in accordance with SNZ HB 4236 and have a maximum mass of veneer of 220 kg/m² and minimum veneer thickness of 70 mm
- 2) Masonry units shall be laid-up in running bond
- 3) Mortar, materials (cement, sand and admixtures) shall comply with NZS 4210
- 4) Mortar joints less than 24 hours old shall not be subject to vibration, such as would result from the nailing of interior *linings*

9.2.3 Installation

Masonry veneer construction shall be as shown in Figure 73B, and have:

- a) A maximum height of veneer above adjacent *finished ground level* of 7 m.
- b) A maximum height of veneer of 4.0 m, measured from the top of the concrete *masonry wall*, *foundation wall* or slab edge foundation. In the case of a veneer faced concrete block *wall* or *foundation wall* height is measured from the top of that *wall*.
- c) A maximum height of veneer of 5.5 m on a gable end *wall*.
- d) A minimum *wall* or panel width of 230 mm.

Note: The bracing demand for framing supporting *masonry veneer* is determined from values listed in NZS 3604.

COMMENT:

Refer to Paragraph 1.5 for qualification of installers

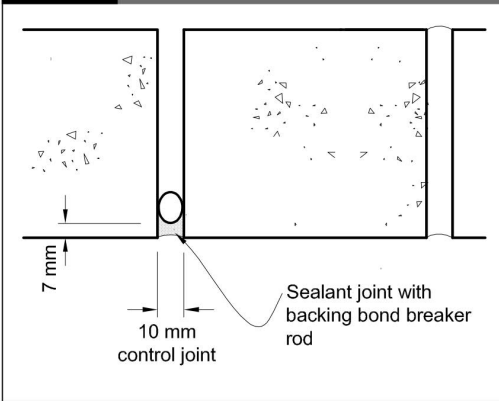
9.2.4 Flashings

- 1) Sill and head *flashings* shall be as described in Paragraph 4.3 and be either:
 - a) 1.5 mm butyl rubber– refer to Paragraph 4.3.9
 - b) 2 ply asphaltic pliable *waterproofing membrane* – refer to Paragraph 4.3.10
 - c) Pliable polyethylene minimum 0.5 mm thick complying with DPC/DPM Table 23.
- 2) Jamb *flashings* shall be:
 - d) 2 ply asphaltic pliable *waterproofing membrane* complying with AS/NZS 2904
 - e) Pliable polyethylene minimum 0.5 mm thick complying with DPC/DPM Table 23.

COMMENT:

For further information refer to ASTM C1330 for backing rod material performance.

Figure 73A: Vertical control joint
Paragraph 9.2.8

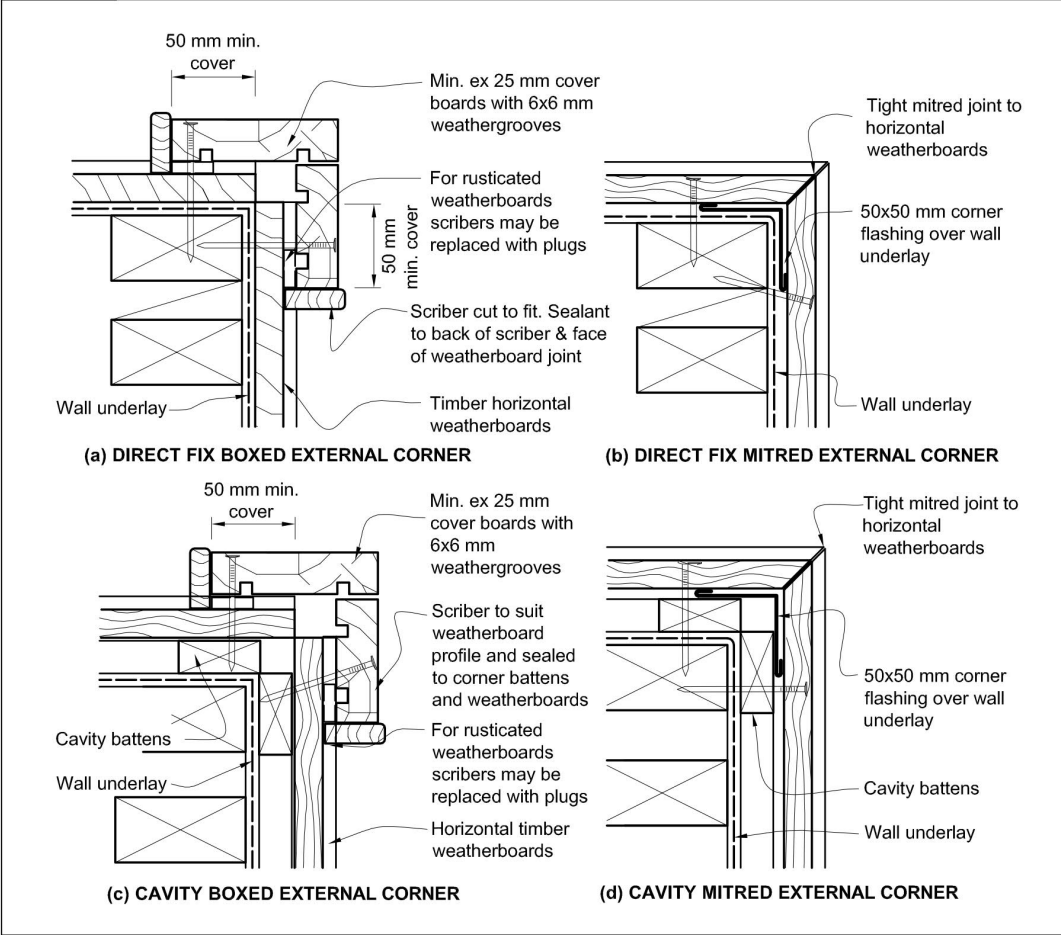


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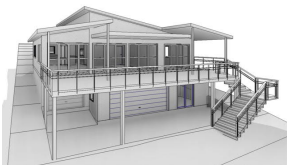
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Figure 78: External corners for horizontal weatherboards
Paragraph 9.4.4.4



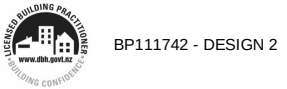
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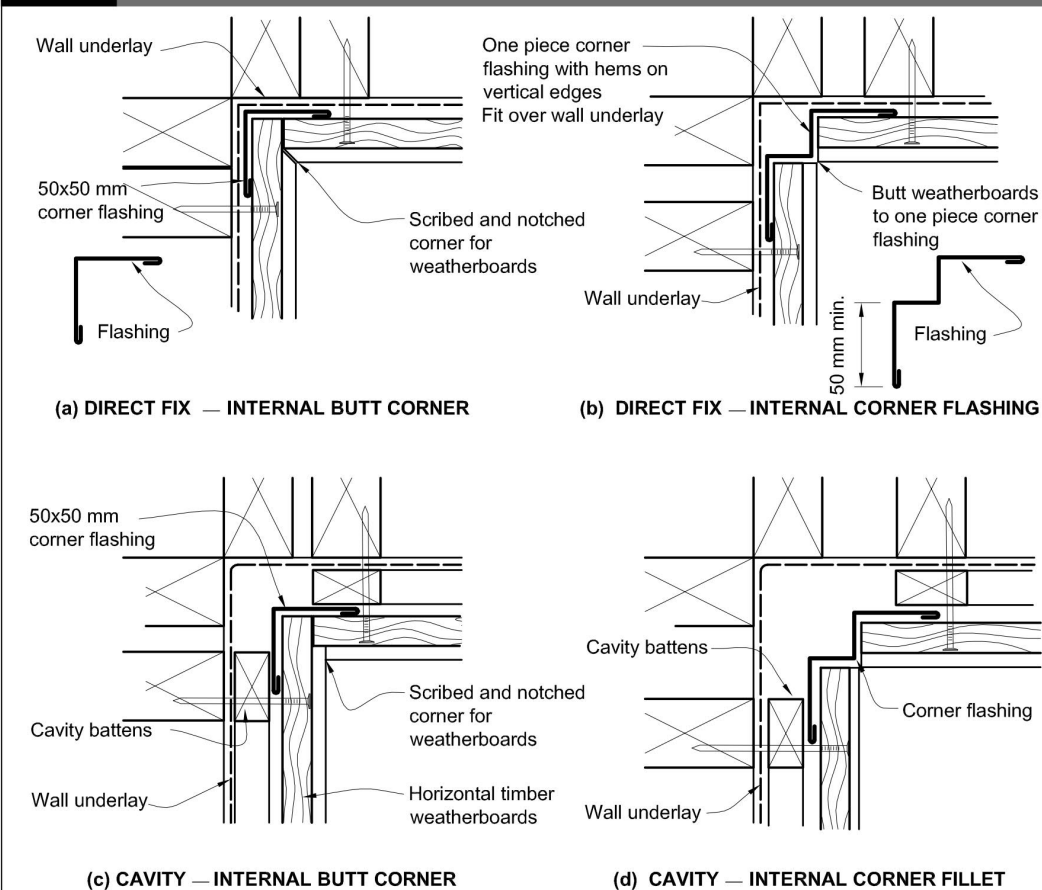
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Figure 79: Internal corners for horizontal or vertical weatherboards
Paragraph 9.4.4.5



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Aug 2011

9.4.5 Vertical weatherboards

Vertical shiplap and board and batten weatherboards shall be in continuous lengths over a storey height.

9.4.5.1 Laps

- Vertical shiplap weatherboards shall be fitted with a minimum gap of 2 mm at the overlap between boards.
- Board and batten weatherboards shall:
 - be fitted with a 5 mm to 8 mm gap between boards, and
 - have weather grooves to boards and battens aligned.

9.4.5.2 Fixings

Vertical weatherboards shall be fixed to *dwangs* at 480 mm maximum centres in accordance with Table 24.

9.4.5.3 Corners

a) External corners

External corners shall be weatherproofed by the use of corner facings as shown in Figure 80.

b) Internal corners

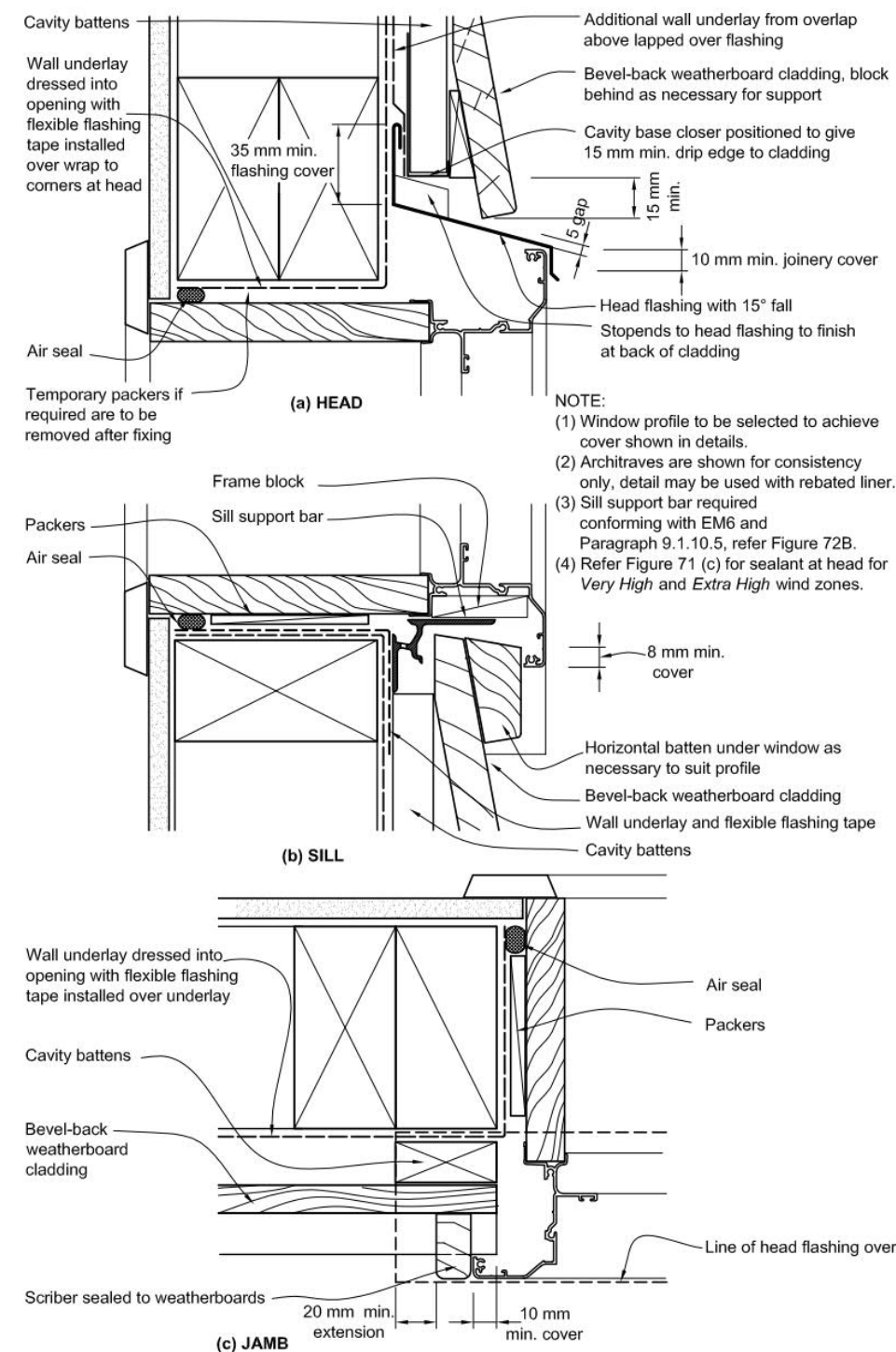
A corrosion-resistant corner *flashing*, as per Table 7 and Figure 79, shall be fitted behind the weatherboards at all internal corners.

