8.0 Roof Claddings

8.1 General

8.1.1 Weathertightness

Roof claddings shall meet the requirements of NZBC E2.2, and be specified and *constructed* in accordance with the provisions of Paragraph 8.1.2 to Paragraph 8.5.

COMMENT:

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For *roofs* used to collect water for human consumption, refer AS/NZS 4020.

8.1.2 Limitations

The following *roof cladding systems* are covered in this Acceptable Solution:

a) *Masonry tiles*	Paragraph 8.2
b) Pressed metal tiles	Paragraph 8.3
c) Profiled metal *roof claddings*	Paragraph 8.4
d) *Membrane* roofing	Paragraph 8.5.

Other *roof claddings* are beyond the scope of this Acceptable Solution.

8.1.3 Maintenance

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Maintenance of *claddings* shall be carried out as necessary to achieve the expected *durability* of the materials – refer to Paragraph 2.5.

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COMMENT:

A deterioration in the appearance of the coating of the metal does not necessarily relate to a deterioration in the *weathertightness* of the roof *cladding*.

Care should be taken to avoid post-installation damage to the *cladding* when accessing the roof. Additional support is required around roof-mounted units such as air-conditioners to avoid roof distortion.

8.1.3.1 Projecting eaves

Soffits and verges of all projecting *eaves* shall be closed in. Refer to Paragraph 5.3 for details.

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8.1.4 Fixings

Fixings shall be as specified in Paragraph 8.2 to Paragraph 8.5.

Materials for fixing *roof claddings* and *flashings*, where necessary, shall be selected from Tables 20, 21 and 22 to minimise corrosion.

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COMMENT:

The use of stainless steel fixings is not recommended by steel manufacturers for use with coated steel in severe marine and industrial environments, as they are considered to cause deterioration.

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8.1.5 Roof underlays

Roof underlays shall be to Table 23 and NZS 2295, and be either:

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- R1 heavy weight kraft, or
- R2 self supporting kraft.

Underlays shall be:

- Layed with minimum numbers of laps
- Lapped at all side and end laps by minimum 150 mm
- Run horizontally for *roof* pitches below 10°
- Run horizontally or vertically for *roof* pitches above 10°
- Have *anti-ponding boards* at lower edges of masonry tiles, refer Figure 25(b) and Paragraph 8.2.5.

8.1.5.1 Underlay support

Prevent sagging of *roof underlay* by either:

- For R1 *underlays*, fully support with a corrosion resistant material
- For R2 self supporting *underlays*, laid to maximum 1.2 metre span between adjacent supports

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COMMENT:

Solvent in freshly LOSP-treated timber can affect bitumen in *underlays*. Any solvent should be allowed to evaporate before the *roof underlay* is installed.

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8.1.6 Gutters general

Gutters, downpipes and spreaders, including *eaves* gutters/spoutings are required for the drainage of *roof* water, and shall:

a) Be to the minimum dimensions shown in this Acceptable Solution, or calculated to E1/AS1, whichever is the greater

b) If a gutter depth is reduced to allow entry of a *valley gutter*, the reduced depth must be used to calculate the capacity of the gutter

c) For internal, *valley*, and *hidden gutters*, have no fixings in gutter bottoms or sides, and be continuously supported on H1.2 minimum treated timber gutter boards or H3 ply which is separated from metal by *roof underlay* strip.

Eaves gutters/spoutings shall:

d) Be to any of the materials outlined for *flashings* in Paragraph 4.1 except 4.3.9, 4.3.10 and 4.3.11

e) Have a minimum cross sectional area of 2500 mm^2

f) Be designed to overflow water to the outside.

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Downpipes shall:

g) Be formed from any of the materials outlined for flashings in Paragraph 4.1 except 4.3.9, 4.3.10 and 4.3.11

h) Upper *roofs* shall drain via downpipes directly to ground level where possible, or

i) Where discharging to a lower *roof*, be fitted with a spreader as detailed in Figure 20

j) Have a maximum catchment area of 25 m^2 if discharging on to a lower *roof* area.

Spreaders shall:

k) Be to any of the materials outlined for *flashings* in Paragraph 4.1 except 4.3.9, 4.3.10 and 4.3.11

l) Be to Figure 20 and not be used on masonry tile roofs unless a *roof underlay* is installed

m) Discharge directed away from roofing laps and clear of *roof* penetrations.

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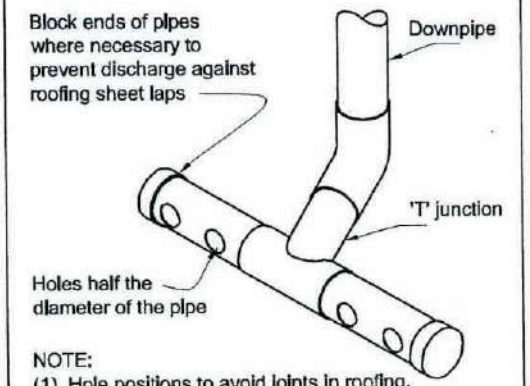
COMMENT:

Design calculations for a specific *roof* may allow larger catchment areas per spreader to be used.

The alternative to a spreader is to direct an upper level downpipe into a rainwater head.

The ends of spreaders should be blocked off where a sideways flow of water is against laps in *roof claddings*.

Figure 20: Spreader for roof discharge
Paragraph 8.1.6



NOTE:
(1) Hole positions to avoid joints in roofing.
(2) When downpipe is located in corner, spreader to be L-shaped.

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8.1.6.1 Internal gutters

Internal gutters shall:

a) Be formed with continuous butyl or *EPDM* strip complying with Paragraph 4.3.9, with no cross-joints in the gutter, or aluminium, copper, stainless steel, or zinc sheet to Paragraph 4.3, with joints that are welded

b) Where butyl or *EPDM*, be minimum 1.5 mm *membrane* thickness, or 1.0 mm thickness for gutters less than 1 metre wide

c) Have a minimum slope of 1:100

d) Be constructed to at least the minimum dimensions shown in Figure 52, or the capacity calculated to E1/AS1 plus an additional freeboard depth of 20 mm minimum.

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For *roofs* other than *membrane roofs*:

e) Discharge into a rainwater head as shown in Figure 63 (a) and (b), or

f) Discharge to an internal outlet to Figure 64 (b) or (c) with overflows provided by either:

i) a second outlet to a rainwater head, or

ii) an overflow as shown in Figure 63(c), and positioned below the level of any potential overflow into the *building*.

For internal gutters and *membrane roofing*, refer to Paragraph 8.5.

8.1.6.2 Valley gutters and hidden gutters

Valley gutters and *hidden gutters* shall be constructed as shown in Figures 50 and 51 for the applicable *roof cladding* (except for *membrane roofing*) and:

a) Not change direction in plan

b) Have a minimum underlap to *roof cladding* as specified in Figures 27, 37, 50, and 51 for the relevant *roof cladding*

c) Be formed from any of the materials outlined for *flashings* in Paragraph 4.3 except 4.3.10 and 4.3.11

d) Be fixed at upper ends only, and be secured with a purpose-made clip system for the remaining length to enable expansion/ contraction along the length of the gutter

e) Discharge into an internal gutter or *eaves* gutter/spouting.

In addition:

f) Have minimum slopes of 8° for *hidden gutters*, and to Table 8 for *valley gutters*

g) *Hidden gutters* receive no discharge from downpipes or spreaders

h) Spreaders not discharge directly into a *valley gutter*

i) *Valley gutters* be minimum 250 mm wide where receiving run off from spreaders.

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Table 8: Maximum catchment areas for valley gutters
Paragraphs 8.1.6.2, 8.4.16.2, 9.7.7.1, 9.9.4.4, 9.9.10.1, Figures 27, 37 and 51

Gutter width	Maximum catchment area	Minimum roof pitch
250 mm	25 m^2	8°
160 mm to 249 mm	16 m^2	12.5°

NOTE: Catchment areas are limited to:

(1) Gutters in accordance with Paragraph 8.1.6.2.

(2) Rainfall intensity with average recurrence interval (ARI) no greater than 200 mm per hour.

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COMMENT:

Gutters for lower-pitched *roofs*, or for catchment areas other than those shown in Table 8, require *specific design*. Additional information may be found in the New Zealand Metal Roof and Wall Cladding Code of Practice.

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8.1.7 Roof penetrations

Roof penetrations shall be made *weathertight* in accordance with Paragraph 8.2 to Paragraph 8.5.

Where *roof* penetrations are required for large openings such as *roof* lights and *chimneys*, this Acceptable Solution is limited to the following requirements:

a) The edge of roofing penetrations over 200 mm wide shall be supported in either direction with additional *framing* as shown in Figure 21, and

b) For the catchment area of the *roof* above the penetration as shown in Figure 22, the *roof* length shall be limited to:

i) for profiled metal roofing, Table 17

ii) for other *roof claddings*, the areas shown in Table 9.

COMMENT:

Flashings for *roof* penetrations not included in this Acceptable Solution require *specific design*.

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For pipe penetrations, refer to details for the *roof cladding* material used.

Table 9: Maximum catchment areas above penetrations
Paragraph 8.1.7 and Figure 22

Penetration width	Maximum roof length above penetrations in metres
800 to 1200 mm	4 m
600 to 800 mm	6 m
400 to 600 mm	8 m
0 to 400 mm	10 m

NOTE: Refer to Table 17 for profiled metal roofing.

Figure 21: Penetration support
Paragraphs 8.1.7 and 8.4.17

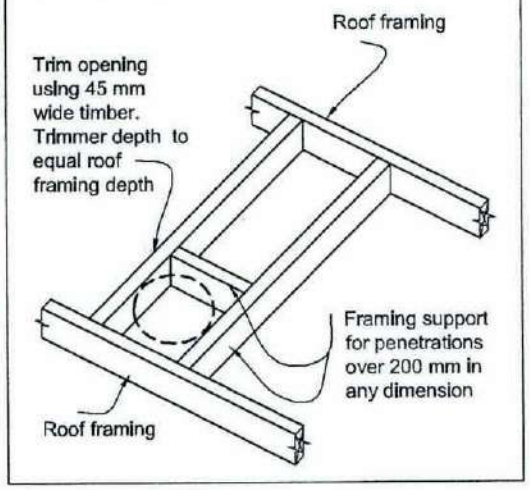

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Figure 22: Catchment area for penetrations
Paragraphs 8.1.6, 8.1.7, Tables 9 and 17

NOTE:
(1) Profiled metal roofing - refer Table 17 for maximum roof lengths above penetrations.
(2) Other roof cladding - refer Table 9 for maximum roof lengths above penetrations.

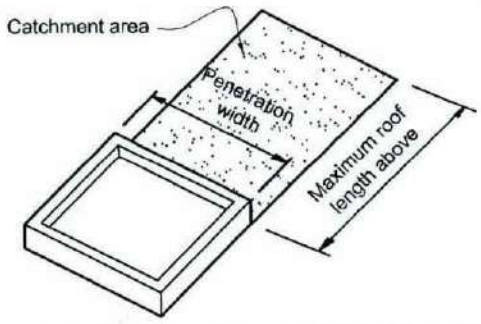

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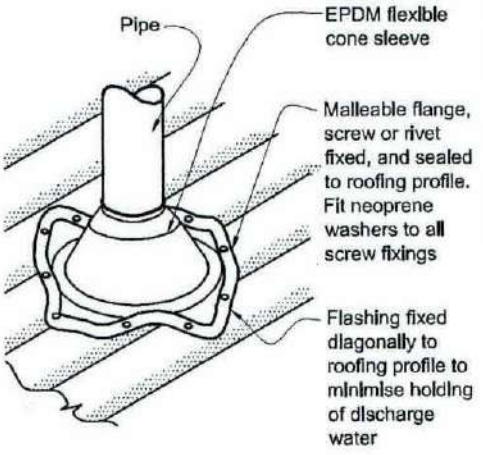
Figure 53: Flashing for small pipes
Paragraphs 8.3.10, 8.4.17, 9.6.8.5 and 9.6.9.6



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

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Figure 54: Soaker flashing for pipe penetrations
Paragraph 8.4.17

NOTE: (1) Suitable for pipes from 60 mm to 500 mm diameter.
(2) Suitable only for roof pitches of 10° or more.

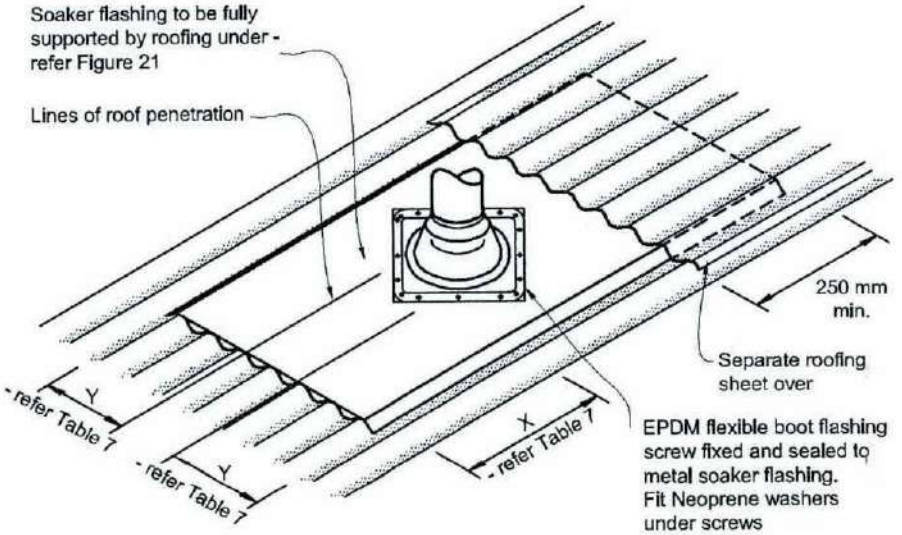

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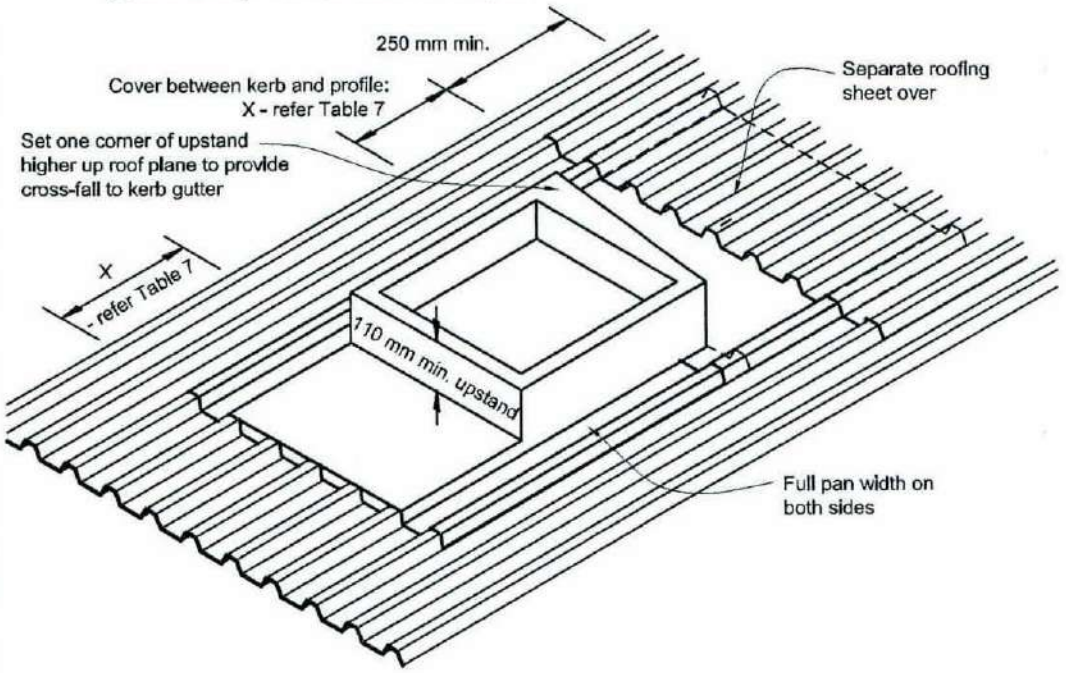
Figure 55: Soaker flashing for other penetrations
Paragraph 8.4.17, Table 17

NOTE: (1) Suitable for penetrations up to 1200 mm wide.
(2) Suitable only for roof pitches of 10° or higher.



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9.0 Wall Claddings

9.1 General

Wall claddings shall meet the requirements of *NZBC* E2.3.2 to E2.3.7, and comply with the provisions of Paragraph 9.1.1 to Paragraph 9.9.

Claddings in Extra High *wind zones* require:

a) Rigid *underlays* to Paragraph 9.1.7.2
b) *Drained cavities* to Paragraph 9.1.8
c) *Hooks* and *hems* on *flashing upstands*, and additional 25 mm height to Paragraph 4.6.

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9.1.1 Limitations

This Acceptable Solution is limited to the *wall cladding systems* listed in Paragraph 3.3. Table 3 lists *wall cladding systems* that shall be used for *buildings* with varying *risk scores*.

The method of establishing the level of risk associated with the use of a specific *wall cladding* is given in Paragraph 3.1. Based on this *risk score*, a *wall cladding* may require the inclusion of a *drained cavity* as described in Paragraph 9.1.8.

Claddings in Extra High *wind zones* require rigid *underlays* and *drained cavities* – refer to Table 3.

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9.1.2 Maintenance

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Maintenance of *wall claddings* shall be carried out as necessary to achieve the expected *durability* of the material – refer to Paragraph 2.5.

9.1.3 Bottom of cladding

Separations, clearances to ground level, and overlaps shall be as shown in Figure 65 and Table 18.

Clearances to *roof claddings* and *decks* shall be minimum 35 mm – refer to Table 7 and Figure 18.

Clearances shall be measured to:

a) The finished plane of any adjacent horizontal surface, or

b) The top surface of any adjacent sloped or horizontal *apron flashing*.

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COMMENT:
This keeps the bottom edge of the *cladding* dry, and allows cleaning and painting of the bottom surfaces.

Figure 65: Levels and garage openings
Paragraphs 9.1.3, 9.1.3.4, 9.2.5, Table 18

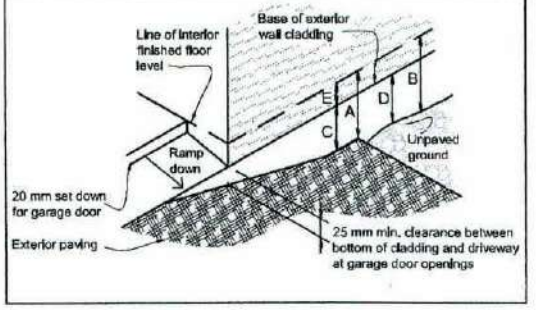

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Table 18: Minimum clearances
Paragraphs 9.1.3, 9.1.3.1, 9.1.3.2, 9.1.3.3, 9.1.3.4, 9.1.3.5 and 9.2.7

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Minimum clearances (mm)	Masonry veneer		Other claddings				
	A	B	A	B	C	D	E
Concrete slab	100	150	150	225	100	175	50
Timber floor Refer Note 1)					100	175	502)

NOTE: 1) Refer to NZS 3604 for requirements.
2) Cladding to extend minimum 50 mm below bearer or lowest part of timber floor framing.

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9.1.3.1 Concrete slabs

Slab levels shall be set to allow reinstatement of final landscaped ground levels as outlined in Figure 65 and Table 18.

COMMENT:
NZS 3604 may require greater ground clearances depending on floor type and materials.

The likely final landscaped ground levels are to be taken into account when planning foundations and earthworks to avoid reductions to the minimum ground clearances in the finished *building*.

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9.1.3.2 Masonry veneer clearances

The height of the floor slab above *finished ground level* shall be in accordance with Figure 73D and as shown in Table 18.

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9.1.3.3 Bottom of wall claddings for concrete ground slabs (except masonry veneer)

At concrete slab level, the base of the *cladding system* shall be as shown in Table 18, and:

a) Finish a minimum of:

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i) 100 mm above a paved surface, or

ii) 175 mm above finished unpaved surface,

b) Overlap the concrete slab by 50 mm, and

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c) Be offset horizontally by a minimum of 6 mm for *direct fixed claddings* to prevent capillary action.

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9.1.3.4 Garages and openings to garages

Refer to Figure 65 and Table 18 for overall level change requirements.

COMMENT:

This paragraph does not apply to garages that are detached outbuildings.

Garage spaces within, or attached to, the *building* envelope shall have:

a) Openings provided with a 50 mm minimum total level change between the interior and the exterior paving,

COMMENT:

Methods for achieving the required step may include:

- A 50 mm difference in *finished ground level* adjacent to the opening, or
- A raised threshold at the opening, or
- Concrete nibs at the opening.

b) Provision to drain water away from the threshold of the opening

c) Rigid *wall underlays*, to Table 23, where external garage *walls* are unlined

d) linings to garage *walls* adjoining habitable spaces

e) weather resisting garage doors

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f) window and door details (where included) to Paragraphs 9.2 to 9.9.

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9.1.3.5 Bottom of wall claddings for timber floor framing

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Suspended timber floors shall meet the requirements of NZS 3604. Clearances from paved and unpaved surfaces to the wall *framing* shall be in accordance with NZS 3604, and Table 18.

At ground floor level, the base of the *cladding system* shall:

a) Overlap the timber floor structure by 50 mm minimum, and

b) For walls with *direct fixed claddings*, be offset horizontally from a concrete foundation *wall* by a minimum of 6 mm

c) Have no direct connection between sub-floor spaces and *drained cavities*.

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COMMENT:

Where *claddings* require *drained cavities*, care must be taken to ensure air from the subfloor space cannot enter the cavity. This is important, as moisture levels in subfloor air can be high.

9.1.4 Barriers to airflow

This Acceptable Solution requires *external walls* to have barriers to airflow, in the form of:

a) Interior *linings* with all joints stopped for *wind zones* up to Very High, or

b) Rigid *underlays* (and *drained cavities*) for *buildings* in Extra High *wind zones* – refer to Paragraph 9.1.7.2

c) Where walls are not lined, such as attic spaces at gable ends, an air barrier complying with Table 23, fixed to *framing* prior to fixing *cladding* or *cavity battens*

d) For attached garages, *underlays* to Paragraph 9.1.3.4.

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COMMENT:

The primary function of air barriers and *air seals* is to moderate airflows at junctions and inside the *wall* cavity.

Airflows in certain weather conditions encourage significant amounts of water to move along their path, and it is therefore important to manage airflow in *cavity walls* with barriers and *air seals*.

In the absence of internal *linings*, an air barrier is required to support wind pressures at locations such as gable ends and unlined garage spaces. Air pressure drop is not always across the internal *lining*, indicating the *wall underlay* acts as an air barrier as well.

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9.1.5 Wall underlays to wall openings

Prior to window or door installation:

a) Flexible *wall underlay* shall be cut and dressed into all sides of openings as per Figure 72A and B,

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b) *Flexible flashing tape* shall be applied to head and sill *framing* as shown in Figures 72A and 72B. *Flexible flashing tape* shall:

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i) comply with Parts 3.2 and 4 of ICBO Acceptance Criteria AC148, and

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ii) be compatible with the *wall underlay*.

COMMENT:

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Dressing the *wall underlay* around the *framing* timber and providing a flexible *air seal* limits airflows around the window reveal.

The *flexible flashing tape* keeps any water that does get past the *cladding*, or through the joinery, from direct contact with the timber.

9.1.6 Air seals

Window, door and other penetration openings shall be provided with flexible *air seals* to minimise the risk of airflows carrying water into the *building* wall. The *air seal* shall be:

a) Provided between the reveal or frame and the wrapped opening (for example of use, refer to Figure 81),

b) Installed over a closed cell polyethylene foam (PEF) backing rod, or similar

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c) Made of:

i) self-expanding polyurethane foam, or

ii) sealant complying with:

a. Type F, Class 20LM or 25LM of ISO 11600, or

b. low modulus Type II Class A of Federal Specification TT-S-00230C.

COMMENT:

Some sealants can react with bitumen based *flashing* tape, preventing full curing of the sealant. Where necessary, consult sealant manufacturers for application requirements.

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Backing rods are used for sealant and for self-expanding polyurethane foam as there is a danger foam will expand to the outside of the *wall* and form a moisture bridge to the interior.

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

9.1.7 Wall underlay

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9.1.7.1 Flexible *wall underlays* shall be in accordance with Table 23, and shall:

a) Be run horizontally,

b) Have upper sheets lapped over lower sheets to ensure that direction of laps will allow water to be shed to outside of the *wall underlay*,

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c) Be lapped not less than 75 mm at horizontal joints,

d) Be lapped not less than 150 mm over *studs* at vertical joints, and

e) Extend 35 mm below bottom plate or bearer,

f) Be restrained from bulging into a *drained cavity*. Refer to Paragraph 9.1.8.5.

9.1.7.2 Rigid *wall underlays*, in association with *drained cavities* (including *direct fixed* corrugated profiled metal), are required in Extra High *wind zones*. Refer to Table 3 and Table 23. Rigid *underlays* are also required to *external walls* of attached garages that are unlined. Refer Paragraphs 1.1.1 and 9.1.3.4 c).

Rigid *wall underlays* shall be in accordance with Table 23, and shall:

a) Be minimum 7 mm H3 plywood, or 6 mm fibre cement sheet

b) Be installed with sheet edges fixed over solid framing

c) Be over-fixed with a flexible *wall underlay* from Table 23 and installed as in Paragraph 9.1.7.1

COMMENT:

Some proprietary systems may not require the addition of a flexible *underlay*

d) Have flexible *underlay* folded into opening reveals as in Paragraph 9.1.5 a)

e) Have *cavity battens* at maximum 600 mm centres

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f) Be *finish flushed* with underside of bottom plate or bearer.

COMMENT:

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

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9.1.8 Drained cavities

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

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COMMENT:

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

9.1.8.1 Limitations

This Acceptable Solution is limited to systems where:

a) *Cavity battens* are fixed, by the *cladding* fixings, to the *wall framing*,

b) *Claddings* are fixed through the *cavity battens* into the *wall framing*, and

c) The *drained cavity* behind *claddings*, except in *masonry veneer*, is not vented at the top.

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

9.1.8.2 Requirements

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

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a) Be installed over a *wall underlay*, either flexible or rigid, that:
   i) complies with Table 23, and
   ii) is fixed to *wall framing*,

b) Be formed using vertical *cavity battens*,

c) Restrict air movement between the *drained cavity* and:
   i) floor, *wall* and *roof framing*,
   ii) attic *roof* space, and
   iii) subfloor space,

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d) Be drained and open to the exterior at the bottom of cavities,

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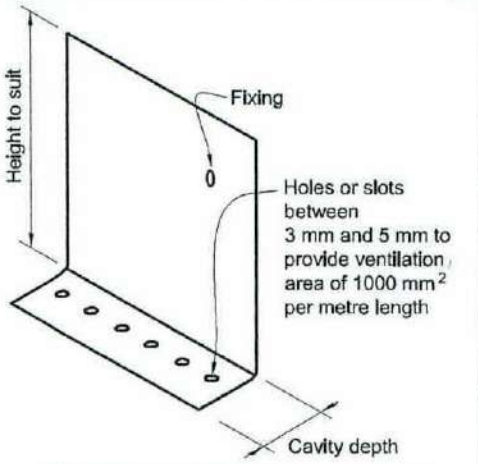
e) Use vermin-proofing at the cavity base as per Paragraph 9.1.8.3 and Figure 66,

Figure 66: Cavity base closer/vermin proofing
Paragraph 9.1.8.2



NOTE: To be used in *drained cavities* at the base of walls and above window head and inter-storey *flashings*.

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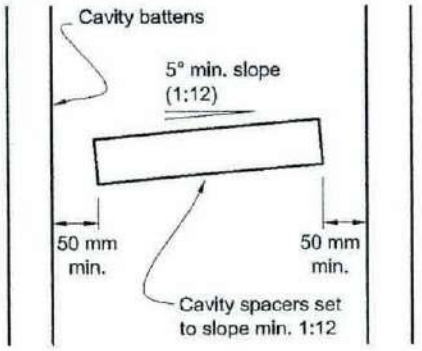
Figure 67: Cavity spacers
Paragraphs 9.1.8.2 and 9.1.8.4



NOTE: Spacing of *cavity spacers* will vary to suit individual *cladding* fixings.

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

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COMMENT:

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

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9.1.8.3 Vermin-proofing

Amend 5 Aug 2011 | Vermin-proofing shall be provided above window and door heads and at the base of the *drained cavity*. Figure 66 provides one example of an appropriate cavity closer.

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

Vermin-proofing shall:

a) Provide holes or slots between 3 mm and 5 mm,

Amend 2 Jul 2005 | b) Provide an area of opening of 1000 mm^2 per lineal metre of *wall*, and

c) Be positioned to allow a minimum *drip edge* to the *wall cladding* of:
   i) 10 mm at the base of *walls*, and
   ii) 15 mm above window and door head *flashings*.

COMMENT:

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

9.1.8.4 Cavity battens

Cavity battens shall:

Amend 2 Jul 2005 | a) Be nominal 20 mm (between limits of 18 mm and 25 mm in thickness),

Amend 5 Aug 2011 | b) Be a minimum 45 mm wide,

Amend 5 Aug 2011 | c) Be fixed, by the *cladding* fixings, through the *wall underlay* into the *framing*,

d) If timber, comply with B2/AS1,

e) If polystyrene, comply with Paragraph 9.9.3.1, and be protected from any incompatible vapours from timber treatment.

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

Amend 5 Aug 2011 |

COMMENT:

The solvents from freshly LOSP-treated timber may melt polystyrene, so these should not be used together.

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

Amend 5 Aug 2011 |

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

Amend 5 Aug 2011 |

9.1.8.5 Wall framing behind cavities

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

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

a) 75 mm galvanized mesh or wire galvanized in accordance with AS/NZS 4534,

b) Polypropylene tape or galvanized wire at 300 mm centres fixed horizontally and drawn taut, or

c) Vertical cavity battens at 300 mm centres maximum.

Amend 5 Aug 2011 |

9.1.9 Penetrations

9.1.9.1 Penetrations through cavities

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

9.1.9.2 Other cavity penetrations

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

9.1.9.3 Pipes and service penetrations

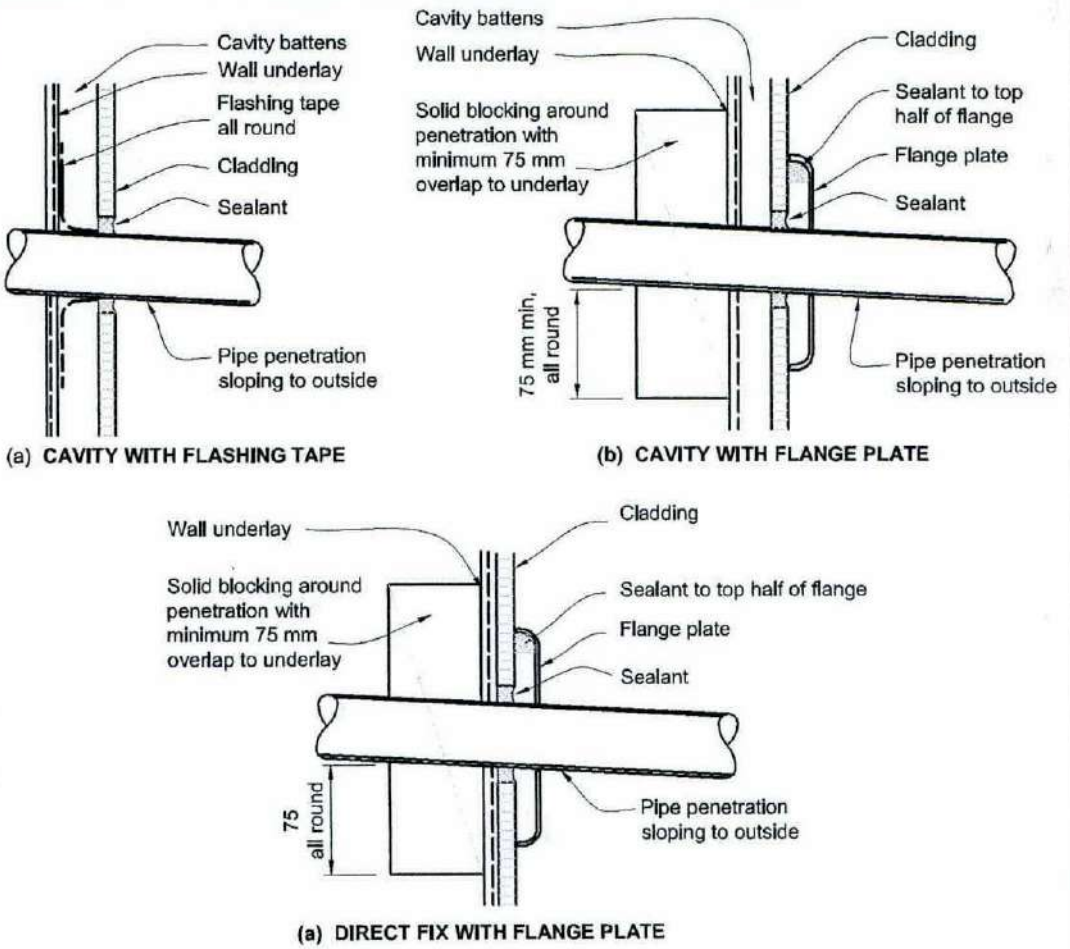
Pipes and service penetrations shall be made *weathertight* by using methods shown in Figures 68 and 69. *Flashing* tape complying with Paragraph 4.3.11, and sealant complying with:

Amend 5 Aug 2011 |

a) Type F, Class 20LM or 25LM of ISO 11600, or

b) low modulus Type II Class A of Federal Specification TT-S-00230C.

Figure 68: General pipe penetration
Paragraph 9.1.9.3, Figure 126



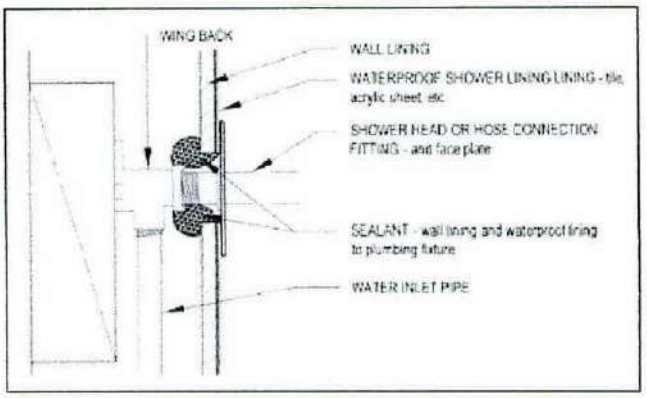
Amend 5 Aug 2011

Amend 5 Aug 2011

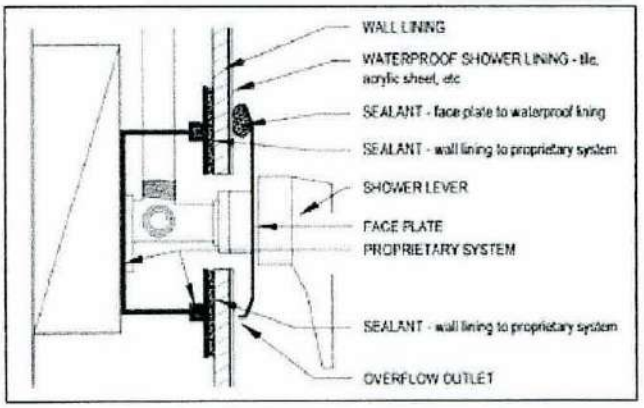
COMMENT:

Amend 5 Aug 2011

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

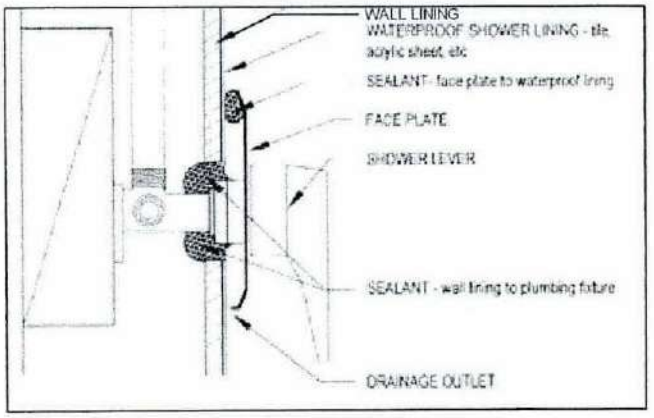


A) Shower Head or Flexible Hose Connection



Detail subject to manufacturers specifications

B) Shower Mixer with Proprietary System 'Aquatite' or equivalent



Use detail only when altering an existing shower where a proprietary system such as 'Aquatite' cannot be installed without damaging the existing components

B) Shower Mixer using Sealant

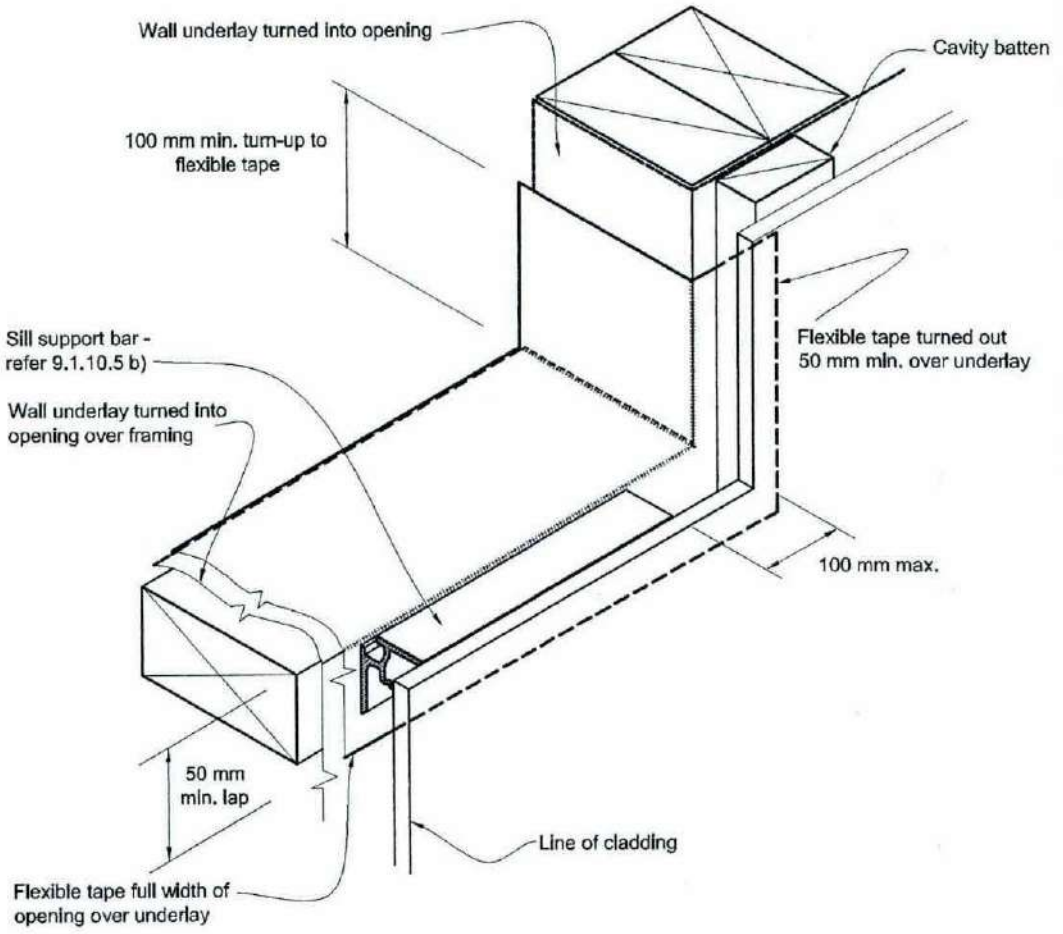
The penetrations for shower taps or mixing valves, roses or flexible hoses are to be waterproofed with a proprietary system, or sealant compatible with all adjacent building elements. Waterproofing must allow for easy access when replacing tap washers, ceramic disks and o-rings.

Sealed penetrations to comply with NZBC E3/AS1 & manufacturers specifications.

WATERPROOFING THROUGH SHOWER WALLS

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

NOTE:
(1) Detailed *cladding* omitted for clarity, refer to specific *claddings*.
(2) Head to be treated similarly with continuous *wall underlay* and *flexible tape* at corners.
(3) Refer individual cladding details for jamb flashings.



Amend 5
Aug 2011

KEOGAN
DWELLING

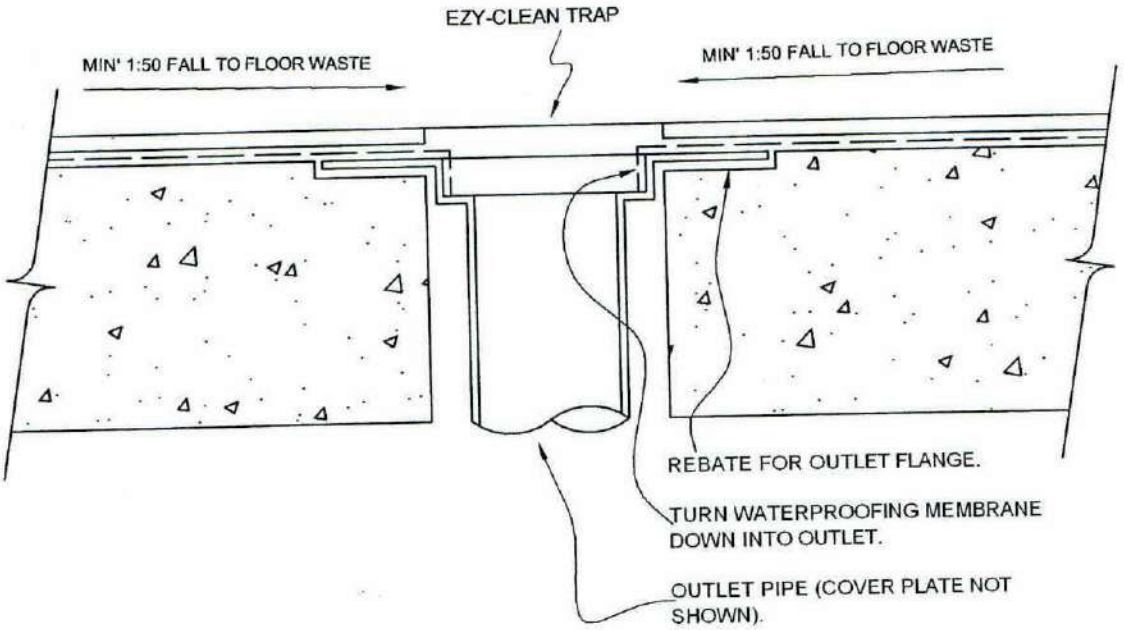
62 PITFURE ROAD, WAKEFIELD
LOT: 3. DP. 46445

A4 CONTENTS:

DETAILS
BRACING CALCULATIONS
BRACING CONSTRUCTION INFO/DETAILS
ENGINEER PRODUCER STATEMENT
ENGINEER INSPECTION SCHEDULE

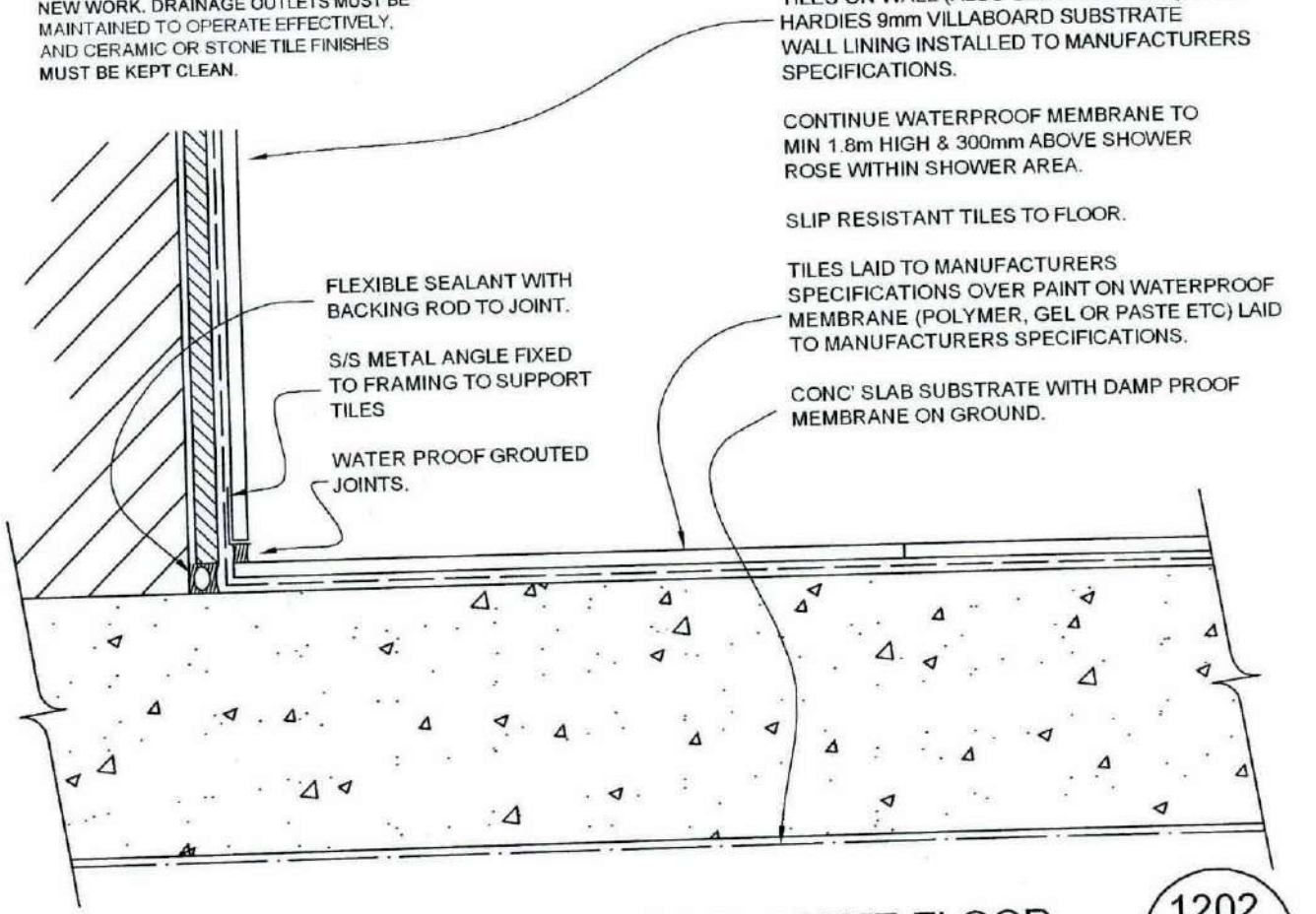
Tasman District Council
BUILDING CONSENT AUTHORITY
APPROVED DRAWINGS
Consent Number BC 140191
Signed
Date 16 / 4 / 14
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

Planz READY
PHONE / FAX [03] 544 0799
[03] 548 8188
design77@ihug.co.nz
P.O BOX 3209, RICHMOND NELSON
A.D. COCHRANE DESIGN & DRAW LTD.



WASTE OUTLET - CONCRETE FLOOR

MAINTENANCE
REGULAR CHECKS MUST BE MADE TO THE TILED AREAS TO ENSURE THEY ARE SOUND AND WILL NOT ALLOW MOISTURE TO PENETRATE. ANY CRACKS OR DAMAGE MUST BE REPAIRED IMMEDIATELY BY REPAIRING THE TILES, GROUTS AND SEALANTS.
IN THE EVENT OF DAMAGE TO THE MEMBRANES, THE TILING MUST BE REMOVED AND THE MEMBRANE REPAIRED BY REMOVING THE DAMAGED PORTION AND APPLYING AS FOR NEW WORK. DRAINAGE OUTLETS MUST BE MAINTAINED TO OPERATE EFFECTIVELY, AND CERAMIC OR STONE TILE FINISHES MUST BE KEPT CLEAN.



WET AREA TILE ON CONCRETE FLOOR

1202

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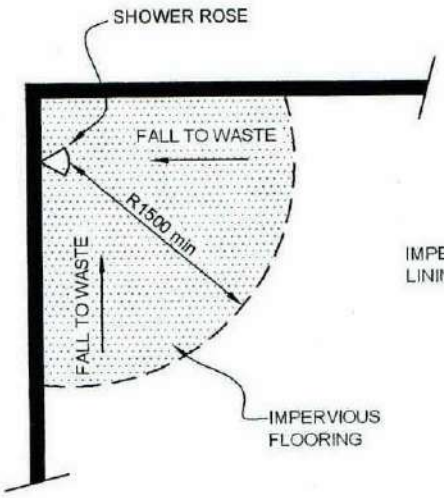
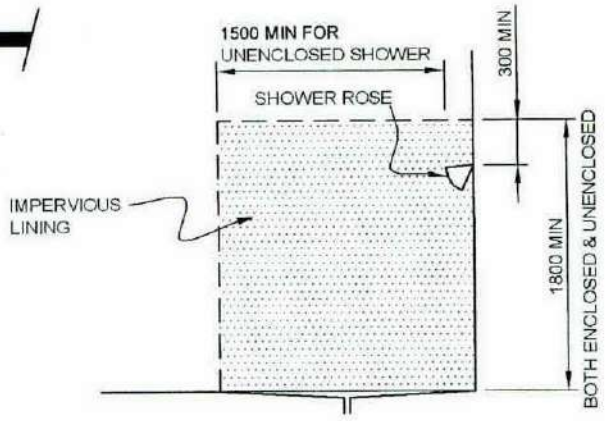


(A) PLAN VIEW 1:50



(B) SECTION VIEW 1:50

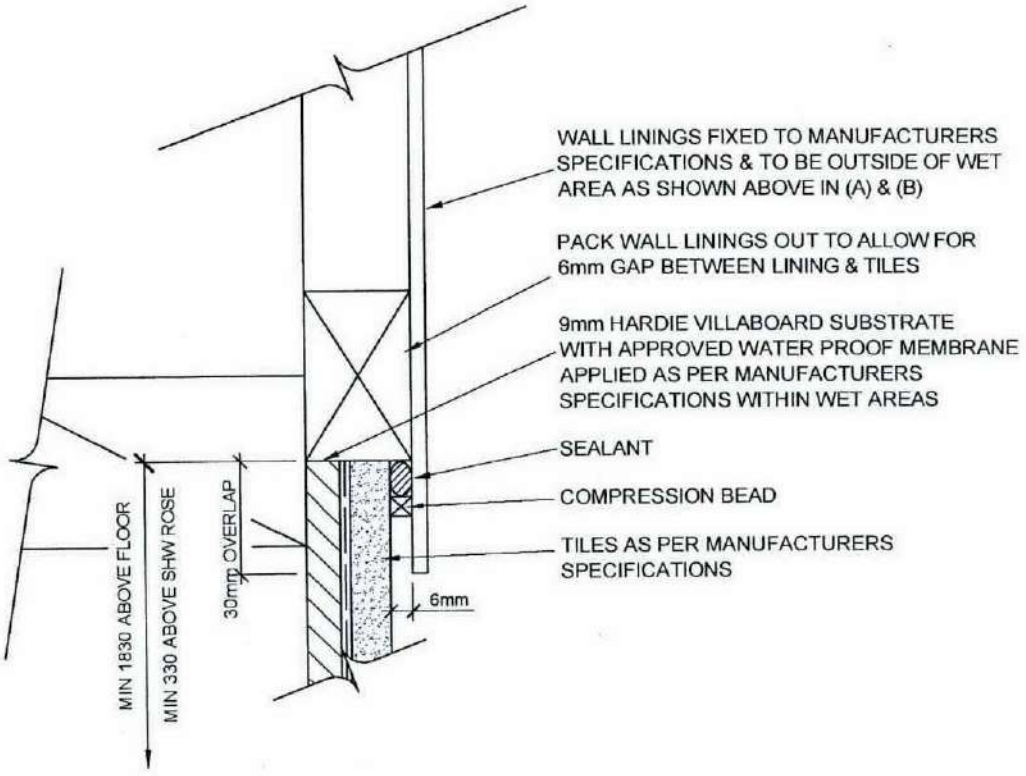
NOTE :

UNENCLOSED SHOWERS ARE SHOWN ON FLOOR PLAN BY DASHED LINES.

ENCLOSED SHOWERS ARE SHOWN ON FLOOR PLANS BY SOLID LINES

HEIGHTS & FALLS APPLY TO BOTH

NOTE :
R1500 MIN - FOR UNENCLOSED SHOWERS ONLY.



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 ENVIROMENT OF USE.

MAINTENANCE
REGULAR CHECKS MUST BE MADE OF THE TILED AREAS TO ENSURE THEY ARE SOUND AND WILL NOT ALLOW MOISTURE TO PENETRATE. ANY CRACKS OR DAMAGE MUST BE REPAIRED IMMEDIATELY BY REPAIRING THE TILES, GROUTS AND SEALANTS.
IN THE EVENT OF DAMAGE TO THE MEMBRANES, THE TILING MUST BE REMOVED AND THE MEMBRANE REPAIRED BY REMOVING THE DAMAGED PORTION AND APPLYING AS FOR NEW WORK. DRAINAGE OUTLETS MUST BE MAINTAINED TO OPERATE EFFECTIVELY, AND CERAMIC OR STONE TILE FINISHES MUST BE KEPT CLEAN.

TILED SHOWER WALL LININGS

1205

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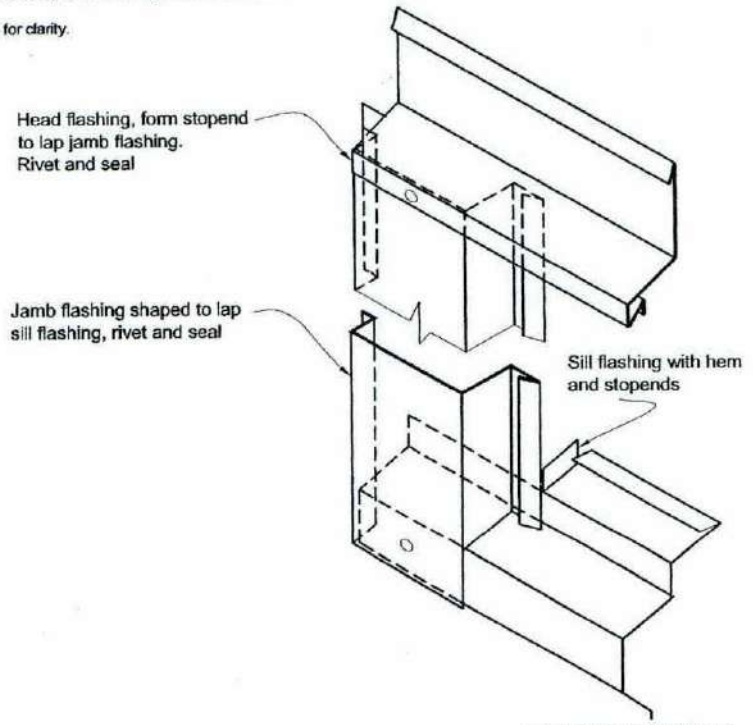
Figure 100: Window and door flashings for profiled metal
Paragraphs 9.6.8.6 and 9.6.9.7, Figures 95 and 99

NOTE: (1) Detail (a) *Direct fixed* vertical profile: refer Figure 95 for window.

(3) *Wall underlay* omitted for clarity.



(a) VERTICAL PROFILE

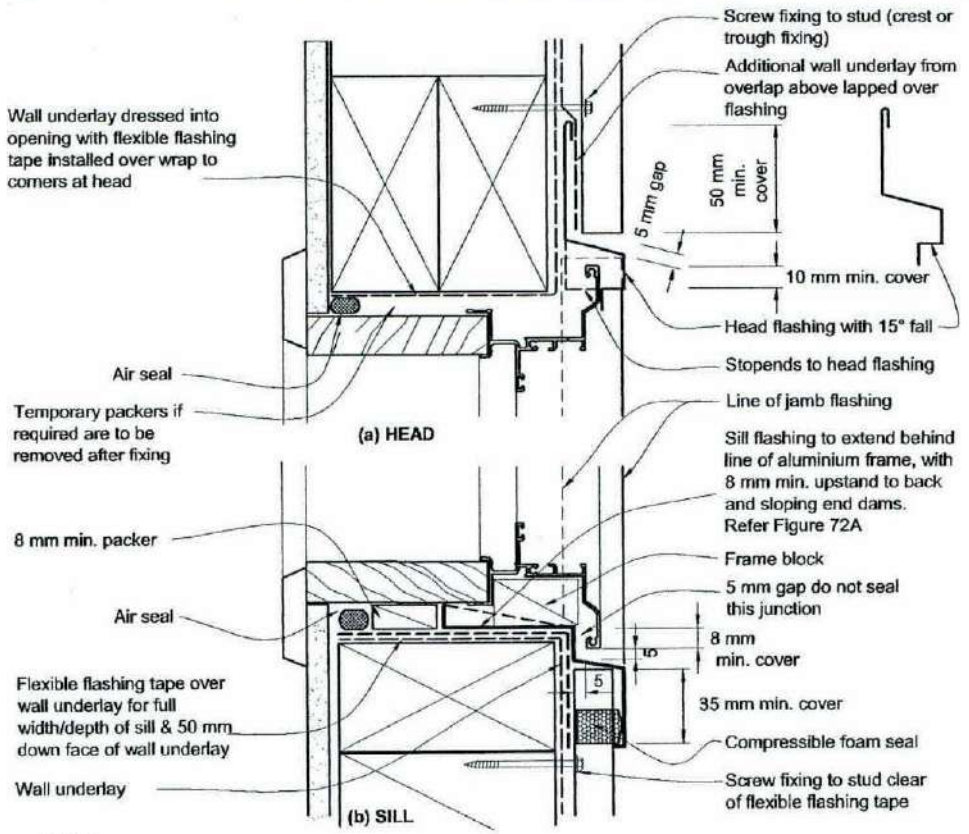
VERTICAL

Amend 2
Jul 2005

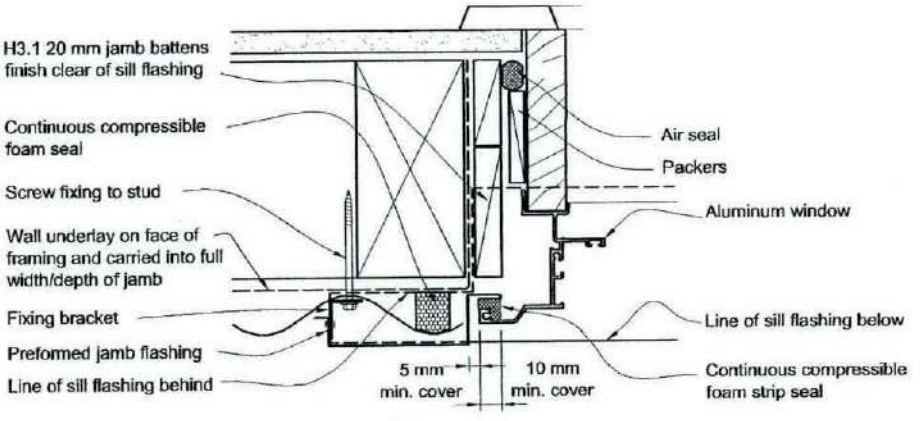
Amend 5
Aug 2011

1635

Figure 95: Windows and doors for vertical profiled metal
Paragraph 9.6.8.6



NOTE:
(1) Window profile to be selected to achieve cover shown in details.
(2) Architraves are shown for consistency only, detail may be used with rebated liner.
(3) Refer Figure 72A for wrapping of framed opening prior to window installation.
(4) Refer Figure 100 for sketch of flashings.
(5) Refer Figure 71 (c) for sealant at head for *Very High* and *Extra High* wind zones.

