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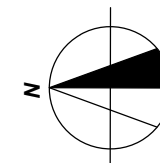
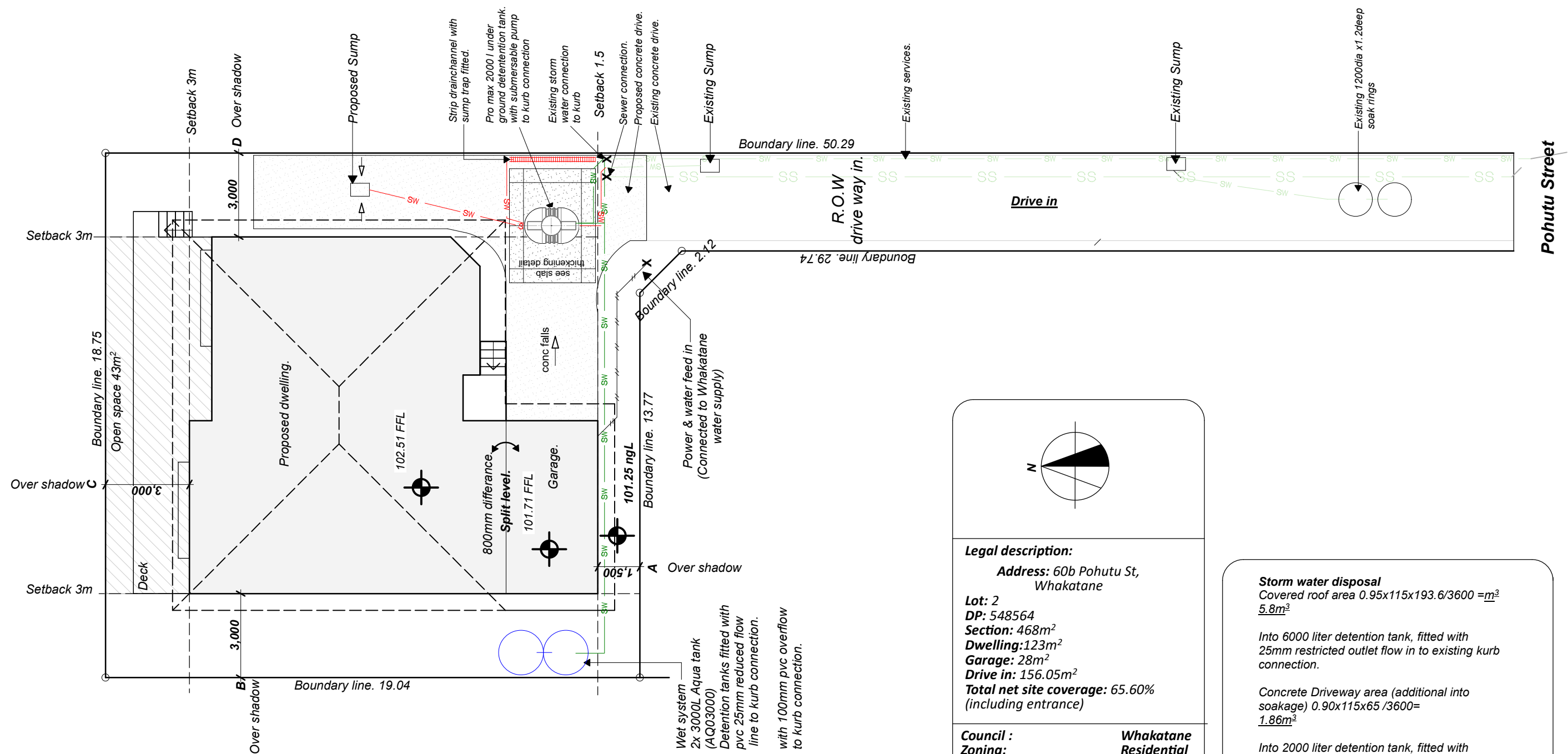
Proposed new home for Barry Raynes

60A Pohutu Street, Whakatane

Consent drawings 26/07/21



ARCHITECTURAL DRAWING SERVICE
Steven Bilyard - ph: 027 3470147 email: steve@thedraughtsman.co.nz
07 312 96 75



Legal description:

Address: 60b Pohutu St, Whakatane

Lot: 2

DP: 548564

Section: 468m²

Dwelling: 123m²

Garage: 28m²

Drive in: 156.05m²

Total net site coverage: 65.60% (including entrance)

Council :

Zoning:

Wind Zone:

Earthquake Zone:

Durability Zone:

Whakatane

Residential

High

2

C

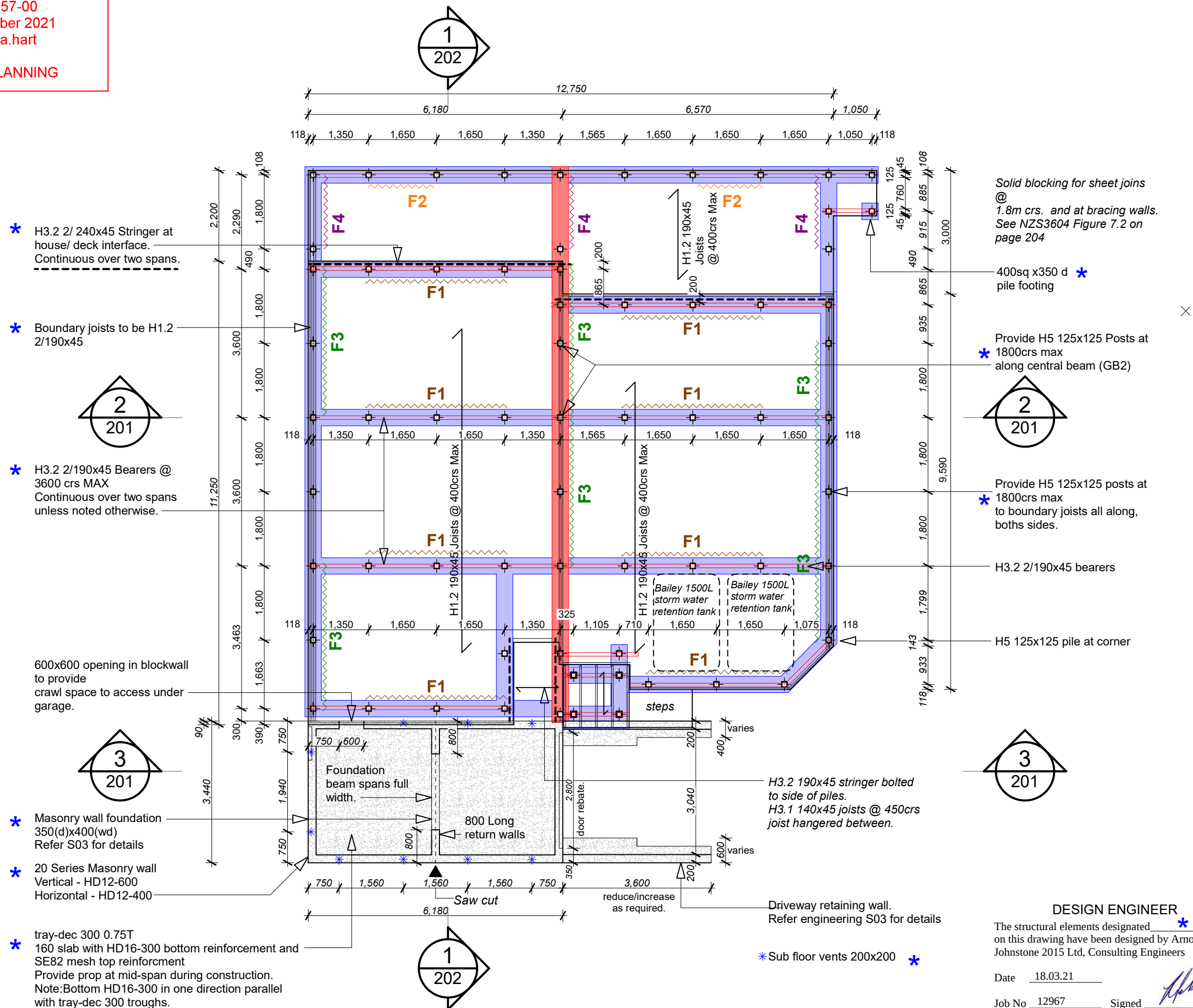
Storm water disposal

Covered roof area $0.95 \times 115 \times 193.6 / 3600 = 5.8m^3$

Into 6000 liter detention tank, fitted with 25mm restricted outlet flow in to existing kurb connection.

Concrete Driveway area (additional into soakage) $0.90 \times 115 \times 65 / 3600 = 1.86m^3$

Into 2000 liter detention tank, fitted with reduced flow submersible pump, out let flow into existing kurb connection.

**Subfloor Materials****Deck**

H3.2 2/190x45 bearer
H3.2 2/240x45 Stringer along house piles
H3.2 190x45 joists @ 400crs

Dwelling

H3.2 2/190x45 bearers @ 3600crs max
H1.2 190x45 joists @ 400crs max
H1.2 19mm ply flooring
H3.2 19mm ply (Wet areas)

All built up members for bearers, stringers & alike are to be nailed in accordance with NZS3604:2011 2.4.4.7

Ground Beams

* **GB1** GB1 - refer S03 for details
450(d)x400(w)
3-HD16 T&B
1-R10-300 stirrup

* **GB2** GB2 - refer S03 for details
450(d)x400(w)
4-HD16 T&B
1-R10-300 stirrup

Foundation Walls

* Type F1 Foundation Wall - 3300 long refer S01 for details

* Type F2 Foundation Wall - 1650 long refer S01 for details

* Type F3 Foundation Wall - 3600 long refer S02 for details

* Type F4 Foundation Wall - 1800 Long refer S02 for details

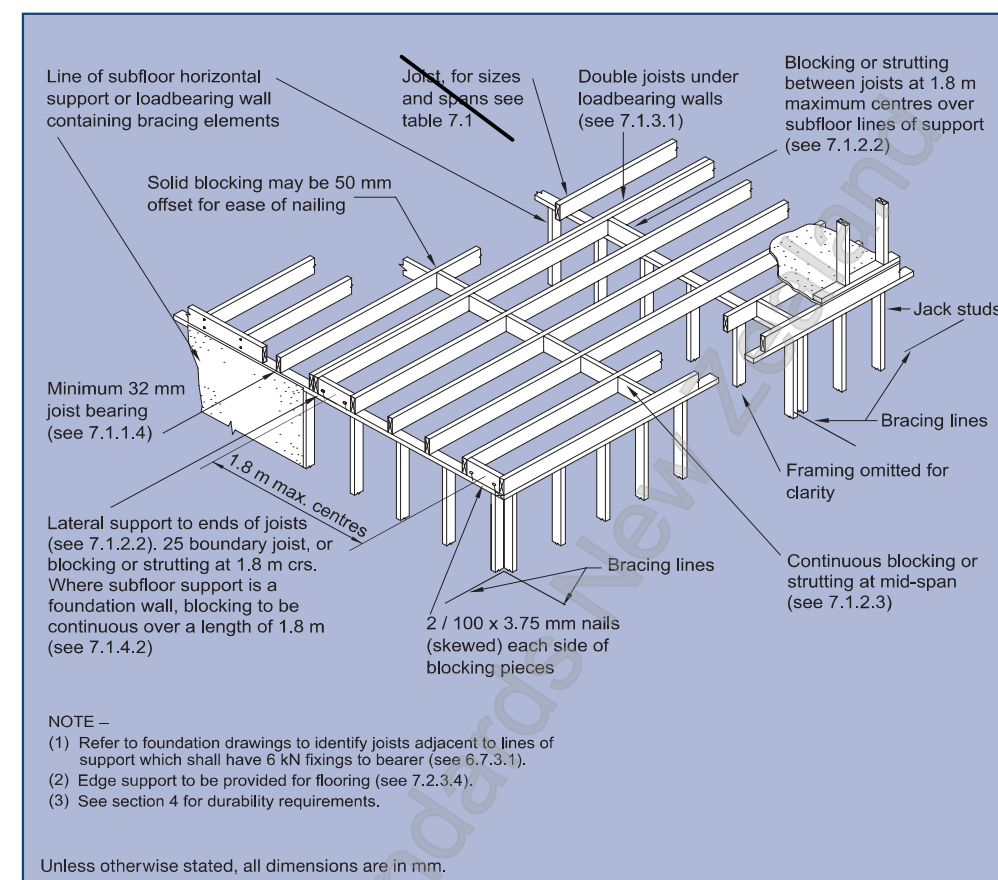
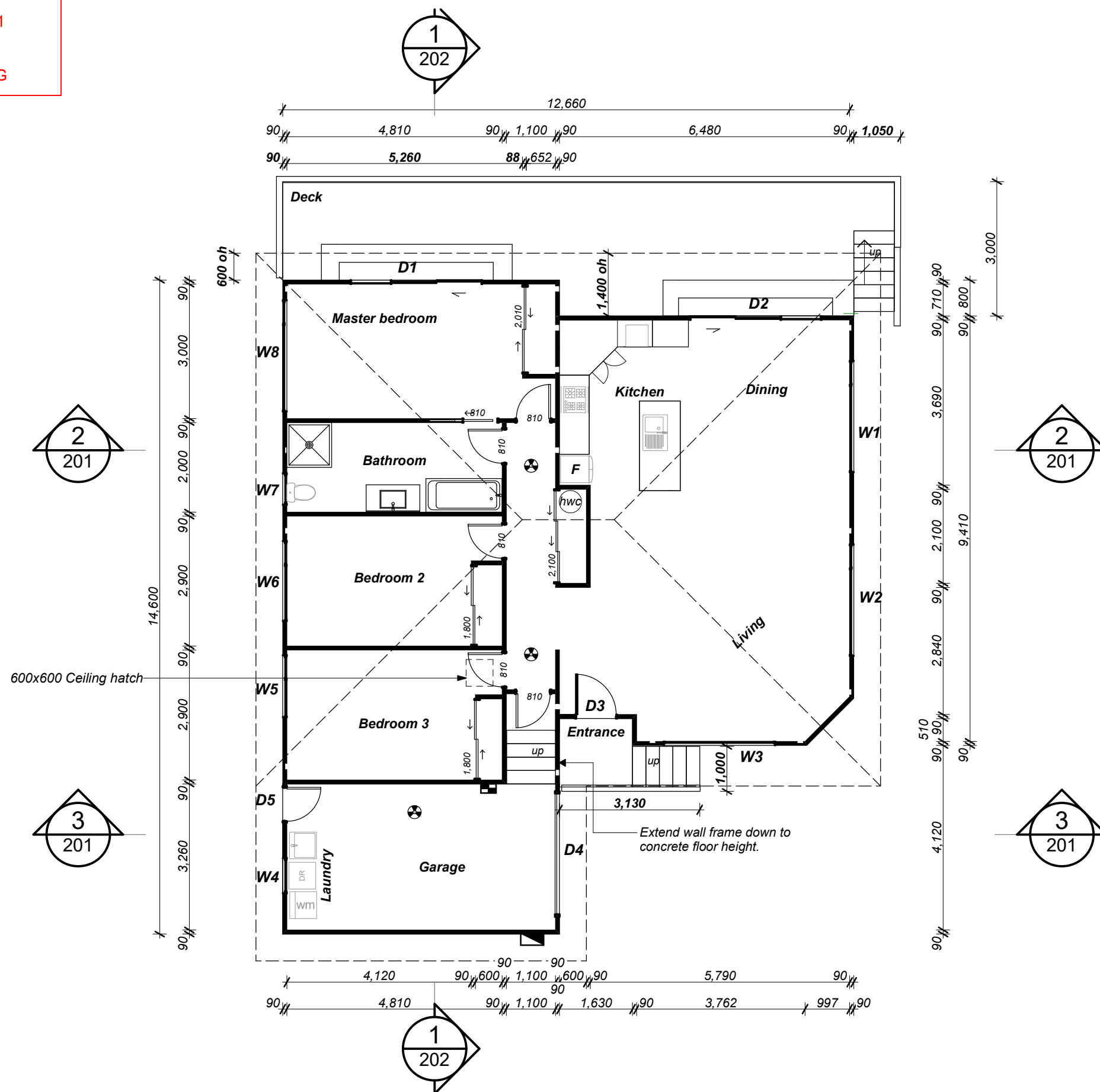
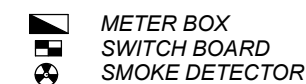


Figure 7.2 – Floor joists layout criteria (see 7.1.2.2)



**FLOOR AREA
OVER FOUNDATION: 151.7m²**



NOTES:

**Ensure Type 1 smoke detectors to be installed within 3m of all bedroom doors*

*Provide terrace/deck to all external doors. 150mm min step (maximum 180mm down from fl) and a 280mm minimum tread depth. slip resistance to comply with "d1/as1 2.1 table 2"
(broom finish concrete)

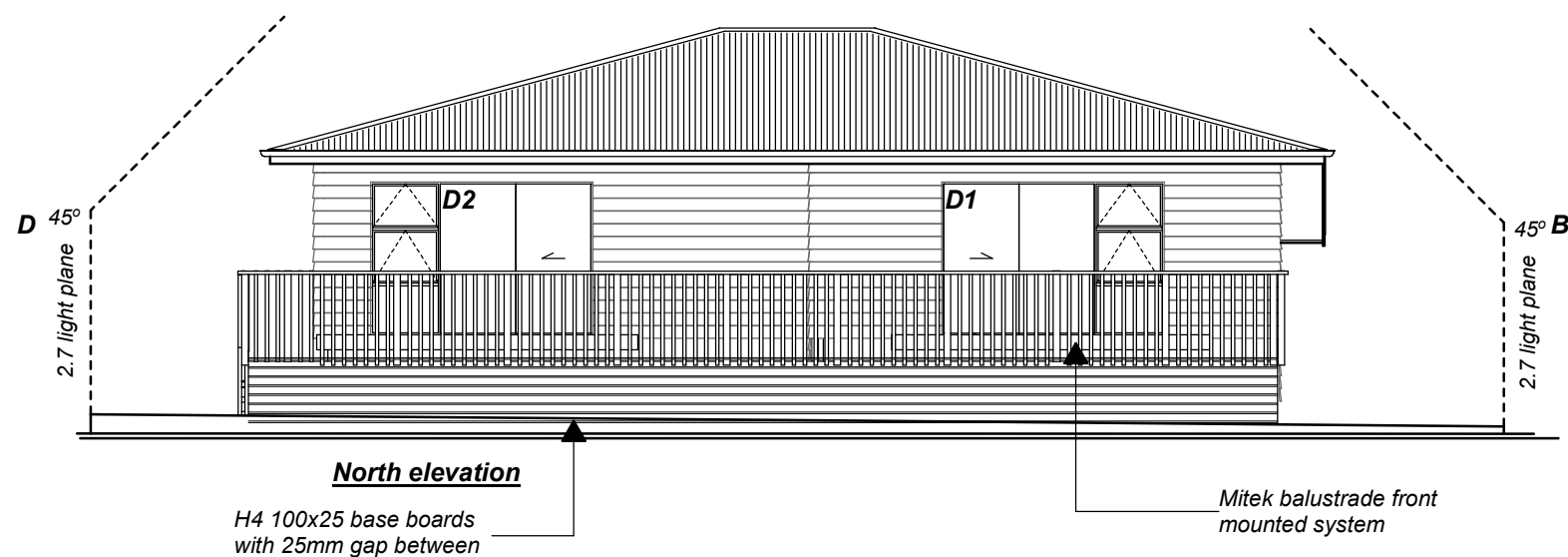
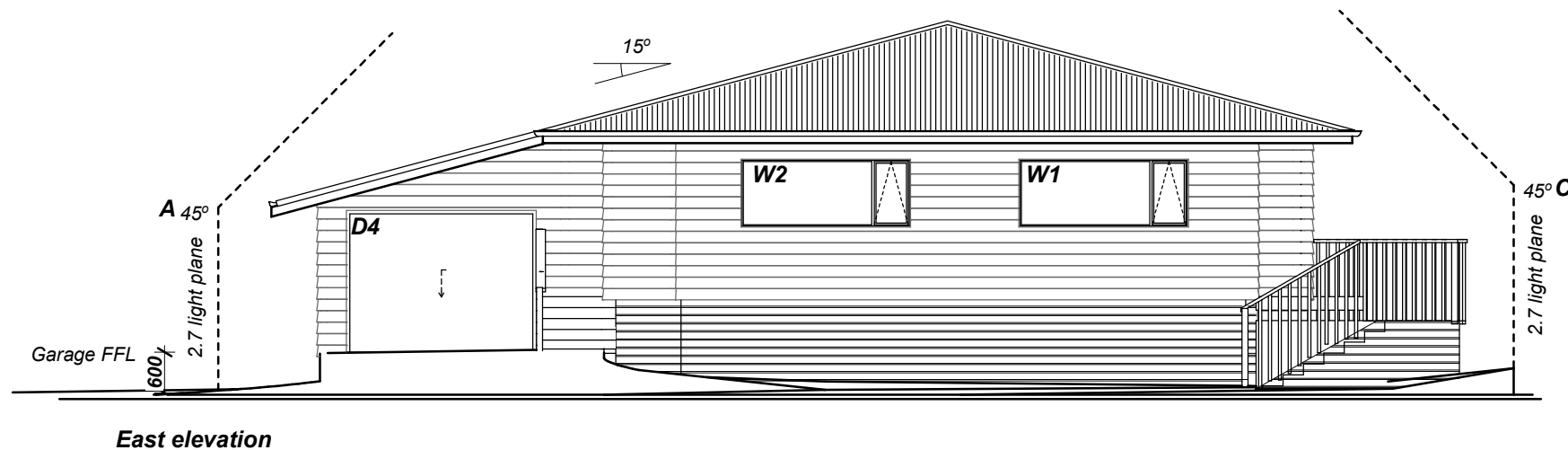
*Antislip floor covering on all access routes and wet areas (both internal and external) to comply with NZBC D1/AS1 table 2. (accept surface areas inside areas entries as dry areas)

*Provide mechanical ventilation from the
bathrooms , Laundry and over stove to the
exterior.

Door and window jamb size .

Lintels are all SG8
Build up 2/45mm members to = 90mm
thickness.

Doors	width x height	Lintel	Fixing
D1	2950x2025	2/240x45	H
D2	2950x2025	2/240x45	H
D3	950x2025	2/90x45	F
D4	2800x2100	2/240x45	G
D5	810x2100	2/90x45	F
W1	2500x1000	2/240x45	G
W2	2500x1000	2/240x45	G
W3	2500x1200	2/240x45	G
W4	800x1000	2/90x45	F
W5	1400x1000	2/140x45	E
W6	1800x1000	2/190x45	G
W7	800x1000	2/90x45	F
W8	2500x1000	2/240x45	H

**External Moisture Risk Matrix.**

A. Windzone	1 high
B. number of storeys	0 Low
C. Roof / wall intersection Design	0 Low
D.Eaves Width	1 Medium
E.Envelope Complexity	1 medium
F. Deck Design	0 low

Total risk score 3 Low risk

Claddings ok over cavity

Ground Levels:

All outside ground levels are to be a minimum of 150mm below finished floor level to paved ground or 225mm to unpaved ground.

H1 Areas**East, West, South Elevations**

Total wall areas, North, East, South, West	111.57m ²
Total glazing areas:	28.3m ²
Percent of glazing:	21.57%

(Excluding garage)**Dwelling complies with NZBC H1/AS1 schedule method. Table 1 Climate zone 2**

Roof: insulation	180mm R3.6 Fibreglass
Walls: insulation	90mm R2.6 Fibreglass
Underfloor: insulation	100mm R1.8 Polystyrene
Glazing:	R0.26 Insulating glass units

Building materials**Building paper**

Roof underlay
Thermakraft =covertex 403 plus
Walls
Thermakraft 403 plus
flexible flashing tapes
Thermakraft
Aluband.

Cladding

BGC Nuline weatherboard over drained cavity

Roof

Colorsteel corrugated roofing iron
& Colorsteel flashings.

Soffits

4.5 mm hardies soffit linings
with pvc jointers ,
H3 130x20 mm Timber fascia

Guttering

74mm colorsteel downpipes as per plan
clips @ 1200crs

roofing industries classic spouting
Colorsteel
with internal clips @ 600crs

Window / door joinery

new joinery
powder coated aluminium ,
double glazed

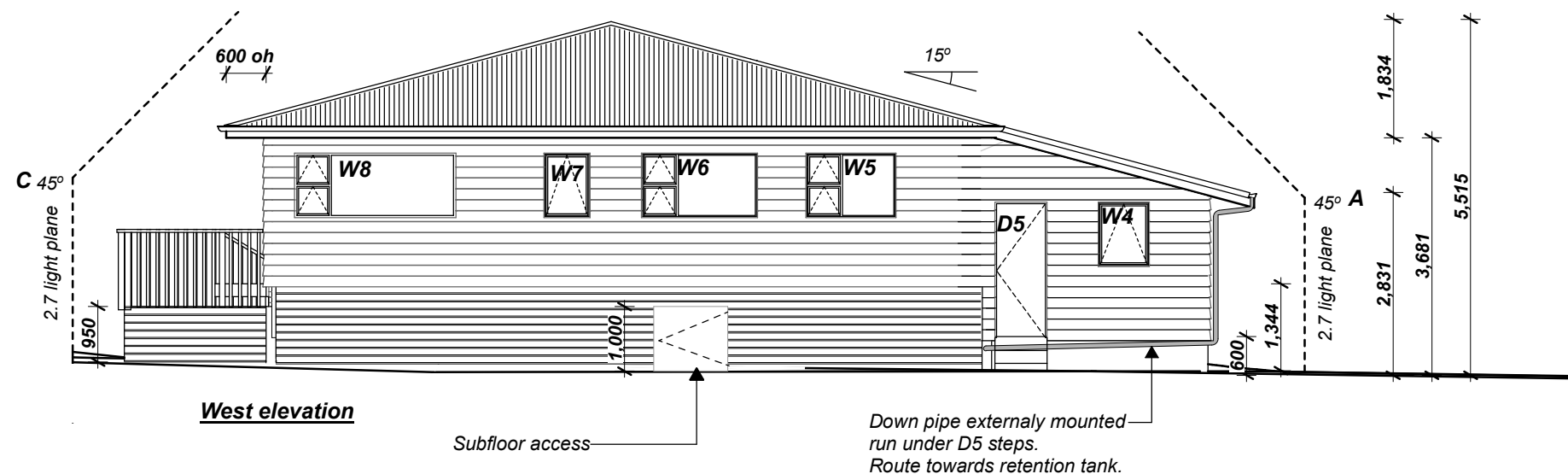
All new joinery to be double glazed
aluminium.

Use H3 pre primed jamb liners.

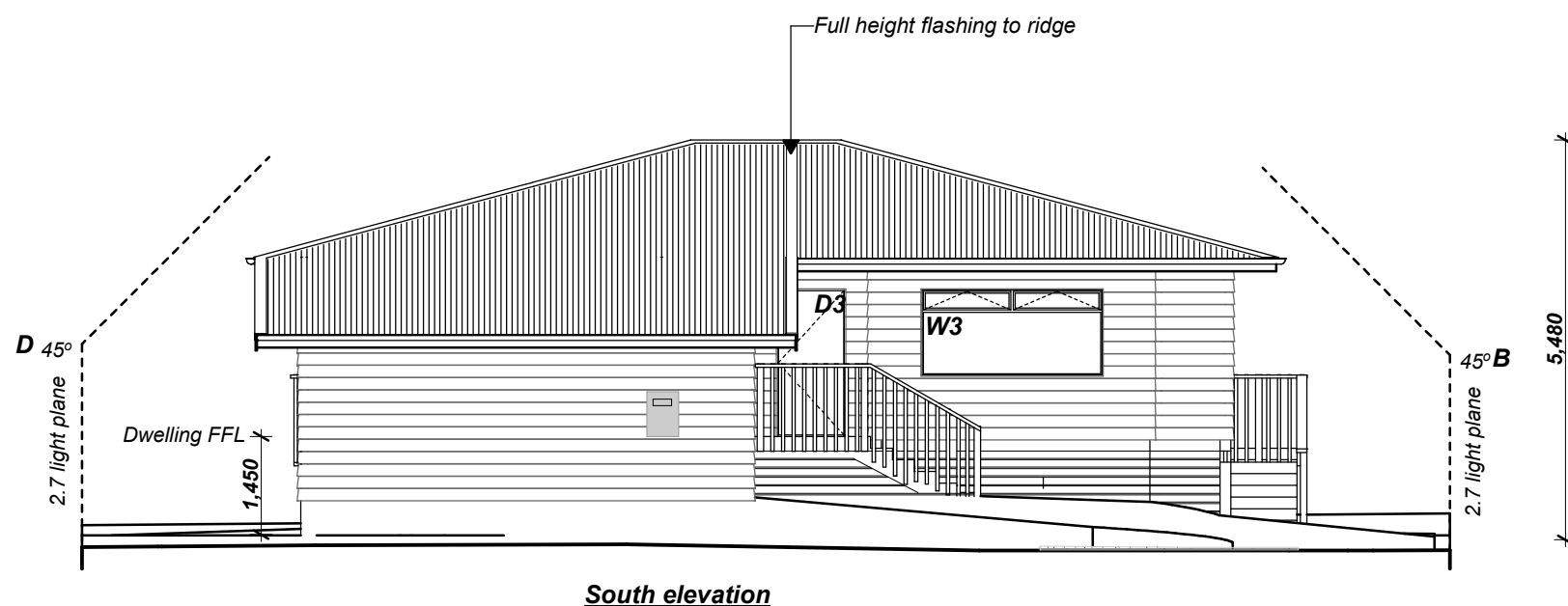
To comply with nzs 4223.1 ,
4223.2,4223.3 ,4223.4

To have Saftey glazing within glass
800mm from finished floor
levels and appropriate markings on glass (check on delivery).

Ensure guidance of window joiner for
best use and design of joinery .



West elevation



South elevation

External Moisture Risk Matrix.

A. Windzone	1 high
B. number of storeys	0 Low
C. Roof / wall intersection Design	0 Low
D. Eaves Width	1 Medium
E. Envelope Complexity	1 medium
F. Deck Design	0 low

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Walls
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Cladding

BGC Nuline weatherboards on drained cavity

Roof

Colorsteel corrugated roofing iron
& Colorsteel flashings.