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Amend 5
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Aug 2011

Figure 85: Windows and doors for bevel-back weatherboards on cavity
Paragraph 9.4.7



NOTE:

- Window profile to be selected to achieve cover shown in details.
- Architraves are shown for consistency only, detail may be used with rebated liner.
- Sill support bar required conforming with EM6 and Paragraph 9.1.10.5, refer Figure 72B.
- Refer Figure 71 (c) for sealant at head for Very High and Extra High wind zones.

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Top plate connections

For top plate connections refer to NZS3604:2011 section 8.7.3.

Parapets and gable end walls

Bracing elements must be fixed from top plate to bottom plate. Fixing to a row of nogs is not acceptable unless either:

A continuous member such as an ex 90 x 45mm ribbon plate is fixed across the studs just above a row of nogs at the ceiling line, as shown in figure 16.

or

GIBFix® Angle as shown in figure 17. The angle is fixed to a row of nogs with 30 x 2.5mm galv flat head nails or 32mm x 7g GIB® Grabber® Dual Thread Screws at 300mm centres.

Bottom plate fixing

TIMBER FLOOR

For elements with an 'N' specification use 2/100 x 3.75mm hand or 3/90 x 3.15mm power-driven nails at 600mm centres.

In addition, for elements with an 'H' specification, use GIB HandiBrac® panel hold-down fixings at each end of the bracing element, see p.16.

CONCRETE FLOOR – EXTERNAL WALL BRACING ELEMENTS

For bracing elements with an 'N' specification fix external wall plates in accordance with NZS 3604:2011.

Use GIB HandiBrac® panel hold-down fixings at each end of bracing elements with an 'H' specification and minimum intermediate fixings as required by NZS 3604:2011.

CONCRETE FLOOR – INTERNAL WALL BRACING ELEMENTS

For bracing elements with an 'N' specification fix plates in accordance with NZS 3604:2011 or use 75 x 3.8mm shot-fired fasteners with 16mm discs spaced at 150 and 300mm from end-studs and 600mm centres thereafter.

For bracing elements with an 'H' specification use GIB HandiBrac® panel hold-down fixings at each end of the element and minimum intermediate fixings as required by NZS 3604:2011.

FIGURE 16: PARAPETS AND GABLE ENDS WITH RIBBON PLATE

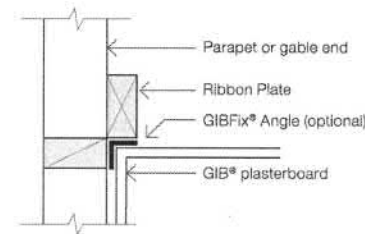
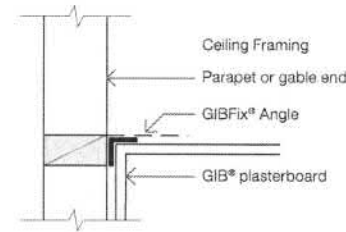


FIGURE 17: PARAPETS AND GABLE ENDS WITH GIBFIX® ANGLE



GFS003

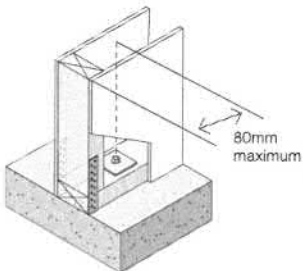
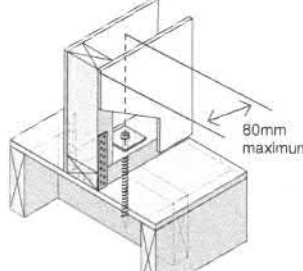
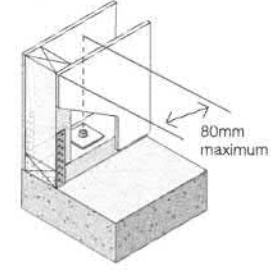
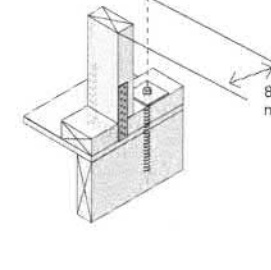
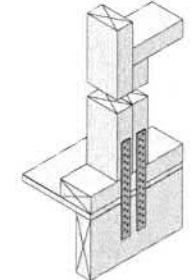
BOTTOM PLATE FIXINGS FOR GIB® BRACING ELEMENTS

Brace type	Concrete slabs		Timber floors
	External wall	Internal wall	External and Internal walls
GS1-N	As per NZS 3604:2011. No specific additional fastening required.	As per NZS 3604:2011. Alternatively use 75 x 3.8mm shot-fired fasteners with 16mm discs, 150mm and 300mm from each end of the bracing element and at 600mm thereafter.	Pairs of 100 x 3.75mm flat head hand driven nails or 3/90 x 3.15mm power driven nails at 600mm centres in accordance with NZS 3604:2011.
GS2-N	Not applicable.		
GS2-NOM			
GSP-H BL1-H BLP-H	Intermediate fastenings to comply with NZS 3604:2011. In addition: GIB HandiBrac® fixings or metal wrap-around strap fixings and bolt as illustrated on p.15 and 16.		Pairs of 100 x 3.75mm flat head hand driven nails or 3/90 x 3.15mm power driven nails at 600mm centres in accordance with NZS 3604:2011. In addition: GIB HandiBrac® fixings or metal wrap-around strap fixings and bolt as illustrated on p.15 and 16.
BLG-H	Not applicable	As for GSP-H, BL1-H, BLP-H on concrete slab as illustrated on p.15 and 16.	

Bracing strap installation

Care needs to be taken with the installation of the bracing strap. It should be checked in to be flush with the face of the stud providing a flat substrate for the plasterboard and

positioned in such a way that the corner fastenings of the bracing element are not affected by it. Keeping the strap to the edge of the end stud as shown will allow the corner fastenings to be installed without having to penetrate the bracing strap.

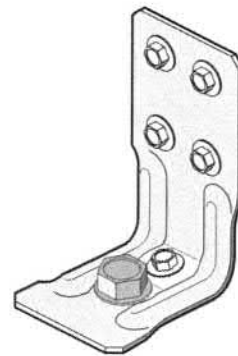
Concrete floor	Timber floor
400 x 25 x 0.9mm galvanised strap to pass under the plate and up the other side of the stud. Six 30 x 2.5mm flat head galvanised nails to each side of the stud. Three 30 x 2.5mm flat head galvanised nails to each side of the plate. Hold down bolt with 50 x 50 x 3mm washer to be fitted within 80mm of the end of the element.	
Internal wall	
	
GEB004	GEB005
External wall	
	
GEB006	GEB007
Note: Where applicable drawings have been produced for CAD design. These are identified by a unique number in the bottom corner of each detail box that can be found at gib.co.nz/library .	
2/300 x 25 x 0.9mm galvanised straps with six 30 x 2.5mm flat head galvanised nails to each stud and into the floor joist and three nails to the plate. Block to nog fixed with 3/100 x 3.75mm nails to stud.	
	
GEB008	
Hold-down fastener requirements	
Concrete floor	Timber floor
A mechanical fastening with a minimum characteristic uplift capacity of 15kN fitted with a 50 x 50 x 3mm square washer within 80mm of the ends of the bracing element.	12 x 150mm galvanised coach screw fitted with a 50 x 50 x 3mm square washer within 80mm of the ends of the bracing element

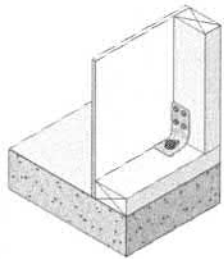
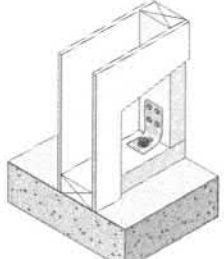
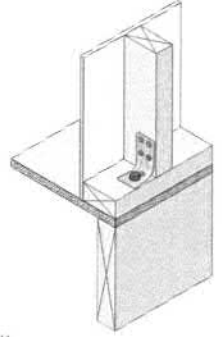
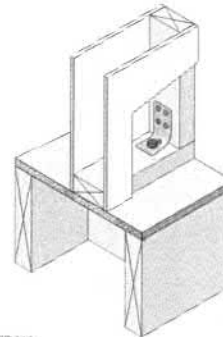
GIB HandiBrac® installation

Developed in conjunction with MiTek™, the GIB HandiBrac® has been designed and tested by Winstone Wallboards for use in GIB EzyBrace® elements that require hold-downs. The GIB HandiBrac® is a substitute for bottom plate hold-down straps.

- Quick and easy to fit.
- May be fitted at any stage before lining.
- Framing face is clear to allow flush lining.
- Easily inspected.

The GIB HandiBrac® with BOWMAC® blue head screw bolt is suitable for timber and concrete floors constructed in accordance with NZS 3604:2011.



Concrete floor		Timber floor	
External walls	Internal walls	External walls	Internal walls
			
GEB009	GEB010	GEB011	GEB012
Position GIB HandiBrac® as close as practicable to the internal edge of the bottom plate.	Position GIB HandiBrac® at the stud/plate junction and at mid-width of plate.	Position GIB HandiBrac® flush with the outside stud face, as close as practicable to the centre of the boundary joist.	Position GIB HandiBrac® in the centre of floor joist or full depth solid block.
Hold-down fastener requirements		12 x 150mm galvanised coach screw or use supplied BT10/140 screwbolt in GIB HandiBrac® pack.	
A mechanical fastening with a minimum characteristic uplift capacity of 15kN or use supplied BT10/140 screwbolt in GIB HandiBrac® pack.			

GIB HandiBrac® placement with GIBFix® Framing System for concrete floors

Figure 18 shows the preferred positioning of the GIB HandiBrac® panel hold-down brackets within the GIBFix® Framing System layout and where they are required by bracing systems with an 'H' in the specification code.

Note that, in corners and at wall junctions, a single GIB HandiBrac® can serve 'H' type bracing elements in both directions, but additional intermediate concrete anchors may need to be installed to meet the minimum requirements of NZS 3604:2011 for bottom plate fixing.

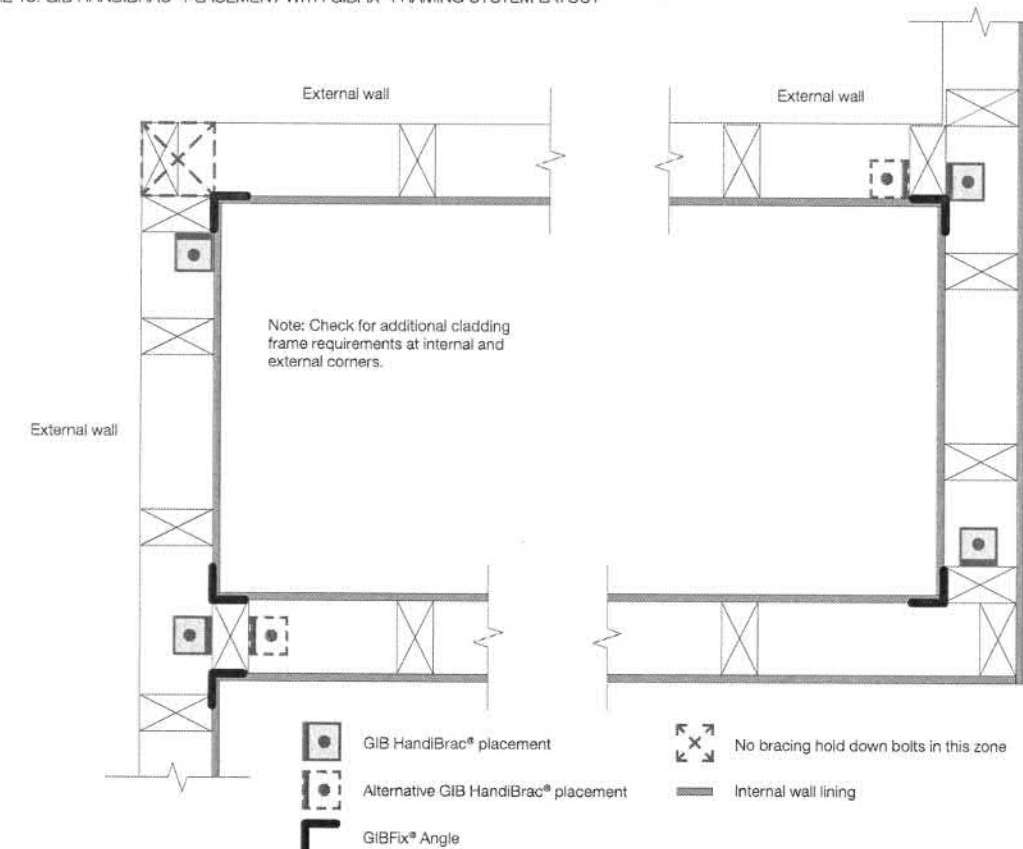
The GIB HandiBrac® is fixed to the stud which has the GIBFix® Angle.