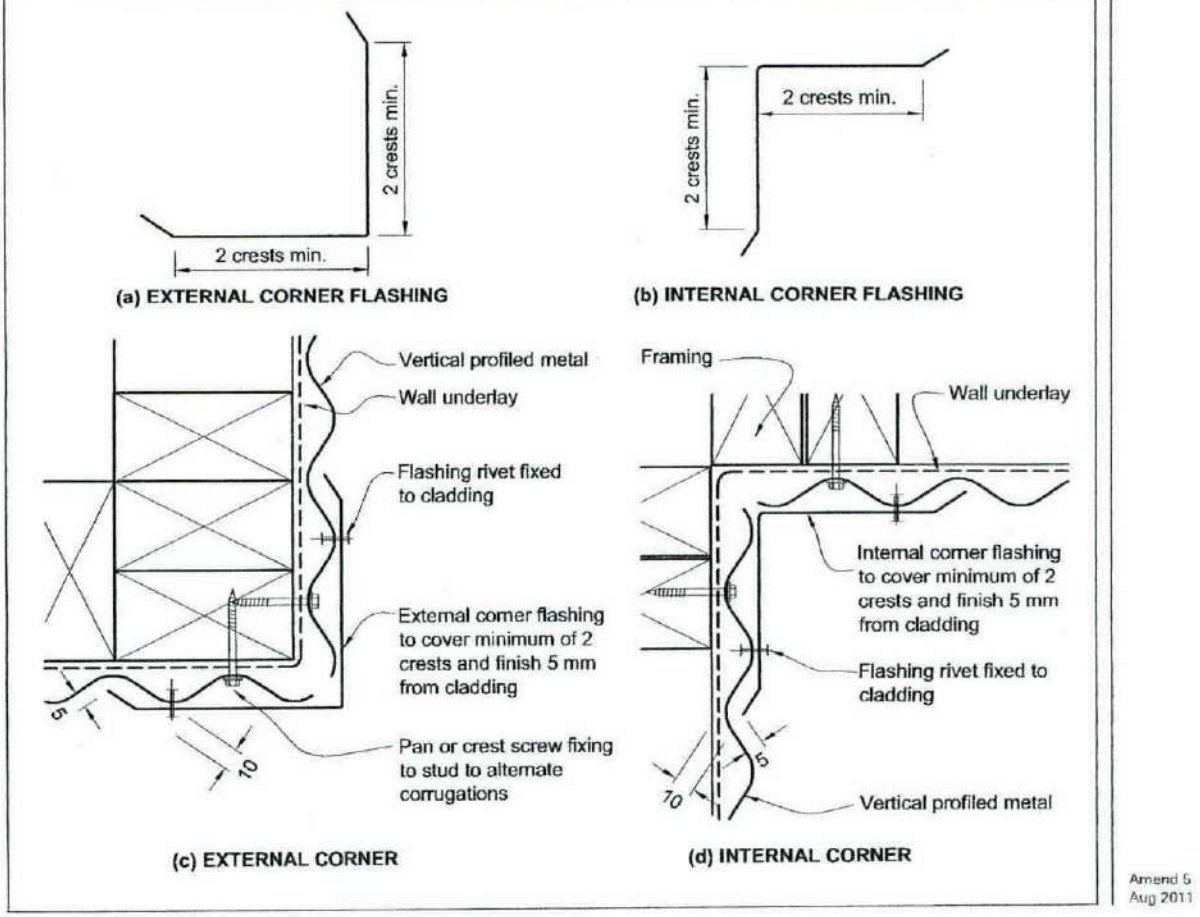


Amend 5 Aug 2011

Amend 2 Jul 2005

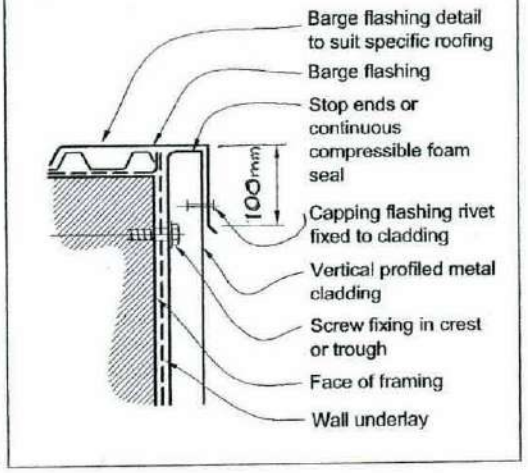
VERTICAL

Figure 94: Corners for vertical profiled metal
Paragraph 9.6.8.4



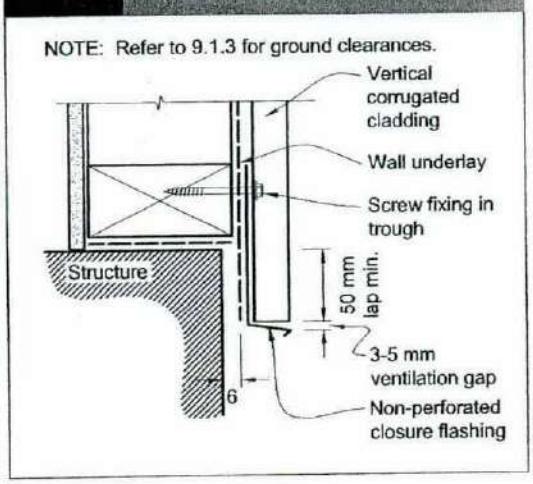
Amend 5 Aug 2011

Figure 92: Barge for vertical profiled metal
Paragraph 9.6.8.2



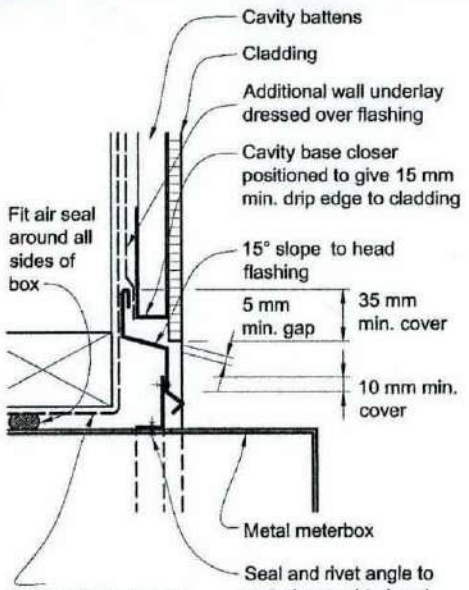
Amend 2 Jul 2005
Amend 2 Jul 2005
Amend 5 Aug 2011

Figure 93: Bottom of cladding for vertical profiled metal
Paragraph 9.6.8.3



Amend 2 Jul 2005
Amend 5 Aug 2011

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



NOTE:
(1) Fix angle and seal to all sides of box.
At sides and base, *claddings* shall overlap angle by 10 mm minimum. Continuously seal *cladding* against angle.
(2) Suitable for other similar penetrations.

Amend 5
Aug 2011

2694

VELUX Skylight installed in to existing metal roofing. ELEVATIONS

1. The metal sheet is cut to allow for the flashing apron. The cut must stop on top of a profile (min 270 mm from the side frame)
2. The filler piece is placed so it fits the cut (can be fixed to the existing metal sheets with rivets) (Shape the filler piece from the cut-out sheets of the skylight)

VELUX Skylight installed in new metal roofing.

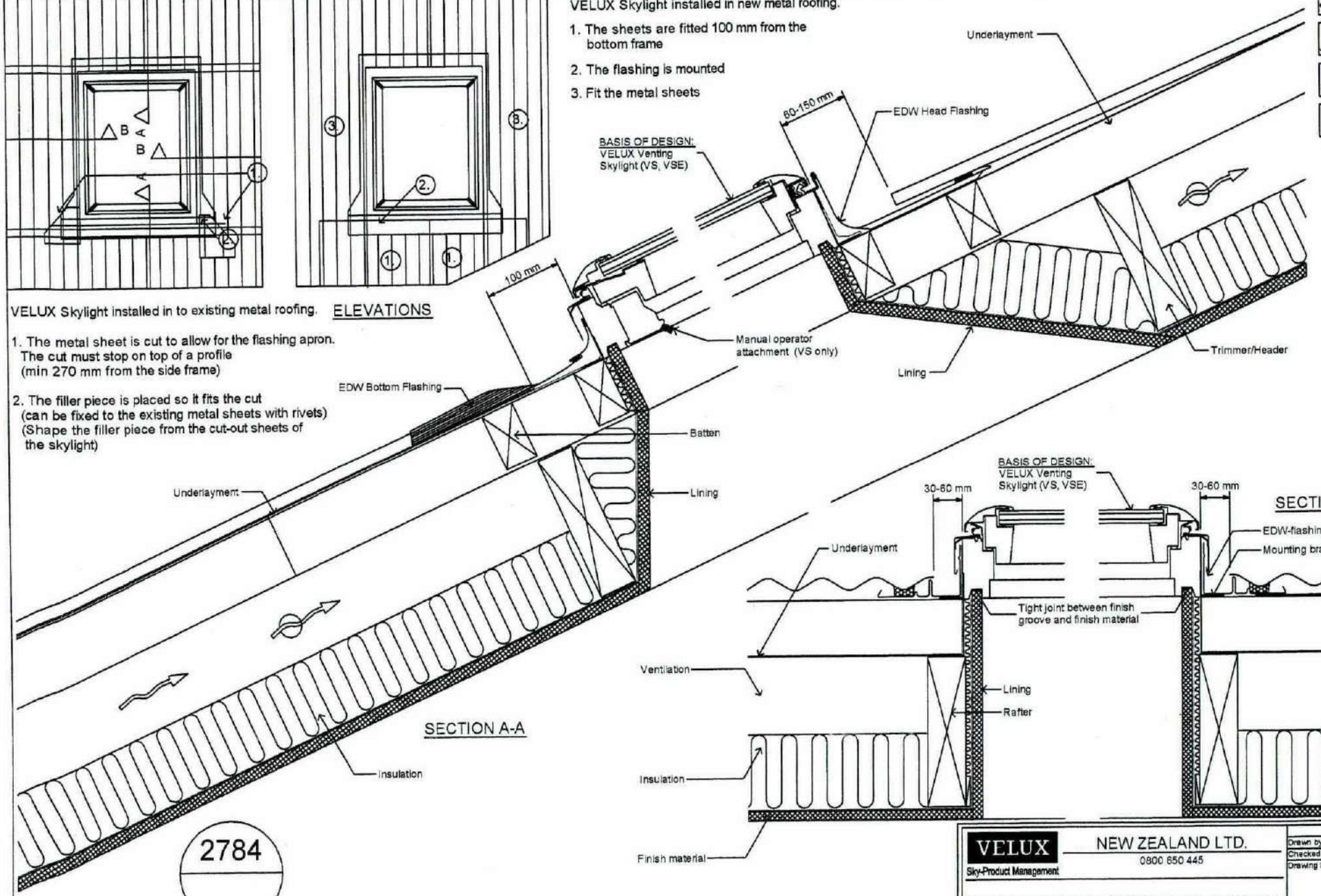
1. The sheets are fitted 100 mm from the bottom frame
2. The flashing is mounted
3. Fit the metal sheets

VS
VSE

EDW

PROFILED METAL SHEETS

15°- 20°



2784

VELUX NEW ZEALAND LTD.
Sky-Product Management
0800 650 445

	Name	Date
Drawn by		June 11
Checked by		June 11
Drawing No.		

VS, VSE - Venting Skylight and EDW Flashing in Profiled Metal Roof

Amend 5 Aug 2011

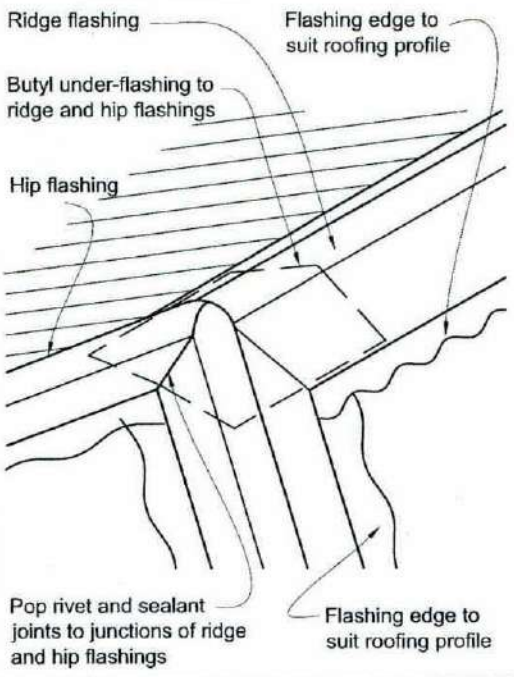
Figure 43: Ridge to hip flashings
Paragraphs 8.4.11 and 8.4.12

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

Amend 2 Jul 2005

Amend 2 Jul 2005

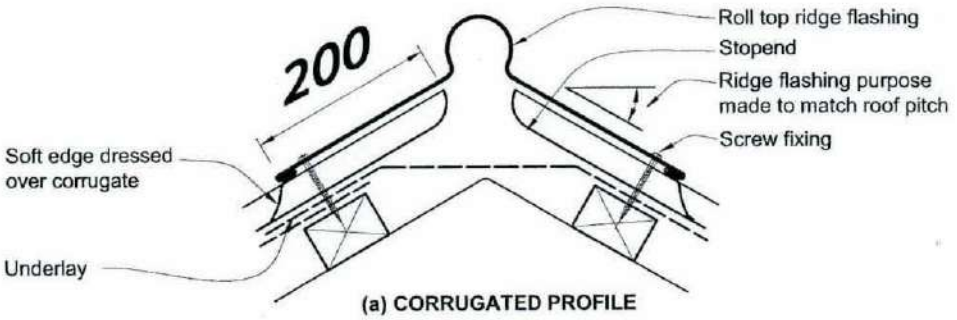
Errata 2 Dec 2011



Errata 2 Dec 2011

Amend 2 Jul 2005

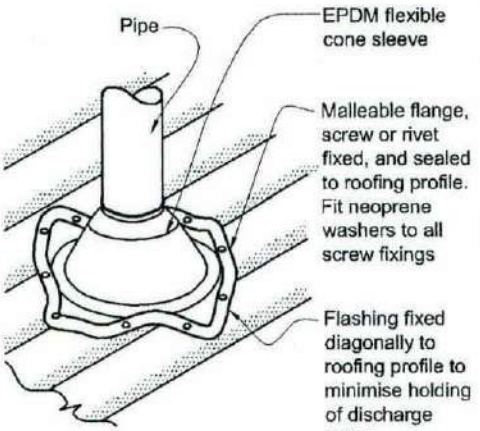
Figure 46: Ridge and hip flashings for profiled metal
Paragraphs 4.4, 4.5, 8.4.11, 8.4.12, Table 7



(a) CORRUGATED PROFILE

Amend 2 Jul 2005

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



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

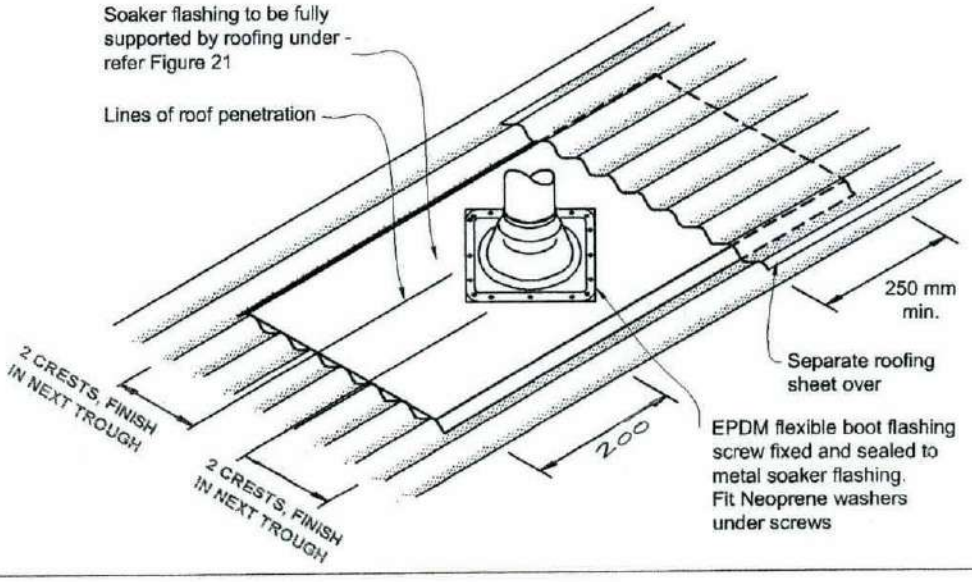
Amend 5 Aug 2011

Figure 54: Soaker flashing for pipe penetrations
Paragraph 8.4.17

Errata 2 Dec 2011

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

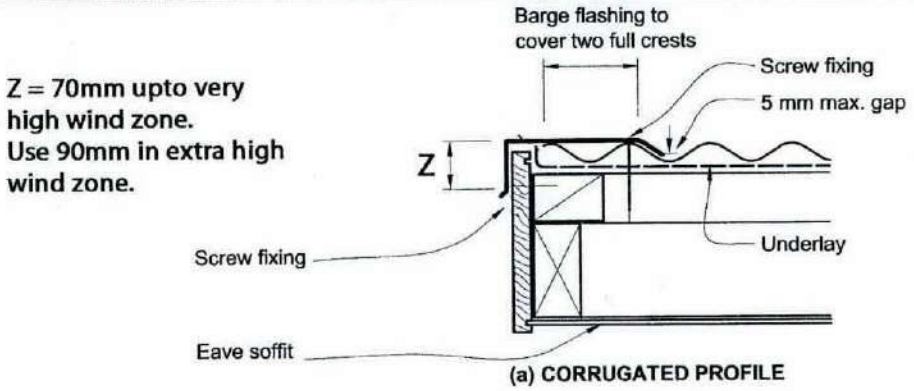
Amend 2 Jul 2005



Amend 2 Jul 2005

Amend 5 Aug 2011

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

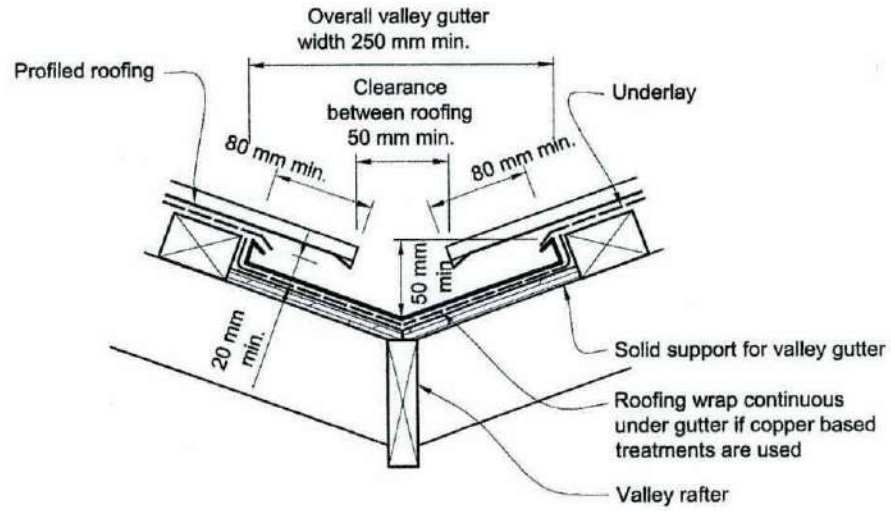


Amend 2 Jul 2005

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

NOTE: (1) Refer to Table 8 for maximum roof catchment areas for *valley gutters*.

Amend 2 Jul 2005



Amend 5 Aug 2011

Amend 2 Jul 2005

3216

6.13 Wet-back water heaters

6.13.1 Wet-back *water heaters* shall be:

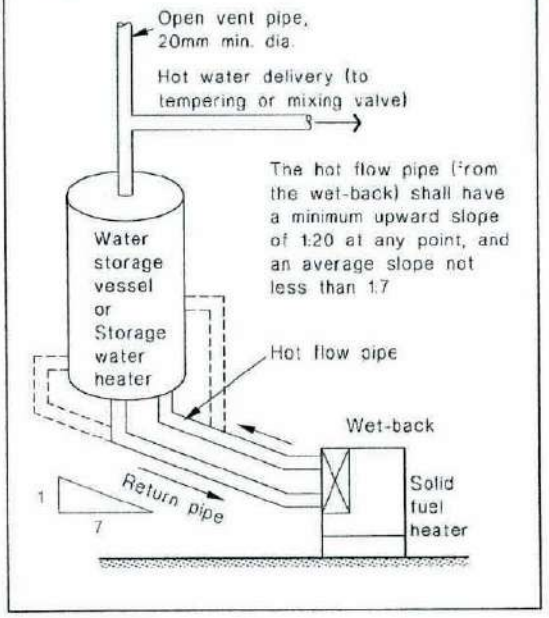
a) Connected only to *open vented storage water heaters*, or a water storage vessel (see Figure 15), and

b) Made of copper.

6.13.2 Copper pipework shall be used between the wet-back and the *water tank*.

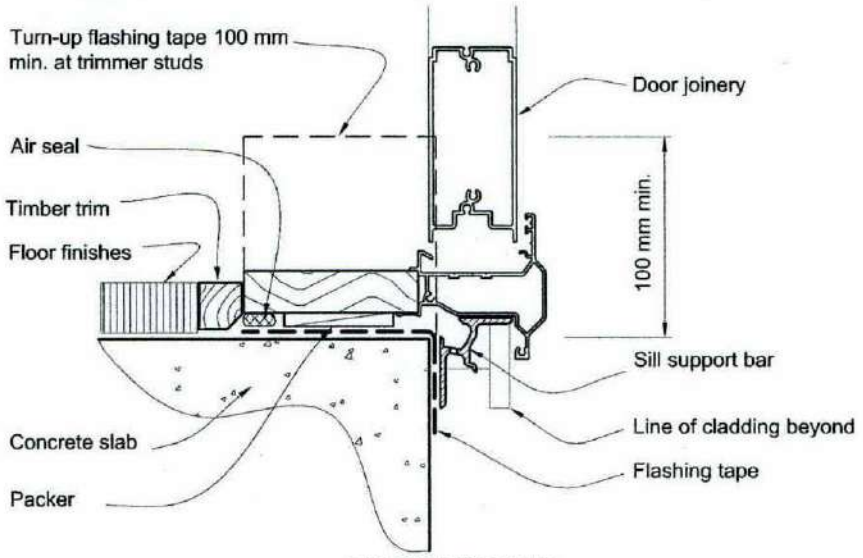
Amend 5 Feb 2004

Figure 15: Wet-back Installation – Open Vented System
Paragraph 6.13.1 a)



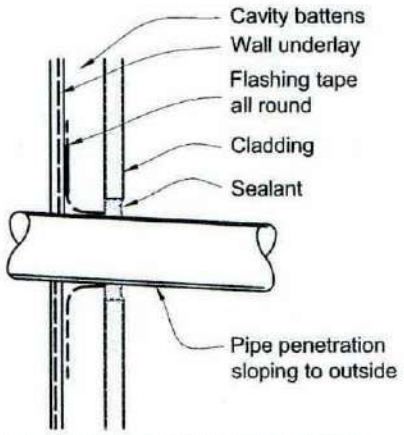
Amend 5 Feb 2004

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



(a) CONCRETE SLAB

Figure 68: General pipe penetration
Paragraph 9.1.9.3, Figure 126



(a) **CAVITY WITH FLASHING TAPE**

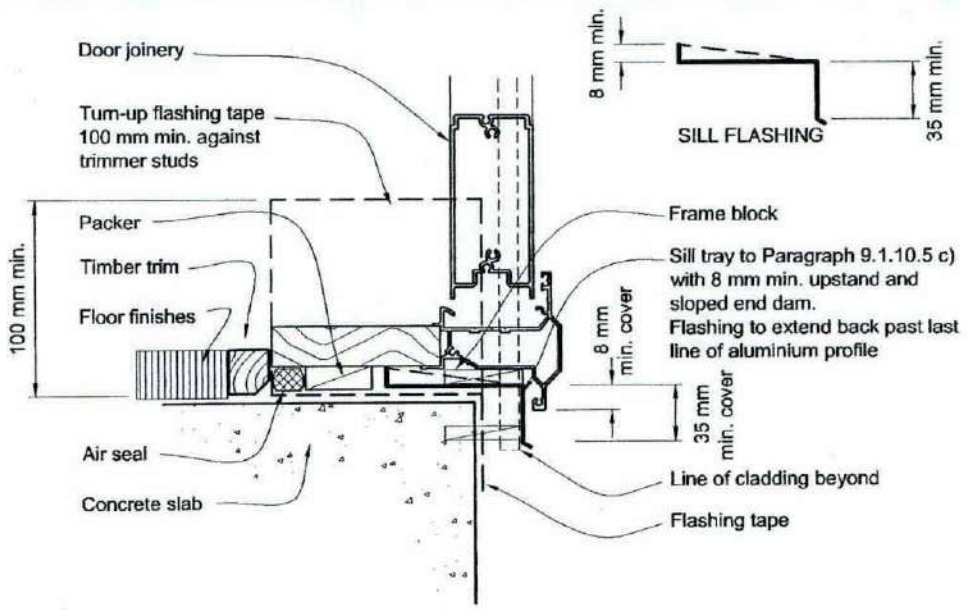
COMMENT:

Amend 5 Aug 2011

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

3831

Figure 17D: Door sills for direct fix
Paragraph 9.1.10.5, Figures 81, 82, 83, 84, 90, 95 and 115

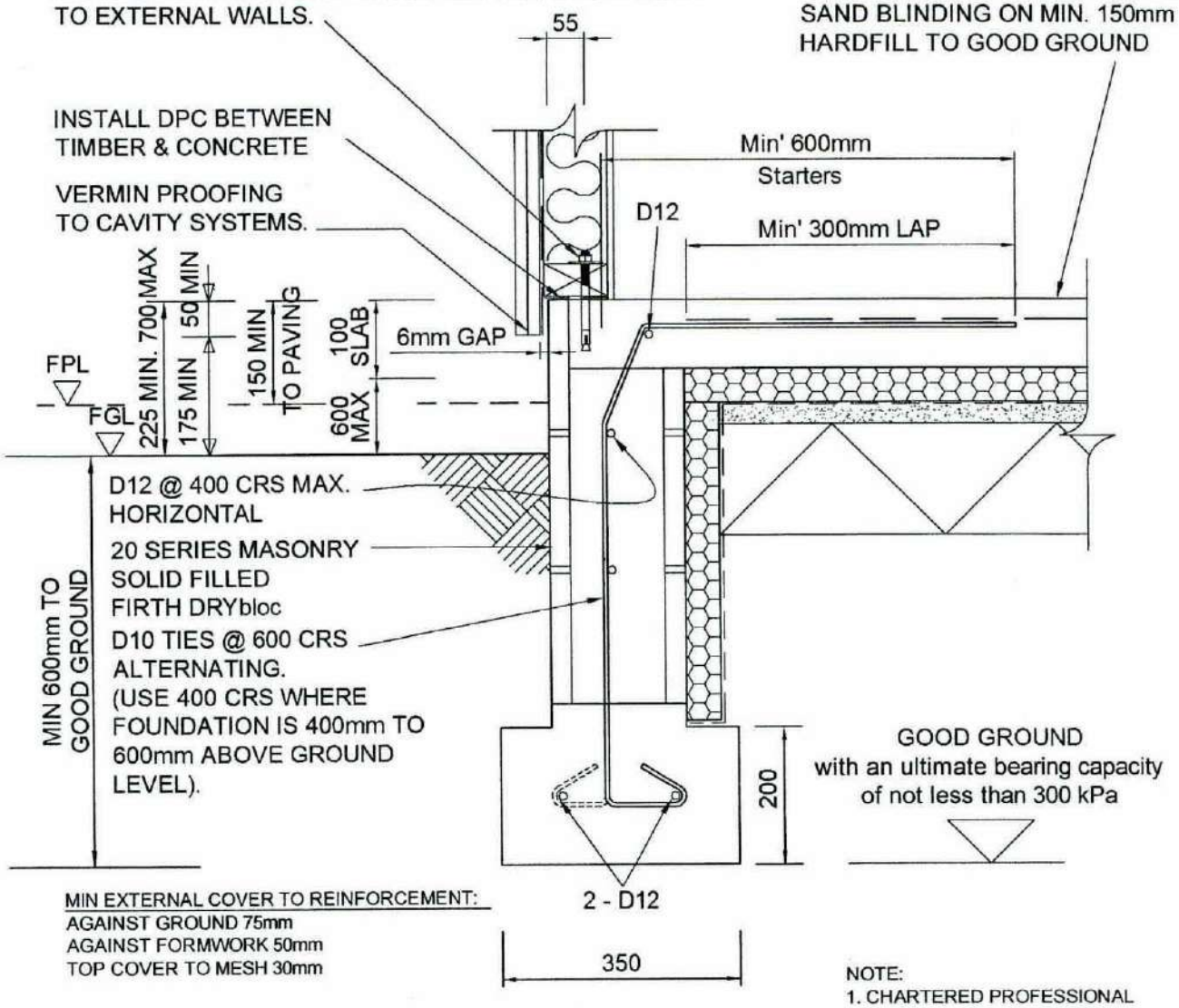


(a) CONCRETE SLAB

Amend 5
Aug 2011

BOTTOM PLATE FIXED TO SLAB WITH M12 ANCHORS @ 600mm CRS & 150mm MAX FROM CORNERS MIN' 120mm INTO CONCRETE. USE 50 X 50 X 3mm WASHERS.
INSTALL BOLTS TO MANUFACTURERS SPECIFICATIONS INCLUDING REQUIREMENTS FOR PROPRIETARY BRACING SYSTEMS & TAKING CARE TO SET AT MIN DISTANCE FROM MASONRY EDGE.
USE S/S BOLT ANCHORS WITHIN THE SEA SPRAY ZONE TO EXTERNAL WALLS.

17.5MPa 100mm THICK CONC' SLAB WITH GRADE 500E STEEL MIN 2.27 kg/m² REINFORCING MESH COMPLYING WITH NZBC B1/AS1 & NZS4671 WITH MIN' 225mm LAPS & MIN 30mm COVER ON 50mm EPS POLYSTYRENE ON DPM COMPLYING WITH NZBC ON 25mm SAND BLINDING ON MIN. 150mm HARDFILL TO GOOD GROUND



MIN EXTERNAL COVER TO REINFORCEMENT:
AGAINST GROUND 75mm
AGAINST FORMWORK 50mm
TOP COVER TO MESH 30mm

ALL STEEL REINFORCING TO BE DUCTILITY CLASS 'E' IN ACCORDANCE WITH NZS 4671.

SURROUNDING GROUND & PAVING LEVELS TO FALL AWAY FROM THE BUILDING OR HAVE DRAINAGE SYSTEM IN COMPILANCE WITH NZBC & NZS3604

DESIGN ASSUMPTIONS

- *well drained soil conditions in accordance with NZBC*
- *ground bearing of 300kPa in accordance with NZS 3604 achieved*

NOTE:
1. CHARTERED PROFESSIONAL ENGINEER TO SITE CHECK FOUNDATION EXCAVATIONS, INCLUDING SCALA PENETROMETER TESTING OF FOUNDATION SOIL & REVIEW FOUNDATION DESIGN. SEE ENGINEERS INSPECTION SCHEDULE FOR OTHER INSPECTIONS REQUIRED.
2. FOUNDATIONS SHALL BE EXCAVATED TO A DEPTH OF AT LEAST 600mm TO BEAR ON GROUND COMPLYING WITH THE REQUIREMENTS OF NZS 3604: 2011

FOUNDATION DETAIL 1 : 10

3959

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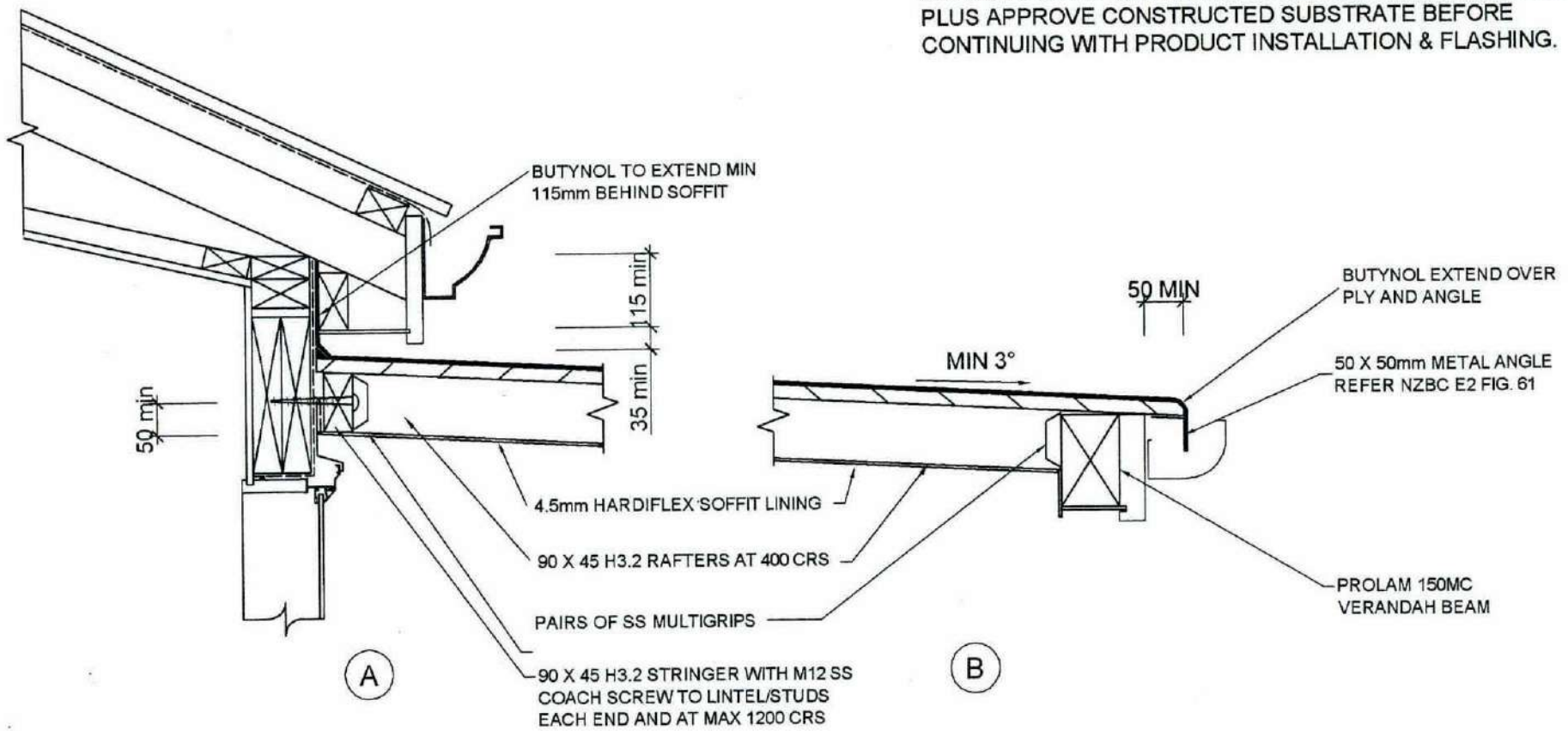
BUYTNOL ROOFING ON 20mm H3 CCA WATER BASED TREATED PLY MIN CD GRADE (SANDED C FACE UPWARDS) WITH 3mm GAP BETWEEN JOINTS. FLASH UP UNDER ROOF FOR A MIN 200mm VERTICAL RISE. PROVIDE SUPPORT TO PLYWOOD @ MAX 400 CRS. ALL INTERNAL SUPPORTING TIMBER MEMBERS TO BE H3.2 TREATED. FIX SUBSTRATE WITH 10 GAUGE X 50mm S/S COUNTERSUNK SCREWS @ 150mm crs TO EDGES & 200mm crs TO BODY OF PLY SHEETS. INSTALL BUYTNOL & PLYWOOD SUBSTRATE TO MANUFACTURERS SPECIFICATIONS. BUYTNOL LAYER TO LIASE WITH BUILDER BEFORE CONSTRUCTION BEGINS PLUS APPROVE CONSTRUCTED SUBSTRATE BEFORE CONTINUING WITH PRODUCT INSTALLATION & FLASHING.



3960

BUTYNOL FLASHING DETAIL 1 : 10

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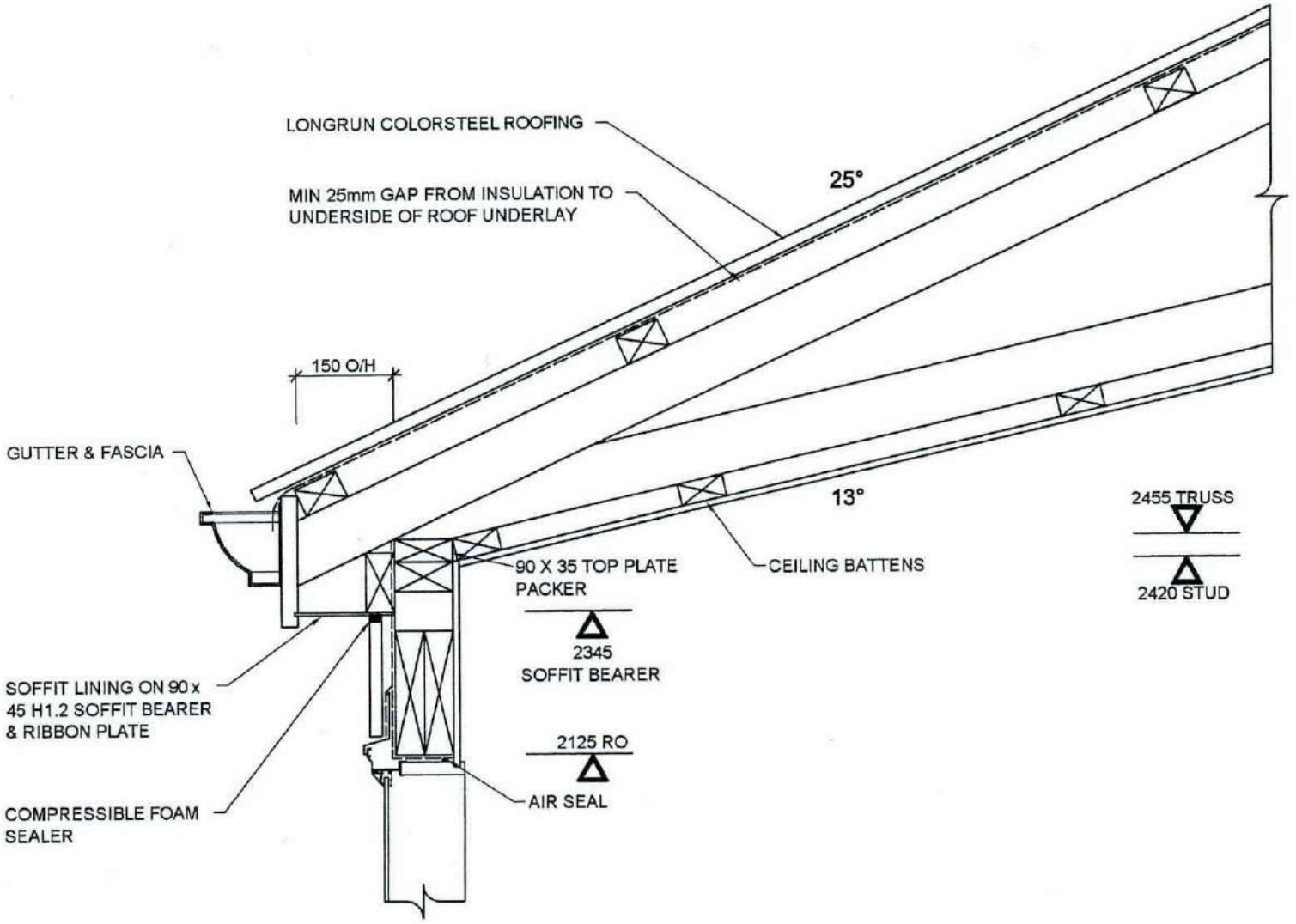

3961 VAULTED CEILING DETAIL 1 : 10

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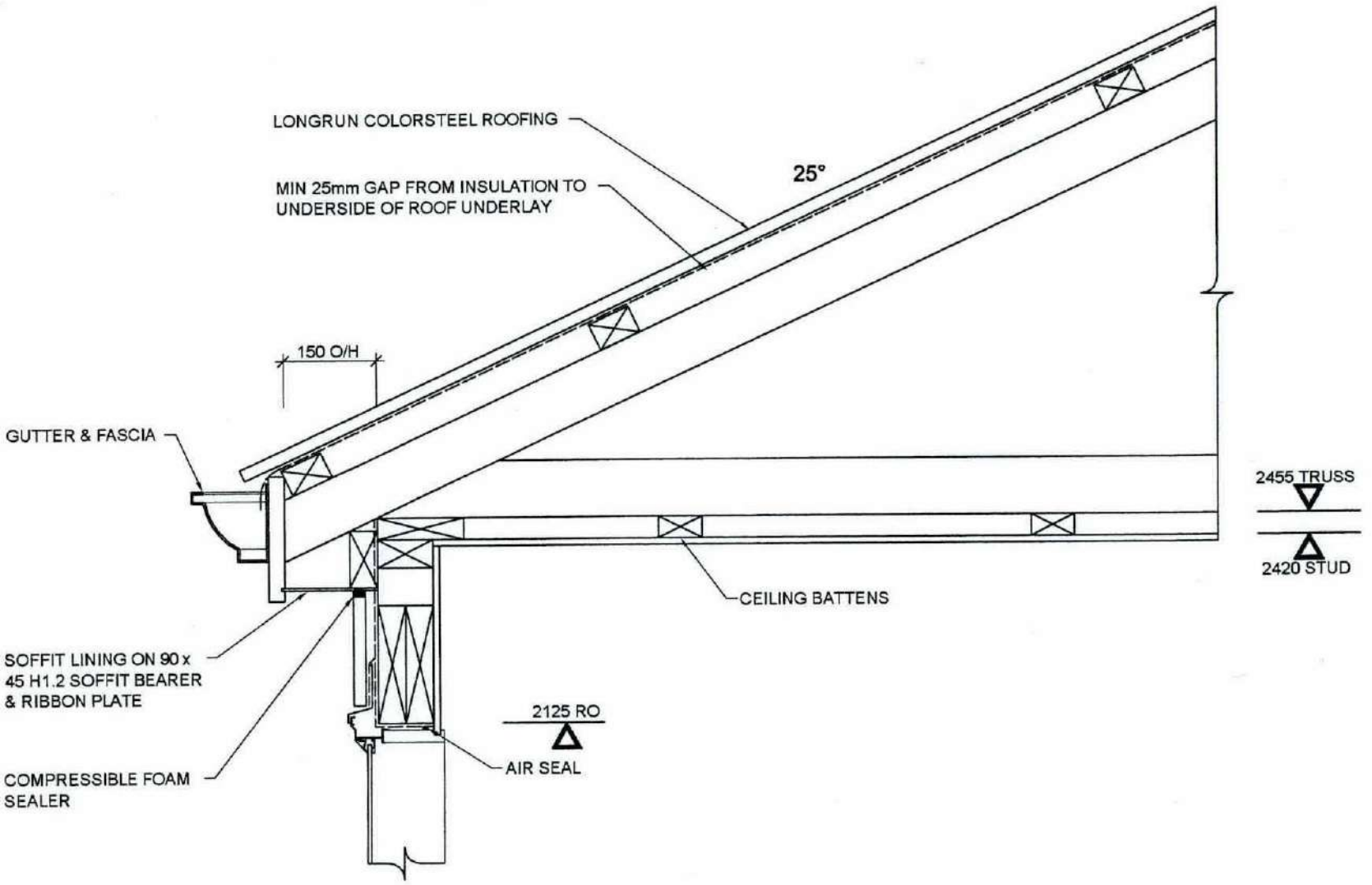

3962 TYPICAL EAVE DETAIL 1 : 10

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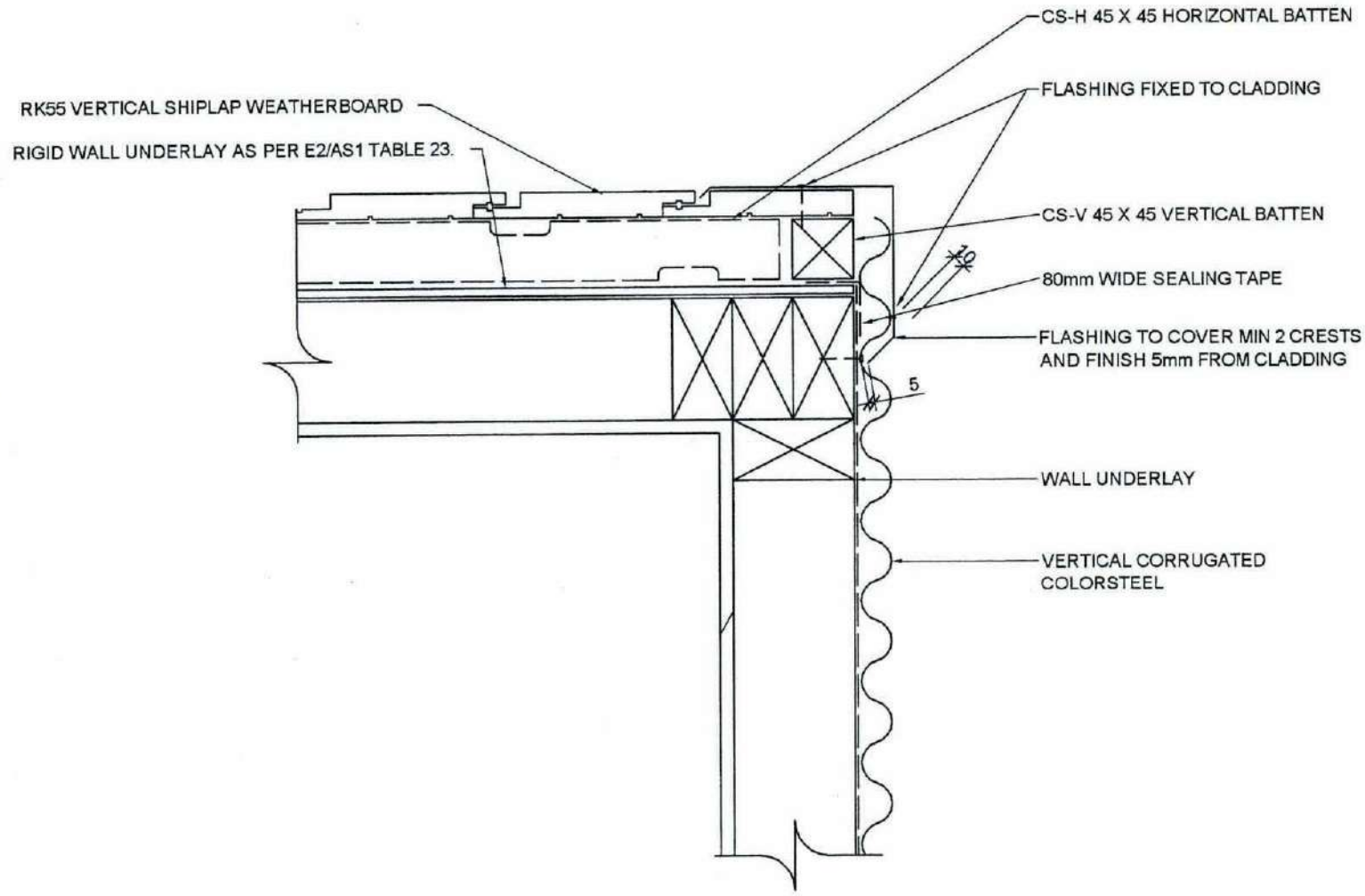

3963 COLORSTEEL - WEATHERBOARD EX CNR DETAIL 1 : 5

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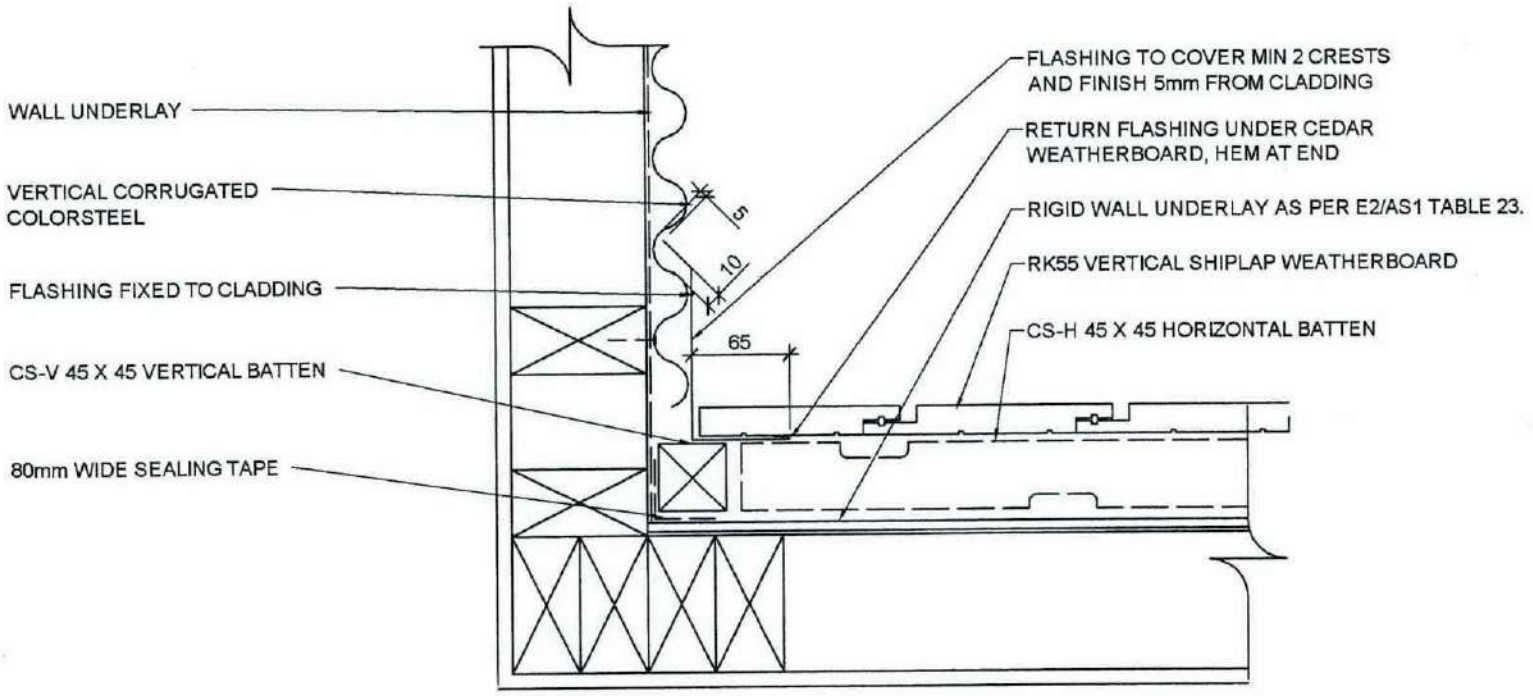

3964

COLORSTEEL - WEATHERBOARD INT CNR DETAIL 1 : 5

A. D. COCHRANE DESIGN & DRAW LTD
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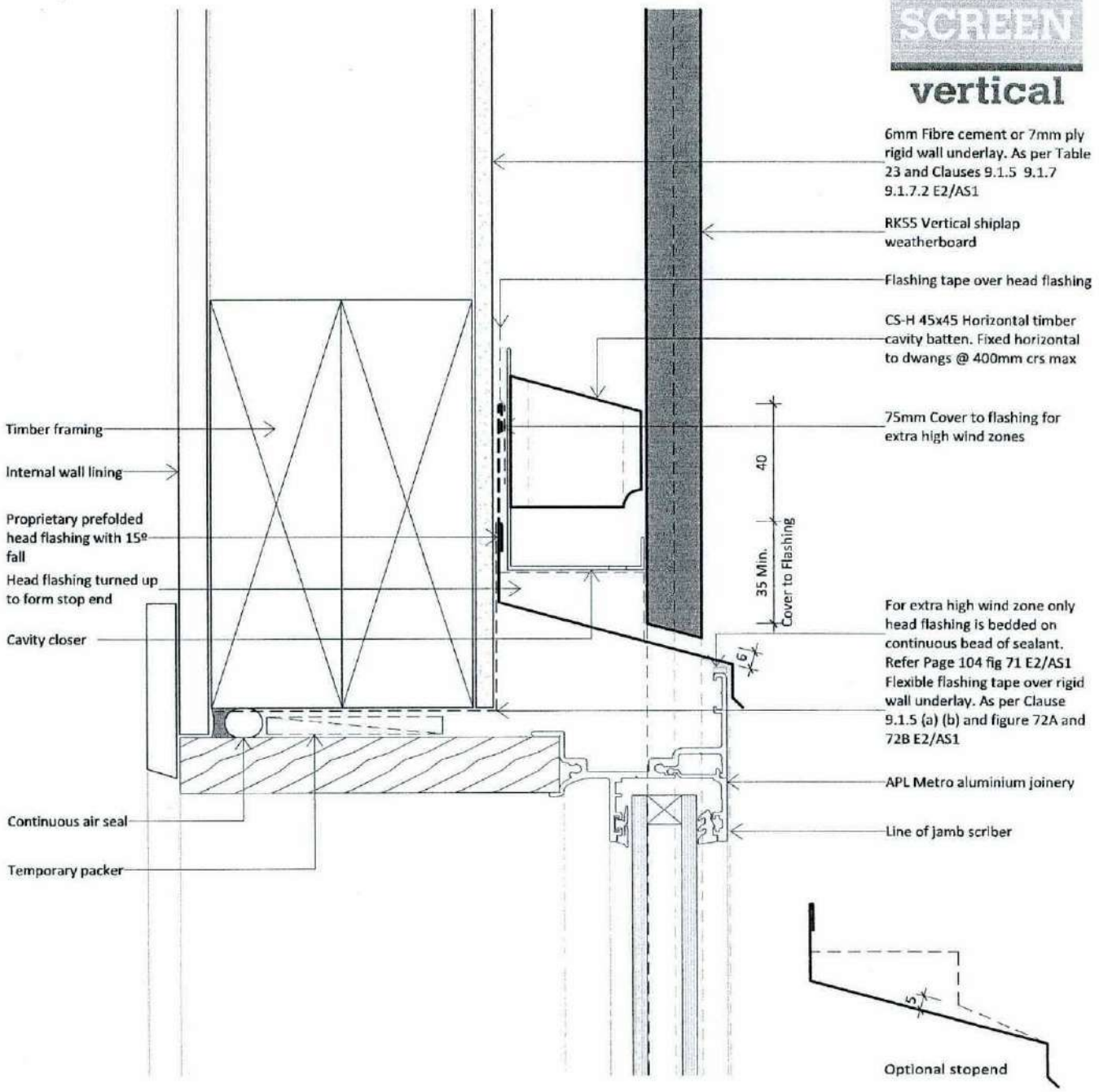
1. Scope as per Clauses 1.0 and 9.4 E2/AS1
2. Profiles as per NZS 3617 Branz Bulletin 411
3. Fixings as per Table 24 E2/AS1
4. Compatibility of materials as per Tables 20-22 E2/AS1
5. Flashing as per Clause 4.0 E2/AS1
6. Rigid and flexible underlay as per Table 23 and Clauses 9.1.5 to 9.1.7 E2/AS1 or proprietary approved alternative
7. All weatherboards to be factory oiled to all faces and weathergrooves prior to installation
8. The weatherboard system relies on the joinery meeting the requirements of NZS4211 for the relevant building windzone or wind pressure.

cedar SCREEN

vertical



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T. +64 3 349 3316
F. +64 3 349 3317

Postal address: PO Box 621, Shortland Street, Auckland 1140

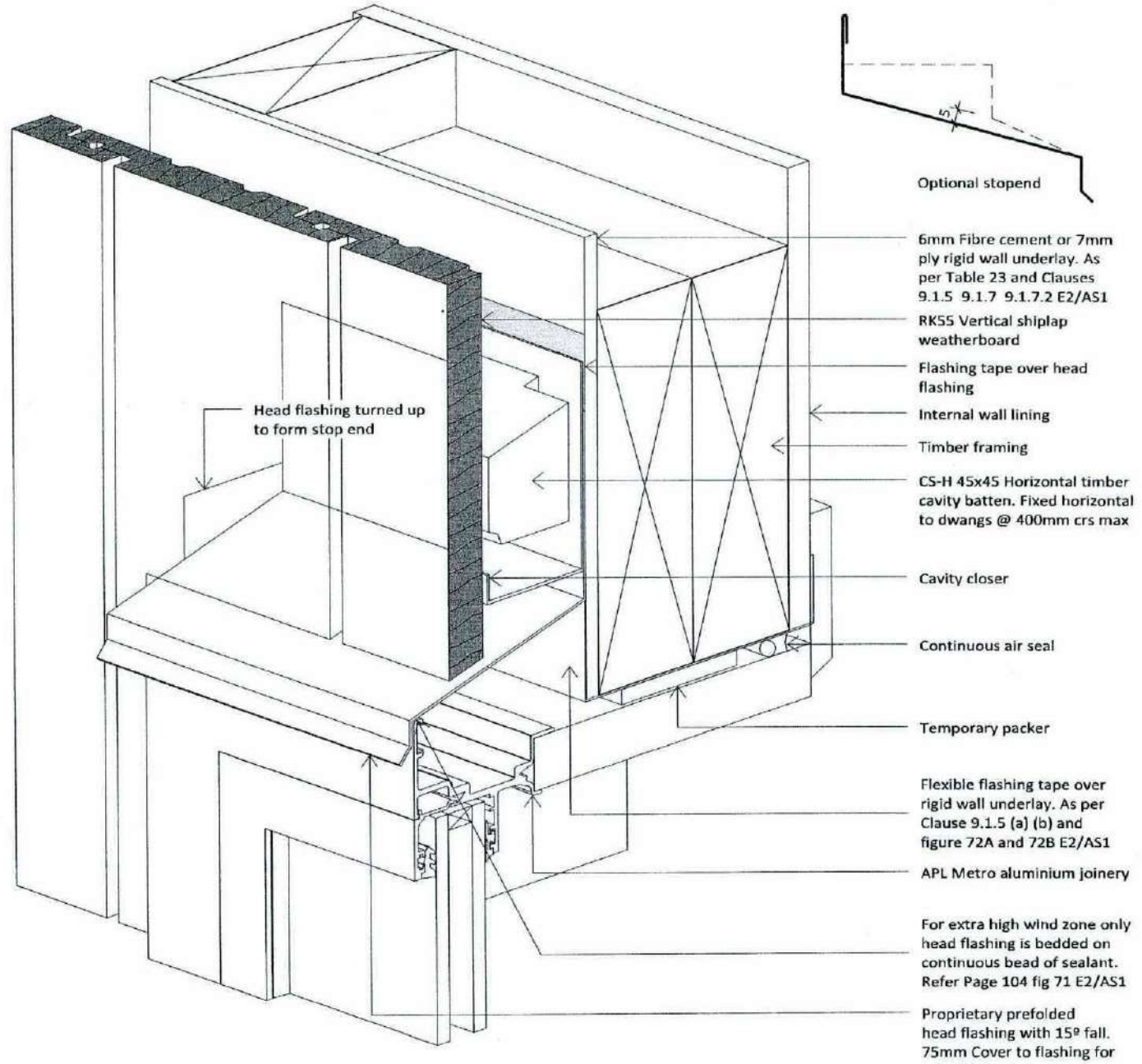
Title: Aluminium Head Detail

Drawing: RKV45-RU-01

Scale: 1 : 2 @ A4 Date: 05.10.2012

1. Scope as per Clauses 1.0 and 9.4 E2/AS1
2. Profiles as per NZS 3617 Branz Bulletin 411
3. Fixings as per Table 24 E2/AS1
4. Compatibility of materials as per Tables 20-22 E2/AS1
5. Flashing as per Clause 4.0 E2/AS1
6. Rigid and flexible underlay as per Table 23 and Clauses 9.1.5 to 9.1.7 E2/AS1 or proprietary approved alternative
7. All weatherboards to be factory oiled to all faces and weathergrooves prior to installation
8. The weatherboard system relies on the joinery meeting the requirements of NZS4211 for the relevant building windzone or wind pressure.

cedar SCREEN vertical



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Postal address: PO Box 621, Shortland Street, Auckland 1140