Soffits

4.5 mm hardies soffit linings
with pvc jointers ,
H3 130x20 mm Timber fascia

Guttering

74mm Colorsteel downpipes as per plan
clips @ 1200crs

roofing industries J line spouting
Coloursteel
with internal clips @ 600crs

Window / door joinery

new joinery
powder coated aluminium ,
double glazed

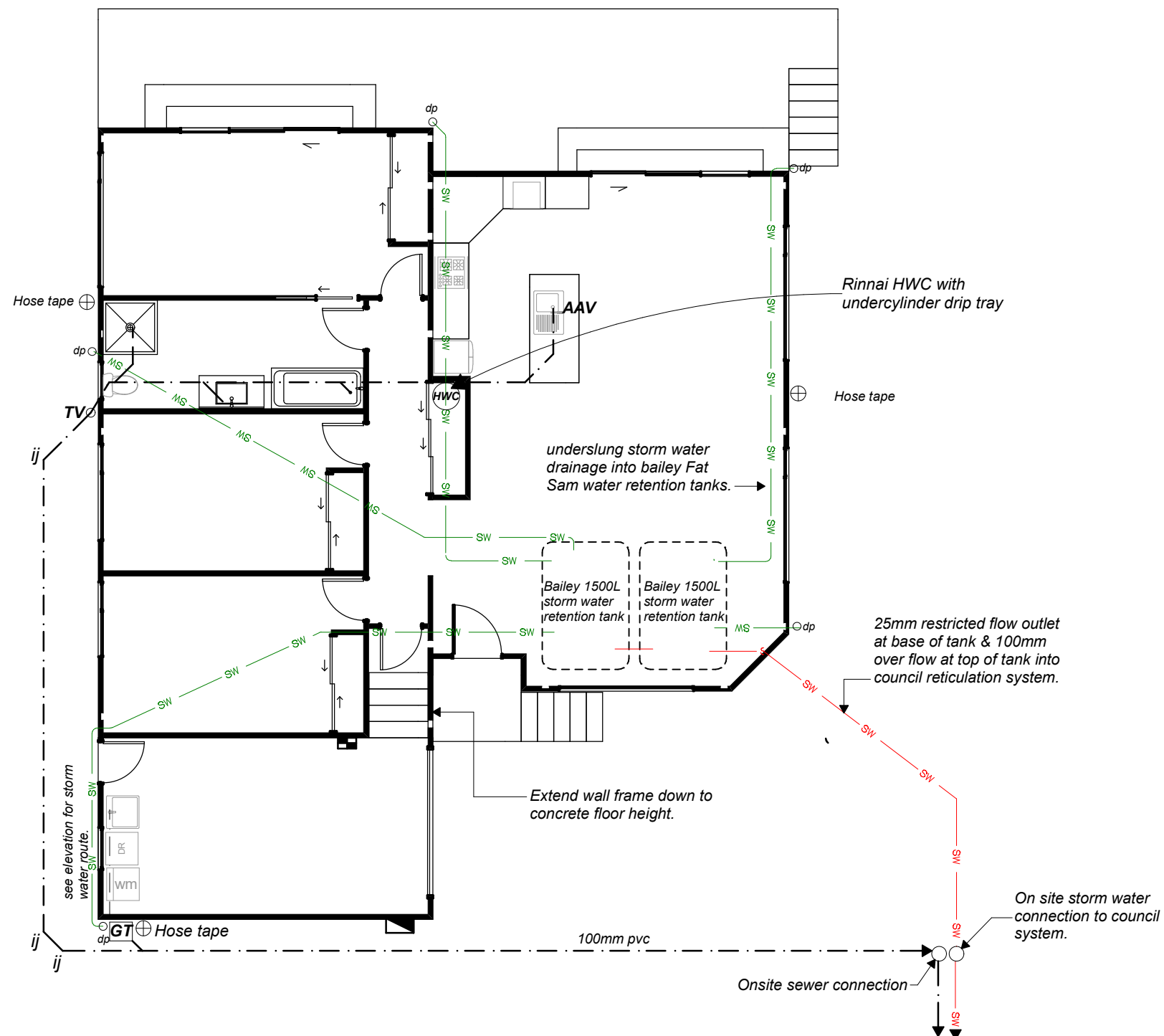
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Use H3 pre primed jamb liners.

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4223.2,4223.3 ,4223.4

To have Saftey glazing within glass
800mm from finished floor
levels and appropriate markings on glass (check on delivery).

Ensure guidance of window joiner for
best use and design of joinery .



plumbing & drainage to comply with AS/NZS 3500.1 cold water supply
AS/NZS 3500.2 Foul water

plumbing size & min gradient

wc	= 100 dia @ :120
bath	=50 dia @ 1:40
vanity/basin	=50 dia @ 1:20
shower	=50 dia @ 1:20
sink	=50 dia @ 1:20
tub	=50 dia @ 1:20
FWG	=65 dia @ 1:20
branch drain	=100 dia @ 1:60
foulwater drain	=100 dia @ 1:60
stormwater drain	=100 dia @ 1:60

- rodding points @ head of drain & every 50m of drain, inspection points @ every junction & change of direction greater than 45° (or as shown rp & ip)
- all underslab branch drains to be 100mm min other plumbing underslab to be 65 dia
- all vent pipes to be run in wall spaces and through roofing
- overflow relief gully to be 150mm min between overflow level of the gully and the lowest fixture measured to :
top grate in FWG or shower or top of water seal in soil fixtures (if 150mm cannot be achieved a reflux valve must be fitted to protect those fixtures within this distance)

all pipes in concrete to have denso tape (synthetic fabric based impregnated and coated with organic petroleum based compounds) applied

Pipes shall incorporate expansion joints in accordance with chapter 8 of NZS7643

Mains Pressure : 15mm dia allows 12m max pipe length beyond 12m pipe must be lagged