For bracing elements with sheet material both sides of the wall connect corner studs using 8/90mm gun nails as shown in figure 19.

TIMBER FLOORS

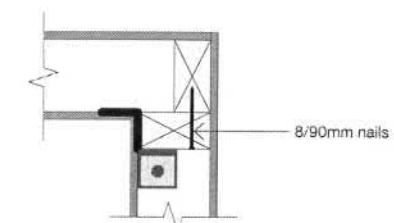
For timber floors bolt fixing in to solid joist or block is required, as shown on p 15.

FIGURE 18: GIB HANDIBRAC® PLACEMENT WITH GIBFIX® FRAMING SYSTEM LAYOUT



GEB013

FIGURE 19: STUD CONNECTION FOR 'H' TYPE BRACING ELEMENTS WITH SHEET MATERIAL BOTH SIDES



GEB014

GIB EzyBrace® Systems specification GS1-N

Specification code	Minimum length (m)	Lining requirement
GS1-N	0.4	Any 10mm or 13mm GIB® Standard plasterboard to one side only

WALL FRAMING

Wall framing to comply with;

- NZBC B1 — Structure B1/AS1 Clause 3 Timber (NZS 3604:2011).
- NZBC B2 — Durability B2/AS1 Clause 3.2 Timber (NZS 3602).

Framing dimensions and height as determined by NZS 3604:2011 stud and top plate tables for load bearing and non-bearing walls. The use of kiln dried stress graded timber is recommended.

BOTTOM PLATE FIXING

Timber floor

Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or three power driven 90 x 3.15mm nails at 600mm centres.

Concrete floor

Internal Wall Bracing Lines: In accordance with the requirements of NZS 3604:2011 for internal wall plate fixing or 75 x 3.8mm shot fired fasteners with 16mm discs spaced at 150mm and 300mm from end studs and 600mm centres thereafter.

External Wall Bracing Lines: In accordance with the requirements of NZS 3604:2011 for external wall bottom plate fixing.

WALL LINING

- Any 10mm or 13mm GIB® plasterboard lining.
- Sheets can be fixed vertically or horizontally.
- Sheet joints shall be touch fitted.
- Use full length sheets where possible.

PERMITTED ALTERNATIVES

For permitted GIB® plasterboard alternatives refer to p. 5 in GIB EzyBrace® Systems literature.

FASTENING THE LINING

Fasteners

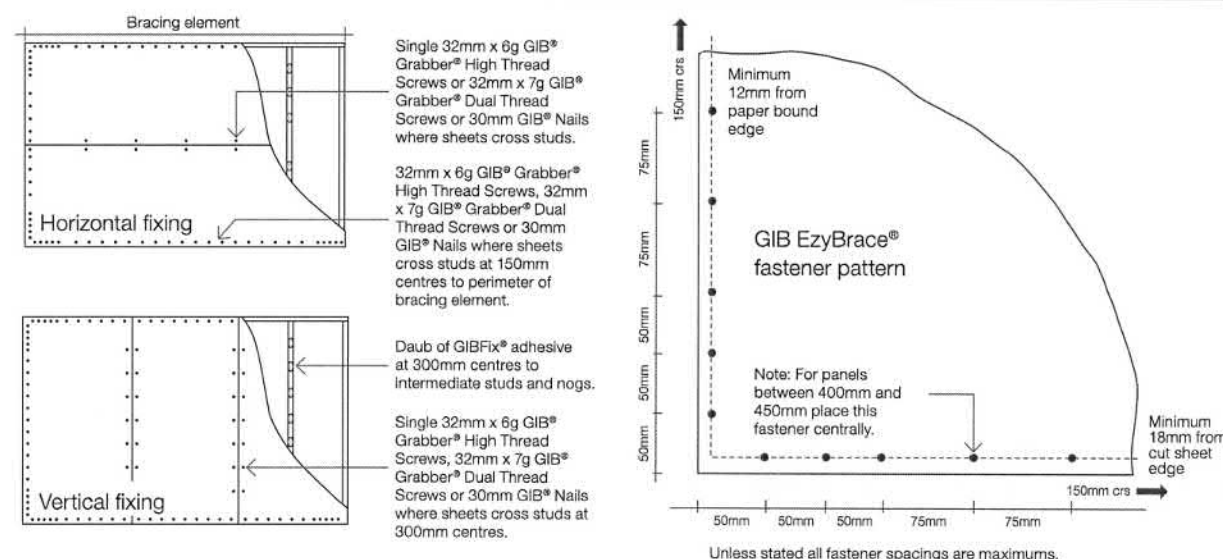
32mm x 6g GIB® Grabber® High Thread Screws, 32mm x 7g GIB® Grabber® Dual Thread Screws or 30mm GIB® Nails. If using the GIBFix® Angle use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

Fastener centres

50,100,150, 225, 300mm maximum from each corner and 150mm thereafter around the perimeter of the bracing element. For vertically fixed sheets place fasteners at 300mm maximum centres to intermediate sheet joints. For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud. Use daubs of GIBFix® adhesive at 300mm maximum centres to intermediate studs. Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge.

JOINTING

Joint strength is important in delivering bracing system performance. All fastener heads stopped and all sheet joints GIB® Joint Tape reinforced and stopped in accordance with the GIB® Site Guide.



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 the specifications. This specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems

GIB EzyBrace® Systems specification BL1-H

Specification code	Minimum length (m)	Lining requirement	Other requirements
BL1-H	0.4	10mm or 13mm GIB Braceline® to one side only	Hold downs

WALL FRAMING

Wall framing to comply with;

- NZBC B1 — Structure B1/AS1 Clause 3 Timber (NZS 3604:2011).
- NZBC B2 — Durability B2/AS1 Clause 3.2 Timber (NZS 3602).

Framing dimensions and height as determined by NZS 3604:2011 stud and top plate tables for load bearing and non-bearing walls. The use of kiln dried stress graded timber is recommended.

BOTTOM PLATE FIXING

Timber floor

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB EzyBrace® Systems or GIB® Site Guide.

Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or Three power driven 90 x 3.15mm nails at 600mm centres.

Concrete floor

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB EzyBrace® Systems or GIB® Site Guide. Within the length of the bracing element bottom plates are to be fixed in accordance with the requirements of NZS 3604:2011.

WALL LINING

- A layer of 10mm or 13mm GIB Braceline®
- Sheets can be fixed vertically or horizontally.
- Sheet joints shall be touch fitted.
- Use full length sheets where possible.

PERMITTED ALTERNATIVES

For permitted GIB® plasterboard alternatives refer to p. 5 in GIB EzyBrace® Systems literature.

FASTENING THE LINING

Fasteners

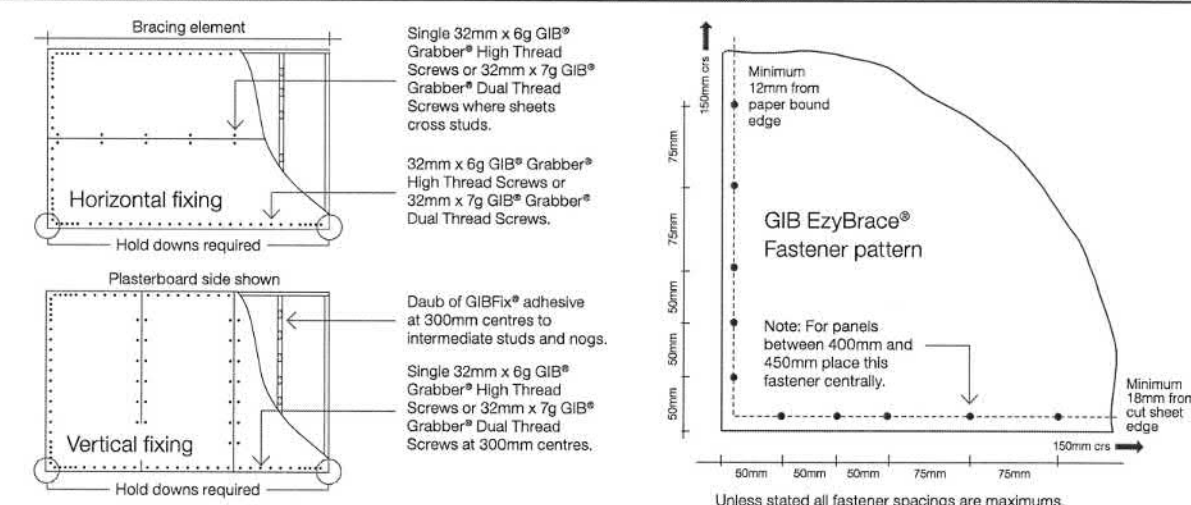
32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

Fastener centres

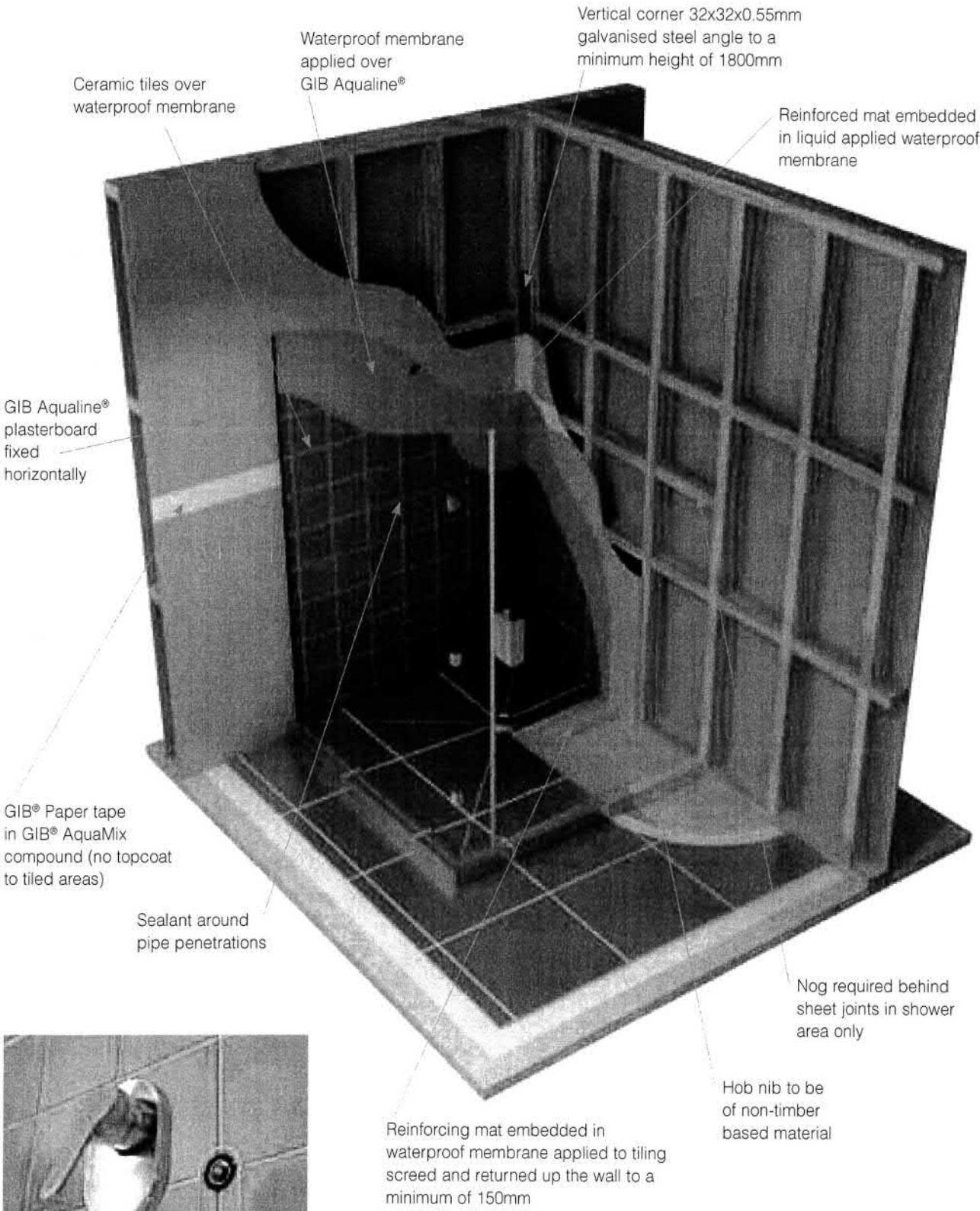
50,100,150, 225, 300mm from maximum each corner and 150mm thereafter around the perimeter of the bracing element. For vertically fixed sheets place fasteners at 300mm maximum centres to the sheet joint. For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud. Use daubs of GIBFix® adhesive at 300mm maximum centres to intermediate studs. Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge.