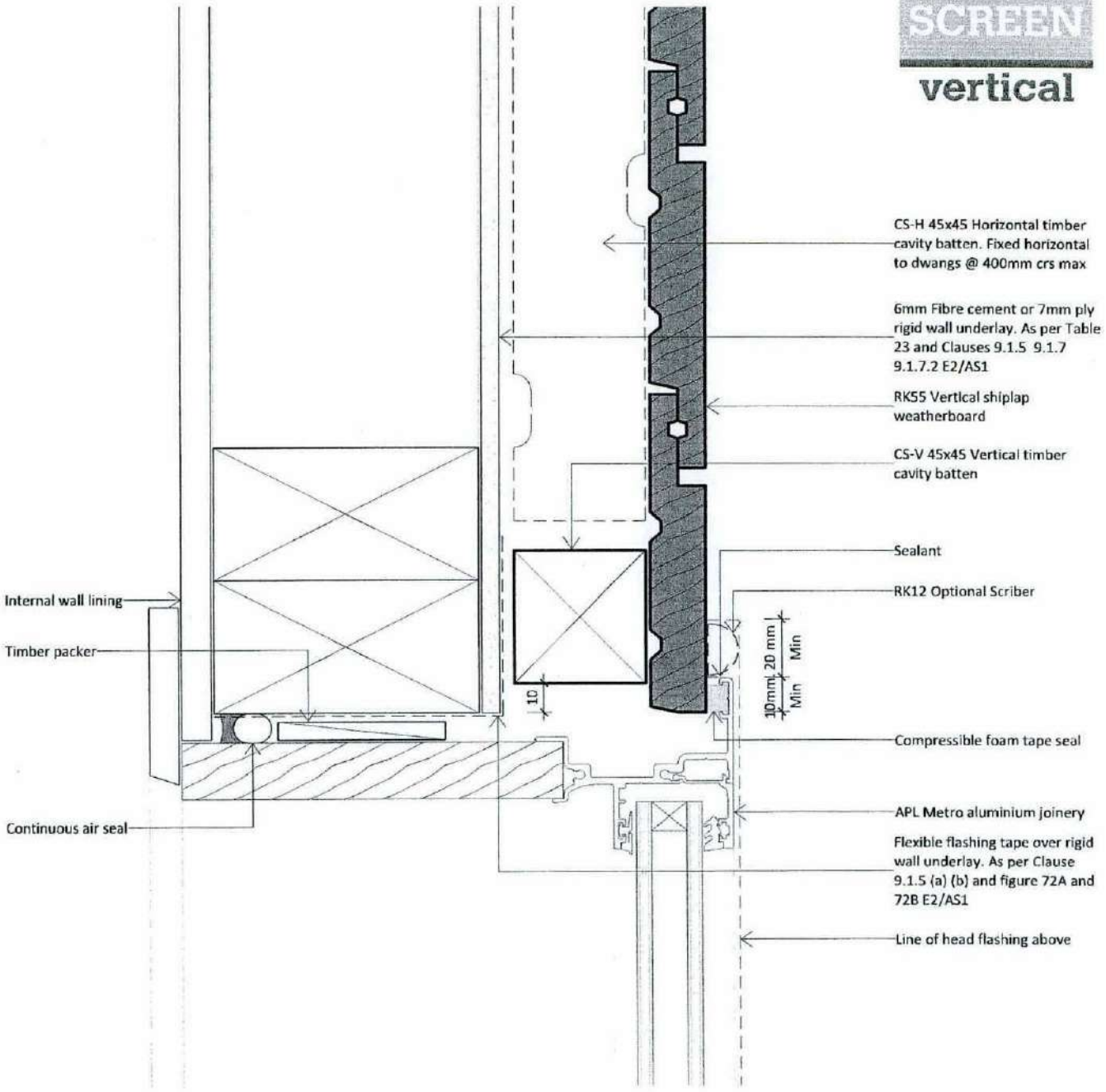
Title: 3D Aluminium Head Detail

Drawing: RKV45-RU-01A

Scale: 1 : 2 @ A4 Date: 05.10.2012

1. Scope as per Clauses 1.0 and 9.4 E2/AS1
2. Profiles as per NZS 3617 Branz Bulletin 411
3. Fixings as per Table 24 E2/AS1
4. Compatibility of materials as per Tables 20-22 E2/AS1
5. Flashing as per Clause 4.0 E2/AS1
6. Rigid and flexible underlay as per Table 23 and Clauses 9.1.5 to 9.1.7 E2/AS1 or proprietary approved alternative
7. All weatherboards to be factory oiled to all faces and weathergrooves prior to installation
8. The weatherboard system relies on the joinery meeting the requirements of NZS4211 for the relevant building windzone or wind pressure.

cedar SCREEN vertical



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Postal address: PO Box 621, Shortland Street, Auckland 1140

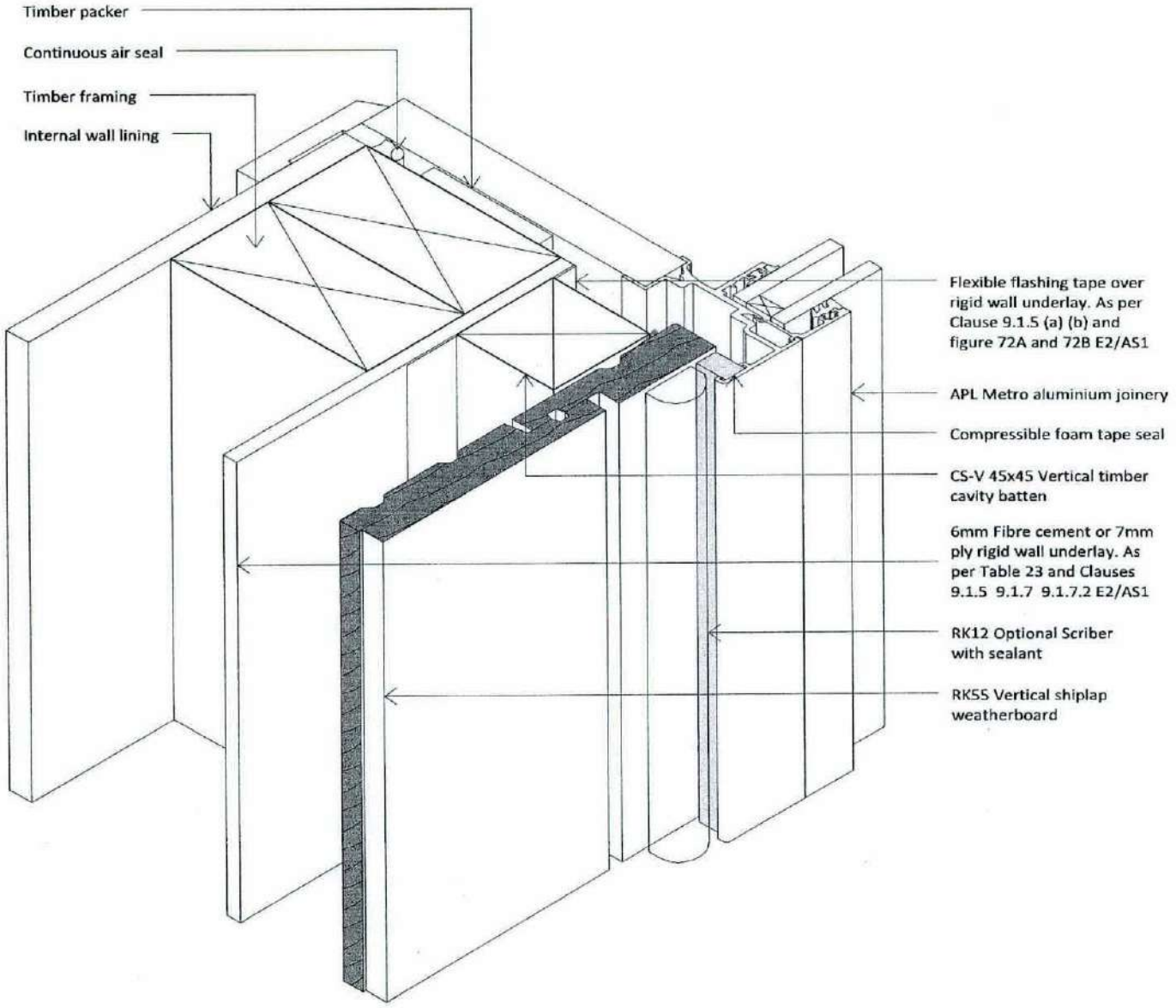
Title: Aluminium Jamb Detail

Drawing: RKV45-RU-02

Scale: 1 : 2 @ A4 Date: 05.10.2012

1. Scope as per Clauses 1.0 and 9.4 E2/AS1
2. Profiles as per NZS 3617 Branz Bulletin 411
3. Fixings as per Table 24 E2/AS1
4. Compatibility of materials as per Tables 20-22 E2/AS1
5. Flashing as per Clause 4.0 E2/AS1
6. Rigid and flexible underlay as per Table 23 and Clauses 9.1.5 to 9.1.7 E2/AS1 or proprietary approved alternative
7. All weatherboards to be factory oiled to all faces and weathergrooves prior to installation
8. The weatherboard system relies on the joinery meeting the requirements of NZS4211 for the relevant building windzone or wind pressure.

cedar SCREEN vertical



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Postal address: PO Box 621, Shortland Street, Auckland 1140

Title: 3D Aluminium Jamb Detail

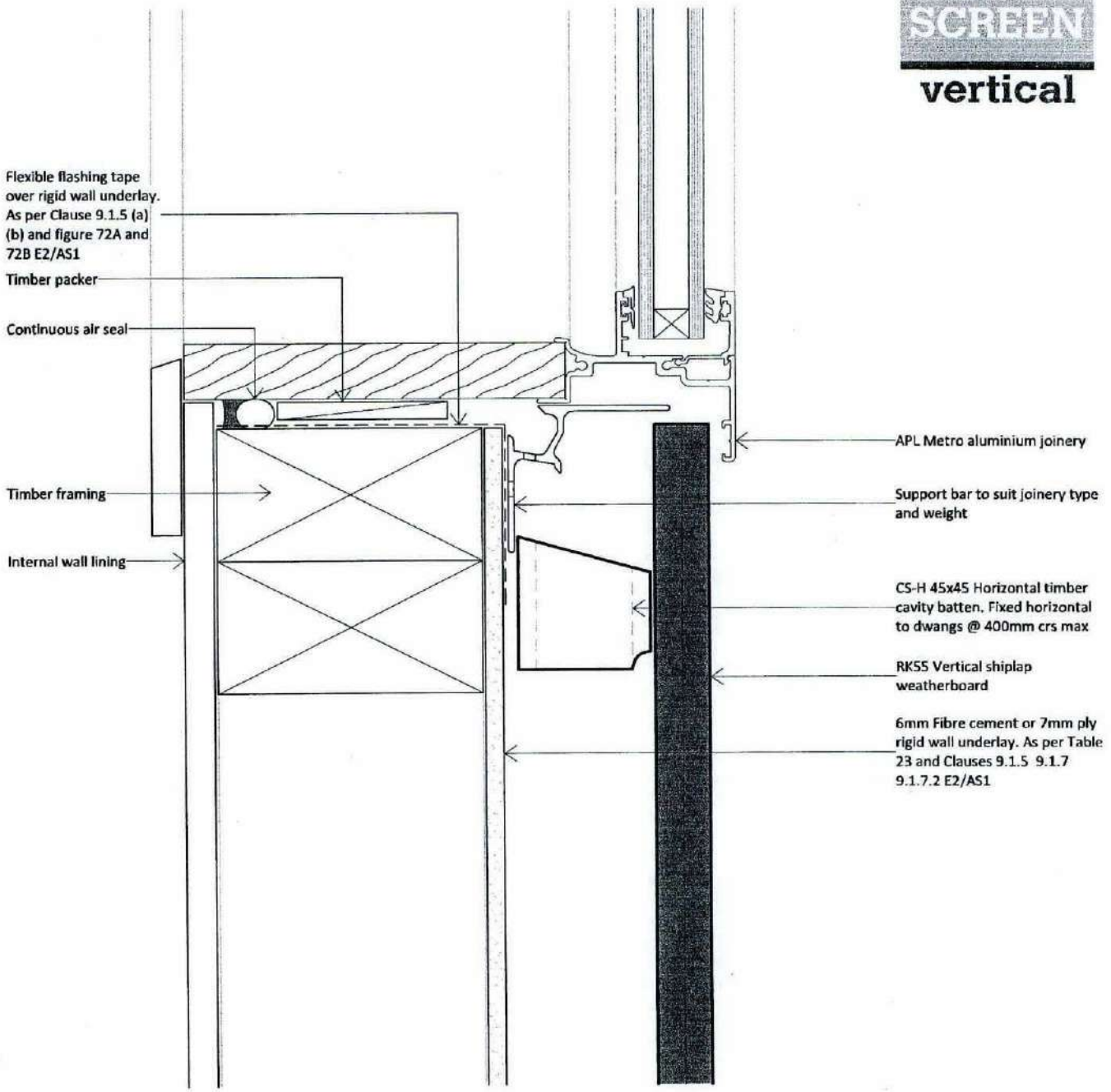
Drawing: RKV45-RU-02A

Scale: 1 : 2 @ A4 Date: 05.10.2012

1. Scope as per Clauses 1.0 and 9.4 E2/AS1
2. Profiles as per NZS 3617 Branz Bulletin 411
3. Fixings as per Table 24 E2/AS1
4. Compatibility of materials as per Tables 20-22 E2/AS1
5. Flashing as per Clause 4.0 E2/AS1
6. Rigid and flexible underlay as per Table 23 and Clauses 9.1.5 to 9.1.7 E2/AS1 or proprietary approved alternative
7. All weatherboards to be factory oiled to all faces and weathergrooves prior to installation
8. The weatherboard system relies on the joinery meeting the requirements of NZS4211 for the relevant building windzone or wind pressure.

cedar SCREEN

vertical



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Postal address: PO Box 621, Shortland Street, Auckland 1140

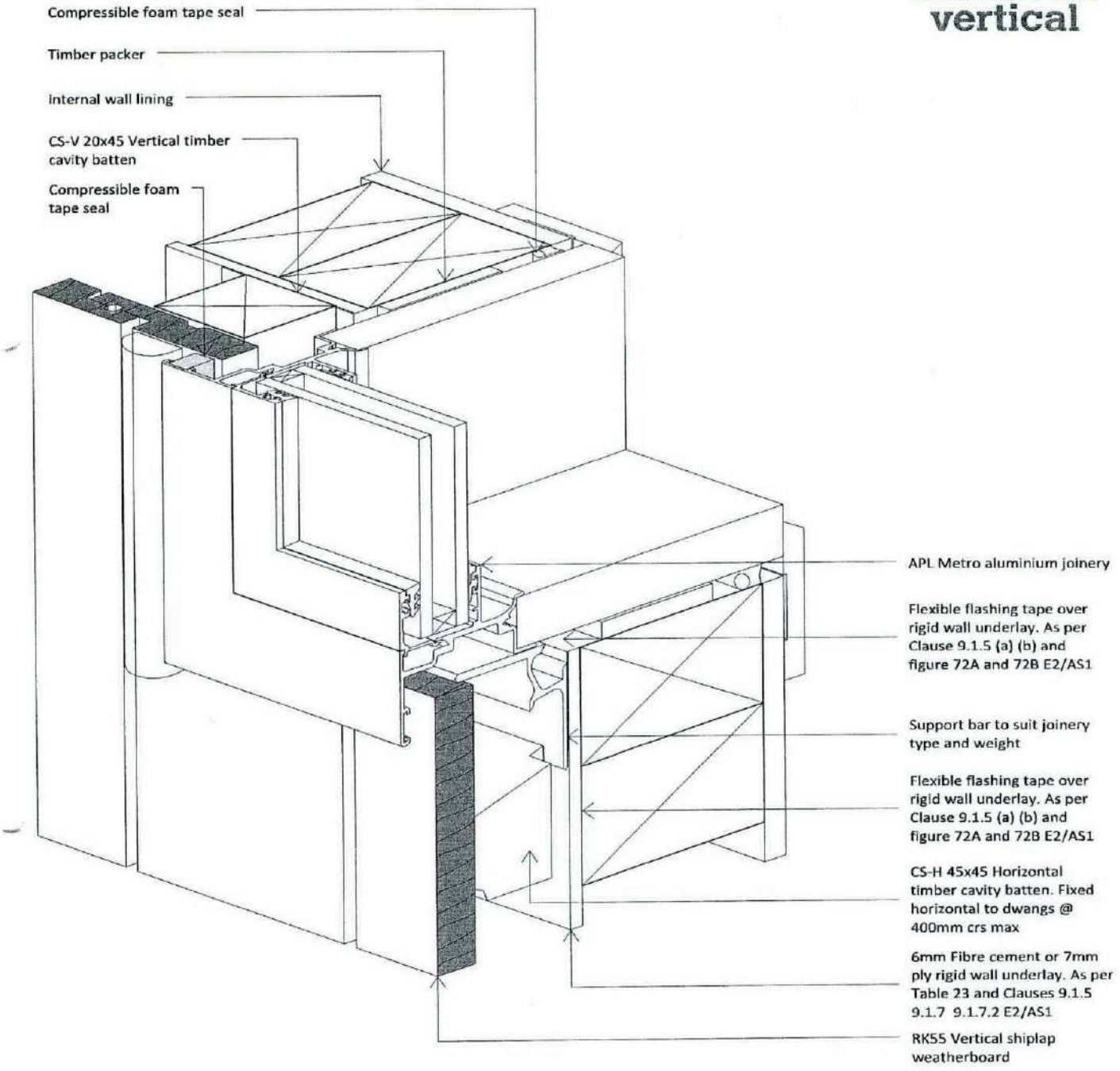
Title: Aluminium Sill Detail

Drawing: RKV45-RU-03

Scale: 1 : 2 @ A4 Date: 05.10.2012

1. Scope as per Clauses 1.0 and 9.4 E2/AS1
2. Profiles as per NZS 3617 Branz Bulletin 411
3. Fixings as per Table 24 E2/AS1
4. Compatibility of materials as per Tables 20-22 E2/AS1
5. Flashing as per Clause 4.0 E2/AS1
6. Rigid and flexible underlay as per Table 23 and Clauses 9.1.5 to 9.1.7 E2/AS1 or proprietary approved alternative
7. All weatherboards to be factory oiled to all faces and weathergrooves prior to installation
8. The weatherboard system relies on the joinery meeting the requirements of NZS4211 for the relevant building windzone or wind pressure.

cedar SCREEN vertical



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Postal address: PO Box 621, Shortland Street, Auckland 1140

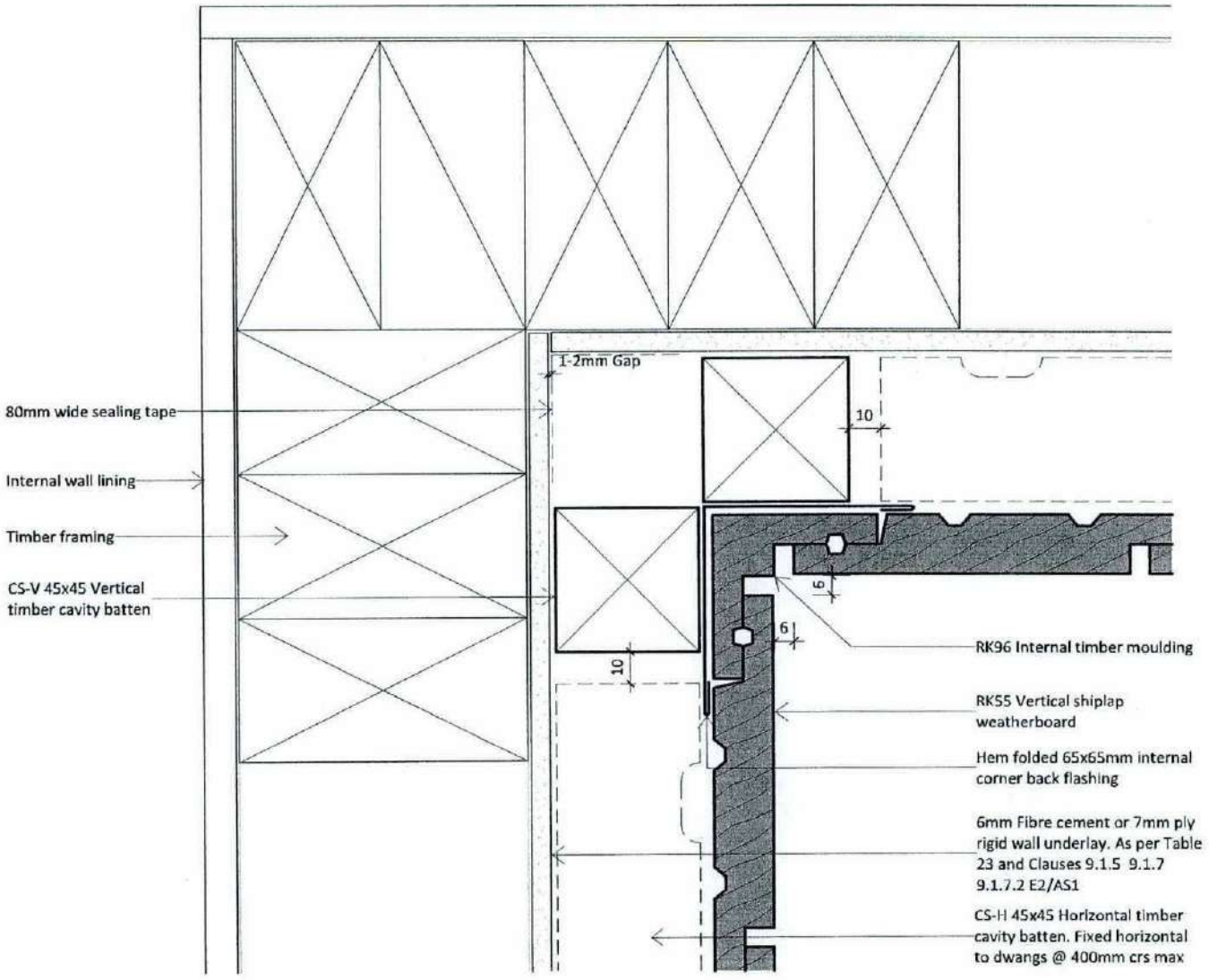
Title: 3D Aluminium Sill Detail

Drawing: RKV45-RU-03A

Scale: 1 : 2 @ A4 Date: 05.10.2012

1. Scope as per Clauses 1.0 and 9.4 E2/AS1
2. Profiles as per NZS 3617 Branz Bulletin 411
3. Fixings as per Table 24 E2/AS1
4. Compatibility of materials as per Tables 20-22 E2/AS1
5. Flashing as per Clause 4.0 E2/AS1
6. Rigid and flexible underlay as per Table 23 and Clauses 9.1.5 to 9.1.7 E2/AS1 or proprietary approved alternative
7. All weatherboards to be factory oiled to all faces and weathergrooves prior to installation
8. The weatherboard system relies on the joinery meeting the requirements of NZS4211 for the relevant building windzone or wind pressure.

cedar SCREEN vertical



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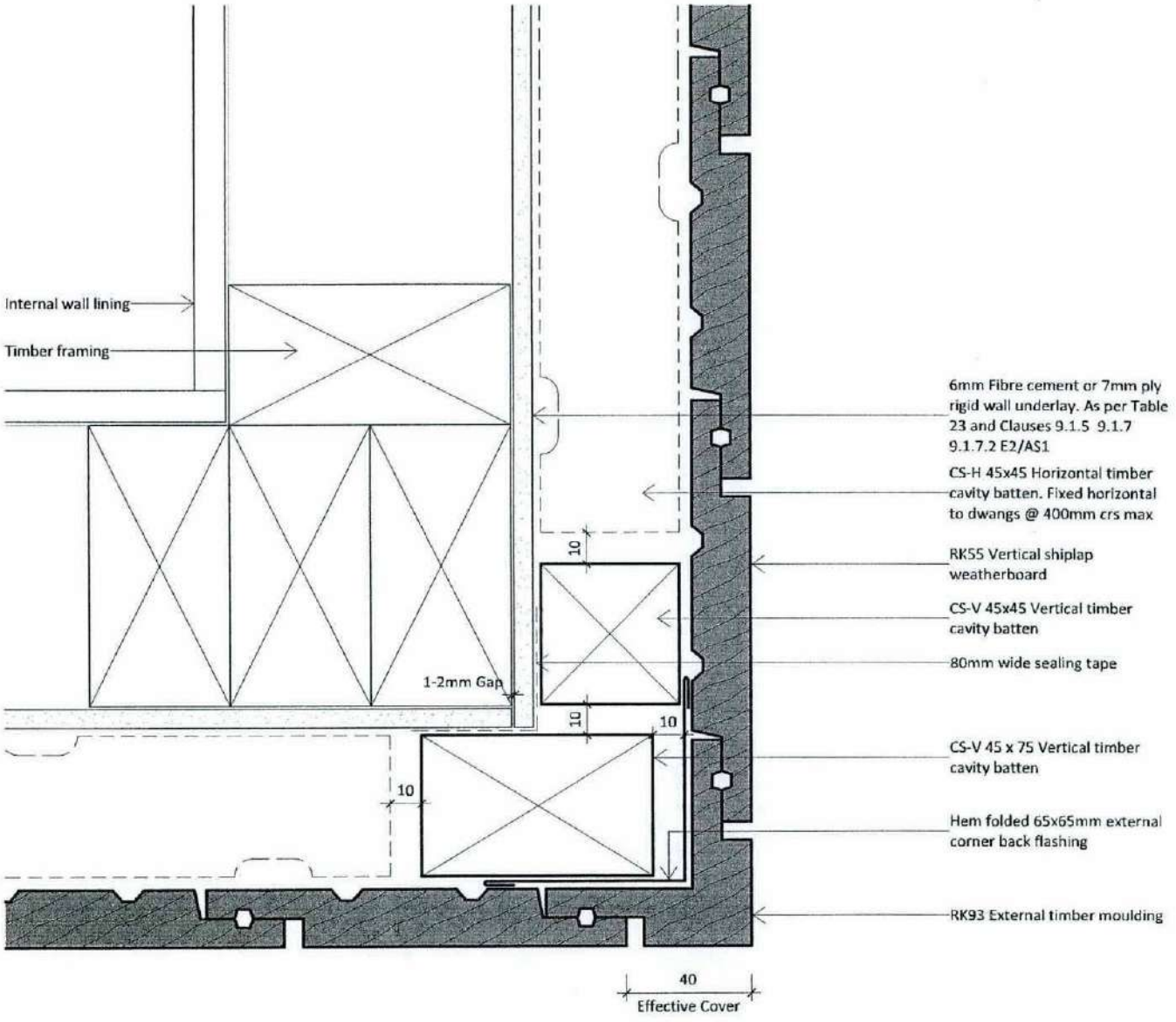
Title: Internal Corner RK41 Detail - Option 2

Drawing: RKV45-RU-12

Scale: 1 : 2 @ A4 Date: 05.10.2012

1. Scope as per Clauses 1.0 and 9.4 E2/AS1
2. Profiles as per NZS 3617 Branz Bulletin 411
3. Fixings as per Table 24 E2/AS1
4. Compatibility of materials as per Tables 20-22 E2/AS1
5. Flashing as per Clause 4.0 E2/AS1
6. Rigid and flexible underlay as per Table 23 and Clauses 9.1.5 to 9.1.7 E2/AS1 or proprietary approved alternative
7. All weatherboards to be factory oiled to all faces and weathergrooves prior to installation
8. The weatherboard system relies on the joinery meeting the requirements of NZS4211 for the relevant building windzone or wind pressure.

cedar SCREEN vertical



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Postal address: PO Box 621, Shortland Street, Auckland 1140

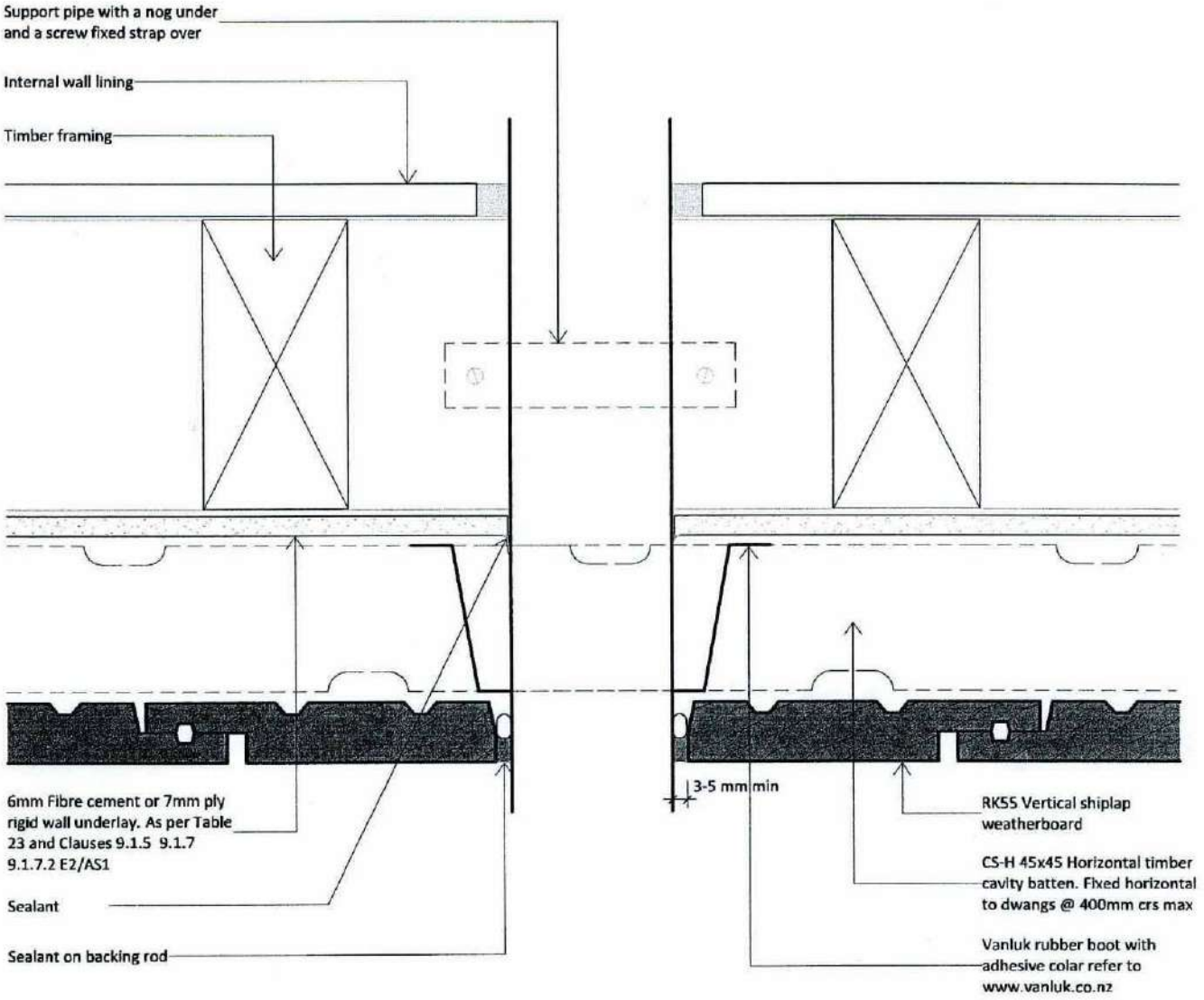
Title: External Corner RK42 Detail - Option 2

Drawing: RKV45-RU-22

Scale: 1 : 2 @ A4 Date: 05.10.2012

1. Scope as per Clauses 1.0 and 9.4 E2/AS1
2. Profiles as per NZS 3617 Branz Bulletin 411
3. Fixings as per Table 24 E2/AS1
4. Compatibility of materials as per Tables 20-22 E2/AS1
5. Flashing as per Clause 4.0 E2/AS1
6. Rigid and flexible underlay as per Table 23 and Clauses 9.1.5 to 9.1.7 E2/AS1 or proprietary approved alternative
7. All weatherboards to be factory oiled to all faces and weathergrooves prior to installation
8. The weatherboard system relies on the joinery meeting the requirements of NZS4211 for the relevant building windzone or wind pressure.

cedar SCREEN
vertical



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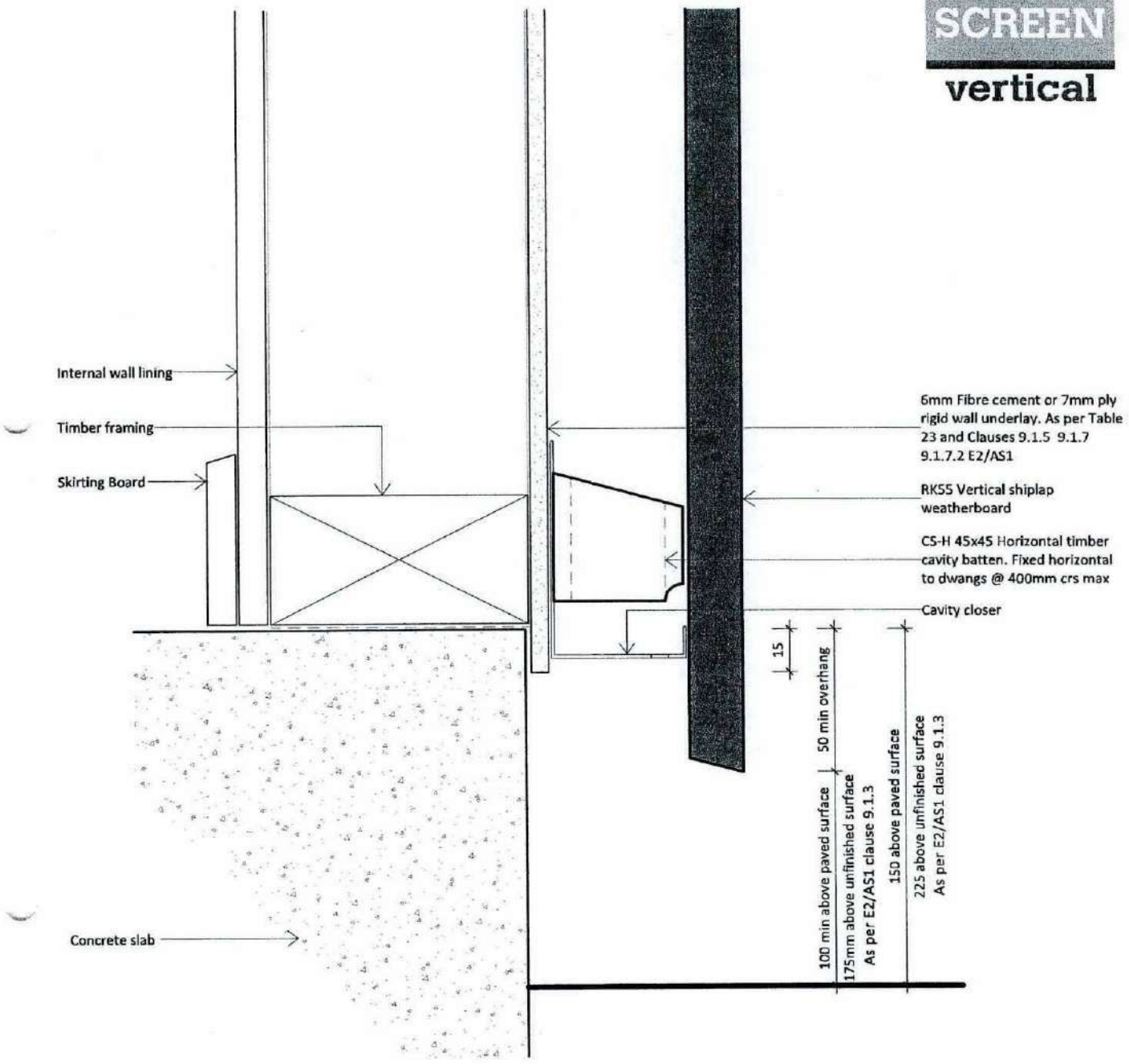
Postal address: PO Box 621, Shortland Street, Auckland 1140

Title: Pipe Penetration Detail
Drawing: RKV45-RU-31
Scale: 1 : 2 @ A4
Date: 05.10.2012

1. Scope as per Clauses 1.0 and 9.4 E2/AS1
2. Profiles as per NZS 3617 Branz Bulletin 411
3. Fixings as per Table 24 E2/AS1
4. Compatibility of materials as per Tables 20-22 E2/AS1
5. Flashing as per Clause 4.0 E2/AS1
6. Rigid and flexible underlay as per Table 23 and Clauses 9.1.5 to 9.1.7 E2/AS1 or proprietary approved alternative
7. All weatherboards to be factory oiled to all faces and weathergrooves prior to installation
8. The weatherboard system relies on the joinery meeting the requirements of NZS4211 for the relevant building windzone or wind pressure.

cedar SCREEN vertical



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Postal address: PO Box 621, Shortland Street, Auckland 1140

Title **Bottom Plate Detail**

Drawing **RKV45-RU-41**

Scale 1 : 2 @ A4 Date 05.10.2012

1. Scope as per Clauses 1.0 and 9.4 E2/AS1
2. Profiles as per NZS 3617 Branz Bulletin 411
3. Fixings as per Table 24 E2/AS1
4. Compatibility of materials as per Tables 20-22 E2/AS1
5. Flashing as per Clause 4.0 E2/AS1
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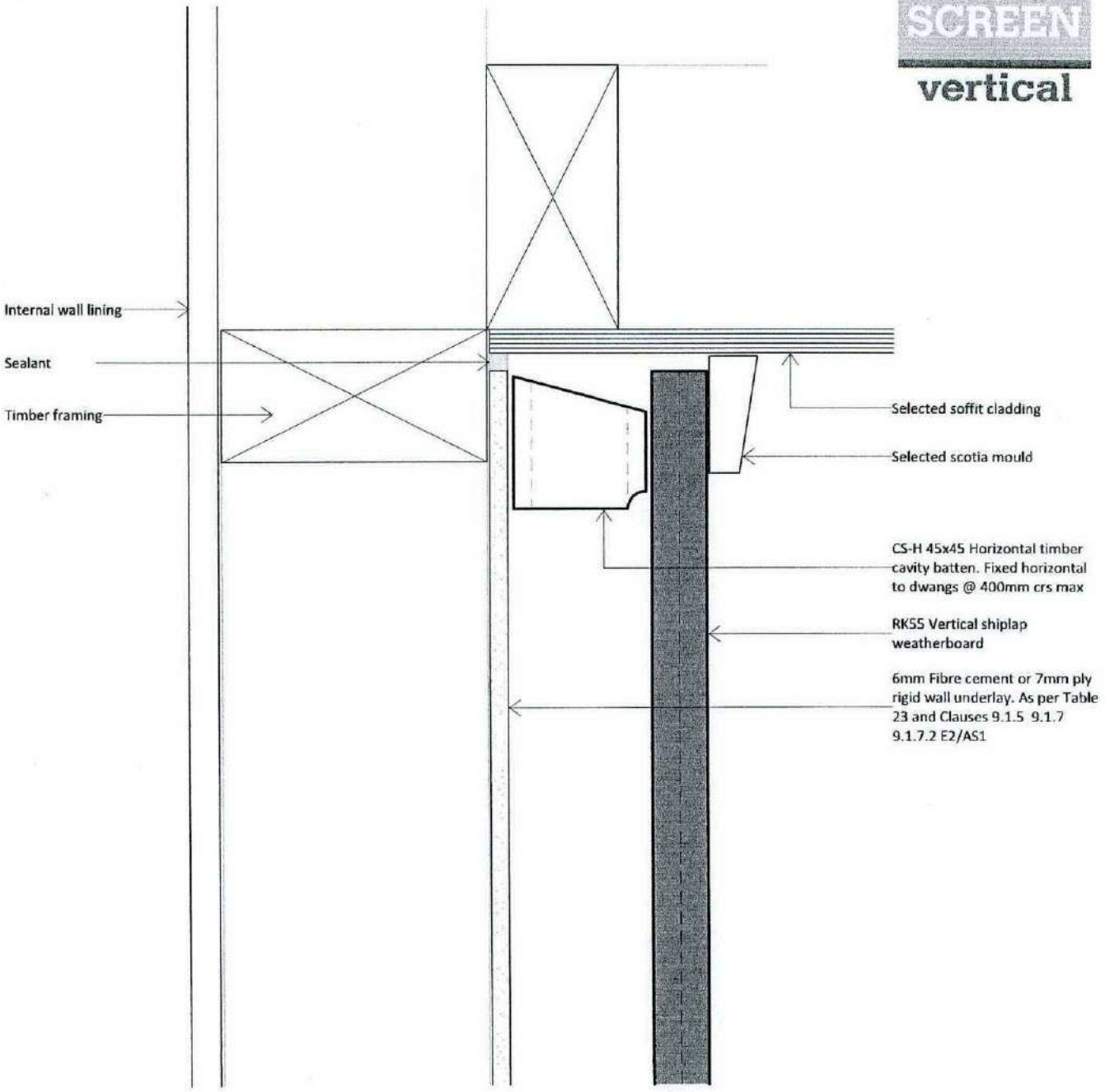
7. All weatherboards to be factory oiled to all faces and weathergrooves prior to installation
8. The weatherboard system relies on the joinery meeting the requirements of NZS4211 for the relevant building windzone or wind pressure.

cedar SCREEN vertical



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Postal address: PO Box 621, Shortland Street, Auckland 1140

Title: Top Plate to Soffit Detail

Drawing: RKV45-RU-42

Scale: 1 : 2 @ A4 Date: 05.10.2012

1. Scope as per Clauses 1.0 and 9.4 E2/AS1
2. Profiles as per NZS 3617 Branz Bulletin 411
3. Fixings as per Table 24 E2/AS1
4. Compatibility of materials as per Tables 20-22 E2/AS1
5. Flashing as per Clause 4.0 E2/AS1
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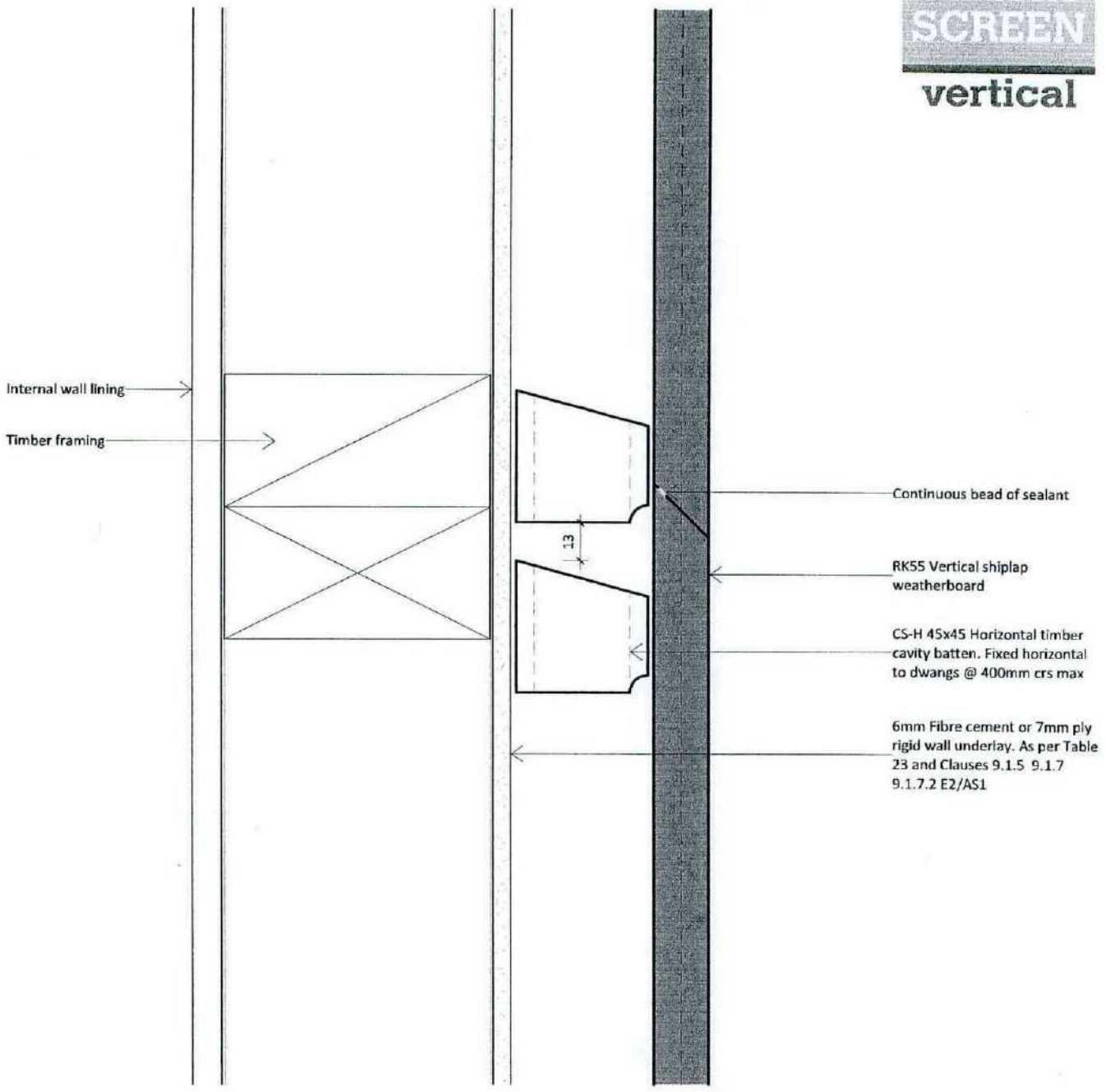
7. All weatherboards to be factory oiled to all faces and weathergrooves prior to installation
8. The weatherboard system relies on the joinery meeting the requirements of NZS4211 for the relevant building windzone or wind pressure.

cedar SCREEN vertical



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Postal address: PO Box 621, Shortland Street, Auckland 1140

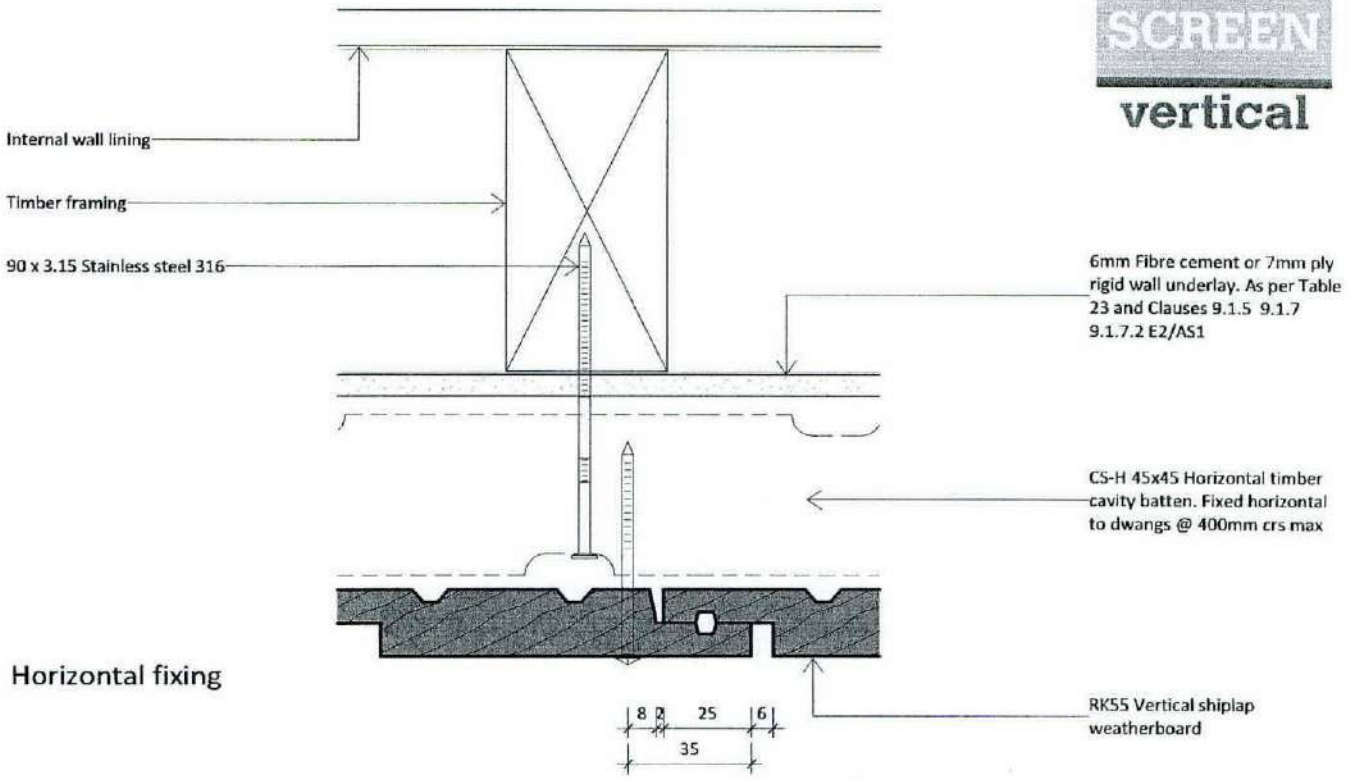
Title: Scarf Joint Detail

Drawing: RKV45-RU-46

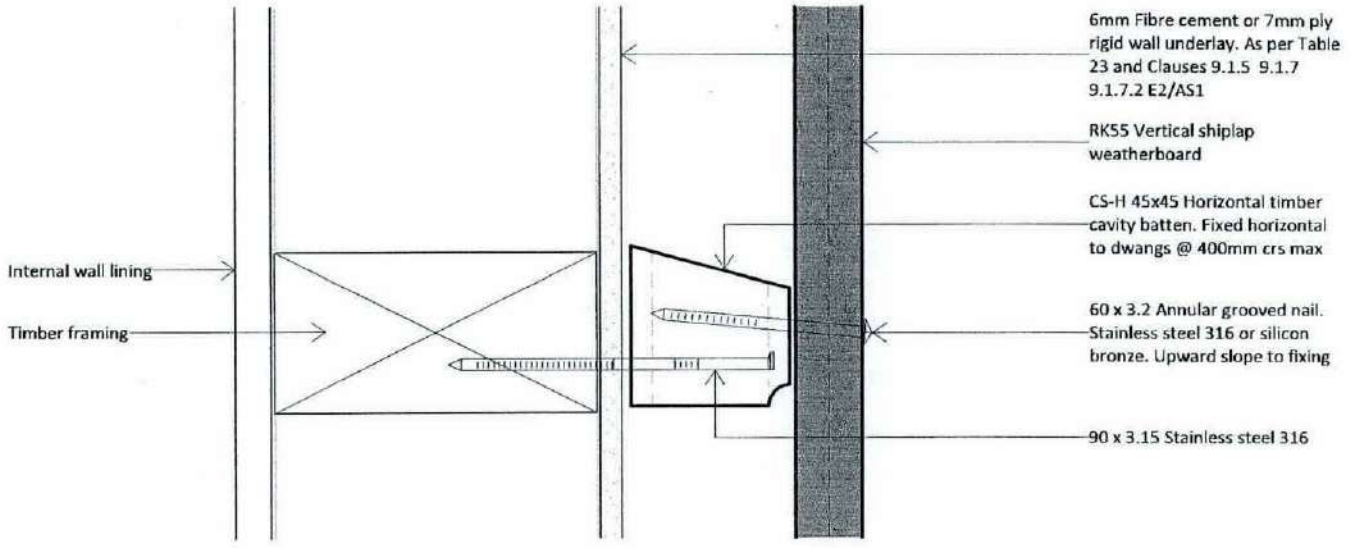
Scale: 1 : 2 @ A4 Date: 05.10.2012

1. Scope as per Clauses 1.0 and 9.4 E2/AS1
2. Profiles as per NZS 3617 Branz Bulletin 411
3. Fixings as per Table 24 E2/AS1
4. Compatibility of materials as per Tables 20-22 E2/AS1
5. Flashing as per Clause 4.0 E2/AS1
6. Rigid and flexible underlay as per Table 23 and Clauses 9.1.5 to 9.1.7 E2/AS1 or proprietary approved alternative
7. All weatherboards to be factory oiled to all faces and weathergrooves prior to installation
8. The weatherboard system relies on the joinery meeting the requirements of NZS4211 for the relevant building windzone or wind pressure.

cedar SCREEN vertical



Horizontal fixing



Vertical fixing

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Postal address: PO Box 621, Shortland Street, Auckland 1140

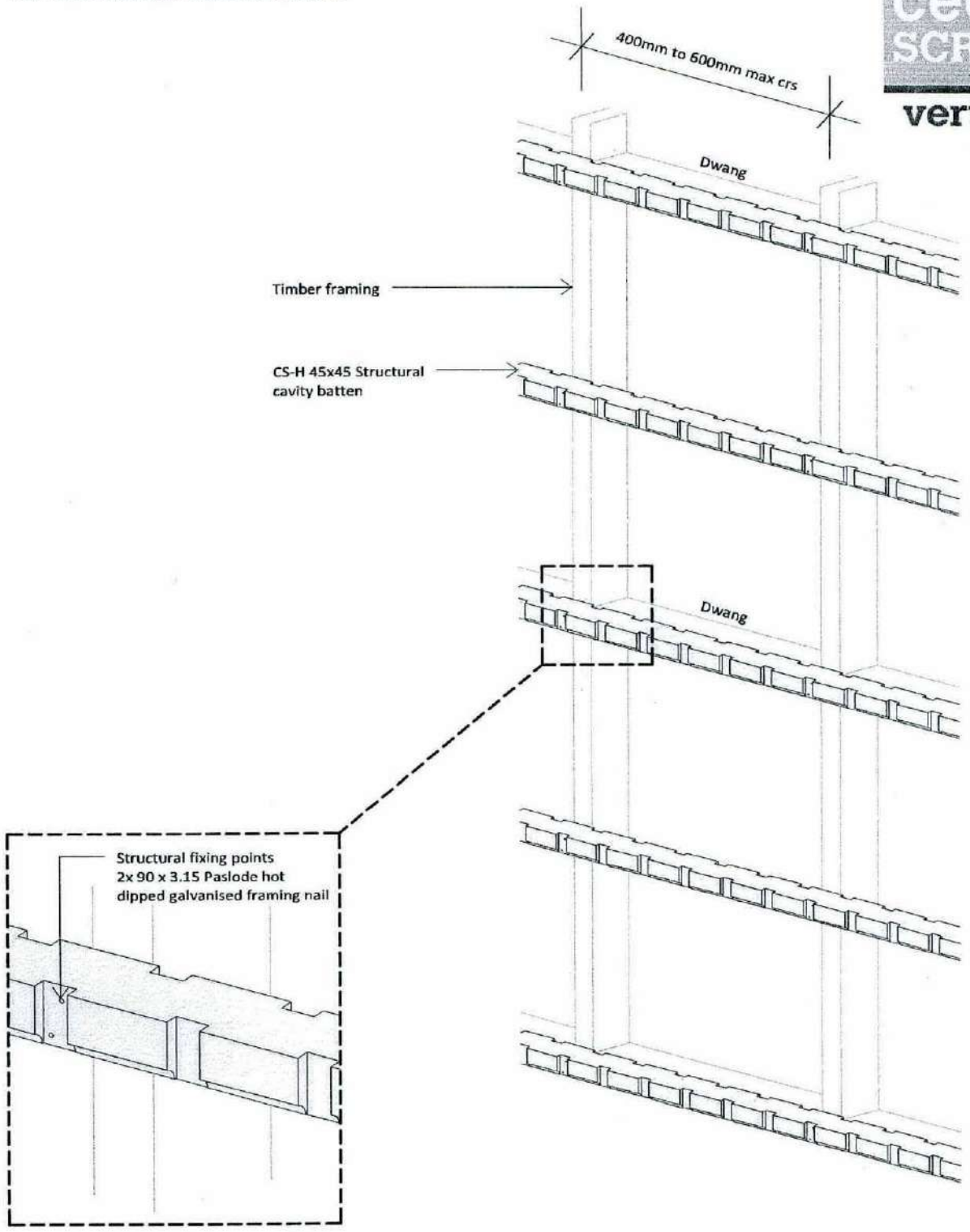
Title: Nail Fixing Detail

Drawing: RKV45-RU-47

Scale: 1 : 2 @ A4 Date: 05.10.2012

1. Scope as per Clauses 1.0 and 9.4 E2/AS1
2. Profiles as per NZS 3617 Branz Bulletin 411
3. Fixings as per Table 24 E2/AS1
4. Compatibility of materials as per Tables 20-22 E2/AS1
5. Flashing as per Clause 4.0 E2/AS1
6. Rigid and flexible underlay as per Table 23 and Clauses 9.1.5 to 9.1.7 E2/AS1 or proprietary approved alternative
7. All weatherboards to be factory oiled to all faces and weathergrooves prior to installation
8. The weatherboard system relies on the joinery meeting the requirements of NZS4211 for the relevant building windzone or wind pressure.

cedar SCREEN vertical



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Postal address: PO Box 621, Shortland Street, Auckland 1140

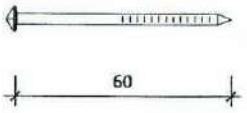
Title: Structural Cavity Batten Detail

Drawing: RKV45-RU-48

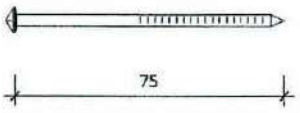
Scale: 1 : 10 @ A4 Date: 05.10.2012

1. Scope as per Clauses 1.0 and 9.4 E2/AS1
2. Profiles as per NZS 3617 Branz Bulletin 411
3. Fixings as per Table 24 E2/AS1
4. Compatibility of materials as per Tables 20-22 E2/AS1
5. Flashing as per Clause 4.0 E2/AS1
6. Rigid and flexible underlay as per Table 23 and Clauses 9.1.5 to 9.1.7 E2/AS1 or proprietary approved alternative
7. All weatherboards to be factory oiled to all faces and weathergrooves prior to installation
8. The weatherboard system relies on the joinery meeting the requirements of NZS4211 for the relevant building windzone or wind pressure.

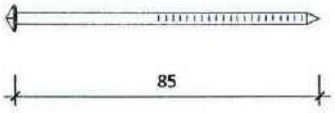
cedar SCREEN vertical



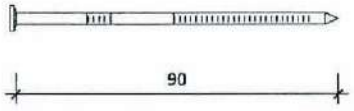
60 x 3.2mm For fixing weatherboard into structural battens only.



Flexible underlay 75 x 3.2mm



Rigid underlay 85 x 3.2mm



Structural batten fixing.
90 x 3.15 Stainless steel 316

Options:
- Silicon bronze annular grooved
- Stainless steel 316 grade annular grooved

Rosenfeld Kidson
www.rosenfeldkidson.co.nz

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513 Mt Wellington Highway
Mt Wellington, Auckland 1060
T. +64 9 573 0503
F. +64 9 573 0504

Christchurch Branch:
15 Edmonton Road, Hornby
Christchurch 8042
T. +64 3 349 3316
F. +64 3 349 3317

Postal address: PO Box 621, Shortland Street, Auckland 1140

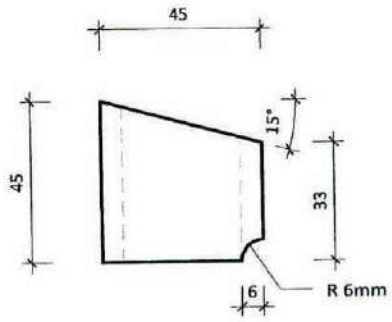
Title RK Nails

Drawing RKNAIL

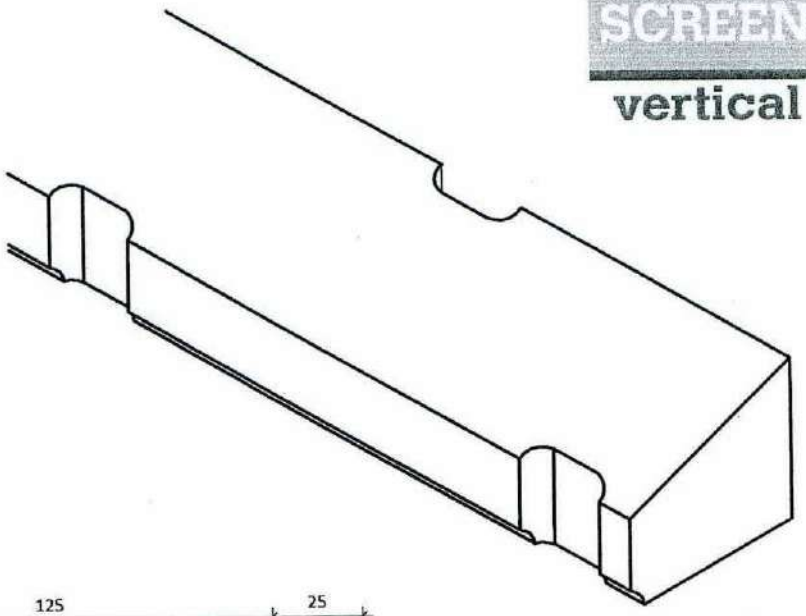
Scale 1 : 2 @ A4 Date 05.10.2012

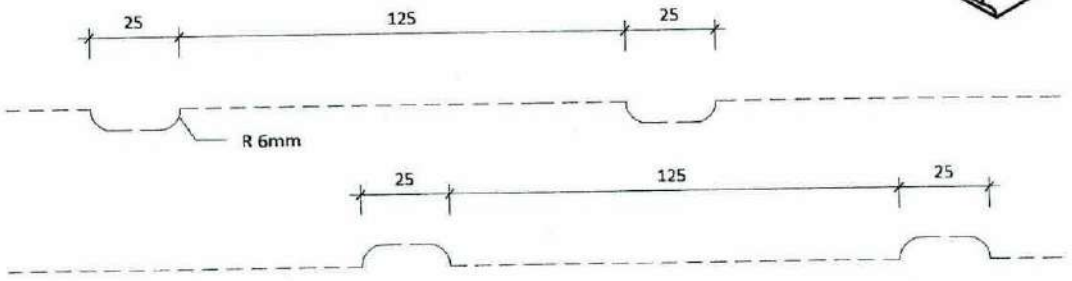
1. Scope as per Clauses 1.0 and 9.4 E2/AS1
2. Profiles as per NZS 3617 Branz Bulletin 411
3. Fixings as per Table 24 E2/AS1
4. Compatibility of materials as per Tables 20-22 E2/AS1
5. Flashing as per Clause 4.0 E2/AS1
6. Rigid and flexible underlay as per Table 23 and Clauses 9.1.5 to 9.1.7 E2/AS1 or proprietary approved alternative
7. All weatherboards to be factory oiled to all faces and weathergrooves prior to installation
8. The weatherboard system relies on the joinery meeting the requirements of NZS4211 for the relevant building windzone or wind pressure.