55° tempering to be provided to all sanitary fixtures

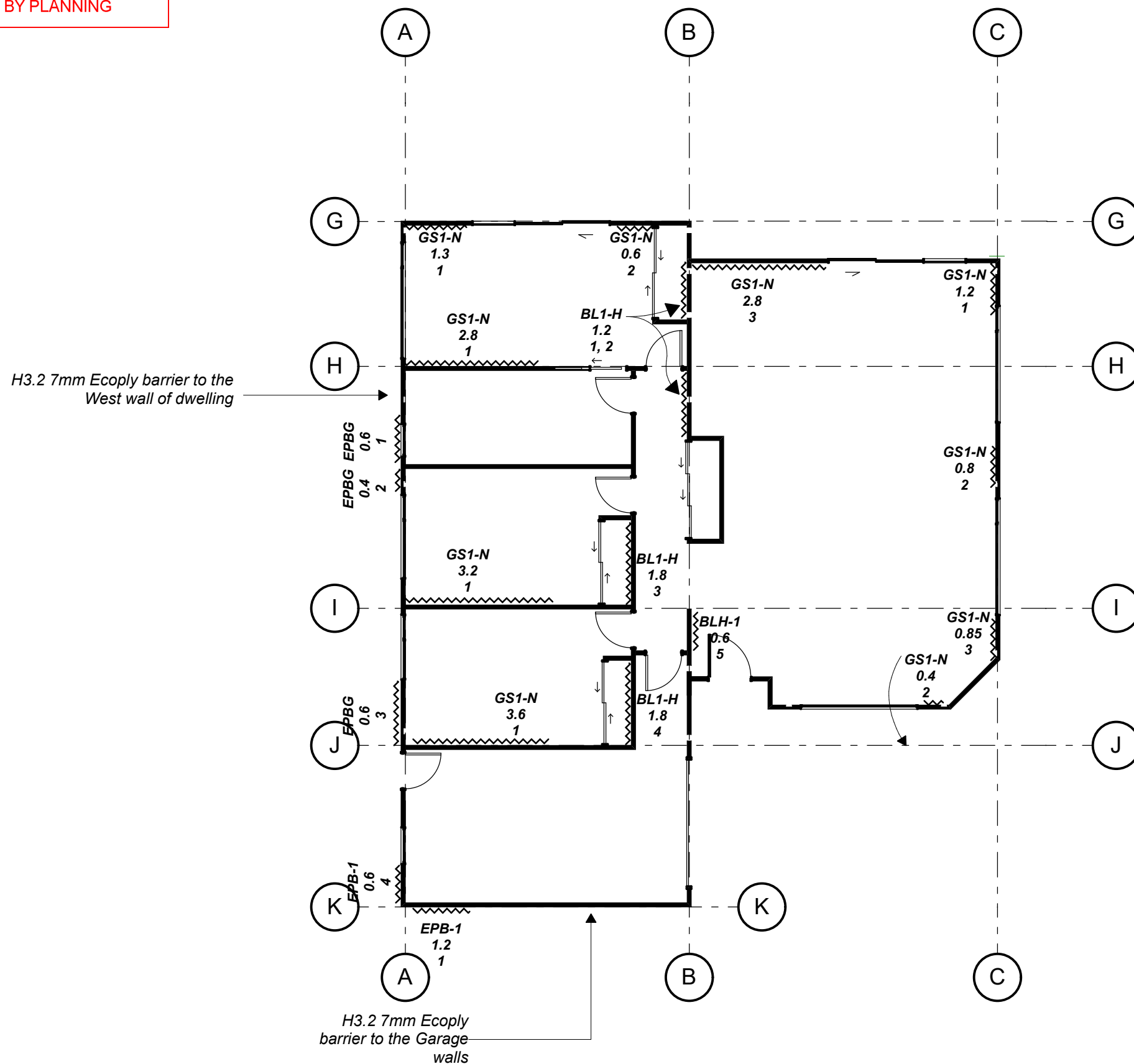
Street connection water supply

Key

R/P	rodding point
I/j	Inspection junction
dp	down pipe
G/T	gully trap

Foul Drains — — — — —

Storm water drains — — — — —

**Bracing example =**

GS1-N
1.2
1

Brace type
brace length
brace number

Brace area
~~~~~

**Brace type**

GS1-N = Gib standard on one side  
BL1-H = Gib Braceline one side  
EPB-1 = Ecoply barrier on one side  
EPBG = Ecoply barrier one side  
GIB standard on the other

## GIB EzyBrace® Bracing Software



## Demand Calculation Sheet

## Job Details

Name: Barry Raynes  
Street and Number: 60B Pohutu St  
Lot and DP Number:  
City/Town/District: Whakatane  
Designer: Geoff Bilyard  
Company: The Draughtsman LTD  
Date: 7/02/2020

## Building Specification

Number of Storeys 1  
Floor Loading 2 kPa  
Foundation Type Subfloor  
Subfloor Cladding Weight Light  
  
**Single**  
Cladding Weight Light  
Roof Weight Light  
Room in Roof Space No  
Roof Pitch (degrees) 15  
Roof Height above Eaves (m) 1.8  
Building Height to Apex (m) 5.4  
Ground to Lower Floor (m) 1.35  
  
Average Stud Height (m) 2.45  
Building Length (m) 12.6  
Building Width (m) 14.6  
Building Plan Area (m²) 151.70

## Building Location

Wind Zone = High

Earthquake Zone 2

Soil Type D & E (Deep to Very Soft)  
Annual Prob. of Exceedance: 1 in 500 ( Default)

## Bracing Units required for Wind

|                | Along | Across |
|----------------|-------|--------|
| Single Level   | 660   | 499    |
| Subfloor Level | 1246  | 1005   |

## Bracing Units required for Earthquake

|                | Along & Across |
|----------------|----------------|
| Single Level   | 994            |
| Subfloor Level | 1549           |

GIB EzyBrace® Version 12/18

## GIB EzyBrace® Bracing Software



## Single Level Across Resistance Sheet

Job Name: Barry Raynes

Timber Floor Limit of 120 BUs/m Applied

|      |         |            |                 |              |              |          |            |          | Wind         | EQ           |
|------|---------|------------|-----------------|--------------|--------------|----------|------------|----------|--------------|--------------|
|      |         |            |                 |              |              |          |            |          | Demand       |              |
|      |         |            |                 |              |              |          |            |          | 499          | 994          |
|      |         |            |                 |              |              |          |            |          | Achieved     |              |
| Line | Element | Length (m) | Angle (degrees) | Stud Ht. (m) | Type         | Supplier | Wind (BUs) | EQ (BUs) | 1167<br>234% | 1070<br>108% |
| A    | 1       | 0.60       |                 | 2.45         | EPBG 2.4 0.6 | CHH      | 71         | 71       |              |              |
|      | 2       | 0.40       |                 | 2.45         | EPBG 2.4 0.4 | CHH      | 39         | 45       |              |              |
|      | 3       | 0.60       |                 | 2.45         | EPBG 2.4 0.6 | CHH      | 71         | 71       |              |              |
|      | 4       | 0.60       |                 | 2.45         | EPB1 3.1 0.6 | CHH      | 43         | 48       |              |              |
|      |         |            |                 |              |              |          |            |          | 223 OK       | 234 OK       |
| B    | 1       | 1.20       |                 | 2.45         | BL1-H        | GIB®     | 141        | 122      |              |              |
|      | 2       | 1.20       |                 | 2.45         | BL1-H        | GIB®     | 141        | 122      |              |              |
|      | 3       | 1.80       |                 | 2.45         | BL1-H        | GIB®     | 212        | 183      |              |              |
|      | 4       | 1.80       |                 | 2.45         | BL1-H        | GIB®     | 212        | 183      |              |              |
|      | 5       | 0.60       |                 | 2.45         | BL1-H        | GIB®     | 58         | 59       |              |              |
|      |         |            |                 |              |              |          |            |          | 763 OK       | 671 OK       |
| C    | 1       | 1.20       |                 | 2.45         | GS1-N        | GIB®     | 81         | 71       |              |              |
|      | 2       | 0.80       |                 | 2.45         | GS1-N        | GIB®     | 48         | 46       |              |              |
|      | 3       | 0.85       |                 | 2.45         | GS1-N        | GIB®     | 52         | 49       |              |              |
|      |         |            |                 |              |              |          |            |          | 181 OK       | 166 OK       |

## GIB EzyBrace® Bracing Software



## Single Level Along Resistance Sheet

Job Name: Barry Raynes

Timber Floor Limit of 120 BUs/m Applied

|      |         |            |                 |              |              |          |            |          | Wind         | EQ           |
|------|---------|------------|-----------------|--------------|--------------|----------|------------|----------|--------------|--------------|
|      |         |            |                 |              |              |          |            |          | Demand       |              |
|      |         |            |                 |              |              |          |            |          | 660          | 994          |
|      |         |            |                 |              |              |          |            |          | Achieved     |              |
| Line | Element | Length (m) | Angle (degrees) | Stud Ht. (m) | Type         | Supplier | Wind (BUs) | EQ (BUs) | 1088<br>165% | 1003<br>101% |
| G    | 1       | 1.30       |                 | 2.45         | GS1-N        | GIB®     | 88         | 76       |              |              |
|      | 2       | 0.60       |                 | 2.45         | GS1-N        | GIB®     | 34         | 34       |              |              |
|      | 3       | 2.80       |                 | 2.45         | GS1-N        | GIB®     | 189        | 165      |              |              |
|      |         |            |                 |              |              |          |            |          | 311 OK       | 275 OK       |
| H    | 1       | 2.80       |                 | 2.45         | GS1-N        | GIB®     | 189        | 165      |              |              |
|      |         |            |                 |              |              |          |            |          | 189 OK       | 165 OK       |
| I    | 1       | 3.20       |                 | 2.45         | GS1-N        | GIB®     | 216        | 188      |              |              |
|      |         |            |                 |              |              |          |            |          | 216 OK       | 188 OK       |
| J    | 1       | 3.60       |                 | 2.45         | GS1-N        | GIB®     | 243        | 212      |              |              |
|      | 2       | 0.40       |                 | 2.45         | GS1-N        | GIB®     | 21         | 23       |              |              |
|      |         |            |                 |              |              |          |            |          | 264 OK       | 234 OK       |
| K    | 1       | 1.20       |                 | 2.45         | EPB1 3.1 1.2 | CHH      | 108        | 141      |              |              |
|      |         |            |                 |              |              |          |            |          | 108 OK       | 141 OK       |

the  
**DRAUGHTSMAN**  
dream it • draw it • build it

Steven Bilyard  
31 McAlister Street, Whakatane  
Ph 07 312 9675  
Email: steve@thedraughtsman.co.nz

## Notes

copyright remains the property of The Draughtsman Ltd unless specified in writing  
All dimensions are in millimetres unless otherwise stated  
All construction to comply with NZBC/NZ 3604 : 2011, along side current standards alike.  
All built up members mentioned for bearers, lintels, stringers and alike are to be nailed in accordance with NZS 3604 2.4.4.7  
All timber to be SG8 unless specified otherwise.

**ALL DIMENSIONS TO BE VERIFIED ON SITE DO NOT SCALE  
OFF PLANS.**

## Job Title

**Proposed new home for Barry Raynes  
60b Pohutu Street, Whakatane.**

Design Steven Bilyard

Drawn Geoff Bilyard

Checked

Revision Date

Plot Date 26/07/2021

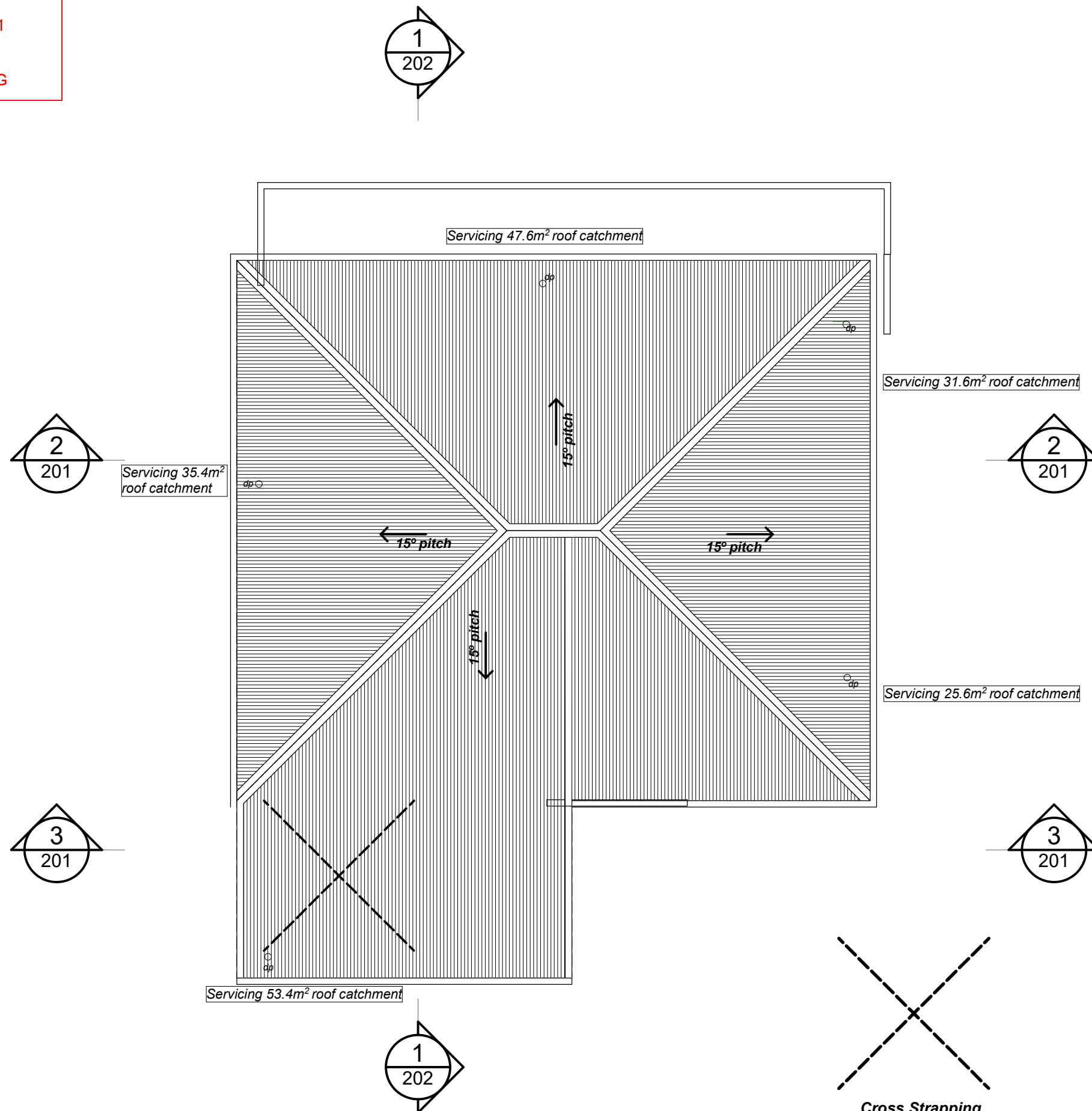
## Drawing Title

**Bracing Calculations**

## Scale

Drawing Number

**109**

**Building materials**

Galvanised Netting Underlay Support  
Covertex 407 - Synthetic Roof Underlay

COLORSTEEL® Maxx - 0.4mm BMT - Corrugate

Flashing Joins with aluminium blind rivets in conjunction with neutral cure silicone sealant.

Fix to Timber Purlins using Class 4; 12g-11 x 50mm, Type-17, Hex. Head, Wood Tek Screw with Seal Washer

Roof Pitch: 15°

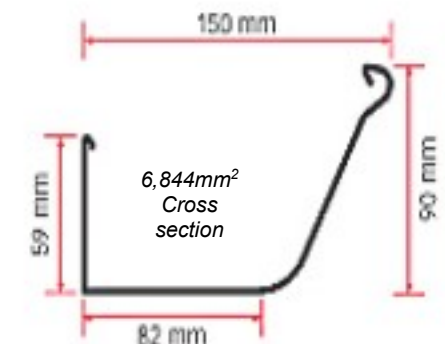
**Guttering**

74mm coloursteel downpipes as per plan clips @ 1200crs

spouting  
roofing industries colorsteel quater round gutter with internal clips @ 600crs

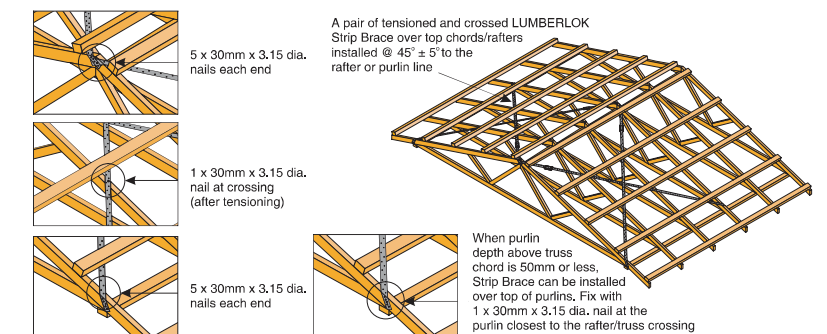
193.6m² Plan veiw roof area is serviced with 5 down pipes.

$0.95 \times 45 \times 193.6 / 3600 = 2.29 \text{m}^3$  water run off

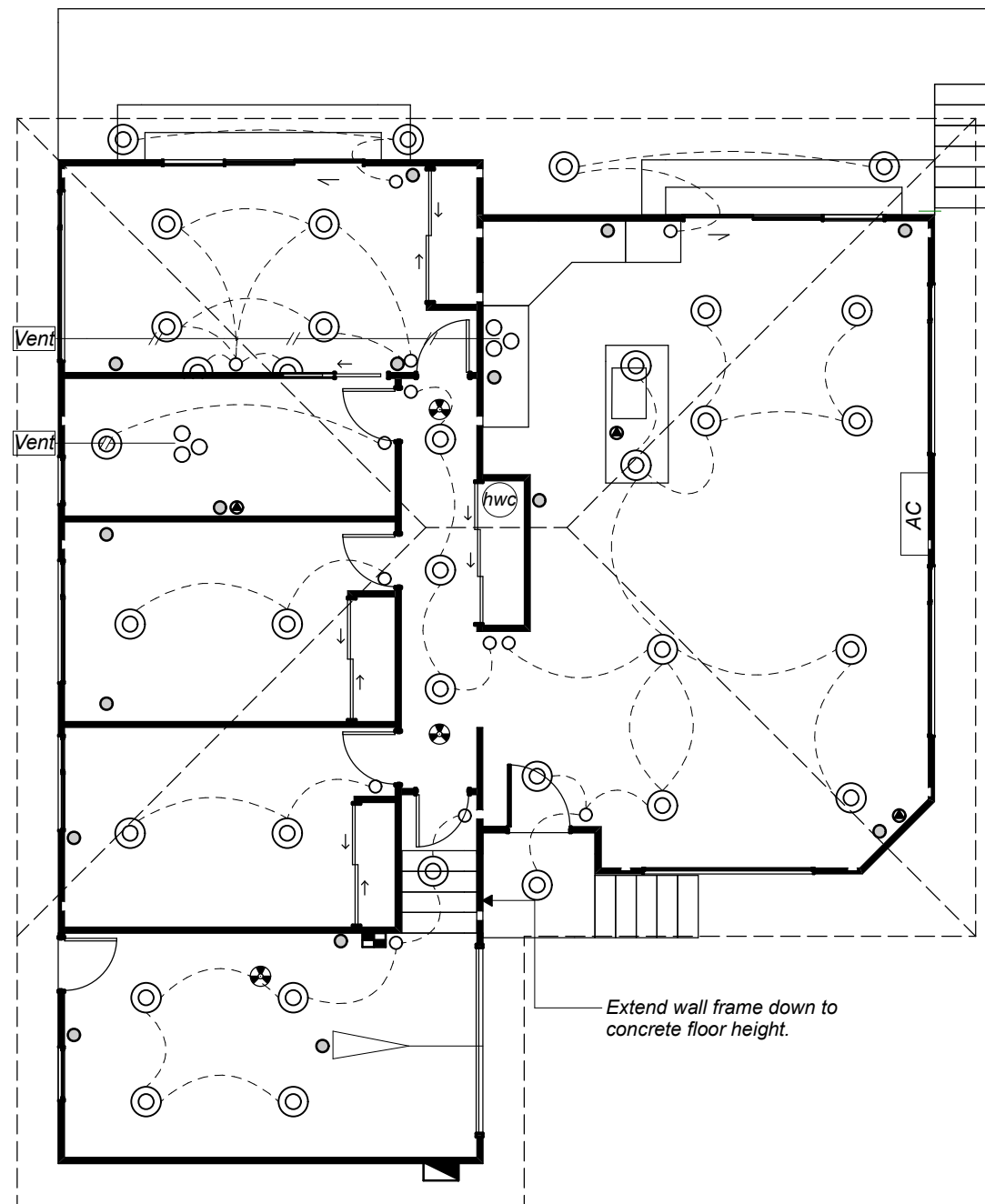


**Roofing Industries colorsteel half round gutter**

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

**Cross Strapping**

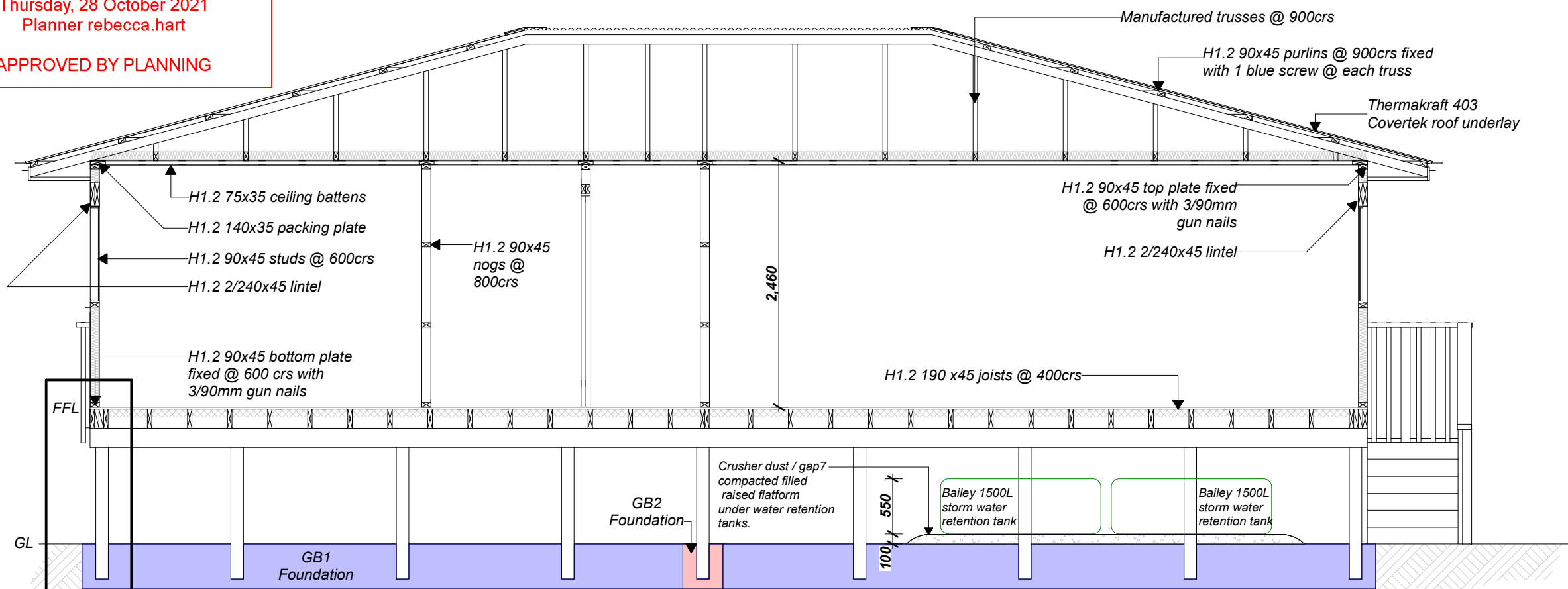
25x1mm galve lumberlok strap bracing

**Electrical Legend**

- ● Power Point/Double plug
- ⊙ Down Light
- ⌋ Light wall mount
- ⌋ Light Auto on
- Light Switch
- ⊛ Smoke Detector
- Distribution Board
- ▴ Meter Board
- ⊗ Extractor fan light
- ▴ Motor Garage Door
- Vent Vent through Soffit
- AC Air Conditioning

\*All down lights inside insulation envelope to be CA rated. Ensure light selection with safety feature to provide no radial clearance in the insulation.

Ensure electrician guidance on site for best use and positioning of Fittings.