JOINTING

Joint strength is important in delivering bracing system performance. All fastener heads stopped and all sheet joints GIB® Joint Tape reinforced and stopped in accordance with the GIB® Site Guide.

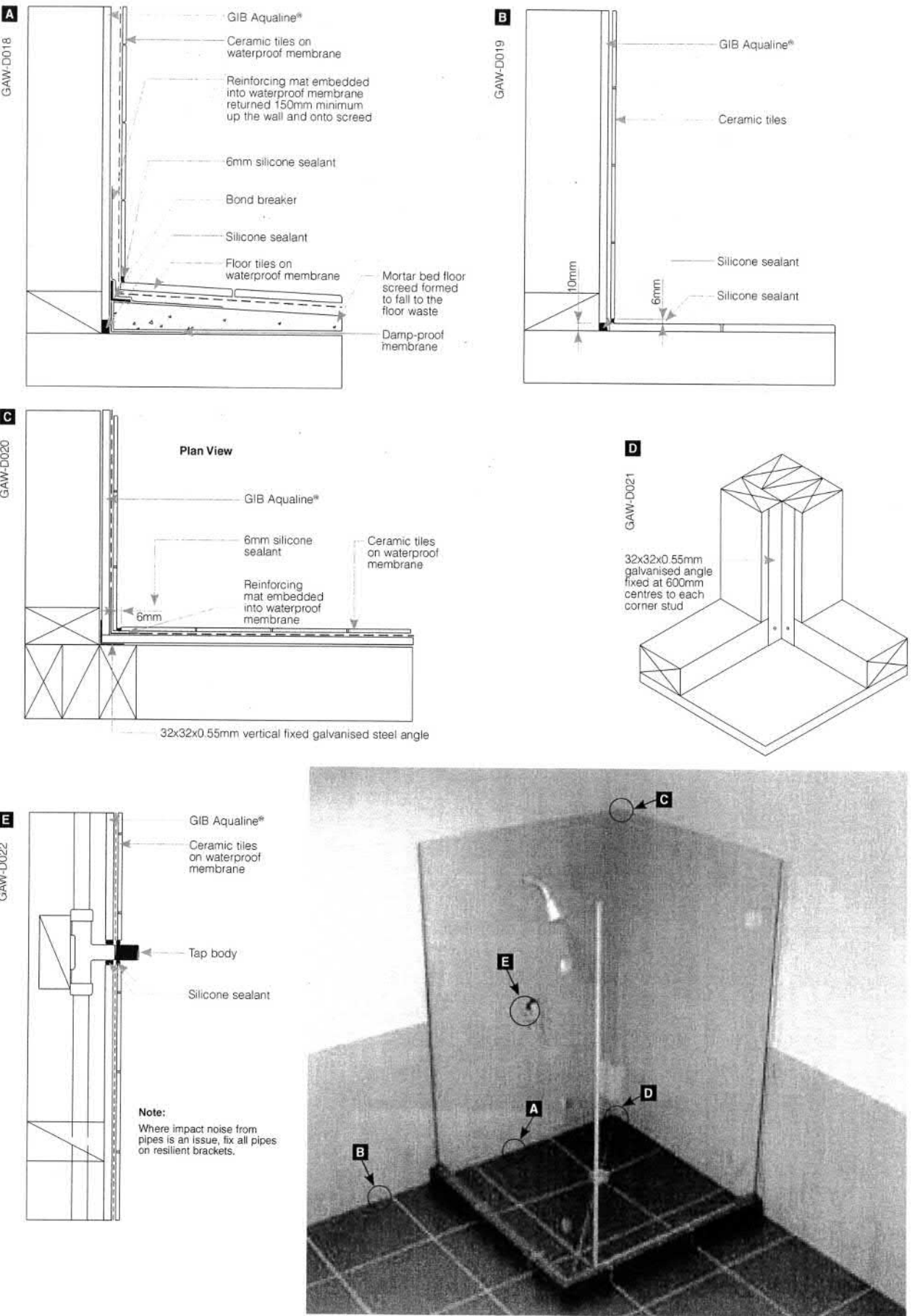


In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems



Run a bead of silicone sealant around the mixer unit on the tiles extending below the bottom of the pipe aperture.

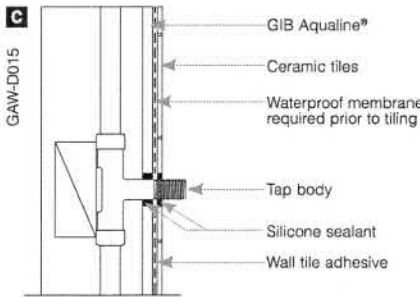
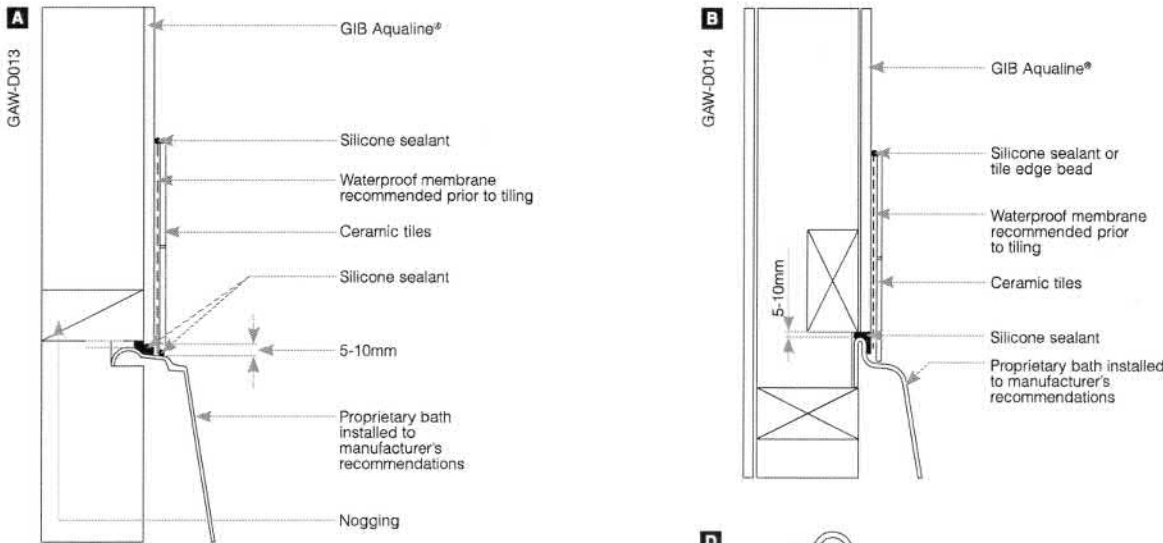
For typical details, see the following pages.



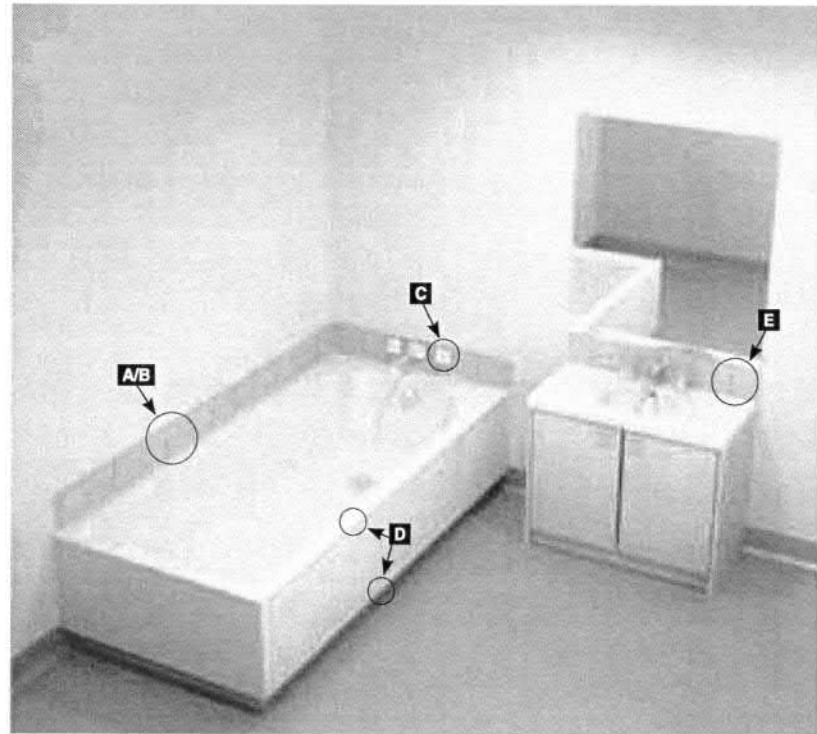
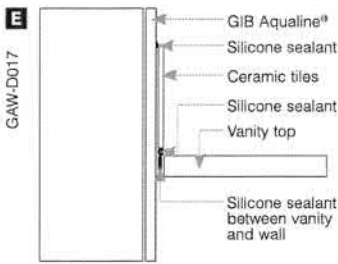
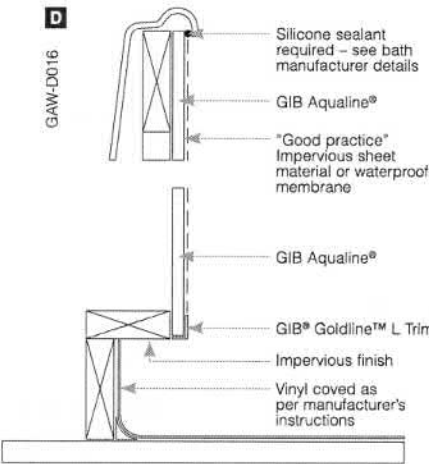


Bath – Tiled Uprand

MARCH 2007



Note:
Where impact noise from pipes is an issue, fix all pipes on resilient brackets.

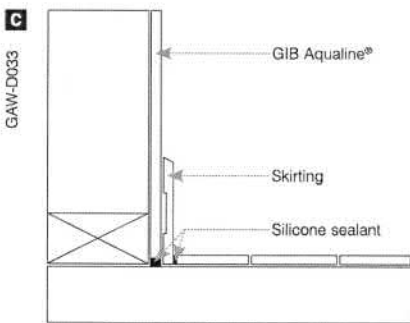
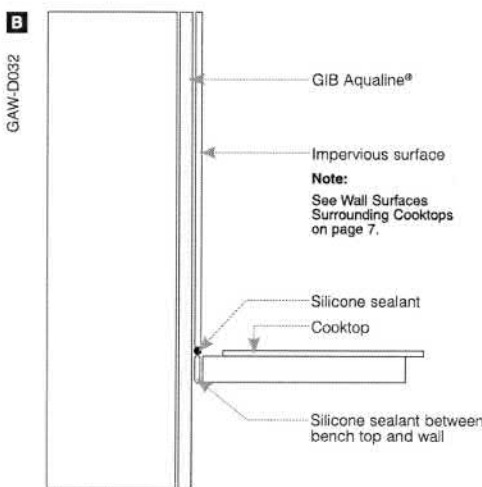
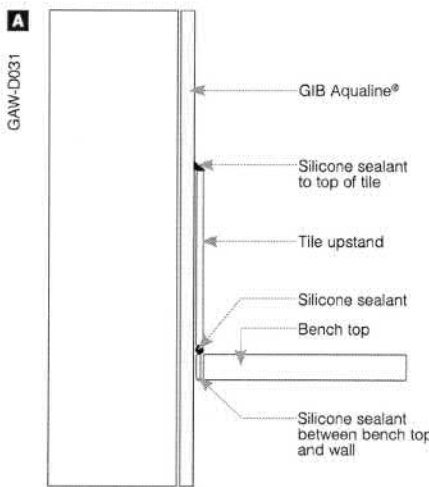


GIB AQUALINE® WET AREA SYSTEMS

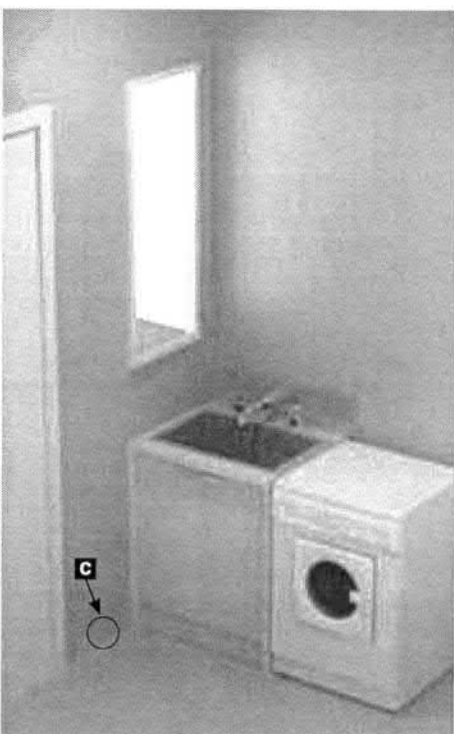


Kitchen and Laundry

MARCH 2007



GIB AQUALINE® WET AREA SYSTEMS





Important: See page 6 and 7 for waterproof membrane requirements.