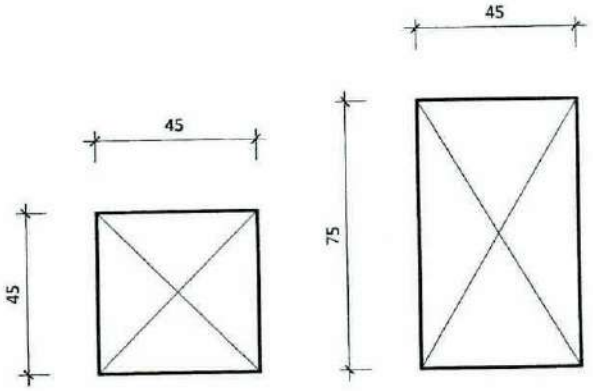
cedar SCREEN vertical



CS-H 45x45mm







CS-V 45x45mm

CS-V 45x75mm

Rosenfeld Kidson

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513 Mt Wellington Highway
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Christchurch 8042
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F. +64 3 349 3317

Postal address: PO Box 621, Shortland Street, Auckland 1140

Title: RKV 45mm Cavity Battens

Drawing: RKV45-BATT

Scale: 1 : 2 @ A4 Date: 05.10.2012

GIB EzyBrace® 2011 Software

Demand Calculation Sheet — single storey — V06/11

Job Details

Name	HA Keogan
Street and Number	62 Pitfure Road
Lot and DP Number	Lot 3, DP 46445
City/Town/District	Wakefield
Designer	K Guard
Company Name	AD Cochrane Design & Draw Ltd
Date	3/03/2014

BRANZ Appraised
Appraisal No.294 [2011]

Select Lining Option: 10 or 13 mm GIB® Plasterboard

Building Specification

		Single Floor	Complete Single Floor Column only
Number of storeys	single		
Floor Loading	2kPa		
Foundation Type	slab		
Cladding Weight		light	
Roof Weight		light	
Room in Roof Space		no	
Roof Pitch (degrees)		25	
Roof height above eaves (m)		2.1	
Building height to apex (m)		4.8	
Ground to lower floor level (m)		0.2	
Stud Height (m)		2.4	
Building Length (m)		19.8	
Building Width (m)		15.0	
Building Plan Area (m2)		199	

Building Location

Wind Zone	***High***
Select by Building Consent Authority Map or Preference	Not Available
Wind Region	A
Lee Zone	no
Ground Roughness	Open
Site Exposure	Exposed
Topographic Class	T1

Earthquake Zone: 2 — **Soil Type:** D&E (deep to very soft)

Annual exceedance probability: 1/2500 (NZS3604:2011 x 1.8)

This design has been upgraded to resist an annual earthquake exceedance probability of 1/2500

Bracing Units required for Wind

Demand W (BU)

		Walls single
along	slab	766
across	slab	937

Bracing Units required for Earthquake

Demand along / across E (BU)

	Walls single
slab	1396

HA Keogan K Guard

GIB EzyBrace® 2011 Software

SINGLE OR UPPER STOREY WALLS ALONG

V06/11

Lines		*Bracing Elements*							
1	2	3	4	5	6	7	8	9	10
Line Total Check	Line Label	Bracing Element No.	Available Wall Length L (m)	Angle to Bracing line (degrees)	Element Height H (m)	Bracing Type	Supplier	Bracing Units Achieved	
								W	E
277	**A**	1	0.6		2.4	BL1-H	GIB®	59	61
		2	0.6		2.4	BL1-H	GIB®	59	61
		3	1.5		2.4	BL1-H	GIB®	192	156
296	**B**	1	1.6		2.7	BL1-H	GIB®	182	148
		2	1.6		2.7	BL1-H	GIB®	182	148
546	**C**	1	2		2.4	GS1-N	GIB®	138	120
		2	2.9		2.4	GS1-N	GIB®	200	174
		3	4.2		2.4	GS1-N	GIB®	290	252
301	**D**	1	0.8		2.4	BL1-H	GIB®	87	82
		2	0.8		2.4	BL1-H	GIB®	87	82
		3	2.3		2.4	GS1-N	GIB®	159	138

					Wind	Earthq.
Totals Achieved	W	213%	EQ	102%	1635	1420
Concrete Slab					*OK*	*OK*
Totals Required (from Demand)	*EQ exceedance probability*			*1/2500*	766	1396

HA Keogan K Guard

GIB EzyBrace® 2011 Software

SINGLE OR UPPER STOREY WALLS ACROSS

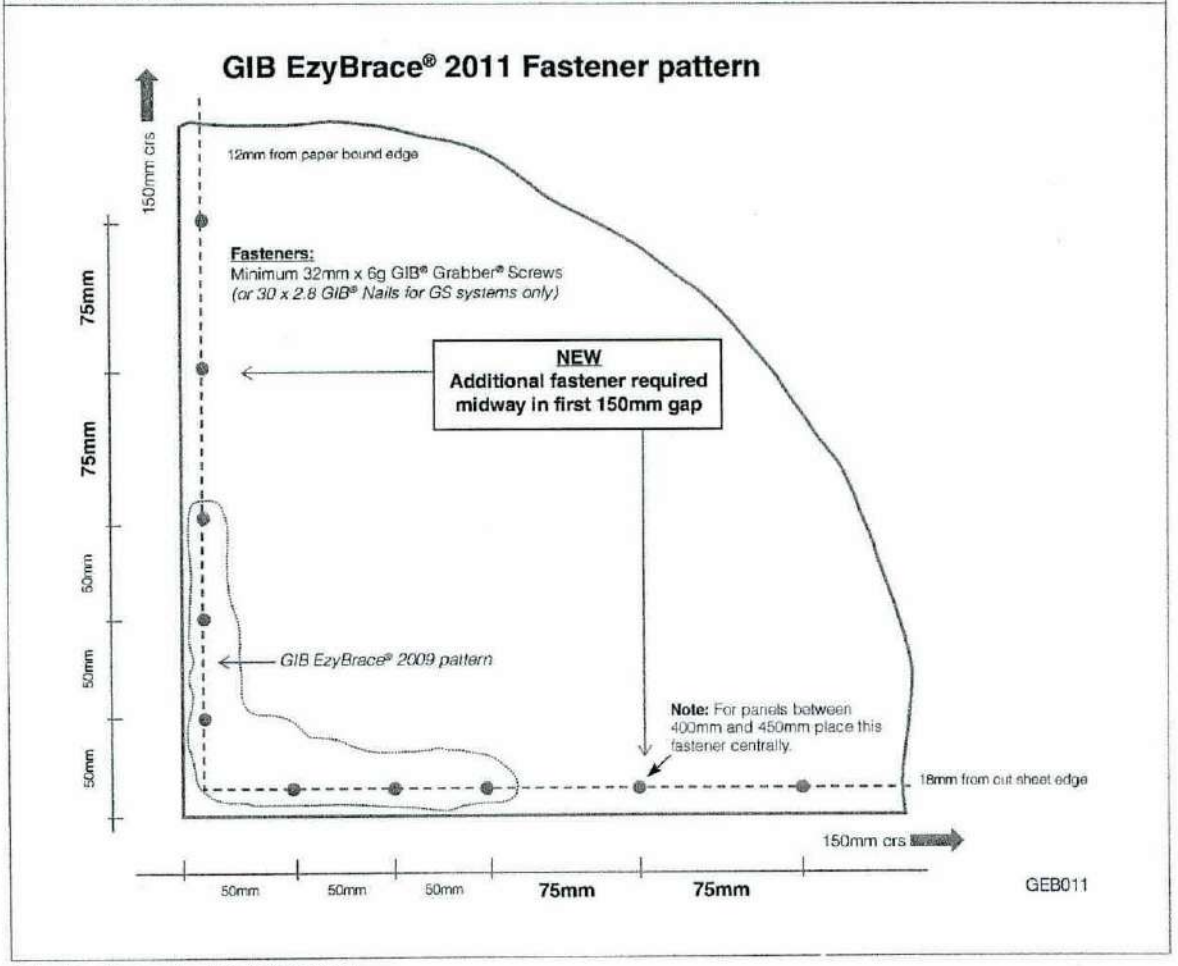
V06/11

Lines		*Bracing Elements*							
1	2	3	4	5	6	7	8	9	10
Line Total Check	Line Label	Bracing Element No.	Available Wall Length L (m)	Angle to Bracing line (degrees)	Element Height H (m)	Bracing Type	Supplier	Bracing Units Achieved	
								W	E
294	**M**	1	3.4		2.4	GS1-N	GIB®	235	204
		2	1.5		2.4	GS1-N	GIB®	104	90
240	**N**	1	4		2.4	GS1-N	GIB®	276	240
336	**O**	1	4.1		2.4	GS1-N	GIB®	283	246
		2	1.5		2.4	GS1-N	GIB®	104	90
198	**P**	1	2.3		2.9	BL1-H	GIB®	244	198
229	**Q**	1	2.2		2.4	BL1-H	GIB®	282	229
173	**R**	1	1		2.7	BL1-H	GIB®	105	92
		2	0.8		2.4	BL1-H	GIB®	87	82

					Wind	Earthq.
Totals Achieved	W	183%	EQ	105%	1718	1470
Concrete Slab					*OK*	*OK*
Totals Required (from Demand)	*EQ exceedance probability*			*1/2500*	937	1396

Revised Fastener Pattern for *all four corners* of GIB EzyBrace® Elements

As GIB Braceline® screws are no longer required for BL bracing elements, two additional fasteners must be installed in ***all four corners*** of GIB EzyBrace® GS and BL elements, as shown.
Fasteners must be placed no closer than 12mm from the paper bound sheet edge and no closer than 18mm from sheet ends or cut edges.



Refer to gib.co.nz/cad for CAD details.

PERMITTED GIB® PLASTERBOARD SUBSTITUTIONS IN GIB EZYBRACE® SYSTEMS

GIB Ezybrace® Systems have been designed and tested using only the products specified. Occasionally additional properties may be required to be provided by a different GIB® Plasterboard product. The following table provides acceptable substitution options.

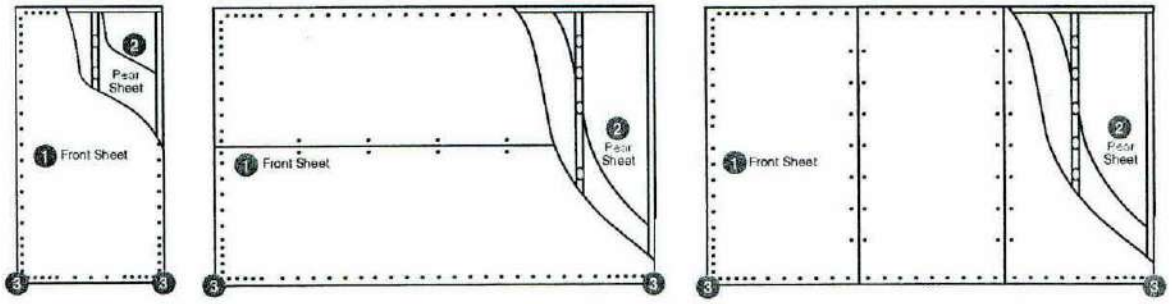
Specified	Permitted alternative GIB® Plasterboard products								
	GIB® Standard	GIB Ultraline®	GIB Braceline/ Noiseline®	GIB Aqualine®	GIB Toughline®	GIB Fyreline®			
						10mm	13mm	16mm	19mm
GIB® Standard		OK	OK	OK	OK	OK	NOTE 2		
GIB Braceline®	X	X		NOTE 1	OK	X	NOTES 1 and 2		

NOTE 1 The element must be 900mm or longer. Use 32mm x 6g GIB® Grabber® drywall screws at ***100mm*** centres to the perimeter of the bracing element. The bracing corner fastening pattern, as illustrated above, applies to all four corners of the element. Panel hold-down fixings are required.

NOTE 2 The fastener type and length must be as required for the relevant FRR system but the fixing pattern must be as shown above.

Construction Details

JUNE 2011



System	Lining one side 1		Lining opposite side 2		Panel Hold-Down Fixings 3	Fastener spacing
	Lining	Fasteners	Lining	Fasteners		
GS1-N	Any 10mm or 13mm GIB® Plasterboard	30mm GIB® nails, or minimum 32mm x 6g GIB® Grabber® high thread screws	Not required	Not required	Not required	*GIB® Plasterboard* Corner fastening pattern as illustrated above Fasteners at 150mm to bracing element perimeter, and: • at 300mm centres to intermediate sheet joints for vertical fixing, or • at stud / sheet junction for horizontally fixed elements, and • GIBFix adhesive daubs at 300mm crs to intermediate framing *Plywood* Fasteners at 150mm around the perimeter of every sheet and at 300mm centres to intermediate studs. Place fasteners no closer than 7mm from sheet edges. Plasterboard corner fastener pattern does not apply to plywood.
GS2-N			Any 10mm or 13mm GIB® Plasterboard	30mm GIB® nails, or minimum 32mm x 6g GIB® Grabber® high thread screws		
GSP-H			Minimum 7mm Ecoply manufactured to AS/NZS 2269	50mm x 2.8mm Flat head galvanised or stainless steel nails	Yes, see Pages 19 and 20	
BL1-H	10mm or 13mm GIB Braceline®	minimum 32mm x 6g GIB® Grabber® high thread screws GIB Braceline® Nails may be used for 10mm GIB Braceline® ONLY	Not required	Not required		
BLG-H			Any 10mm or 13mm GIB® Plasterboard	30mm GIB® nails, or minimum 32mm x 6g GIB® Grabber® high thread screws		
BLP-H			Minimum 7mm Ecoply manufactured to AS/NZS 2269	50mm x 2.8mm flat head galvanised or stainless steel nails		

GIB EzyBrace® System Specification – GS1-N

JUNE 2011

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; AS1 Clause 3 Timber (NZS 3604:2011)
- NZBC B2 - Durability AS1 Clause 3.2 Timber (NZS 3602)

Framing dimensions and height as determined by NZS 3604 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 3.15 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 for external 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 SUBSTITUTION

For permitted GIB® Plasterboard substitutions refer to Page 21 in GIB Ezybrace® Systems 2011.

FASTENING THE LINING

Fasteners

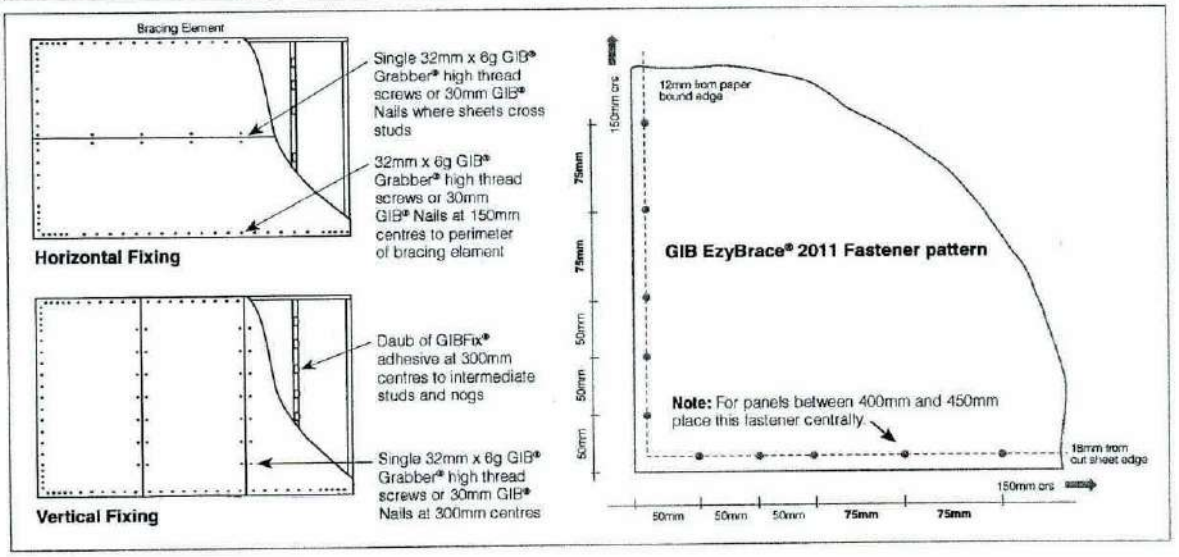
32mm x 6g GIB® Grabber® high thread screws; or
30mm GIB® Nails.

Fastener centres

50,100,150, 225, 300mm from each corner and 150mm thereafter around the perimeter of the bracing element.
For vertically fixed sheets place fasteners at 300mm centres to intermediate sheet joints.
For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud.
Use daubs of GIB Fix® adhesive at 300mm 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

All fastener heads stopped and all sheet joints paper tape reinforced and stopped in accordance with the GIB® Site Guide.



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This Specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems 2011 and has been appraised in accordance with the BRANZ Appraisal No. 294 (2011).

BRANZ Appraised
Appraisal No. 294 (2011)

B4c

GIB EzyBrace® System Specification – GS2-N

JUNE 2011

Specification Code	Minimum Length (m)	Lining requirement
GS2-N	0.4	Any 10mm or 13mm GIB® Standard Plasterboard fixed to each side of the wall framing.

WALL FRAMING

Wall framing to comply with;

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

Framing dimensions and height as determined by NZS 3604 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 3.15 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 then 600mm centres thereafter.

WALL LINING

One layer 10mm or 13mm GIB® Plasterboard to each side of the wall.

Sheets can be fixed vertically or horizontally.

Sheet joints shall be touch fitted.

Use full length sheets where possible.

PERMITTED SUBSTITUTION

For permitted GIB® Plasterboard substitutions refer to Page 21 in GIB® Ezybrace Systems 2011.

FASTENING THE LINING

Fasteners

32mm x 6g GIB® Grabber® high thread screws; or

30mm GIB® Nails.

Fastener centres

50,100,150, 225, 300mm from each corner and 150mm thereafter around the perimeter of the bracing element.

For vertically fixed sheets place fasteners at 300mm centres to intermediate sheet joints.

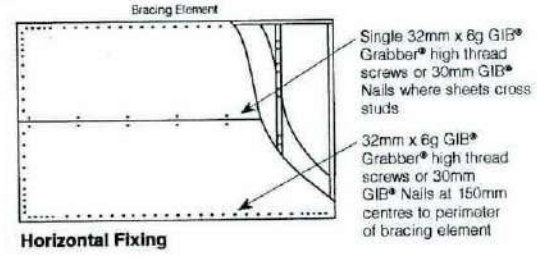
For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud.

Use daubs of GIB Fix® adhesive at 300mm centres to intermediate studs.

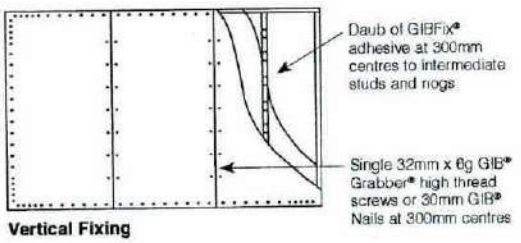
Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge.

JOINTING

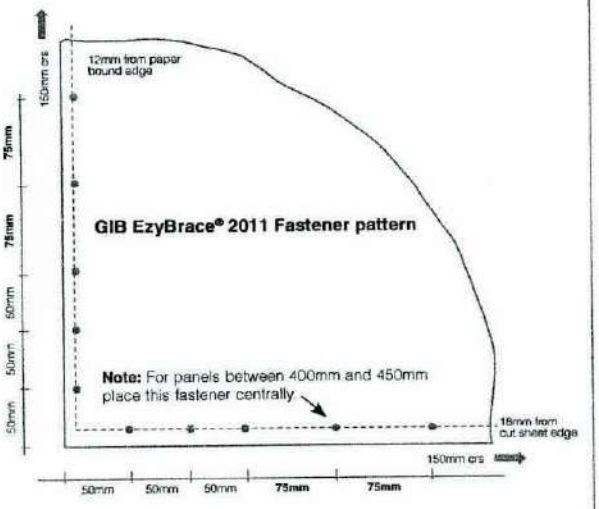
All fastener heads stopped and all sheet joints paper tape reinforced and stopped in accordance with the GIB® Site Guide.



Horizontal Fixing



Vertical Fixing



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 2011 and has been appraised in accordance with the BRANZ Appraisal No. 294 (2011).

BRANZ Appraised
Appraisal No.294 [2011]

GIB EzyBrace® System Specification – BL1-H

JUNE 2011

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; AS1 Clause 3 Timber (NZS 3604:2011)
- NZBC B2 - Durability AS1 Clause 3.2 Timber (NZS 3602)

Framing dimensions and height as determined by NZS 3604 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 2011 or GIB® Site Guide.
Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or
Three power driven 90 x 3.15 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 2011 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.

WALL LINING

One layer 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 SUBSTITUTION

For permitted GIB® Plasterboard substitutions refer to Page 21 in GIB Ezybrace® Systems 2011.

FASTENING THE LINING

Fasteners

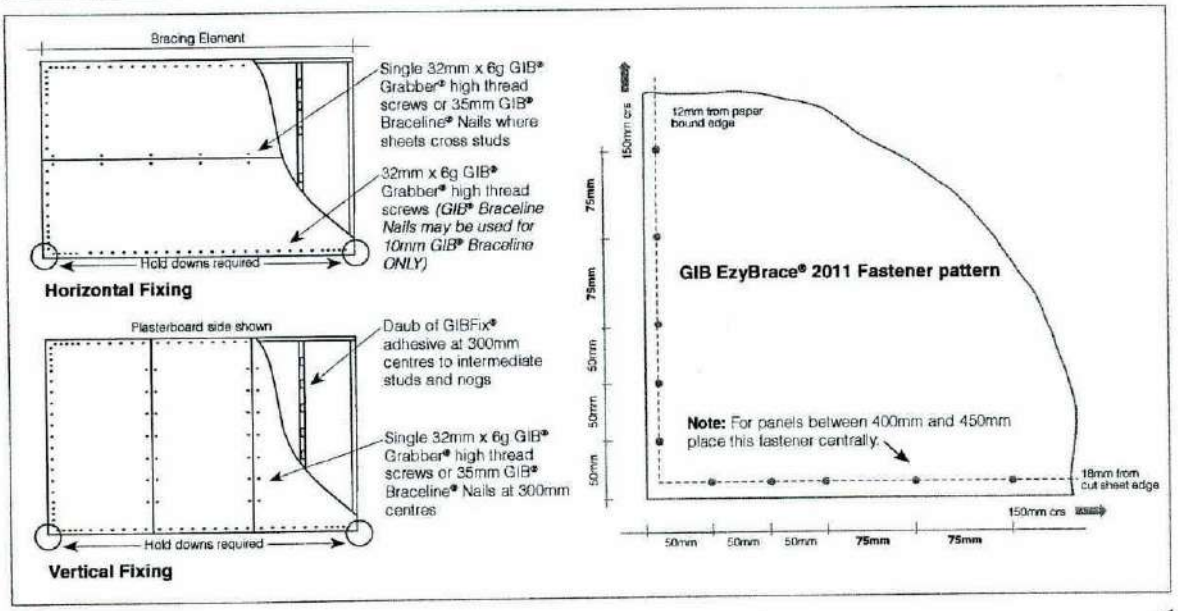
32mm x 6g GIB® Grabber® high thread screws.
(GIB Braceline® Nails may be used with 10mm GIB Braceline® only.)

Fastener centres

50,100,150, 225, 300mm from each corner and 150mm thereafter around the perimeter of the bracing element.
For vertically fixed sheets place fasteners at 300mm centres to the sheet joint.
For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud.
Use daubs of GIB Fix® adhesive at 300mm 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

All fastener heads stopped and all sheet joints paper tape reinforced and stopped in accordance with the GIB® Site Guide.



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This Specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems 2011 and has been appraised in accordance with the BRANZ Appraisal No. 294 (2011).

BRANZ Appraised
Appraisal No.294 (2011)

GIB® Plasterboard Linings

When fixing part sheets of GIB® Plasterboard, a minimum width of 300mm applies for bracing elements. Horizontal fixing is recommended. If fixing vertically, full height sheets shall be used where possible. Where sheet end butt joints are unavoidable they must be formed over nogs or over the studs and fastened at 200mm centres. Alternatively, and preferably, the sheet end butt joints may be back-blocked.

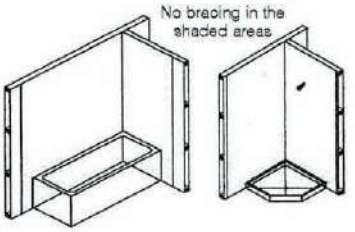
Plasterboard bracing element sheets must be fixed directly to the wall framing, eg bracing must be provided by the inner layer of a multilayer system. When a GIB® bracing element has been designated for a section of wall, BU ratings can not be increased by incorporating additional proprietary bracing elements within that same section of wall.

Limitations

GIB® Plasterboard must be stacked flat and protected from the weather. GIB® Plasterboard must be handled as a finishing material. GIB® Plasterboard in use must not be exposed to liquid water or be installed in situations where extended exposure to humidities above 90% RH can reasonably be expected. GIB EzyBrace® Systems must not be used in showers or behind baths. It is highly recommended not to install GIB® Plasterboard in any situation where external claddings are not in place or the property is not adequately protected from the elements. If GIB® Plasterboard is installed under these conditions, the risk of surface defects such as joint peaking or cracking is greatly increased.

GIB EzyBrace® Systems in Water-Splash Areas

When GIB® Plasterboard is installed in locations likely to be frequently exposed to liquid water it must have an impervious finish. Examples are adhesive fixed acrylic shower linings or ceramic tiles over an approved waterproof membrane over GIB Aqualine®. The NZBC requires 15 years durability in these situations. Bracing elements are required to have a durability of 50 years. Bracing elements are not to be located in shower cubicles or behind baths because of durability requirements, the likelihood of renovation, and practical issues associated with fixing bracing elements to perimeter framing members. Otherwise GIB EzyBrace® Systems can be used in water-splash areas as defined by NZBC Clause E3, provided these are maintained impervious for the life of the building.

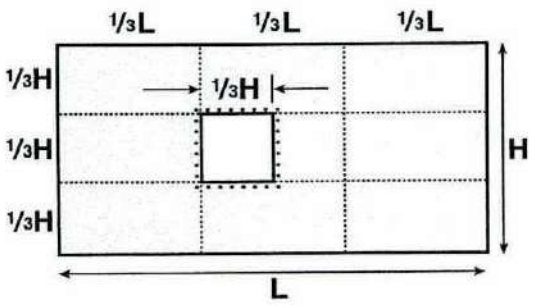


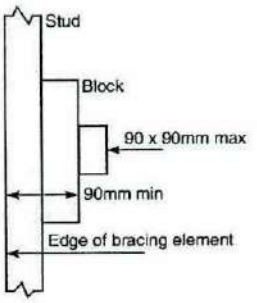
Renovation

When relining walls during the process of renovation, ensure that bracing elements are reinstated (check the building plans).

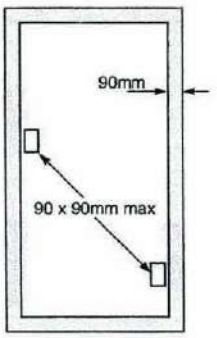
Openings in Bracing Elements

Openings are allowed within the middle third of a wall bracing element's length and height. Neither opening dimension shall be more than one third of the element height. Wall linings are fixed to opening trimmers at 150mm centres. Small openings (e.g., power outlets) of 90 x 90mm or less may be placed no closer than 90mm to the edge of the braced element. A block may need to be provided alongside the perimeter stud as shown below.





Small opening e.g. switch box



Framing

General framing requirements such as grade, spacings and installation shall comply with the New Zealand Building Code and the provisions of NZS 3604:2011. To achieve the published bracing performance the minimum actual framing dimensions are 90 x 35mm for external walls and 70 x 45mm for internal walls. Wall bracing tests on GIB EzyBrace® Systems were undertaken without nogs. Nogs are not considered to add to the bracing performance of the wall.

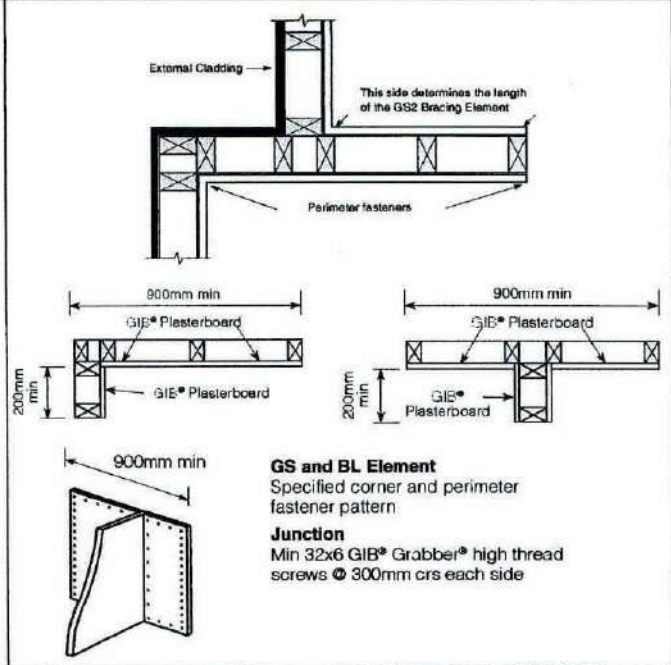
Guidelines for intersection walls

Where the lining on a double lined internal GS2 Bracing Element is shorter on one side, the length of the element is taken as the shorter wall length but bracing fasteners can still follow the wall perimeter on both sides.

GIB® Bracing Elements may have intersecting walls with a minimum length of 200mm. Fasteners are required around the perimeter of the bracing element. Vertical joints at T-junctions shall be fixed and jointed as specified for intermediate sheet joints. **The bracing element length must be no less than 900mm.**

Where a Wall Bracing Element is interrupted by a T or L junction the element is deemed to be continuous for the whole length (900mm in the example illustrated).

When fixing part sheets of GIB® Plasterboard, a minimum width of 300mm applies for bracing elements.



GS and BL Element
Specified corner and perimeter fastener pattern

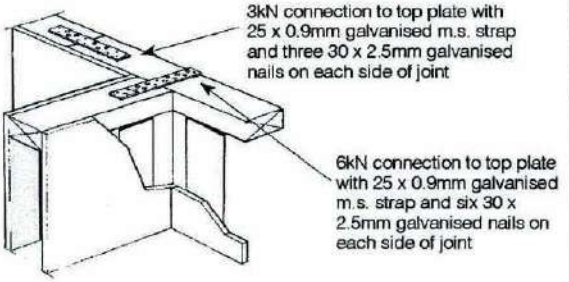
Junction
Min 32x6 GIB® Grabber® high thread screws @ 300mm crs each side

Top Plate Connections

The top plate of a wall that contains one or more wall bracing elements shall be jointed according to the rating of the highest-rated individual wall bracing element as follows:

(a) Rating not exceeding 100 bracing units: A 3kN connection as shown or by an alternative fixing of 3kN capacity in tension or compression along the plate;

(b) Rating exceeding 100 bracing units: A 6kN connection as shown or by an alternative fixing of 6kN capacity tension or compression along the plate.



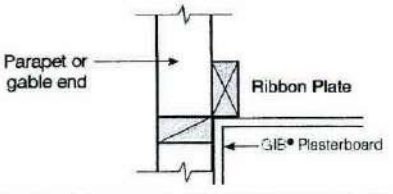
Parapets and Gable End Walls

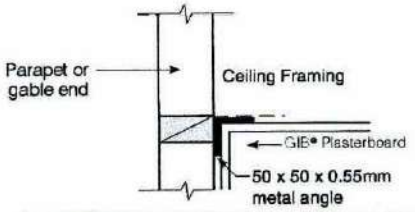
Bracing elements must be fixed from top plate to bottom plate. Fixing to a row of nogs is not acceptable unless either:

A continuous member such as an ex 90x45mm ribbon plate is fixed across the studs just above a row of nogs at the ceiling line.

OR

A minimum 50x50x0.55mm metal angle is installed as shown. The angle is fixed to a row of nogs with 30x2.5mm galv FH nails at 300mm centres.





Bottom Plate Fixing

JUNE 2011

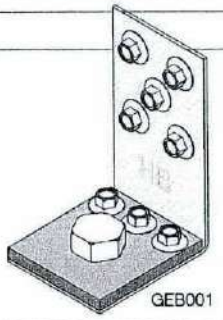
Bottom plate fixings for GIB® Bracing Elements			
Brace type	**Concrete slabs**		**Timber floors**
	External wall	**Internal wall**	**External and Internal walls**
GS1-N	As per NZS 3604:2011. No specific additional fastening required	As per NZS 3604:2011. Alternatively use 75 x 3.8mm shot-fired fasteners with 16mm washers, 150mm and 300mm from each end of the bracing element and at 600mm thereafter.	Pairs of 100 x 3.75mm flat head hand driven nails or 3 / 90 x 3.15mm power driven nails at 600mm centres in accordance with NZS 3604:2011
GS2-N	Not applicable		
GSP-H BL1-H BLP-H	Intermediate fastenings to comply with NZS 3604:2011. In addition: GIB Handibrac® fixings or metal wrap-around strap fixings and bolt as illustrated on pages 19 and 20.		Pairs of 100 x 3.75mm flat head hand driven nails or 3 / 90 x 3.15mm power driven nails at 600mm centres in accordance with NZS 3604:2011. In addition: GIB Handibrac® fixings or metal wrap-around strap fixings and bolt as illustrated below.
BLG-H	Not applicable	As for GSP-N, BL1-H, BLP-H on concrete slab above	

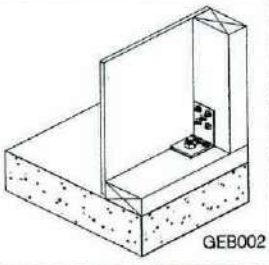
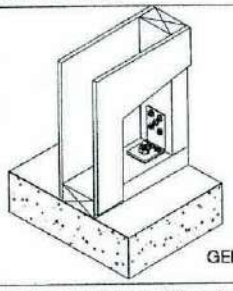
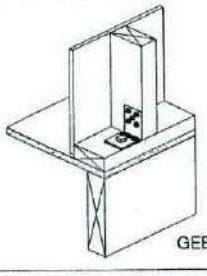
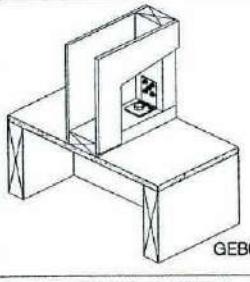
Panel Hold-down Details

GIB HandiBrac® – RECOMMENDED METHOD

Developed in conjunction with MiTek™ NZ, the GIB HandiBrac® has been designed and tested for use as a hold-down in GIB® BL and GSP bracing elements.

- The GIB HandiBrac® registered design provides for quick and easy installation
- The GIB HandiBrac® provides a flush surface for the wall linings because it is fitted inside the framing. There is no need to check in the framing as recommended with conventional straps
- The GIB HandiBrac® is suitable for both new and retrofit construction
- The design also allows for installation and inspection at any stage prior to fitting internal linings

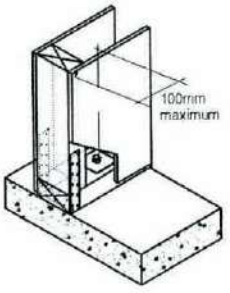
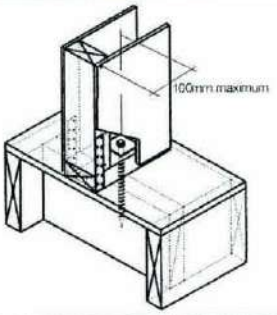
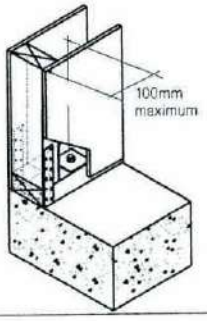
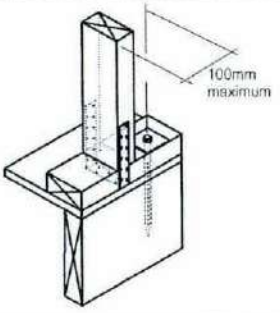
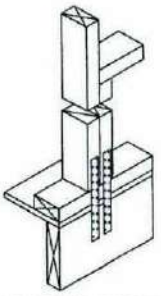

GEB001

Concrete Floor		Timber Floor	
External walls	**Internal walls**	**External walls**	**Internal walls**
 GEB002	 GEB003	 GEB004	 GEB005
Position GIB HandiBrac® as close as practicable to the internal edge of the bottom plate	Position GIB HandiBrac® at the stud / plate junction	Position GIB HandiBrac® in the centre of the perimeter joist or bearer	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.		12x150mm galvanised coach screw	

Refer to gib.co.nz/cad for CAD details.

Panel Hold-down Details

JUNE 2011

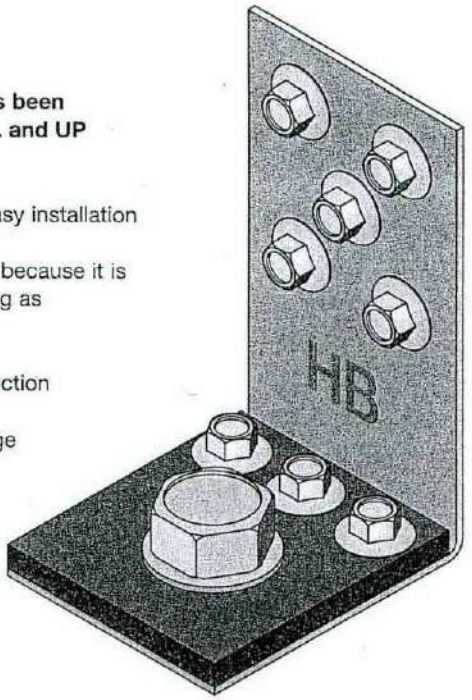
Bracing strap Installation	
Care needs to be taken with the installation of the bracing strap. It should be checked in to be flush with the face of the stud providing a flat substrate for the plasterboard. It should be positioned in such a way that the important corner fastenings of the bracing element are not affected by it. Keeping the strap to the edge of the end stud as shown will allow the important corner fastenings to be installed without having to penetrate the bracing strap.	
Concrete Floor	**Timber Floor**
400 x 25 x 0.9mm galvanised strap to pass under the plate and up the other side of the stud. Six 30x2.5mm flat head galvanised nails to each side of the stud. Three 30x2.5mm flat head galvanised nails to each side of the plate. Hold down bolt to be fitted within 100mm of the end of the element.	
Internal wall	
 GEB006	 GEB007
External wall	
 GEB008	 GEB009
NB: where applicable drawings have been produced for CAD design. These are identified by a unique number in the bottom corner of each detail box that can be found at the web address gib.co.nz/cad	2/300 x 25 x 0.9mm galvanised straps with six 30 x 2.5mm flat head galvanised nails to each stud and into the floor joist and three nails to the plate. Block to nog fixed with 3/100 x 3.75mm nails to stud.
	 GEB010
Hold-down fastener requirements	
Concrete floor	**Timber floor**
A mechanical fastening with a minimum characteristic uplift capacity of 15kN fitted with a 50x50x3mm square washer within 100mm of the ends of the bracing element.	12x150mm galvanised coach screw fitted with a 50x50x3mm square washer within 100mm of the ends of the bracing element

Refer to gib.co.nz/cad for CAD details.

B10

GIB HandiBrac®

Panel Hold-Down Bracket



Developed in conjunction with MiTek™, the GIB HandiBrac® has been designed and tested for use as a hold-down bracket in GIB® BL and UP bracing elements.

- The GIB HandiBrac® registered design provides for quick and easy installation
- The GIB HandiBrac® provides a flush surface for the wall linings because it is fitted inside the framing. There is no need to check in the framing as recommended with conventional straps
- The GIB HandiBrac® is suitable for both new and retrofit construction
- The design also allows for installation and inspection at any stage prior to fitting internal linings

Components

GIB HandiBrac® is available in boxes of 10, each containing 5 pairs.
Components per paired pack include:

- 2 x GIB HandiBrac® Brackets
- 2 x Washers
- 16 x Tek Screws
- 2 x BOWMAC screw bolts included within specific GIB HandiBrac® pack

GIB® Bracing Elements

The GIB HandiBrac® is a proprietary product that has been tested and is suitable for use with specified GIB Ezy Brace® systems.

Fixing to Timber Framed Floors

BOWMAC screw bolt or a 150mm by 12mm diameter galvanised coach screw (with a characteristic uplift strength of 12kN).

Fixing to Concrete Slabs

BOWMAC screw bolt or an alternative proprietary fixing with a characteristic uplift strength of 15kN

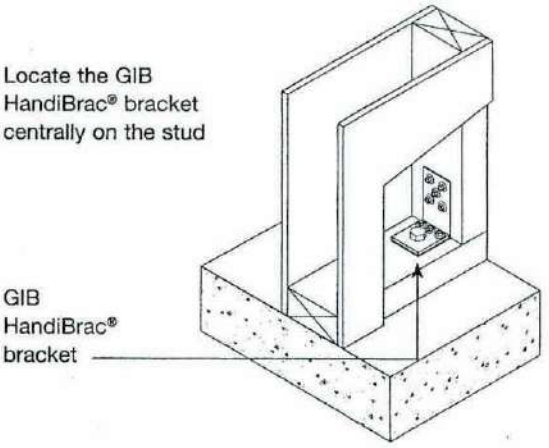
GIB®

MiTek®

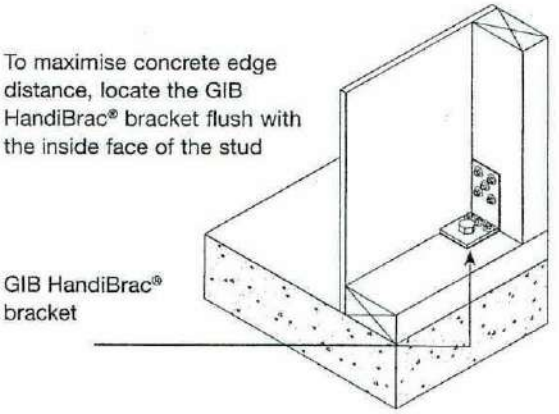
B11

Panel Hold-down Details

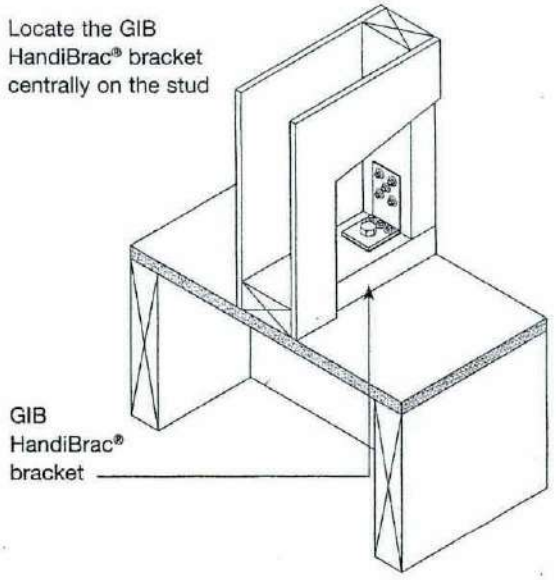
Concrete Floor - Internal Wall
The bottom plate at both ends of the bracing element is fixed using a fastener with a proprietary fixing with a minimum characteristic uplift strength of 15 kN. If included in pack see overleaf instruction to install BOWMAC screw bolt.



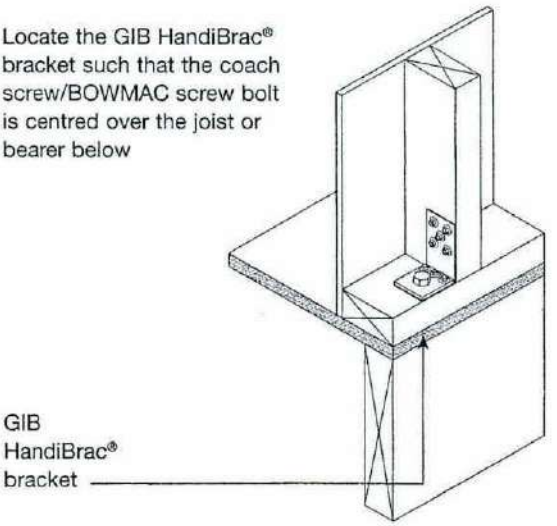
Concrete Floor - External Wall
The bottom plate at both ends of the bracing element is fixed using a fastener with a proprietary fixing with a minimum characteristic uplift strength of 15 kN. If included in pack see overleaf instruction to install BOWMAC screw bolt.



Timber Floor - Internal Wall
Bottom Plate is fixed using a BOWMAC screw bolt (if supplied) or a 150mm by 12mm diameter galvanised coach screw (with a characteristic uplift strength of 12kN). For BOWMAC screw bolt installations see overleaf.



Timber Floor - External Wall
Bottom Plate is fixed using a BOWMAC screw bolt (if supplied) or a 150mm by 12mm diameter galvanised coach screw (with a characteristic uplift strength of 12kN). For BOWMAC screw bolt installations see overleaf.



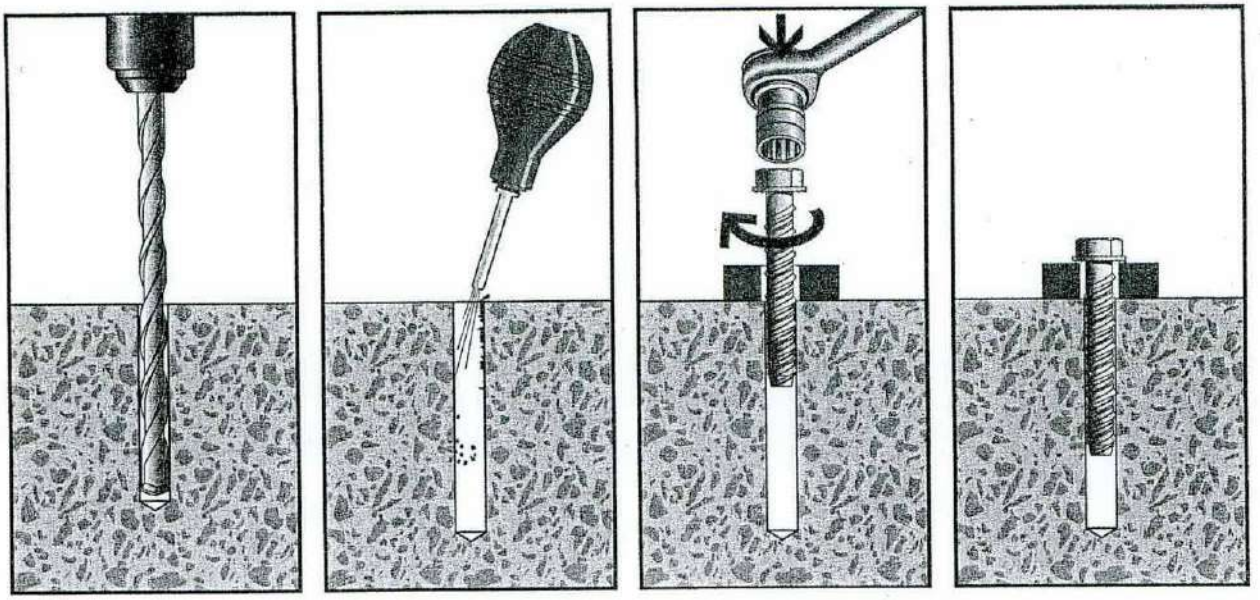
GIB®

MiTek®

B12

Installation of BOWMAC screw bolt (if included in pack)

Suitable for use in timber or masonry base material and achieves the minimum uplift strength



- Use a 10 mm diameter masonry bit for a solid concrete substrate and an 8 mm diameter drill bit for fixing to a timber sub-floor.
- Drill a hole into the base material to depth 8 mm deeper than the required embedment and clean out the hole of dust and debris prior to installation of the BOWMAC screw bolt.
- Insert the bolt through the GIB HandiBrac® plate and bracket and into the hole.
- Begin tightening the bolt by applying forward pressure when engaging the first thread.
- Additional forward pressure may be required for installation in high strength, dense base materials.
- Continue tightening the anchor until the head is firmly seated against the GIB HandiBrac® plate.
- In extremely dense material, use of an impact wrench is recommended.
- Be sure the bolt is at the required embedment depth.
- Don't exceed the maximum clamping torque of 80Nm.
- The installation is now complete.

Installation Tips:

- Use quality hexagonal socket with a ratchet spanner
- Where substrate allows, a torque controlled wrench can be used
- During installation debris or dust created by the thread cutting action may cause some resistance to be experienced. This is easily overcome by unscrewing the BOWMAC screw bolt for one turn, or more and then continue to fix to the full embedment.

GIB HandiBrac® is manufactured and distributed by:

MiTek New Zealand Ltd
Auckland Office:
40 Neales Rd, East Tamaki, Manukau 2013, New Zealand
P O Box 58-014, Botany, Auckland 2163, New Zealand
Ph: 64-9-274 7109, Fax: 64-9-274 7100
Christchurch Office:
14 Pilkington Way, Wigram, Christchurch 8042, New Zealand
P O Box 8387, Riccarton, New Zealand
Ph: 64-3-348 8691, Fax: 64-3-348 0314
Internet Site: www.miteknz.co.nz

MiTek™

Distributor:

Winstone Wallboards Ltd
National Support:
37 Felix Street, Penrose, Auckland 1061, New Zealand
P O Box 12 256, Penrose 1642, Auckland, New Zealand
Ph: 64-9-633 0100, GIB® Helpline: 0800 100 442
Fax: 64-9-633 0101, Free Fax: 0800 229 222
Email: info@gib.co.nz, Site: www.gib.co.nz

GIB®

02/2011

a·d·cochrane

architectural design

SPECIFICATION

SPECIFICATION OF WORK AND MATERIALS FOR THE ERECTION AND COMPLETION OF:	NEW DWELLING
FOR THE OWNER	H A Keogan
SITE LOCATION	62 Pitfure Road Wakefield
LOT NUMBER:	3
DISTRICT PLAN REFERENCE:	464445
LOCAL PLAN AUTHORITY	TASMAN DISTRICT COUNCIL
OWNER'S PRESENT ADDRESS	415 Suffolk Road Stoke
PHONE DAYTIME: **CELL PHONE:**	027 445 5959 027 445 5959
PHONE AFTER HOURS:	547 8303
FACSIMILE:	
E-MAIL:	keogan@xtra.co.nz

This specification, in simplified and shortened form, is to be read in conjunction with the accompanying drawings.

In omitting precise constructional directions and detailed dimensions lists of individual timbers, etc., it is not the intention of the owner to release the appointed contractor from all restriction as to how the work shall be completed. The attention of tenderers is drawn to the construction standards covered under the heading "Workmanship, Methods and Materials".

Tasman District Council
BUILDING CONSENT AUTHORITY
APPROVED DRAWINGS
Consent Number BC 140191
Signed
Date 16 / 4 / 14
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

A.D. COCHRANE DESIGN & DRAW LTD

INDEX

(NOTE: Not all pages listed may be presented in specification)

PRELIMINARIES AND GENERAL

DEFINITIONS:
a) Owner - people whom the Works are executed for and who own the site and building that is being worked on; they may be Principals
b) Principal- people that the Contractor has a contract with
c) Provide - supply and fix
d) BCA – Building Consent Authority (Local Authority can be either BCA &/or other Authority)
e) CPE - Chartered Professional Engineer
f) NZBC – New Zealand Building Code
g) NZS – New Zealand Standards Code

GENERAL
The Contractor is required to provide all plant, tools, labour and materials to complete the work in the best trade manner in accordance with this Specification and its accompanying Drawings. Any apparent ambiguities in this specification or discrepancies between the requirements of the drawings and specification shall be referred to the Designer for interpretation. The required standard of finishes and workmanship for all work including construction, site works, hardware, joinery, plumbing, electrical, etc shall be confirmed with the owner by the contractor before commencing any work.
Adhere strictly to the New Zealand Standards & Building Code as relevant to the particular work to be done. Keep a copy of **NZS 3604:** Light timber frame buildings (etc.), on site at all times. Follow manufacturer's instructions and good tradesmen's practices.
Arrange for all temporary works and services necessary for the completion of the Works.
The work shall conform and progress according to the By-Laws of the pertinent local authorities and the Contractor shall be responsible for all damage to public and private property occasioned by the completion of the work.
Unless otherwise specified, the Contractor shall, when appointed, obtain all necessary consents and pay all dues and proceed with the work as soon as possible.
During a period of ninety days following completion of the work, the Contractor shall rectify all faults in workmanship and materials notified to him by the Owner, and after as required by **NZBC** &/ or contract documents.
Supply guarantees, warrantees, as-built records, certificates from the personnel who carried out the work (producer statement from registered trades, etc), certificates that relate to the energy work (gas and electrical certificates), evidence that specified systems are capable of performing to the performance standards set out in the Building Consent (alarm, sprinkler, emergency lighting test certificates, etc), code of compliance certificate & as specified or as required by the Building Consent Authority to the Owners at the completion of the Works & as required to the Building Consent Authority at the times they specify. Only on receipt of these will final payments be made. This may exclude monies retained for the duration of the maintenance period and incomplete works.

PROTECT
Protect Works during the contract, from rain and unauthorised entry. Protect all parts of the Works liable to damage; adjoining property, and existing features to be retained until the completion of the contract.
GEO-THERMAL
If the site is in a geo-thermal area, the necessary Health precautions must be taken and all materials, especially metal fastenings, must be provided that withstand the corrosive effects.

SUBCONTRACTORS
The Contractor may appoint specialist sub-contractors to undertake sections of the work & shall be responsible for their workmanship and co-ordination with his own & other tradesmen.
Co-ordinate and attend on subcontractors to enable them to do their jobs effectively. ENSURE that they are aware of all requirements under this Contract.
This must not construe that the Owner is involved in separate contracts with those so appointed and the Owner in turn shall not directly negotiate with or instruct the sub-contractors unless he has the Contractor's authority to do so.

TIDY
Throughout the construction period, the contractor shall keep the site as tidy as possible and give due consideration to the occupants of neighbouring properties, particularly in the question of obstruction and noise. On completion of the work the whole site shall be left clear, remove temporary works etc. and protective wrappings. Leave everything in working order and the building, paths and steps etc. clean and ready for use.

BUILDING CONSENT & CHARTERED PROFESSIONAL ENGINEERS INSPECTIONS
Where any alterations are required to the working documents by the Local Authority, the Designer must be notified. The Contractor is required to deal with the Inspections by the Local Authorities Representatives & Chartered Professional Engineers inspections when required.

PROGRAMME
Supply a construction programme to the Project Manager directly after the Contract is let.

PROVISION OF CONTRACT
The contractor shall form a contract for services provided to owner as recognised by NZ STANDARDS, MASTER BUILDERS/ CERTIFIED BUILDERS ASSOCIATIONS or other contract as agreed to by OWNERS SOLICITOR.

INSURANCE
Throughout the construction period, the contractor shall hold himself and the owner covered against all claims and losses that may arise in connection with the contract.
Insurance will be required to cover the structure as well as materials on site, for the insurable values of the respective interests of the Contractor and the Employer. The cover is required to be increased progressively as the structure proceeds. The amounts must at all times be sufficient to protect fully all payments and advances made by the Employer to the Contractor, as well as the value of materials (if any) provided by the Employer either directly or indirectly, and any interest the Contractor may desire to have covered.
Completed work shall be insured by the contractor for its full insurable value against loss or damage by fire and earthquake and shall be held covered until the owner formally takes possession. Policies shall nominate both contractor and owner as jointly insured and the owner shall be entitled to examine both policies and premium receipts upon demand.
Insurance for existing building structure will be arranged by the Principal.

HEALTH AND SAFETY in EMPLOYMENT ACT (HSEA)
The Contractor is to warrant to the Employer (Owner) that the Contractor shall take all practicable steps to ensure that no act or omission:

a) Causes a hazard, significant hazard, harm or serious harm to any employee of the Contractor or any person at the place of work or in the vicinity of work; or
b) is a breach of duty or obligation of the Contractor under the HSEA, or does, or is likely to give rise to the issue of an improvement or prohibition notice, enforcement proceedings or a prosecution under the HSEA against the Employer, the Contractor or Subcontractors. The words & phrase in this clause shall have the same meaning as is ascribed to them in the HSEA.
d) Workers on site are required to wear protective earmuffs when noise exceeds **80 dB** or lesser amount as required for the situation. Protective & safety eye wear, foot wear, gloves, head wear, earmuffs, clothing, equipment, appliances, barriers & safety harnesses etc shall be used at all times & well maintained as required by HSEA & equipment manufacturers requirements.

SITE MEETINGS: Site meetings should be allowed for at least weekly.

SITE INFORMATION
The information regarding levels & contours etc., shown on the plans is approximate only and before submitting his estimate, the Contractor should visit the site to check its accuracy and generally familiarise himself with the conditions under which the work is to be undertaken. Due allowance in the contract price should be made for total connections to all services.

MATERIALS AND SUBSTITUTIONS
Substitution must not occur without approval of owner, designer & as required by the BCA. Where materials are requested to be substituted with other equivalent materials, the substituted materials are to comply with NZBC approved documents & means of compliance, local by-laws & have approval of the owner, designer & BCA. The contractor is first to notify the owner of any change proposed, give the reason for the requested change & provide a quote of the cost difference for approval before commencing further. Failure by the contractor to pre-order materials & services etc within the required time needed is not a reason for increasing cost if a substitution is required to avoid project delays. Before agreeing to a start date of construction project, the contractor is to insure that all materials, services etc required to complete the project can be ordered in time & are available to avoid project delays.

PRIME COST SUMS
The owner reserves the right to select or purchase items having a lesser or greater value than the Prime Cost allowance, but shall consult the contractor before doing so and agree on the adjustment to be made in the final accounts. The contractor shall provide a full schedule of PC sums stating the individual item categories & sum allowed as part of the building quote.

OWNER'S MATERIALS
Should the owner obtain the contractor's permission to deliver to the site, before completion, fixtures and fittings not covered by the specification, then the contractor will assume responsibility for any loss or damage of such fittings whilst they are in his care.

INTERPRETATION
All figure dimensions shall be taken in preference to scale and all detail drawings shall supersede those to smaller scale. Specifications are to be read in conjunction with plans. Where there is a conflict the plans often take preference, but the designer must be contacted for interpretation.

WORKMANSHIP METHODS AND MATERIALS
This specification does not seek to impose upon the Contractor construction methods alien to his normal working practice.
However, the methods of construction and the type, quality and sizes of materials used to complete the work shall not be less than laid down in **New Zealand Building Code, Approved Documents and means of compliance, inc. NZS 3604** and required by the local authority/ BCA under whose jurisdiction the work falls. Further, the workmanship and general finishing to the work shall comply with the highest standards of the trades involved.

Disputes between the owner and contractor as to the standard of workmanship applied to any part of the work, or on the question of interpretation of the requirements of this specification and the accompanying drawings, shall be referred for arbitration to the body agreed upon and named in the contract.

Durability of materials and components shall be of a minimum standard as required by **NZBC** approved document B2.
The Contractor is responsible for obtaining durability certificates, producer statements, warrantees & guarantees required for materials & building elements to achieve durability performance.
Assembly methods, maintenance of materials and building elements shall comply with **NZBC**, approved documents, means of compliance and manufacturer's specifications. The Contractor shall provide the owner with specific information about manufactures & other regular maintenance requirements & schedules needed to maintain the constructions works done as required by NZBC & material Manufactures & to avoid nuisance or damage to other properties.

The Contractor shall notify Building Consent Authority, Building Certifiers, Engineers and other people involved in checking or approving works at required times for inspections.
The Contractor is required to provide a **CODE OF COMPLIANCE CERTIFICATE** from the Local Building Consent Authority to the owner, **BEFORE SETTLEMENT OF FINAL PAYMENT IS MADE.** This may exclude monies retained for the duration of the maintenance period and incomplete works.

EXCAVATOR

CLEARING BUILDING AREA

Clean off all vegetation and sub-soil over building area.