**Framing construction****Dwelling****Foundation**

Piles H5 125x125 piles @ 1650mm crs max typically unless noted elsewhere  
Bearers H3.2 2/190x45  
Joists H1.2 min 190x45 @ 400crs  
Boundary joist 2/190x45

**Garage**

tray-dec 300 t+=0.75  
160 slab with HD16-300 bottom reinforcement and SE82 mesh top reinforcement  
Provide prop at mid-span during construction.  
Note: Bottom HD16-300 in one direction parallel with tray-dec 300 troughs.

**All concrete 30mpa****Walls 2.4 STUD**

Bottom plate H1.2 90x45 fixed @600 mm crs with 3/90mm gun nails.

**Top plate**

Single H1.2 90x45 with H1.2 140x35 plate packer to new wall

**Studs**

Exterior walls H1.2 90x45 @600crs 2.4 stud  
Garage walls with stud height 3.1m  
H1.2 90x45 @ 400crs  
Nogs @ 800crs

Interior walls H1.2 90x45 studs at 600crs  
Nogs @ 800crs

**Opening trimmers (on there flat)**

openings up to 2.4m 90x45  
upto 3.0m 90x75

**Lintels**

See proposed floor plan and truss layout plan for lintel sizes and fixings.  
(Truss load point Lintels over ride architectural designed lintels)

**Roof structure**

Manufactured trusses @ 900crs See truss plan for layout and fixings.

**Purlins**

H1.2 90x45 purlins spacings @ 900crs  
Fixings 1/blue screw into each truss chord.

**Ceiling**

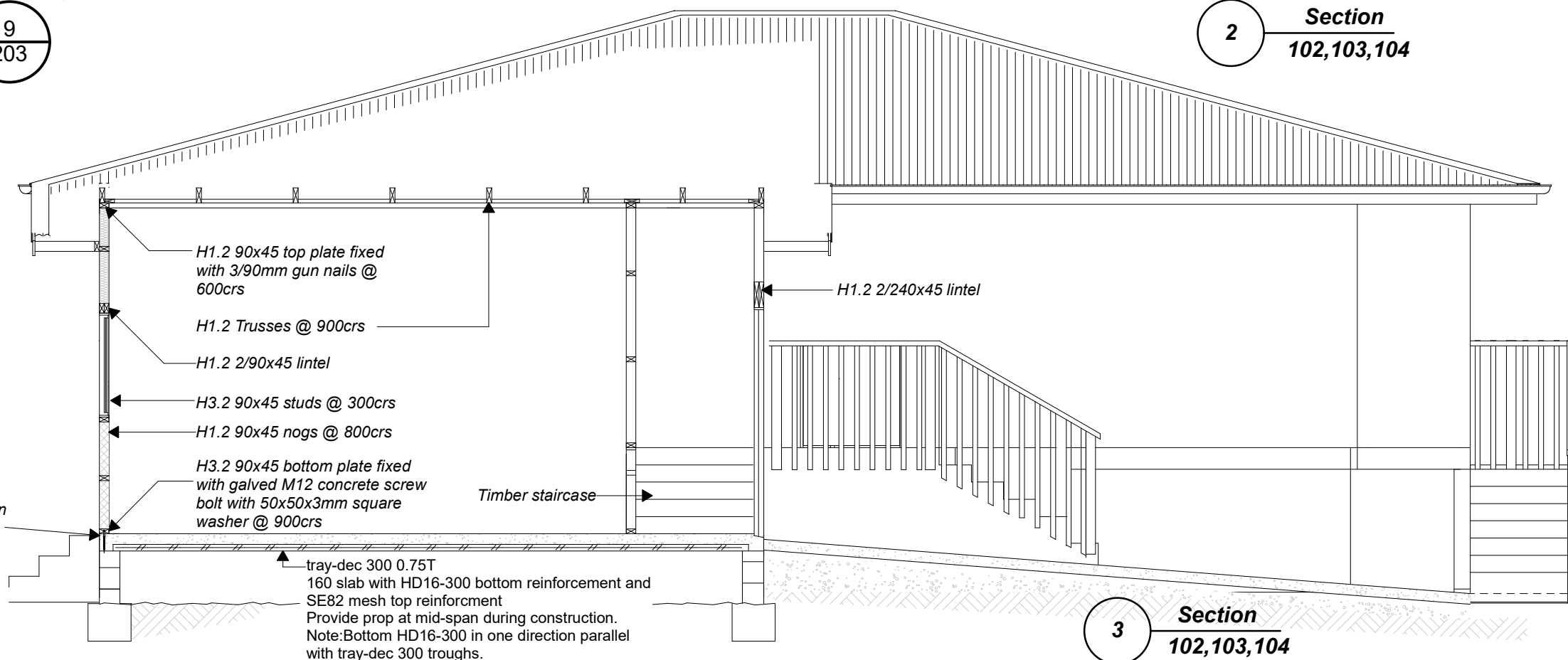
H1.2 140x35 plate packer fixed to top plate with 3/90x3.15 nails @500crs + 75x35 ceiling batten @ 450crs fixed with 2/75x3.06 nails @ truss

**Durability**

Construction materials to comply with Performance clause B2.3.2 Durability

Elements difficult to get to must have an intended life of 50 years  
Elements which can receive normal maintenance may last the lesser of the intended building life or for 15 years.

External claddings must under go regular washing & maintenance according to manufacturer's documentation.



Ensure DPC between all timber & concrete

H1.2 90x45 top plate fixed with 3/90mm gun nails @ 600crs

H1.2 Trusses @ 900crs

H1.2 2/90x45 lintel

H3.2 90x45 studs @ 300crs

H1.2 90x45 nogs @ 800crs

H3.2 90x45 bottom plate fixed with galved M12 concrete screw bolt with 50x50x3mm square washer @ 900crs

Timber staircase

tray-dec 300 0.75T  
160 slab with HD16-300 bottom reinforcement and SE82 mesh top reinforcement  
Provide prop at mid-span during construction.  
Note: Bottom HD16-300 in one direction parallel with tray-dec 300 troughs.

the  
**DRAUGHTSMAN**  
dream it • draw it • build it

Steven Bilyard  
31 McAlister, Whakatane  
Ph 07 312 9675  
Email: steve@thedraughtsman.co.nz

**Notes**

copyright remains the property of The Draughtsman Ltd unless specified in writing  
All dimensions are in millimetres unless otherwise stated  
All construction to comply with NZBC/NZ 3604 : 2011, along side current standards alike.  
All built up members mentioned for bearers, lintels, stringers and alike are to be nailed in accordance with NZS 3604 2.4.4.7

All timber to be SG8 unless specified otherwise.

**ALL DIMENSIONS TO BE VERIFIED ON SITE DO NOT SCALE**

OFF PLANS.

**Job Title**

**Proposed new home for Barry Raynes  
60b Pohutu Street, Whakatane.**

**Design**

Steven Bilyard

**Drawn**

Geoff Bilyard

**Checked****Revision Date****Plot Date**

26/07/2021

**Drawing Title**

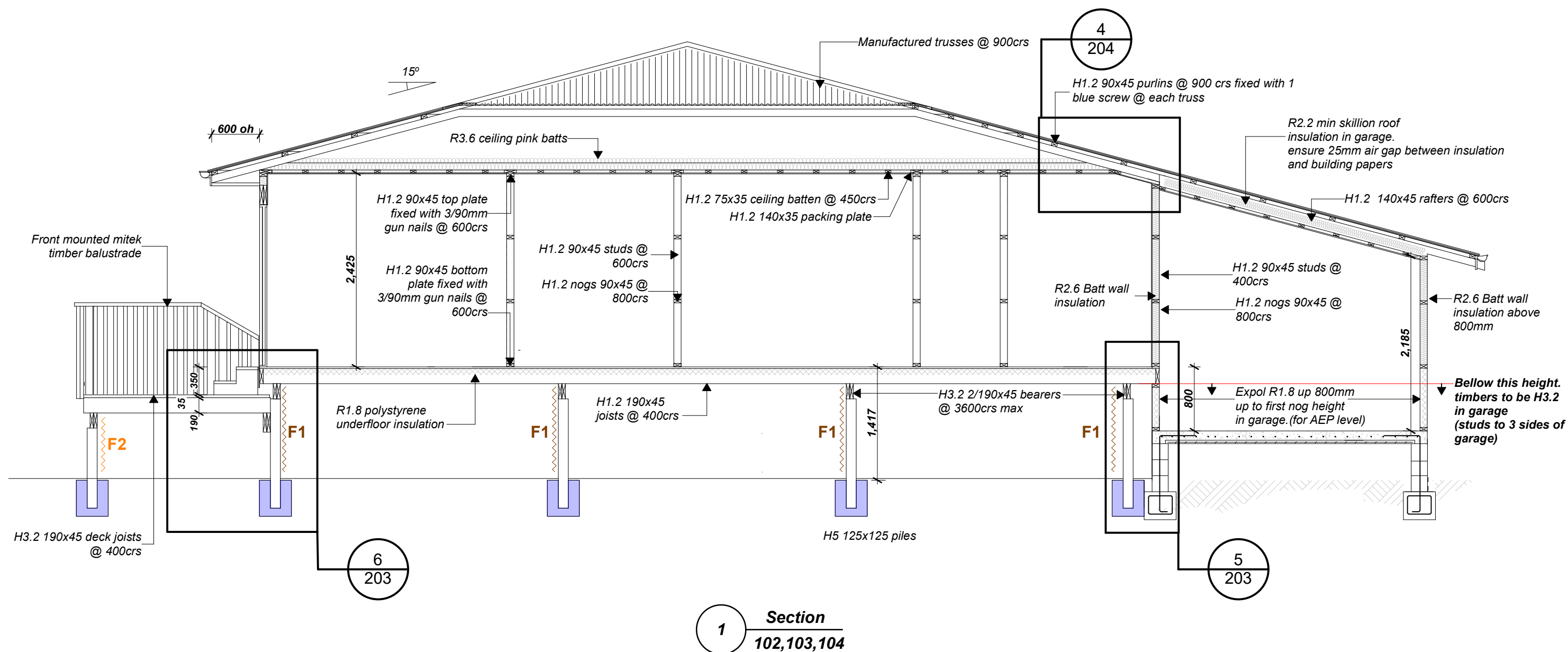
**Cross Sections**

**Scale**

**1:50**

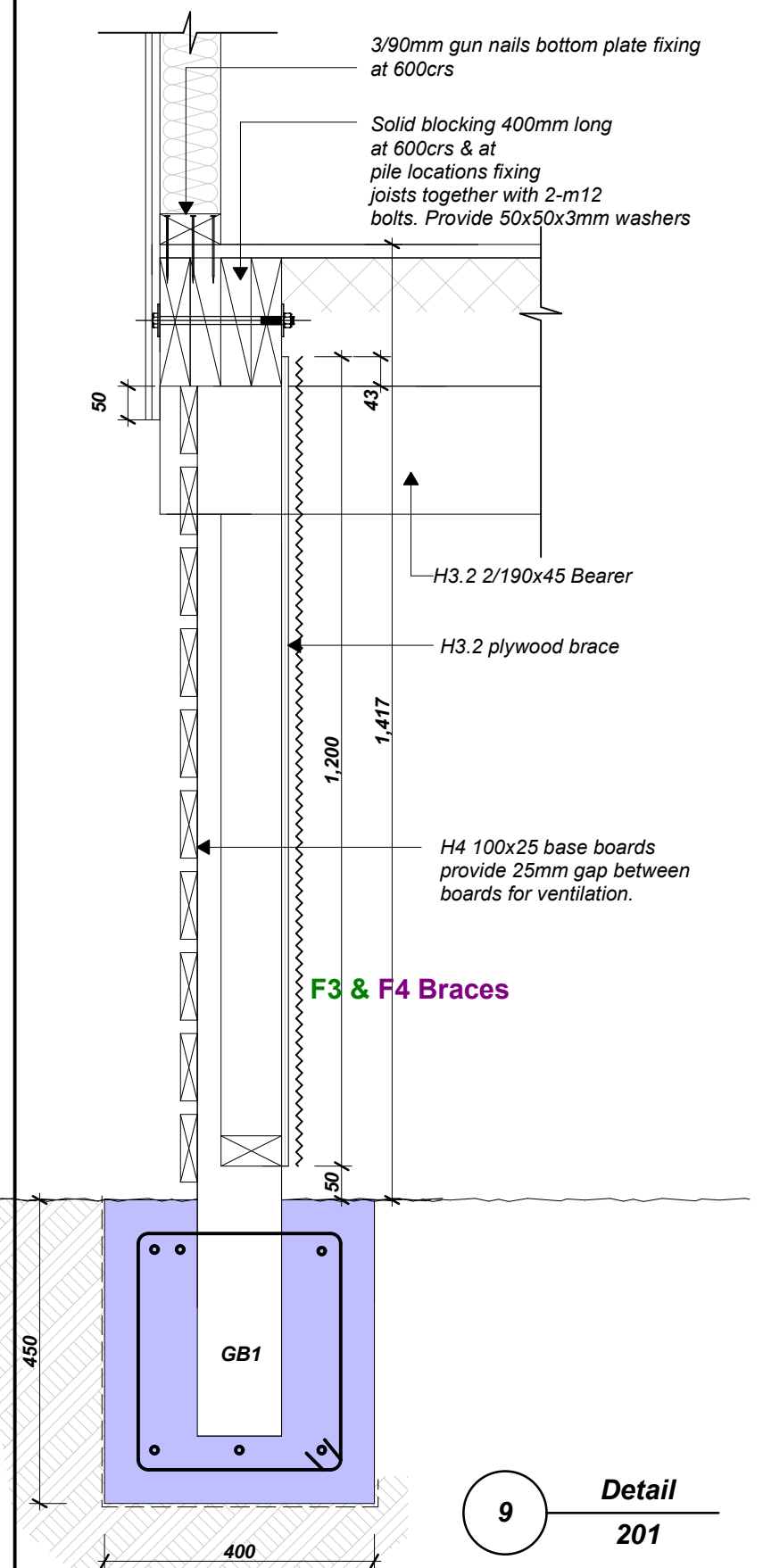
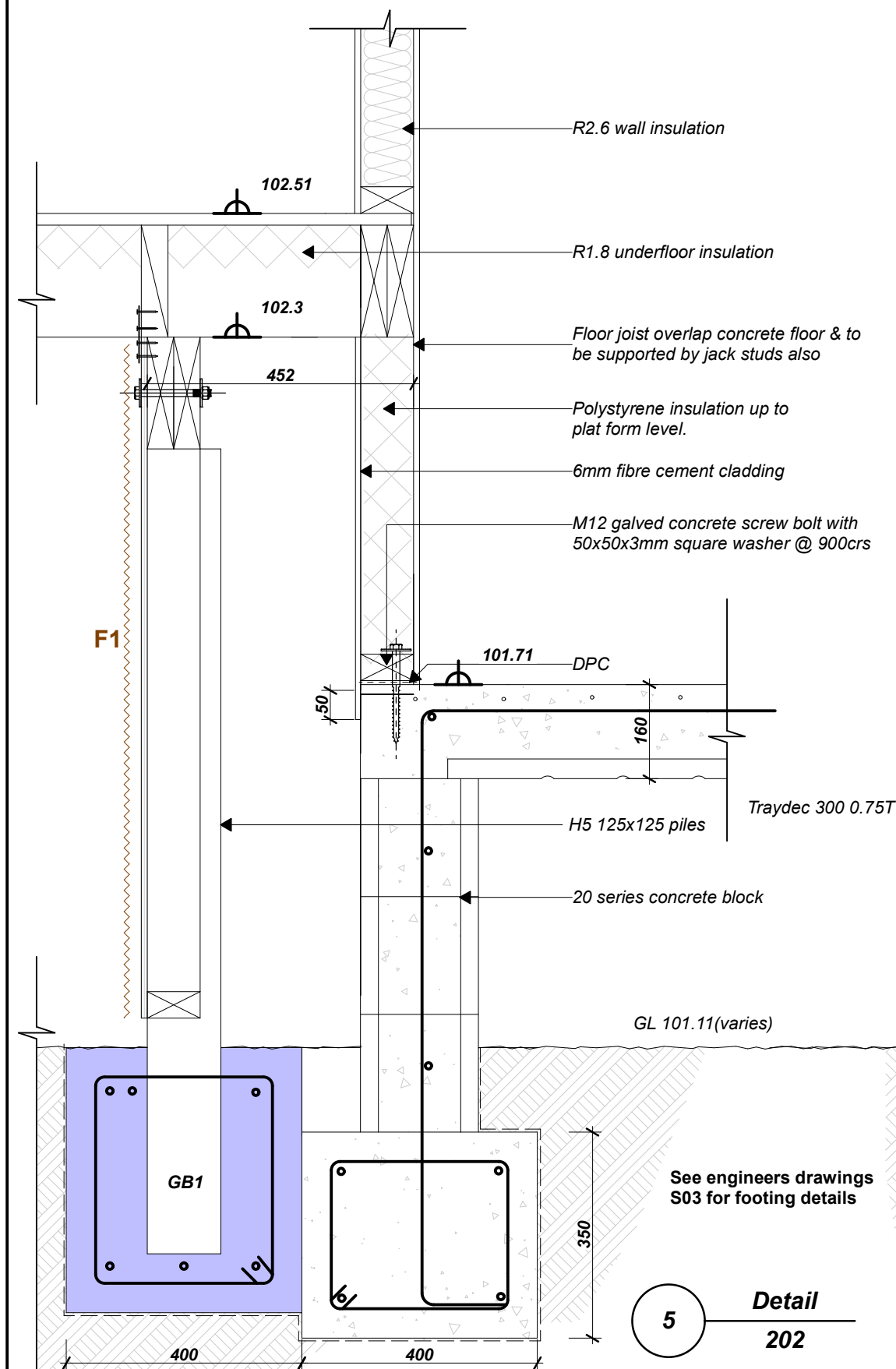
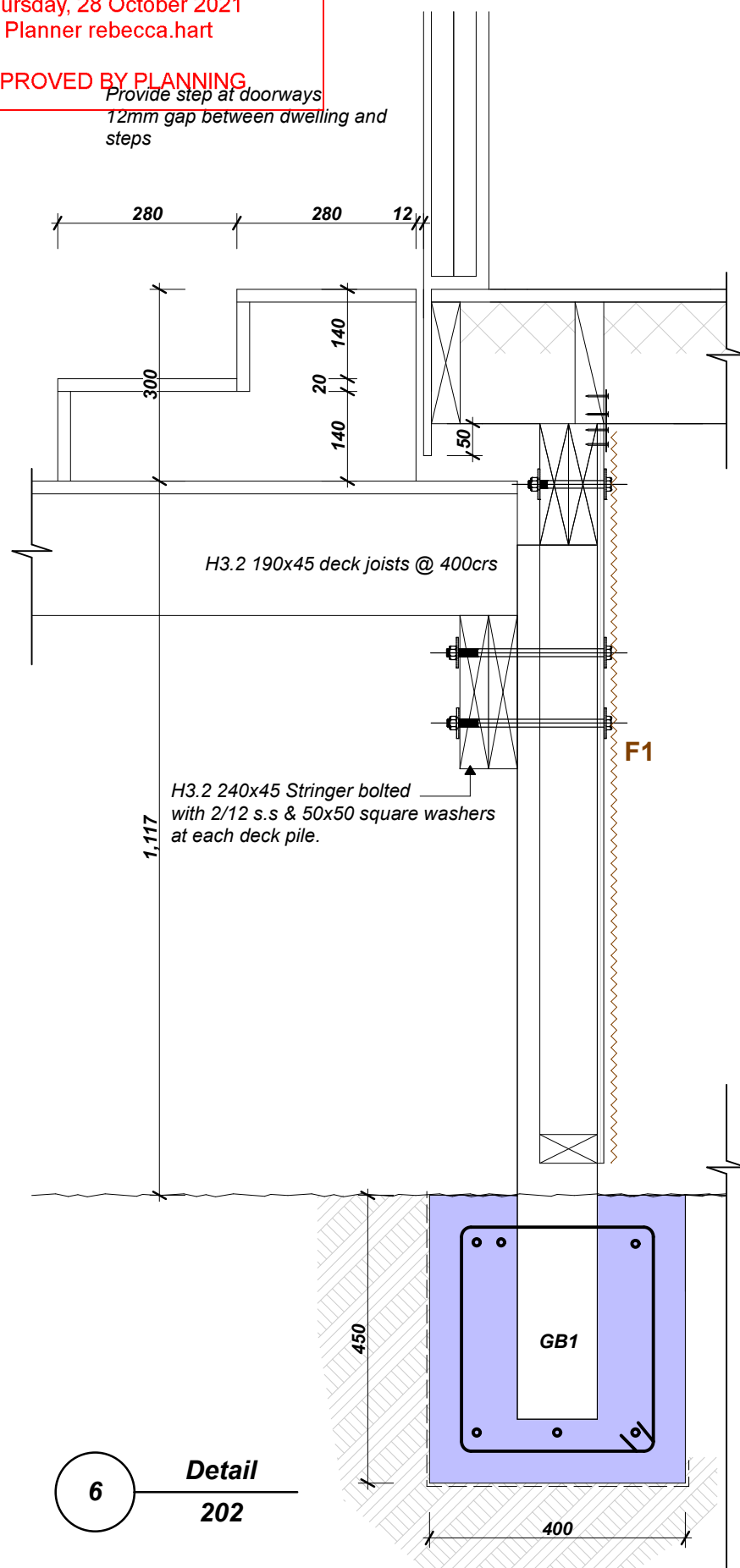
**Drawing Number**

**201**



Provide step at doorways

12mm gap between dwelling and steps



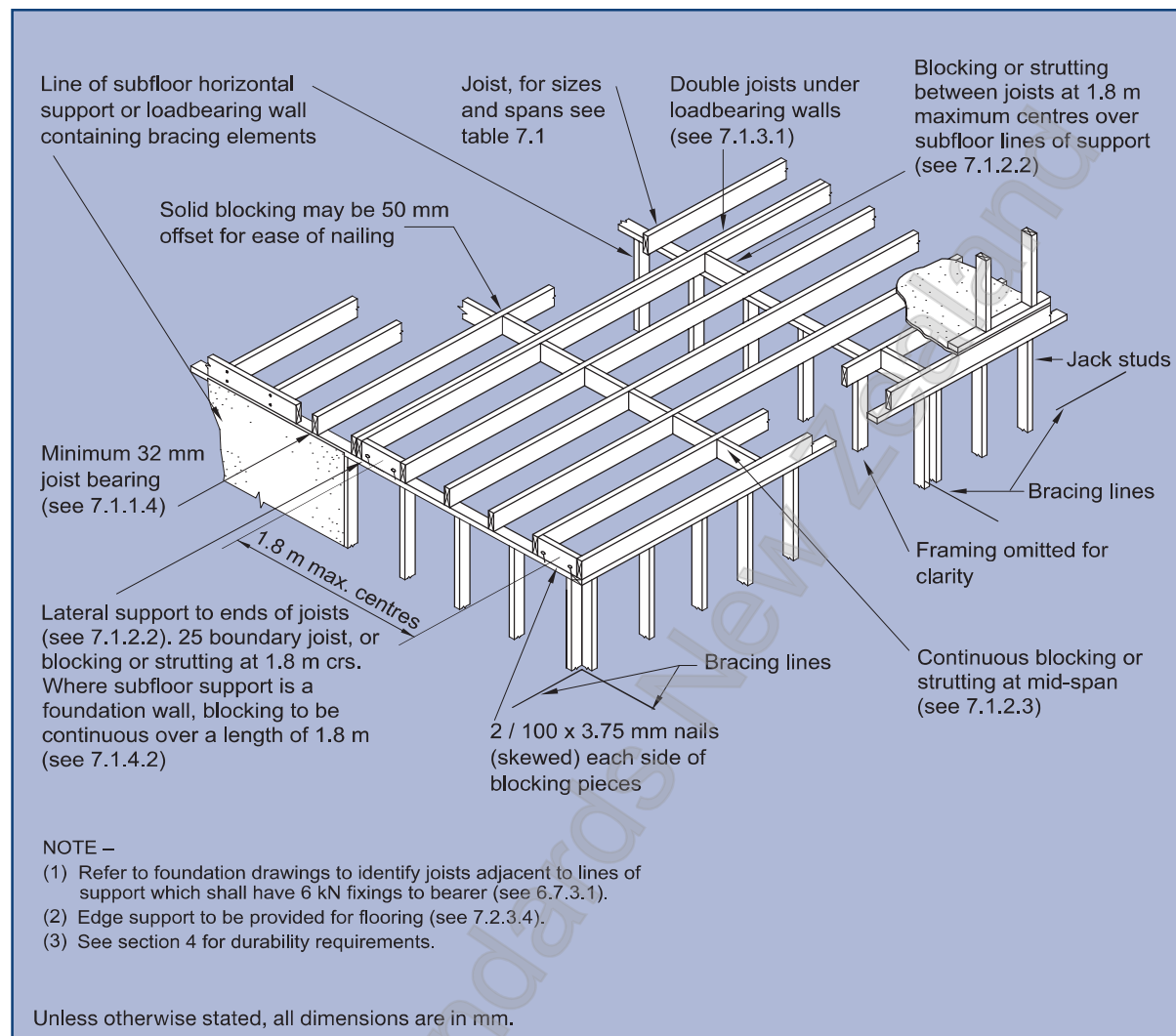
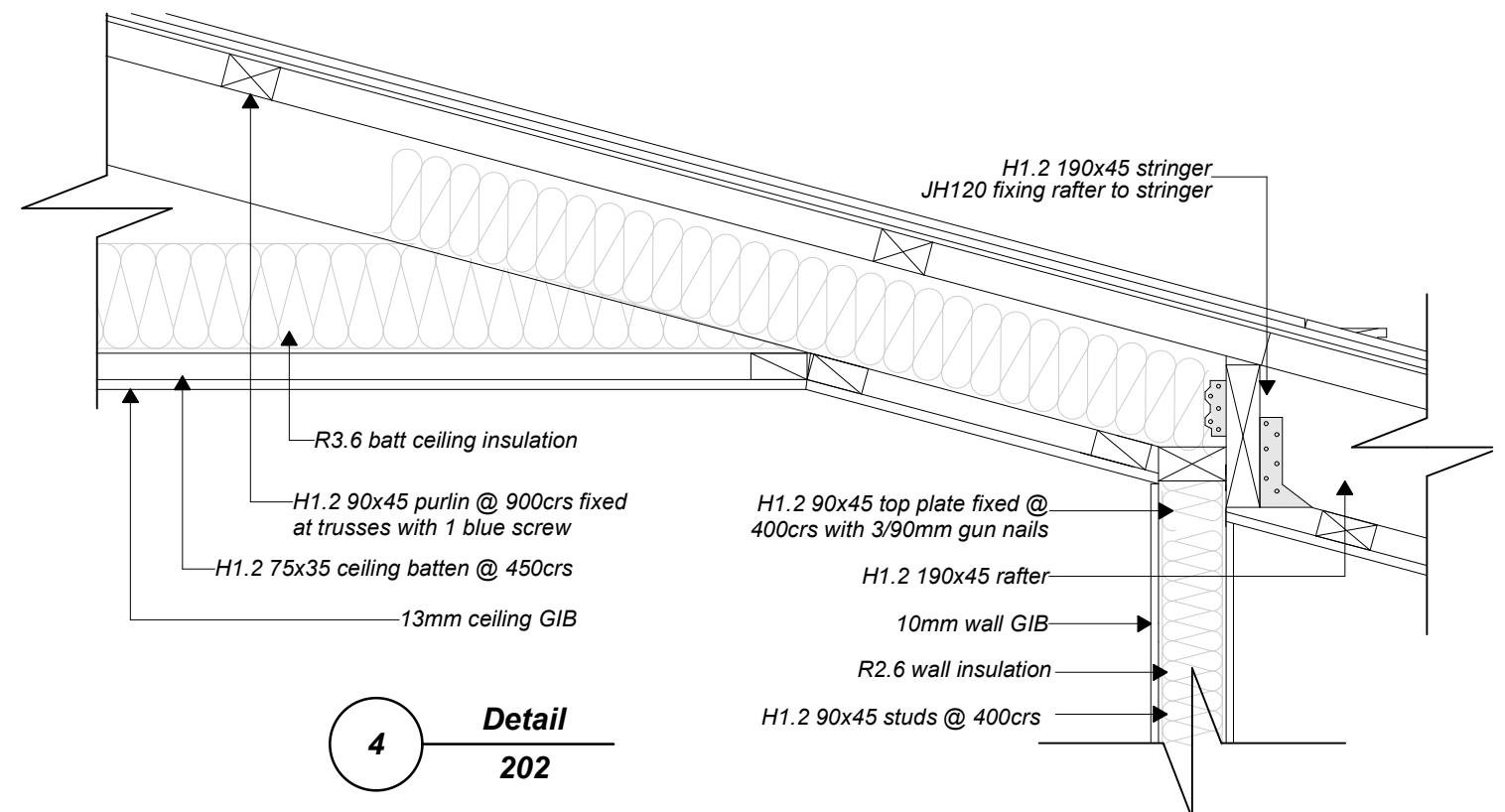


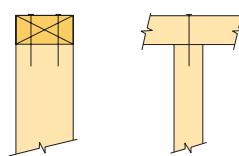
Figure 7.2 – Floor joists layout criteria (see 7.1.2.2)



## FIXING OPTIONS

### FIXING TYPE A 0.7 kN

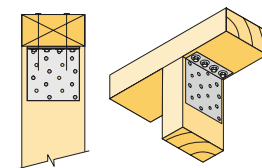
2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.



### FIXING TYPE B 4.7 kN

CHOOSE ANY OF THE 3 OPTIONS BELOW

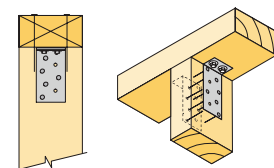
2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.



Plus  
LUMBERLOK  
6kN Stud Anchor  
(CPC80)

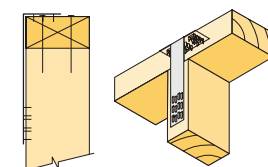
Recommended for internal wall options to avoid lining issues

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



Plus  
2 x LUMBERLOK  
CPC40

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



Plus  
LUMBERLOK  
Stud Strap  
(one face only)

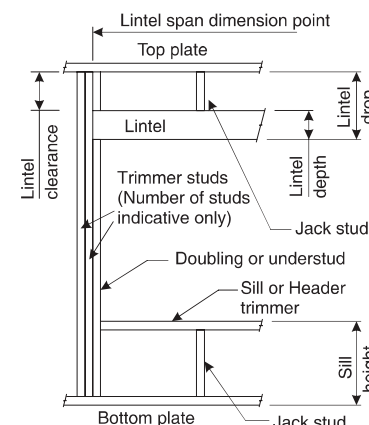
#### Note:

To calculate the number of B type fixings required, divide the wall length by the stud centres, add 1 to this figure and locate this number of fixings as evenly as possible along the wall length. This figure includes the start and end studs in each wall length.

#### NOTE:

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

#### DEFINITIONS



#### Lintel Supporting Girder Trusses:

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

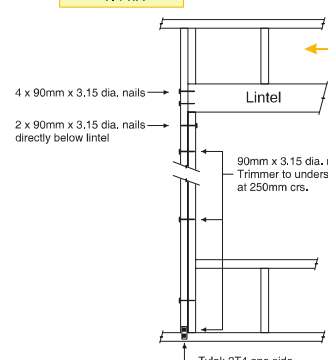
#### Notes:

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

## SELECTION CHART FOR LINTEL FIXING

| Lintel Span | Loaded Dimension (See Fig. 1.3 NZS 3604:2011) | Light Roof |   |   |    |    | Heavy Roof |   |   |    |    |
|-------------|-----------------------------------------------|------------|---|---|----|----|------------|---|---|----|----|
|             |                                               | Wind Zone  |   |   |    |    | Wind Zone  |   |   |    |    |
|             |                                               | L          | M | H | VH | EH | L          | M | H | VH | EH |
| 0.7         | 2.0                                           | E          | E | E | E  | F  | E          | E | E | E  | E  |
|             | 3.0                                           | E          | E | E | E  | F  | E          | E | E | E  | F  |
|             | 4.0                                           | E          | E | E | F  | F  | E          | E | E | F  | F  |
|             | 5.0                                           | E          | F | F | F  | G  | E          | F | F | F  | F  |
|             | 6.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
| 0.9         | 2.0                                           | E          | E | E | F  | F  | E          | E | E | E  | F  |
|             | 3.0                                           | E          | E | F | F  | F  | E          | E | E | F  | F  |
|             | 4.0                                           | E          | E | F | F  | F  | E          | E | F | F  | F  |
|             | 5.0                                           | E          | F | F | F  | G  | E          | F | F | F  | F  |
|             | 6.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
| 1.0         | 2.0                                           | E          | E | E | F  | F  | E          | E | E | E  | F  |
|             | 3.0                                           | E          | E | F | F  | F  | E          | E | F | F  | F  |
|             | 4.0                                           | E          | F | F | F  | G  | E          | F | F | F  | F  |
|             | 5.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 6.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
| 1.2         | 2.0                                           | E          | E | F | F  | F  | E          | E | E | F  | F  |
|             | 3.0                                           | E          | E | F | F  | F  | E          | E | F | F  | F  |
|             | 4.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 5.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 6.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
| 1.5         | 2.0                                           | E          | E | F | F  | F  | E          | E | E | F  | F  |
|             | 3.0                                           | E          | F | F | G  | G  | E          | F | F | F  | F  |
|             | 4.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 5.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 6.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
| 2.0         | 2.0                                           | E          | E | F | F  | G  | E          | E | F | F  | F  |
|             | 3.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 4.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 5.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 6.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
| 2.4         | 2.0                                           | E          | E | F | F  | G  | E          | E | F | F  | F  |
|             | 3.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 4.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 5.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 6.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
| 3.0         | 2.0                                           | E          | E | F | F  | G  | E          | E | F | F  | F  |
|             | 3.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 4.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 5.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 6.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
| 3.6         | 2.0                                           | E          | E | F | F  | G  | E          | E | F | F  | F  |
|             | 3.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 4.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 5.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 6.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
| 4.2         | 2.0                                           | E          | E | F | F  | G  | E          | E | F | F  | F  |
|             | 3.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 4.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 5.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 6.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
| 4.5         | 2.0                                           | E          | E | F | F  | G  | E          | E | F | F  | F  |
|             | 3.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 4.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 5.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 6.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
| 4.8         | 2.0                                           | E          | E | F | F  | G  | E          | E | F | F  | F  |