Wall Framing

Framing dimensions and spacing must comply with the requirements of NZS 3604:1999 or relevant NZ Standard.

- Prior to lining in tiled areas (shower cubicles and shower over bath only) the internal corners shall be reinforced with a minimum 32 x 32 x 0.55mm galvanised metal angle. Each side of the angle shall be fastened to the framing with 30mm galvanised clouts at 300mm centres
- Steel stud systems do not generally require nogs except as below:
 - Adjacent to each pipe penetration and behind sink and tub flashings
 - Between all studs above bath flanges and preformed shower bases
- For impact protection in shower cubicles or shower over bath situations it is important that all sheet joints are made on solid framing. This may require either vertical fixing of the GIB Aqualine® or the installation of some additional nogs.

Fasteners

- For 10mm GIB Aqualine® use minimum 25mm x 6g GIB® Grabber® Drywall Screws
- For 13mm GIB Aqualine® use minimum 32mm x 6g GIB® Grabber® Drywall Screws.

Fastener Centres

- GIB® Grabber® Drywall Screws at 100mm centres to perimeter of wall and to all intermediate studs
- Adhesive is not to be used in place of mechanical fastenings.

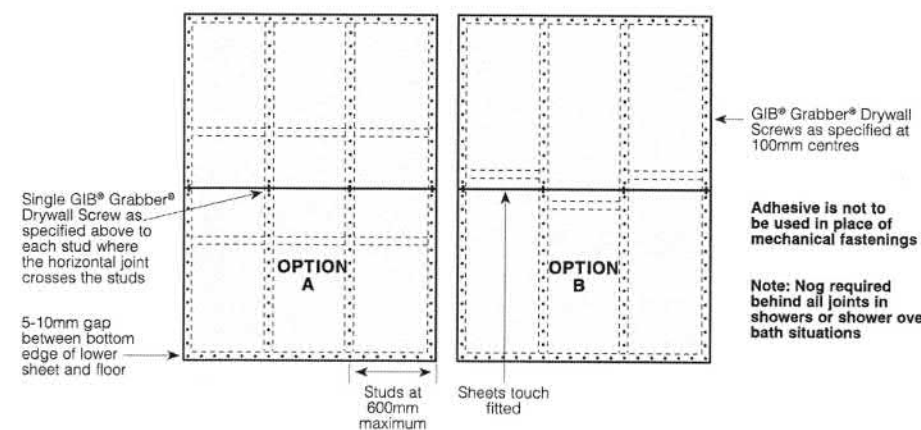
Lining

- 10mm or 13mm GIB Aqualine® is suitable for use on timber framing and for tile weights up to 20kg/m²
- 13mm GIB Aqualine® must be used for tile weights between 20 and 32kg/m² and when light steel framing has been used
- GIB Aqualine® may be fixed vertically or horizontally
- Provide a 5-10mm gap at the wall/floor junction
- Provide a 5-10mm gap between the bottom edge of the GIB Aqualine® and any bath rim or preformed shower base to allow for placement of sealant
- GIB Aqualine® sheets shall be touch fitted
- Where the framing or fastener centres required for tiled areas are closer than those specified for GIB® Fire Rated and GIB® Noise Control Systems, the tiling specification shall prevail. Where relevant, check that fastener lengths comply with the requirements of GIB® Fire Rated Systems or GIB® Noise Control Systems.

Jointing

- Jointing shall be carried out in accordance with instructions in the *GIB® Site Guide*
- Water resistant GIB® AquaMix is recommended for the first two coats
- No top coat is required.

Fastening the Linings – Horizontal Fixing in Tiled Areas



Note:

GIB Aqualine® is suitable for tiling to full height of walls, but if a wall is to be partially tiled (i.e. half high), only the area of wall under the tiles needs to be fixed as above. The remainder of the wall may be fixed as for non-tiled area (see page 10 & 11).



Ceiling Framing

Framing dimensions and spacing must comply with the requirements of NZS 3604:1999 or relevant NZ Standard.

If bracing, noise control, fire rating considerations exist consult the relevant GIB® publication for appropriate information.

Fasteners

- Steel battens – 25mm x 6g GIB® Grabber® Self Tapping Drywall screws
- Timber battens or Joists – 32mm x 6g GIB® Grabber High Thread Drywall screws.

Adhesives

- Steel battens – GIBFix® All-Bond
- Timber battens – GIBFix® Wood Bond (not suitable for LOSP treated timber).

Fasteners Centres

- Single screws to the edges and centre of the sheets across each batten
- Screws to be 12mm from sheet edges
- Daubs of adhesive at 200mm centres between the screws
- Do not place adhesive at sheet edges or under fasteners, this may lead to screw or nail pops.

Lining

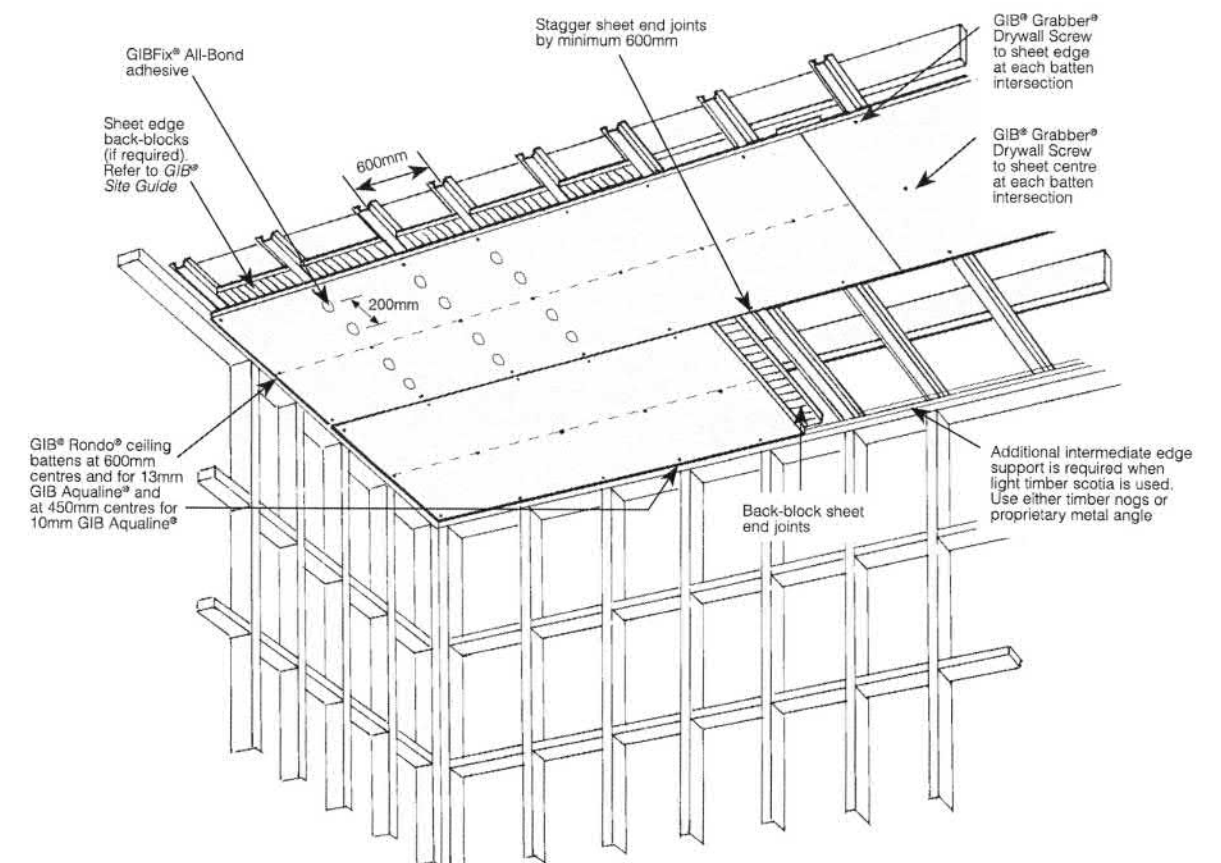
- The lining shall be fixed at right angles to the battens or joists
- Commence fixing from the centre of the sheets outwards
- Sheets to be touch fitted
- Use long length sheets to minimise sheet end butt joints
- Back-block sheet end butt joints
- See GIB® Site Guide for sheet edge backblocking requirements.

Batten Spacings

- 13mm GIB Aqualine® plasterboard – 600mm centres max
- 10mm GIB Aqualine® plasterboard – 450mm centres max.

Jointing

- All sheet joints must be paper tape reinforced and stopped in accordance with instructions in the *GIB® Site Guide*. Water resistant GIB® AquaMix is recommended for the first two coats.
- Do not fix tiles to GIB® plasterboard ceilings.





ARDEX WPM 002

(Superflex Bathroom and Balcony Two Part)

Two Component Undertile Waterproofing Membrane

Advanced acrylic – will not re-emulsify

Liquid reinforced – eliminates the need for reinforcing mat

Water based – safe to use, low odour and easy cleaning

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Email: techinfo@ardexaustralia.com
Internet: www.ardex.com

Ardex WPM 002

(Superflex Bathroom and Balcony Two Part)

Two Component Undertile Waterproofing Membrane

PRODUCT DESCRIPTION

Ardex WPM 002 (Superflex Two Part) is a tough, fast drying two component waterproofing membrane specifically designed for use under tiles. The product has been uniquely formulated with synthetic microfibres to increase its strength and eliminate the need for a separate reinforcement mat. Ardex WPM 002 is based on the most advanced acrylic polymer technology, and is totally resistant to re-emulsification.

Ardex WPM 002 is flexible, safe to use, low in odour, and is fully compatible with polymer modified tile adhesives. Ardex WPM 002 is one of the fastest drying acrylic membranes on the market – normally ready to tile in 48 hours @ 23°C.

FEATURES/BENEFITS

Fast drying Ardex WPM 002 can be tiled over in 48 hours, or 4 hours @ 23°C/50% RH in non critical areas*.

Features benefits

- Liquid reinforced: Excellent strength, eliminates need for reinforcing mat.
- Flexible: Accommodates normal building movement.
- Advanced acrylic: Will not re-emulsify.
- Designed for tiling – Fully compatible with ABA/ArDEX tile systems adhesives.
- Water based, safe to use, low odour and easy cleaning for undertile waterproofing in shower recesses by independent testing authority.
- Excellent exterior.

*Critical areas include areas where the membrane is applied at greater than 0.5mm or over impermeable substances such as over bond breakers or incorporating other reinforcement. Longer drying times are necessary in these areas.

APPLICATION RANGE

Performance levels

Commercial and residential.

Location

Internal and external wet areas, balconies, decks, and other areas that will be tiled or otherwise protected from regular foot traffic.

Surfaces

Walls and floors.

Substrates

Concrete	Cured for min. 28 days or sealed set with one coat Ardex WPM 300 at a coverage rate of 3.0 square metres per litre and allowed to cure overnight. Wet concrete should be allowed to dry thoroughly or sealed with one coat of Ardex WPM 300 as above.
Renderers and screeds	Cured for min. 7 days or sealed when set with one coat Ardex WPM 300 at a coverage rate of 3.0 square metres per litre and allowed to cure overnight. Wet render should be allowed to dry thoroughly or sealed with one coat of Ardex WPM 300 as above.
Fibre cement	Wet area grade only.
Plasterboard	Wet area grade only.
Plywood	Structural plywood (PAA branded) or marine grade or other wet area grade only. Not recommended for external use (refer Ardex).
Particleboard	Wet area grade, internal use only (special preparation is required – contact Ardex). Not recommended for external use (refer Ardex).
Permanent Immersion	In conditions of permanent immersion, it is recommended that WPM 002 must be covered with tiles for full immersion applications.

Contact Ardex for use over existing membranes, covering materials, and any other substrates not listed.

SPECIFICATION CLAUSE

ARDEX WPM 002 (Superflex Two Part)

The waterproofing membrane shall be Ardex WPM 002, a two component cementitious acrylic modified fibre reinforced membrane formulated to provide a tough, long lasting water barrier under tiling systems.

PACKAGING

Two component: 20kg (approx 20 litres) liquid pail/
2 x 10kg bags powder.

SHELF LIFE

12 months when stored in the original unopened packaging, in a dry place at 23°C. Do not store in direct sunlight. Replace lid tightly after use. Use remaining contents from part used containers within 3 months.