BUILDING EXCAVATION

Excavate for all foundations to the minimum depth shown or as required by NZ Building Code and approved documents.

DOUBTFUL BEARING

Notwithstanding the provisions of the paragraph headed SITE INFORMATION, the owner shall be responsible for the cost of any work additional to that provided for by this specification and accompanying drawings, through encountering ground of doubtful bearing capacity and for land slides resulting from causes beyond the control of the contractor.
All foundations shall be a min 300 into 'Good Ground' with an ultimate bearing capacity of not less than 300 kPa as determined by NZBC/B1 & means of compliance or deeper where required by Plans, NZS3604, BCA or CPE. Where doubtful bearing is encountered a CHARTERED PROFESSIONAL ENGINEER shall inspect works and give contractor detailed instructions and provide a PRODUCER STATEMENT.

HARD FILLING

Under all concrete floors and footing, provide a minimum thickness of 150mm hard filling well compacted as specified. Remove all topsoil & soft material under concrete floors & foundations down to 'Good Ground', compact hard fill in 150mm layers, without disturbing foundation walls. Hard filling over 600mm deep, where on doubtful bearing, on slopes exceeding 1:2.5 grade or as required by plans or BCA shall be inspected and supervised by a CHARTERED PROFESSIONAL ENGINEER who shall provide a PRODUCER STATEMENT for such works.

CONCRETE AND REINFORCING

STANDARDS

Workmanship & construction in general to comply with NZS3109, NZS3604, NZS4671 & NZBC and means of compliance.

MATERIALS

Note: Use MPa grade as noted on plans & details. MPa grade to comply with NZBC, NZS3604 & other relevant documents including durability & structural strength.

Ready Mix concrete: Concrete 17.5 MPa ordinary grade (minimum strength), aggregate size l9mm (or as shown on drawings), complying with NZS3109.
All reinforcing steel to comply with NZBC/B1 and means of compliance, including NZS4671.

Site mixed concrete: Obtain approval before using site mixed concrete. Comply with the requirements of NZS 3108 for 2OMPa ordinary grade concrete. Use a mixer of at least 55 litres (1 barrow) capacity. Pre-weigh cement quantity for each mix into plastic bags, using a spring balance. Use all-in aggregate complying with the grading envelope set out in NZS 3108, volume batched using gauge boxes or measuring buckets of known capacity. Use only sufficient water to obtain desired slump. Prepare trial mixes for approval at the commencement of the work.

FORMWORK

Formwork is to be well-braced, hosed out, and kept wet before and after concrete is placed.

FOUNDATION

Foundations and reinforcing shall be to sizes on drawing and in accordance with **NZBC**, approved documents, and means of compliance.

REINFORCEMENT

Reinforce concrete slab with grade 500E steel 665 reinforcing mesh complying with NZBC section B1/AS1 clauses 3.1.8 & 3.1.9 or other as specified by CPE.
All reinforcing steel, including welded mesh, shall be Ductility Class E in accordance with NZS4671.
All slab-on-ground reinforcing shall extend to within 75 mm of the outside edge of the slab (including the foundation wall) with 30mm top cover & shall consist of a minimum 2.27 kg/m² welded reinforcing mesh sheets (1.15 kg/m² in each direction) conforming with NZS4671, which shall be lapped & tied at sheet joints minimum 225mm or in accordance with the manufacturer's requirements, whichever is greater.
Slabs shall have a maximum dimension of 24 metres between free joints.
Install "DPC" between all concrete & timber.
When not otherwise shown, turn and lap reinforcing 500mm at all corners and intersections of foundation beams.
All bends are to be made cold, without fracture. All reinforcing is to be accurately placed and well secured against displacement. Do not weld or re-bend reinforcement. Ensure during the concrete pour that reinforcing mesh ends up in the position detailed on the plans.
All foundations are to be tied to concrete slabs as required by NZBC/B1 and means of compliance.

VAPOUR BARRIER

Install concrete underlay damp proof membrane vapour barrier, with 150mm laps, tape sealed to laps and penetrations and complying with NZS3604, NZBC & manufactures specifications. Sheets shall be laid to form as few joints as possible, and care shall be taken to avoid punctures to DPM. Repair DPM as per manufacturer's instructions.

All timber supported on or in contact with brick, stone or concrete shall be protected by an approved damp proof course.

CASTING IN

Provide in concrete for openings for vents, wastes, pipes, etc., or as required by other trades and for holding down bolts in accordance with **NZS 3604.**

FLOOR SLAB

To be laid true and with straight surface, screeded, and finished to a fine finish. Tolerance on flatness to be within 5mm measured from a 3m straight-edge.

SAWCUTS

Saw cut slabs within 36 hours of concrete pour. Where saw cuts are to be made, cut out 100 mm of every second wire of the mesh for a length of 50 mm each side of the saw cut position. Clean out the saw cuts after not less than 6 weeks, and fill with cement grout.

CURING OF CONCRETE

Protect fresh concrete from premature drying and extremes of temperature. Use suitable methods to limit evaporative drying and keep damp for not less than seven days. Ensure curing controls on slabs commence as soon as possible after final finishing, by use of continuous water sprays, ponding, or the application of a curing membrane. Ensure any membrane use will not affect subsequent applied finishes.

EXPOSED CONCRETE

Provide formwork with smooth ply or hardboard linings where the finish is exposed. The surface required is fairfaced smooth finish without significant airholes, defects or honeycomb areas. Should defects occur, repair to the approval of the Owner.

INSULATION

Insulate concrete slab with EPS polystyrene as noted on plans to habitable or insulated building spaces as noted or detailed. Do not install polystyrene under foundation footings/ thickenings, garages & spaces for vehicles or swimming pool floors & foundations.

INSPECTION

No concrete is to be placed until all excavations, boxing and reinforcing has been inspected and passed by the BUILDING INSPECTOR and if required CHARTERED PROFESSIONAL ENGINEER Notify Project Manager before concrete is placed.

CARPENTER AND JOINER

TIMBER GENERALLY
All timber must be the best of its class, free from large loose or dead knots and waney edges, suitable for its purpose and in as long lengths as possible in keeping with NZBC classification and grading of New Zealand building timbers.
Timber to be treated as required by NZBC and means of compliance.
All timber must be as well seasoned. All joinery and dressing timbers should be thoroughly air-seasoned or kiln-dried (provided it is not air-dried), and all machined stuff shall be dry run. Timber must be stacked on the site in a manner to allow a maximum circulation of air and shedding of water as soon as possible after the signing of the contract and must be suitably protected from the weather. See NZBC: 'Kiln drying of timber. Use kiln dried framing.

WORKMANSHIP
The whole of the carpenter's and joiner's work must be framed, trussed, braced and assembled in a workman-like manner and in accordance with the best trade practice. See NZBC & NZ3604. All joinery must be constructed according to best joinery practice by mortice and tenon, dove-tail, tongue and groove mitres, etc. All exposed nailing must be well punched. The cutting or checking of framing timbers must be reduced to a minimum.

BUILDER'S IRONMONGERY
The contractor shall provide all nails, brads, screws, bolts and other ironmongery required. Fixings to be as required by NZBC and means of compliance including section E2 fixing selection for wall claddings, NZS3604 fixing tables for floor/ walls/ roof structure & product manufacture specifications. All fixings to be adequate for their respective purposes. Fixing material selection to comply with durability exposure zone requirements & compatibility of materials subject to run-off & contact.

DAMP PROOFING
All timber to be protected from dampness with 3 ply bituminous felt or other approved damp proofing materials (Duroid DPC or equivalent) when in contact with concrete or brickwork and between piles and bearers.

PRIMING
All exterior finishing timber, all timbers in contact with concrete block work and all external faces, rebates, etc., of all doors, windows, frames and all woodwork sashes shall be primed before fixing unless otherwise specified in PAINTER.

WALL & ROOF UNDERLAY
Provide and fix wall underlay to outside surface of all timber framed walls & where otherwise specified such as providing separation of materials. Install rigid wall underlay when specified on plans & in 'Extra High Wind Zone' or when cladding manufacture specifications require. Use rigid air barrier underlay where there are no internal linings such as gable ends to open roof space. Install absorbent paper-based underlays to metal roofs or when in contact with metal wall cladding. Use fire retardant underlays. Install self supporting roof underlay type. Repair any damage immediately prior to fixing claddings. Install wall underlay that is approved for the site wind zone.
Wall & roof underlay selection & installation to comply with NZBC/E2 Properties of wall & roof underlays plus means of compliance, NZS3604, NZS2295 & manufactures specifications & installation instructions.

FLOORING
Timber floor: Timber flooring when required on the plans shall be installed in accordance with NZBC, NZS3604 & manufacturer specifications. Sheet type flooring shall be laid in large sheets with all edges supported by nogs & joist. Seal all edges before screw fixing with 3 coats of polyurethane sealer, sand between all seal coats. Use screw fixings recessed for sanding. Apply construction adhesive between supporting structure & sheet flooring to manufacturer's specification. Insulate floor as specified on plans & in compliance with NZBC E1, H1 & means of compliance.

INTERNAL WALL LININGS

Gibraltar board: Line interior wall with Gibraltar board sheets (or as specified on plans). Check plans for gib type & thickness. Fix with appropriate "Gib Grabber" screws and Gibfix Multipurpose water based construction adhesive. Install wall linings to manufacturer's specifications. All joints must be taped. Stopping to be done with best quality Plaster of Paris, filled to an even surface and all spots and rises removed. Install to manufacturers specifications.

Hardiglaze: Fix Hardiglaze to timber framing with a good quality solvent based wall board contact adhesive. For wet areas all sheet edges to be sealed into Hardiglaze jointers. Install to manufacturer's specifications.

CEILINGS

Gibraltar board: Line ceiling with Gibraltar board sheets or as noted on plans. Fix "Gib" products with appropriate "Gib Grabber" screws and Gibfix Multipurpose water based construction adhesive. Install to manufacturer's specifications. All joints must be taped. Stopping to be done with best quality Plaster of Paris, filled to an even surface and all spots and rises removed. Install to manufacturer's specifications.

DOOR AND DOOR JAMBS

Interior doors are to be selected by owner. The contractor shall correctly store and protect until required.
Liners & architraves when required shall be as selected by owner.
To the best trade practice, neatly fit, adjust, ease and fit up with all necessary hardware as selected by owner.

WARDROBES

Provide each wardrobe with min 290 x 19mm full width shelf at 1700mm from floor and 20mm pre-coated pipe coat rail at 75mm below shelf, or wardrobe system as selected by owner.

LINEN CUPBOARDS

Provide five full width depth shelves from 19mm timber supported on 45 x 19mm framework, or system as selected by owner.

MANHOLE AND ACCESS DOOR

Provide manhole access in ceiling where shown on plans. Provide access to other areas such as foundations, separate roof areas etc & as required by NZBC & NZS3604. Where a stair ladder is shown on the plans install to manufacturers specifications.

FINISHES

Provide finish to windows, doors, floors and ceilings, respective sill boards, aprons, architraves, skirtings and cornices as selected by owner.

EXTERIOR CLADDINGS

All exterior claddings as noted & shown on plans to be installed in accordance with the plans, details, manufacturer's specifications & NZBC. Exterior wall & roof material selection to comply with durability exposure zone requirements & compatibility of materials subject to run-off & contact.

INSULATION

Insulate all ceilings & exterior walls to habitable dwelling including internal walls between house & garage plus under floor, with insulation as specified on plans. Check plans for any specific or additional requirements. Building insulation to comply with NZBC, E1, H1 & means of compliance.

FASCIA, GUTTERS AND DOWNPIPES

Install fascia, gutters & downpipes as specified on plans in accordance with manufacturer's instructions & NZBC.

EAVE OVERHANGS
Line eave overhangs as specified on plans fixed to manufacturer's specifications & NZBC.

SHOWER
a) Pre-finished shower systems to be installed to manufacturer's specifications.

b) Site built shower when noted on plans to be as per plans, details & manufacturers specifications for materials used. Install glazed Grade A safety glass screens & door unless open shower type. Open showers to be water proofed & have 1:50 fall to floor waste min 1500mm from shower rose in plan view. Where tiles or similar are used for the floor system, provide Local Authority with PS1 or BRANZ certificate for water proofing system.
Showers to comply with NZBC E1, NZS 4223 & other relative documents.

KITCHEN
Joiner shall construct all kitchen fittings in accordance with best trade practise and to the complete satisfaction of the owner. All joinery finishing and materials shall be discussed with owner. Note: site measure before commencing job. Joiner to construct all kitchen fittings in accordance with best trade practise and the carpenter shall take delivery of and correctly store and protect until required. To the best trade practice, neatly fit, adjust, ease and fit up with all necessary hardware

FRAMES AND TRUSSES
Pre-framers to site measure foundations etc before commencing work, and coordinate with truss manufacturer. Truss manufacturer to site measure frames etc before commencing work and coordinate with pre-framer/builder. Truss manufacturer to advise pre-framer/builder and designer of any loads from roof that would be too great for framing, top plates, lintels, beams, flooring, foundations etc shown on plan, and of girder trusses, point loads, or large spans that are not expected at design stage which would cause problems or failure with supporting members. Truss manufacturer is required to size special trusses such as coved trusses etc and coordinate information with pre-framer/builder for frame heights etc. Frames & roof truss members are to allow minimum cavity required for insulation, service ducting & other building components. Particular attention should be given to coved truss member sizes & when the design requires a truss heel for insulation cavities. Check plans & details for particular requirements. Truss manufacturer is to provide a truss design certificate/producer statement (PS1) & truss plan for all trusses to Building Consent Authority with building consent application. Truss manufacturer and pre-framer are to advise builder of fixing and installation requirements of their products. Pre-framer is responsible to check plans and guarantee their product and work complies with NZBC, NZS 3604 and other means of compliance. Truss manufacturer is responsible to check plans frames, lintels, beams, foundations etc, supporting trusses for loads from finished roof, and advise pre-framer /builder and designer of any load support changes required before construction commences.
Note: All construction to comply with NZBC, approved documents and means of compliance including NZS 3604 and local authority bylaws. Read specifications in conjunction with plans.

ALUMINIUM JOINERY

SCOPE

Provide joinery with glazing as shown on elevations & specified on plans, including supplying matching flashings when required..

STANDARDS

NZS 3504 Aluminium Windows
NZS 9211 Performance of Windows
NZS 9223 Glazing in Buildings
NZS 3503 Anodic Oxide Coatings on wrought aluminium for external architectural applications
BS 6496 Specification for powder coated etc.
NZBC NZ Building Code & approved documents.
NZS 4223 Glazing

GENERAL

Manufacture frames off site according to good trade practice. Submit samples or drawings of sections proposed for fabrication of joinery and site measure all openings before commencing. Assume responsibility for weather tight and structural performance of aluminium frame and glazing system appropriate to local conditions.

Do not deliver to site any components which cannot be immediately unloaded into suitable conditions of storage. Avoid distortions of components during transit, handling and storage. Prevent pre-finished surfaces from rubbing together. Prevent contact with wood, plaster and cement. Retain protective coverings in position until practical completion. Keep paper and cardboard wrappings on aluminium products dry.

GLAZING

Grade A safety glazing is to be provided to doors, sidelights, bathrooms, balustrades, roof glazing & glazing within 1200mm above floor level etc as required by NZS 4223.
All glazing to comply with NZBC & NZS 4223

ALUMINIUM JOINERY

All exterior window frames, sashes, door frames and doors to be powder coated aluminium or as specified on plans, fixed in accordance with the manufacturer's specification. Provide thermoplastic rubber glazing gaskets with compatible sealant. Mitre cut and heat weld all four-sided gaskets at corners. Use sealants according to the manufacturers' instructions & insure joinery construction plus all joints are weather proof. Provide sill support bars or mechanism to manufacture specifications.

RESTRICTOR STAYS
Install safety restrictor stays allowing maximum 100mm opening on all window sashes closer than 760mm above finished floor level where a fall of more than 1.0 meter is possible to the exterior.

LINERS
Approved liners as selected by Owner

INSULATION
Exterior windows, doors & skylights insulation system required, as specified on plans & to comply with NZBC E1, H1 & means of compliance.

PRACTICAL COMPLETION
On practical completion, remove protective materials and clean glass and aluminium joinery. Provide GUARANTEE for 5 years covering the work.

PLUMBER

SCOPE
Provide water supply system, sanitary & waste system. Provide & install flashings when required.

STANDARDS
Comply with NZBC and means of compliance.

GENERAL
Provide all materials, labour and plant necessary to complete the work as set out in this specification and shown on the drawings. All work shall be left in a thoroughly sound and watertight condition and in perfect working order as the case may be.
All sanitary connections, etc., shall be in accordance with the requirements of the local authorities. The work shall be carried out by a qualified and registered tradesman possessing the qualifications as laid down in the specification **NZBC** and approved documents and in accordance with this specification, using materials consistent with sound trade practice.

The plumber shall give all the necessary notices to the Building Consent Authority and shall ensure the plumbing permit is granted before starting work. Water-pipes and tubes shall be set out in straight runs of even gradients, avoiding all places where airlocks are likely to occur. Use easy bends and avoid elbow fittings. Copper tubing is to be secured in position by copper straps.

HOLES
The Concreter, block layer and other trades people will leave holes for plumbing and the like, and make good after installation, but it shall be the Plumber's responsibility to advise such tradesmen of the exact location of such holes etc. before concrete is poured or before any linings are fixed. The Plumber shall co-operate with other trades so that the work is carried out efficiently.
Holes in structural members, Gib plaster board, bracing panels & other linings plus claddings are to comply with NZBC & means of compliance including NZS3604 plus manufactures specifications.

FLASHINGS
Flash as necessary to render building watertight. All flashings shall be accurately fitted to work and shall be machine bent and cut in lengths as long as possible. All joints shall be well lapped, sealed and fixed.
Seal all penetrations allowing for expansion & shrinkage.

VENTS AND SOIL STACK
Allow for back venting where required. Conceal vent pipe work within framing cavities or voids where possible. Use proprietary top plate connecting bracket where vents need to go through plates or use "Studor" vent or equivalent. Combine vents as much as possible to minimise roof penetrations. Fit bird proof grills to vents and suitable fixings and flashings will be the responsibility of the plumber.

WASTES
Join WC pans to drains above the level of the floor with a rubber ring sealed with mastic or other approved material which will provide a non-rigid gas tight joint. Fix basin with 40mm PVC traps and waste pipes to floor level with an approved floor flange. Bath, shower, tub and sink wastes shall be 40mm diameter. All waste pipes throughout the job shall be PVC drains or as approved by Building Consent Authority.

HOSE TAP
Supply and fit brass cocks where owner requires.

WATER SUPPLY
Run main supply line buried 450 mm minimum from a gate valve in the water meter box at the boundary, to the point of entry to the building. Where water tank/s supply the dwelling install filter system to provide potable water using minimum of a 20 micron & a 5 micron filter followed by a UV disinfection system & complying with Local Authority regulations. Install accessible 100mm thread coupling connection or as required by Local Authority regulations for fire fighting equipment. Water tank/s size & location to comply with requirements of Local Authority regulations.

COLD WATER SUPPLY
Provide pressure reducing valve to main cold water line in an accessible location. Take 20mm pipe branches to showers, 15mm to vanity and each compartment of wash, tubs, WC flushing cistern and to exterior hose taps. Size pipelines adequately so that no fitting or appliance is starved when other fittings are simultaneously drawing. Copper tubing to be joined by Crox fitting or brazed and polybutylene to be installed without there being tension in the joints. Conceal pipe work as far is possible; exposed piping is to be copper. Securely support all lines and fully lag all interior & exterior cold water pipes with insulating foam to prevent freezing.
Connect cold supply to main Hot Water Cylinder with a gate valve near the HWC intake and provide a full way sludge drain from the bottom of the HWC discharging to the outside.

HOT WATER SUPPLY
Supply and install a hot water heater complying with Manufacturers specifications, NZBC & BCA requirements, complete with pressure control & release valves. Run a 20mm copper over-flow/drainage pipe from cylinder to exterior gully trap complying with NZBC G12/AS1 6.7.2.
Fully lag hot water pipes with insulating foam to reduce thermal loss & prevent freezing.
Install tempering valve complying with NZS 4617 & NZBC mixing to 45deg-C for early childhood centres, schools & old people's homes. Set tempering valve mixing to 55 deg-C for other buildings.
Set hot water temperature at not less than 60deg-C at hot water heater thermostat.

Ensure that both hot water heater & header tank if used are secured with 25 x 1 mm metal strapping and turnbuckle to timber framing against seismic resistance, complying with NZBC, **NZS 3604** and **4102.**

SANITARY FITTINGS
As shown on floor plan and schedule when included. Install new appliances as per manufacturer's instructions and connect up in proper manner. Install thermal insulation under bath. Use water efficient shower heads, aerator kitchen & bathroom taps. Install reduced dual flush WC cisterns. All services to comply with NZBC & Local Authority regulations, including special requirements on plans, & within waste water design specifications when part of consented documents.

FIXING
The sink top, tub and all vanity units shall be supplied by the Joiner and the Plumber is responsible for connecting only.

TESTING
Before any pipe work is enclosed, test to full working pressure for not less than twelve hours duration. Any defects shall be remedied and the pipe work re-tested as above.

DRAINLAYER

SCOPE

Work in this section of the contract comprises all surface and foul water drainage up to and above ground level to connect to plumber's work. Include all pipes and special fittings, construction of manholes, all gully traps and connections for terminal vents, soil and waste pipes. Supply as built plans to local authority.

STANDARDS
Comply with NZ Building Code and means of compliance.

STANDARD OF WORK

The whole of this work shall be carried out by experienced, qualified and registered tradesman, according to the best of trade practice. Fulfil all requirements of the Building Consent Authority's Plumbing and Drainage Inspector apart from those of NZBC.

TRENCHES AND DRAINS

Excavate for and allow all necessary drains from gully traps and WC to sewer connections. All pipes and fittings shall be 110mm UPVC with socket joints and shall be laid to a true and even fall. Seal all joints.
Where drains are located under foundations or through structural & other building members etc, the Concreter, block layer and other trades people will leave holes for drains and the like, and make good after installation, but it shall be the Drainlayer's responsibility to advise such tradesmen of the exact location of such holes etc. before concrete is poured or before any linings are fixed. The Drainlayer shall co-operate with other trades so that the work is carried out efficiently.
Holes in structural members, Gib plaster board, bracing panels & other linings plus claddings are to comply with NZBC & means of compliance including NZS3604 plus manufactures specifications.

Trenches shall be carefully filled after drains have been inspected and the whole shall be left in perfect working order. All sanitary arrangements shall comply with the local by-laws and shall be completed to the satisfaction of the sanitary inspector.

STORM WATER
Install UPVC drains with socket joints and shall be laid to a true and even fall. Seal all joints. Connect with all necessary inspection fittings.

SOIL DRAINS
Install UPVC 110mm drains with even fall with UPVC gully traps to take wastes and bends to soil pipe, TV etc. Each gully trap to be set on a concrete bed and shall have PVC grating. Connect with all necessary inspection fittings.

TESTING
On completion have the whole drainage system tested and passed and leave the ground in a tidy condition.

ELECTRICAL

SCOPE - The extent of the work includes the supply and installation of all necessary cables, flexibles, earthing, fittings, lamps, switches and switch sockets, service mains, sub mains, main switch board and sub switch boards, for the light and power services.
Allow for excavation for underground cables, and were excavation occurs, backfilling of trenches with properly consolidated material and carting away surplus material from the site.
The Electrician shall obtain the necessary permits and pay all dues required by the Supply Authority.

STANDARDS
The electrical work shall be carried out strictly in accordance with the electricity act & the electricity regulations and attendant New Zealand Electrical Codes of Practice.

HOLES
The Concreter, block layer and other trades people will leave holes for wiring and the like, and make good after installation, but it shall be the Electrician's responsibility to advise such tradesmen of the exact location of such holes etc. before concrete is poured or before any linings are fixed. The Electrician shall co-operate with other trades so that the work is carried out efficiently.
Holes in structural members, Gib plaster board, bracing panels & other linings plus claddings are to comply with NZBC & means of compliance including NZS3604 plus manufactures specifications.

CABLES
All cables from the main switchboard shall be TPS and of sufficient size to take required loads and to comply with Electrical Regulations and Local Supply Authority requirements.
All wiring shall be concealed in roof spaces, under floors and in wall framing behind linings (mostly vertically) or with approved conduit, fixed in an approved manner to surfaces with no lining. In concrete run cabling in PVC ducts cast-in Do not provide intermediate joints
Lighting cables shall be TPS 1.00 mm twin and earth and power outlet cables shall be TPS 2.5 mm twin and earth.
If the site is in a GEO-THERMAL area, use non-corroding materials.
For all power outlets, lighting points and permanently connected appliances incorporate an earth continuity conductor. Use residual current device for power points in bathroom and kitchen, except fridge.

CIRCUIT BOARDS
Provide and install a standard pattern meter board cabinet with hinged door. Size to be minimum 18 way MCB distribution board with allowance for 25% expansion & provide future cable access, plus comply with Local Supply Authority requirements
Provide and install a switchboard/circuit breaker panel complete with circuit breakers to all circuits. Switchboard shall be suitably labelled to facilitate identification of switchgear and circuits connected thereto.

LIGHTING & SOCKET OUTLETS
Install all lighting fittings and switches as decided upon after consultation with the owners or as specified. Lighting switches shall be flush mounted.
All wall switch socket outlets shall be double 10 amp flush mounted.

HOT WATER HEATER
Plumber will install water heaters with elements and thermostats fitted. Install wired-in outlet with switching adjacent to outlet box on water cylinder.

TELEPHONE
Ensure that owner arranges for telephone wiring to be installed before any wall linings etc.

TELEVISION AERIAL/SATELLITE DISH
Provide and install concealed TV coaxial aerial wire from TV aerial plugs, allowing sufficient wire to run to suitable location for future aerial/satellite dish.
Where TV aerial wire runs parallel to 230 V cables, install them no less than 450mm apart.

HEATERS ETC
Install heaters, bathroom heaters, extractor fans and heated towel rails as specified or instructed by client.

FLOORING - CARPET

Carpet layers are to be EXPERIENCED Tradesmen. Work is to be done according to the best of the Trade's practice complying with the Manual of Practices of the NZ Federation of Master Flooring Contractors.
Ensure the BASE surfaces are satisfactory. Notify builder if not. Lay carpet at the end of the project when the building is weather tight, wet trades have finished and surfaces are dry.

LAYING
Use adhesives in accordance with manufacturer's recommendations. Ensure evenness of appearance i.e. match patterns at seams. Remove trapped air.

FINAL
Clean and vacuum carpet area upon completion.

FLOORING - VINYL

LAYERS
Layers are to be experienced tradesmen. Work is to be done according to the best of the Trade's practice complying with the Manual of Practices of the NZ Federation of Master Flooring Contractors.
Ensure the base surfaces are satisfactory. Notify the Contractor if not. Lay vinyl at end of the project when the building is weather tight, wet Trades have finished and surfaces are dry.
Acclimatise vinyl for 48 hours before laying by storing in building.

LAYING
Flush floor with levelling compound as necessary.
Use adhesives in accordance with manufacturer's recommendations. Remove surplus adhesive from face of material being laid and any other surface as the work proceeds. Fix with tight joins, which are not over join of base material. Use heat weld joints with slip-resistant vinyl in wet areas or where required. Trim off proud materials. Roll thoroughly in two directions with a 45kg roller. Remove all scarp. Clean surfaces in accordance to manufacturer's recommendations.

FLOORING - TILES

MATERIALS
Tiles to be chosen by the Owners

WORKMANSHIP
Tiler is to be an experienced Tradesman using good trade practise.
Install tile underlay over substrate as required to manufactures specifications.
Ensure that Base surface is suitable, clean and free from loose material and grease.
Plan the tile lay-out so that final appearance is neat and even especially at corners. Allow maximum of 3mm gap between tiles, except at corners where 6mm should be allowed. Apply adhesive with notched spreader, place tile in position and tap firmly in place to ensure adhesion.
Ensure tiles are in one plane or level. Clean off excess with a damp cloth. Leave to dry for 24 hours.
Fill joints with grout with squeegee. Wipe off excess. When grout has stiffened sufficiently, smooth off joints and polish finished work with a clean, dry cloth. Allow to cure for 36 hours.
Use slip-resistant tiles in wet areas, access areas & where used externally.
Construction joints in concrete floors are to be formed around perimeter of tiled areas. Where tiles have to be laid over a construction joint, set the tiles out so as to coincide tile grout joint with construction joint & use flexible grout. Advise owner of regular inspections required & possibility of joint replacement when needed.
Tiles, trims, adhesives, underlay's, substrates, fixings etc & installation to comply BRANZ Good Practice Guide, NZBC & means of compliance including NZS3604.

PAINTER

Comply with **NZS 2239** Recommendations for the painting of buildings & NZBC.

WORKMANSHIP & MATERIALS
Workmanship to be of the best of trade practice. Patching is not permitted; repaint complete section of work when rectifying defects. Inspect all surfaces before commencing work. Advise Main Contractor of unsatisfactory surfaces to be improved. Subsequent defective work will be the painter's responsibility to repaint.
Materials due to arrive on the site in their original sealed containers bearing brand's name are to be used strictly in accordance with the manufacturer's instructions. Paint from a reputable manufacturer must be used. All Paints to be water-based except primers for treated timbers and finishing coats in wet areas.
Internal spaces must be free of dust and dirt. Ensure that rooms which are being painted are adequately vented, for the health of the applicators and the drying of paints. Conditions for painting outside must be suitable i.e. air temperature over 8 degrees Celsius & as specified by manufacture. Humidity should be low both during application and expected drying time. Generally rub down surfaces between coats and leave surface smooth for finishing coat.
Remove Hard wear before painting and fit on upon completion. Ensure adjacent surfaces are not accidentally painted. Mask surfaces that are likely to absorb paint, such as timber, if those surfaces are to be oiled or varnished. Priming of metalwork must be done in metal workshop.
Upon completion clean all surfaces and clear away debris from painting trade. Arrange for disposal of WASTE environmentally responsible.

STOPPING
After priming, all nail holes, cracks or joints are to be stopped with putty or multi-purpose polyfiller for painted surfaces and cleaned off before undercoating for painted work. For varnished or oiled work, holes etc. are to be stopped with matching putty or filler for natural finishes, after first coat of sealer. Clean off flush.

PAINTING OF EXTERNAL WOODWORK
Work Primer into surface, joints, angles and end grain with brush. Ensure that priming coats are of adequate thickness and suit surface porosity. Ensure that any primed surfaces which have deteriorated on site or in transit are touched up or re-primed. Re-prime if more than one month has elapsed since priming. Prime surfaces of items that cannot be reached later before final fixing. After priming, all external woodwork and adjacent metalwork such as flashings, spouting and downpipes are to be given one good coat of undercoat, followed by finishing coat of high gloss paint.

PAINTING OF INTERIOR SURFACES
All nails or screw holes should be stopped and joints between sheets stopped, taped and finished flush in accordance with gib joining and finishing instructions. After the surface area has dried all work should be lightly sanded down to a smooth finish. Remove all dust etc. with a clean damp cloth in order to provide a clean dust free surface prior to the application of gib sealer. Apply two coats of gib sealer using a brush or a roller. Allow min two hours drying time between coats. Paint as required with two coats of approved paint finishing flat or semi-gloss as required. Use full gloss enamel where required such as kitchens and bathrooms.

VARNISHING
Where varnishing is required such as doors, sarking, architraves, skirtings, etc., give one coat of approved sealer followed by two coats of clear varnish.

PAPER HANGING
Walls shall be properly prepared by sizing. Hang paper straight and true with butt joints. Pastes shall have a fungicide incorporated. Clean paste off woodwork as work proceeds.

All coated surfaces to be finished to manufacturers' specifications & NZBC requirements. Apply coating (paint, vanish, polyurethane, wall paper, primers, sealers etc) to **manufacturers specifications, NZS 2239 & NZBC.**

ROOFING –
STEEL LONGRUN OR TILE ROOFING

STANDARDS

NZS 2295 Building Papers (breathing type)
NZS 3903 Hot-dipped galvanised corrugated steel sheet for building purposes
NZS 3441 Hot-dipped zinc-coated steel coil and cut lengths
AS 1562 Design and installation of metal roofing

GENERAL

To be done by experienced operators, and in accordance with manufactures specification. Co-ordinate with main Contractor to check that preparatory work is complete. Co-operate with the Plumber with regard to penetrations, flashings and water collection system.

WORKMANSHIP

Handle sheets with care so that coating is not damaged. Any scratches or marks must be coated over according to the Manufacturer's recommendations. Severely damaged sheets must not be used. If storage on site is necessary, follow the practice recommended by the Manufacturer.

Isolate DISSIMILAR metals in close proximity by painting surfaces or fitting bituminous separator strips. Also place isolators to treated timber and cement-based materials.

Wear soft shoes throughout installation. Walk on roof where purlins are located to prevent bending of roofing; protect roofing with boarding if frequent access is necessary.

MATERIAL

Colour steel longrun or tile roofing to be fixed by roofing contractor over self supporting roof underlay with laps of 100mm minimum on galvanised hexagonal , 900 mm wide x 38 mm mesh x1 mm diameter wire netting.

FIXING

Fix roofing according to Manufacturer's Recommendations ensuring neatness of appearance and long-lasting weather tightness. Provide Architect with details of junctions of spouting and downpipes.

CLEANING

Clean roof thoroughly of all swarf, rivet stains, nails etc. at the end of the day's work and more frequently if necessary.

FINAL

Provide 2 year GUARANTEE for workmanship, and 15 years for materials.

cedar SCREEN vertical

Cedarscreen Vertical Shiplap Weatherboards

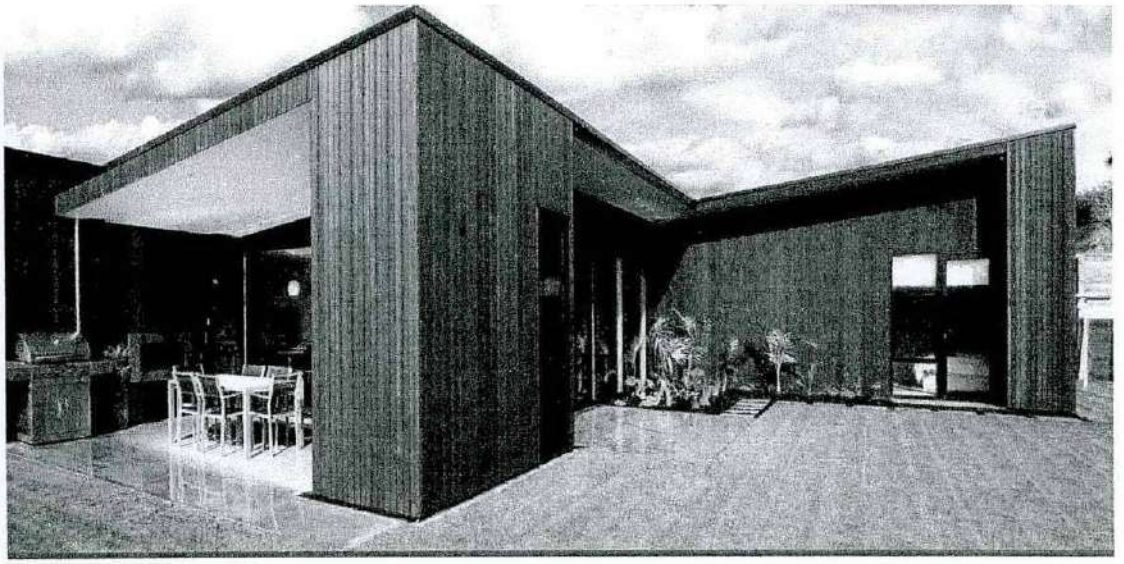
Vertical weatherboarding has undergone something of a transformation in recent years. In the 1950s architects looked to translate the aesthetic of the Modernist Movement in America into a New Zealand context, including the much admired works of architects such as Pierre Koenig. His `Case Study' houses of that era provided a platform for a new style that local architects could adapt to help create a modern New Zealand vernacular.

Introduction

Modernist principles of simplicity of form and honesty in materials were translated to a New Zealand context, and saw use of materials previously thought rustic in nature brought into an urban environment and given a sophistication that launched a distinctly New Zealand style.

Long lazy gable roofs and simple glazed walls, were combined with simple claddings to create a housing style that was not only fresh and sophisticated, but was readily accessible to an increasingly discerning New Zealand clientele.

Today's technically advanced cladding systems and enhanced profiling and machining methods, mean that vertical weatherboarding can be manipulated to exploit the full range of possibilities that timber provides. From the cool clean lines of narrow profiled boards with crisply profiled joints, through to random depth and width weatherboards that evoke images of the craggy landscape and richly textured environment that many of our buildings find themselves in.



General:

Cedarscreen Vertical is an external vertically fixed wall cladding system. The system uses Rosenfeld Kidson vertical shiplap weatherboards and is finished with a uniquely formulated factory applied WoodOil.

Available cavity options:

- CS-H 20x45mm non structural cavity batten or
- CS-H 45x45mm structural cavity batten.

Compliance:

Cedarscreen Vertical is tested fully in accordance with E2/AS1/VM1 External Moisture Verification Method Testing Building Facades and NZS 4284:2008 Testing Building Facades Specific Design. Testing was carried out at an IANZ accredited facility in accordance with Clause 1.0 E2/AS1. The test process included cladding junctions with windows, doors, soffit, penetrations, internal and external corners.

Scope:

Cedarscreen Vertical is suitable for use for a building envelope risk score of between 0-20 as per tables 2 and 3 E2/AS1. Tested in accordance with amendment 5 E2/AS1.

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cedar SCREEN vertical

Cedar Screen Vertical Weatherboards Continued

SPECIES

Western Red Cedar:

Western Red Cedar (Thuja plicata) weatherboards are compliant for above ground use in accordance with New Zealand Standard NZS 3602: 2003 Timber and Wood-based Products for use in Building and when fixed above ground exceeds the minimum 15-year durability requirement.

Maintenance:

Maintenance shall be carried out as necessary to achieve the required durability of materials, components and junctions. The extent of the nature of necessary maintenance is dependent on.

- Type of cladding and components used.
- Position of cladding and components on the building.
- Geographical location, (recoating with stain or WoodOil will be required more frequently on more exposed northern and western faces).
- Manufacturer cleaning and recoating schedules .

Regular maintenance is essential to ensure the performance requirements of the NZBC are met and to maximise serviceability of the system.

Annual inspection of the cladding material must be made to ensure that all aspects of the cladding system, including flashings and joints remain weatherproof. Any damaged areas or areas showing signs of deterioration, which could allow water ingress must be repaired immediately.

Regular cleaning (at least annually) of the stain or WoodOil coating is required to remove dirt or grime and fungal growth. Dirt and grime may be removed with the use of a soft brush, warm water and a light detergent cleaner.

Recoating with either a stain or WoodOil will be required throughout the life of the cladding system. Check manufacturers product specific recoating requirements, as these may vary from product to product.

Rosenfeld Kidson recommends the use of Dryden WoodOil with all our exterior weatherboard systems. Recoating must be carried out approximately every 2-3 years in accordance with the manufacturers instruction.

Ensure ends of weatherboards and cut or exposed edges are recoated during any general maintenance.

Sustainability:

Western Red Cedar is also favoured by conservationists as the forests of British Columbia, from where our cedar is sourced, are well-managed and certified as such. All our producers carry certification under SFI, CSA, FSC or PEFC. Please refer to the following site for more information regarding this: www.wrcea.org/environment-sustainability/intro.htm.

Sizes & Grades:

Our weatherboards are available in 19mm, 28mm and 39mm thicknesses and cover widths range from 58mm up to 203mm.

The standard weatherboard length range is 1.83m to 4.88m, averaging 3.35m. Selected and longer lengths are available on request.

- For use as vertical shiplap or board and batten Rosenfeld Kidson PC1 grade Western Red Cedar is recommended. Any defects or knots should be removed prior to installation. Weatherboards shall be continuous in length between each storey height.
- It is good practice to pre-order weatherboards in the required selected length spread. On-site measuring should confirm the length spread required.

MANUFACTURING:

Profile range:

- Standard profile range RK49 to 60.
- Architectural profile range RKA 500 to 516.

Profiles are manufactured to meet the requirements of E2/AS1 (Acceptable Solution). This is achieved with compliance to Clauses 9.4.1 and 9.4.1.1 of E2/AS1 and Clause 9.4.1.2 E2/AS1 vertical shiplap weatherboards. Profiles shall be as given in NZS 3617 or Branz Bulletin 411.

Accessories:

Fascia:

Western Red Cedar fascia.

RK69 135x18.5mm, supplied in lengths 3.9m and longer.

RK70 180x18.5mm, supplied in lengths 3.9m and longer.

RK71 135X28mm, supplied in lengths 3.9m and longer.

RK72 180x28mm, supplied in lengths 3.9m and longer.

RK73 230x28mm, supplied in lengths 3.9m and longer.

Internal and external corners:

External: Western Red Cedar RK42 42x42mm (19mm), RK93 65x65mm, RK94 90x90mm, RK95 90x90mm, supplied in lengths 2.4m and longer.

External: Western Red Cedar cover boards RK91 and RK92, 18.5mm thick boards in widths of 69mm and 90mm, supplied in lengths 2.4m and longer.

Internal: Western Red Cedar internal corner mould RK41 19X19mm and RK96 shiplap internal corner profile, supplied in lengths 2.4m and longer.

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cedar SCREEN vertical

Cedar Screen Vertical Weatherboards Continued

Mouldings:

Western Red Cedar eaves mould RK32 40x27mm, supplied in lengths 2.4m and longer.

Western Red Cedar bevelled cornice RK7 30x18x10mm, supplied in lengths 2.4m and longer.

Scriber:

Western Red Cedar scribers RK12 40x17mm and RK13 40x10mm supplied in selected lengths.

Finish:

- BSF Band Sawn Face.
- DF Dressed Face or DFS Dressed Faced Sanded (it is recommended dressed face weatherboards are sanded prior to applying coating products).

Moisture Content:

Western Red Cedar panels are delivered to site air-dried to between 16% and 18% moisture content.

FactoryOil:

This is a specifically designed spray process for applying WoodOil to our weatherboards. Dryden WoodOil is applied prior to delivery to all faces of the weatherboard profile. This uniquely formulated product will increase the durability and performance of the cladding during its in service life. Factory coating to all faces not only enhances the visual effect of Cedar but when maintained to manufacturer specifications, it also greatly reduces moisture penetration, limiting excessive hygroscopic movement.

At time of order:

- Check dressed faced weatherboards are face sanded, if being factory oiled.
- Sign off profile confirmation check sheet.
- Sign off colour confirmation check sheet.
- Check pre-order of a minimum 4ltr of Dryden WoodOil for sealing cut or exposed edges.

Handling & Storage:

Care should be taken to protect Western Red Cedar from the elements. All plastic wrapping, timber gluts, packers and strapping should remain intact until stored in a suitable location.

Packets of vertical weatherboards should be stored a minimum 100mm clear from the ground at all times. Storage should be in a dry enclosed location where temperature and humidity are kept relatively stable i.e. dry, dust free and free from sub trade contamination.

FRAMING:

Framing:

- All framing must comply with NZS 3604.
- Framing dwangs shall be at a maximum 400mm centres when using the CS-H non-structural 20x45mm cavity batten. Dwangs can be extended to 800mm centres when using the CS-H structural 45x45mm cavity batten.
- Vertical Western Red Cedar cladding is fixed either through the 20x45mm cavity batten to dwangs; or directly to the structural 45x45mm cavity batten only, at a maximum 400mm centres.

Wall Underlays:

- Must comply with Table 23 and Clauses 9.1.5 – 9.1.7 E2/AS1.
- Flexible flashing tape as per Clause 4.3.1.1 E2/AS1.

Flexible Wall Underlays:

- Flexible wall underlays shall be in accordance with Table 23 E2/AS1.
- Flexible wall underlays shall be fixed in accordance with Clause 9.1.7.1 E2/AS1.
- Be run horizontally.
- Have upper sheets lapped over lower sheets to ensure that direction of lap will allow water to be shed outside of the wall underlay.
- Be lapped not less than 75mm at horizontal joints.
- Be lapped not less than 150mm over studs and vertical joints - see manufacturer specifications for taped joint options.
- Flexible wall underlay as per Clause 9.1.5 shall be cut and dressed into all sides of openings as per figure 72A and 72B E2/AS1.
- Flexible flashing tape shall be applied to head and sill framing as shown in figure 72A and 72B E2/AS1. Flexible tape shall comply with parts 3.2 and 4 of ICOB Acceptable Criteria AC 148 and be compliant with the wall underlay.
- Extend 35mm below bottom plate or bearer.
- Be restrained from bulging - use polypropylene tape at 300mm centres tape shall be fixed horizontally and drawn taut refer Clause 9.1.8.5 E2/AS1.

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cedar SCREEN vertical

Cedar Screen Vertical Weatherboards Continued

Rigid Wall Underlays:

- Are required in Extra High wind zones refer Table 3 and Table 23 E2/AS1.
- Where walls are not lined such as gable ends, attics spaces an air barrier compliant to Table 23 E2/AS1 shall be fixed to framing prior to installation of cavity battens. For attached garages, underlays to Clause 9.1.3.4 E2/AS1.
- Rigid wall underlays shall be fixed in accordance with Clause 9.1.7.2 E2/AS1.
- Be a minimum 6mm fibre cement sheet or 7mm H3.2 plywood.
- Be installed with sheet edges fixed over solid framing.
- Be over-fixed with a flexible wall underlay from Table 23 and installed as in Clause 9.1.7.1 E2/AS1. Note: some proprietary systems may not require the addition of a flexible underlay.
- Flexible wall underlay as per Clause 9.1.5 shall be cut and dressed into all sides of openings as per figure 72A and 72B E2/AS1.
- Flexible flashing tape shall be applied to head and sill framing as shown in figure 72A and 72B E2/AS1. Flexible tape shall comply with parts 3.2 and 4 of ICOB Acceptable Criteria AC 148 and be compliant with the wall underlay.
- Be finished flush with the underside of bottom plate or bearer.

Air Seals: As per Clause 9.1.6 E2/AS1.

- Windows, doors and other penetration openings shall be provided with flexible air seals to minimise the risk of airflow carrying water into the building wall.

Ground Clearance:

As per Clause 9.1.3 and Table 18 E2/AS1.

- At ground level the base of the cladding material shall overlap the concrete slab a minimum 50mm (Note: direct fixed only wall cladding shall be offset horizontally 6mm to avoid capillary action). The bottom edge of the cladding material shall finish 100mm above a paved surface or 175mm above an unpaved surface.

Penetrations:

As per Clauses 9.1.9, 9.1.9.1, 9.1.9.2, 9.1.9.3 and figure 68 E2/AS1.

Drained Cavities:

As per Clause 9.1.8 E2/AS1.

Cavity batten options:

CS-H 20x45mm horizontal cavity batten.

1. 18 degree slope to the top and bottom of the cavity batten.
2. Cavity battens are nominal 20x45mm.
3. Castellation dimensions are 25x6mm.

CS-H structural 45x45mm horizontal cavity batten.

1. 15 degree slope to the top of the cavity batten.
2. 6x6mm drip edge to the lower face of the cavity batten.
3. Cavity battens are nominally 45x45mm.
4. Castellation dimensions are 25x6mm, internal corners are radiused to strengthen the section.

Requirements:

- Treatment to meet the requirements of NZS 3640
- Be installed over wall underlay, either flexible or rigid compliant with Table 23 E2/AS1.
- Be compliant with B2/AS1.
- CS-H 20x45mm cavity battens are to be fixed horizontally to dwangs at maximum 400mm centres with studs spacing between 400mm or to a maximum 600mm centres.
- CS-H 20x45mm cavity battens are fixed, by the cladding fixings, to the wall framing.
- CS-H structural cavity battens are fixed directly to the framing structurally at between 400mm centres or a maximum 600mm centres. Cavity battens are fixed with 2x 90x3.15 Stainless steel nails at each fixing point
- CS-H structural 45x45mm cavity battens are fixed horizontally at 400mm centres max.
- Sloped edges are to be fixed directing moisture back towards the cladding.
- Battens shall be fixed vertically to jambs 10mm in from the framing edge. Horizontal battens shall be fixed 10mm below the sill framing edge or below the sill support bar.
- Additional sill dwangs may be required to support the weatherboard fixing below the sill support bar.
- Vertical battens shall be fixed at internal and external corners, allow a 10mm gap between all vertical and horizontal battens.
- Be drained and open to the exterior at the bottom of the cavity.
- Cavity battens must be kept dry before installation. Storage on site should be in a cool, dry place, out of direct sunlight and elevated on bearers approx. 100mm from the ground with plastic wrapping kept intact.

Vermin proofing: as per Clause 9.1.8.3 E2/AS1.

- Cavity closer to be used in drained cavities at the base of the wall lining and above window heads and inter storey flashings.
- Cavity closure shall provide a minimum ventilation area of 1000mm2 per metre length as per figure 66 E2/AS1.
- Be positioned to allow a drip edge to the wall cladding of 10mm at the base of walls and 15mm above window and door head flashings.

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Cedar Screen Vertical Weatherboards Continued

Flashings:

As per Clause 4.0 E2/AS1.

- Flashing material selection shall comply with Table 20 E2/AS1 and meet the compatibility of Tables 21 and 22 E2/AS1. Flashings shall have a minimum 50mm cover and have hem folded edges as per Clause 4.5.2 E2/AS1.
- Ensure material thicknesses are as per the requirements of Clause 4.0 E2/AS1 prior to ordering.
- Internal and external refer figure 79 and Clause 9.4.4.5 E2/AS1.
- Aluminium flashings to be powder coated to all faces and edges.

Fixings:

As per Table 24 E2/AS1.

20x45mm cavity batten:

- Rosenfeld Kidson pentagon head annular grooved nails 75x3.2mm, stainless steel 316 or silicon bronze.

45x45mm structural cavity batten:

- Structural cavity batten – use 90x3.15mm stainless steel 316 nails.
- Rosenfeld Kidson pentagon head annular grooved nails 60x3.2mm, stainless steel 316 or silicon bronze.

Windows & Doors: The weatherboard system relies on the joinery meeting the requirements of NZS 4211 for the relevant Building Wind Zone or wind pressure.

- Shall be in accordance with Clauses 9.4.6 to 9.4.7 E2/AS1.
- Window profiles to be selected to achieve cover shown in details.
- Wall underlays to wall openings as per Clause 9.1.5 E2/AS1.
- Sill support bar required conforming to EM6 and Clause 9.1.10.5 refer figure 72B E2/AS1.
- For Very High and Extra High wind zones seal head flashing to window flange as per figure 71b E2/AS1.

Head Flashing:

- Head flashings shall be fixed with a minimum 35mm cover flashing upstand with additional flexible underlay or tape overlapped over the flashing upstand.
- Extra High wind zones require a minimum 75mm cover flashing to head flashing upstand.
- Ensure head flashings have a minimum 15 degree fall with a 5mm gap between head flashing and weatherboard refer figure 83 E2/AS1.
- Head flashings shall be fixed with stop-ends to suit the cavity depth, head flashing shall extend to provide 30mm cover or if scribers are used the flashing shall extend 20mm past the finished scriber refer 83(c) E2/AS1.
- Window sill joiner cover shall be a minimum 8mm at the sill and 10mm minimum at jambs. Jambs shall be scribed or apply foam bond breaker and continuous protective sealant the full length of the jamb line refer figure 83 E2/AS1.

Air seals as per Clause 9.1.6 E2/AS1.

- Ensure an air seal is provided with a flexible air seal to minimise the risk of airflows carrying water into the building wall. The air seal shall be provided between the reveal or frame and the wrapped opening as per figure 81 E2/AS1. Be installed over a closed cell polyethylene foam (PEF) backing rod.
- And (i) self-expanding polyurethane foam or (ii) sealant complying with clause 9.1.6 (a) and (b) E2/AS1.
- Temporary packers shall be removed after fixing.

FIXING VERTICAL WEATHERBOARDS

Limitations

Cedarscreen Vertical must only be installed by a registered LBP (Licenced Building Practitioner).

Fixing methods shall be in accordance with Clause 9.4 E2/AS1.

- Check weatherboards are factory oiled on all surfaces including weather grooves prior to deliver.
- Apply WoodOil to all cut or exposed edges prior to installation.
- Ensure on-site provisions are appropriate allowing for good storage and working space.
- Ensure all timber products are free from sub-trade and climatic contamination during the building process.

Fixing Process:

Start the fixing process from either an internal or external corner, the layout of the vertical shiplap weatherboards should be configured against the prevailing wind. Establish an accurate measurement between the starting corner and finishing point working out an even board set out taking into account all associated junctions including window jambs. This will ensure full width boards are allowed for and trimmed into window jamb to head junctions.

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PLAN NAME: ***Radford II 25-850***

SUMMARY OF ROOF BRACING SYSTEMS:

B3

Roof Type	Roof plane 4kN diagonal braces unless sarked	And/ or	Roof space diagonal braces or ridge/ gable braces	Hip or valley rafters	Hip end top plate	CHECK BOX BELOW
Light Hip	–	–	–	Min 3 per ridge	–	☒
Heavy Hip	One in each side plane of roof for each 35m sq of plan area, part of	Plus	–	Min 3 per ridge	Top plate at hips connected at max 2.5m crs to wall bracing elements parallel to ridge	☐
Light Gable	One per 50m sq in each roof plane plan area, part of	Or	At each end of ridge and max 7.5m crs between	–	–	☒
Heavy Gable	One per 25m sq in each roof plane plan area, part of	Plus	One per 12m sq roof plane plan area ,part of, not less than 2m from a parallel external wall, min ½ within 2m of ridge line, evenly distributed along length of roof	–	–	☐

NOTE: Install a minimum of 2 braces per ridge line, except small roof planes less than 6sq meters do not require bracing.
Roof braces or sarking to be constructed in accordance NZS 3604 and Manufacturers specifications.

DIAPHRAGMS:

12mm MD Particle board/ Ply Wood CEILING DIAPHRAGM over rafters – ☐

WINSTONE GIB plaster board CEILING DIAPHRAGM with main Perimeter fixings at maximum centres chosen below:

a) 100mm maximum centres – **100** ☐

b) 150mm maximum centres – **150** ☐

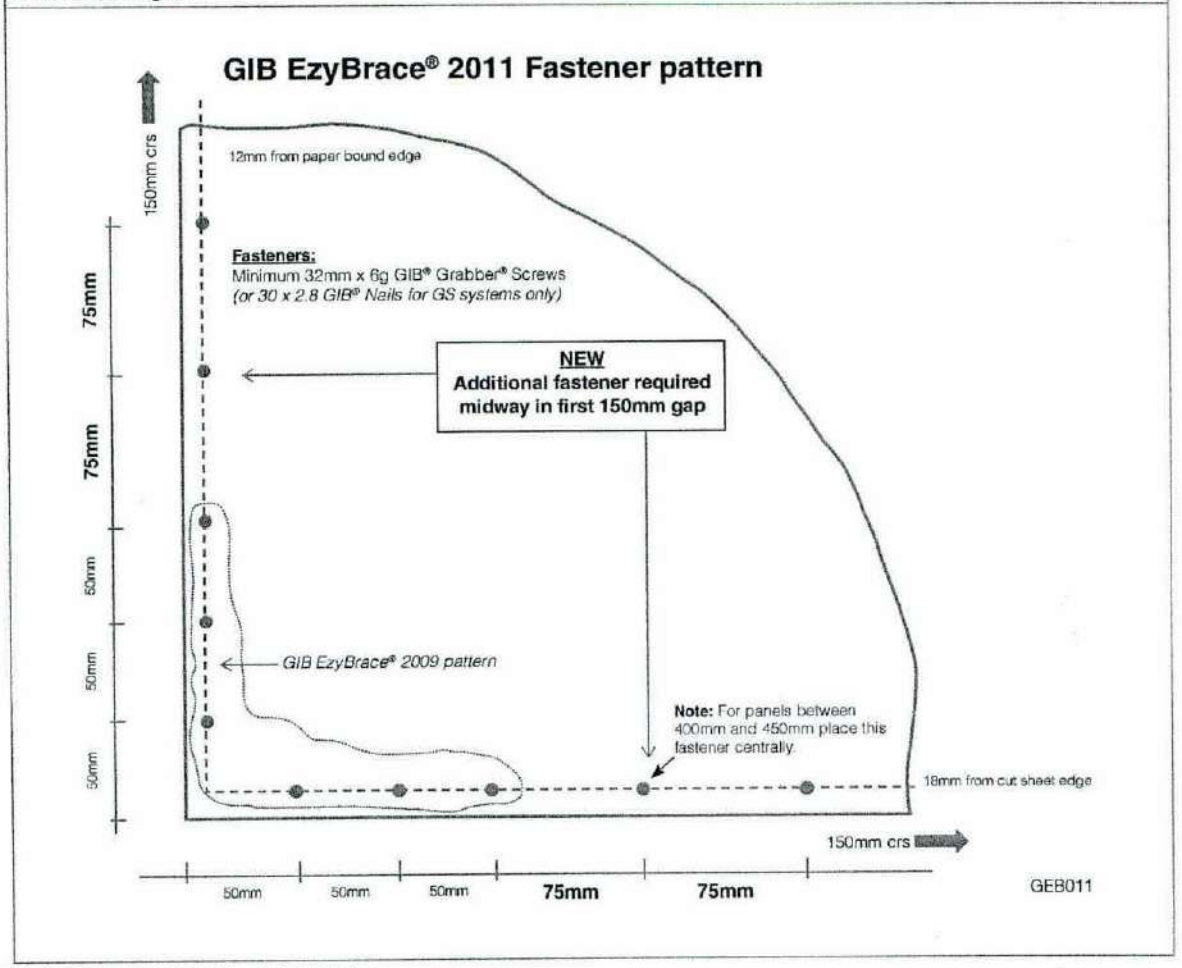
Plus Gib corner fixings & ceiling batten/ plate fixings as per Winstone Gib Specifications & Installation requirements.

Min 20mm HD Particle board/Ply Wood FLOOR DIAPHRAGM - ☐

NOTE: Fix diaphragm in brick pattern with fixings at 150mm crs around sheet edges at 200mm crs over intermediate supports and min 10mm from edges, or as required by Manufacturers Specifications. Diaphragms to comply with NZS 3604 and Manufacturers specifications.

Revised Fastener Pattern for *all four corners* of GIB EzyBrace® Elements

As GIB Braceline® screws are no longer required for BL bracing elements, two additional fasteners must be installed in ***all four corners*** of GIB EzyBrace® GS and BL elements, as shown.
Fasteners must be placed no closer than 12mm from the paper bound sheet edge and no closer than 18mm from sheet ends or cut edges.



Refer to gib.co.nz/cad for CAD details.

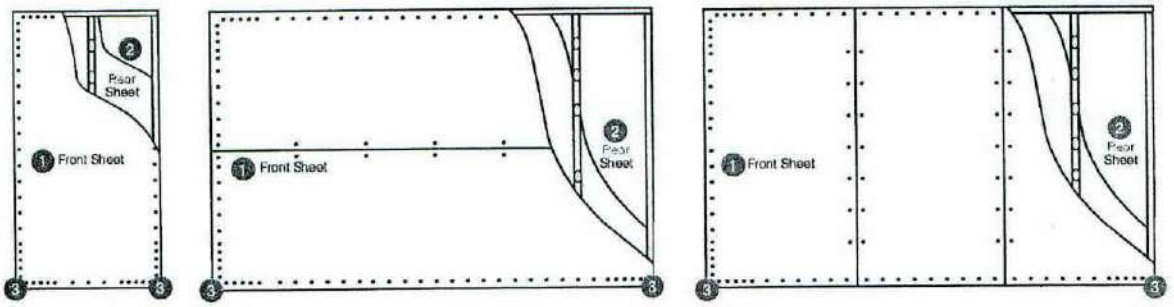
PERMITTED GIB® PLASTERBOARD SUBSTITUTIONS IN GIB EZYBRACE® SYSTEMS

GIB Ezybrace® Systems have been designed and tested using only the products specified. Occasionally additional properties may be required to be provided by a different GIB® Plasterboard product. The following table provides acceptable substitution options.

Specified	Permitted alternative GIB® Plasterboard products								
	GIB® Standard	GIB Ultraline®	GIB Braceline/ Noiseline®	GIB Aqualine®	GIB Toughline®	GIB Fyreline®			
						10mm	13mm	16mm	19mm
GIB® Standard		OK	OK	OK	OK	OK	NOTE 2		
GIB Braceline®	X	X		NOTE 1	OK	X	NOTES 1 and 2		

NOTE 1 The element must be 900mm or longer. Use 32mm x 6g GIB® Grabber® drywall screws at ***100mm*** centres to the perimeter of the bracing element. The bracing corner fastening pattern, as illustrated above, applies to all four corners of the element. Panel hold-down fixings are required.