|             | 3.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 4.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 5.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |
|             | 6.0                                           | E          | F | F | G  | G  | E          | F | F | F  | G  |

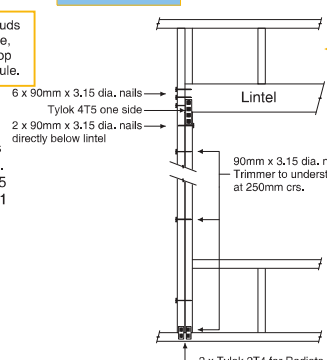
### TYPE E 1.4 kN



For fixing of jack studs to lintel & top plate, refer to Stud to Top Plate Fixing Schedule.

Stud numbers indicative only. Refer Table 8.5 NZS 3604:2011

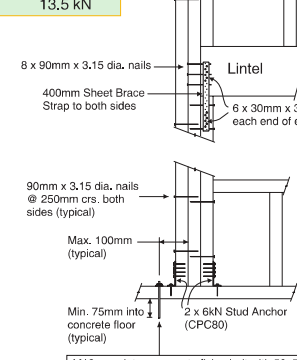
### TYPE F 4.0 kN



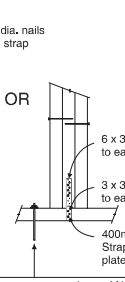
For fixing of jack studs to lintel & top plate, refer to Stud to Top Plate Fixing Schedule.

Stud numbers indicative only. Refer Table 8.5 NZS 3604:2011

### TYPE H 13.5 kN



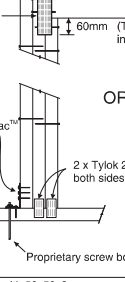
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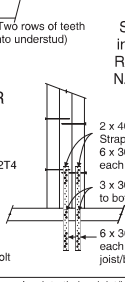
OR



OR



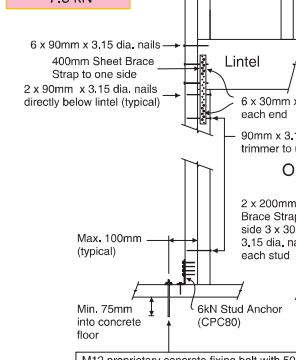
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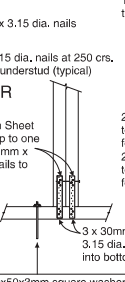
For fixing of jack studs to lintel & top plate, refer to Stud to Top Plate Fixing Schedule.

Stud numbers indicative only. Refer Table 8.5 NZS 3604:2011

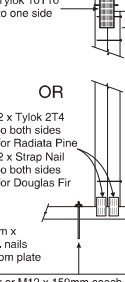
### TYPE G 7.5 kN



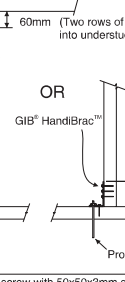
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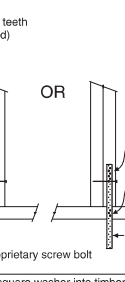
OR



OR

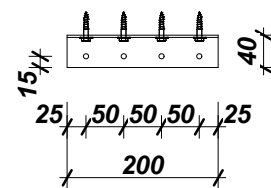


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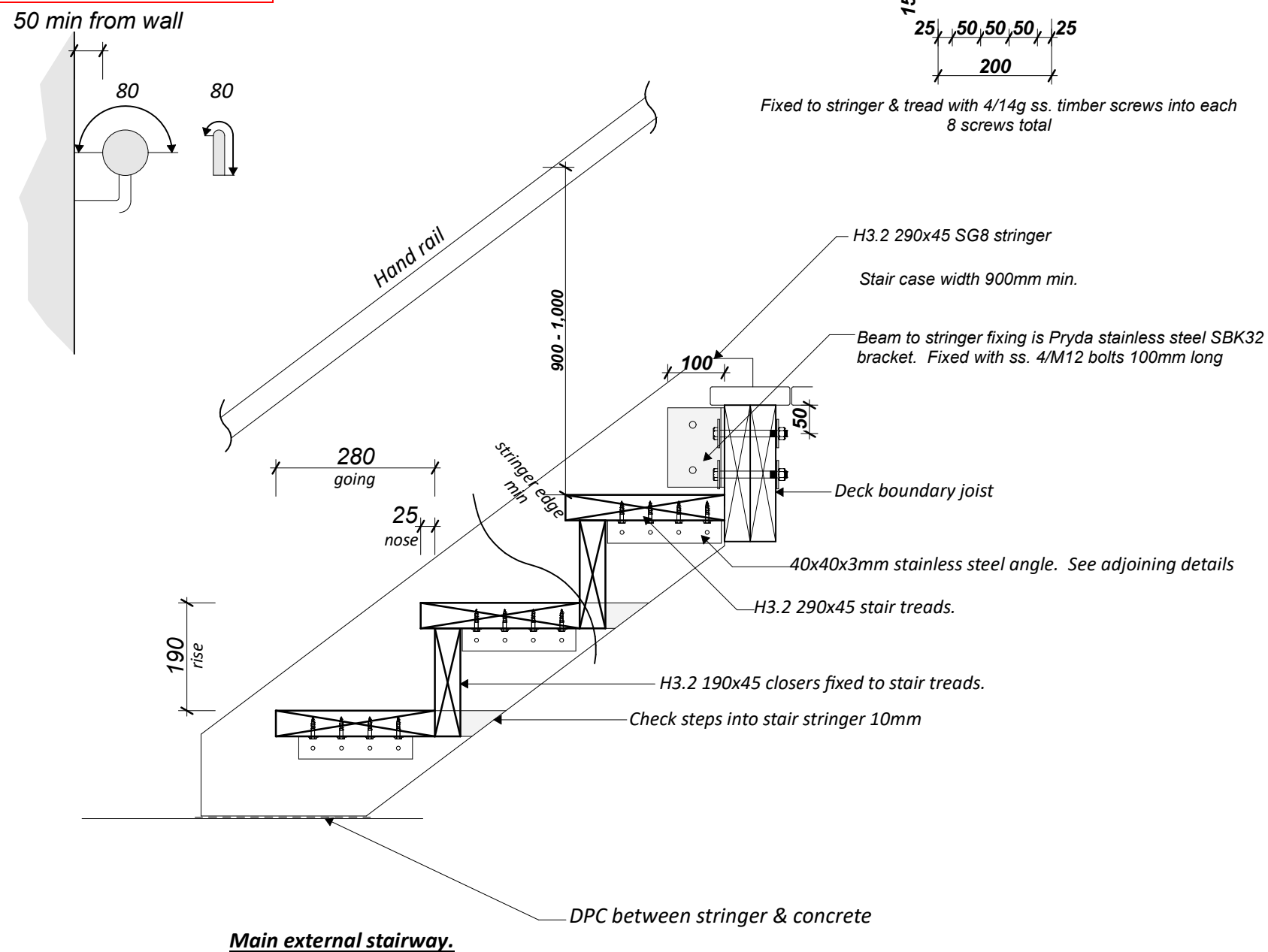


For fixing of jack studs to lintel & top plate, refer to Stud to Top Plate Fixing Schedule.

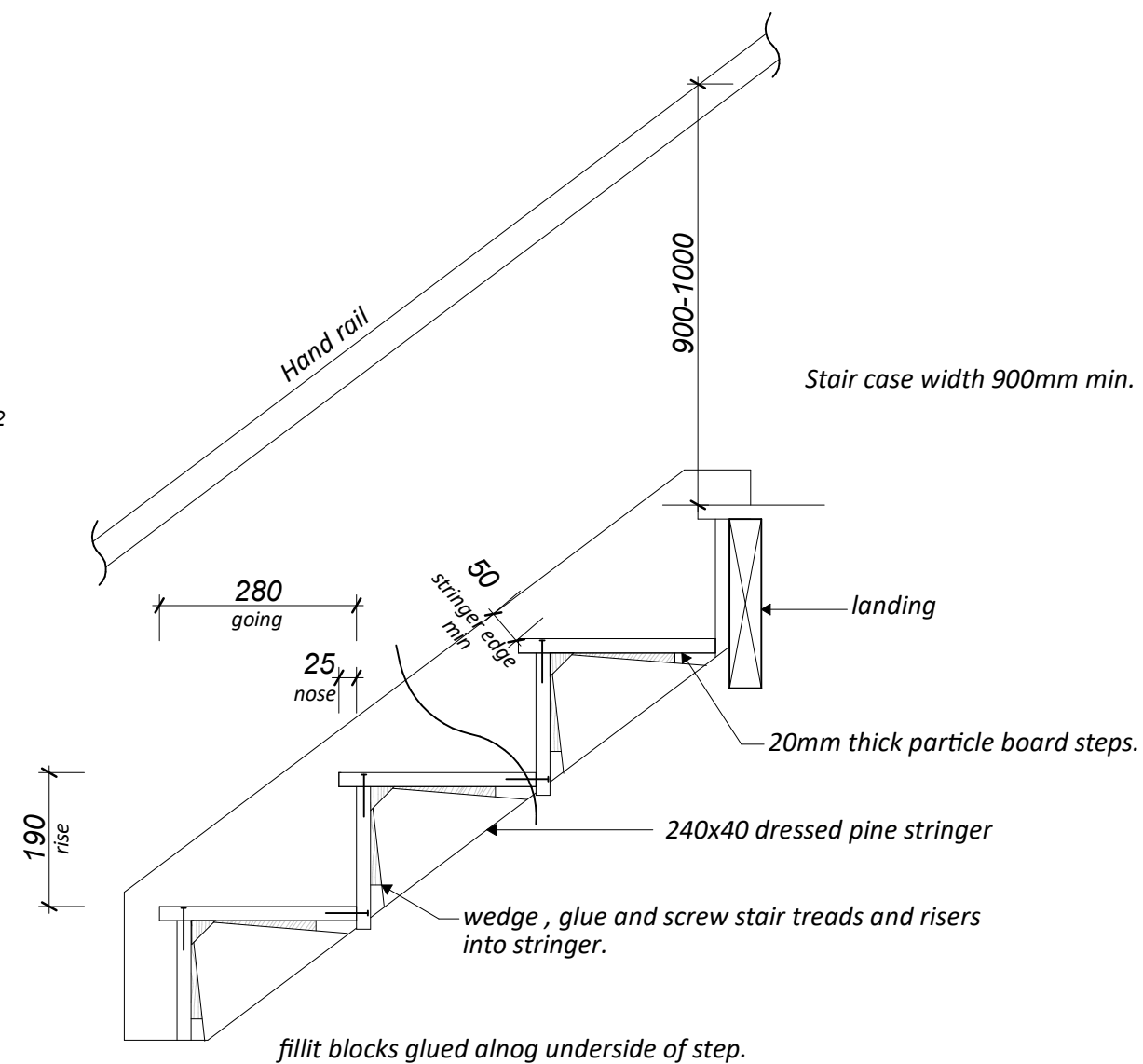
Stud numbers indicative only. Refer Table 8.5 NZS 3604:2011



*Fixed to stringer & tread with 4/14g ss. timber screws into each  
8 screws total*



**Main external stairway.**



**Common and main private internal stairway.**

Max rise = 190mm  
Min going = 280mm  
max nosing = 25mm  
max pitch = 37°

Sizes shown are max and min indications only.

**Notes**  
copyright remains the property of The Draughtsman Ltd unless specified in writing  
All dimensions are in millimetres unless otherwise stated  
All construction to comply with NZBC/NZ 3604 : 2011, along side current standards alike.  
All built up members mentioned for bearers, lintels, stringers and alike are to be nailed in accordance with NZS 3604 2.4.4.7  
All timber to be SG8 unless specified otherwise.

---

**ALL DIMENSIONS TO BE VERIFIED ON SITE DO NOT SCALE  
OFF PLANS.**

**Proposed new home for Barry Raynes  
60b Pohutu Street, Whakatane.**

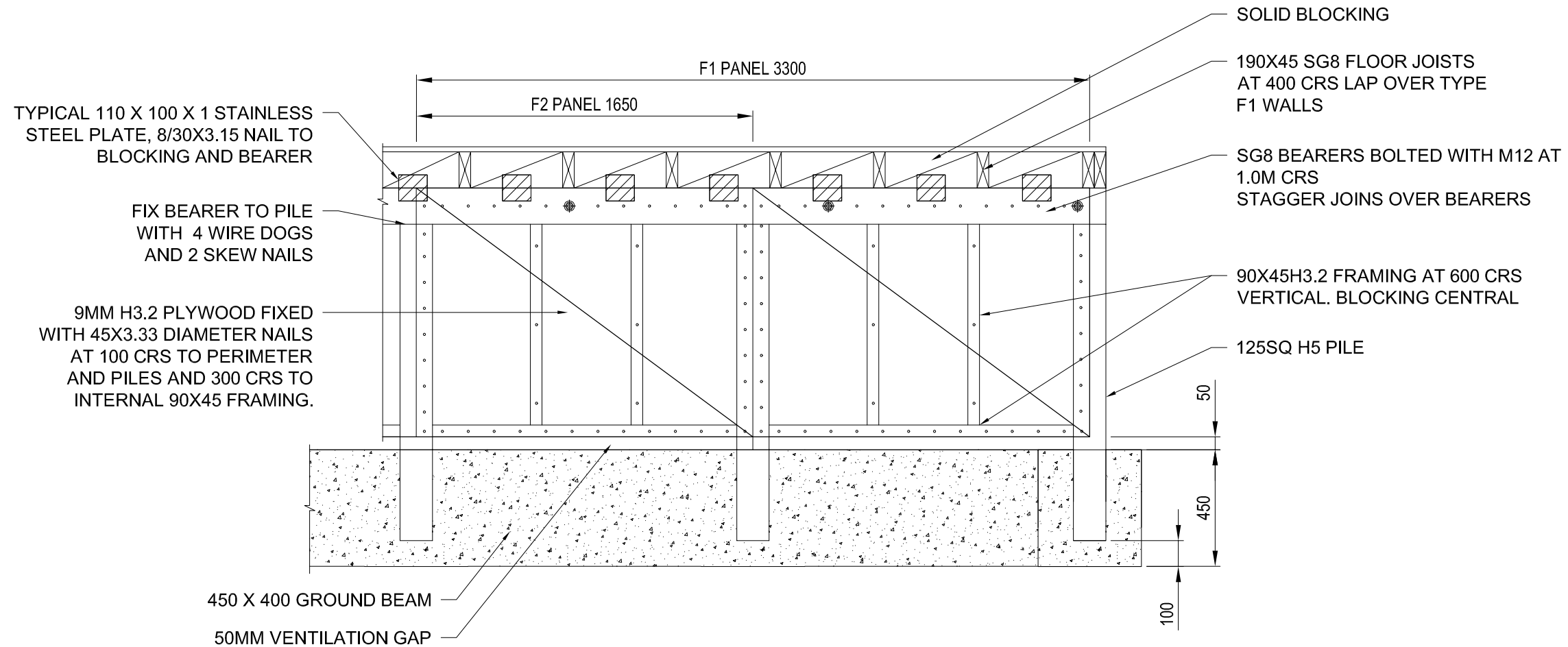
|               |                |
|---------------|----------------|
| Design        | Steven Bilyard |
| Drawn         | Geoff Bilyard  |
| Checked       |                |
| Revision Date |                |
| Plot Date     | 26/07/2021     |

|               |                          |
|---------------|--------------------------|
| Drawing Title | <b>Staircase Details</b> |
|---------------|--------------------------|

|                |             |
|----------------|-------------|
| Scale          | <b>1:10</b> |
| Drawing Number | <b>206</b>  |

RC LL-2020-9257-00  
Thursday, 28 October 2021  
Planner rebecca.hart

APPROVED BY PLANNING



## TYPE F1 AND F2 FOUNDATION WALL FOR 1.65m AND 3.3m LONG BRACED WALLS

NOTE  
ALL FIXINGS IN SUB-FLOOR TO BE STAINLESS STEEL

Arc pg 207

| No. | Revision                    | By | Chk | Appd | Date     |
|-----|-----------------------------|----|-----|------|----------|
| 0   | ISSUED FOR BUILDING CONSENT | FS | RF  | RF   | 14.05.21 |

Drawing Originator:

**ARNOLD & JOHNSTONE**  
CONSULTING STRUCTURAL ENGINEERS  
PH 07 322 1000 | www.arnoldjohnstone.co.nz

|                     |              |    |          |                            |
|---------------------|--------------|----|----------|----------------------------|
| Original Scale (A3) | Design       | FS | MAY 2021 | Approved For Construction* |
| AS SHOWN            | Drawn        | KW | MAY 2021 |                            |
|                     | Dsg Verifier | RF | MAY 2021 |                            |
|                     | Dwg Check    | RF | MAY 2021 | Date                       |

Client: BARRY RAYNES

Project: PROPOSED NEW RESIDENCE  
60A POHUTU STREET  
WHAKATANE

Title: TYPICAL DETAILS  
FOUNDATION WALLS  
SHEET 1

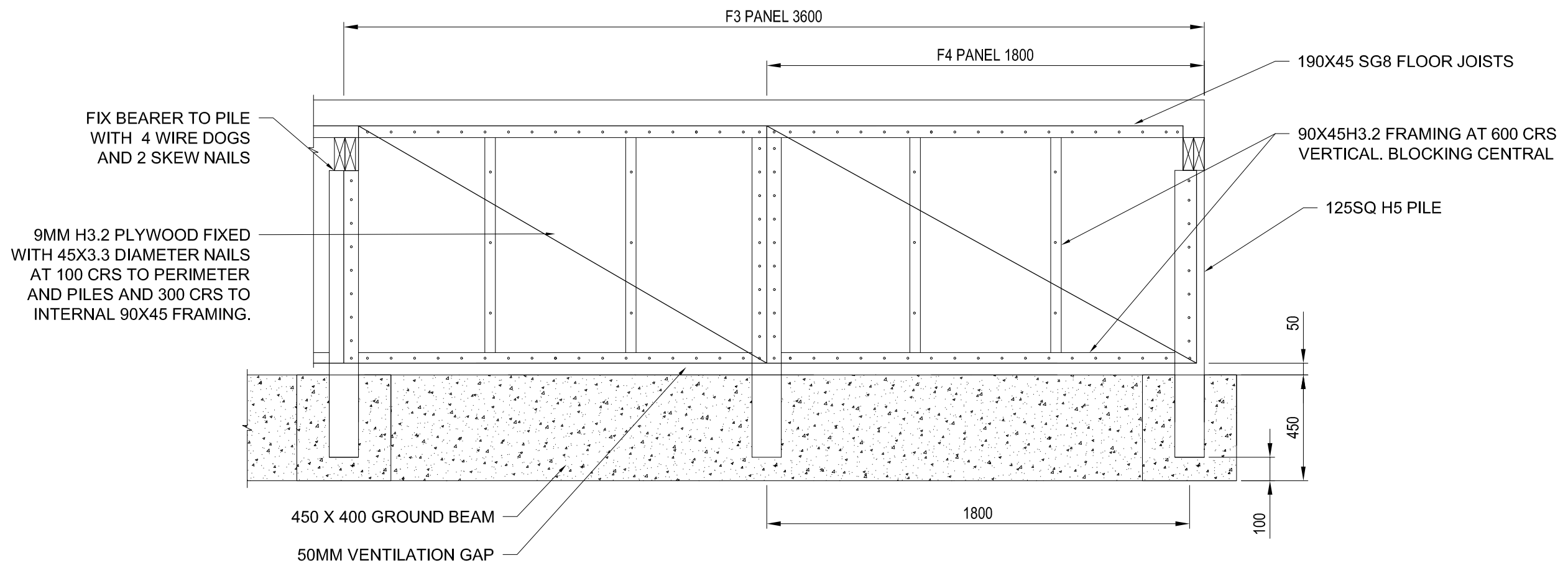
Discipline: STRUCTURAL

Drawing No. 13023 - S01

Rev. 0

RC LL-2020-9257-00  
Thursday, 28 October 2021  
Planner rebecca.hart

APPROVED BY PLANNING



## TYPE F3 AND F4 FOUNDATION WALL FOR 1.8m AND 3.6m LONG BRACED WALLS

NOTE  
ALL FIXINGS IN SUB-FLOOR TO BE STAINLESS STEEL

Arc pg 208

|     |                             |    |     |      |          |
|-----|-----------------------------|----|-----|------|----------|
|     |                             |    |     |      |          |
| 0   | ISSUED FOR BUILDING CONSENT | FS | RF  | RF   | 14.05.21 |
| No. | Revision                    | By | Chk | Appd | Date     |

Drawing Originator:

**ARNOLD & JOHNSTONE**  
CONSULTING STRUCTURAL ENGINEERS  
09178252 | info@arnoldjohnstone.co.nz | www.arnoldjohnstone.co.nz

|                                              |              |    |          |                            |
|----------------------------------------------|--------------|----|----------|----------------------------|
| Original Scale (A3)                          | Design       | FS | MAY 2021 | Approved For Construction* |
| AS SHOWN                                     | Drawn        | KW | MAY 2021 |                            |
|                                              | Dsg Verifier | RF | MAY 2021 |                            |
|                                              | Dwg Check    | RF | MAY 2021 | Date                       |
| * Refer to Revision 1 for Original Signature |              |    |          |                            |

Client: BARRY RAYNES

Project: PROPOSED NEW RESIDENCE  
60A POHUTU STREET  
WHAKATANE

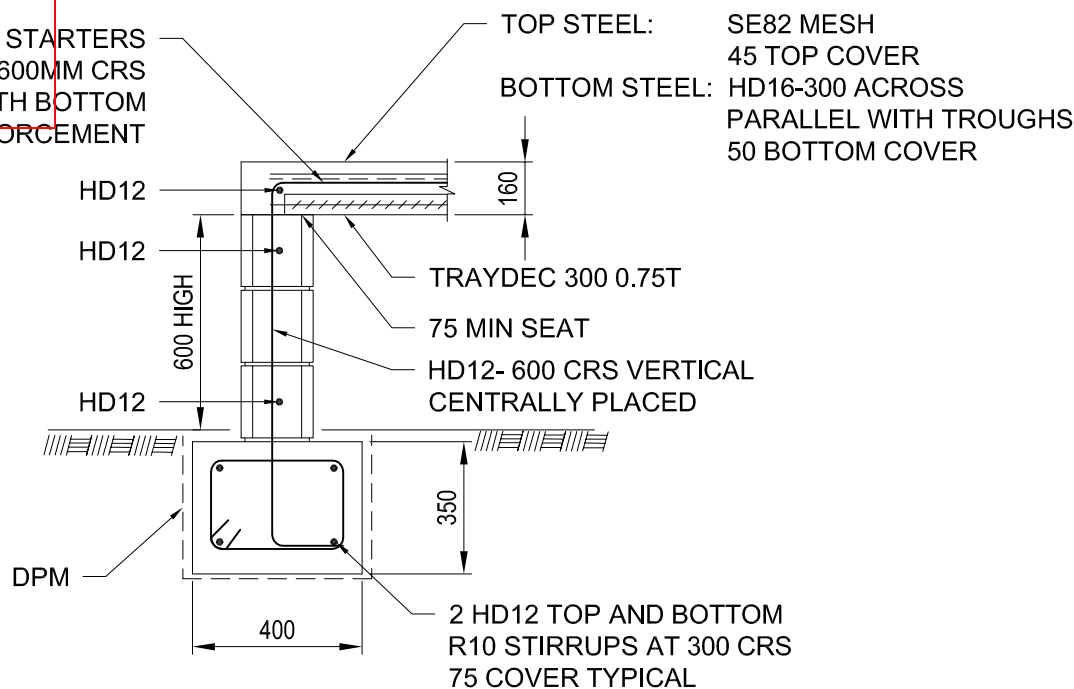
Title: TYPICAL DETAILS  
FOUNDATION WALLS  
SHEET 2

Discipline: STRUCTURAL

Drawing No. 13023 - S02

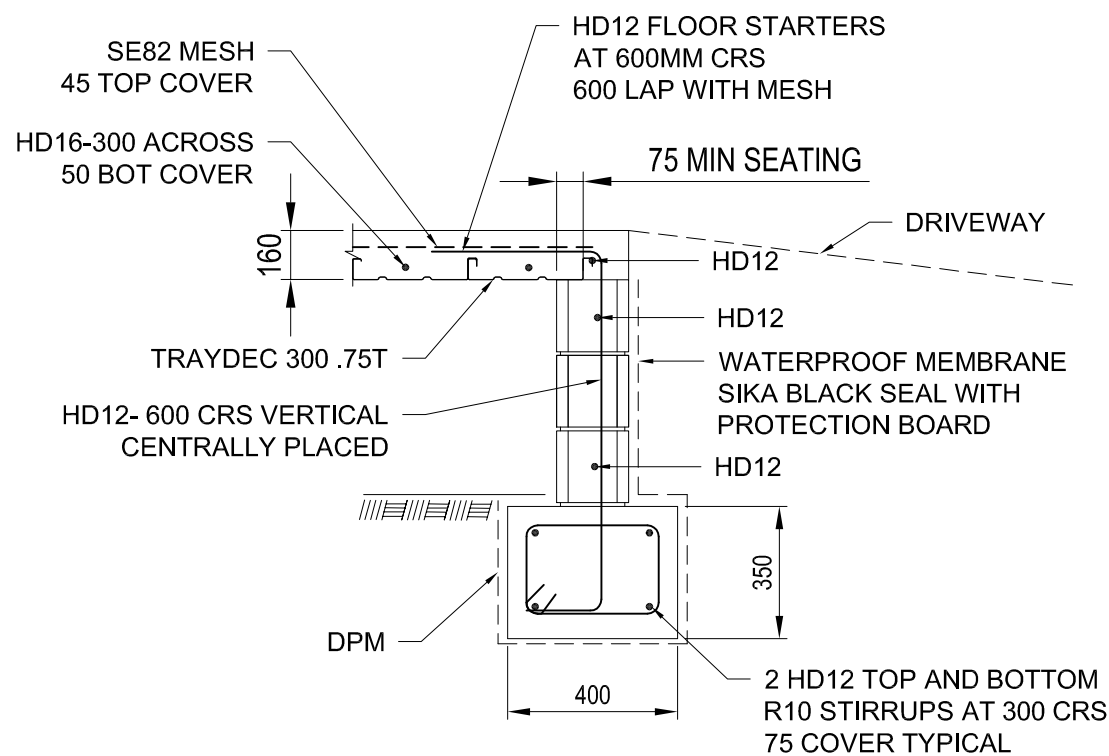
Rev. 0

RC LL-2020-9257-00  
Thursday, 28 October 2021  
Planner rebecca.hart  
APPROVED BY PLANNING

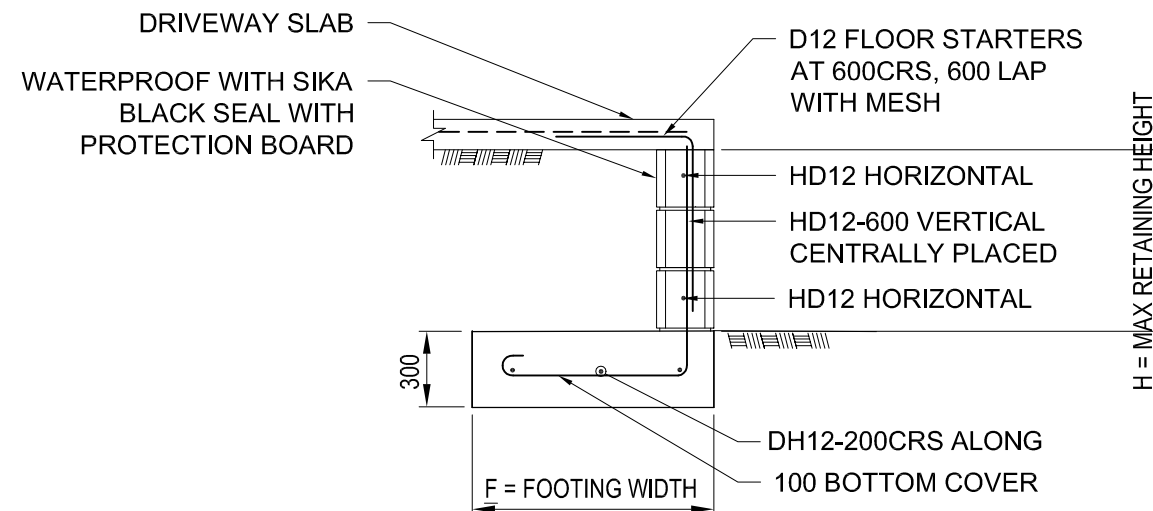


## TYPICAL GARAGE MASONRY WALL DETAIL

SECTION A  
1:20



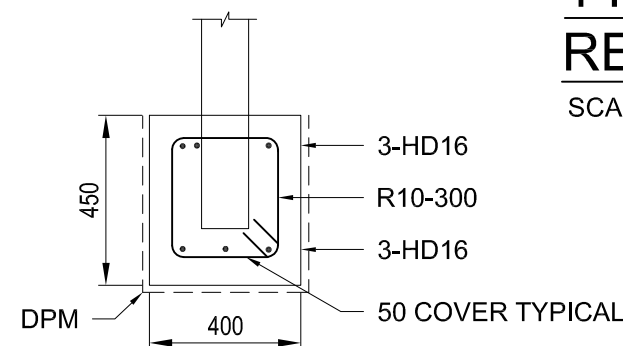
SECTION B  
1:20



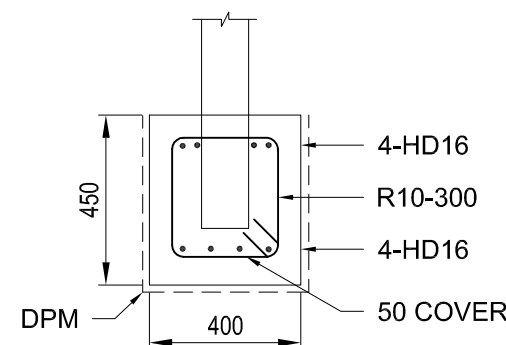
| MASONRY RETAINING WALL PARAMETERS |                      |                           |                           |
|-----------------------------------|----------------------|---------------------------|---------------------------|
| MAX RETAINED HEIGHT H (mm)        | FOOTING WIDTH F (mm) | WALL STARTERS S           | VERTICAL REINFORCEMENT V  |
| 300                               | 400                  | DH12-600 CENTRALLY PLACED | DH12-600 CENTRALLY PLACED |
| 600                               | 600                  | DH12-600 CENTRALLY PLACED | DH12-600 CENTRALLY PLACED |

## TYPICAL DRIVEWAY MASONRY RETAINING WALL

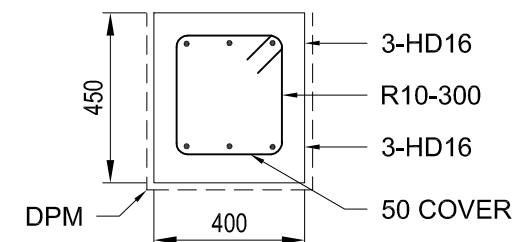
SCALE 1:25



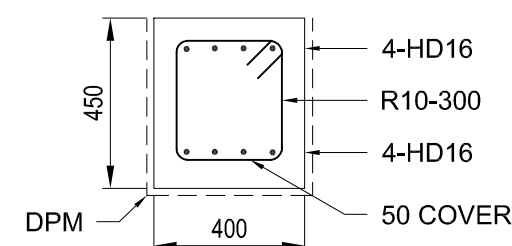
## GB1 - GROUND BEAM AT PILE LOCATION



## GB2 - GROUND BEAM AT PILE LOCATION



## GB1 - GROUND BEAM



## GB2 - GROUND BEAM

Arc pg 209

| No. | Revision                    | By | Chk | Appd | Date     |
|-----|-----------------------------|----|-----|------|----------|
| 0   | ISSUED FOR BUILDING CONSENT | FS | RF  | RF   | 14.05.21 |

Drawing Originator:  
**ARNOLD & JOHNSTONE**  
CONSULTING STRUCTURAL ENGINEERS  
07137022 | 07137023 | www.arnoldjohnstone.co.nz

|                                              |              |    |          |                                                |
|----------------------------------------------|--------------|----|----------|------------------------------------------------|
| Original Scale (A3)<br><br>AS SHOWN          | Design       | FS | MAY 2021 | Approved For Construction*<br><br><br><br>Date |
|                                              | Drawn        | KW | MAY 2021 |                                                |
|                                              | Dsg Verifier | RF | MAY 2021 |                                                |
|                                              | Dwg Check    | RF | MAY 2021 |                                                |
| * Refer to Revision 1 for Original Signature |              |    |          |                                                |

Client: BARRY RAYNES

Project: PROPOSED NEW RESIDENCE  
60A POHUTU STREET  
WHAKATANE

Title: TYPICAL DETAILS  
MASONRY AND CONCRETE  
SHEET 1

Discipline: STRUCTURAL  
Drawing No: 13023 - S03  
Rev: 0

RC LL-2020-9257-00  
Thursday, 28 October 2021  
Planner: rebecca.hart

NOTES

APPROVED BY PLANNING

## S1.0 MASONRY WORK

S1.1) ALL MATERIAL AND WORKMANSHIP SHALL COMPLY WITH THE REQUIREMENTS OF NZS4210.

S1.2) ALL MASONRY WALLS TO BE GRADE B MASONRY, 190MM THICK WITH ALL CELLS GROUTED WITH 25MPA GROUT.

S1.3) PROVIDE CLEAN OUT PORTS IN BOTTOM COURSE OF ALL VERTICAL BARS AND SECURELY TIE VERTICAL STEEL TO STARTERS THROUGH CLEAN OUT PORTS.

S1.4) REINFORCEMENT LAP LENGTHS SHALL BE (UNLESS SHOWN OTHERWISE ON DRAWINGS)  
HD12 850MM  
HD16 1150MM

S1.5) PROVIDE CONTROL JOINTS AT 6 METRE CENTRES MAXIMUM

S1.6) HD=GRADE 500 REINFORCEMENT

## S2.0 CONCRETE WORK

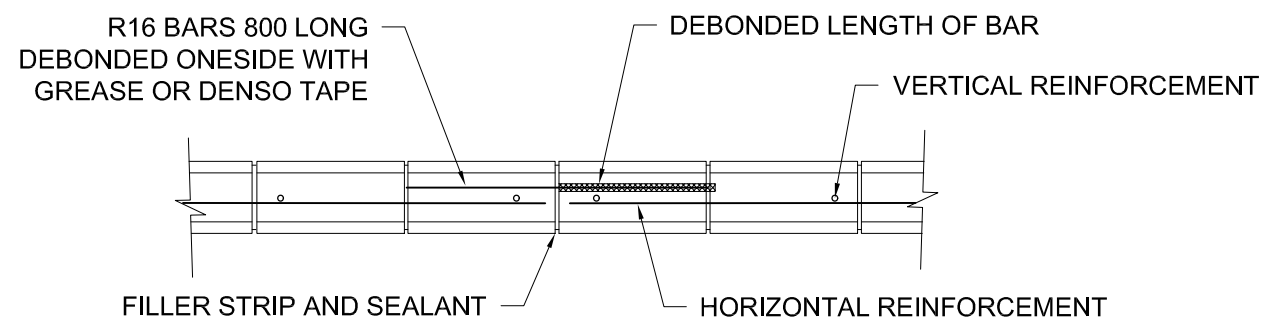
S2.1) ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH NZS 3101 AND NZS 3109 EXCEPT AS MODIFIED IN THE FOLLOWING.

S2.2) CONCRETE STRENGTH  $F'c = 30\text{MPa}$ .

S2.3) REINFORCEMENT GRADE - HD = GRADE 500E

S2.4) REINFORCEMENT LAP LENGTHS SHALL BE (UNLESS SHOWN OTHERWISE ON DRAWINGS)  
HD12 800MM  
HD16 1000MM

S2.5) ALL REINFORCEMENT TERMINATING AT A BEAM END SHALL BE PROVIDED WITH A HOOK. HOOK LENGTHS:  
HD12  $180^\circ$  HOOK = 65MM      HD16  $180^\circ$  HOOK = 65MM  
HD12  $90^\circ$  HOOK = 150MM      HD16  $90^\circ$  HOOK = 200MM

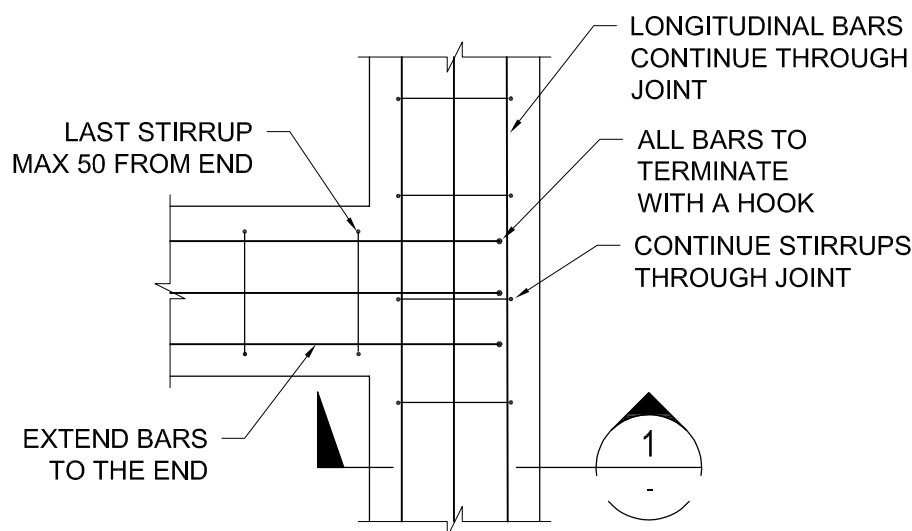


## PLAN VIEW - CONTROL JOINT DETAIL

SCALE 1:20

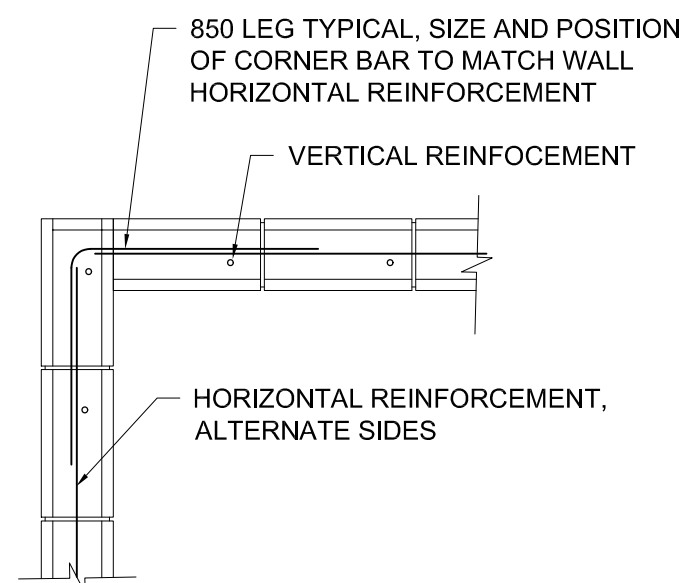
NOTE

LINTELS AND TOP COURSE BAR SHALL BE CONTINUOUS THROUGH JOINT



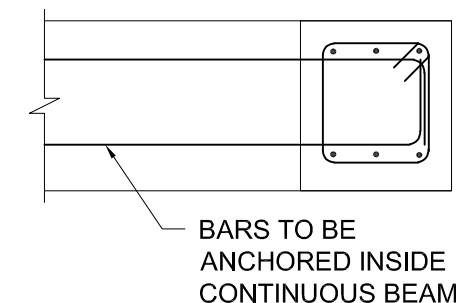
## PLAN VIEW - FOOTING INTERSECTION

SCALE 1:20