Ardex WPM 002

(Superflex Bathroom and Balcony Two Part)

Two Component Undertile Waterproofing Membrane

TABLE 1

	Thickness per coat		Total dry film thickness (2 coats)	Theoretical coverage		Per unit
	Dry film	Wet film		Per coat	For 2 coats	
FLOORS	0.6mm	0.9mm	1.2mm	32m ²	16m ²	40kg unit
WALLS	0.4mm	0.6mm	0.8mm	48m ²	24m ²	40kg kit

COVERAGE

Two coats are recommended for an effective waterproof membrane.

Coverage will vary depending on the porosity of the surface.

One 40kg unit will cover approximately 18-20m (based on two coats) depending on area requirements between wall and floor surfaces to be treated.

DRYING TIMES

Recoat time

1-2 hours (23°C/50% RH) between first and second coats. Alternatively, if a polyester mat is used between coats then the second coat can be applied whilst the first coat is still wet.

Dry through

The slowest drying areas are those where the membrane has been applied over a silicone bond breaker, eg. wall and floor junctions. The membrane cannot be tiled over until these critical areas are completely dry.

Ardex WPM 002 membrane is totally dry in 48 hours at 23°C/50% RH but can take up to 72 hours at 10°C / 50% RH in corners or for thick films.

In areas where bond breakers or additional reinforcement are not used, Ardex WPM 002 can be tiled over after 4 hours at 23°C / 50% RH.

Fully cured

The shower should not be used until the membrane has reached its full strength. Normally Ardex WPM 002 membranes are fully cured after 3 days at 23°C, or after 5 days at 10°C.

Drying times will vary depending on humidity, surface temperature and surface porosity.

Do not apply on substrates where the surface temperature is below 10°C or above 35°C.

CLEANING

Wash hands, brushes, rollers, etc, with water while the membrane is still fresh. Remove cured material with mineral turpentine.

PRECAUTIONS

Do not use the product in the following situations:

- Areas subject to negative hydrostatic pressure or rising damp, unless treated with Ardex WPM 300.
- Where the substrate is wet – wet surfaces can be sealed with one coat of Ardex WPM 300 at a coverage rate of 3.0 square metres per litre and allowed to cure overnight.
- Where rain is imminent.
- Where the membrane will be left exposed and subjected to regular foot traffic.
- On glazed, glass or other totally impervious surfaces (eg. areas pre-treated with water repellants).
- Where the surface temperature is below 10°C or greater than 35°C.
- All floor areas must have adequate falls either built into the substrate or achieved with a sand/cement screed prior to application of the Ardex WPM 002.

For substrates or situations other than those listed contact Ardex.

SAFETY DATA

Ardex WPM 002 is non-toxic. However, the contents should not be swallowed or inhaled. In case of eye contamination, rinse thoroughly with clean water. If irritation continues seek medical advice.

Material Safety Data sheets are available from Ardex upon request.

APPLICATION

Apply Ardex WPM 002 by brush or roller. A medium nap (12–15mm pile) paint roller is recommended. New rollers should be dampened with water before being used for the first time.

For best results with a paint brush use a good quality, 50mm long bristle variety.

To achieve the required dry film thickness per coat application must consist of laying the product onto the surface and light finish the surface. Do not try to apply in the same manner as a building paint. A conventional building paint is normally applied at 25–40 micrometers wet film thickness while Ardex WPM 002 needs to be applied at between 0.6 and 0.9 millimeters per coat depending on product and application (Refer Table 1).

Critical areas:

INTERNAL WET AREAS

1. Construction should be in accordance with Australian/New Zealand Standard 3740.
2. All render and tile bed requirements should be completed before application of the membrane and tiles or other floor coverings should be direct bonded to the membrane.
3. Ensure wall and floor sheets are installed as per sheet manufacturer's recommendations.
4. Ensure suitable brick/concrete hobs are used (do not use timber), and that the top of the hob does not slope outwards.
5. Ensure that falls to the waste are min 1:60 (ie. approx. 30mm in 2mtr) before waterproofing. Ensure outlet pipes are fixed securely and that the waste or drainage flanges are recessed into the floor.
6. Avoid sheet joints in shower recess floor. Ensure that sheets are securely fixed to the wall at the bottom edge, and sheet joints are sealed with a neutral cured silicone sealant spread approximately 5mm on either side of the joint.

7. Treat nail and screw holes with neutral cure silicone sealant.
8. Seal the perimeters of taps, shower outlets and waste outlets with neutral cure silicone sealant.
9. Apply a bead of neutral cure silicone sealant to all horizontal and vertical corners.
10. Apply a bead of neutral cure silicone sealant to the junction of the hob or angle and walls.
11. Waste outlets shall incorporate a puddle flange or similar in accordance with AS3740 and the top surface shall be set flush with the surface to which the membrane is to be applied. A bead of neutral cure silicone shall be applied across the intersection of the puddle flange and the screed/floor.
12. Apply the membrane to the entire shower recess floor and down into waste or drainage flange. Apply the membrane over the hob and at least 100mm beyond the outside edge of the hob (ideally to entire wet area floor).
13. Apply the membrane 1800mm up the walls or to the height of the shower rose within the shower recess.
14. Install the shower screen to inside edge of the hob.

BALCONIES AND DECKS

1. Ensure that the deck is constructed with falls to edge/drains of min 1:100 (ie. 20mm in 2mtr) or else achieve the fall with a sand/cement screed.
2. Ensure a min set down (step down) of 50mm to the finished floor level (ie. top of tiles).
3. Ensure suitable flashing is installed, ideally prior to the installation of the balcony screen/sliding door.
4. Treat any sheet joints with a neutral cure silicone prior to waterproofing.
5. Prepare and seal all wall/floor junctions with a bead of neutral cure silicone.

Fig.1 – Shower recess – critical areas

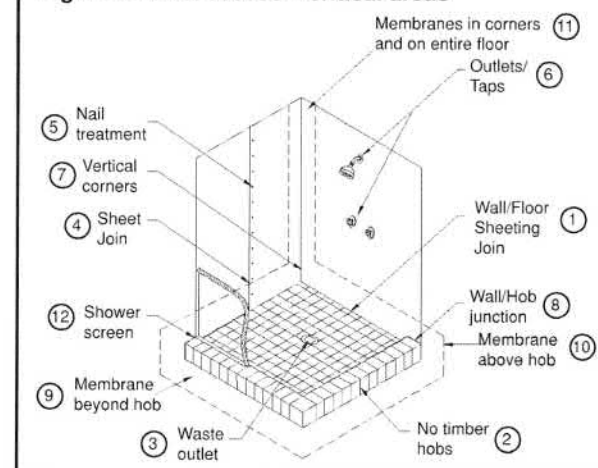
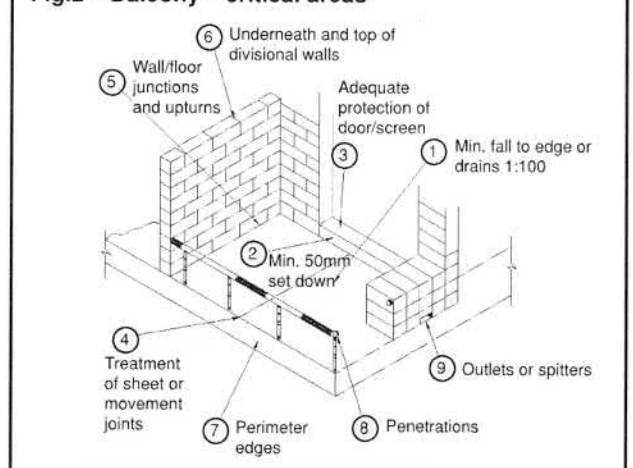


Fig.2 – Balcony – critical areas



Ardex WPM 002

(Superflex Bathroom and Balcony Two Part)

Two Component Undertile Waterproofing Membrane

6. Apply the membrane up the step down and as far up underneath the screen door flashing as possible (ideally waterproof prior to installing door).
7. Where possible, apply the membrane prior to building divisional walls.
8. Apply the membrane to the entire balcony floor and at least 50mm up the wall above the top surface of the finished tiles and finished below the wall drainage vents.
9. Apply the membrane to the top of the parapets and divisional walls, or else install suitable metal capping.
10. Apply the membrane down over the front edge of the balcony onto the drip rail.
11. Carefully seal any gaps around balcony penetrations prior to applying the membrane.
12. Apply the membrane down into outlets and drains, ensuring excess material is removed.
13. Ensure all weep holes are above the membrane application area.

APPLICATION NOTES

Surface preparation

- Ensure all surfaces are structurally sound and totally dry. The pores of concrete surfaces should be open (absorbent surface). All sheet substrates must be securely fixed in accordance with the manufacturers instructions.
- Falls to outlets of at least 1:60 or approx. 25mm in 2mtr (wet areas) or 1:100 externally, must be achieved prior to tiling.
- The surface to be coated should be free from dust, oil, paint, curing compounds and any other contaminating materials.
- Damaged concrete should be repaired (leveled) and surface defects including all cracks and sharp protrusions should be treated prior to the application of the membrane.
- Remove laitance on concrete or screeds by mechanical means.
- Highly dense (>40MPa) or steel trowelled concrete should be roughened by suitable mechanical means (shot blasting, grinding, etc).

Priming

The primer is a critical part of the waterproofing system. Apply one coat of Ardex WPM 265 water based primer by brush or roller to all areas to be waterproofed including the floor waste. Allow the primer to be completely dry prior to the application of the Ardex WPM 002 membrane. This will take around 20-30 minutes depending upon weather conditions and porosity of the substrate. Coverage is approximately 6m² per litre. Plastic (eg. PVC) pipes should be primed with a solvent based plumbers pink primer. Prime metal surfaces with a suitable metal primer such as epoxy polyamide primer.

GENERAL APPLICATION

Crack preparation

Cracks <2mm:

Clean and remove any loose particles in the crack. Prime the crack and adjacent area carefully with Ardex WPM 265 water based primer and allow to dry before applying two coats of Ardex WPM 002 membrane, in a band at least 200mm wide equidistantly across the crack, along the length of the crack.

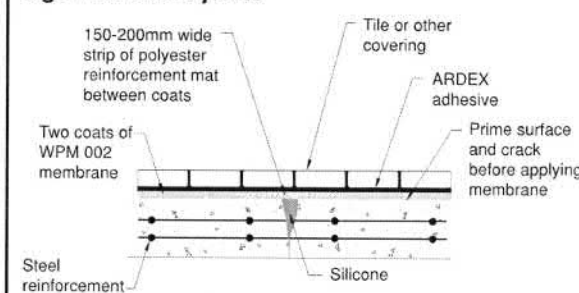
Cracks 2-6mm:

(Refer Fig. 3) prepare and prime the crack as opposite. Apply a bead of neutral cure silicone into the crack and extend it 5mm either side. Apply a 300mm wide band of Ardex WPM 002 equidistantly across the crack along the entire length of the crack. Place a 200mm wide band of Ardex "Deckweb" polyester woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat.

Cracks >6mm:

Contact your local Ardex representative.

Fig.3 Movement joints



Movement/construction joints

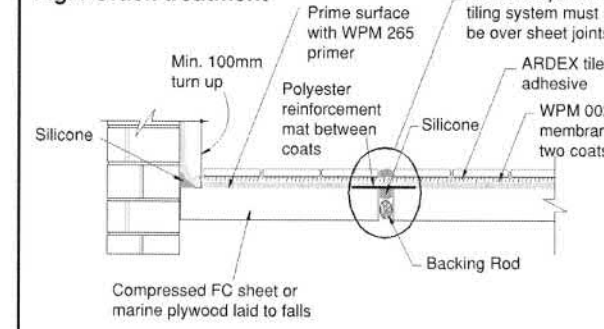
Movement joints (<6mm)

Clean and prime the joint before filling it with a bead of neutral cure silicone and extending it 5mm each side of joint. Apply a 300mm wide band of Ardex WPM 002 (Superflex Two Part) equidistantly across the crack along the entire length of the crack. Place a 190mm wide band of Ardex "Deckweb" polyester woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat.

Construction joints (>6mm)

Use the same procedure as above, but replace the reinforcing mat with the Ardex Joint Bridging Band. Note: if tiling, movement joints should be taken to the surface of the tiles. Fill the joints between the tiles immediately above the movement joints with an appropriate joint sealant. (Refer Fig.4)

Fig.4 Crack treatment



Corners and covering areas

After priming with Ardex WPM 265 water based primer and allowing to dry, apply a generous bead (10mm) of neutral cured silicone sealant in coving areas and corners. (Refer Fig.5) Smooth over the silicone so that it extends 5mm up the wall and 5mm over the floor and allow to touch dry.

Apply a first coat of Ardex WPM 002 to the area and allow the membrane to dry.

Apply a second coat ensuring that excess product is removed from the junction (the final dry film thickness should be around 1.0mm) Alternatively, if a polyester reinforcement mat is used between coats then the second coat can be applied as soon as the mat is fully bedded into the first coat.