NOTE 2 The fastener type and length must be as required for the relevant FRR system but the fixing pattern must be as shown above.



System	Lining one side ❶		Lining opposite side ❷		Panel Hold-Down Fixings ❸	Fastener spacing
	Lining	Fasteners	Lining	Fasteners		
GS1-N	Any 10mm or 13mm GIB® Plasterboard	30mm GIB® nails, or minimum 32mm x 6g GIB® Grabber® high thread screws	Not required	Not required	Not required	*GIB® Plasterboard* Corner fastening pattern as illustrated above Fasteners at 150mm to bracing element perimeter, and: • at 300mm centres to intermediate sheet joints for vertical fixing, or • at stud / sheet junction for horizontally fixed elements, and • GIBFix adhesive daubs at 300mm crs to intermediate framing *Plywood* Fasteners at 150mm around the perimeter of every sheet and at 300mm centres to intermediate studs. Place fasteners no closer than 7mm from sheet edges. Plasterboard corner fastener pattern does not apply to plywood.
GS2-N			Any 10mm or 13mm GIB® Plasterboard	30mm GIB® nails, or minimum 32mm x 6g GIB® Grabber® high thread screws		
GSP-H			Minimum 7mm Ecoply manufactured to AS/NZS 2269	50mm x 2.8mm Flat head galvanised or stainless steel nails	Yes, see Pages 19 and 20	
BL1-H	10mm or 13mm GIB Braceline®	minimum 32mm x 6g GIB® Grabber® high thread screws GIB Braceline® Nails may be used for 10mm GIB Braceline® ONLY	Not required	Not required		
BLG-H			Any 10mm or 13mm GIB® Plasterboard	30mm GIB® nails, or minimum 32mm x 6g GIB® Grabber® high thread screws		
BLP-H			Minimum 7mm Ecoply manufactured to AS/NZS 2269	50mm x 2.8mm flat head galvanised or stainless steel nails		

GIB EzyBrace® System Specification – GS1-N

JUNE 2011

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; AS1 Clause 3 Timber (NZS 3604:2011)
- NZBC B2 - Durability AS1 Clause 3.2 Timber (NZS 3602)

Framing dimensions and height as determined by NZS 3604 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 3.15 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 for external 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 SUBSTITUTION

For permitted GIB® Plasterboard substitutions refer to Page 21 in GIB Ezybrace® Systems 2011.

FASTENING THE LINING

Fasteners

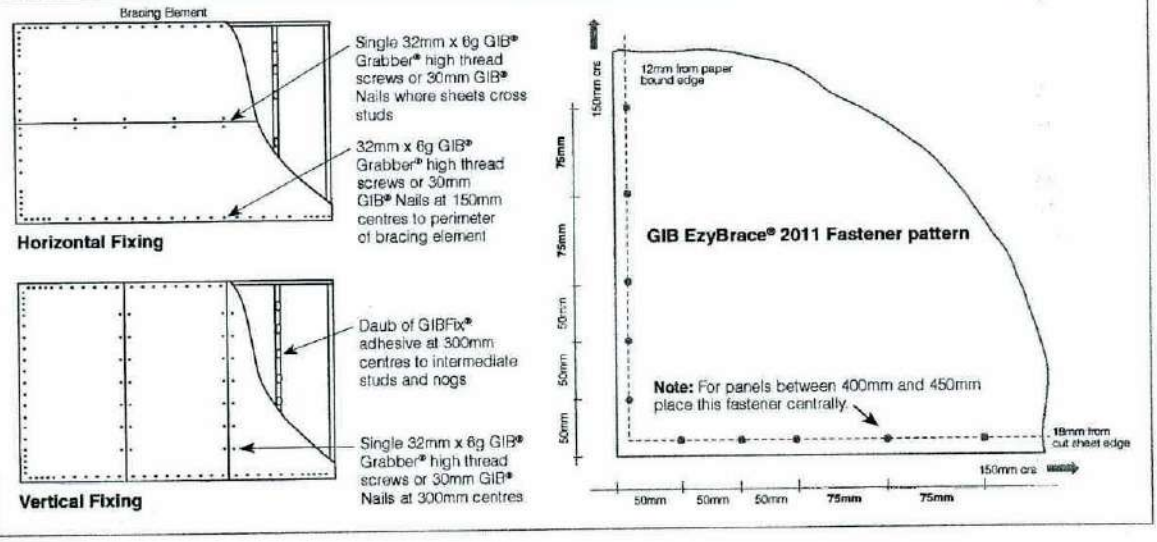
32mm x 6g GIB® Grabber® high thread screws; or
30mm GIB® Nails.

Fastener centres

50,100,150, 225, 300mm from each corner and 150mm thereafter around the perimeter of the bracing element.
For vertically fixed sheets place fasteners at 300mm centres to intermediate sheet joints.
For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud.
Use daubs of GIB Fix® adhesive at 300mm 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

All fastener heads stopped and all sheet joints paper tape reinforced and stopped in accordance with the GIB® Site Guide.



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This Specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems 2011 and has been appraised in accordance with the BRANZ Appraisal No. 294 (2011).

BRANZ Appraised
Appraisal No.294 (2011)

GIB EzyBrace® System Specification - GS2-N

JUNE 2011

Specification Code	Minimum Length (m)	Lining requirement
GS2-N	0.4	Any 10mm or 13mm GIB® Standard Plasterboard fixed to each side of the wall framing.

WALL FRAMING

Wall framing to comply with;

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

Framing dimensions and height as determined by NZS 3604 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 3.15 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 then 600mm centres thereafter.

WALL LINING

One layer 10mm or 13mm GIB® Plasterboard to each side of the wall.

Sheets can be fixed vertically or horizontally.

Sheet joints shall be touch fitted.

Use full length sheets where possible.

PERMITTED SUBSTITUTION

For permitted GIB® Plasterboard substitutions refer to Page 21 in GIB® Ezybrace Systems 2011.

FASTENING THE LINING

Fasteners

32mm x 6g GIB® Grabber® high thread screws; or

30mm GIB® Nails.

Fastener centres

50,100,150, 225, 300mm from each corner and 150mm thereafter around the perimeter of the bracing element.

For vertically fixed sheets place fasteners at 300mm centres to intermediate sheet joints.

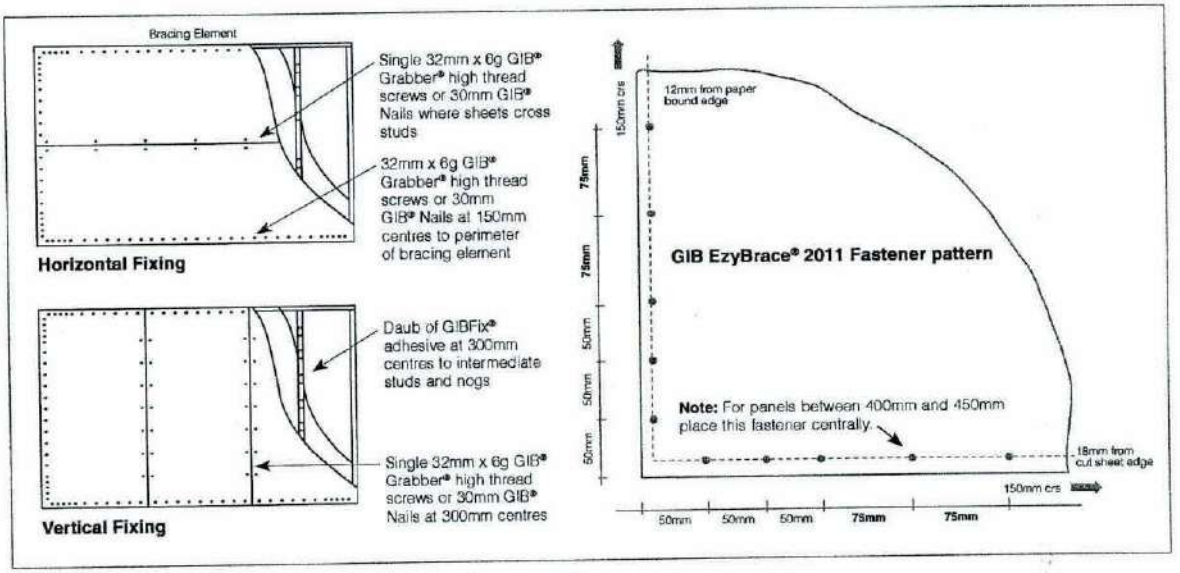
For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud.

Use daubs of GIB Fix® adhesive at 300mm 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

All fastener heads stopped and all sheet joints paper tape reinforced and stopped in accordance with the GIB® Site Guide.



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This Specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems 2011 and has been appraised in accordance with the BRANZ Appraisal No. 294 (2011).

BRANZ Appraised
Appraisal No.294 [2011]

GIB EzyBrace® System Specification – BL1-H

JUNE 2011

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; AS1 Clause 3 Timber (NZS 3604:2011)
- NZBC B2 - Durability AS1 Clause 3.2 Timber (NZS 3602)

Framing dimensions and height as determined by NZS 3604 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 2011 or GIB® Site Guide.
Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or
Three power driven 90 x 3.15 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 2011 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.

WALL LINING

One layer 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 SUBSTITUTION

For permitted GIB® Plasterboard substitutions refer to Page 21 in GIB Ezybrace® Systems 2011.

FASTENING THE LINING

Fasteners

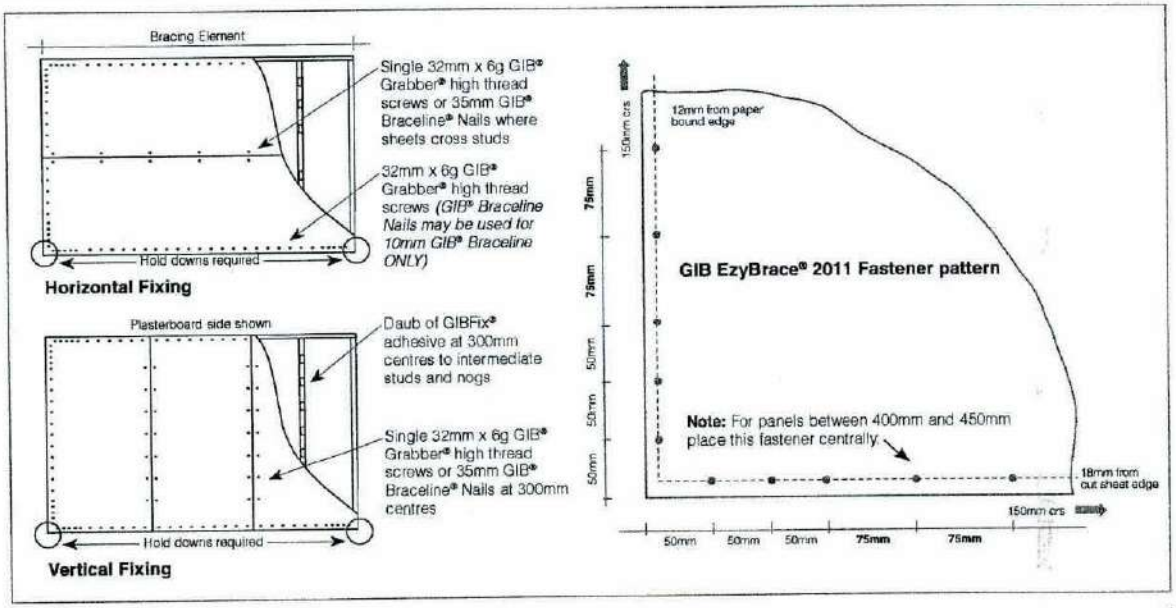
32mm x 6g GIB® Grabber® high thread screws.
(GIB Braceline® Nails may be used with 10mm GIB Braceline® only.)

Fastener centres

50,100,150, 225, 300mm from each corner and 150mm thereafter around the perimeter of the bracing element.
For vertically fixed sheets place fasteners at 300mm centres to the sheet joint.
For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud.
Use daubs of GIB Fix® adhesive at 300mm 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

All fastener heads stopped and all sheet joints paper tape reinforced and stopped in accordance with the GIB® Site Guide.



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This Specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems 2011 and has been appraised in accordance with the BRANZ Appraisal No. 294 (2011).

BRANZ Appraised
Appraisal No.294 [2011]

GIB® Plasterboard Linings

When fixing part sheets of GIB® Plasterboard, a minimum width of 300mm applies for bracing elements. Horizontal fixing is recommended. If fixing vertically, full height sheets shall be used where possible. Where sheet end butt joints are unavoidable they must be formed over nogs or over the studs and fastened at 200mm centres. Alternatively, and preferably, the sheet end butt joints may be back-blocked.

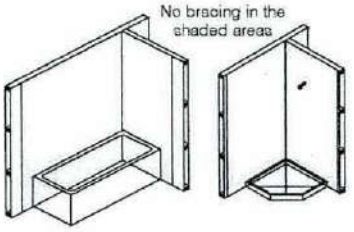
Plasterboard bracing element sheets must be fixed directly to the wall framing, eg bracing must be provided by the inner layer of a multilayer system. When a GIB® bracing element has been designated for a section of wall, BU ratings can not be increased by incorporating additional proprietary bracing elements within that same section of wall.

Limitations

GIB® Plasterboard must be stacked flat and protected from the weather. GIB® Plasterboard must be handled as a finishing material. GIB® Plasterboard in use must not be exposed to liquid water or be installed in situations where extended exposure to humidities above 90% RH can reasonably be expected. GIB EzyBrace® Systems must not be used in showers or behind baths. It is highly recommended not to install GIB® Plasterboard in any situation where external claddings are not in place or the property is not adequately protected from the elements. If GIB® Plasterboard is installed under these conditions, the risk of surface defects such as joint peaking or cracking is greatly increased.

GIB EzyBrace® Systems in Water-Splash Areas

When GIB® Plasterboard is installed in locations likely to be frequently exposed to liquid water it must have an impervious finish. Examples are adhesive fixed acrylic shower linings or ceramic tiles over an approved waterproof membrane over GIB Aqualine®. The NZBC requires 15 years durability in these situations. Bracing elements are required to have a durability of 50 years. Bracing elements are not to be located in shower cubicles or behind baths because of durability requirements, the likelihood of renovation, and practical issues associated with fixing bracing elements to perimeter framing members. Otherwise GIB EzyBrace® Systems can be used in water-splash areas as defined by NZBC Clause E3, provided these are maintained impervious for the life of the building.

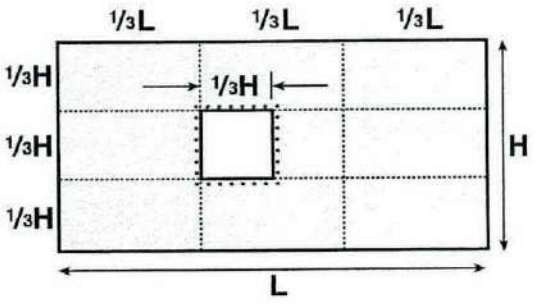


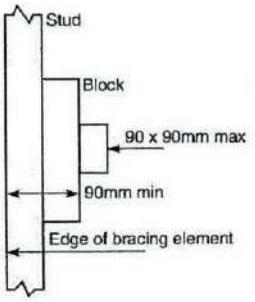
Renovation

When relining walls during the process of renovation, ensure that bracing elements are reinstated (check the building plans).

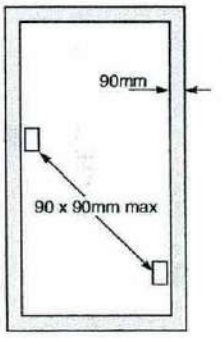
Openings in Bracing Elements

Openings are allowed within the middle third of a wall bracing element's length and height. Neither opening dimension shall be more than one third of the element height. Wall linings are fixed to opening trimmers at 150mm centres. Small openings (e.g., power outlets) of 90 x 90mm or less may be placed no closer than 90mm to the edge of the braced element. A block may need to be provided alongside the perimeter stud as shown below.





Small opening e.g. switch box



Framing

General framing requirements such as grade, spacings and installation shall comply with the New Zealand Building Code and the provisions of NZS 3604:2011. To achieve the published bracing performance the minimum actual framing dimensions are 90 x 35mm for external walls and 70 x 45mm for internal walls. Wall bracing tests on GIB EzyBrace® Systems were undertaken without nogs. Nogs are not considered to add to the bracing performance of the wall.

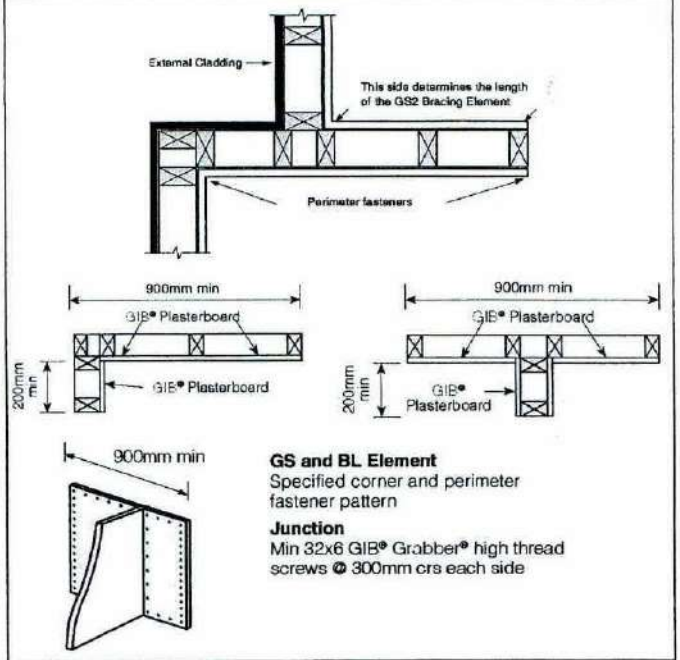
Guidelines for intersection walls

Where the lining on a double lined internal GS2 Bracing Element is shorter on one side, the length of the element is taken as the shorter wall length but bracing fasteners can still follow the wall perimeter on both sides.

GIB® Bracing Elements may have intersecting walls with a minimum length of 200mm. Fasteners are required around the perimeter of the bracing element. Vertical joints at T-junctions shall be fixed and jointed as specified for intermediate sheet joints. **The bracing element length must be no less than 900mm.**

Where a Wall Bracing Element is interrupted by a T or L junction the element is deemed to be continuous for the whole length (900mm in the example illustrated).

When fixing part sheets of GIB® Plasterboard, a minimum width of 300mm applies for bracing elements.



GS and BL Element
Specified corner and perimeter fastener pattern

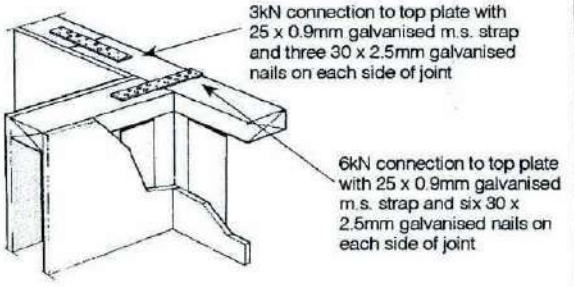
Junction
Min 32x6 GIB® Grabber® high thread screws @ 300mm crs each side

Top Plate Connections

The top plate of a wall that contains one or more wall bracing elements shall be jointed according to the rating of the highest-rated individual wall bracing element as follows:

(a) Rating not exceeding 100 bracing units: A 3kN connection as shown or by an alternative fixing of 3kN capacity in tension or compression along the plate;

(b) Rating exceeding 100 bracing units: A 6kN connection as shown or by an alternative fixing of 6kN capacity tension or compression along the plate.



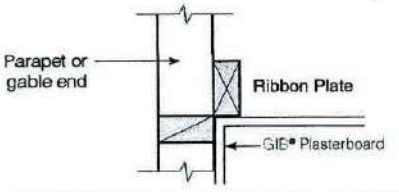
Parapets and Gable End Walls

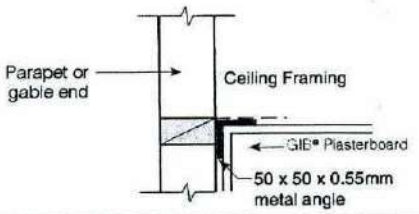
Bracing elements must be fixed from top plate to bottom plate. Fixing to a row of nogs is not acceptable unless either:

A continuous member such as an ex 90x45mm ribbon plate is fixed across the studs just above a row of nogs at the ceiling line.

OR

A minimum 50x50x0.55mm metal angle is installed as shown. The angle is fixed to a row of nogs with 30x2.5mm galv FH nails at 300mm centres.





Bottom Plate Fixing

JUNE 2011

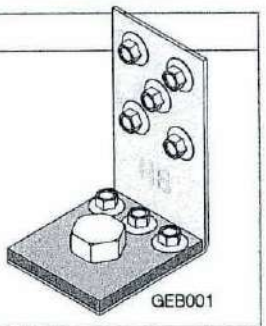
Bottom plate fixings for GIB® Bracing Elements			
Brace type	**Concrete slabs**		**Timber floors**
	External wall	**Internal wall**	**External and Internal walls**
GS1-N	As per NZS 3604:2011. No specific additional fastening required	As per NZS 3604:2011. Alternatively use 75 x 3.8mm shot-fired fasteners with 16mm washers, 150mm and 300mm from each end of the bracing element and at 600mm thereafter.	Pairs of 100 x 3.75mm flat head hand driven nails or 3 / 90 x 3.15mm power driven nails at 600mm centres in accordance with NZS 3604:2011
GS2-N	Not applicable		
GSP-H BL1-H BLP-H	Intermediate fastenings to comply with NZS 3604:2011. In addition: GIB Handibrac® fixings or metal wrap-around strap fixings and bolt as illustrated on pages 19 and 20.		Pairs of 100 x 3.75mm flat head hand driven nails or 3 / 90 x 3.15mm power driven nails at 600mm centres in accordance with NZS 3604:2011. In addition: GIB Handibrac® fixings or metal wrap-around strap fixings and bolt as illustrated below.
BLG-H	Not applicable	As for GSP-N, BL1-H, BLP-H on concrete slab above	

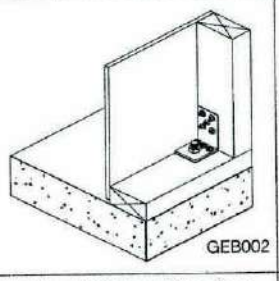
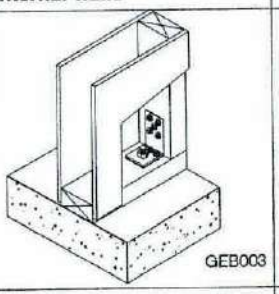
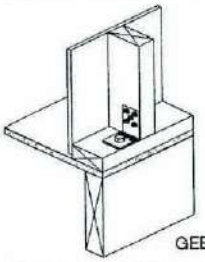
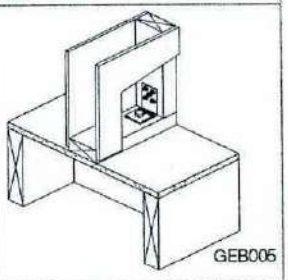
Panel Hold-down Details

GIB HandiBrac® – RECOMMENDED METHOD

Developed in conjunction with MiTek™ NZ, the GIB HandiBrac® has been designed and tested for use as a hold-down in GIB® BL and GSP bracing elements.

- The GIB HandiBrac® registered design provides for quick and easy installation
- The GIB HandiBrac® provides a flush surface for the wall linings because it is fitted inside the framing. There is no need to check in the framing as recommended with conventional straps
- The GIB HandiBrac® is suitable for both new and retrofit construction
- The design also allows for installation and inspection at any stage prior to fitting internal linings

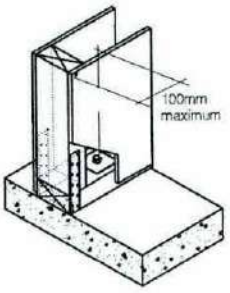
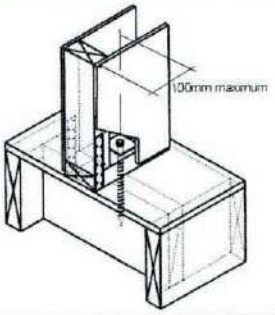
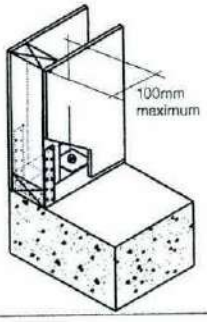
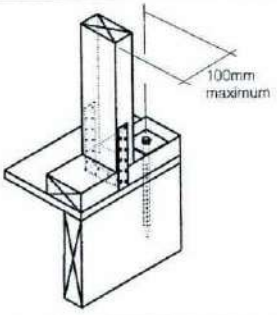
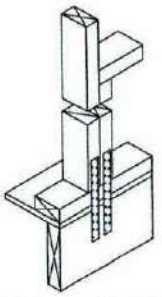

GEB001

Concrete Floor		Timber Floor	
External walls	**Internal walls**	**External walls**	**Internal walls**
 GEB002	 GEB003	 GEB004	 GEB005
Position GIB HandiBrac® as close as practicable to the internal edge of the bottom plate	Position GIB HandiBrac® at the stud / plate junction	Position GIB HandiBrac® in the centre of the perimeter joist or bearer	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.		12x150mm galvanised coach screw	

Refer to gib.co.nz/cad for CAD details.

Panel Hold-down Details

JUNE 2011

Bracing strap Installation	
Care needs to be taken with the installation of the bracing strap. It should be checked in to be flush with the face of the stud providing a flat substrate for the plasterboard. It should be positioned in such a way that the important corner fastenings of the bracing element are not affected by it. Keeping the strap to the edge of the end stud as shown will allow the important corner fastenings to be installed without having to penetrate the bracing strap.	
Concrete Floor	**Timber Floor**
400 x 25 x 0.9mm galvanised strap to pass under the plate and up the other side of the stud. Six 30x2.5mm flat head galvanised nails to each side of the stud. Three 30x2.5mm flat head galvanised nails to each side of the plate. Hold down bolt to be fitted within 100mm of the end of the element.	
Internal wall	
 GEB006	 GEB007
External wall	
 GEB008	 GEB009
NB: where applicable drawings have been produced for CAD design. These are identified by a unique number in the bottom corner of each detail box that can be found at the web address gib.co.nz/cad	2/300 x 25 x 0.9mm galvanised straps with six 30 x 2.5mm flat head galvanised nails to each stud and into the floor joist and three nails to the plate. Block to nog fixed with 3/100 x 3.75mm nails to stud.
	 GEB010
Hold-down fastener requirements	
Concrete floor	**Timber floor**
A mechanical fastening with a minimum characteristic uplift capacity of 15kN fitted with a 50x50x3mm square washer within 100mm of the ends of the bracing element.	12x150mm galvanised coach screw fitted with a 50x50x3mm square washer within 100mm of the ends of the bracing element

Refer to gib.co.nz/cad for CAD details.

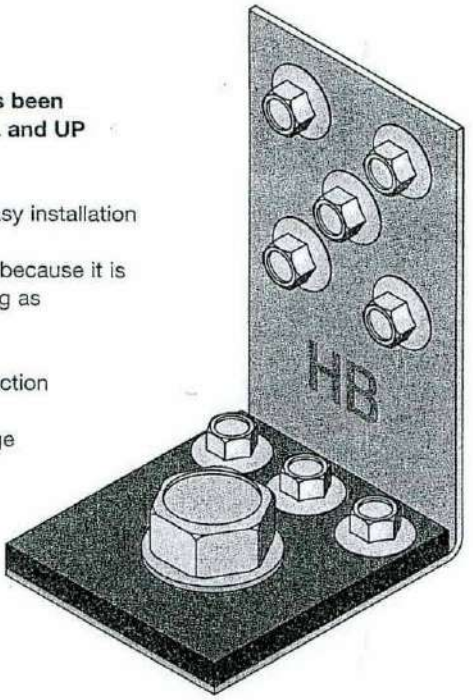
B10

GIB HandiBrac®

Panel Hold-Down Bracket

Developed in conjunction with MiTek™, the GIB HandiBrac® has been designed and tested for use as a hold-down bracket in GIB® BL and UP bracing elements.

- The GIB HandiBrac® registered design provides for quick and easy installation
- The GIB HandiBrac® provides a flush surface for the wall linings because it is fitted inside the framing. There is no need to check in the framing as recommended with conventional straps
- The GIB HandiBrac® is suitable for both new and retrofit construction
- The design also allows for installation and inspection at any stage prior to fitting internal linings



Components

GIB HandiBrac® is available in boxes of 10, each containing 5 pairs.
Components per paired pack include:

- 2 x GIB HandiBrac® Brackets
- 2 x Washers
- 16 x Tek Screws
- 2 x BOWMAC screw bolts included within specific GIB HandiBrac® pack

GIB® Bracing Elements

The GIB HandiBrac® is a proprietary product that has been tested and is suitable for use with specified GIB Ezy Brace® systems.

Fixing to Timber Framed Floors

BOWMAC screw bolt or a 150mm by 12mm diameter galvanised coach screw (with a characteristic uplift strength of 12kN).

Fixing to Concrete Slabs

BOWMAC screw bolt or an alternative proprietary fixing with a characteristic uplift strength of 15kN

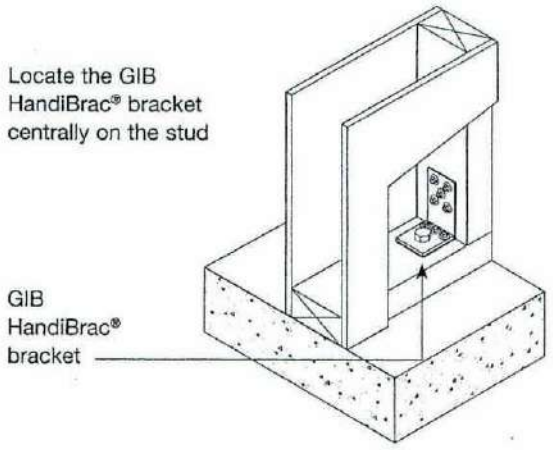
GIB®

MiTek®

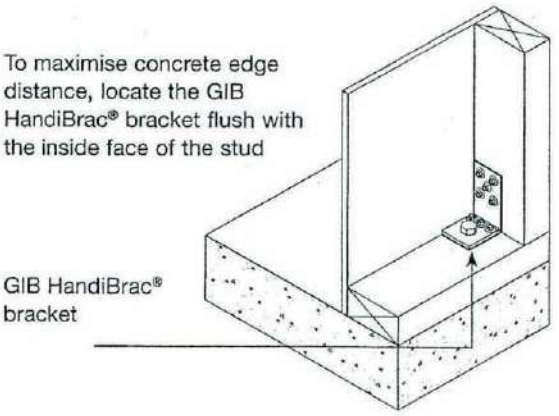
B11

Panel Hold-down Details

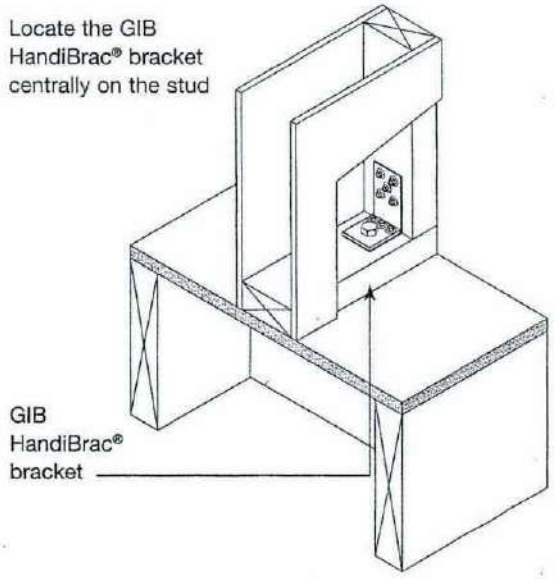
Concrete Floor - Internal Wall
The bottom plate at both ends of the bracing element is fixed using a fastener with a proprietary fixing with a minimum characteristic uplift strength of 15 kN. If included in pack see overleaf instruction to install BOWMAC screw bolt.



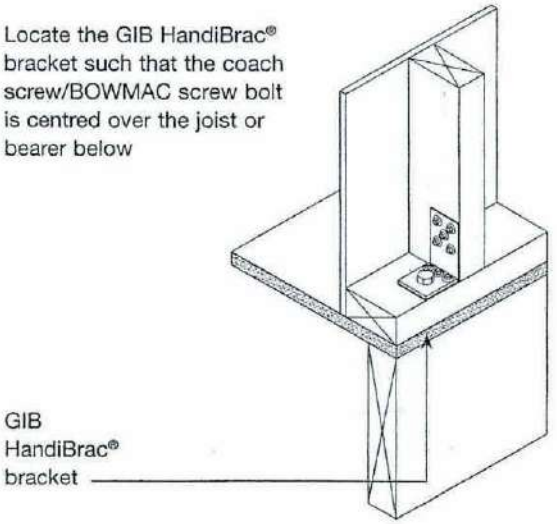
Concrete Floor - External Wall
The bottom plate at both ends of the bracing element is fixed using a fastener with a proprietary fixing with a minimum characteristic uplift strength of 15 kN. If included in pack see overleaf instruction to install BOWMAC screw bolt.



Timber Floor - Internal Wall
Bottom Plate is fixed using a BOWMAC screw bolt (if supplied) or a 150mm by 12mm diameter galvanised coach screw (with a characteristic uplift strength of 12kN). For BOWMAC screw bolt installations see overleaf.



Timber Floor - External Wall
Bottom Plate is fixed using a BOWMAC screw bolt (if supplied) or a 150mm by 12mm diameter galvanised coach screw (with a characteristic uplift strength of 12kN). For BOWMAC screw bolt installations see overleaf.

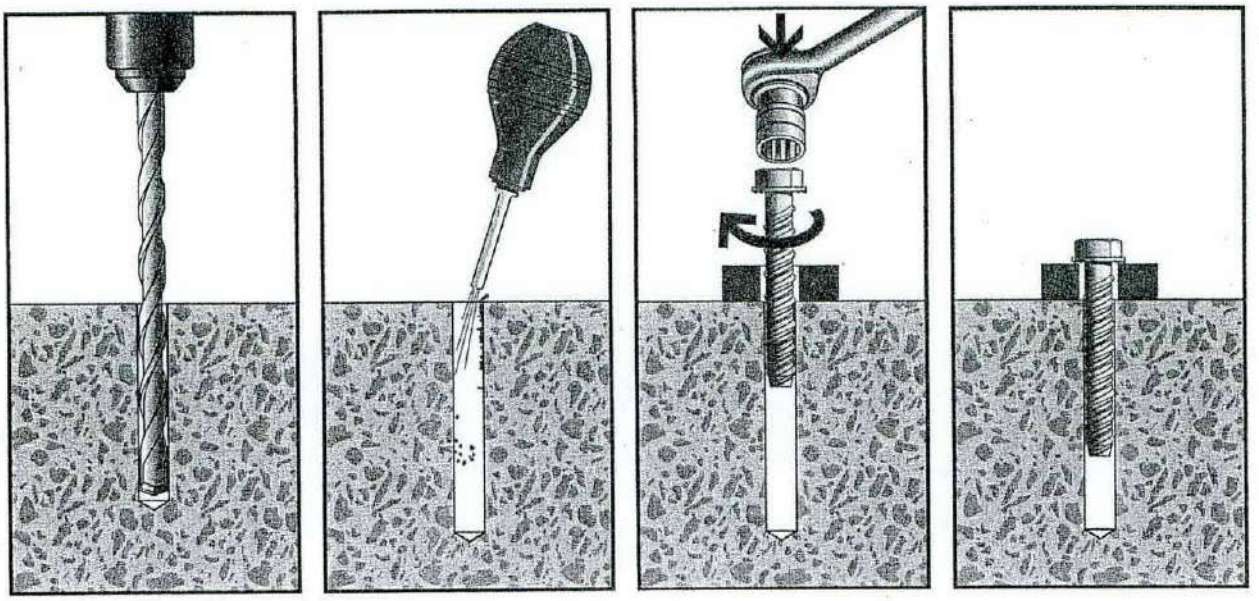


GIB®

MiTek®

Installation of BOWMAC screw bolt (if included in pack)

Suitable for use in timber or masonry base material and achieves the minimum uplift strength



- Use a 10 mm diameter masonry bit for a solid concrete substrate and an 8 mm diameter drill bit for fixing to a timber sub-floor.
- Drill a hole into the base material to depth 8 mm deeper than the required embedment and clean out the hole of dust and debris prior to installation of the BOWMAC screw bolt.
- Insert the bolt through the GIB HandiBrac® plate and bracket and into the hole.
- Begin tightening the bolt by applying forward pressure when engaging the first thread.
- **Additional forward pressure may be required for installation in high strength, dense base materials.**
- Continue tightening the anchor until the head is firmly seated against the GIB HandiBrac® plate.
- In extremely dense material, use of an impact wrench is recommended.
- Be sure the bolt is at the required embedment depth.
- Don't exceed the maximum clamping torque of 80Nm.
- The installation is now complete.

Installation Tips:

- Use quality hexagonal socket with a ratchet spanner
- Where substrate allows, a torque controlled wrench can be used
- During installation debris or dust created by the thread cutting action may cause some resistance to be experienced. This is easily overcome by unscrewing the BOWMAC screw bolt for one turn, or more and then continue to fix to the full embedment.

GIB HandiBrac® is manufactured and distributed by:

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Christchurch Office:
14 Pilkington Way, Wigram, Christchurch 8042, New Zealand
P O Box 8387, Riccarton, New Zealand
Ph: 64-3-348 8691, Fax: 64-3-348 0314
Internet Site: www.miteknz.co.nz

MiTek™

Distributor:

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P O Box 12 256, Penrose 1642, Auckland, New Zealand
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Fax: 64-9-633 0101, Free Fax: 0800 229 222
Email: info@gib.co.nz, Site: www.gib.co.nz

GIB®

02/2011

C1

Table 20: Material selection

This table shall be read in conjunction with Table 21 and Table 22 and Paragraph 4.0.
Refer relevant *cladding* and *flashings* paragraphs for material and coating specifications.
Paragraphs 2.2, 4.2.1, 4.3.3, 4.3.4, 4.3.8, 4.3.10, 8.2.3, 8.2.4, 8.3.4.2, 8.4.3.1, 8.4.3.2, 9.1.10.2, 9.6.3.1, 9.6.3.2, 9.6.6 and 9.8.5

Material	Exposure(1)(2)(4)(6) NOTE: Consider all walls as 'Sheltered' for steel based claddings(8)	Type	Acceptable Exposure Zones as per NZS 3604 – Section 4 (3)(4)(6) 15 years	50 years for hidden elements(2)(9)
CLADDINGS AND FLASHINGS				
Aluminium, zinc	Hidden(2)		B,C,D,E	B,C,D,E
	Exposed		B,C,D,E	
	Sheltered		B,C,D,E	
Copper, lead, or stainless steel	Hidden(2)		B,C,D,E	B,C,D, E
	Exposed		B,C,D,E	
	Sheltered		B,C,D,E	
Factory painted				
Aluminium-zinc coated or galvanised steel to AS/NZS 2728 (includes pre-painted tiles)	Hidden(9)	Type 4	B,C,D,E	B,C,D
	Exposed(8)	Type 6	B,C,D,E	B,C,D,E
	Sheltered	Type 4	B,C,D	
		Type 6	B,C,D,E	
		Type 4	B,C	
		Type 6	B,C,D	
Pressed metal tiles aluminium-zinc coated AZ150 to AS/NZS 2728 with post-form factory painting	Exposed	Type 6	B,C,D,E	
	Sheltered	Type 6	B,C,D	
Non-factory painted				
Aluminium-zinc coated steel AZ150 to AS 1397.	Hidden(9)		B,C,D,E	B,C,D
	Exposed(8)		B,C	
	Sheltered		B	
Galvanised steel Z450 to AS 1397	Hidden(9)		B,C,D	B,C
	Exposed(8)		B,C	
	Sheltered		B	
Non-metallic				
Bituminous material, or uPVC	Hidden		B,C,D,E	B,C,D,E
	Exposed (uPVC only)		B,C,D,E	
	Sheltered (uPVC only)		B,C,D,E	
Butyl rubber	Hidden		B,C,D,E	B,C,D,E
	Exposed		B,C,D,E	
	Sheltered		B,C,D,E	
FIXINGS(7)				
Aluminium, bronze, and stainless steel (Types 304 and 316)(10)	Hidden		B,C,D,E	B,C,D,E
	Exposed		B,C,D,E	
	Sheltered		B,C,D,E	
Nails – Hot-dip galvanised steel to AS/NZS 4680	Hidden(5)(9)		B,C,D	B,C
	Exposed		B,C,	
	Sheltered		B	
Screws – galvanised steel, painted or unpainted, to AS 3566: Part 2	Hidden(5)(9)	Class 3	B,C,D,E(3)(4)	B,C,D,E
	Exposed	Class 4	B,C,D	
	Sheltered	Class 4	B,C	

Amend 5 Aug 2011

Table 20: Material selection – continued

Note:

1) Refer to manufacturer's information for maintenance requirements in Exposed and Sheltered locations.
2) The term "hidden" means concealed behind another element such that no part is visible. Hidden elements require a 50 year *durability* under the *NZBC*. The term "exposed" means having surfaces exposed to rain washing. The term 'sheltered' means being visible, but not rain washed. For diagrammatic outline, refer NZS 3604 Figure 4.3(a). Exposed and sheltered elements require a 15 year *durability*. Where an element can be categorised as both 'sheltered' and 'exposed', the 'sheltered' condition will apply.
3) AS/NZS 2728 lists atmospheric classes derived from ISO 9223 for Australia and New Zealand, determined by exposure to wind-driven sea-spray. NZS 3604 references atmospheric classes B (Low), C (Medium) and D (High). E2/AS1 references atmospheric zones B,C,D,E. For the purposes of *cladding* selection, Zone E (Severe marine classified as breaking surf beach fronts) has been included. Designers must consult metal supplier's information for specific *durability* requirements of sites in Zone E.
4) The geographic limits of atmospheric classes in NZS 3604 and AS/NZS 2728 may vary. Table 20 uses the limits outlined in NZS 3604.
5) Includes fixings protected by putty and an exterior paint system of primer, undercoat and two top coats of paint.
6) Microclimates based on evidence from adjacent structures of corrosion caused by industrial or geothermal atmospheres are outside the scope of this Acceptable Solution.
7) Refer to Tables 21 and 22 for compatibility of fixings with metal *claddings*.
8) *Roof* only. Coated steel *wall claddings* must be considered as 'sheltered'.
9) Hidden steel coated elements in ventilated cavities in zones D and E (exposure to salt air) must be considered as 'sheltered'
10) The use of stainless steel fixings is not recommended by steel manufacturers for use with coated steel in severe marine and industrial environments, as they are considered to cause deterioration.

Amend 5
Aug 2011

Amend 5 Aug 2011

Table 21: Compatibility of materials in contact

This table shall be read in conjunction with Table 20 and Table 22.
Refer relevant *cladding* and *flashings* paragraphs for material and coating specifications.
Paragraphs 2.2, 4.2.2, 4.5.2, 8.2.4, 8.4.11, 8.4.11.1 and 9.6.7

Amend 6 Feb 2014

	Aluminium, anodised or mill-finish	Aluminium, coated (1)	Butyl rubber & EPDM	CCA-treated timber (2)	Cedar	Cement plaster (uncoated)	Ceramic tiles (cement grout)	Clay bricks (cement mortar)	Concrete old (unpainted)	Concrete green (unpainted)	Copper/brass	Glass	Glazed roof tiles	Lead (including lead-edged) unpainted	Plastics	Stainless steel	Steel, galvanised coil-coated	Steel, galvanized (unpainted)	Zinc	Zinc-aluminium-magneisum (combinations), coated (1)	Zinc-aluminium-magnesium (combinations), (unpainted)
Aluminium, anodised or mill-finish	✓	✓	✓	✗	✓	✗	✗	✗	✓	✗	✗	✓	✓	✗	✓	B	✓	✓	✓	✓	✓
Aluminium, coated (1)	✓	✓	✓	B	✓	✗	✗	✗	✓	✗	✗	✓	✓	B	✓	B	✓	✓	✓	✓	✓
Butyl rubber & EDPM	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CCA-treated timber (2)	✗	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	B	✗	✗	B	✗
Cedar	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗
Cement plaster (uncoated)	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗
Ceramic tiles (cement grout)	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗
Clay bricks (cement mortar)	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗
Concrete old (unpainted)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Concrete green (unpainted)	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✗	✗	✗	✗
Copper/brass	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	B	✓	B	✗	✗	✗	✗	✗
Glass	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Glazed roof tiles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lead (including lead-edged) unpainted	✗	B	✓	✓	✓	✗	✓	✓	✓	✗	B	✓	✓	✓	✓	B	B	B	B	B	✗
Plastics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Stainless steel	B	B	✓	✓	✓	✓	✓	✓	✓	✓	B	✓	✓	B	✓	✓	B	✗	✗	B	B
Steel, galvanised coil-coated	✓	✓	✓	B	✓	✓	✓	✓	✓	✗	✗	✓	✓	B	✓	B	✓	✓	✓	✓	✓
Steel, galvanized (unpainted)	✓	✓	✓	✗	✗	✓	✓	✓	✓	✗	✗	✓	✓	B	✓	✗	✓	✓	✓	✓	✓
Zinc	✓	✓	✓	✗	✗	✓	✓	✓	✓	✗	✗	✓	✓	B	✓	✗	✓	✓	✓	✓	✓
Zinc-aluminium-magenesium (combinations), coated (1)	✓	✓	✓	B	✓	✓	✓	✓	✓	✗	✗	✓	✓	B	✓	B	✓	✓	✓	✓	✓
Zinc-aluminium-magnesium (combinations) (unpainted)	✓	✓	✓	✗	✗	✗	✗	✗	✓	✗	✗	✓	✓	✗	✓	B	✓	✓	✓	✓	✓

Amend 6 Feb 2014

LEGEND:

✓ Materials satisfactory in contact.
✗ Contact between materials is not permitted. Minimum gap of 5 mm is required to prevent moisture bridging.
B Avoid contact in sea-spray zone or corrosion zone D.

NOTES:

(1) Coated – includes factory-painted, coil-coated and powder-coated.
(2) Includes copper azole and copper quaternary salts.

Amend 2 Jul 2005

C1c

Amend 5 Aug 2011

Table 22: Compatibility of materials subject to run-off

This table shall be read in conjunction with Table 20 and Table 21.
Refer relevant *cladding* and *flashings* paragraphs for material and coating specifications.
Paragraphs 2.2, 4.2.2, 4.5.2, 8.2.4, 8.4.1 and 9.8.5.

Material that water flows onto / Material that water flows from	Aluminium, anodised or mill-finish	Aluminium, coated (1)	Butyl rubber & EPDM	CCA-treated timber (2)	Cedar	Cement plaster (uncoated)	Ceramic tiles (cement grout)	Clay bricks (cement mortar)	Concrete old (unpainted)	Concrete green (unpainted)	Copper/brass	Glass	Glazed roof tiles	Lead (including lead-edged) unpainted	Plastics	Stainless steel	Steel, galvanised coil-coated	Steel, galvanized (unpainted)	Zinc	Zinc-aluminium-magneisum (combinations), coated (1)	Zinc-aluminium-magnesium (combinations), (unpainted)
Aluminium, anodised or mill-finish	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✘	✘	✓	✓
Aluminium, coated (1)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✘	✘	✓	✘
Butyl rubber & EDPM	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✘	✘	✓	✘
CCA-treated timber (2)	✘	✘	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✘	✘	✘	✘	✘
Cedar	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✘	✘	✓	✘
Cement plaster (uncoated)	✘	✘	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✘	✓	✓	✓	✘	✘	✓	✘
Ceramic tiles (cement grout)	✘	✘	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✘	✘	✓	✘
Clay bricks (cement mortar)	✘	✘	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✘	✘	✓	✘
Concrete old (unpainted)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓
Concrete green (unpainted)	✘	✘	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✘	✓	✓	✘	✘	✘	✘	✘
Copper/brass	✘	✘	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✘	✘	✘	✘	✘
Glass	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✘	✘	✓	✓
Glazed roof tiles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✘	✘	✓	✓
Lead (including lead-edged) unpainted	✘	✘	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✘
Plastics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✘	✘	✓	✓
Stainless steel	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✘	✘	✓	✓
Steel, galvanised coil-coated	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✘	✘	✓	✓
Steel, galvanized (unpainted)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Zinc	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Zinc-aluminium-magenesium (combinations), coated (1)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✘	✘	✓	✓
Zinc-aluminium-magnesium (combinations) (unpainted)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✘	✘	✓	✓

Amend 6 Feb 2014

Amend 6 Feb 2014

LEGEND:

✓ Materials satisfactory with water run-off as indicated.
✘ Water run-off is not permitted as indicated.
A Etching or staining of glass may occur with run-off.

NOTES:

(1) Coated – includes factory-painted, coil-coated and powder-coated.

(2) Includes copper azole and copper quaternary salts.

Amend 2 Jul 2005

C1d

Table 23: Properties of roof underlays and building wraps
Paragraphs 6.2, 8.1.5, 8.2.3, 8.3.6, 8.4.7, 9.1.3.4, 9.1.4, 9.1.7.1, 9.1.7.2, 9.1.8.2, 9.2.4, 9.2.5, 9.3.3, 9.3.5.1, 9.4.2, 9.4.3, 9.5.3, 9.6.8.1, 9.6.9.1, 9.6.9.2, 9.7.2.1, 9.8.3 and 9.9.4

Category	Application	Vapour resistance	Absorbency	Water resistance	pH of extract	Shrinkage	Mechanical
Roof (1) Underlay (Bitumen and fire-retardant paper-based products)(2)	All *roofs*	≤ 7 MN s/g ASTM E96 B.	NZS 2295: 2006 section 3				
Flexible Wall Underlay (Includes paper and synthetic underlays)	*Wall claddings* over a cavity(6) Flexible *underlays* over rigid *underlays* – refer Paragraph 9.1.7 (h)		NZS 2295: 2006 section 2 No minimum Absorbency requirement				
	Direct fixed absorbent *wall claddings*(4) (eg, timber, fibre cement etc)						
	Direct fixed non-absorbent *claddings*(3)		NZS 2295: 2006 section 2 Minimum Absorbency 100 g/m² tested to NZS 2295				
Rigid Wall Underlay (plywood(5) and fibre cement sheet)	*Wall claddings* over a cavity(6) *Direct fixed* absorbent *wall claddings* (eg, timber, fibre cement etc)	≤ 7 MN s/g ASTM E96 B.		≥ 20 mm NZS 2295			
	Direct fixed non-absorbent *claddings* (6)	≤ 7 MN s/g ASTM E96 B.	≥ 100 g/m² AS/NZS 4201: Part 6	≥ 20 mm AS/NZS 4201: part 4	≥ 6.0 and ≤ 9.0		
Air Barrier	Where no internal *linings*	≤ 7 MN s/g ASTM E96 B.	≥ 100 g/m² (7) NZS 2295	≥ 20 mm NZS 2295	≥ 6.0 and ≤ 9.0	≤ 0.5% NZS 2295	Edge tear strength NZS 2295 Air resistance BS 6538: Part 3: ≥ 0.1 MN s/m³
DPC/DPM	All applications	≥ 90 MN s/g ASTM E96					

NOTE:
1) Metal *roofs* and *direct-fixed* metal *wall claddings* require paper-based *underlays*
2) Excluding synthetic *underlays*
3) Use paper based *underlays* where directly behind (in contact with) profiled metal *wall cladding*
4) Excludes profiled metal *wall cladding*
5) Plywood to be treated in accordance with NZS 3602
6) Bitumen based products shall not be used in direct contact with LOSP-treated plywood
7) Applies only to air barriers used with non-absorbent *claddings*.

Amend 5 Aug 2011

Amends 2 and 5

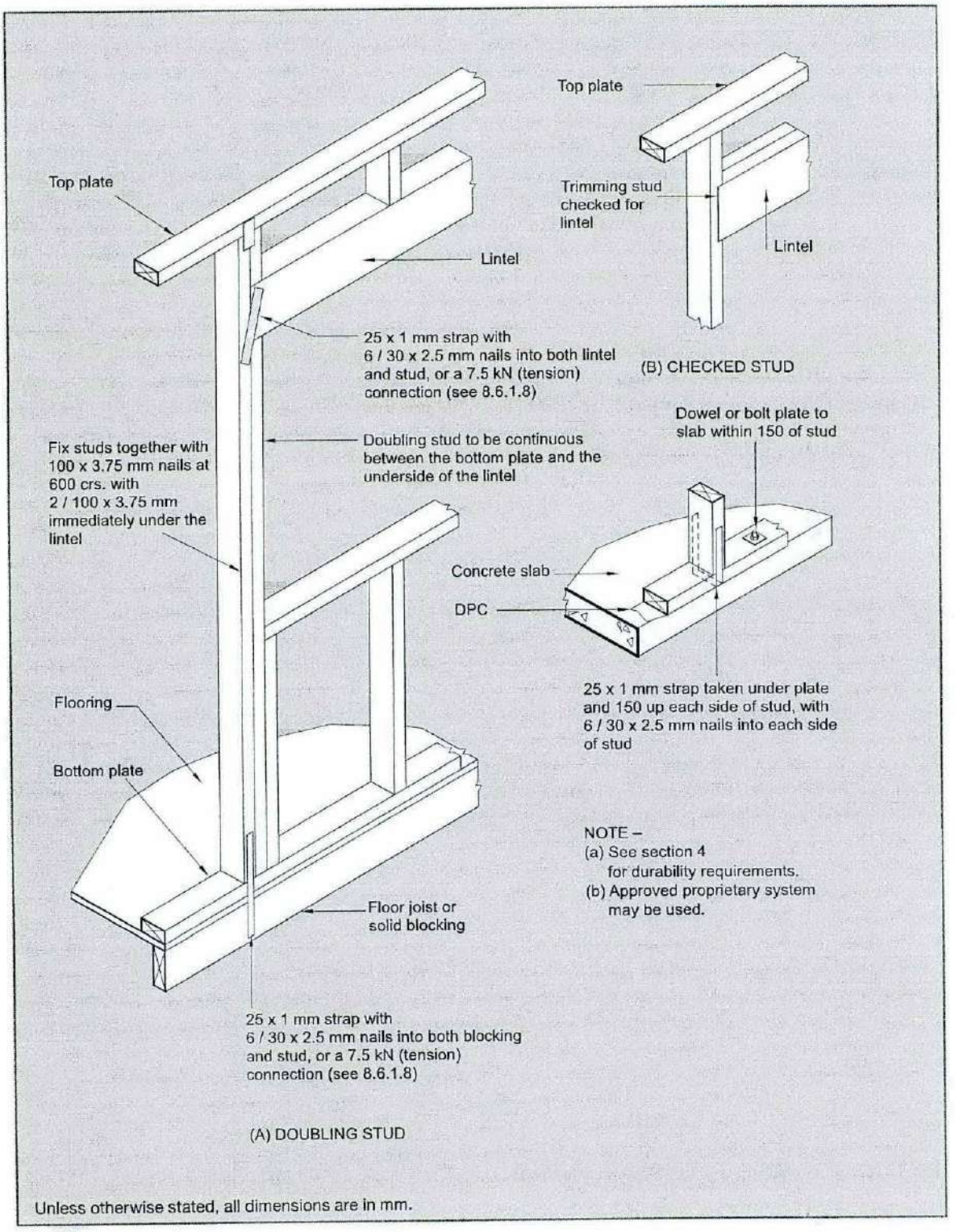


Figure 8.12 – Lintel fixing to prevent uplift (see 8.6.1.8 and table 8.14 (a) and (b))

Amend 5 Aug 2011

Table 24: Fixing selection for wall claddings

Refer to NZS 3604 for fixing types where claddings act as structural bracing. Minimum fixing materials for non-structural claddings, shall be galvanised(1) steel for climate zones B,C and D (as outlined in NZS 3604). Where the cladding is a corrosive timber, such as western red cedar or redwood, or is treated with copper based ACQ or CuAz preservatives, use stainless steel(2).

COMMENT: Some manufacturers may require more durable fixings than those stated below or in NZS 3604 to maintain product warranties.

Paragraphs 9.4.4.3, 9.4.5.2, 9.5.3.1, 9.7.2.1, 9.8.3.1, 9.9.4.1, Table 18B

Joint	Length (mm) x diameter (mm) and type	Minimum framing penetration	Fixing pattern	Requirements
Cavity battens				
Battens to *framing*	NA	NA	NA	Battens will be fixed by the *cladding* fixings, which will penetrate the wall *framing*. Battens will therefore need only temporary fixing until the *cladding* is fixed.
Stucco plaster				
Rigid backing to *framing*	60 x 2.5 FH nail	35 mm	150 mm centres to sides and 300 mm centres in middle	
Metal lath to *framing*	40 x 2.5 FH nail or 40 x 2.8 FH nail	35 mm	150 mm centres	
Fibre cement weatherboards				
Weatherboard DIRECT FIXED	50 x 2.8 fibre cement nail	35 mm	Single fixing 20 mm above lower board, through both thicknesses	
Weatherboard OVER CAVITY	75 x 3.15 fibre cement nail	35 mm	as above	
Timber weatherboards: paint finish DIRECT FIXED				
Horizontal bevel-back	75 x 3.15 JH nail	35 mm	Single fixing 10 mm above top of lower board	
Horizontal rebated bevel-back	60 x 2.8 JH nail	35 mm	as above	
Horizontal rusticated	60 x 2.8 JH nail	35 mm	as above	
Vertical shiplap	60 x 2.8 JH nail	35 mm	Single fixing 10 mm from side lap (40 mm from edge of board)	*Dwangs* at maximum 480 mm centres.
Board and batten: board	60 x 2.8 JH nail	35 mm	Single fixing in centre or nails clenched over each side	as above
Board and batten: batten	75 x 3.15 JH nail	35 mm	Single fixing in centre of batten	as above
Timber weatherboards: paint finish OVER CAVITY				
Horizontal bevel-back	90 x 4.0 JH nail	35 mm	Single fixing 10 mm above top of lower board	
Amend 5 Aug 2011				
Amend 2 Jul 2005	75 x 3.15 annular grooved nail	25 mm	Single fixing 10 mm above top of lower board	
Horizontal rebated bevel-back	75 x 3.15 JH nail	35 mm	as above	

LEGEND:
RH rose head JH jolt head FH flat head

NOTE: Nail lengths are designed for minimum penetration of *framing*. If thickness of the batten or *cladding* is varied, length shall be adjusted accordingly.

Table 24: Fixing selection for wall claddings *(continued)*

Joint	Length (mm) x diameter (mm) and type	Minimum framing penetration	Fixing pattern	Requirements
Horizontal rusticated	75 x 3.15 JH nail	35 mm	Single fixing 10 mm above top of lower board	
Timber weatherboards: stained or bare finish DIRECT FIXED				
Horizontal bevel-back	65 x 3.2 RH annular grooved nail	30 mm	Single fixing 10 mm above top of lower board	
Horizontal rebated bevel-back	50 x 3.2 RH annular grooved nail	30 mm	as above	
Horizontal rusticated	50 x 3.2 RH annular grooved nail	30 mm	as above	
Vertical shiplap	50 x 3.2 RH annular grooved nail	30 mm	Single fixing 10 mm from side lap (40 mm from edge of board)	*Dwangs* at maximum 480 mm centres
Board and batten: board	60 x 3.2 RH annular grooved nail	30 mm	Single fixing in centre of board	as above
Board and batten: batten	75 x 3.2 RH annular grooved nail	30 mm	as above	as above
Timber weatherboards: stained or bare finish OVER CAVITY				
Horizontal bevel-back	85 x 3.2 RH annular grooved nail	30 mm	Single fixing 10 mm above top of lower board	
Horizontal rebated bevel-back	70 x 3.2 RH annular grooved nail	30 mm	as above	
Horizontal rusticated	70 x 3.2 RH annular grooved nail	30 mm	as above	
Vertical profiled metal: DIRECT FIXED				**Refer Paragraph 9.6.6**
Horizontal profiled metal: OVER CAVITY				**Refer Paragraph 9.6.6**
Plywood sheet: paint finish DIRECT FIXED				
Plywood to stud or batten	50 x 2.8 FH nail	30 mm	150 mm centres to sides, 300 mm centres in middle	
External cover batten	65 x 3.2 RH annular grooved nail	30 mm	300 mm centres in centre of batten	
Plywood sheet: paint finish OVER CAVITY				
Plywood	60 x 2.8 FH nail	30 mm	150 mm centres to sides, 300 mm centres in middle	
Cover batten	60 x 2.8 JH nail	To *cavity battens* only	300 mm centres in centre of batten	
Plywood sheet: stained or bare finish DIRECT FIXED				
Plywood to *stud* or batten	50 x 2.8 FH nail	30 mm	150 mm centres to sides, 300 mm centres in middle	
External cover batten	65 x 3.2 RH annular grooved nail	30 mm	300 mm centres in centre of batten	

LEGEND:
RH rose head JH jolt head FH flat head

NOTE: Nail lengths are designed for minimum penetration of *framing*. If thickness of the batten or *cladding* or *underlay* is varied, length shall be adjusted accordingly.