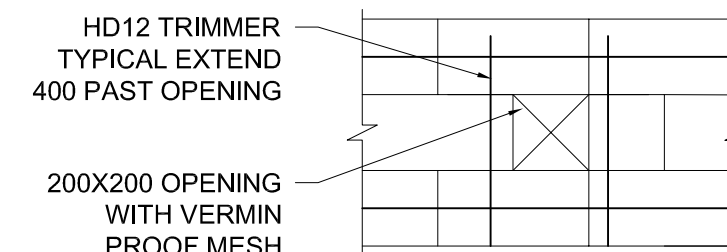
## PLAN VIEW - TYPICAL MASONRY CORNER

SCALE 1:20



## SECTION 1

1:20

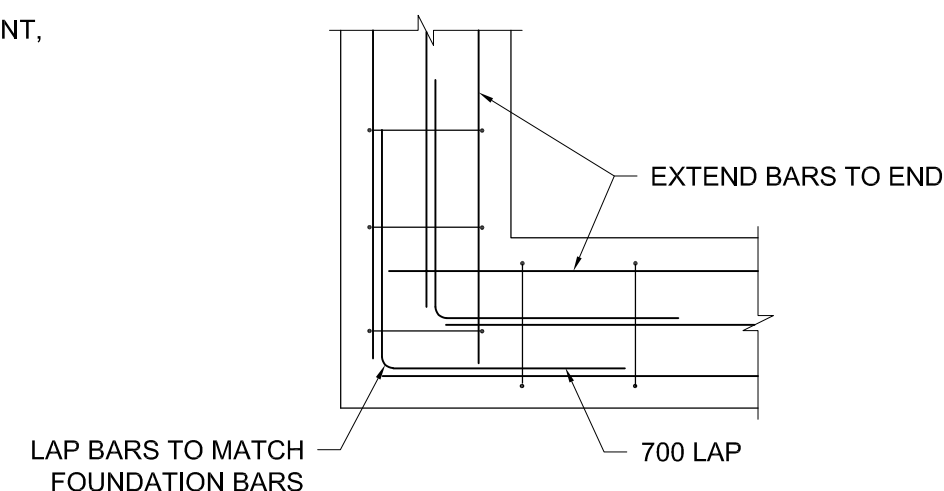


## VENTILATION PENETRATION

SCALE 1:20

NOTE:

PENETRATIONS TO BE SET BELOW TOP COURSE OF MASONRY



## PLAN VIEW - FOOTING CORNER

SCALE 1:20

Arc pg 210

| No. | Revision                    | By | Chk | Appd | Date     |
|-----|-----------------------------|----|-----|------|----------|
| 0   | ISSUED FOR BUILDING CONSENT | FS | RF  | RF   | 14.05.21 |

Drawing Originator:  
**ARNOLD & JOHNSTONE**  
CONSULTING STRUCTURAL ENGINEERS  
PH 09 252 1000 FAX 09 252 1001 WWW.AJENGINEERS.CO.NZ

|                     |              |    |          |                            |
|---------------------|--------------|----|----------|----------------------------|
| Original Scale (A3) | Design       | FS | MAY 2021 | Approved For Construction* |
| AS SHOWN            | Drawn        | KW | MAY 2021 |                            |
|                     | Dsg Verifier | RF | MAY 2021 |                            |
|                     | Dwg Check    | RF | MAY 2021 | Date                       |

Client:  
BARRY RAYNES

Project:  
PROPOSED NEW RESIDENCE  
60A POHUTU STREET  
WHAKATANE

Title:  
TYPICAL DETAILS  
MASONRY AND CONCRETE  
SHEET 2

Discipline  
STRUCTURAL  
Drawing No.  
13023 - S04  
Rev.  
0

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.

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

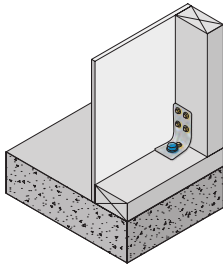
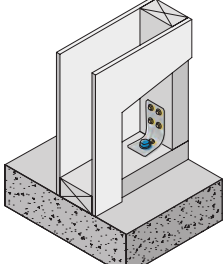
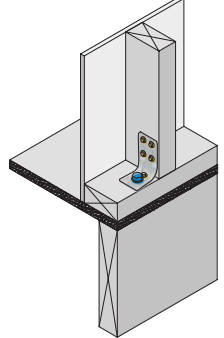
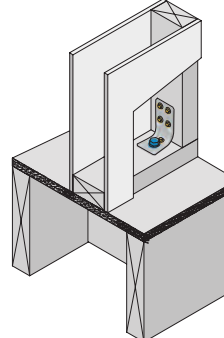
32mm x 6g GIB® Grabber® High Thread Screws, 32mm x 7g GIB® Grabber® Dual Thread Screws or 30mm GIB® Nails. If using the GIBFix® Angle use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

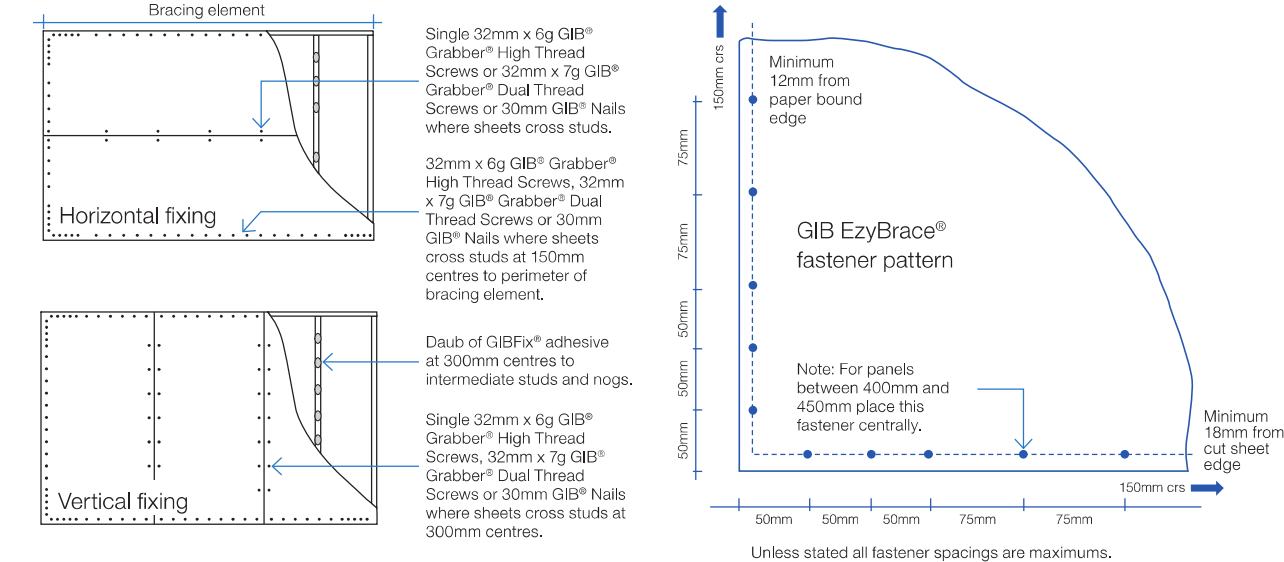
Fastener centres

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.

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



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

7.10 ECOPLY® BARRIER BRACING SPECIFICATION – EPBG

Table 8: Ecoply® Barrier Structural Brace To One Side with 10mm GIB® To The Other

| Specification No. | Minimum Wall Length | Lining Requirements                                                     | Hold-Down      | BU's/m Wind | BU's/m Earthquake |
|-------------------|---------------------|-------------------------------------------------------------------------|----------------|-------------|-------------------|
| EPBG              | 0.4m                | Ecoply® Barrier one side and 10mm GIB® Standard plasterboard other side | Yes            | 100         | 115               |
|                   | 1.2m                |                                                                         | GIB HandiBrac® | 150         | 150               |

Framing

Wall framing must comply with:

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

Framing dimensions and height are as determined by the NZS 3604 stud and top plate tables for load bearing and non load bearing walls. Kiln dried verified structural grade timber must be used. Machine stress graded timber, such as Laserframe®, is recommended.

Bottom Plate Fixing

Use GIB HandiBrac® hold-down connections at each end of the bracing element. Refer to manufacturer installation instructions supplied with the connectors for correct installation instructions and bolt types to be used for either concrete or timber floors. Within the length of the bracing element, bottom plates are fixed in accordance with the requirements of NZS 3604.

Lining

Side 1: One layer of 7mm Ecoply® Barrier vertically fixed directly to framing. If part sheets are used, ensure nailing at required centres is carried out around the perimeter of each sheet or part sheet. A 2-3mm expansion gap should be left between sheets.

Side 2: One layer of 10 or 13mm GIB® Standard plasterboard vertically or horizontally fixed. Sheet joints are touch fitted and fastener heads and joints stopped in accordance with the GIB® Site Guide.

Fastening the Ecoply® Barrier

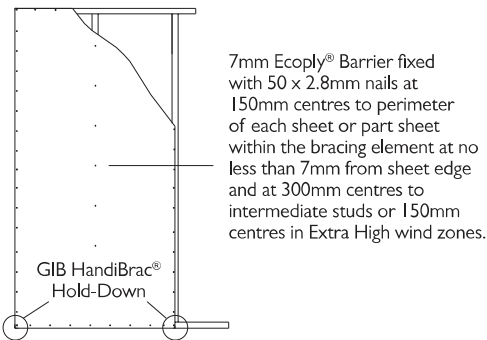
Fasteners

Fasten with 50 x 2.8mm galvanised or stainless steel flat head nails direct fix. Place fasteners no less than 7mm from sheet edges. Screws cannot be used. Power driven nails are suitable. Do not overdrive, nails must be full round head.

In certain circumstances stainless steel fasteners may be required. Refer to section 7.1 of the Ecoply Barrier Specification and Installation Guide for these circumstances and further fastener selection advice. Where stainless steel nails are required, annular grooved nails must be used.

Fastening Centres

Fasteners are placed at 150mm centres around the perimeter of each sheet and 300mm centres to intermediate or 150mm centres in Extra High wind zones. Where more than one sheet forms the brace element each sheet must be nailed off independently.



Fastening the GIB® Plasterboard

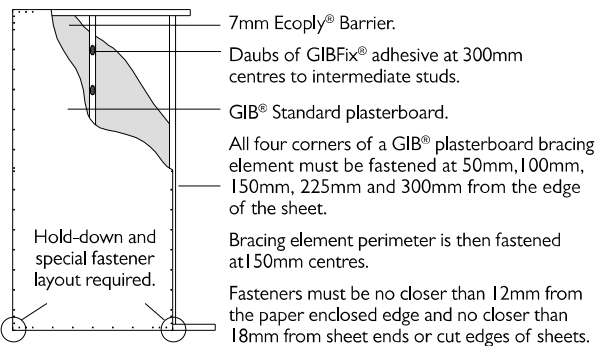
Fasteners

32mm x 6g GIB Grabber® Screws or 35mm GIB® Nails

Fastening centres

Fasten 50, 100, 150, 225 and 300mm from each corner and 150mm thereafter around the perimeter of the bracing element. For vertical fixing place fasteners at 300mm centres at intermediate sheet joints. For horizontal fixing place single fasteners in the tapered edge where sheets cross studs.

Place fasteners 12mm from paper bound edges and 18mm from cut sheet edges. GIB® plasterboard must be treated in every respect in accordance with relevant GIB® literature.



Ecoply® Bracing Systems are designed to meet the requirements of the New Zealand Building Code and have been tested and analysed using the P21 method referenced in NZS 3604:2011 listed as an acceptable solution B1/AS1 Structure. Testing was carried out using Ecoply Barrier manufactured by CHH Woodproducts and SG8 timber framing and GIB® products manufactured by Winstone Wallboards Ltd. Substituting materials may compromise performance of the system. GIB® and GIB HandiBrac® are registered trade marks of Fletcher Building Holdings Ltd.

SEPTEMBER 2017

7.7 ECOPLY® BARRIER BRACING SPECIFICATION – EPBI

Table 5: Sided Structural Plywood Brace

| Specification No. | Minimum Wall Length | Lining Requirements      | Hold-Down      | BU's/m Wind | BU's/m Earthquake |
|-------------------|---------------------|--------------------------|----------------|-------------|-------------------|
| EPBI              | 0.4m                |                          |                | 80          | 95                |
|                   | 0.6m                | Ecoply® Barrier one side | Yes            | 95          | 105               |
|                   | 1.2m                |                          | GIB HandiBrac® | 120         | 135               |

Framing

Wall framing must comply with:

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

Framing dimensions and height are as determined by the NZS 3604 stud and top plate tables for load bearing and non load bearing walls. Kiln dried verified structural grade timber must be used. Machine stress graded timber of minimum SG8, such as Laserframe®, is recommended.

Bottom Plate Fixing

Use GIB HandiBrac® hold-down connections at each end of the bracing element. Refer to manufacturer installation instructions supplied with the connectors for correct installation instructions and bolt types to be used for either concrete or timber floors. Within the length of the bracing element, bottom plates are fixed in accordance with the requirements of NZS 3604.

Lining

One layer of 7mm Ecoply® Barrier vertically fixed directly to framing. If part sheets are used, ensure nailing at required centres is carried out around the perimeter of each sheet or part sheet. A 2-3mm expansion gap should be left between sheets.

Fastening Ecoply® Barrier Panels

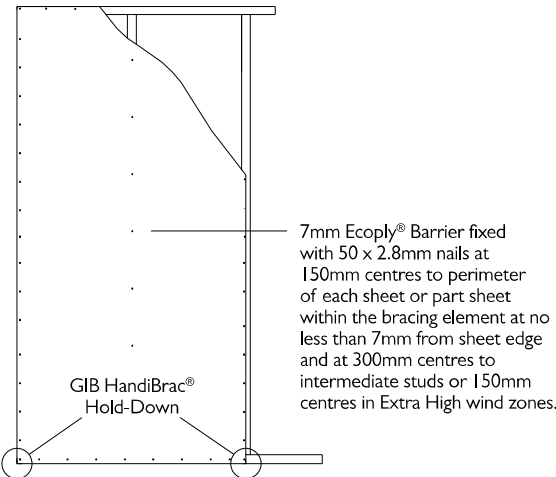
Fasteners

Fasten with 50 x 2.8mm galvanised or stainless steel flat head nails direct fix. Place fasteners no less than 7mm from sheet edges. Screws cannot be used. Power driven nails are suitable. Do not overdrive, nails must be full round head.

In certain circumstances stainless steel fasteners may be required. Refer to section 7.1 in the Ecoply Barrier Specification and Installation Guide for these circumstances and further fastener selection advice. Where stainless steel nails are required, annular grooved nails must be used.

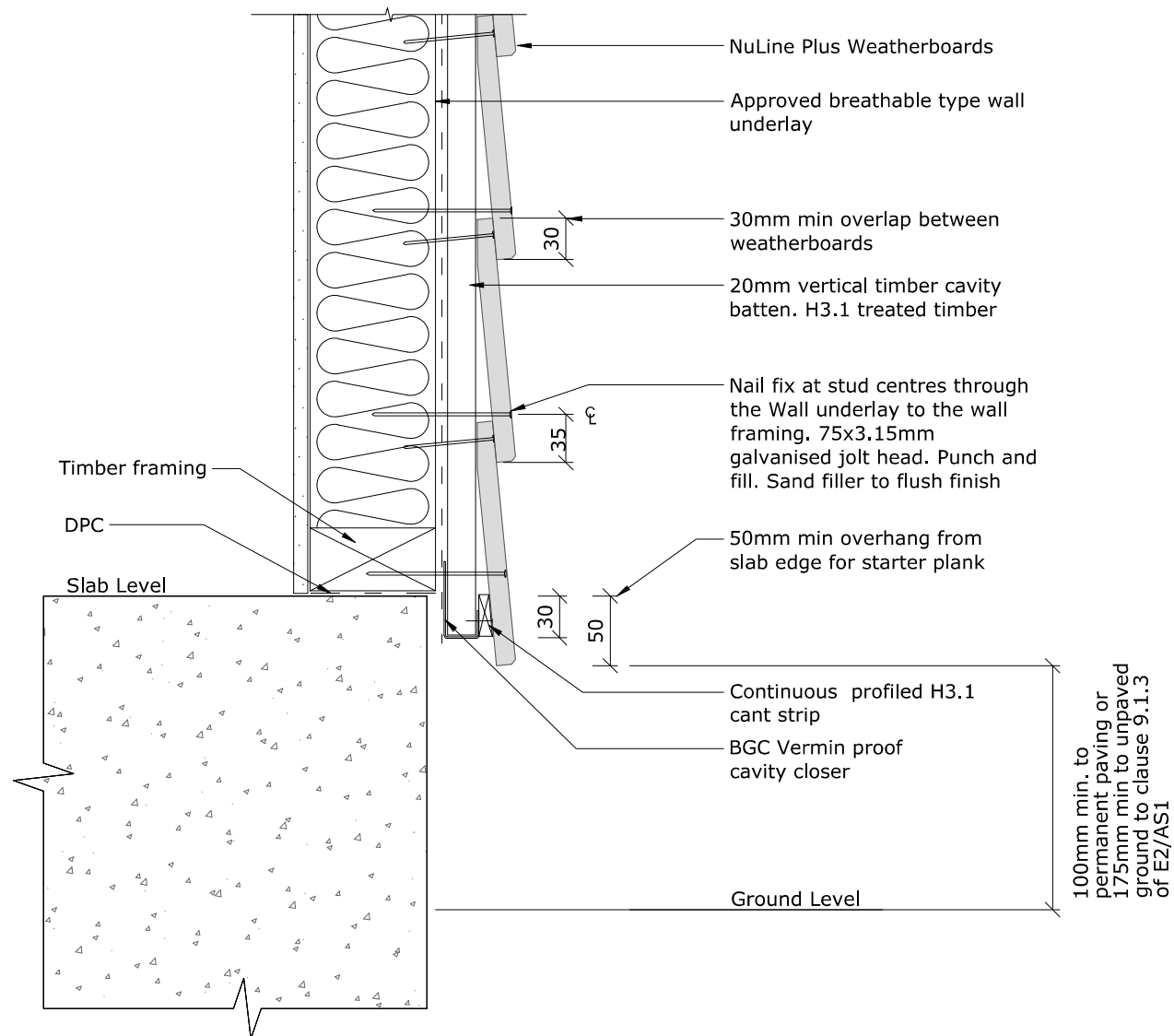
Fastening Centres

Fasteners are placed at 150mm centres around the perimeter of each sheet and 300mm centres to intermediate studs or 150mm centres in Extra High wind zones. Where more than one sheet forms the brace element each sheet must be nailed off independently.



Ecoply® Bracing Systems are designed to meet the requirements of the New Zealand Building Code and have been tested and analysed using the P21 method referenced in NZS 3604:2011 listed as an acceptable solution B1/AS1 Structure. Testing was carried out using Ecoply Barrier manufactured by CHH Woodproducts and SG8 timber framing and GIB® products manufactured by Winstone Wallboards Ltd. Substituting materials may compromise performance of the system. GIB® and GIB HandiBrac® are registered trade marks of Fletcher Building Holdings Ltd.

SEPTEMBER 2017



**Fixing option.**

If Nuline Plus is installed on structurally fixed cavity battens (fixed at 300mm centres with a 65 x 2.87 RounDrive Ring Shank Nail or 60 x 2.8 galvanised jolt head nails offset 12mm either side of the centre line), then direct fixed nail sizes can be used ie concealed nail - 50 x 2.87 Paslode Galvanised ring shank D-head gun nail or 50 x 2.8mm galvanised or Stainless Steel ring shank, flat head nail and face nail - 60 x 3.15mm galvanised or stainless steel ring shank jolt head nail

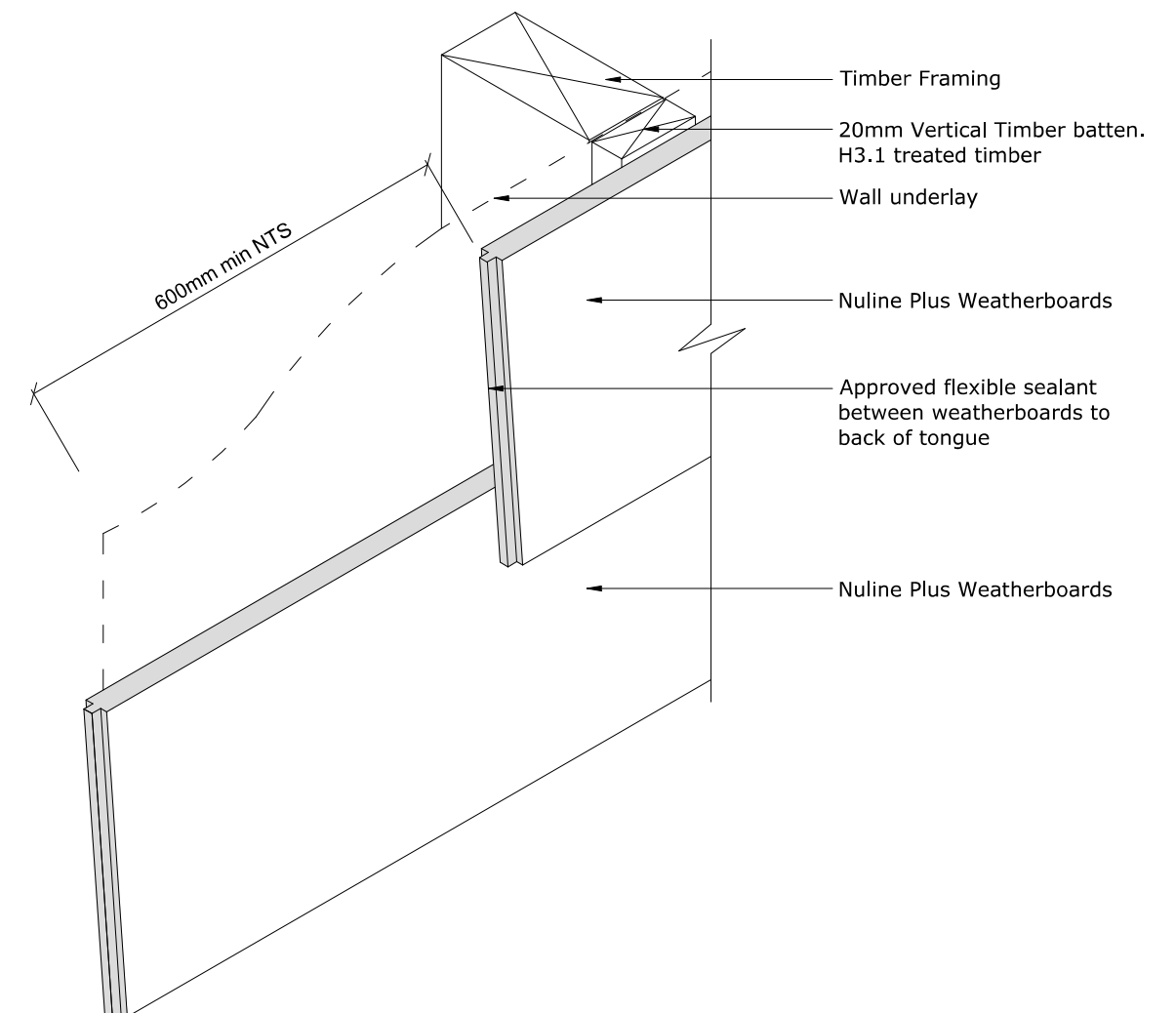
PROFILE BGC NuLine™ Plus Weatherboards

DATE Feb 2016

SCALE 1:5 @ A4

DETAIL Foundation Detail  
Cavity Construction

DETAIL NO. NU-01



PROFILE BGC NuLine™ Plus Weatherboards

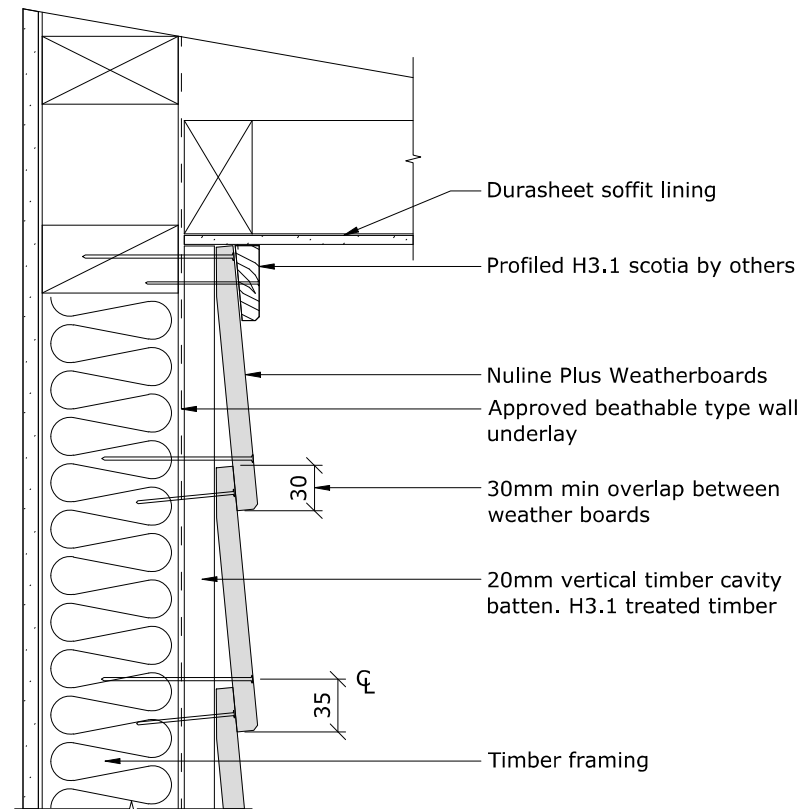
DATE Feb 2016

SCALE 1:5 @ A4

DETAIL Plank Joint  
Cavity Construction

Drawing Number

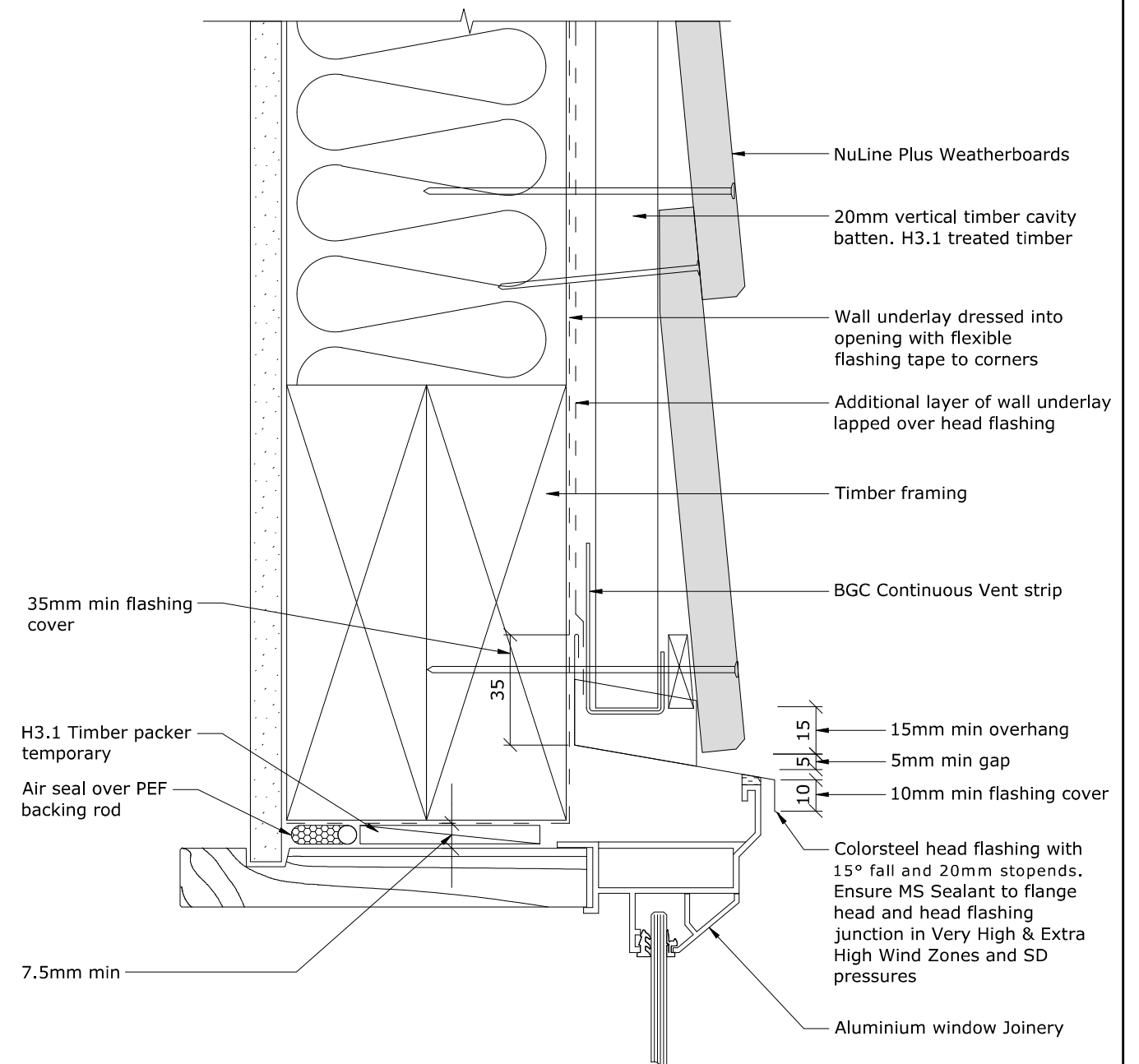
**213**

**BGC****Fibre Cement**

PROFILE BGC NuLine™ Plus Weatherboards

DATE Feb 2016  
SCALE 1:5 @ A4DETAIL Soffit Detail  