WALL/FLOOR JUNCTION

After priming with Ardex Superflex WPM 265 water based primer and allowing to dry, apply a 300mm wide band of

Ardex WPM 002 (Superflex Two Part) equidistantly across the crack along the entire length of the crack. Place a 200mm wide band of Ardex "Deckweb" polyester woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat. The Ardex WPM 002 should be applied to at least 100mm up the wall surfaces as per the recommendations for the application of Ardex WPM 002 to floors.

Walls

Two coats of Ardex WPM 002 are required to achieve a minimum total dry film thickness of 0.5mm.

After priming with Ardex Superflex WPM 265 water based primer and allowing to dry, apply two coats of Ardex WPM 002 (to achieve a minimum dry film thickness of 0.5mm) in two opposite directions. Wall sheets joints should be treated with a neutral cure silicone, PVC duct tape or base jointing compound. In balcony situations take the membrane up underneath any existing cover flashing or install appropriate flashing. Allow the first coat to dry before applying the second coat.

Floors

Two coats of Ardex WPM 002 are required to achieve a minimum total dry film thickness of 1.0mm. The flooring recommendations should be extended at least 100mm up all perimeter walls.

Prime the surface with Ardex WPM 265 water based primer and allow to dry.

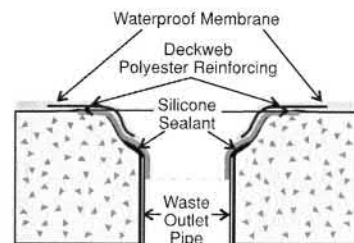
Apply the first coat over the primed surface and allow it to dry (1-2 hours at 23°C, 50% RH) before applying a second coat in an opposite direction. In shower recesses a drainage flange must be installed on all timber/sheeted floors, and are strongly recommended on all other substrates. Where possible rebate the flange into the floor. Seal the perimeter of the flange with neutral cure silicone treatment. If a flange is not installed the membrane must be applied down into the pipe. (Refer Fig.5) Allow the membrane to dry completely before tiling. Refer drying times above.

Waste outlet

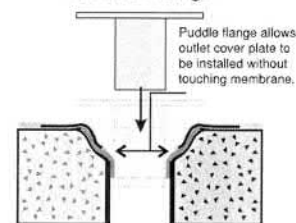
Prime the surface with Ardex WPM 265 water based primer and allow to dry. Surfaces of outlet flange must be primed with an appropriate primer.

Apply Ardex WPM 002 (Superflex Two Part) over the adjacent floor surface extending down into the waste outlet pipe overlapping the pipe surfaces by at least 30mm. Place Ardex "Deckweb" polyester woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat. (Refer Fig. 5).

Fig.5 – Waste outlet



Outlet Detail Using Puddle Flange



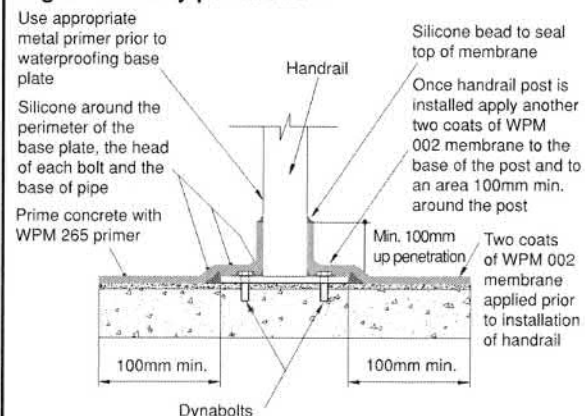
Balcony penetrations (Refer Fig.6)

All upstands are to be mechanically fixed through the membrane, which must be fabricated with a base plate flange.

Prime the metal with an appropriate metal primer such as an epoxy polyamide primer and allow to dry. Apply a 10mm bead of neutral cure silicone around the perimeter of the penetration. Apply the first coat of Ardex WPM 002 on the substrate and the flanged metal.

Allow first coat to dry before applying a second coat ensuring a finished dry film thickness of no less than 1.0mm is achieved. Place a suitable flashing collar around the penetration sealing it with a suitable sealant.

Fig.6 – Balcony penetration



Tiling systems

It is advisable to conduct a flood test of the shower once the membrane has cured (normally after 72 hours), and before the tiling commences. A broad range of Ardex tile adhesives can be used over Ardex Superflex membranes. Contact Ardex or your nearest Ardex stockist for advice on the most suitable system.

QUALITY PRODUCT

Ardex WPM 002 is manufactured and tested to Ardex procedures which are maintained in accordance with Quality System Standard ISO 9001.

USER NOTES

The technical details and recommendations contained in this data sheet are given in good faith and represent the best of our knowledge and experience at the time of printing. It is the responsibility of the user to ensure that the product is used in accordance with Ardex instructions and in applications for which they are intended.

TECHNICAL DATA

Ardex WPM 002

Characteristics of components

Form & Colour Liquid: white, medium viscosity
Powder: off white

Characteristics of mixed product

Mixing Ratio 1:1 by weight
SG of mixed product 1.44kg/litre
Non Volatile Matter 77±1%
Colour light grey/green

Characteristics of cured membrane

Shore A hardness ASTM D2240
– dry film 85 – 90
– wet film 75 – 80

Tensile Strength
7 days dry AS1145 1.3 MPa

Elongation at Break
7 days dry AS1145 333%

NOTE: Most of the tests have been carried out in the Ardex laboratory under standard conditions (23±2°C, 50±5% RH)

DISCLAIMER

The technical details, recommendations and other information contained in this data sheet are given in good faith and represent the best of our knowledge and experience at the time of printing. It is your responsibility to ensure that our products are used and handled correctly and in accordance with any applicable Australian Standard, our instructions and recommendations and only for the uses they are intended. We also reserve the right to update information without prior notice to you to reflect our ongoing research and development program.

Country specific recommendations, depending on local standards, codes of practice, building regulations or industry guidelines, may affect specific installation recommendations.

The supply of our products and services is also subject to certain terms, warranties and exclusions, which may have already been disclosed to you in prior dealings or are otherwise available to you on request. You should make yourself familiar with them.

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South Australia	Ph (08) 8268 2511	Fax (08) 8345 3207
Western Australia	Ph (08) 9455 1644	Fax (08) 9455 1227

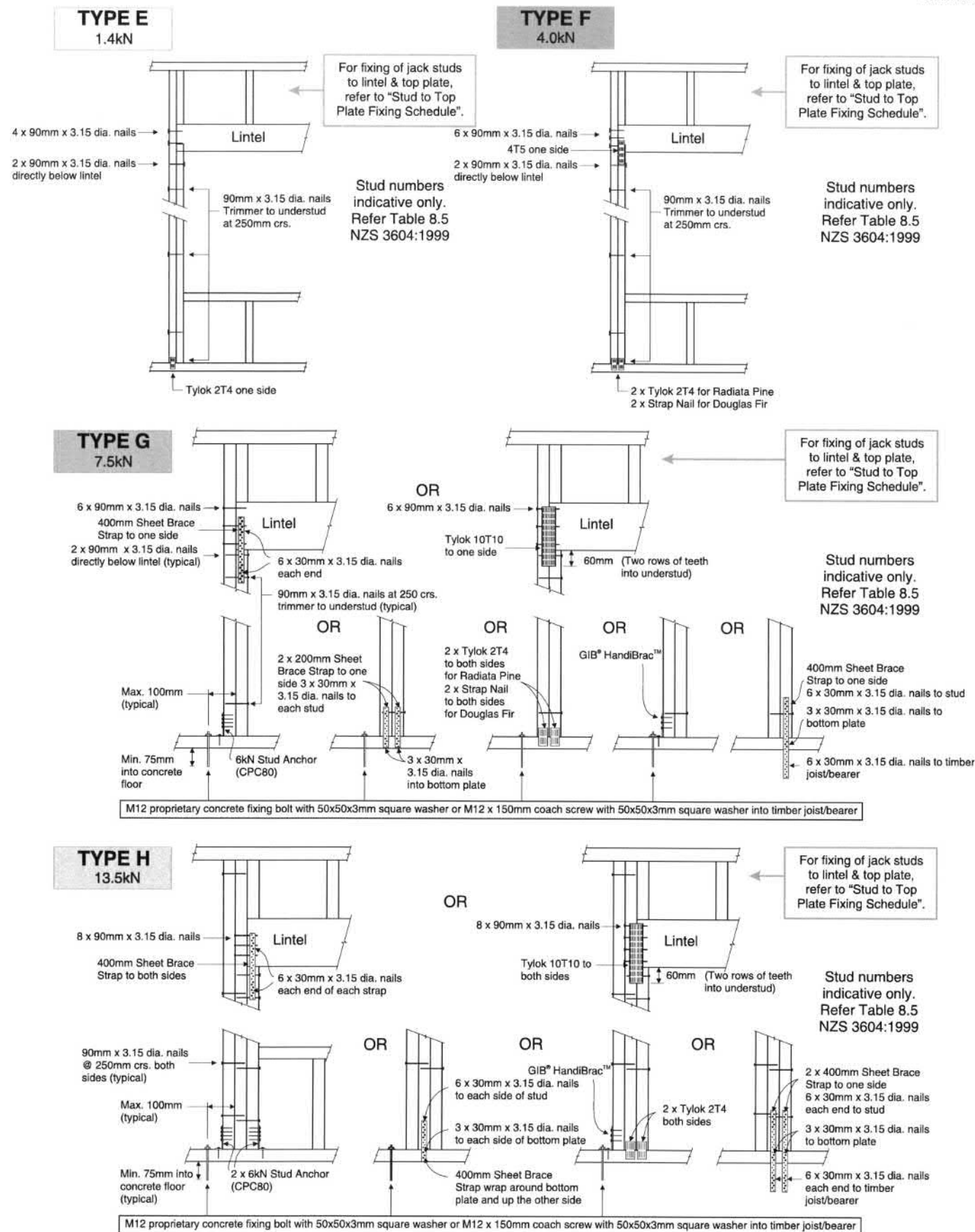
ARDEX New Zealand Ltd

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December 2006

LINTEL FIXING OPTIONS



LINTEL FIXING SCHEDULE

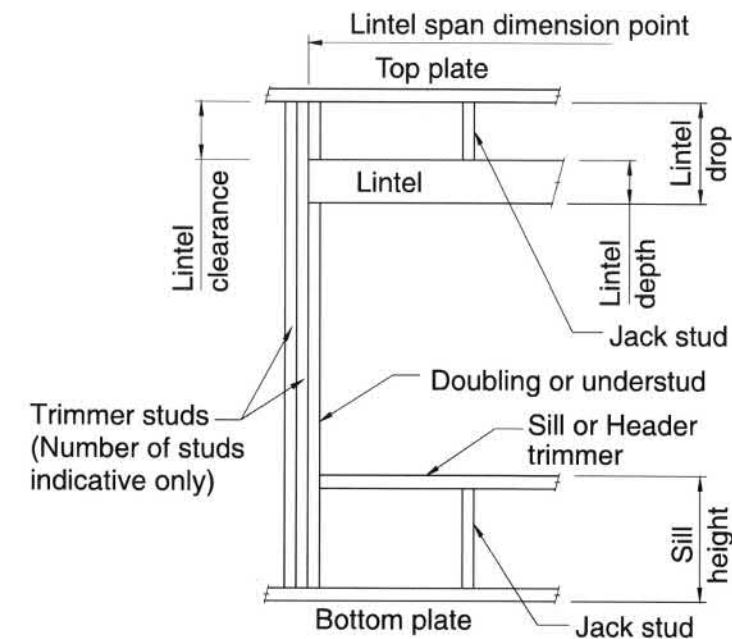
ALTERNATIVE TO TABLE 8.14 & FIGURE 8.12

NZS 3604:1999

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 3604:1999 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 3604:1999.