Amend 2 Jul 2005

Amend 5 Aug 2011

Amend 2 Jul 2005

Amend 5 Aug 2011

Amend 5 Aug 2011

Table 24: Fixing selection for wall claddings *(continued)*

Joint	Length (mm) x diameter (mm) and type	Minimum framing penetration	Fixing pattern	Requirements
Plywood sheet: stained or bare finish OVER CAVITY				
Amend 5 Aug 2011 | Plywood	65 x 3.2 FH nail	30 mm	150 mm centres to sides, 300 mm centres in middle	
External cover batten	65 x 3.2 RH annular grooved nail	To *cavity battens* only	300 mm centres in centre of batten	
Amend 5 Aug 2011 | **Fibre cement sheet: jointed DIRECT FIXED**				
Amend 2 Jul 2005 | Sheet	40 x 2.8 fibre cement nail	30 mm	150 mm centres to sides, 300 mm centres in middle	
External cover batten	65 x 3.15 JH nail	30 mm	Single fixing in centre of batten	
Amend 5 Aug 2011 | **Fibre cement sheet: jointed OVER CAVITY**				
Amend 2 Jul 2005 | Sheet	60 x 3.15 fibre cement nail	30 mm	150 mm centres to sides, 300 mm centres in middle	
External cover batten	65 x 3.15 JH nail	To *cavity battens* only	Single fixing in centre of batten	
Fibre cement sheet: flush-finish				
Amend 2 Jul 2005 | OVER CAVITY	60 x 3.15 fibre cement nail		as above	
EIFS				
40 mm polystyrene sheet OVER CAVITY	90 x 4.0 nail	30 mm	as above and with 40 mm plastic washers on external corner fixings	

Amend 5 Aug 2011

LEGEND:
RH rose head JH jolt head FH flat head

NOTE: 1. Galvanised nails shall be hot-dipped galvanised; galvanised screws shall be mechanically zinc plated in accordance with AS 3566 Class 4.

2. Stainless steel nails shall have annular grooves to provide similar withdrawal resistance to hot-dip galvanised nails.

Amend 5 Aug 2011

F10

FLITCH BEAM

GANG-NAIL®

Producer Statement

Producer Statement - PS1 - Design

ISSUED BY: MiTek New Zealand Limited

TO BE SUPPLIED TO: Building Consent Authorities in New Zealand

IN RESPECT OF: GANG-NAIL FLITCH BEAM Design Manual, 12/2007

AT: Various Locations in New Zealand

MiTek New Zealand Limited has provided engineering design services in respect of the requirements of Clause B1 of the NZ Building Code for

☐ All ☒ Part only as specified – GANG-NAIL FLITCH BEAM

of the proposed building work.

The selection charts within this design manual have been prepared in accordance with Compliance Documents and Verification Method B1/VM1 of the NZ Building Code and in accordance with sound and widely accepted engineering principles.

On behalf of MiTek New Zealand Limited, and subject to:

1. The verification of the design assumptions within this manual
2. All proprietary products meeting their performance specification requirements;

I believe on reasonable grounds that the use of GANG-NAIL FLITCH BEAM in the proposed building, if constructed in accordance with the drawings, specifications and other documents provided, will comply with the relevant provisions of the Building Code.

MiTek New Zealand Limited holds a current policy of Professional Indemnity Insurance of not less than $500,000.

On behalf of MiTek New Zealand Limited

Date: January 2010

In Ling Ng
Technical Services Manager
BE (Hons), CPEng, IntPE
MIPENZ (ID: 146585)

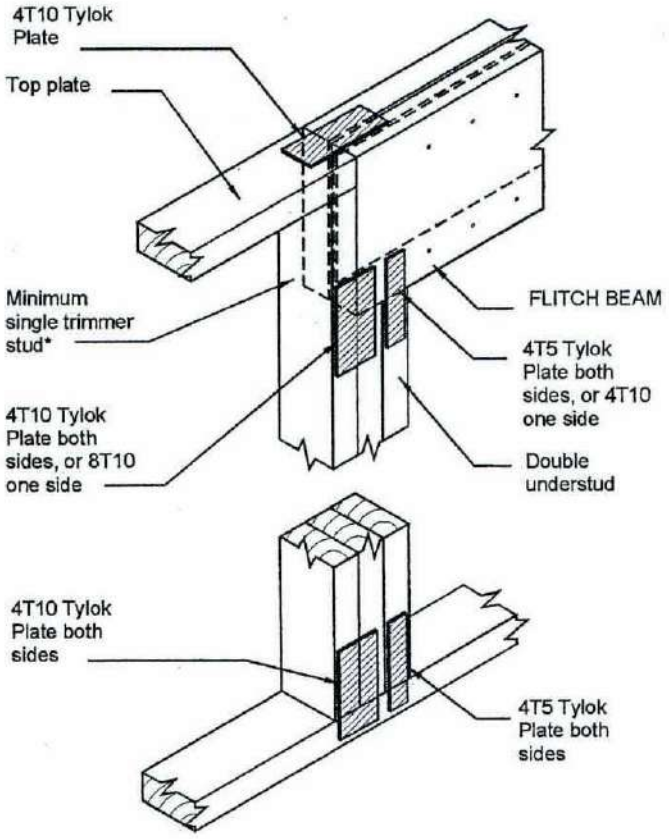
MiTek New Zealand Limited
AUCKLAND: 40 Neales Road, East Tamaki 2013 PO Box 58-014, Botany 2163 Ph: 09-274 7109 Fax: 09-274 7100
CHRISTCHURCH: 14 Pilkington Way, Wigram 8042 PO Box 8387, Riccarton 8440 Ph: 03-348 8691 Fax: 03-348 0314

MiTek™

FLITCH BEAM

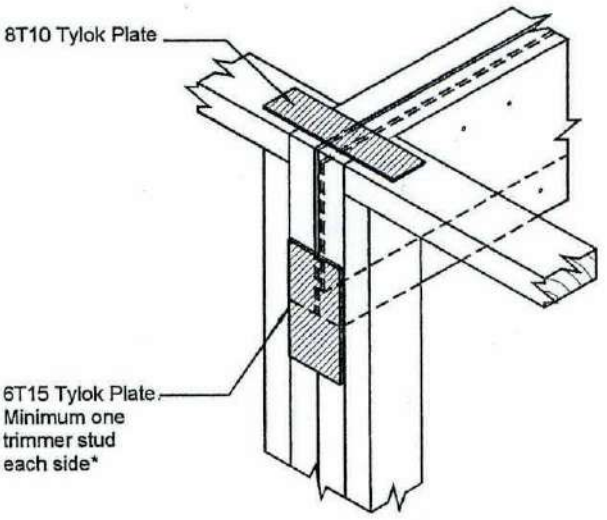
GANG-NAIL®

Fixing and Support Details

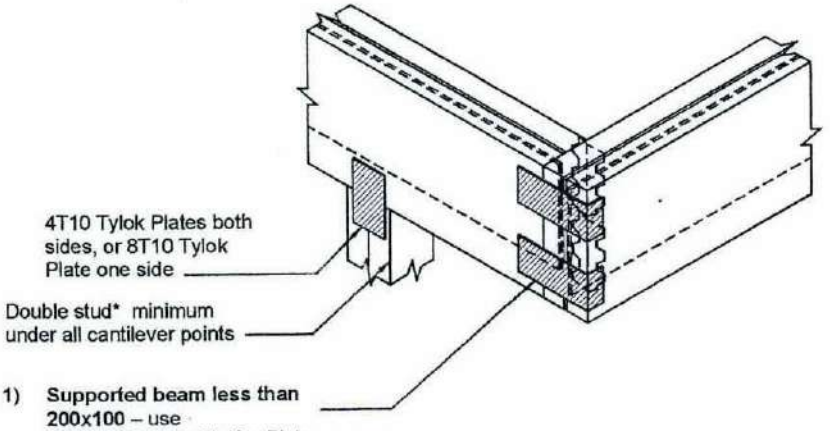


Simply Supported Beam

* Refer NZS3604:1999 Section 8.5.2 for trimming stud requirements.



Beam Pocket



1) **Supported beam less than 200x100** – use 1/200x110x1mm Nailon Plate and 1 Multigrip on the inside.
2) **Supported beam 200x100 or larger** – use 2/200x110x1mm Nailon Plates and 2 Multigrips on the inside.

Cantilever Beam

5113G GIB® PLASTERBOARD LININGS

1. GENERAL

This section relates to the supply, fixing and jointing of GIB® plasterboard linings and accessories to timber and steel framed walls and ceilings to form:

- standard systems
- superior finish quality systems
- bracing systems
- fire rated garage boundary wall systems
- wet area systems

1.1 RELATED SECTIONS

Refer to GIB® PLASTERBOARD FIRE & SOUND LININGS for performance wall linings

1.2 ABBREVIATIONS

The following abbreviations are used throughout this part of the specification:

AWCINZ	Association of Wall and Ceiling Industries New Zealand

Documents

1.3 DOCUMENTS REFERRED TO

Documents referred to in this section are:

NZBC E2/AS1	External moisture
AS 1397	Steel sheet and strip - hot-dipped, zinc-coated, or aluminium/zinc-coated
AS/NZS 2588	Gypsum plasterboard
AS/NZS 2589	Gypsum linings - Application and finishing
NZS 3604	Timber framed buildings
AS/NZS 4600	Cold-formed steel structures

BRANZ technical paper P21: A wall bracing test and evaluation procedure

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

1.4 MANUFACTURER'S DOCUMENTS

Manufacturer's and supplier's documents which refer to work in this section are:

GIB® Site Guide (May 2006)
GIB Ultraline® Plus lining system (February 2006)
GIB® Noise Control Systems (March 2006)
GIB® Sound Barrier® Noise control system for Floors (July 2002)
GIB Aqualine® Wet Area Systems (March 2007)
GIB® Ezybrace Systems (April 2009)
GIB® Residential Garage Boundary Walls (March 2009)
GIB® Rondo® Metal Ceiling Batten Systems
GIB-Cove®
GIB® Goldline™ Platinum Tape-on Trims
GIB® UltraFlex high impact corner mould

BRANZ Appraisal 294 - GIB® Ezybrace Systems
BRANZ Appraisal 324 - GIB Ultraline® Plus Lining Systems
BRANZ Appraisal 427 - GIB Aqualine® Wet Area Systems
BRANZ Appraisal 97/008 - Standard 10 and 13mm GIB® plasterboard

Copies of the above literature are available at

Web:	www.gib.co.nz
Telephone:	0800 100 442

Requirements

1.5 NO SUBSTITUTIONS

Substitutions are not permitted to any specified GIB® systems, GIB® system components, GIB® plasterboard, associated GIB® products or GIB® accessories.

1.6 INSTALLER WORK SKILLS AND QUALIFICATIONS
GIB® plasterboard fixers and plasterers to be experienced competent workers, familiar with GIB® plasterboard lining systems installation and finishing techniques. Submit evidence of experience on request. For example:
- National Certificate of Interior Systems; or
- Certified Business member of AWCINZ.

Performance

1.7 INSPECTIONS AND ACCEPTANCE
Allow for inspection of the finished plasterboard surface:
- before applying sealer and
- before applying finish coatings or decorative papers,
so that after assessment of the type and/or angle of illumination and its effect on the completed decorative treatment, group approval and acceptance of the surface can be given.

1.8 FIRE RATING REQUIREMENTS
Provide the GIB® fire resistant rated garage boundary wall systems. Refer to SELECTIONS for system/FRR.

1.9 SOUND INSULATION REQUIREMENTS
Provide the GIB® Noise Control Systems. Refer to SELECTIONS for system/STC. Include for forming and treating of perimeters of openings and penetrations in the elements to ensure the specified performance. Ensure absence of adjoining flanking paths.

1.10 BRACING REQUIREMENTS
Provide braced wall systems using GIB® Ezybrace Systems to meet the requirements of NZS 3604 when tested to BRANZ Technical paper P21. Refer to drawings for location and type.

2. PRODUCTS

Materials

2.1 GIB® PLASTERBOARD
Gypsum plaster core encased in a face and backing paper formed for standard and water resistance use to AS/NZS 2588. Refer to SELECTIONS for location, type, thickness and finish.
GIB® Standard plasterboard
GIB® Wideline plasterboard
GIB Ultraline® and/or GIB® Ultraline PLUS high quality surface plasterboard
GIB Fyreline® fire resistant plasterboard
GIB Braceline® & GIB® Noiseline dual purpose wall bracing & noise control plasterboard
GIB Aqualine® wet area plasterboard
GIB Toughrock® Aqua Impact Resistant Gypsum lining
GIB Sound Barrier® Timber - Acoustic Overlay for Floors

2.2 CORNICE
GIB-Cove® plasterboard cornice. Refer to SELECTIONS for profile and size.

Components

2.3 CEILING BATTENS
GIB® Rondo® metal ceiling battens, batten joiners and perimeter channel.

2.4 SCREWS
GIB® Grabber® drywall screws.

2.5 NAILS
GIB® Nails (gold passivated).

a·d·cochrane adc

architectural design

A.D.Cochrane Design & Draw Limited
P.O. Box 3209, Richmond
PH/Fax 64 3 544 0799
Email: design77@ihug.co.nz
28/04/16

TO: TASMAN DISTRICT COUNCIL BUILDING CONSENTS DEPARTMENT
PRIVATE BAG 4
RICHMOND 7050

ATTEN:

RE: AMENDMENTS TO BC FOR CCC
FOR: HA Keogan – New Dwelling
AT: 62 Pitfure Road, Wakefield.
BC No. BC140191

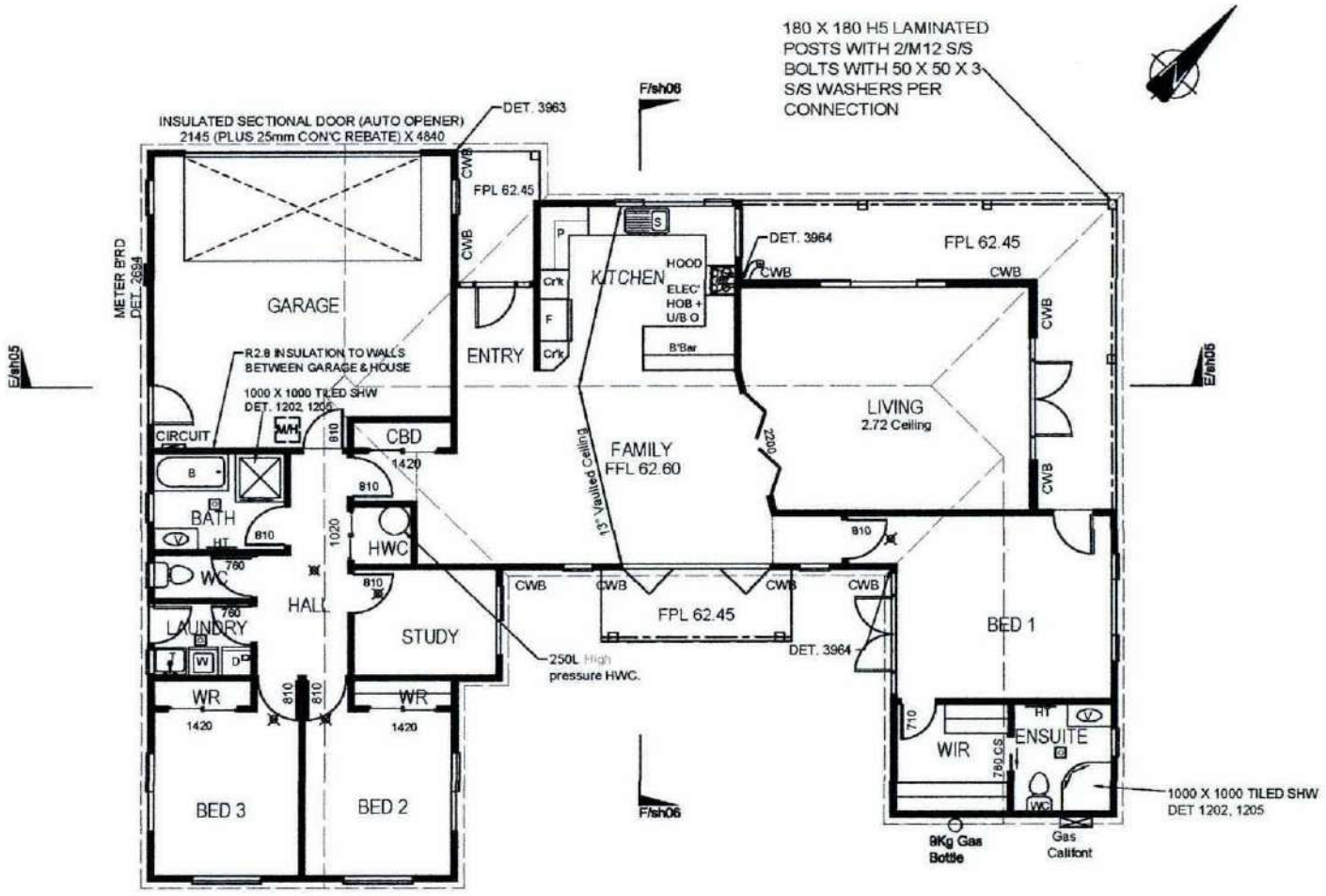
Amendments list:

1. Rear veranda roof has been changed from 3 degrees butynol to 4 degrees 5 Rib c/s roofing. Detail 2537 has been added. Detail 3960 is deleted.
2. Freestanding Fire & wetback have been deleted. Detail 3567 is deleted.
3. HWC has been changed to High Pressure.
4. Skylight over Kitchen/Dining area has been deleted. Detail 2784 is deleted.
5. Fan vents in Bathroom & Ensuite have been deleted.

Altered plan sheets & new pdf detail attached.
Alterations highlighted.
Kind Regards
Anton

NOTES:

01. Site check all window & door rough opening frame sizes on site before manufacturing windows.
02. All window sizes shown are rough opening sizes. Allow for shim, air seal & flashing space both ways.
03. F Install ceiling fans/range hood vented to exterior through soffit.
    Mechanical ventilation to comply with NZBC sections E2, E3 & G4.
04. Ⓢ Type 1 Domestic interconnected Smoke alarm to be installed as per NZBC F7/AS1, with hush facility allowing minimum duration of 60 seconds & test facility.
05. Ⓕ Floor waste installed as per G13/AS1 clause 3.4.3 (c)
06. H.W.C. copper drain pipe (min 20mm) to finish over external gully trap & comply with NZBC G12/As1 6.7.2
07. H.W.C. to be seismically restrained & have a tempering valve to the hot water line before services complying with NZBC.
08. 'Tiled' showers where noted on floor plan to be read in conjunction with details 1202, 1205 & water proof membrane manufacturers details. See detail M13 in specifications for plumbing penetrations.
09. Pre-wire house for security system.
10. HT Install energy saving Skope Smart-timer for each heated towel rail.
11. Install Cat7 Ethernet cabling or better, 'star wired' so that it travels out from a central point with dedicated cabling to most rooms complying with 'TCF Premises Wiring Code of Practice'.
    Install wiring so it can provide an open, flexible platform for the communication and entertainment needs of the modern "smart home" & provide good long-term performance and reliability for the home owner.
12. 9Kg Gas Cylinder on 50mm concrete paving. Install seismic restraint by chain & hooks secured to the building structure complying with NZBC & Gas Regulations 1993.



DESIGN BASIS.

Wind Zone:	High
Earthquake Zone:	2
Snow Zone:	N3 (<400 = 1kPa)
Exposure Zone:	B

Design Standards: NZ Building Code / approved documents & means of compliance, including NZS 3604

FLOOR PLAN 1 : 100

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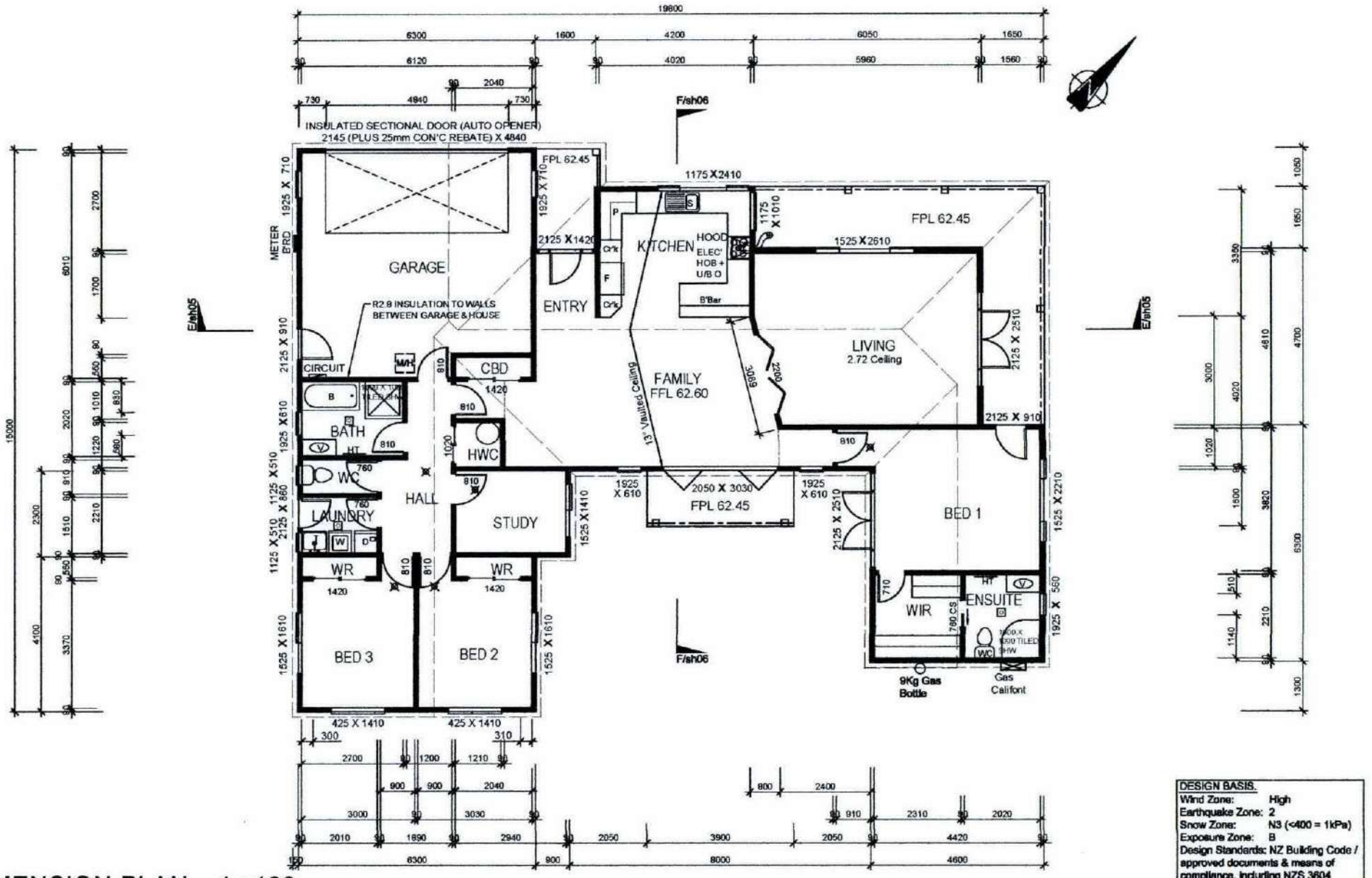
P.O BOX 3209, RICHMOND NELSON
A.D. COCHRANE DESIGN & DRAW

RADFORD II 25/850
HA. KEOGAN
LOT: 3. DP. 464445
62 PITFURE ROAD, WAKEFIELD

All dimensions & levels to be site checked by contractor before commencement of work. Contractor to report any discrepancy.

DESIGNED A.D.C	DRAWN K.M.G	SHEET 01 OF 11
DATE MAR 2014	AREA TOTAL 198.55 m sq / ft sq	
AMENDED 28/04/15	SCALE (A3) 1:100	



DIMENSION PLAN 1 : 100

DESIGN BASIS.

Wind Zone:	High
Earthquake Zone:	2
Snow Zone:	N3 (<400 = 1kPa)
Exposure Zone:	B

Design Standards: NZ Building Code / approved documents & means of compliance, including NZS 3604

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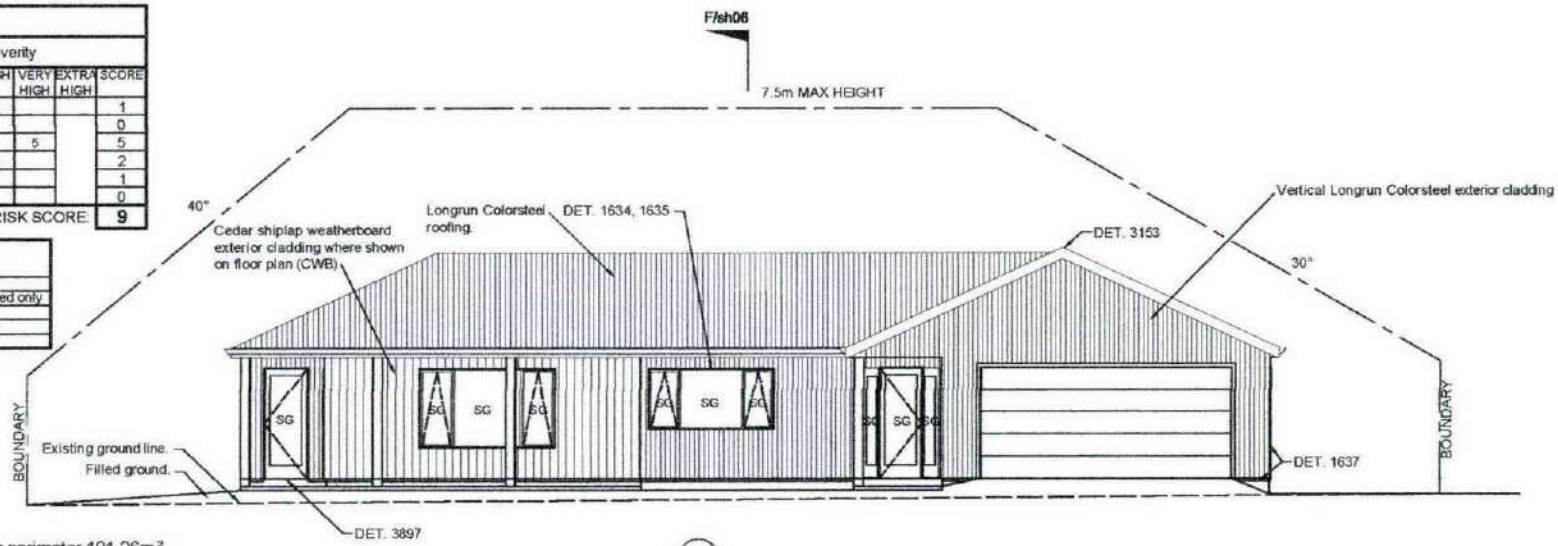
HA. KEOGAN
LOT: 3. DP. 464445
62 PITFURE ROAD, WAKEFIELD

All dimensions & levels to be site checked by contractor before commencement of work. Contractor to report any discrepancy.

DESIGNED A.D.C	DRAWN K.M.G	SHEET	
DATE MAR 2014	AREA TOTAL 198.55 m² (GF) m² (FF)	02 OF 11	
AMENDED 28/04/16	SCALE (A3) 1:100		

Table 2: Building envelope risk matrix NZBC E2						
Highest risk score used for all walls (E2/3.1.2)	Risk severity					
Risk Factor	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH	SCORE
Wind zone (per NZS 3604)			1			1
Number of storeys	0					0
Roof/wall intersection design				5		5
Eaves width			2			2
Envelope complexity		1				1
Deck design	0					0
TOTAL RISK SCORE:						9

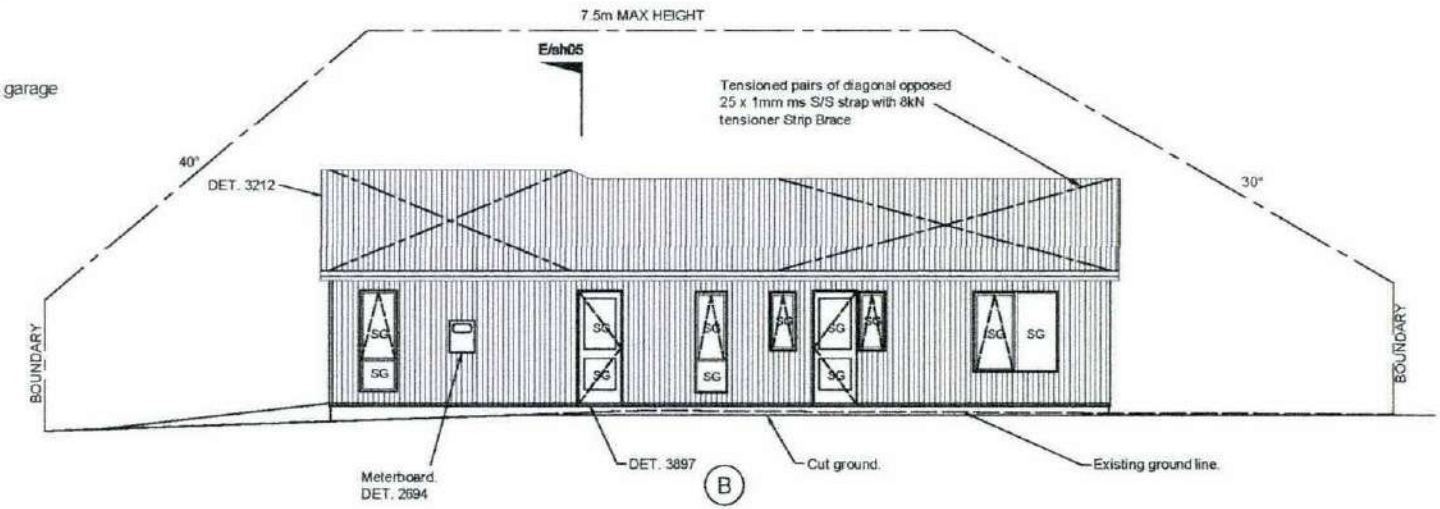
Table 3: Suitable wall claddings	
Risk Score	
7 - 12	Direct fixed to framing
	c) Vertical profiled metal - corrugated only
	Over nominal 20mm drained cavity
	Vertical shiplap weatherboards



A

NZBC H1 Insulation:
Scheduled method used.
Total wall area of insulated building perimeter 191.26m²
Total glass area of doors and windows to the insulated building perimeter: 49.26m² (25.8%)
Skylight is 1.09m² - complies with max' 1.2m²

Proposed Insulation:
R5.0 Ceiling insulation with min 25mm air gap to underside of roof underlay.
R2.8 Wall insulation
R0.26 windows double glazed
R0.50 Velux VSE skylight
50mm EPS polystyrene under slab (excluding garage floor area)



B

ELEVATIONS

Light gable roofs shall have pairs of diagonal opposed 25 x 1mm ms S/S strap with 8kN tensioner for every 50m²

Plans READY
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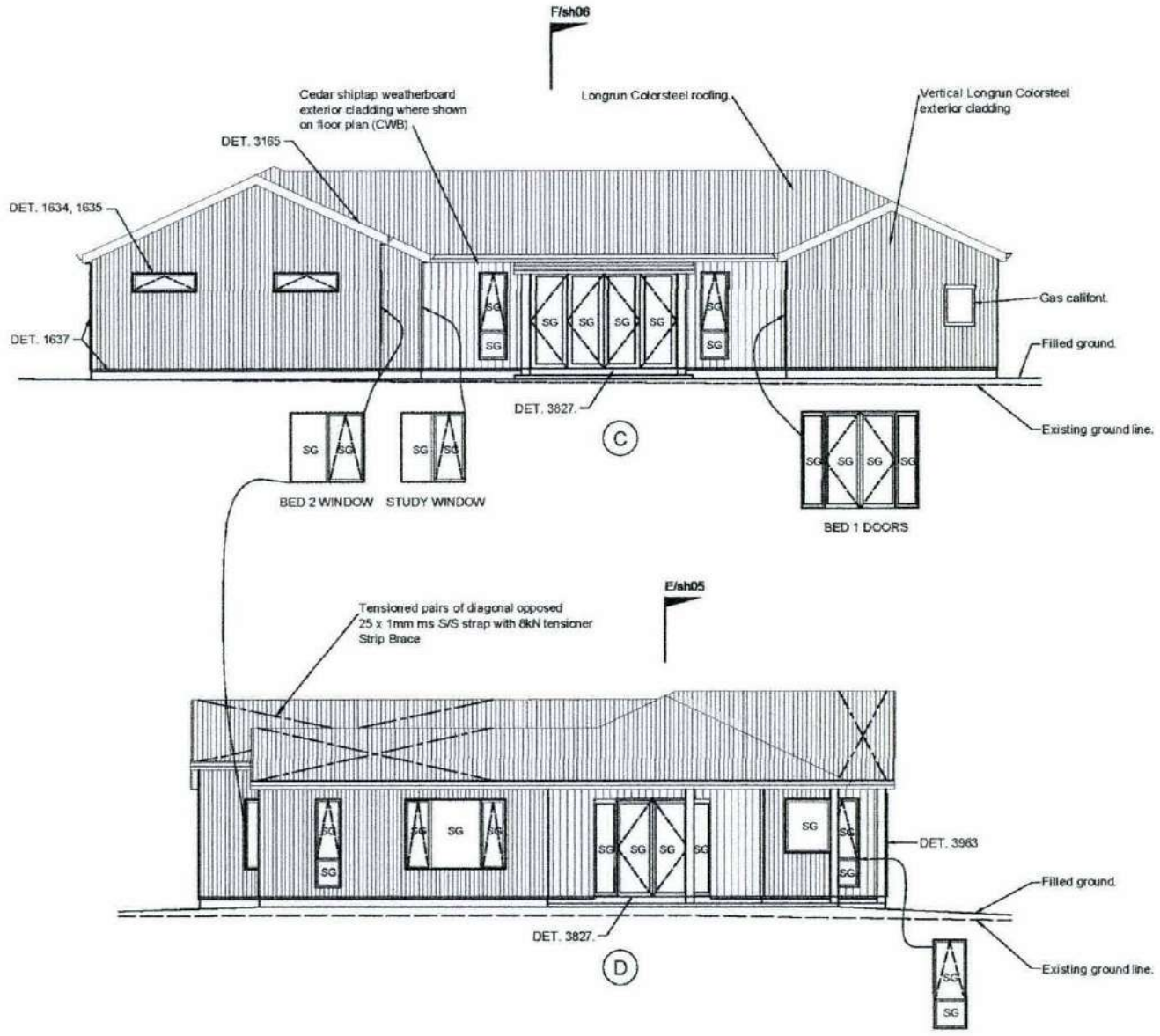
A.D. COCHRANE DESIGN & DRAW. D.

RADFORD II 25/850
HA. KEOGAN
LOT: 3. DP. 464445
62 PITFURE ROAD, WAKEFIELD

All dimensions & levels to be site checked by contractor before commencement of work. Contractor to report any discrepancy

A B C D

DESIGNED	DRAWN	SHEET
A.D.C	K.M.G	03 OF 11
DATE: MAR 2014	AREA TOTAL: m sq / ft sq	
AMENDED: 28/04/14	SCALE (A3): 1:100	



ELEVATIONS

Light gable roofs shall have pairs of diagonal opposed 25 x 1mm ms S/S strap with 8kN tensioner for every 50m²

Plans READY
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HA. KEOGAN
LOT: 3. DP. 464445
62 PITFURE ROAD, WAKEFIELD

All dimensions & levels to be site checked by contractor before commencement of work. Contractor to report any discrepancy.

A B C D

DESIGNED	DRAWN	SHEET
A.D.C	K.M.G	04 OF 11
DATE: MAR 2014	AREA: TOTAL m sq ft sq	
AMENDED: 28/04/14	SCALE (A3): 1:100	

ROOF:
Corrugated Longrun Colorsteel Endura roofing on self supporting bituminous building paper roof underlay on 70 x 45 H1.2 purlins (on flat) @ 750 crs on trusses to manufacturers specifications @ max 900 crs. Truss & roof framing timber treatment to comply with NZBC / B2.3.1 & no less than H1.2 treatment.
Install roof plane bracing as per NZ3604 (2011).
Where specific design by the truss manufacturer creates any load bearing points on beams/ lintels, foundation thickening/ pads & hold down fixings additional to NZS3604 (2011) requirements, these are to be referred to by the truss manufacturer & be noted on their plans.

WIND UPLIFT PREVENTION:
Install tie down fixings to prevent wind uplift incl. top plates & trusses as per NZS3604 (2011) tables 10.10/ 10.11, 10.14 for truss fixing types, roof nail schedule 10.18 & fig 10.21
Refer to NZS3604 (2011) fig 8.12, lintel fixing table 8.14, top plate fixing table 8.18 to prevent uplift & wall nailing schedule 8.19

CEILINGS:
Line ceilings with 13mm Gib on 70 x 35 H1.2 ceiling battens @ 600 crs. and 140 x 35, 190 x 35 H1.2 top plate packers.

STRUCTURAL TIMBER STRENGTH:
Use SG8 timber grade unless noted differently on plan for specific members.

DISSIMILAR MATERIALS:
Isolate DISSIMILAR metals in close proximity by painting surfaces or fitting bituminous separator strips. Also place isolators to treated timber and cement-based materials.

WALL FRAMING:
Stud height = 2.4m 90 x 45 Kiln dried H1.2 studs @ 600 crs.
Stud height upto 3.0m 90 x 45 Kiln dried H1.2 studs @ 400 crs.
Stud height upto 3.3m 90 x 70 Kiln dried H1.2 studs @ 400 crs.

Exterior frame bottom plates to be H3.2
Install dwangs @ 400 crs to walls with Cedar Weatherboard cladding and @ 800 crs typical.
Fix bottom plates to conc' on DPC with proprietary post fixed M12 S/S anchors @ max 900mm crs & min 90mm into conc' slab & @ max 600mm crs. when used on slab edges formed by masonry header blocks min 120mm into conc' foundation. Set anchors max 150mm from corners. Anchors to maintain a min distance of 55mm to the outside face of the concrete. use 50 x 50 x 3mm S/S washers. Install bolts to manufacturers specifications including requirements for proprietary bracing systems & taking care to set at min distance from masonry edge.

TANALISED TIMBER TREATMENTS:
All cut or bored surfaces to tanalised timber to be treated with paintable Metalex preservative complying with NZS 3640 & NZBC.

INSULATION:
Insulate exterior walls (except garage) with R2.8 rated fibreglass batts.
Insulate walls between house & garage with R2.8 rated fibreglass batts.
Insulate ceiling with R5.0 rated fibreglass batts (except garage). Cut batts down at ceiling perimeter to achieve a min 25mm air gap to underside of roof underlay.

EAVES:
4.5 mm Hardiflex soffit lining on ex 90 x 45 H1.2 bearers & ribbon plates. Install colorsteel fascias & 125 quad gutters (70 x 125) or equiv, with min 2mm fall per 1m. Install Marley UPVC 65 dia down pipes.

DOORS & WINDOWS:
Aluminium exterior windows and doors, powder coated & Metro GlassTech warm edged double glazing (R0.26 rating) except in garage. Install sight rails at 700mm above floor level where shown on elevations. Glazing to doors, side lights, bathrooms, balustrades, roof glazing & glazing within 1200mm above floor level to be grade A safety glass.
All glazing to comply with NZS 4223: Part 3 & NZBC H1.
Site check rough opening sizes before manufacturing windows.
Install pressure equalization seals around all windows & doors. Install safety restrictor stays allowing max 100mm opening to windows that have a 1.0m fall or greater to the exterior.
Install sill support bars or mechanism to doors & windows to manufacturers specifications.

All external windows, doors, vents, cladding & penetrations to exterior envelope of building to be flashed or sealed in compliance with NZBC section E2 & manufacturers specifications.
Approved applicator to install flashman flashing systems.

NOTE:
1. CHARTERED PROFESSIONAL ENGINEER TO SITE CHECK FOUNDATION EXCAVATIONS, INCLUDING SCALA PENETROMETER TESTING OF FOUNDATION SOIL & REVIEW FOUNDATION DESIGN. SEE ENGINEERS INSPECTION SCHEDULE FOR OTHER INSPECTIONS REQUIRED.
2. FOUNDATIONS SHALL BE EXCAVATED TO A DEPTH OF AT LEAST 600mm TO BEAR ON GROUND COMPLYING WITH THE REQUIREMENTS OF NZS 3604: 2011

INTERIOR LININGS:
Line walls interior with 10mm Gib. Use 9mm Hardies Villaboard substrate behind tiles to shower area, installed to manufacturers specifications.
Use Aqualine Gib in water splash areas installed to manufacturers specifications. Both wall & floor lining materials & finishes to satisfy the performance for impervious & easily cleaned surfaces in areas exposed to water splash complying with NZBC E3/AS1 3.0. Use water proof grout to tiles in water splash areas. Provide movement control joints to tiles to comply with NZBC & means of compliance + manufacturers specifications. Where a conc' floor control joint or saw cut is required under a tiled area set out the tiles to coincide with the joint / cut and use a flexible grout. Do not put control joints / cuts in conc' under tiled showers or other tiled water splash areas.
Use Aqualine Gib in kitchens - install min 5mm thick ceramic tiles or 5mm toughened glass upstand min 150mm high over Aqualine Gib to walls within 200mm of cooking hob / appliance, installed to manufacturers specifications.
Bench cut out for hob min 50mm from back of bench top.
Finish to Aqualine Gib used in water splash areas to comply with NZBC section E3 clause 3.1.2 (f) vinyl coated wall paper or semi gloss or gloss coating installed to manufacturers specifications.

Install hose burst valves to taps servicing washing machines, dishwashers, fridges & other high water use appliances.

Bath splash zone to comply with NZBC section E3 fig 3 (a) with wall linings including impervious lining extending to wall bottom plate.

'Enclosed Tiled' shower where noted on floor plan to be read in conjunction with details 1202, 1205, M13 (in specification) & water proof membrane manufacturers details. Use water proof grout to tiles in water splash areas. Provide a hob to the perimeter of the glazed shower sides. Waterproofing system & tiles to be continuos over hob perimeter. Install shower screen glazing to shower side edge of hob & use toughened grade A safety glass *installed to manufacturers specifications. Approved membrane & tile installer to provide a producer statement in* the form as required by the BCA.
Install Aquatite Wetwall Caddy to shower mixer to manufacturers specifications.

SLIP RESISTANCE:
Walking surfaces for access routes to have a mean coefficient of friction not less than 0.4 for level surface or 0.5 for stairs & sloping surface less than 1:10 grade complying with NZBC D1/AS1

LONGRUN CLADDING:
Exterior cladding where shown on elevations vertical Corrugated Longrun Colorsteel Maxx over heavy weight bituminous building paper approved for wind zone.

VERTICAL CEDAR SHIP-LAP CLADDING (HOUSE ONLY):
Rosenfeld Kidson RK55 vertical cedar ship-lap weatherboards over Rosenfeld Kidson CS-H 45 x 45mm draining horizontal timber cavity battens fixed horizontally to dwangs @ max 400 crs over 6mm fibre cement rigid wall underlay jointed, taped and installed to manufacturers specifications.
See Rosenfeld Kidson drawing RKV45-RU-31 for pipe penetration detail.
See Rosenfeld Kidson drawing RKV45-RU-46 for scarf joint detail.
See Rosenfeld Kidson drawing RKV45-RU-47 for nail fixing detail.
See Rosenfeld Kidson drawing RKV45-RU-48 for cavity batten detail.
Also see drawings RKNAIL & RKV45-BATT for nails and batten specifications.
INTERNAL CORNERS: RK96 internal vertical cedar timber moulding to internal corners over hem folded C/S 65 x 65mm internal corner back flashing over draining cavity system over 6mm fibre cement rigid wall underlay jointed, taped and installed to manufacturers specifications. See Rosenfeld Kidson drawing RKV45-RU-12 for internal corner detail.

EXTERNAL CORNERS: Vertical cedar external timber moulding over hem folded C/S 65 x 54mm external corner back flashing over draining cavity system over 6mm fibre cement rigid wall underlay jointed, taped and installed to manufacturers specifications. See Rosenfeld Kidson drawing RKV45-RU-22 for external corner detail

FOUNDATION SLAB:
100mm concrete slab reinforced with grade 500E steel reinforcing mesh complying with NZBC section B1/AS1 clauses 3.1.8 & 3.1.9 on 50mm EPS polystyrene (excluding garage floor area) on damp proof membrane on 25mm sand blinding on min 150mm Base course hard fill on good ground. Foundation footings to be min 600mm deep into good ground with an ultimate bearing capacity of not less than 300 kPa (to engineers approval on site) . All reinforcing steel, including welded mesh, shall be Ductility Class E in accordance with NZS 4671.
All slab-on-ground reinforcing shall extend to within 75 mm of the outside edge of the slab (including the foundation wall) with 30mm top cover & shall consist of a minimum 2.27 kg/m ² welded reinforcing mesh sheets (1.16 kg/m ² in each direction) conforming with NZS 4671, which shall be lapped at sheet joints by 225 mm or in accordance with the manufacturer's requirements, whichever is greater. Slabs shall have a maximum dimension of 24 metres between free joints.
Install "D.P.C" between all conc' & timber. All topsoil & soft material to be removed under conc' slabs down to good ground & replaced with hard fill compacted at 150mm layers.

AIR BARRIER:
Install Hardies 3.5mm HomeRAB board rigid air barrier sheathing taped & sealed to manufacturers specifications behind exterior cladding where there are no internal linings such as gable ends to roof cavities etc.

EXPOSED STEEL COATINGS:
Stainless Steel (s/s) fixings & where used for flashings etc shall be minimum Type 304. Use Minimum Type 316 where appearance is a consideration or within a geothermal zone.
Stainless Steel exposed to wind blown salt deposits but sheltered & not regularly rain washed, shall be coated with grease or other suitable covering & must be visually inspected regularly for signs of corrosion & a maintenance schedule adopted to comply with manufacturers requirements.

DURABILITY:
Durability of materials and components shall be of a minimum standard as required by NZBC approved document B2. Assembly methods & maintenance of materials and building elements shall comply with NZBC, approved documents, means of compliance and manufacturers specifications to maintain compliance with with durability certificates and guarantees, requirements & conditions.

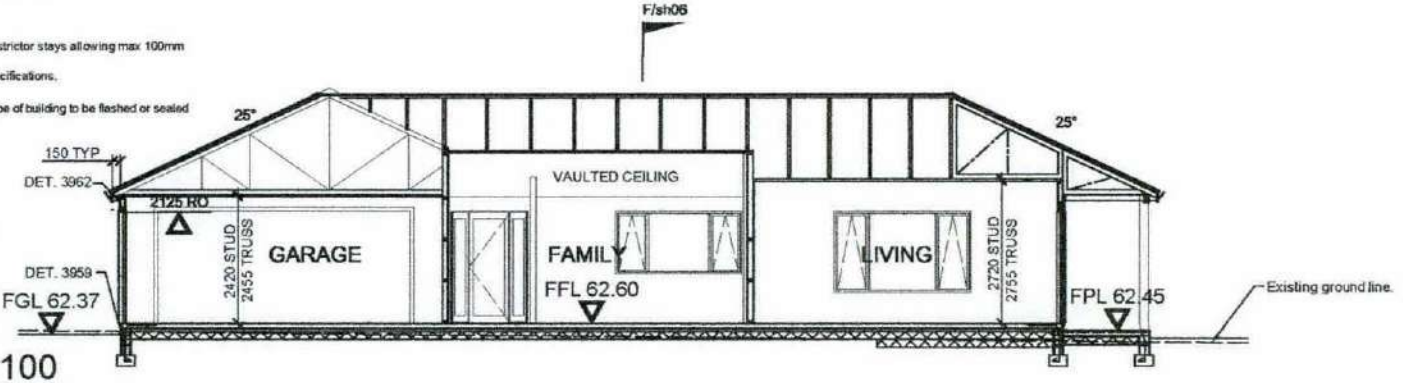
INSPECTIONS:
The Building Contractor shall notify Official Building Inspectors, Chartered Professional Engineers & other people involved in checking or approving works at required time for inspections. Arrange Chartered Professional Engineer to provide a PS4 on completion of building work to Local Territorial Authority before issue of code of compliance certificate.

CERTIFICATES:
The Contractor is required to provide a code of compliance certificate (CCC) from the Building Consent Authority to the owner including copy of certificates of works (COW) for restricted building work (RBW). All restricted building work is to be carried out by licensed building practitioners (LBP) in the relevant field of work.

TRUSS & WALL FRAME LOADINGS PS1:
Manufacturers to provide a design certificate (PS1) plus plan for trusses & specific designed beams, lintels, fixings, etc to local territorial authority.

DETAIL NUMBERS:
This drawing is to be read in conjunction with Details Nos: 1202, 1205, 1634, 1636, 1637, 2537, 694, 3153, 3165, 3212, 3216, 3827, 3831, 3897, 3959, 3961, 3962, 3963, 3964

ROSENFELD KIDSON VERTICAL CEDAR SHIP-LAP WB CLADDING SYSTEM DETAILS:
RKV45-RU-01, RKV45-RU-01A, RKV45-RU-02, RKV45-RU-02A, RKV45-RU-03, RKV45-RU-03A, RKV45-RU-012, RKV45-RU-22, RKV45-RU-31, RKV45-RU-41, RKV45-RU-42, RKV45-RU-46, RKV45-RU-47, RKV45-RU-48, RKNAIL, RKV45-BATT



SECTION E - E 1 : 100

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A.D. COCHRANE DESIGN & DRAW D.

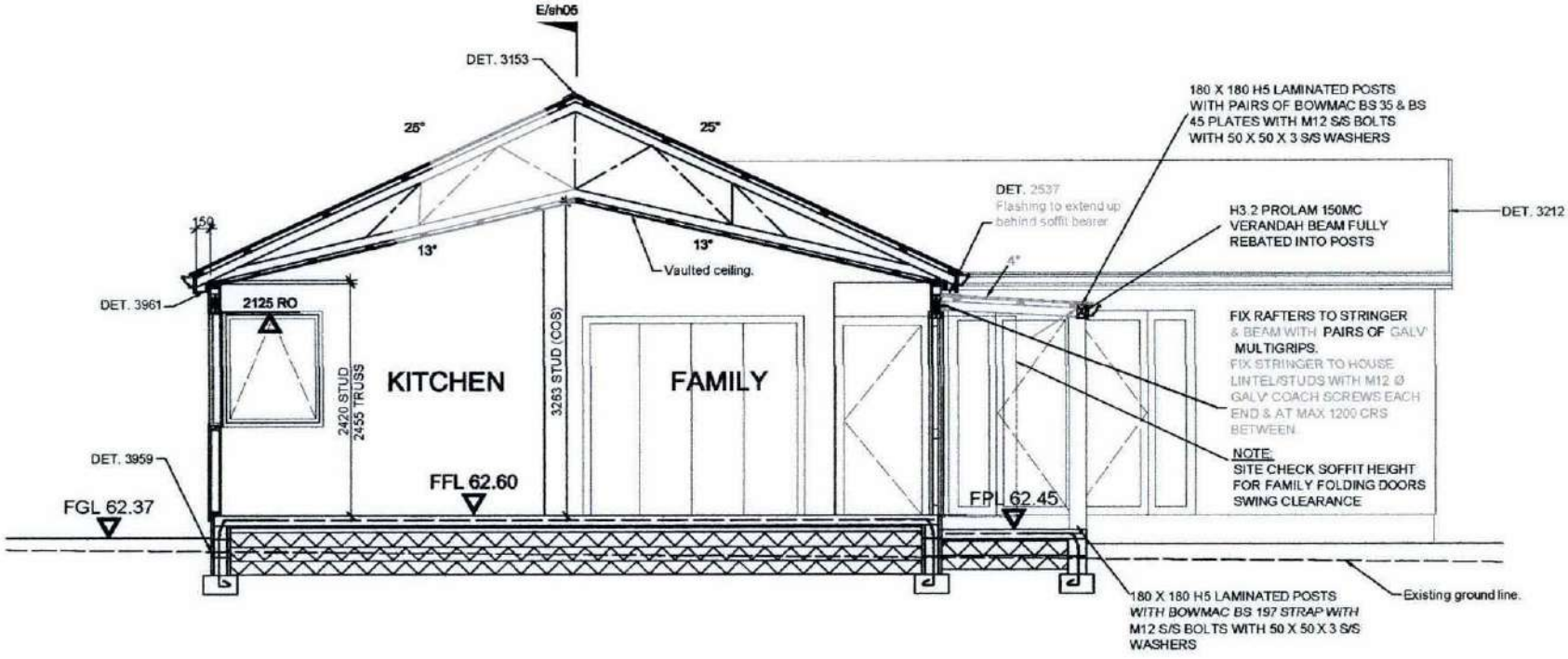
RADFORD II 25/850
HA. KEOGAN
LOT: 3. DP. 464445
62 PITFURE ROAD, WAKEFIELD

All dimensions & levels to be site checked by contractor before commencement of work. Contractor to report any discrepancy.

DESIGNED A.D.C	DRAWN K.M.G	SHEET 05 OF 11
DATE MAR 2014	AREA TOTAL [illegible]	
AMENDED 28/04/16	SCALE (A3) 1:100	

VERANDAH ROOF:

4 degrees 5 Rib Longrun Colorsteel Endura roofing on self supporting bituminous building paper roof underlay on 70 x 45 H1.2 purlins (on flat) @ 750 crs on **90 x 45** H1.2 **rafters at max** 600 **crs.**



NOTE:
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2. FOUNDATIONS SHALL BE EXCAVATED TO A DEPTH OF AT LEAST 600mm TO BEAR ON GROUND COMPLYING WITH THE REQUIREMENTS OF NZS 3604: 2011

SECTION F - F 1 : 50

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HA. KEOGAN
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62 PITFURE ROAD, WAKEFIELD

All dimensions & levels to be site checked by contractor before commencement of work. Contractor to report any discrepancy.

A B C D

DESIGNED	DRAWN	SHEET
A.D.C	K.M.G	06 OF 11
DATE: MAR 2014	AREA TOTAL: m sq / ft sq	
AMENDED: 28/04/16	SCALE (A3): 1:50	

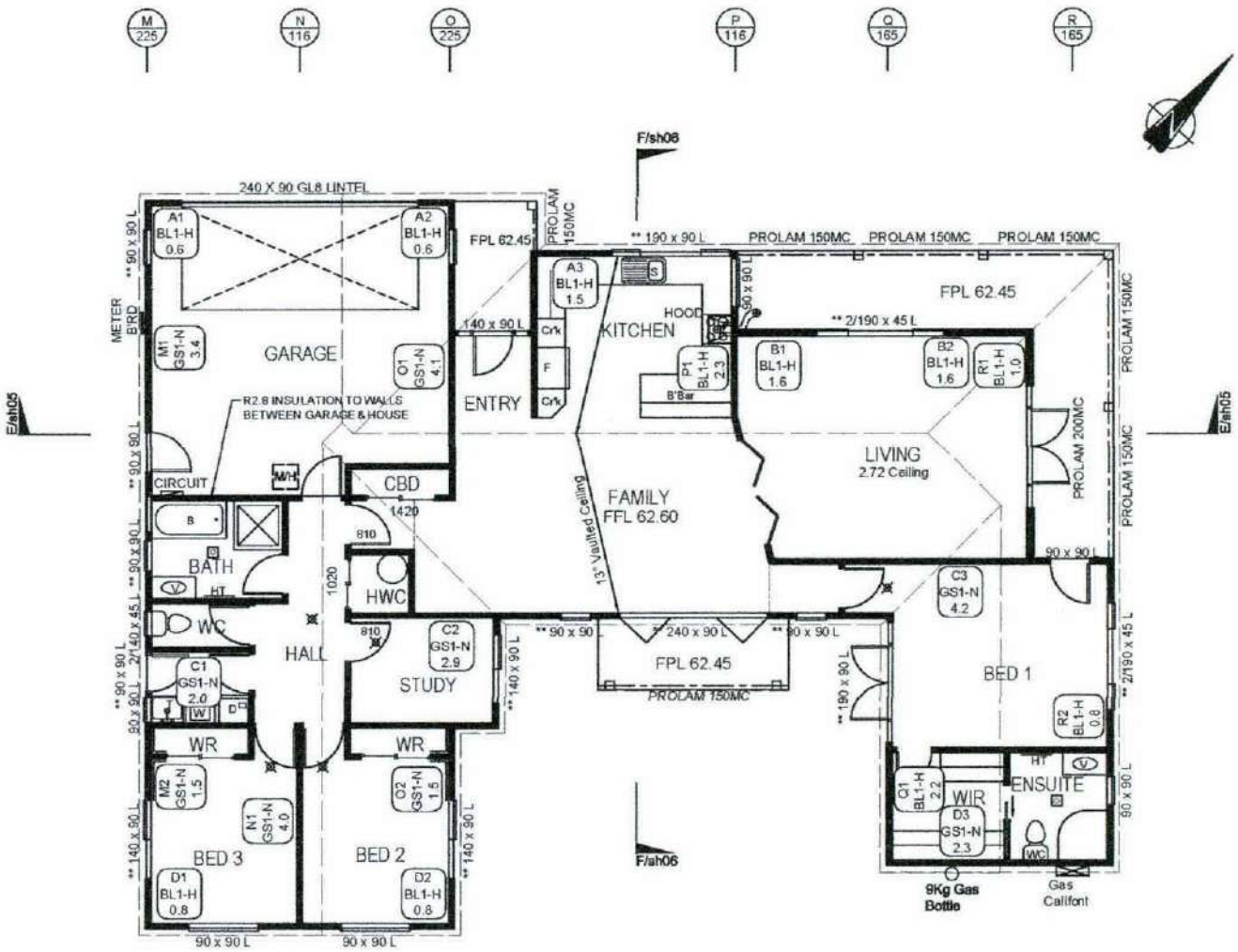
NOTES:

1. A1 / BL1-H / 0.6 — Brace No. / Brace Type / Brace Length
2. A / 180 — Brace line label / Min bracing units required
3. ** Lintel uplift fixings required per NZS3604 Fig 8.12 or an alternative fixing of 7.5 KN capacity in tension along the line of the trimming stud. See NZS3604 (2011) Fig 8.12
4. Small openings in braced sheet elements for power points, circuit boards etc to comply with manufacturers specifications and NZBC including min distances from sheet edges, max opening size, location within element & fixings etc
5. Use Proprietary 'Bowmac M10 x 140mm Screw Bolt' supplied for 'GIB HandiBrac' panel hold-down bracket fixing. Install to manufacturers specifications.
6. See manufacturers details & specifications for Prolam beam fixings. All verandah beams to be H3.2 treated.