Cavity Construction

DETAIL NO. NU-03

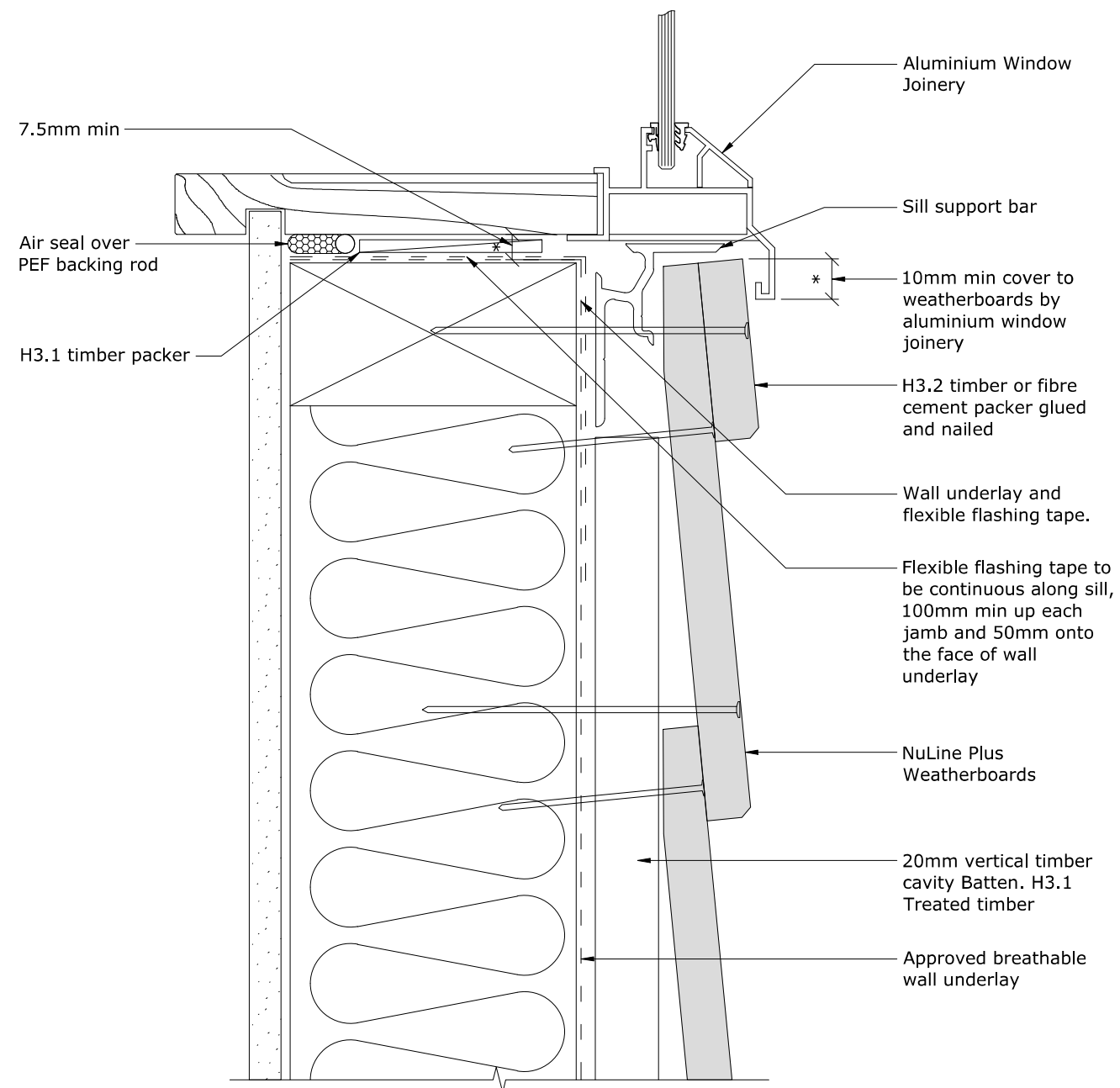
**BGC****Fibre Cement**

PROFILE BGC NuLine™ Plus Weatherboards

DATE Feb 2016  
SCALE 1:2 @ A4DETAIL Window Head  
Cavity Construction

Drawing Number

**214**

**BGC****Fibre Cement**

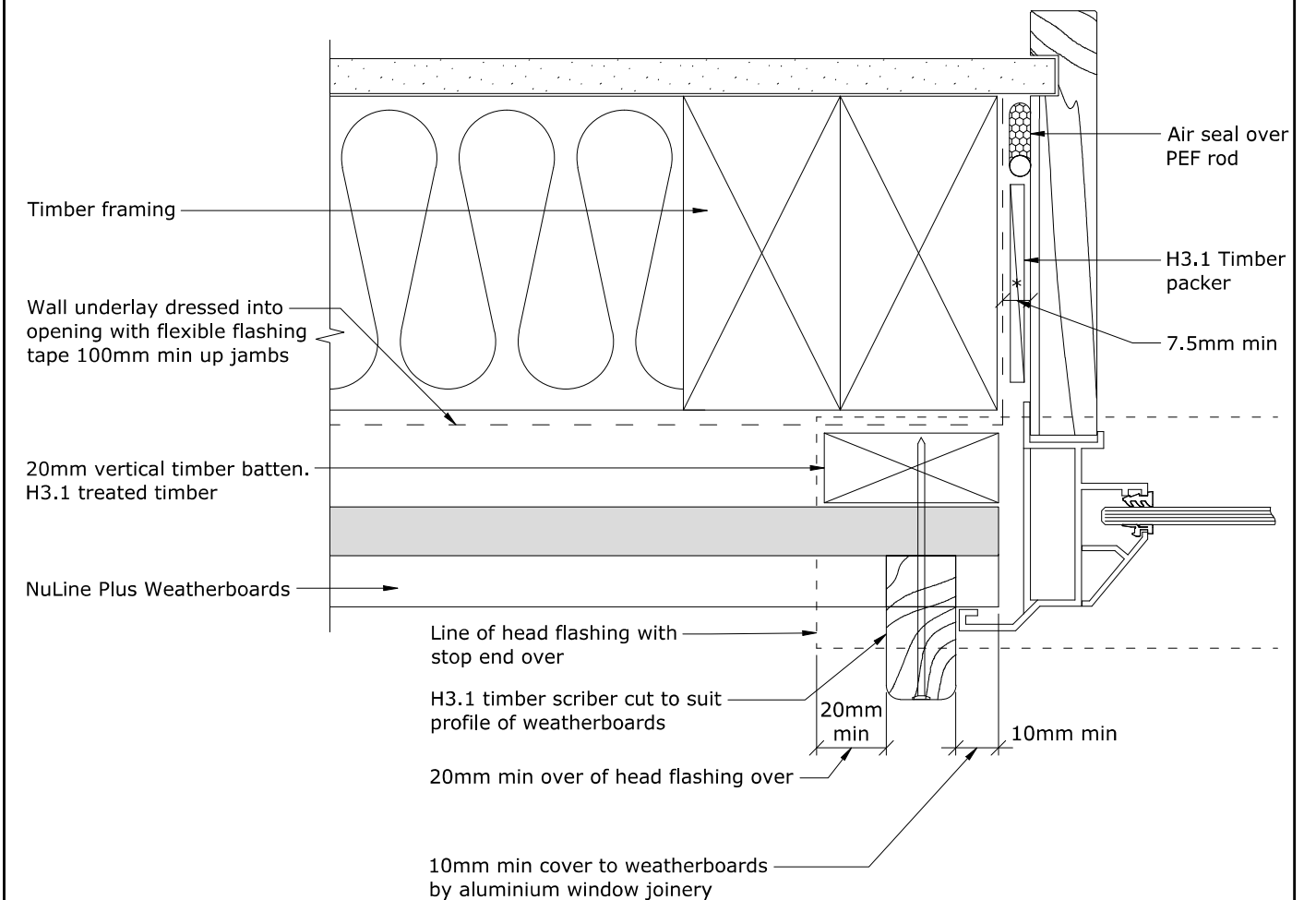
PROFILE BGC NuLine™ Plus Weatherboards

DATE Feb 2016

DETAIL Window Sill  
Cavity Construction

SCALE 1:2 @ A4

DETAIL NO. NU-08

**BGC****Fibre Cement**

PROFILE BGC NuLine™ Plus Weatherboards

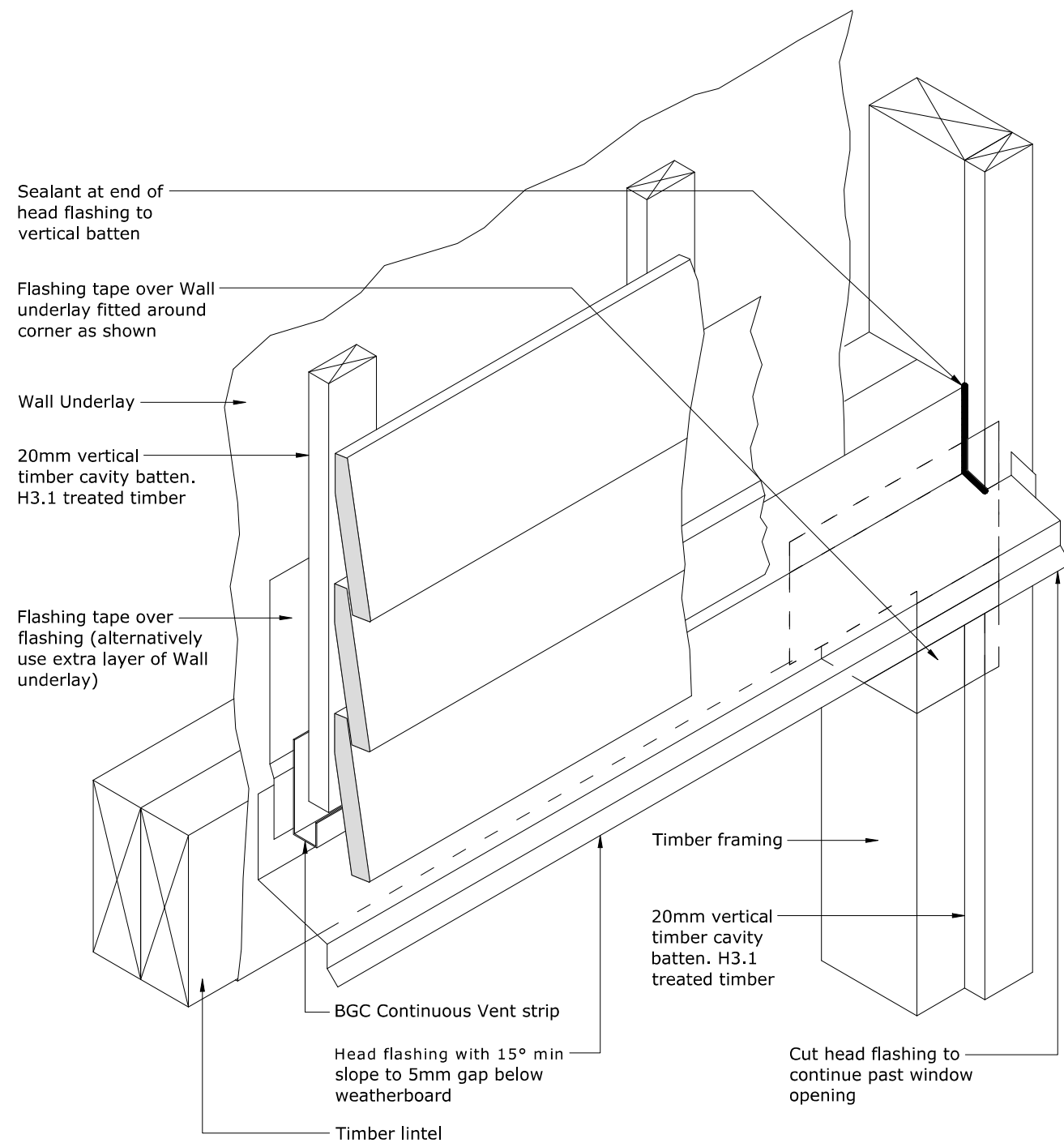
DATE Feb 2016

DETAIL Window Jamb  
Cavity Construction

SCALE 1:2 @ A4

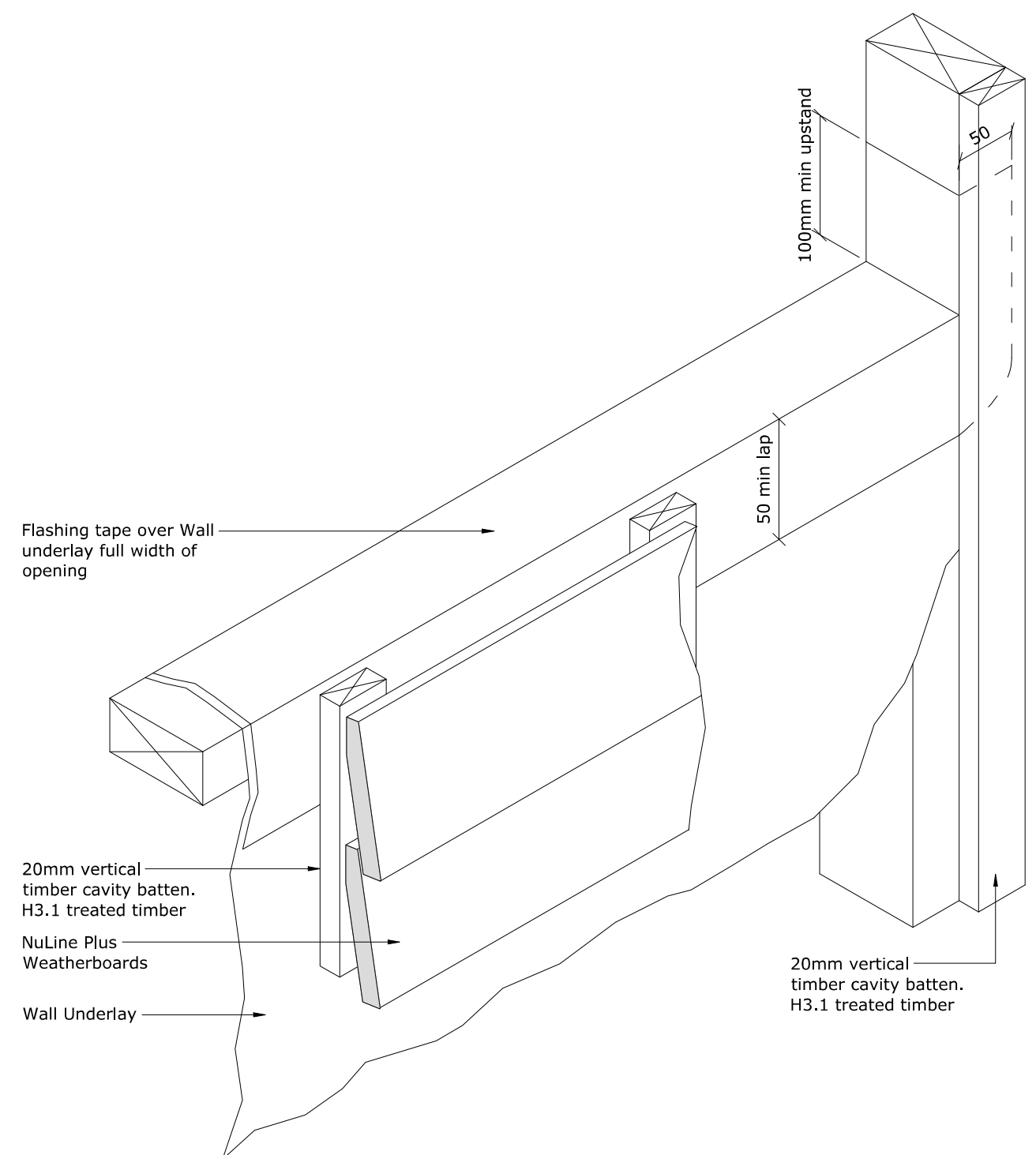
Drawing Number

**215**

**BGC****Fibre Cement**

PROFILE **BGC NuLine™ Plus Weatherboards**  
DETAIL **Window Head/Jamb Junction Detail  
Cavity Construction**

DATE **Feb 2016**  
SCALE **1:5 @ A4**  
DETAIL NO. **NU-26**

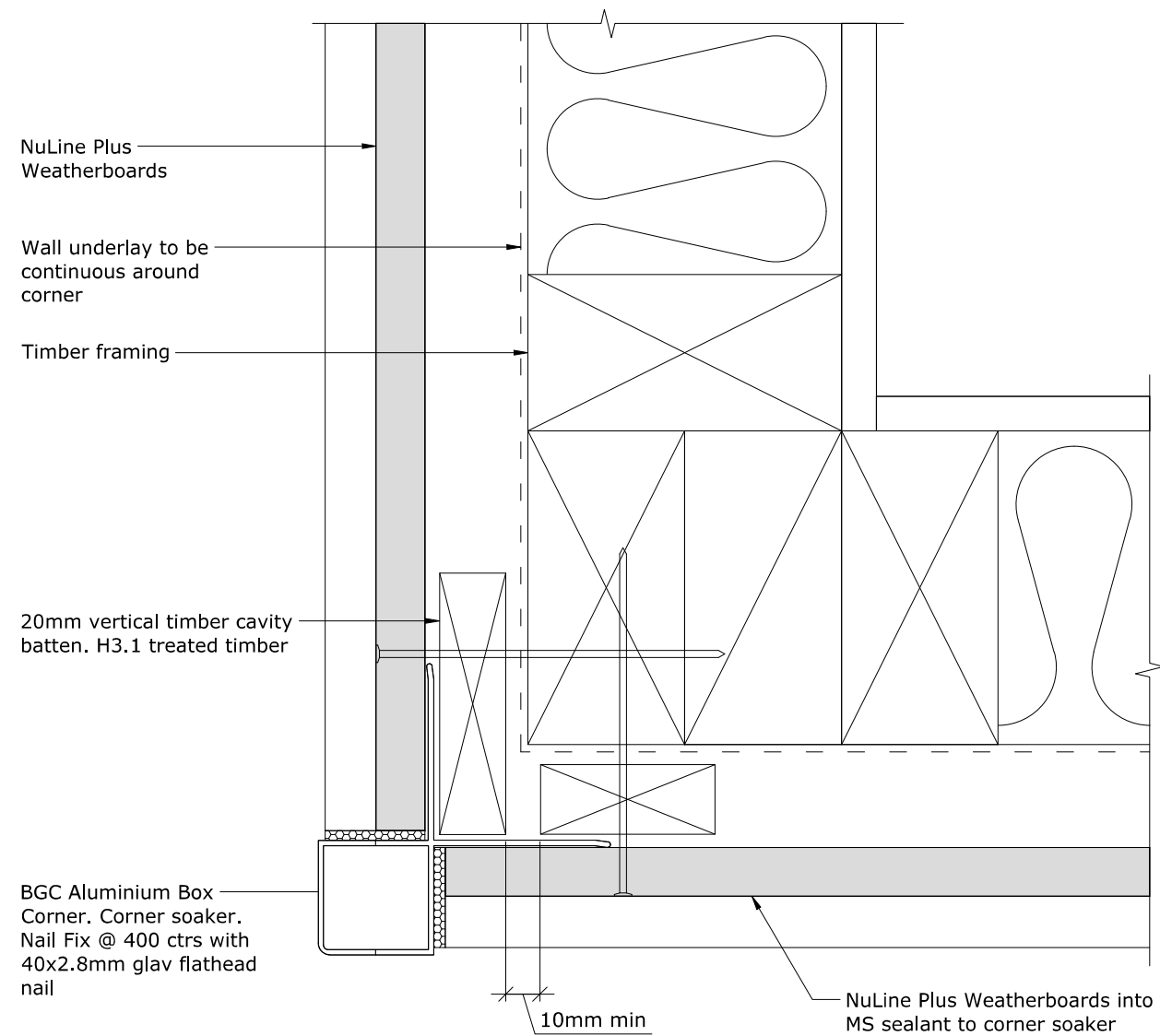
**BGC****Fibre Cement**

Note:  
Sill support bars required for  
openings wider than 600mm

PROFILE **BGC NuLine™ Plus Weatherboards**  
DETAIL **Window Sill/Jamb Junction Detail  
Cavity Construction**

DATE **Feb 2016**  
SCALE **1:5 @ A4**  
Drawing Number

**216**



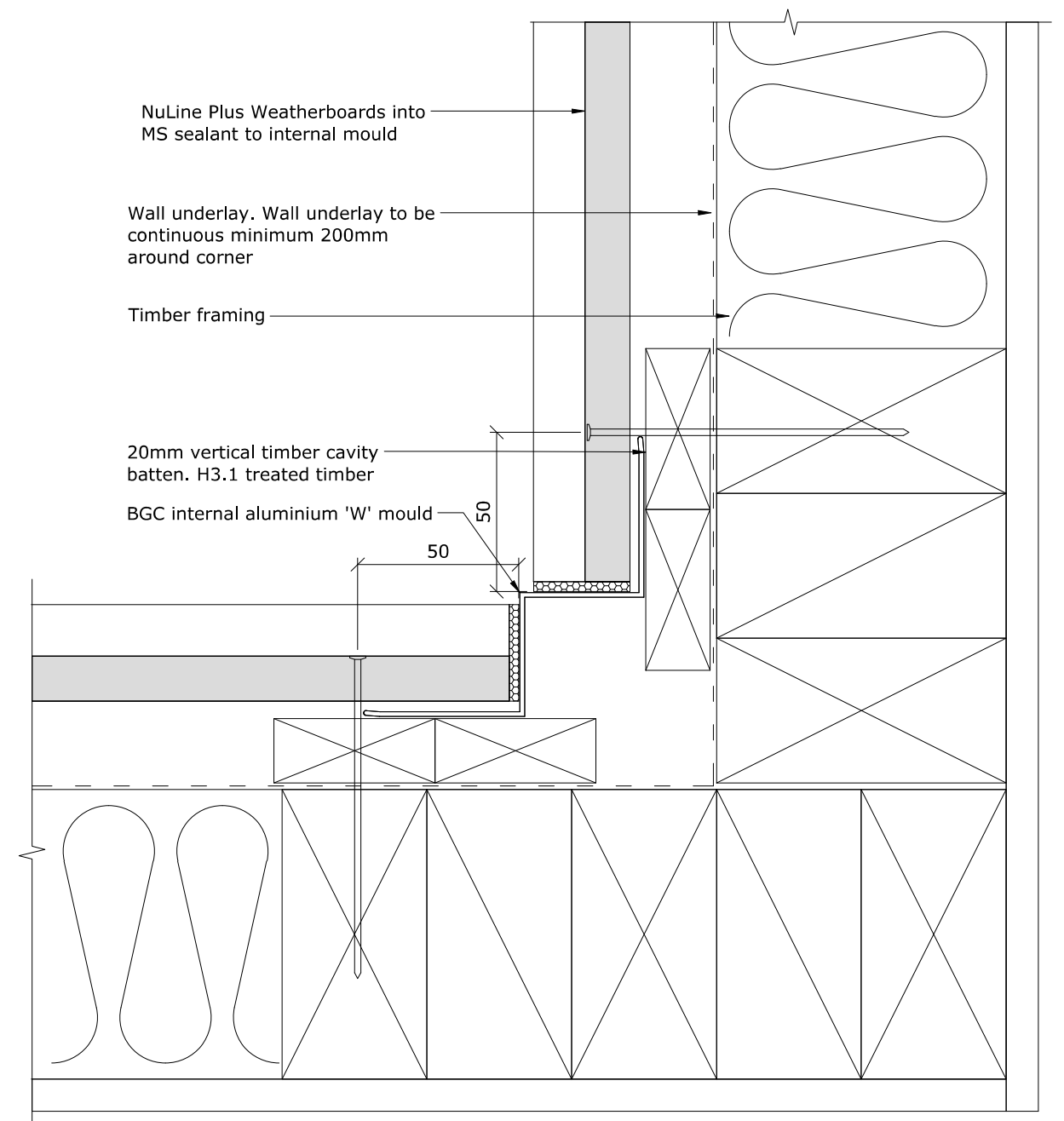
PROFILE BGC NuLine™ Plus Weatherboards

DETAIL External Corner Detail with BGC Profile Cavity Construction

DATE Feb 2016

SCALE 1:2 @ A4

DETAIL NO. NU-10



PROFILE BGC NuLine™ Plus Weatherboards

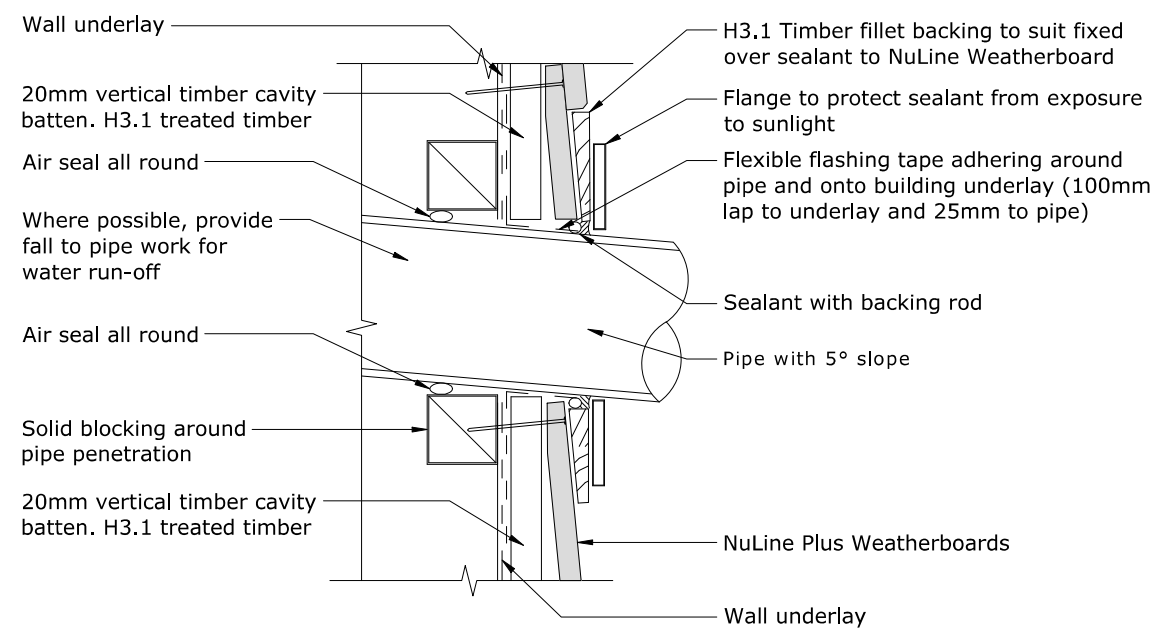
DETAIL Internal Corner Detail with BGC Profile Cavity Construction

DATE Feb 2016

SCALE 1:2 @ A4

Drawing Number



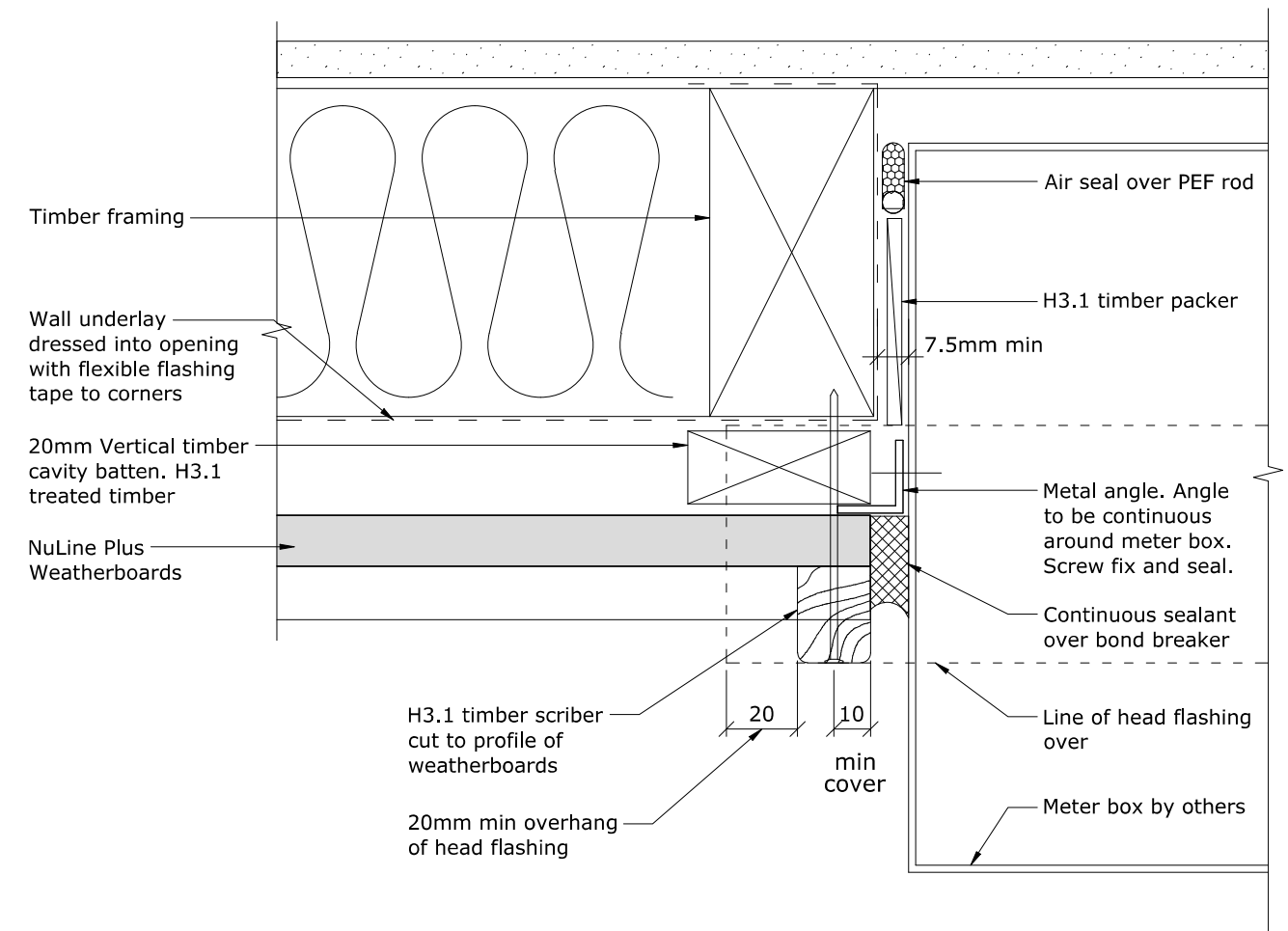


PROFILE BGC NuLine™ Plus Weatherboards

DATE Feb 2016  
SCALE 1:5 @ A4

DETAIL Pipe Penetration Detail  
Cavity Construction

DETAIL NO. NU-25



PROFILE BGC NuLine™ Plus Weatherboards

DATE Feb 2016  
SCALE 1:2 @ A4

DETAIL Meter Box Jamb  
Cavity Construction

Drawing Number

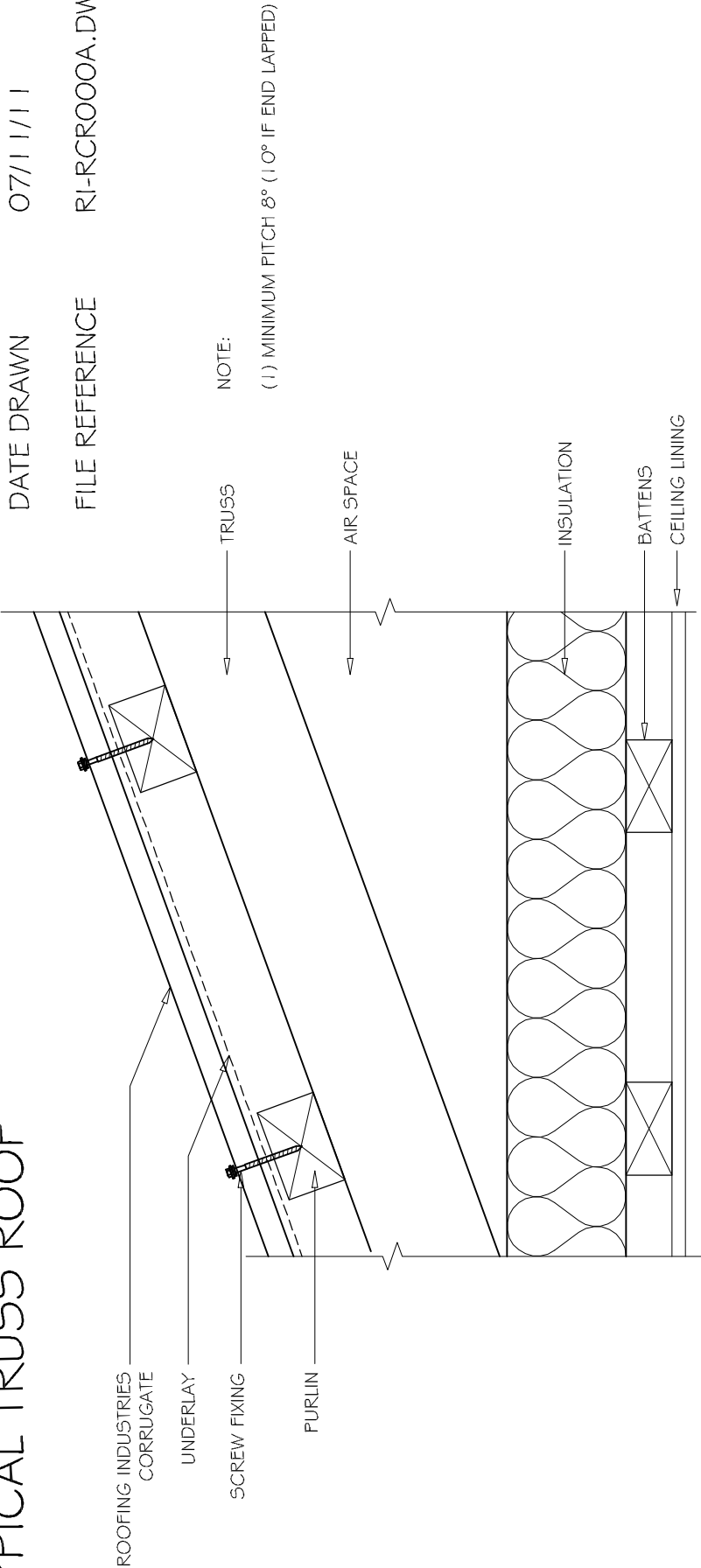
**219**

# RESIDENTIAL CORRUGATE TYPICAL TRUSS ROOF

DETAIL NO. RCRO00A

DATE DRAWN 07/11/11

FILE REFERENCE RI-RCRO00A.DWG



NOTES:

These details are generally in compliance with E2/AS1 and/or the NZ Metal Roof & Wall Cladding Code of Practice and in some cases specific details by 'Roofing Industries'.

The building designer is ultimately responsible to ensure that details used meet the requirements of the NZ Building Code for the specific project.

Details of the supporting structure including cavity battens are indicative only and are the responsibility of the building designer. For steel framed buildings thermal break cavity battens may be required.

Underlay selection and building wrap types are the responsibility of the designer. Netting or other support is generally required at roof pitches less than 8 degrees combined with a self supporting paper. At roof pitches of 8° and above where non self supporting paper is used or purlin spacing is in excess of self supporting criteria, netting or other support should be used. Alternative support to netting should be used in severe coastal environments including when aluminum is used.

These details are for Roofing Industries profile/s as nominated and may not be applicable to other profiles.

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Further information can be obtained from the NZ Metal Roof & Wall Cladding Code of Practice [www.metalroofer.org.nz](http://www.metalroofer.org.nz) or E2/AS1

**A** PITCHED TRUSS ROOF  
1:5



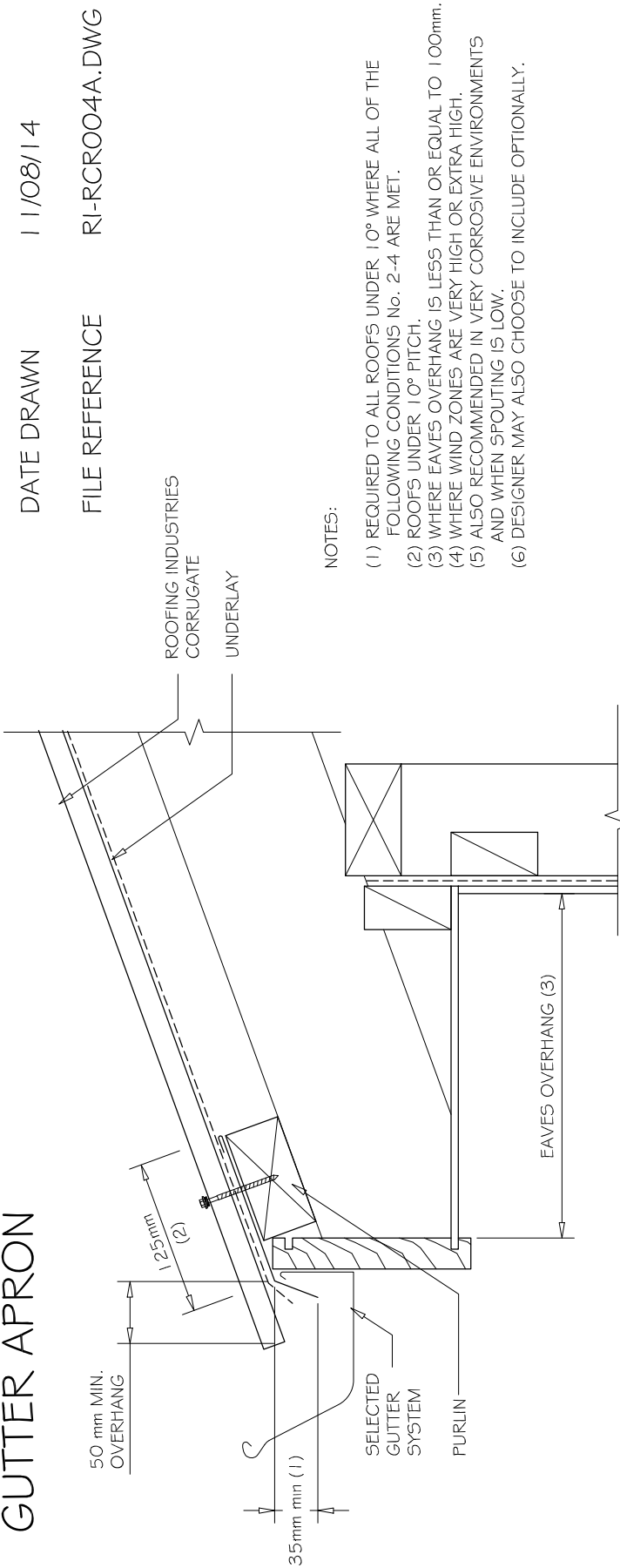
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# RESIDENTIAL CORRUGATE GUTTER APRON

DETAIL NO. RCRO04A

DATE DRAWN 11/08/14

FILE REFERENCE RI-RCRO04A.DWG



**A** EAVES CORRUGATED PROFILE  
1:5

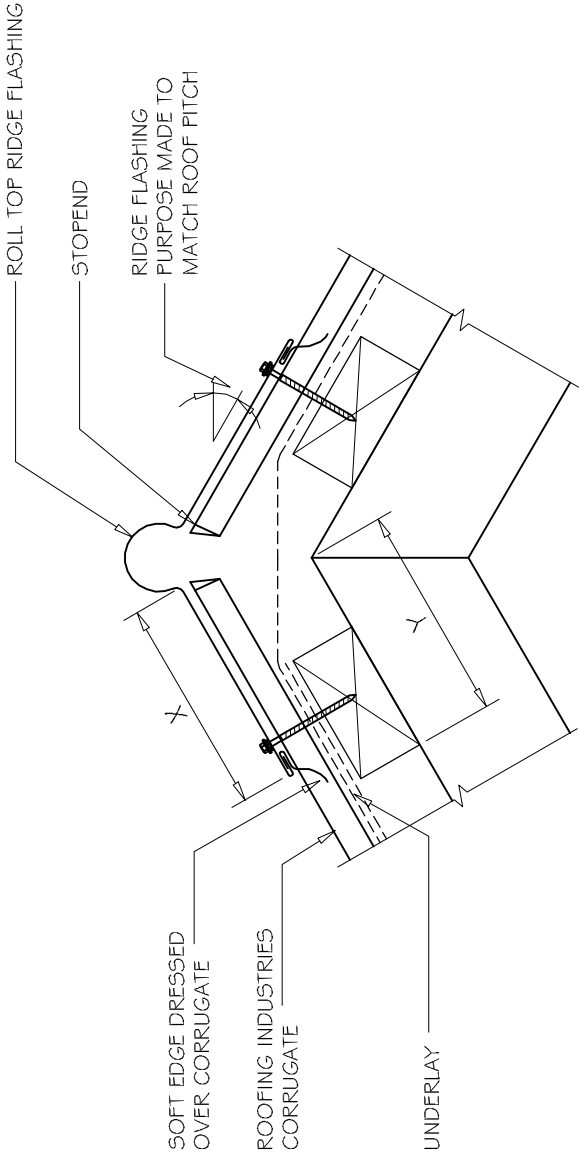
- NOTES:
- These details are generally in compliance with E2/AS1 and/or the NZ Metal Roof & Wall Cladding Code of Practice and in some cases specific details by 'Roofing Industries'.
  - The building designer is ultimately responsible to ensure that details used meet the requirements of the NZ Building Code for the specific project.
  - Details of the supporting structure including cavity battens are indicative only and are the responsibility of the building designer. For steel framed buildings thermal break cavity battens may be required.
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RESIDENTIAL CORRUGATE  
RIDGE AND HIP FLASHING  
(Roll Top)

DETAIL NO. RCRO05A  
DATE DRAWN 07/11/11  
FILE REFERENCE RI-RCRO05A.DWG



NOTES:

- (1) SITUATION 1: IN LOW, MEDIUM OR HIGH WIND ZONES, WHERE ROOF PITCH IS 10° OR GREATER.
- (2) SITUATION 2: FOR ALL ROOF PITCHES IN VERY HIGH AND EXTRA HIGH WIND ZONES, FOR ALL WIND ZONES WHERE ROOF PITCH LESS THAN 10°.
- (3) EXCLUDING ANY SOFT EDGE OR TURN-DOWN TO ROOFING.

| SITE WIND ZONE<br>(As per NZS3604) | MINIMUM mm (X)                      |  |
|------------------------------------|-------------------------------------|--|
|                                    | TRANSVERSE FLASHING<br>OVER ROOFING |  |
| SITUATION 1 (1)                    | 130 (3)                             |  |
| SITUATION 2 (2)                    | 200 (3)                             |  |

A ROLL TOP VERSION CORRUGATED PROFILE  
- 1:5

NOTES:

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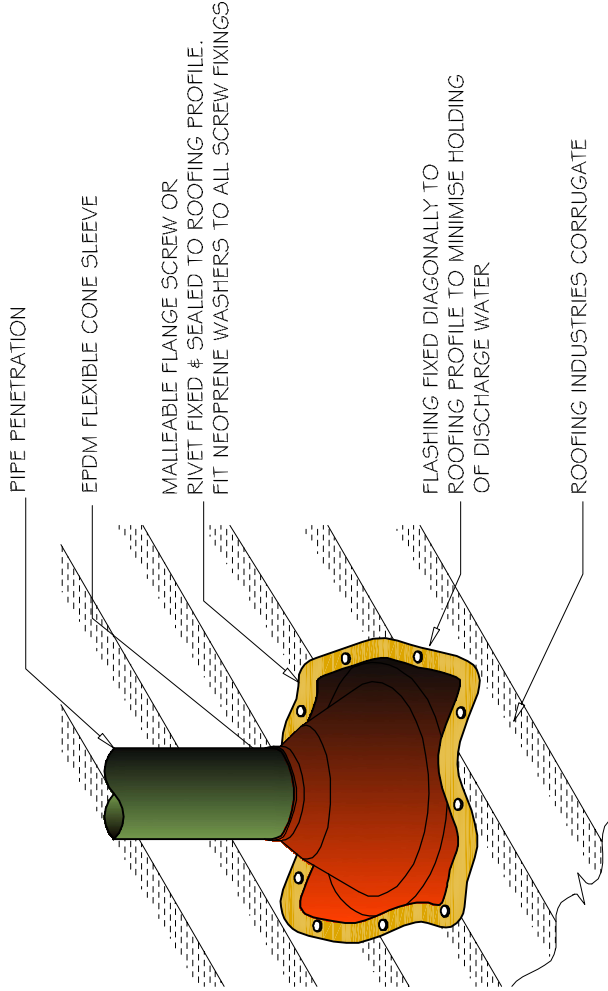


| ROOF PITCH | DISTANCE Y mm |             |
|------------|---------------|-------------|
|            | SITUATION 1   | SITUATION 2 |
| 8°         | N/A           | 218         |
| 10°        | 167           | 217         |
| 15°        | 162           | 212         |
| 20°        | 156           | 206         |
| 25°        | 150           | 200         |
| 30°        | 143           | 193         |
| 35°        | 134           | 184         |
| 40°        | 125           | 175         |
| 45°        | 115           | 165         |

FOR STANDARD 50mm FURLINS ON FLAT

RESIDENTIAL CORRUGATE  
EPDM FLASHING FOR UP TO 85mm DIA PIPE

DETAIL NO. RCRO14A  
DATE DRAWN 15/11/11  
FILE REFERENCE RI-RCRO14A.DWG



NOTES:

- (1) FOR PIPES UP TO 85mm DIAMETER.
- (2) MAX ROOF PITCH FOR THIS FLASHING 45°, MIN PITCH 10°
- (3) MAXIMUM ROOF LENGTH ABOVE PENETRATION NOT TO EXCEED 12.0 METRES.
- (4) ALSO REFER TO NZ METAL ROOF & WALL CLADDING CODE OF PRACTICE.

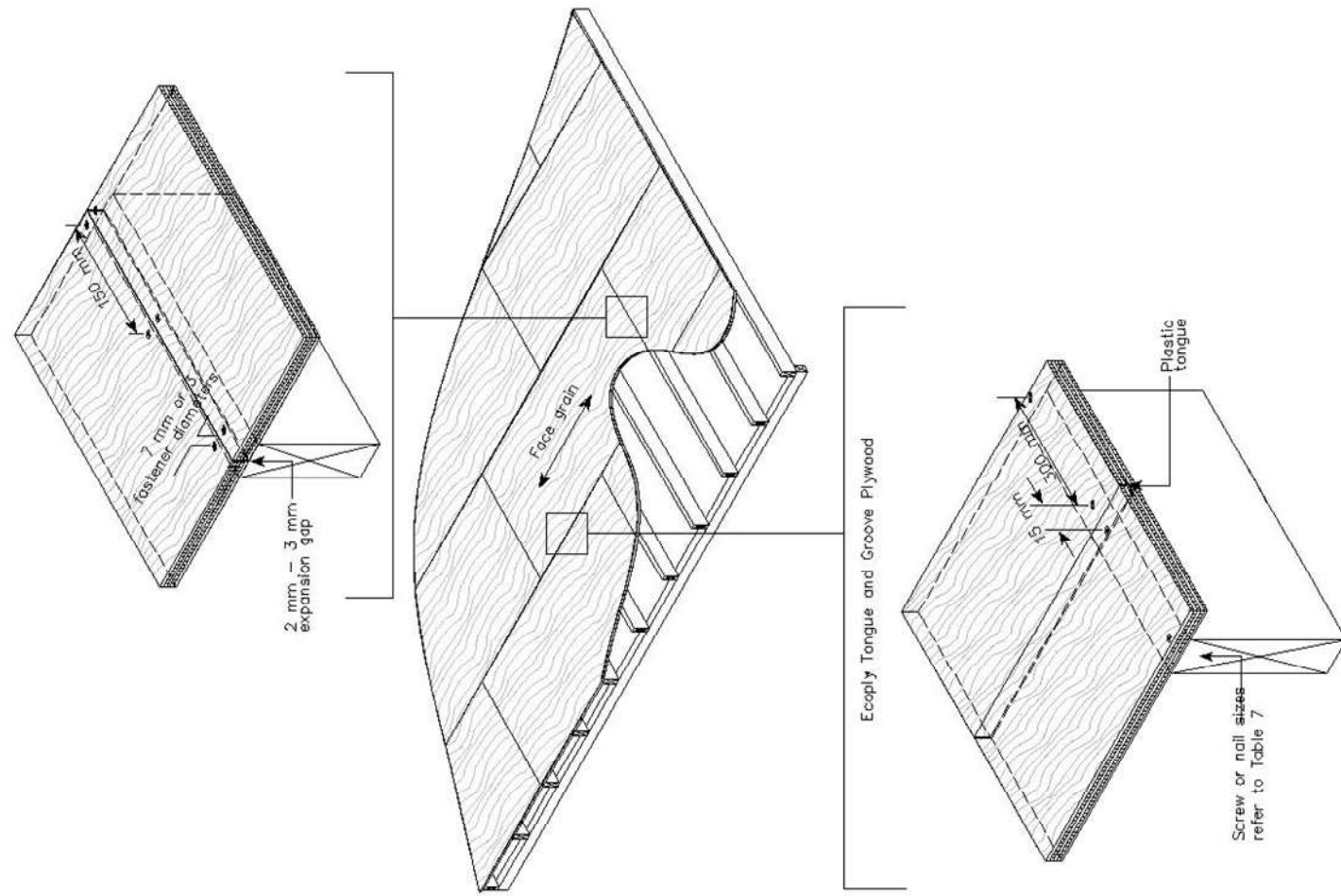
NOTES:

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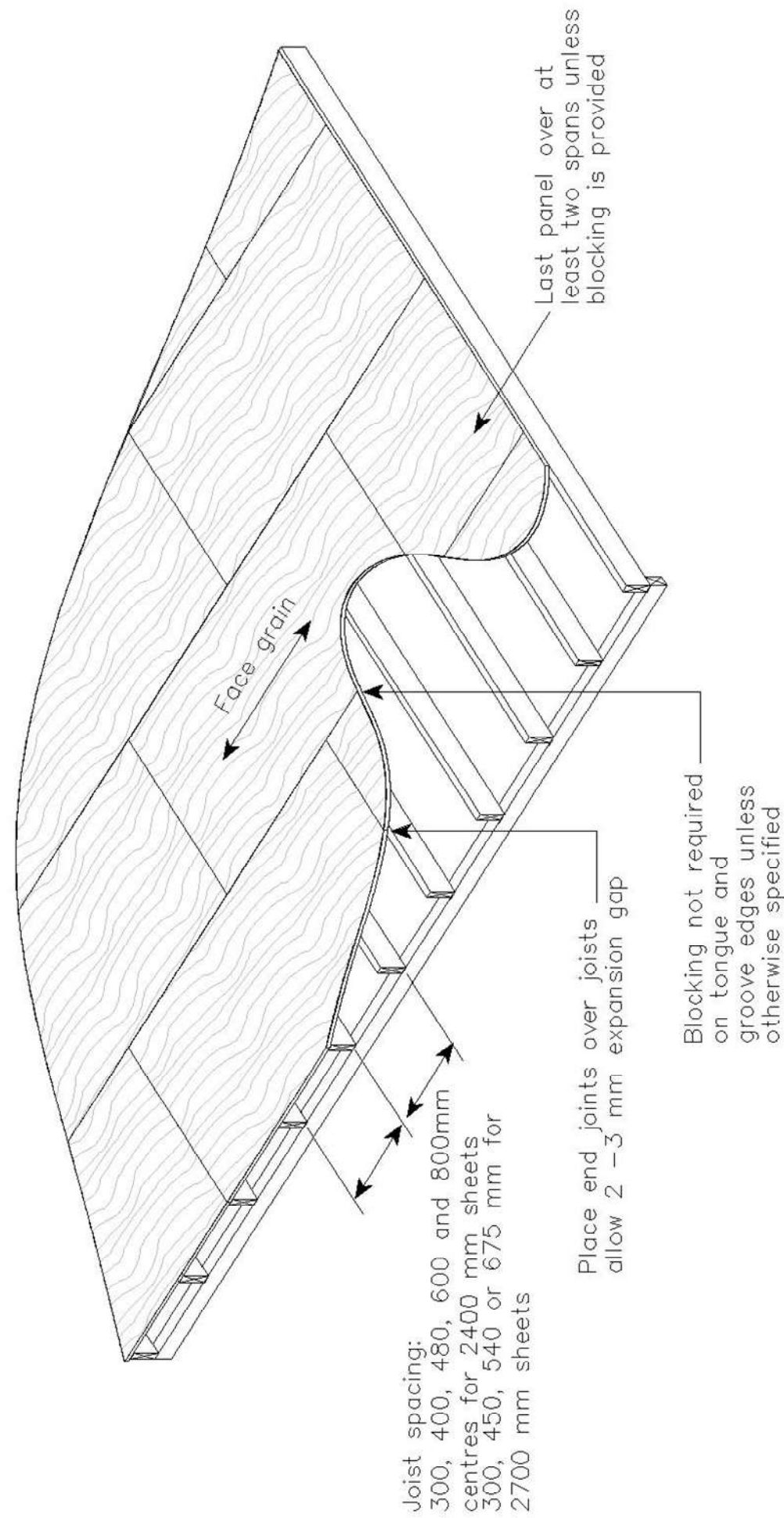
Drawing Number

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EC002: Fastener spacings from edges

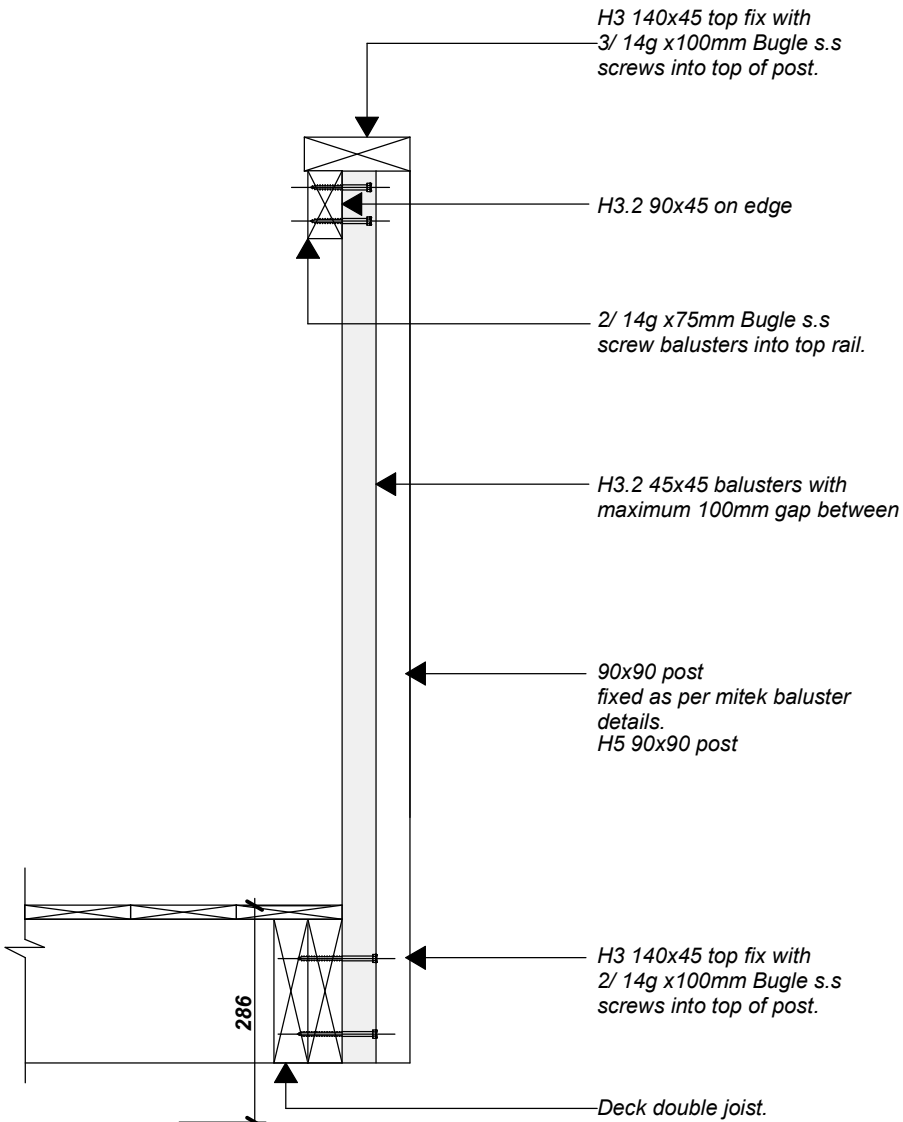
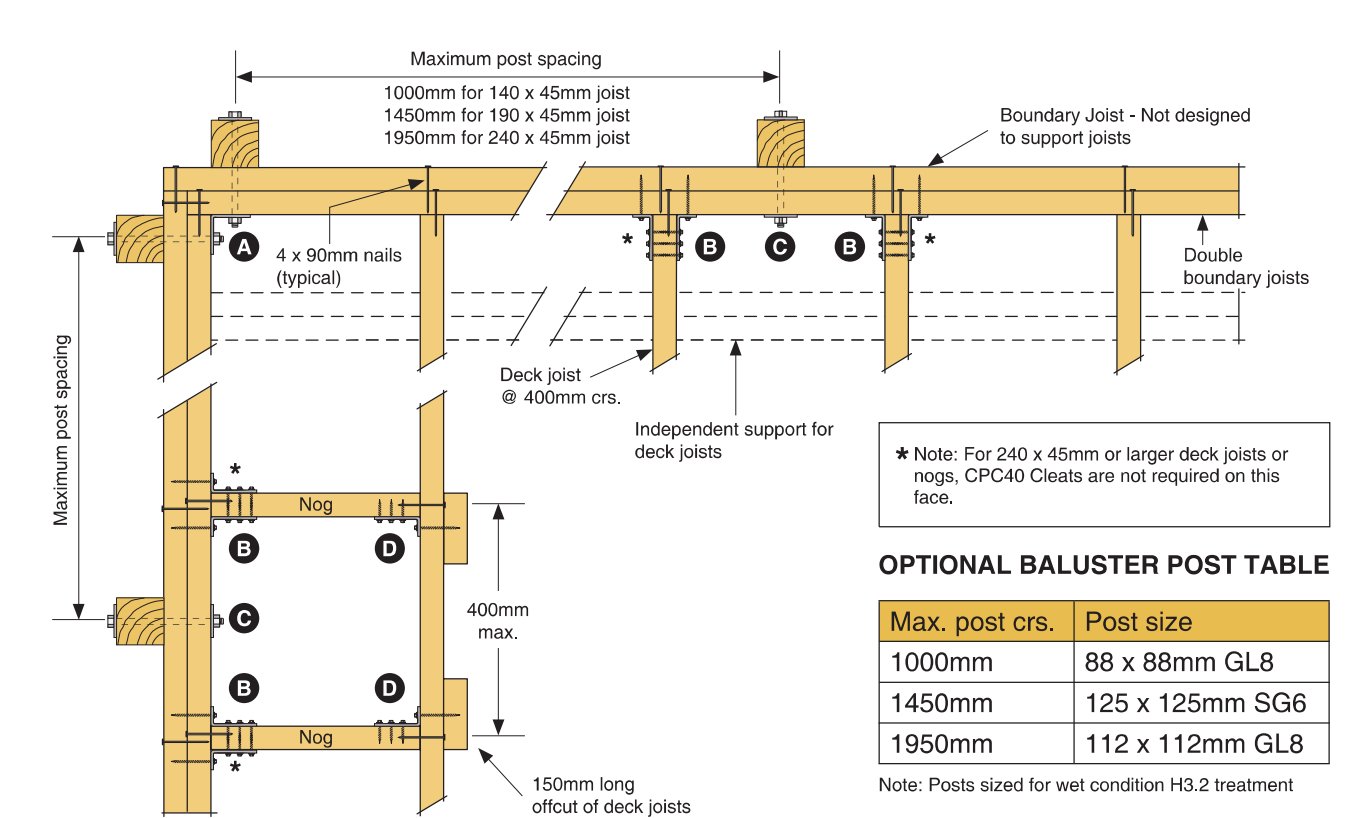


EC007: Ecoply® Flooring layout

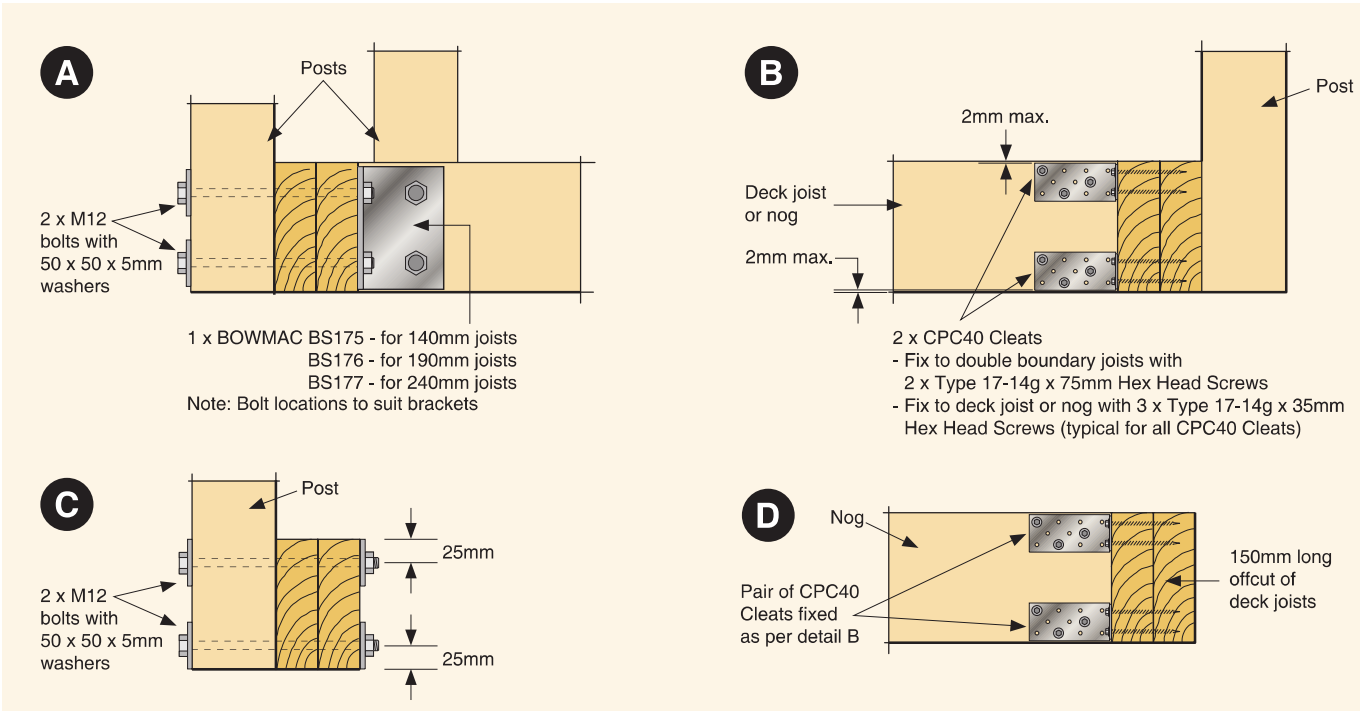
FACE FIXED BALUSTER POSTS



- Complies with Table 3.3 AS/NZS 1170.1:2002 for horizontal load of 0.75kN/m on handrail
- All fixings are designed to provide adequate rotational stability to the handrail system to resist the horizontal load at top of baluster post
- Assumes an approved post and balustrade system is used



Baluster fixing detail.



NEW ZEALAND BUILDING CODE

E3.3.4 requires impervious and easily cleaned surfaces to all surfaces adjacent to sanitary fixtures or laundering facilities.

E3.3.5 requires that surfaces of building elements likely to be splashed or contaminated in the course of the intended use of the building must also be impervious and easily cleaned.

E3.3.6 requires that surfaces of building elements likely to be splashed must be constructed in a way that prevents water from penetrating behind linings or into concealed spaces (e.g. wall cavities).

Walls in wet areas therefore need to be addressed according to whether they fall within the scope of one of the following descriptions:

1. Wall surface likely to be splashed
2. Shower walls. Although not a requirement of NZBC it is highly recommended that the wall surfaces within 150mm of the top edge of a bath, and the vertical faces immediately under the edge of a bath, are treated in the same way as for a shower wall.

WALL SURFACES IN AREAS LIKELY TO BE SPLASHED

- Suitable linings include:
- a. Integrally waterproof sheet material (e.g. polyvinylchloride) with sealed joints
  - b. Ceramic or stone tiles having 6% maximum water absorption, waterproof grouted joints, and bedded with an adhesive specified by the tile manufacturer as being suitable for the tiles, substrate material and the environment of use
  - c. Cement based solid plaster or concrete having a steel trowel or polished finish (semi-gloss or gloss paint must be used if a paint finish is required)
  - d. Cork tile or sheet sealed with waterproof applied coatings
  - e. Monolithic applied coatings having a polished, non-absorbent finish (e.g. terrazzo)
  - f. Sheet linings finished with vinyl coated wallpaper, or semi-gloss or gloss coating
  - g. Water resistant sheet linings finished with decorative high pressure laminate or factory applied polyurethane or resin
  - h. Modular or multiple lining units which are themselves *impervious* and easily cleaned, and are installed with *impervious* joints
  - i. Timber or timber-based products such as particleboard sealed with waterproof applied coatings.

**NB: Floor surfaces and floor/wall junctions are required by E3 to be impervious.**

SURFACES IN SHOWERS AND AROUND BATHS

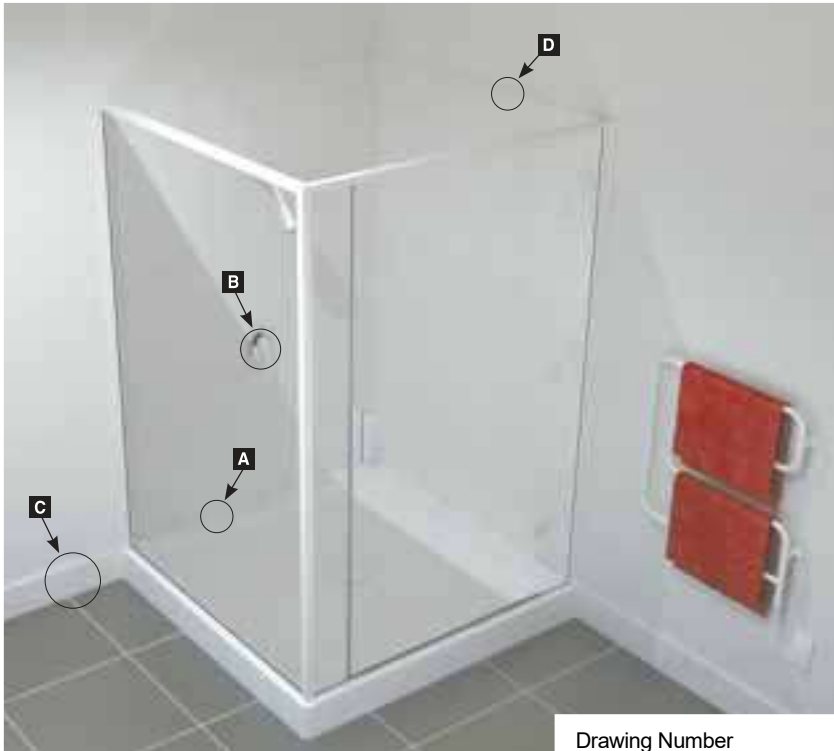
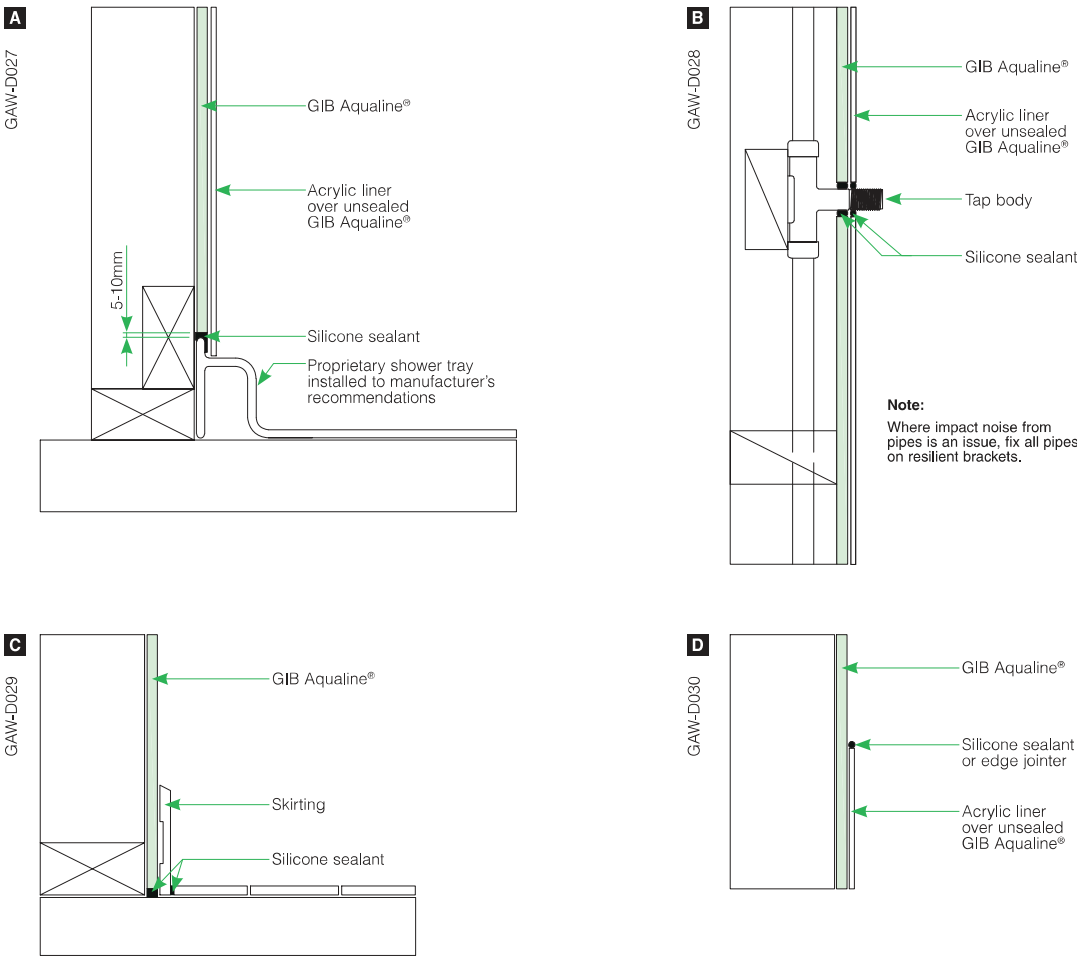
Suitable linings include all of the above, but **NOT including items (d) and (f) from the above list.**

Note that a waterproof membrane complying with AS/NZS 4858: 2004 **MUST** be applied to all lining materials used under ceramic tiles in these areas.

The waterproof membrane must extend to a 1500mm horizontal radius from a shower rose unless the shower is contained within a fixed enclosure. A shower curtain does not constitute a fixed enclosure.

Particleboard manufacturers recommend that in wet areas, panels should be protected with a suitable wet area membrane or an integrally waterproof sheet material. Some local authorities call for this treatment on all timber based floors. Local requirements should be checked before proceeding.

**Dark grey shaded areas in the diagrams below represent the minimum extent of wall surfaces requiring impervious sheet materials or waterproof membranes prior to tiling. Light grey shaded areas represent good practice.**



Drawing Number