DEFINITIONS



SELECTION CHART FOR LINTEL FIXING

Lintel Span	Loaded Dimension (See Fig. 1.3 NZS 3604:1999)	Light Roof Wind Zone				Heavy Roof Wind Zone			
		L	M	H	VH	L	M	H	VH
1.5	2.0	E	E	F	F	E	E	F	F
	3.0	E	E	F	G	E	E	F	F
	4.0	E	F	G	G	E	E	F	G
	5.0	E	F	G	G	E	E	G	G
	6.0	E	F	G	H	E	E	G	G
2.0	2.0	E	F	F	G	E	E	F	F
	3.0	E	F	F	G	E	E	F	G
	4.0	E	F	G	G	E	E	G	G
	5.0	E	G	G	H	E	E	G	G
	6.0	F	G	G	H	E	F	G	H
2.4	2.0	E	F	F	G	E	E	F	F
	3.0	F	F	G	G	E	E	G	G
	4.0	F	G	G	H	E	E	G	G
	5.0	F	G	G	H	E	F	G	H
	6.0	F	G	H	H	E	F	G	H
3.0	2.0	E	F	G	G	E	E	F	G
	3.0	F	F	G	H	E	E	G	G
	4.0	F	G	G	H	E	F	G	H
	5.0	F	G	H	H	E	F	G	H
	6.0	G	G	H	-	E	F	H	H
3.6	2.0	F	F	G	G	E	E	F	G
	3.0	F	G	G	H	E	F	G	G
	4.0	F	G	G	H	E	F	G	H
	5.0	F	G	H	-	E	F	H	H
	6.0	G	H	H	-	E	F	H	-
4.2	2.0	F	F	G	G	E	E	G	G
	3.0	F	G	H	H	E	F	G	H
	4.0	G	G	H	-	E	F	H	H
	5.0	G	H	H	-	E	F	H	-
	6.0	G	H	-	-	E	G	H	-
4.8	2.0	F	G	G	H	E	E	G	G
	3.0	F	G	H	H	E	F	G	H
	4.0	G	G	H	-	E	F	H	H
	5.0	G	H	-	-	E	F	H	-
	6.0	G	H	-	-	E	G	H	-

NOTES:

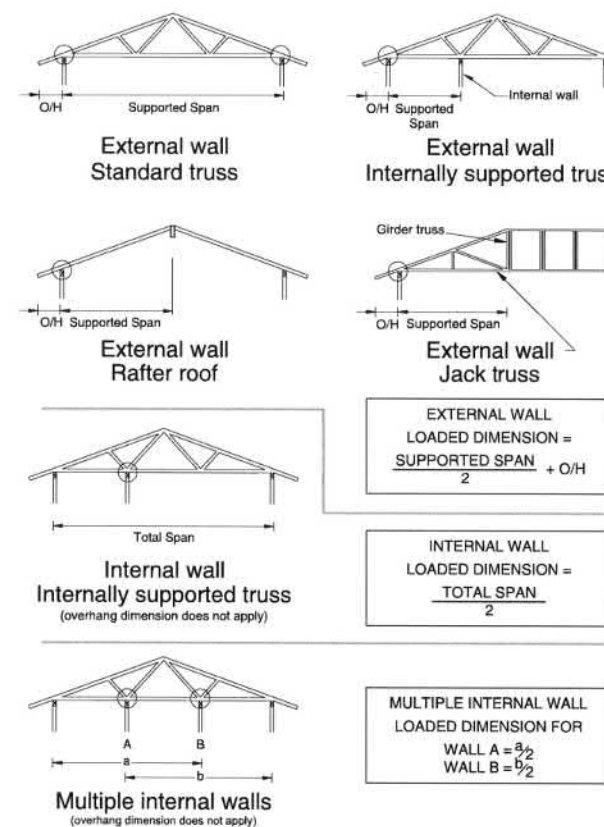
- Lintels supporting Girder trusses for ALL load cases use:
 Fixing Type G where contributory area = 10m²
 Fixing Type H where contributory area = 20m²
 All cases outside this require specific design.

STUD TO TOP PLATE FIXING SCHEDULE ALTERNATIVE TO TABLE 8.18 NZS 3604:1999

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 3604:1999 for nailing schedule to resist horizontal loads.
- ★ These fixings assume the correct choice of rafter/truss to top plate connections have been made.
- ★ Gable end wall top plate/stud connections require only 2 x 90mm x 3.15 dia. nails driven vertically into stud through top plate.
- ★ All fixings assume top 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 3604:1999.

LOADED DIMENSION DEFINITION



FIXING SELECTION CHART

(Suitable for walls supporting roof members at 600, 900 or 1200mm crs.)

Loaded Dimension (m)		Light Roof				Heavy Roof			
Stud Centres		Wind Zone				Wind Zone			
400mm	600mm	L	M	H	VH	L	M	H	VH
2.25	1.5	A	A	B	B	A	A	B	B
3.0	2.0	A	B	B	C	A	A	B	B
3.8	2.5	A	B	C	C	A	A	B	C
4.5	3.0	B	B	C	D	A	A	B	C
5.3	3.5	B	B	C	D	A	A	B	D
6.0	4.0	B	C	D	D	A	A	C	D
6.8	4.5	B	C	D	D	A	B	C	D
7.5	5.0	B	C	D	D	A	B	C	D
8.3	5.5	B	C	D	D	A	B	C	D
9.0	6.0	B	C	D	-	A	B	D	D

FIXING OPTIONS

FIXING TYPE A 0.7kN
2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.

FIXING TYPE B 1.7kN
2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.
Plus
1 x Tylok 2T4 (min.) plate for Radiata Pine
1 x Tylok 2T5 (min.) plate for Douglas Fir

FIXING TYPE C 2.7kN
2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.
Plus
2 x Tylok 2T4 (min.) plate for Radiata Pine
2 x Tylok 2T5 (min.) plate for Douglas Fir

FIXING TYPE D 6.0kN
CHOOSE ANY OF THE 4 OPTIONS

2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.
Plus LUMBERLOK Stud Tie

2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.
Plus LUMBERLOK Stud Strap

2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.
Plus LUMBERLOK 6kN Stud Anchor

2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.
Plus LUMBERLOK Sheet Brace Strap (Fix 3 x 30mm x 3.15 dia. nails to each stud face.)

TYLOK 2T4 or TYLOK 2T5 **SHEET BRACE STRAP** **STUD TIE** **6kN STUD ANCHOR (CPC80)** **STUD STRAP**

STANDARD FIXING OPTIONS

FIXING DEFINITIONS

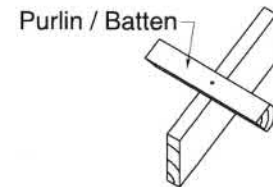
NAIL = Either 90mm x 3.15 dia. power driven
or 100mm x 3.75 dia. hand driven

SCREW = 80mm x 10 gauge LUMBERLOK
BLUE SCREW

WIREDOG = Either left hand or right hand
LUMBERLOK Wire Dog

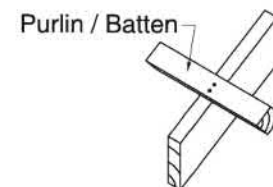
FIXING TYPE A
0.40kN

1 NAIL



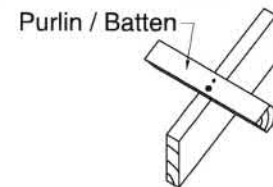
FIXING TYPE B
0.70kN

2 NAILS



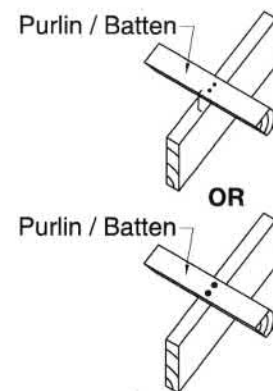
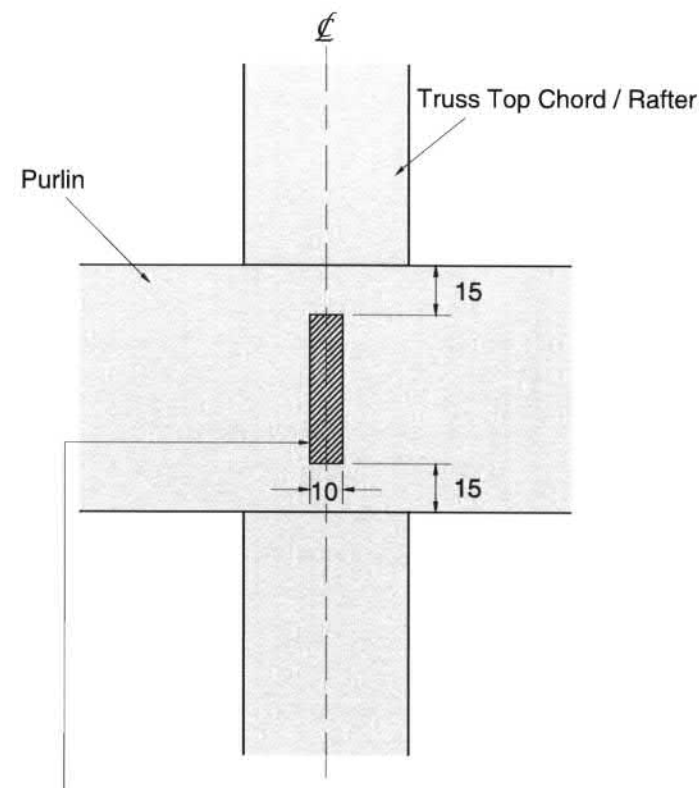
FIXING TYPE C
1.80kN

1 NAIL + 1 SCREW



FIXING TYPE D
2.70kN

2 NAILS + 1 WIRE DOG
OR
2 SCREWS

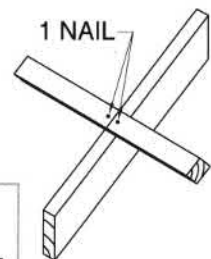
BLUE SCREW
FIXING TOLERANCE

NOTE:
Locate fixings within the shaded area.
Care to be taken to avoid over tightening of screws.

PURLIN / BATTEN SPLICE FIXING OPTIONS

NOTE:
Skew nail
when fixing to
35mm rafter
or truss.

**FIXING TYPE
A & B OVER
PURLIN SPLICE**



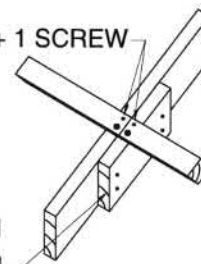
1 NAIL + 1 WIRE DOG

**FIXING TYPE
C & D OVER
PURLIN SPLICE**



1 NAIL + 1 SCREW

OR



90x35mm block fixed
to chord or rafter with
4 x 75mm nails

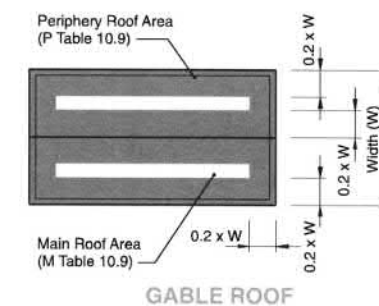


LUMBERLOK®

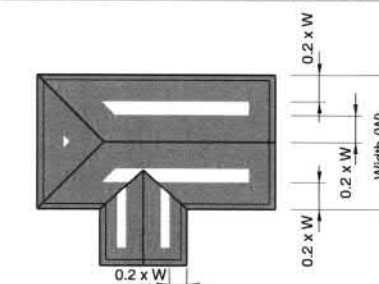
PURLIN & BATTEN FIXING CHART ALTERNATIVE SOLUTION TO NZS 3604:1999

NOTE:

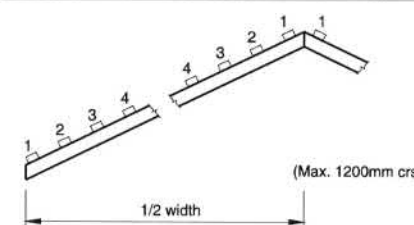
- ★ Maximum overall roof truss span 12m.
- ★ All purlin and batten sizes as per NZS 3604:1999, incorporating Amendments 1 and 2, May 2006, Table 10.9.
- ★ These fixings assume purlins or battens are fixed on top of truss or rafter.
- ★ This chart is used only when specifying the LUMBERLOK BLUE SCREW. The LUMBERLOK BLUE SCREW is different to the purlin screw quoted in Table 10.10 NZS 3604:1999.
- ★ The LUMBERLOK BLUE SCREW requires a minimum of 30mm penetration into the truss chord or rafter to provide the loads as specified.



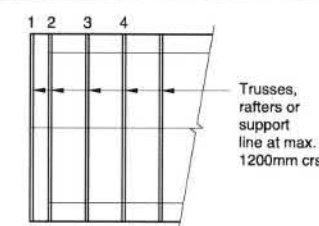
GABLE ROOF



HIP & VALLEY ROOF



PURLIN LAYOUT



LAYOUT ON GABLE END

SELECTION CHART (minimum fixing requirements)

1. HEAVY ROOFS

All purlins and/or battens use fixing Type A only
on roof width (W) up to 12m.

2. LIGHT ROOFS

- 2.1 BATTENS**
- Max. span 1200mm
 - Max. crs. 400mm
 - Roof width (W) up to 12m

L and M wind loads use Type B fixing on all battens.

H and VH wind loads use Type C on all battens.

- 2.2 PURLINS**
- Max. span 900mm, max. crs. 900mm

L and M wind loads use Type C fixing on purlin No. 2
and Type B on all other purlins for all roof widths (W) up
to 12m.

H and VH wind loads

- On roof width (W) up to 8m –
use Type D fixing on purlin No. 2 and
Type C on all other purlins.
- On roof width (W) up to 12m –
use Type D fixing on purlins No. 2 and 3
and Type C on all other purlins.

2.3 PURLINS AND BATTENS ON GABLE END

- Max. span 900mm, max. crs. 900mm

L and M wind loads use Type B fixing on support line
No. 1, Type C on support lines No. 2, 3 and 4 and all
other support lines as per Section 2.1 or 2.2 above.

H and VH wind loads use Type C fixing on support line
No. 1, Type D on support lines No. 2, 3 and 4 and all
other support lines as per Section 2.1 or 2.2 above.



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