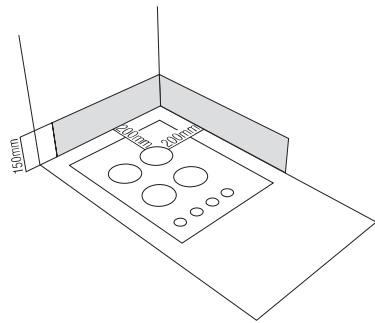
WALL SURFACES SURROUNDING COOKTOPS

The protection of combustible surfaces surrounding gas cooking appliances is covered by NZS 5261. Consult the current version of this standard to ensure compliance. However, as a guide the following options are acceptable for wall surfaces within 200mm of the periphery of a gas element to a height of 150mm above the element for the full dimension (width and depth) of the cooktop surface area:

- 5mm ceramic tiles on GIB® plasterboard
- 5mm toughened glass on GIB® plasterboard
- or any system that can be demonstrated to meet the requirements of Clause 2.6.2.6 of NZS5261.

Because of the moisture generated by cooking, it is highly recommended that GIB Aqualine® is used in kitchen areas.

GIB® plasterboard products must not be exposed to temperatures in excess of 52°C for sustained periods. Check with the appliance manufacturer that this requirement will be met. However, it would be unusual for surfaces outside 200mm to exceed 52°C for sustained periods.



PENETRATIONS AND SEALANTS

As leaks and water ingress typically occur at junctions between building elements and at penetrations, it is essential that particular attention is given to these details at the time of installation. Lack of attention to detail can result in water damage that could remain undetected for a long time.

- Ensure that all cut-outs for pipe penetrations are made neatly, and slightly oversize, with a hole saw. These penetrations should be of a diameter no more than 12mm greater than that of the pipe
- Sealants should be of a mould inhibiting type and be neutral cure. Neutral cure silicones will generally meet these requirements
- Surfaces should be dry and free from dust before application, a minimum of a 4mm joint width provided and the depth should not exceed the width
- Gun a bead of silicone sealant to the full depth of the GIB Aqualine® in the following locations:
  - Around all tap/pipe bodies
  - The gap between the bath rim and the bottom edge of the GIB Aqualine®
  - Between the upstand of preformed shower bases and the bottom edge of the lining
  - Where an impervious junction is required at the floor/wall line, carefully seal the gap between the bottom edge of the board and the finished floor. Leave a 5-10mm gap at the bottom of the GIB Aqualine® wall lining for this purpose, ensuring the gap is free from dirt and dust
- Do not locate shower heads or taps on fire rated or intertenancy walls. Should this be unavoidable then refer to the publication *Penetrations in GIB® Fire Rated Systems*. Always use tested and approved proprietary solutions.

WATERPROOF MEMBRANES

- A waterproof membrane must be applied to **all** lining materials used as a substrate for ceramic tiles in a shower or shower over bath situation
- The wall surface in a shower or shower over bath situation is not complete and ready for tiling until coated with a waterproof membrane over the lining and the jointed areas shown shaded on page 6
- Only in-situ waterproofing materials which are manufactured to AS/NZS 4858:2004 “Wet Area Membranes” are recommended and applied to manufacturer’s recommendations. Typically, these types of membranes are not suitable for paint and wallpaper finishes
- Waterproof membranes must be fully cured and dry prior to application of tiling adhesives
- Embed reinforcing mats in the membrane at all internal corners of the shower (including floor/wall junctions)
- Preformed sheet membranes are also available and may be more suitable where curing times or specialist skills are an issue
- The details shown in this technical literature are generic in nature. For accurate detailing, follow the specifications provided by the supplier of the proprietary waterproof membrane.

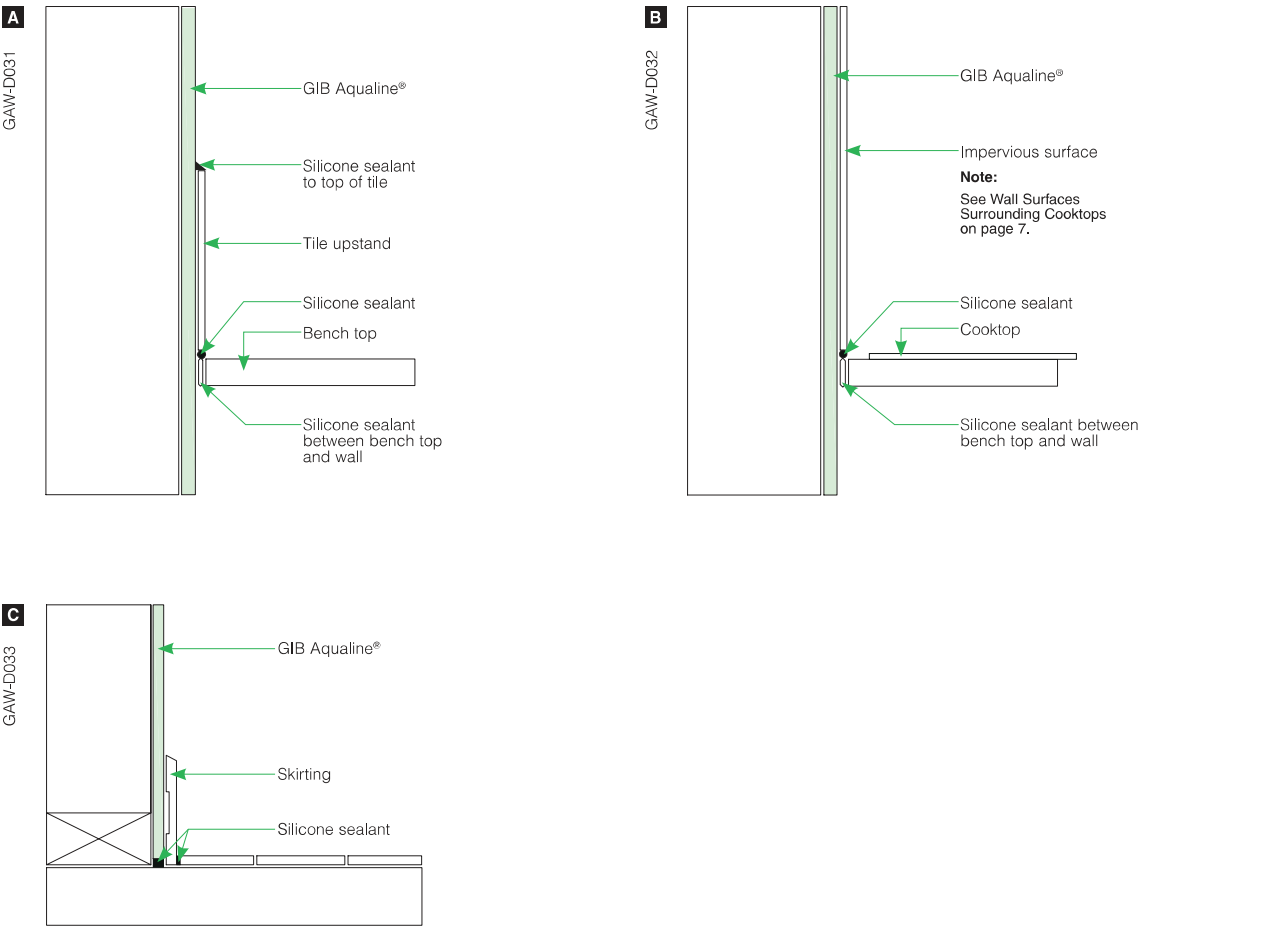
TILING

GIB Aqualine® is suitable as a substrate for tiling up to the following weights:

- 10mm GIB Aqualine® up to 20kg/m²
- 13mm GIB Aqualine® up to 32kg/m².

**Note:** Most ceramic and porcelain tiles weigh less than 20kg/m².

For further information on tiling consult the BRANZ *Good Practice Guide – Tiling*.



Drawing Number

225

| SCHEDULE OF FINISHES |                       |                                                                                                                                |                                                                               |                                                                                                         |                                                                          |
|----------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| ROOM                 | FLOOR                 | WALLS                                                                                                                          | CEILING                                                                       | TRIM                                                                                                    | DOORS                                                                    |
| BEDROOMS             | Owner selected finish | 10mm Standard gib LVL4 finish.                                                                                                 | 10mm Gib ultraline level 4 finish.                                            | 75mm Gib Cornice<br>60x10mm single bevel architrave.<br>60x10mm single bevel skirting. (paint finished) | 35mm hollow core custom<br>2.0m head height.<br>Owner selected hardware. |
| LIVING               | Owner selected finish | 10mm Standard gib LVL4 finish.                                                                                                 | 10mm Gib ultraline level 4 finish.                                            | 75mm Gib Cornice<br>60x10mm single bevel architrave.<br>90x10mm single bevel skirting. (paint finished) | 35mm hollow core custom<br>2.0m head height.<br>Owner selected hardware. |
| MASTERBED            | Owner selected finish | 10mm Standard gib LVL4 finish.                                                                                                 | 10mm Gib ultraline level 4 finish.                                            | 75mm Gib Cornice<br>60x10mm single bevel architrave.<br>90x10mm single bevel skirting. (paint finished) | 35mm hollow core custom<br>2.0m head height.<br>Owner selected hardware. |
| BATHROOM             | Owner selected finish | 10 mm aqua line gib LVL4 finish<br>Acrylic shower wall liner<br>Tiled splash backs.<br>Impervious easy to clean paint coating. | 10mm aqua line gib LVL4 finish<br><br>Impervious easy to clean paint coating. | 75mm Gib Cornice<br>60x10mm single bevel architrave.<br>90x10mm single bevel skirting. (paint finished) | 35mm hollow core custom<br>2.0m head height.<br>Owner selected hardware. |
| KITCHEN              | Owner selected finish | 10mm gib LVL4 finish.<br>Impervious easy to clean paint coating.<br>Glass splash back behind stove.                            | 10mm Gib ultraline level 4 finish.                                            | 75mm Gib Cornice<br>60x10mm single bevel architrave.<br>90x10mm single bevel skirting. (paint finished) |                                                                          |
| GARAGE / LAUNDRY     | Owner selected finish | 10mm gib LVL4 finish.<br>10 mm aqua line gib LVL4 finish<br>Around laundry area<br>Impervious easy to clean paint coating.     | 10mm Gib ultraline level 4 finish.                                            | 75mm Gib Cornice<br>60x10mm single bevel architrave.<br>90x10mm single bevel skirting. (paint finished) | 35mm hollow core custom<br>2.0m head height.<br>Owner selected hardware. |
|                      |                       |                                                                                                                                |                                                                               |                                                                                                         |                                                                          |
|                      |                       |                                                                                                                                |                                                                               |                                                                                                         |                                                                          |
|                      |                       |                                                                                                                                |                                                                               |                                                                                                         |                                                                          |
|                      |                       |                                                                                                                                |                                                                               |                                                                                                         |                                                                          |
|                      |                       |                                                                                                                                |                                                                               |                                                                                                         | All 2.1 doors to have<br>3 x hinges, brushed alloy<br>finish.            |
|                      |                       |                                                                                                                                |                                                                               | <div><div>the</div><div>DRAUGHTSMAN</div><div>LTD</div><div>dream it • draw it • build it</div></div>   |                                                                          |