Fixing types and capacity for Purlins/battens		
FIXING TYPE	FIXING DESCRIPTION Tables 10.10 NZS3604	FIXING CAPACITY (kN)
T	1 / 10g self-drilling screw, 80mm long	2.4
* If screw fixed, screws shall be sufficiently long so as to penetrate rafter by at least 50mm		

Fixing types and capacity for roof trusses		
FIXING TYPE	FIXING TO RESIST UPLIFT Table 10.13 NZS3604	ALTERNATIVE FIXING CAPACITY (kN)
See truss manufacturers layout		

Fixing of top plate of wall to supporting members such as studs & lintels at 600mm centres		
FIXING TYPE	FIXING TO RESIST UPLIFT Table 8.18 NZS3604	ALTERNATIVE FIXING CAPACITY (kN)
See truss manufacturers layout		



BRACING & LINTEL PLAN 1 : 100

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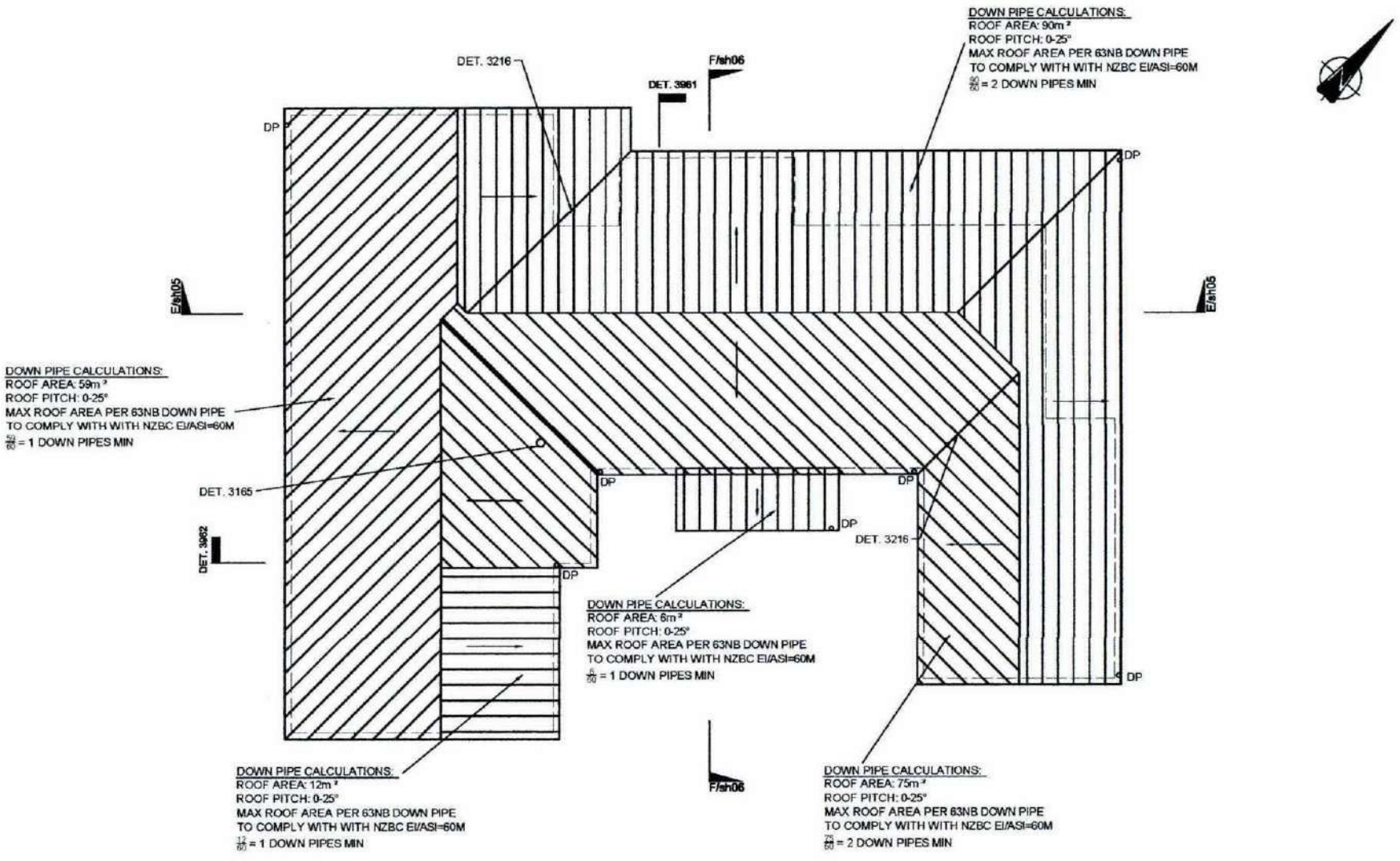
HA. KEOGAN
LOT: 3. DP. 464445
62 PITFURE ROAD, WAKEFIELD

All dimensions & levels to be site checked by contractor before commencement of work. Contractor to report any discrepancy

DESIGNED	DRAWN	SHEET
A.D.C	K.M.G	07 OF 11
DATE: MAR 2014	AREA TOTAL: 198.55 m sq / sq	
AMENDED: 28/04/16	SCALE (A3): 1:100	



ROOF CATCHMENT PLAN 1 : 100

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RADFORD II 25/850
HA. KEOGAN
LOT: 3. DP. 464445
62 PITFURE ROAD, WAKEFIELD

All dimensions & levels to be site checked by contractor before commencement of work. Contractor to report any discrepancy.

DESIGNED: A.D.C	DRAWN: K.M.G	SHEET: 09 OF 11
DATE: MAR 2014	AREA TOTAL: 198.55 m sq	
AMENDED: 28/04/16	SCALE (A3): 1:100	

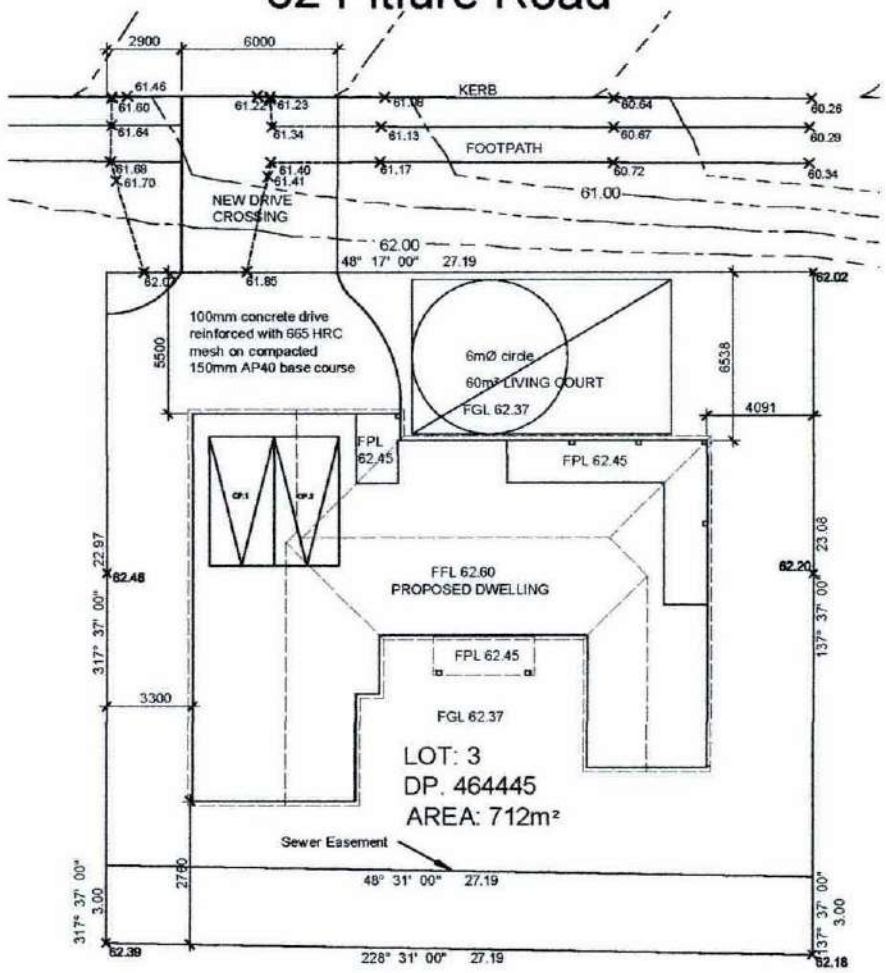
KEY:

FFL	Finished Floor Level
FPL	Finished Paving Level
FGL	Finished Ground Level

NOTE:
1. CHARTERED PROFESSIONAL ENGINEER TO SITE CHECK FOUNDATION EXCAVATIONS, INCLUDING SCALA PENETROMETER TESTING OF FOUNDATION SOIL & REVIEW FOUNDATION DESIGN. SEE ENGINEERS INSPECTION SCHEDULE FOR OTHER INSPECTIONS REQUIRED.
2. FOUNDATIONS SHALL BE EXCAVATED TO A DEPTH OF AT LEAST 600mm TO BEAR ON GROUND COMPLYING WITH THE REQUIREMENTS OF NZS 3604: 2011

SITE AREA = 712m²
HOUSE COVERAGE = 198.55m² (27.89%)

62 Pitfure Road



SITE PLAN 1 : 200

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RADFORD II 25/850
HA. KEOGAN
LOT: 3. DP. 464445
62 PITFURE ROAD, WAKEFIELD
All dimensions & levels to be site checked by contractor before commencement of work. Contractor to report any discrepancy.

DESIGNED A.D.C	DRAWN K.M.G	SHEET 10 OF 11
DATE MAR 2014	AREA TOTAL 198.55 m sq ft sq	
AMENDED 28/04/16	SCALE (A3) 1:200	

KEY:

X	Existing ground level
1:100 →	Gradient (example is 1 in 100) pointing down hill
FFL	Finished Floor Level
FGL	Finished ground level
FPL	Finished Paving Level
GL	Ground Level
INV	Invert Level
DP	Downpipe
GT	Gully Trap
BV	Back Vent
TV	Terminal Vent
IB	Inspection Bend
IY	Inspection Junction
AAV	Air Admittance Valve
RE	Rodding Eye

NOTES:

1. Plumbing & drainage to comply with NZBC clauses E1 Storm Water, G12 Water Supply, G13 Foul Water & AS3500.
2. Drainlayer to check all levels on site prior to house floor level being established.
3. 100 dia. S.W. & S.S. to fall at min. 1 IN 100/1 IN 150 as shown on plans.
4. Drains less than 500 deep to be covered in 75mm concrete to local territorial authority requirements.
5. Floor level to be min 225mm above finished ground level & 150mm above finished paving.
6. Ensure all drains in filled ground are fully supported with compacted material.
7. Termination of vent pipes to comply with NZBC G13 Fig 12
8. Stormwater design too comply with Tasman Consulting Engineers Design & Details sheets S1 & S2.

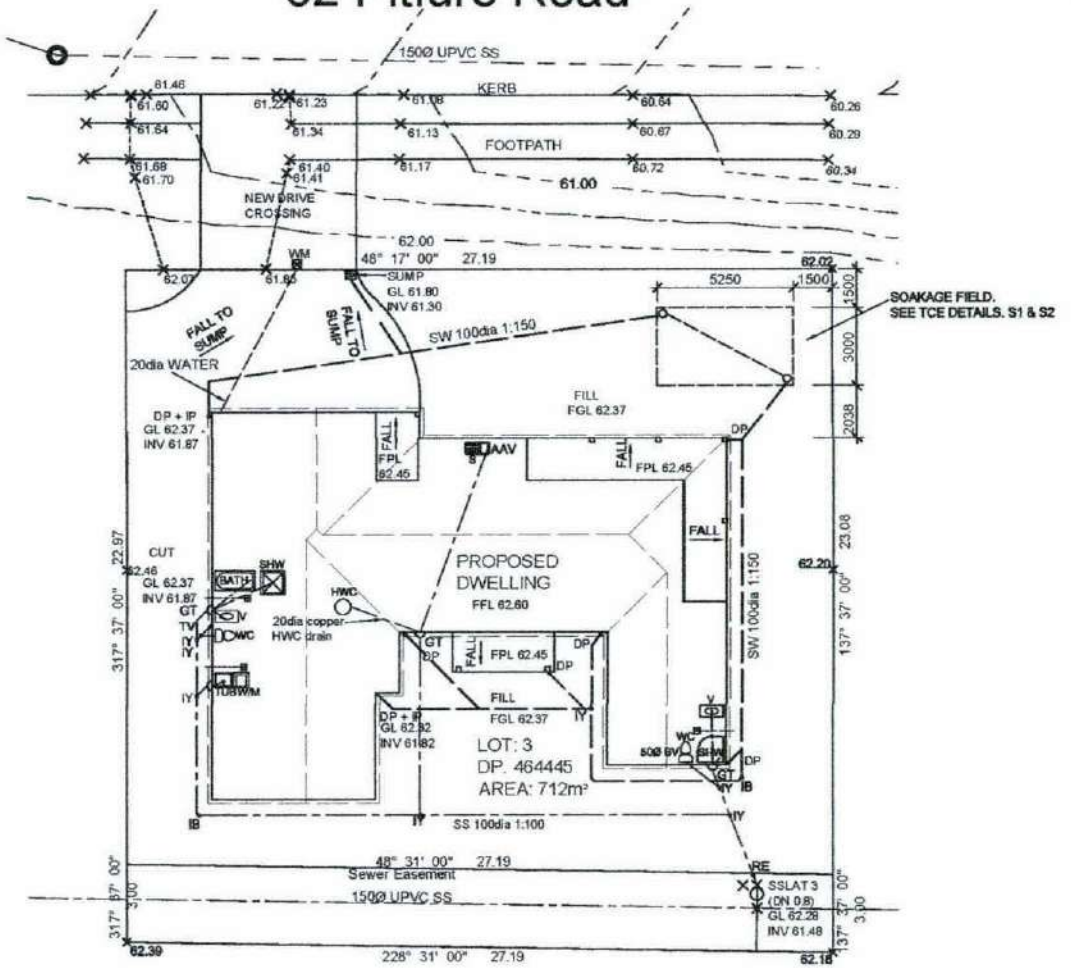
UNDER SLAB WASTES NOTE:

KIT' SINK/DW 65dia, L'DRY TUB/WM 50dia, WC 80dia & ALL OTHER SERVICES TO BE MIN 40dia.
ALL SERVICES @ MIN 1:40 GRADE.
ALL WASTES & VENTS TO COMPLY WITH NZBC G13/AS1

FLOOR WASTES:

Floor wastes installed as per G13/AS1 clause 3.4.3 (c)

62 Pitfure Road



DRAINAGE PLAN 1 : 200

Plans Ready
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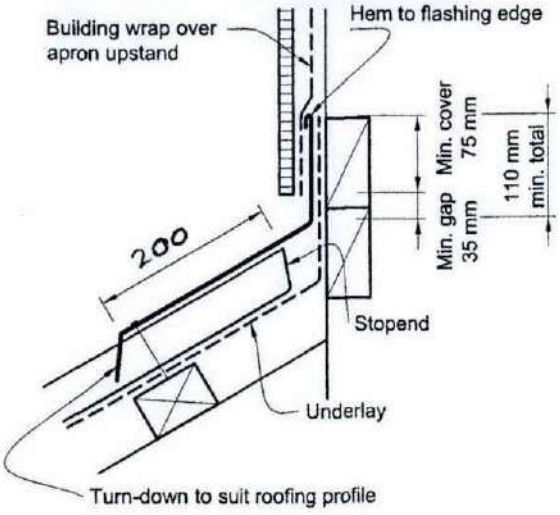
A.D. COCHRANE DESIGN & DRAW[illegible]

RADFORD II 25/850
HA. KEOGAN
LOT: 3. DP. 464445
62 PITFURE ROAD, WAKEFIELD

All dimensions & levels to be site checked by contractor before commencement of work. Contractor to report any discrepancy

DESIGNED A.D.C	DRAWN K.M.G	SHEET 11 OF 11
DATE MAR 2014	AREA TOTAL m sq / ft sq	
AMENDED 28/04/16	SCALE (A3) 1:200	

Figure 44: Apron flashing



(b) APRON FLASHING

Acceptable Solution E2/AS1

KEOGAN
DWELLING

62 PITFURE ROAD, WAKEFIELD
LOT: 3. DP. 46445

A3 CONTENTS:

TCE ENGINEERING PLANS

Tasman District Council
BUILDING CONSENT AUTHORITY
APPROVED DRAWINGS
Consent Number BC 140191
Signed
Date 16/4/14
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

Planz READY
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design77@ihug.co.nz
P.O BOX 3209, RICHMOND NELSON
A.D. COCHRANE DESIGN & DRAW LTD.

KEY:

×	Existing ground level
1:100 →	Gradient (example is 1 in 100) pointing down hill
FFL	Finished Floor Level
FGL	Finished ground level
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GL	Ground Level
INV	Invert Level
DP	Downpipe
GT	Gully Trap
BV	Back Vent
TV	Terminal Vent
IB	Inspection Bend
IY	Inspection Junction
AAV	Air Admittance Valve
RE	Rodding Eye

NOTES:

1. Plumbing & drainage to comply with NZBC clauses E1 Storm Water, G12 Water Supply, G13 Foul Water & AS3500.
2. Drainlayer to check all levels on site prior to house floor level being established.
3. 100 dia. S.W. & S.S. to fall at min. 1 IN 100/1 IN 150 as shown on plans.
4. Drains less than 500 deep to be covered in 75mm concrete to local territorial authority requirements.
5. Floor level to be min 225mm above finished ground level & 150mm above finished paving.
6. Ensure all drains in filled ground are fully supported with compacted material.
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UNDER SLAB WASTES NOTE:

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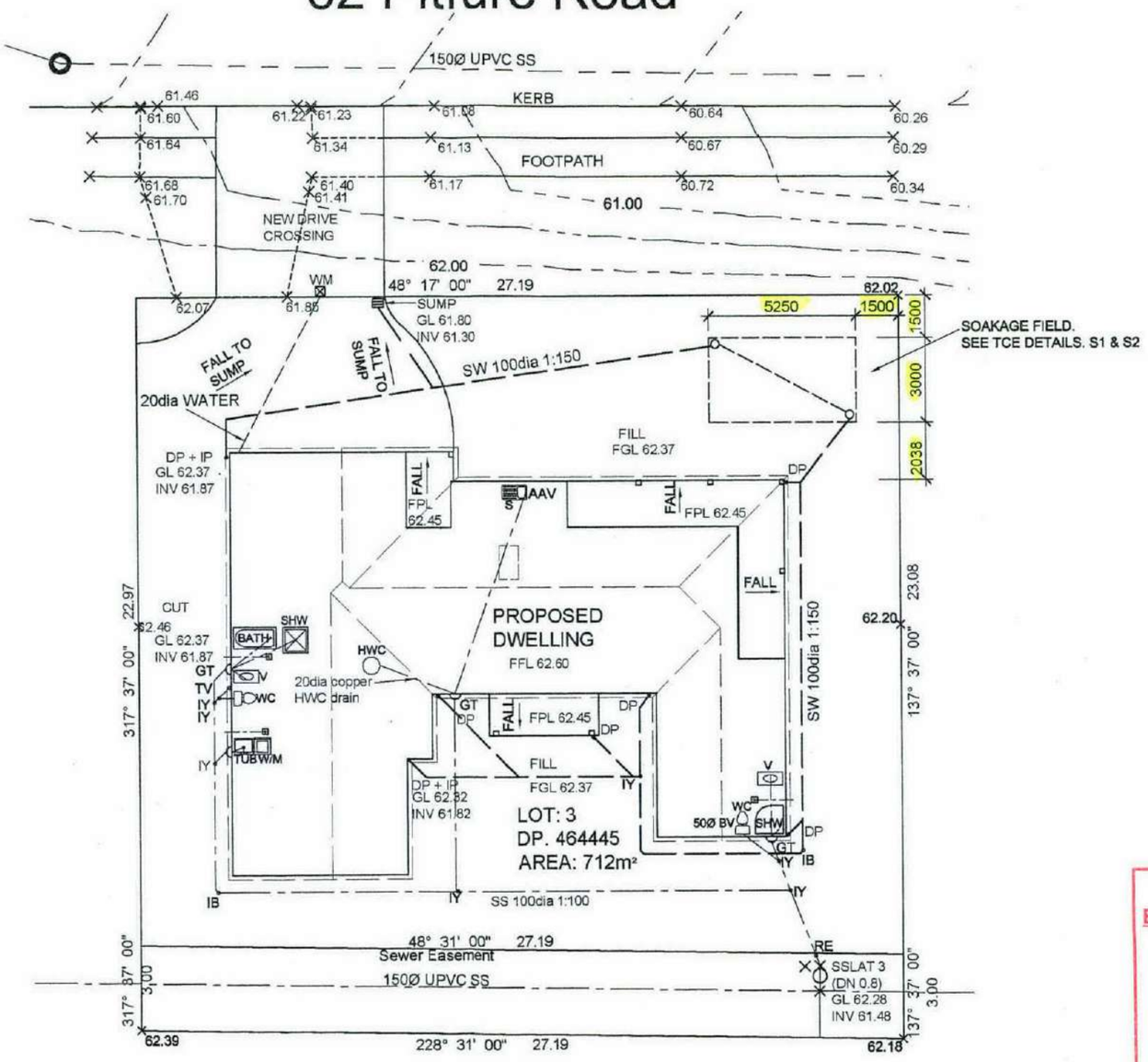
ALL SERVICES @ MIN 1:40 GRADE.
ALL WASTES & VENTS TO COMPLY WITH NZBC G13/AS1

FLOOR WASTES:

Floor wastes installed as per G13/AS1 clause 3.4.3 (c)

62 Pitfure Road



Tasman District Council
BUILDING CONSENT AUTHORITY
APPROVED
16 APR 2014
BUILDING CONSENT
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
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DRAINAGE PLAN 1 : 200

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design77@ihug.co.nz
P.O BOX 3209, RICHMOND NELSON
A.D. COCHRANE DESIGN & DRAW LTD.

RADFORD II 25/850
HA. KEOGAN
LOT: 3. DP. 464445
62 PITFURE ROAD, WAKEFIELD
All dimensions & levels to be site checked by contractor before commencement of work. Contractor to report any discrepancy.

A B C D

DESIGNED A.D.C	DRAWN K.M.G	SHEET 11 OF 11
DATE MAR 2014	AREA TOTAL m sq ft sq	
AMENDED 19/03/14	SCALE (A3) 1:200	

LOT: 3
DP. 464445
AREA: 712m2

100Ø uPVC pipe from house DP's - provide min 1 in 150 fall to sump in soakage field

300mm Ø uPVC inspection sump to opposite corners of soak field - 1.2m deep - sit on base of soakage field - fit with grill or removable cover

5.25m

1.5m

1.5m

3.0m

100mm dia perforated drainage pipe to disperse water in soakage pit - align with pipe entering sump

Soakage Field
5.25m long x **3.00**m wide x 1.5m deep Soakage Field - 18.9 m³ of 40mm to 60mm drainage metal (1000mm deep) surrounded with filter fabric & covered with approx 300mm of topsoil

300mm Ø uPVC inspection sump to opposite corners of soak field - 1.2m deep - sit on base of soakage field - fit with grill or removable cover

Approx location of soakage as per TDC Discharge Consent

100Ø uPVC pipe from house DP's - provide min 1 in 150 fall to sump in soakage field

House roof area - 242 m²

DP

DP

DP

DP

DP

DP

DP

Proposed New House

FGL
62.05

FFL 62.30

Sewer Easement

STORMWATER DISPOSAL PLAN

Scale 1 : 100

Tasman District Council
BUILDING CONSENT AUTHORITY
APPROVED
16 APR 2014
BUILDING CONSENT
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

TASMAN CONSULTING ENGINEERS
s3 / 237 Queen St
PO Box 3631
Richmond NELSON
Ph: (03) 544-6404
Fax: (03) 544-6694

STORMWATER DISPOSAL SYSTEM
H A KEOGHAN
62 PITFURE RD, WAKEFIELD, NELSON

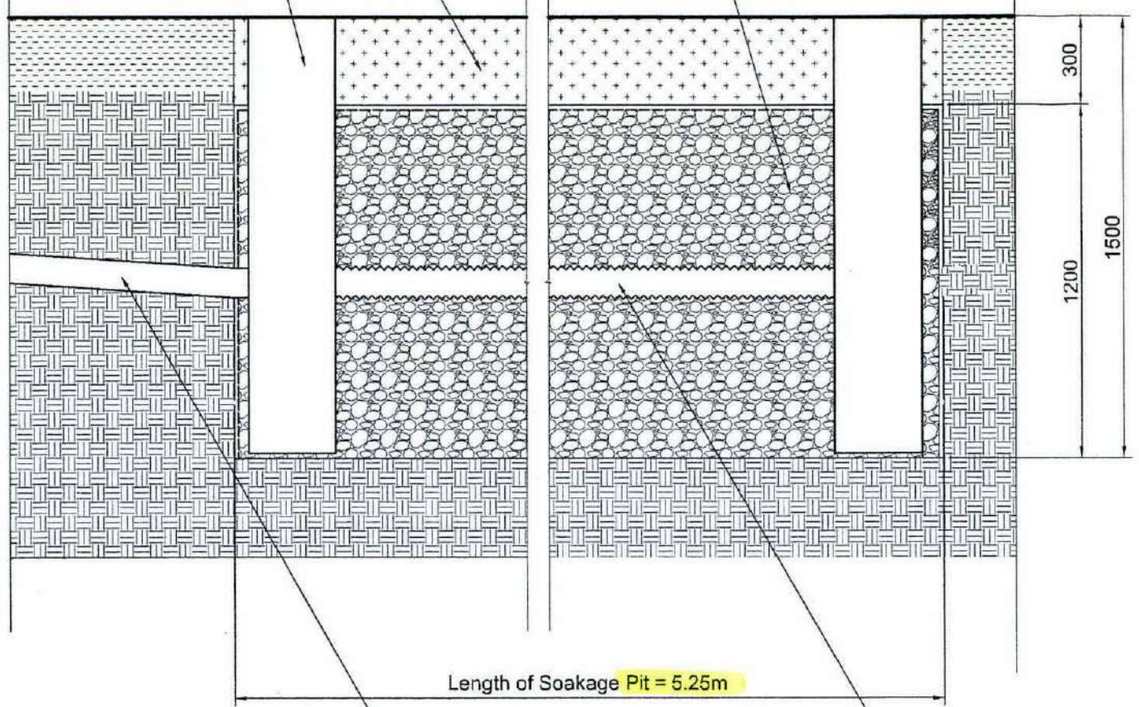
Scale	Sheet
1:100 Original size A3	S1 of 2
Date 19-02-14	
Drawn RJO	File 14036

Replace topsoil placed over Filter cloth after completion of Soakage Field

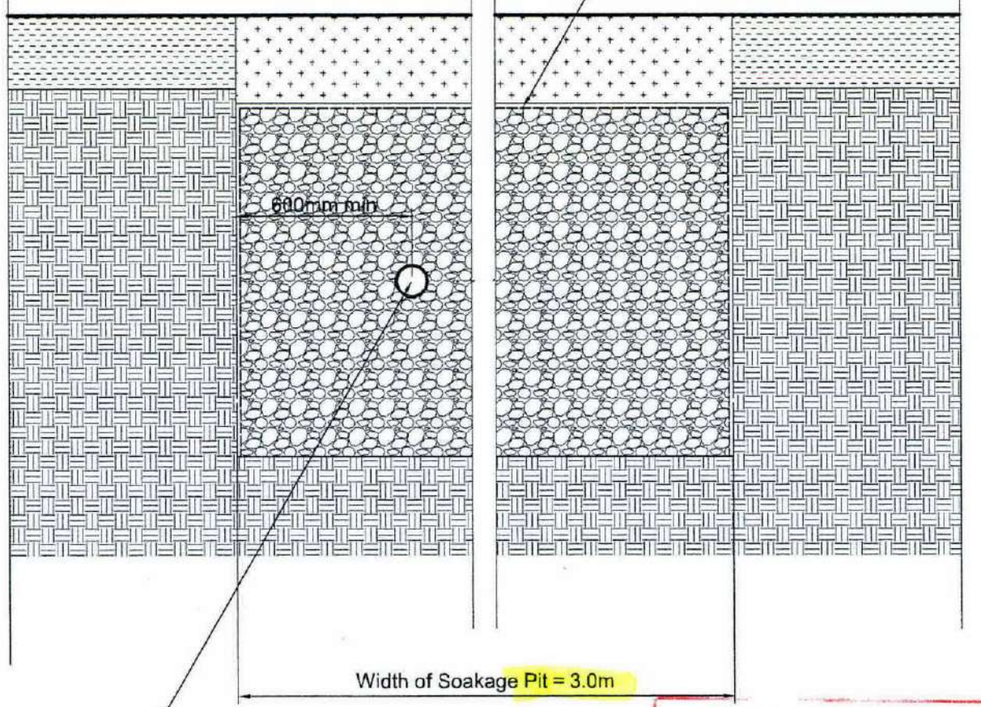
300mm Ø uPVC inspection sump - 1.2m deep - sit on base of soakage field - fit with grill or removable cover located at ground level to permit inspection

Place Bidim A14 Filter cloth (or equivalent) around the side walls of the soak pit excavation - backfill with 40mm to 60mm drainage metal to underside of incoming stormwater drain - lay 100mm diameter perforated drain-coil over drainage metal - place further 40mm to 60mm drainage metal to provide a total depth of at least 1200mm in soakage field - wrap filter cloth over top of drainage metal before placing topsoil

Line top and sides of Soakage Field with Bidim A14 Filter cloth (or equivalent) - NO filter cloth on the base



LONG SECTION - SOAKAGE FIELD
1:20



CROSS SECTION - SOAKAGE FIELD
1:20

Tasman District Council
BUILDING CONSENT AUTHORITY
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16 APR 2014
BUILDING CONSENT
WORK IS TO COMPLY WITH THE NZ BUILDING CODE
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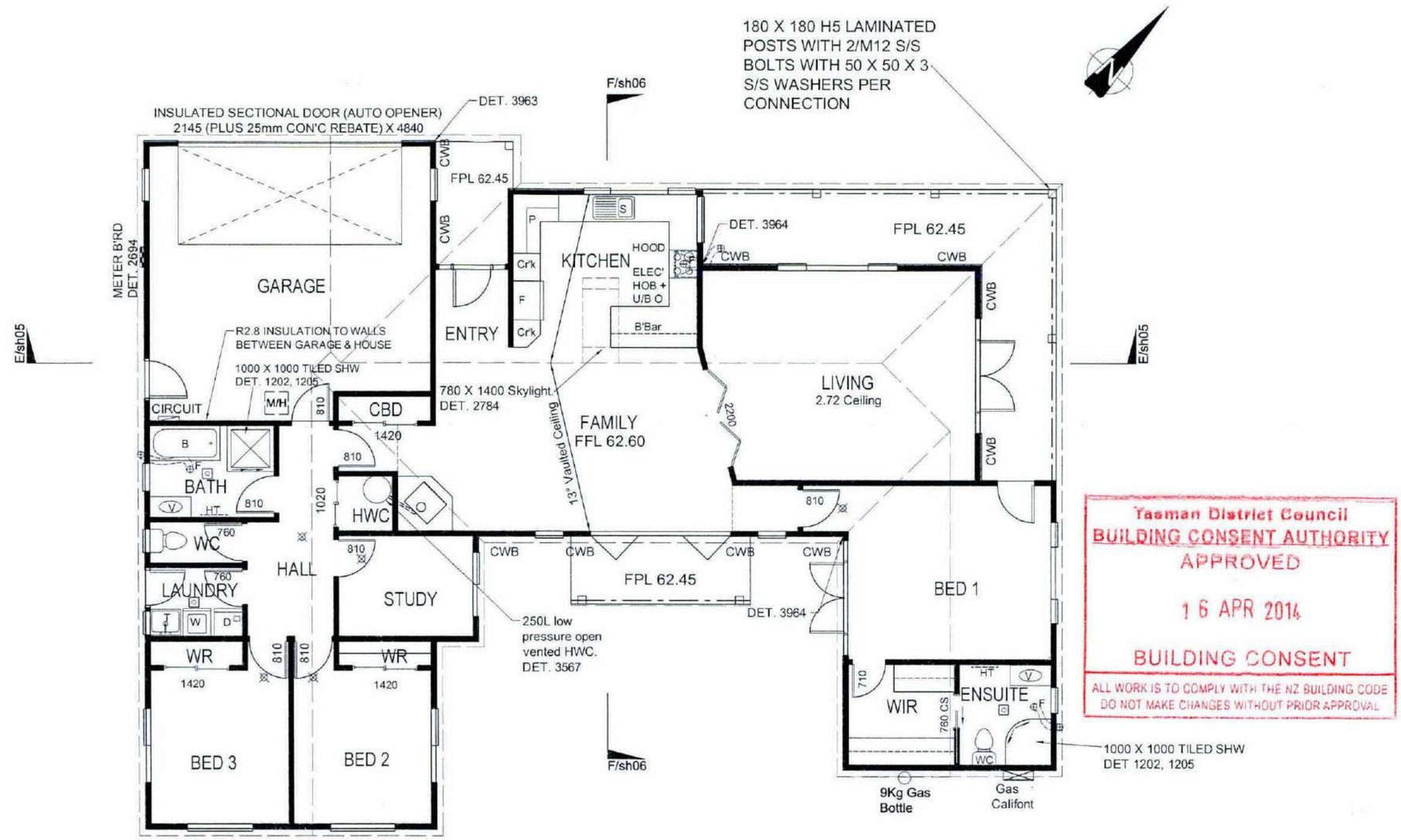
TASMAN CONSULTING ENGINEERS
s3 / 237 Queen St
PO Box 3631
Richmond NELSON
Ph: (03) 544-6404
Fax: (03) 544-6694

STORMWATER DISPOSAL SYSTEM
H A KEOGHAN
62 PITFURE RD, WAKEFIELD, NELSON

Scale 1:20 Original size A3	Sheet S2 of 2
Date 19-02-14	
Drawn RJO	File 14036

NOTES:

01. Site check all window & door rough opening frame sizes on site before manufacturing windows.
02. All window sizes shown are rough opening sizes. Allow for shim, air seal & flashing space both ways.
03. ⊕F Install ceiling fans/range hood vented to exterior through soffit.
    Install automatically controlled humidity sensor switches to ensuite & bathroom fans.
    Mechanical ventilation to comply with NZBC sections E2, E3 & G4.
04. ⊠ Type 1 Domestic interconnected Smoke alarm to be installed as per NZBC F7/AS1, with hush facility allowing minimum duration of 60 seconds & test facility.
05. ⊡ Floor waste installed as per G13/AS1 clause 3.4.3 (c)
06. H.W.C. copper drain pipe (min 20mm) to finish over external gully trap & comply with NZBC G12/As1 6.7.2
07. H.W.C. to be seismically restrained & have a tempering valve to the hot water line before services complying with NZBC.
08. 'Tiled' showers where noted on floor plan to be read in conjunction with details 1202, 1205 & water proof membrane manufacturers details.
    See detail M13 in specifications for plumbing penetrations.
09. Pre-wire house for security system.
10. _HT_ Install energy saving Skope Smart-timer for each heated towel rail.
11. Install Cat7 Ethernet cabling or better, 'star wired' so that it travels out from a central point with dedicated cabling to most rooms complying with 'TCF Premises Wiring Code of Practice'.
    Install wiring so it can provide an open, flexible platform for the communication and entertainment needs of the modern "smart home" & provide good long-term performance and reliability for the home owner.
12. 9Kg Gas Cylinder on 50mm concrete paving. Install seismic restraint by chain & hooks secured to the building structure complying with NZBC & Gas Regulations 1993.
13. Free Standing Fire with Wetback on 65mm conc' hearth secured for earthquake & installed to Manufacturers Specs & NZBC



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DESIGN BASIS.	
Wind Zone:	High
Earthquake Zone:	2
Snow Zone:	N3 (<400 = 1kPa)
Exposure Zone:	B
Design Standards:	NZ Building Code / approved documents & means of compliance, including NZS 3604

FLOOR PLAN 1 : 100

Plans READY
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design77@ihug.co.nz
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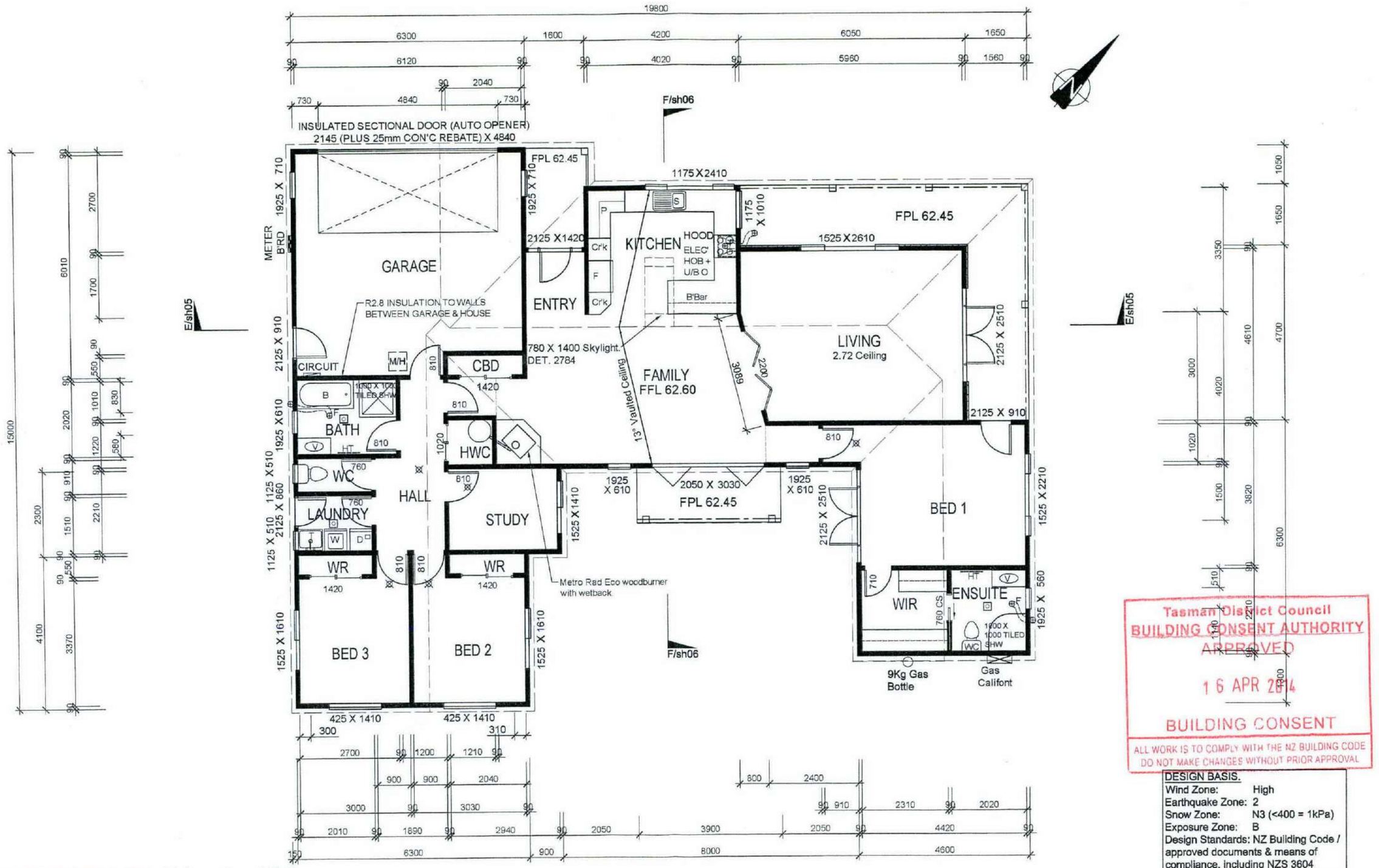
A.D. COCHRANE DESIGN & DRAW LTD.

RADFORD II 25/850
HA. KEOGAN
LOT: 3. DP. 464445
62 PITFURE ROAD, WAKEFIELD

All dimensions & levels to be site checked by contractor before commencement of work. Contractor to report any discrepancy.

A B C D

DESIGNED	DRAWN	SHEET
A.D.C	K.M.G	01 OF 11
DATE: MAR 2014	AREA TOTAL: 198.55 m sq ft sq	
AMENDED: 04/04/14	SCALE (A3): 1:100	



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DESIGN BASIS.

Wind Zone:	High
Earthquake Zone:	2
Snow Zone:	N3 (<400 = 1kPa)
Exposure Zone:	B
Design Standards:	NZ Building Code / approved documents & means of compliance, including NZS 3604

DIMENSION PLAN 1 : 100

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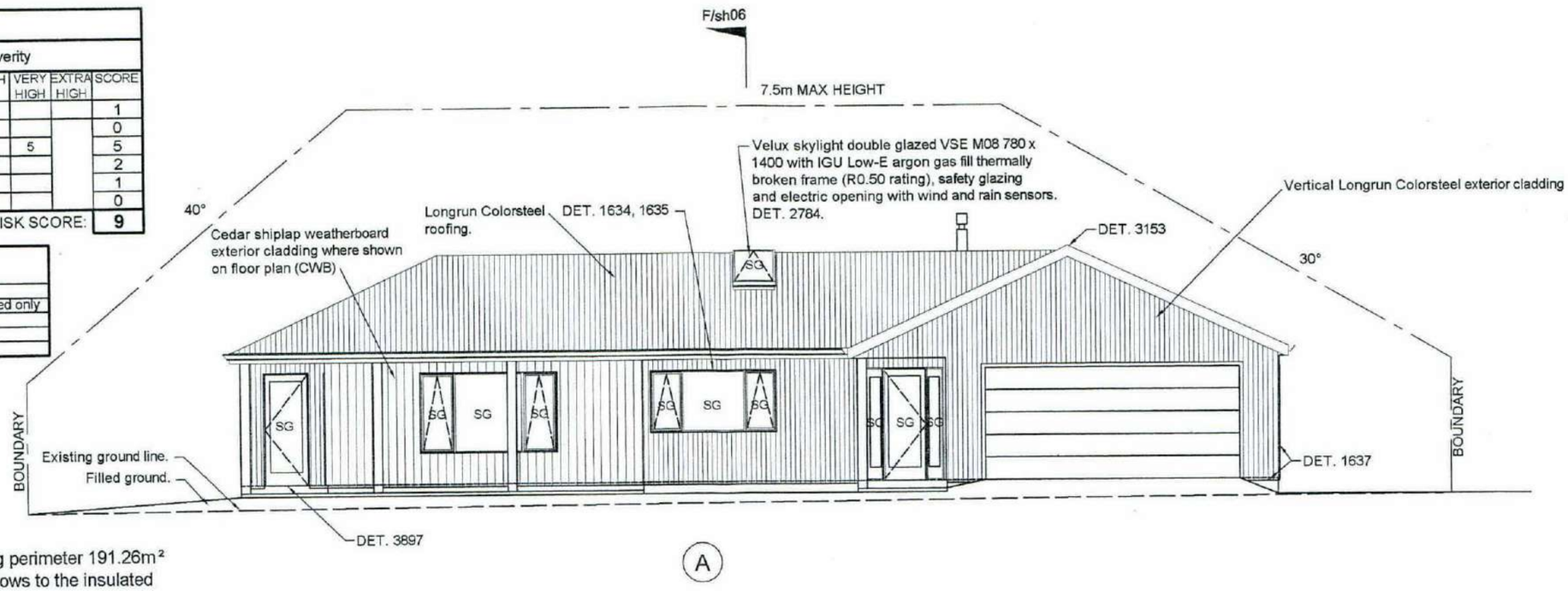
A B C D

DESIGNED A.D.C	DRAWN K.M.G	SHEET 02 OF 11
DATE MAR 2014	AREA TOTAL 198.55 m sq / ft sq	
AMENDED	SCALE (A3) 1:100	

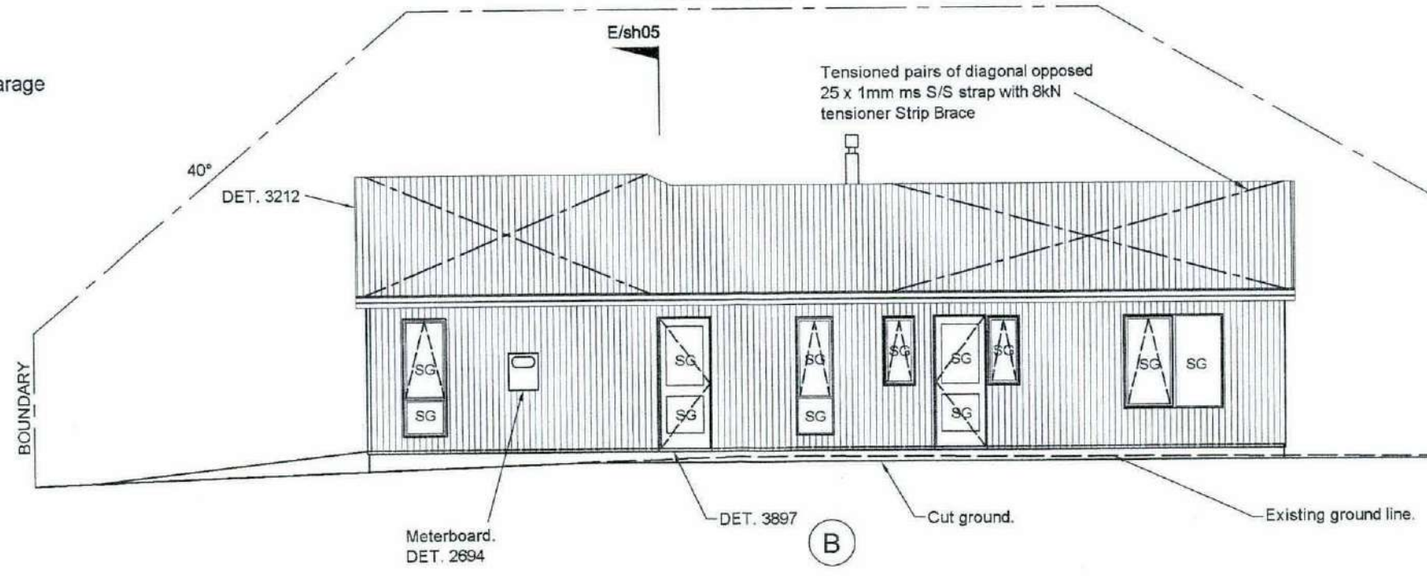
Table 2: Building envelope risk matrix NZBC E2						
Highest risk score used for all walls (E2/3.1.2)	Risk severity					
Risk Factor	LOW	MEDIUM	HIGH	VERY HIGH	EXTRA HIGH	SCORE
Wind zone (per NZS 3604)			1			1
Number of storeys	0					0
Roof/wall intersection design				5		5
Eaves width			2			2
Envelope complexity		1				1
Deck design	0					0
					TOTAL RISK SCORE:	9

Table 3: Suitable wall claddings	
Risk Score	
7 - 12	Direct fixed to framing
	c) Vertical profiled metal - corrugated only
	Over nominal 20mm drained cavity
	Vertical shiplap weatherboards



NZBC H1 Insulation:
Scheduled method used.
Total wall area of insulated building perimeter 191.26m²
Total glass area of doors and windows to the insulated building perimeter: 49.26m² (25.8%)
Skylight is 1.09m² - complies with max' 1.2m²

Proposed Insulation:
R5.0 Ceiling insulation with min 25mm air gap to underside of roof underlay.
R2.8 Wall insulation
R0.26 windows double glazed
R0.50 Velux VSE skylight
50mm EPS polystyrene under slab (excluding garage floor area)



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ELEVATIONS

Light gable roofs shall have pairs of diagonal opposed 25 x 1mm ms S/S strap with 8kN tensioner for every 50m²

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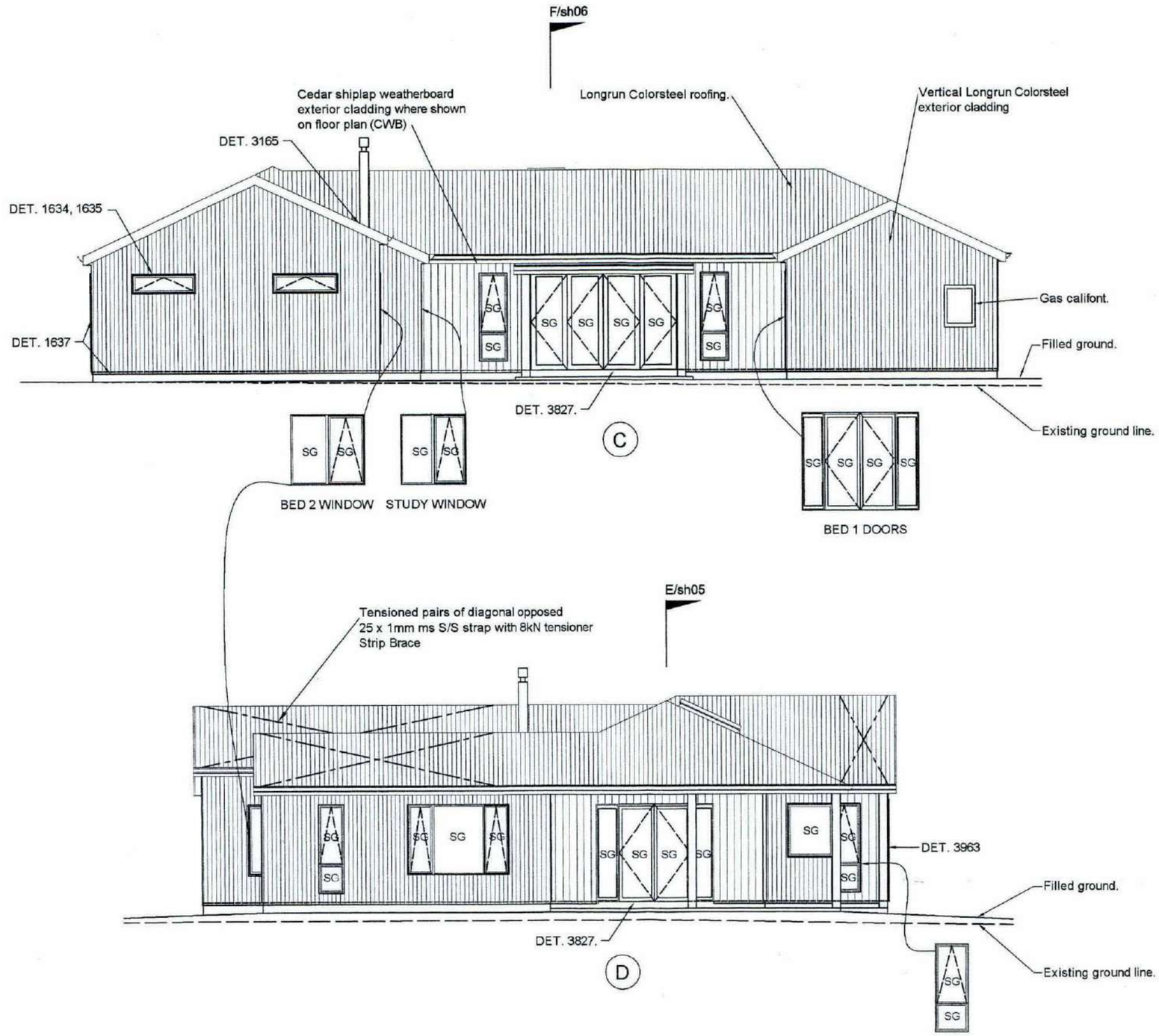
A B C D

DESIGNED	DRAWN	SHEET
A.D.C	K.M.G	03 OF 11
DATE: MAR 2014	AREA TOTAL: m sq / ft sq	
AMENDED	SCALE (A3): 1:100	



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A B C D

DESIGNED	DRAWN	SHEET
A.D.C	K.M.G	04 OF 11
DATE: MAR 2014	AREA TOTAL: m sq / ft sq	
AMENDED	SCALE (A3): 1:100	

ROOF:
Corrugated Longrun Colorsteel Endura roofing on self supporting bituminous building paper roof underlay on 70 x 45 H1.2 purlins (on flat) @ 750 crs on trusses to manufacturers specifications @ max 900 crs. Truss & roof framing timber treatment to comply with NZBC / B2.3.1 & no less than H1.2 treatment.
Install roof plane bracing as per NZ3604 (2011).
Where specific design by the truss manufacturer creates any load bearing points on beams/ lintels, foundation thickening/ pads & hold down fixings additional to NZS3604 (2011) requirements, these are to be referred to by the truss manufacturer & be noted on their plans.

WIND UPLIFT PREVENTION:
Install tie down fixings to prevent wind uplift incl. top plates & trusses as per NZS3604 (2011) tables 10.10/ 10.11, 10.14 for truss fixing types, roof nail schedule 10.18 & fig 10.21
Refer to NZS3604 (2011) fig 8.12, lintel fixing table 8.14, top plate fixing table 8.18 to prevent uplift & wall nailing schedule 8.19

CEILINGS:
Line ceilings with 13mm Gib on 70 x 35 H1.2 ceiling battens @ 600 crs. and 140 x 35, 190 x 35 H1.2 top plate packers.

STRUCTURAL TIMBER STRENGTH:
Use SG6 timber grade unless noted differently on plan for specific members.

DISSIMILAR MATERIALS:
Isolate DISSIMILAR metals in close proximity by painting surfaces or fitting bituminous separator strips. Also place isolators to treated timber and cement-based materials.

WALL FRAMING:
Stud height = 2.4m 90 x 45 Kiln dried H1.2 studs @ 600 crs.
Stud height upto 3.0m 90 x 45 Kiln dried H1.2 studs @ 400 crs.
Stud height upto 3.3m 90 x 70 Kiln dried H1.2 studs @ 400 crs.

Exterior frame bottom plates to be H3.2
Install dwangs @ 400 crs to walls with Cedar Weatherboard cladding and @ 800 crs typical.
Fix bottom plates to conc' on DPC with proprietary post fixed M12 S/S anchors @ max 900mm crs & min 90mm into conc' slab & @ max 800mm crs. when used on slab edges formed by masonry header blocks min 120mm into conc' foundation. Set anchors max 150mm from corners. Anchors to maintain a min distance of 55mm to the outside face of the concrete. use 50 x 50 x 3mm S/S washers. Install bolts to manufacturers specifications including requirements for proprietary bracing systems & taking care to set at min distance from masonry edge.

TANALISED TIMBER TREATMENTS:
All cut or bored surfaces to tanalised timber to be treated with paintable Metalex preservative complying with NZS 3640 & NZBC.

INSULATION:
Insulate exterior walls (except garage) with R2.8 rated fibreglass batts.
Insulate walls between house & garage with R2.8 rated fibreglass batts.
Insulate ceiling with R5.0 rated fibreglass batts (except garage). Cut batts down at ceiling perimeter to achieve a min 25mm air gap to underside of roof underlay.

EAVES:
4.5 mm Hardiflex soffit lining on ex 90 x 45 H1.2 bearers & ribbon plates. Install colorsteel fascias & 125 quad gutters (70 x 125) or equiv, with min 2mm fall per 1m. Install Marley UPVC 65 dia down pipes.

DOORS & WINDOWS:
Aluminium exterior windows and doors, powder coated & Metro GlassTech warm edged
double glazing (R0.26 rating) except in garage. Install sight rails at 700mm above floor level where shown on elevations. Glazing to doors, side lights, bathrooms, balustrades, roof glazing & glazing within 1200mm above floor level to be grade A safety glass.
All glazing to comply with NZS 4223: Part 3 & NZBC H1.
Site check rough opening sizes before manufacturing windows.
Install pressure equalization seals around all windows & doors. Install safety restrictor stays allowing max 100mm opening to windows that have a 1.0m fall or greater to the exterior.
Install sill support bars or mechanism to doors & windows to manufacturers specifications.

All external windows, doors, vents, cladding & penetrations to exterior envelope of building to be flashed or sealed in compliance with NZBC section E2 & manufacturers specifications.
Approved applicator to install flashman flashing systems.

NOTE:
1. CHARTERED PROFESSIONAL ENGINEER TO SITE CHECK FOUNDATION EXCAVATIONS, INCLUDING SCALA PENETROMETER TESTING OF FOUNDATION SOIL & REVIEW FOUNDATION DESIGN. SEE ENGINEERS INSPECTION SCHEDULE FOR OTHER INSPECTIONS REQUIRED.
2. FOUNDATIONS SHALL BE EXCAVATED TO A DEPTH OF AT LEAST 600mm TO BEAR ON GROUND COMPLYING WITH THE REQUIREMENTS OF NZS 3604: 2011

INTERIOR LININGS:
Line walls interior with 10mm Gib. Use 9mm Hardies Villaboard substrate behind tiles to shower area, installed to manufacturers specifications.
Use Aqualine Gib in water splash areas installed to manufacturers specifications. Both wall & floor lining materials & finishes to satisfy the performance for impervious & easily cleaned surfaces in areas exposed to water splash complying with NZBC E3/AS1 3.0. Use water proof grout to tiles in water splash areas. Provide movement control joints to tiles to comply with NZBC & means of compliance + manufacturers specifications. Where a conc' floor control joint or saw cut is required under a tiled area set out the tiles to coincide with the joint / cut and use a flexible grout. Do not put control joints / cuts in conc' under tiled showers or other tiled water splash areas.
Use Aqualine Gib in kitchens - install min 5mm thick ceramic tiles or 5mm toughened glass upstand min 150mm high over Aqualine Gib to walls within 200mm of cooking hob / appliance, installed to manufacturers specifications.
Bench cut out for hob min 50mm from back of bench top.
Finish to Aqualine Gib used in water splash areas to comply with NZBC section E3 clause 3.1.2 (f) vinyl coated wall paper or semi gloss or gloss coating installed to manufacturers specifications.

Install hose burst valves to taps servicing washing machines, dishwashers, fridges & other high water use appliances.

Bath splash zone to comply with NZBC section E3 fig 3 (a) with wall linings including impervious lining extending to wall bottom plate.

'Enclosed Tiled' shower where noted on floor plan to be read in conjunction with details 1202, 1205, M13 (in specification) & water proof membrane manufacturers details. Use water proof grout to tiles in water splash areas. Provide a hob to the perimeter of the glazed shower sides. Waterproofing system & tiles to be continuos over hob perimeter. Install shower screen glazing to shower side edge of hob & use toughened grade A safety glass installed to manufacturers specifications. Approved membrane & tile installer to provide a producer statement in the form as required by the BCA.
Install Aquatite Wetwall Caddy to shower mixer to manufacturers specifications.

SLIP RESISTANCE:
Walking surfaces for access routes to have a mean coefficient of friction not less than 0.4 for level surface or 0.5 for stairs & sloping surface less than 1:10 grade complying with NZBC D1/AS1

LONGRUN CLADDING:
Exterior cladding where shown on elevations vertical Corrugated Longrun Colorsteel Maxx over heavy weight bituminous building paper approved for wind zone.

VERTICAL CEDAR SHIP-LAP CLADDING (HOUSE ONLY):
Rosenfeld Kidson RK65 vertical cedar ship-lap weatherboards over Rosenfeld Kidson CS-H 45 x 45mm draining horizontal timber cavity battens fixed horizontally to dwangs @ max 400 crs over 6mm fibre cement rigid wall underlay jointed, taped and installed to manufacturers specifications.
See Rosenfeld Kidson drawing RKV45-RU-31 for pipe penetration detail.
See Rosenfeld Kidson drawing RKV45-RU-46 for scarf joint detail.
See Rosenfeld Kidson drawing RKV45-RU-47 for nail fixing detail.
See Rosenfeld Kidson drawing RKV45-RU-48 for cavity batten detail.
Also see drawings RKNAIL & RKV45-BATT for nails and batten specifications.
INTERNAL CORNERS: RK96 Internal vertical cedar timber moulding to internal corners over hem folded C/S 65 x 65mm internal corner back flashing over draining cavity system over 6mm fibre cement rigid wall underlay jointed, taped and installed to manufacturers specifications. See Rosenfeld Kidson drawing RKV45-RU-12 for internal corner detail.

EXTERNAL CORNERS: Vertical cedar external timber moulding over hem folded C/S 65 x 54mm external corner back flashing over draining cavity system over 6mm fibre cement rigid wall underlay jointed, taped and installed to manufacturers specifications. See Rosenfeld Kidson drawing RKV45-RU-22 for external corner detail

FOUNDATION SLAB:
100mm concrete slab reinforced with grade 500E steel reinforcing mesh complying with NZBC section B1/AS1 clauses 3.1.8 & 3.1.9 on 50mm EPS polystyrene (excluding garage floor area) on damp proof membrane on 25mm sand blinding on min 150mm Base course hard fill on good ground. Foundation footings to be min 600mm deep into good ground with an ultimate bearing capacity of not less than 300 kPa (to engineers approval on site) . All reinforcing steel, including welded mesh, shall be Ductility Class E in accordance with NZS 4671.
All slab-on-ground reinforcing shall extend to within 75 mm of the outside edge of the slab (including the foundation wall) with 30mm top cover & shall consist of a minimum 2.27 kg/m ² welded reinforcing mesh sheets (1.15 kg/m ² in each direction) conforming with NZS 4671, which shall be lapped at sheet joints by 225 mm or in accordance with the manufacturer's requirements, whichever is greater. Slabs shall have a maximum dimension of 24 metres between free joints.
Install "D.P.C" between all conc' & timber. All topsoil & soft material to be removed under conc' slabs down to good ground & replaced with hard fill compacted at 150mm layers.

AIR BARRIER:
Install Hardies 3.5mm HomeRAB board rigid air barrier sheathing taped & sealed to manufacturers specifications behind exterior cladding where there are no internal linings such as gable ends to roof cavities etc.

EXPOSED STEEL COATINGS:
Stainless Steel (s/s) fixings & where used for flashings etc shall be minimum Type 304. Use Minimum Type 316 where appearance is a consideration or within a geothermal zone.
Stainless Steel exposed to wind blown salt deposits but sheltered & not regularly rain washed, shall be coated with grease or other suitable covering & must be visually inspected regularly for signs of corrosion & a maintenance schedule adopted to comply with manufacturers requirements.

DURABILITY:
Durability of materials and components shall be of a minimum standard as required by NZBC approved document B2. Assembly methods & maintenance of materials and building elements shall comply with NZBC, approved documents, means of compliance and manufacturers specifications to maintain compliance with with durability certificates and guarantees, requirements & conditions.

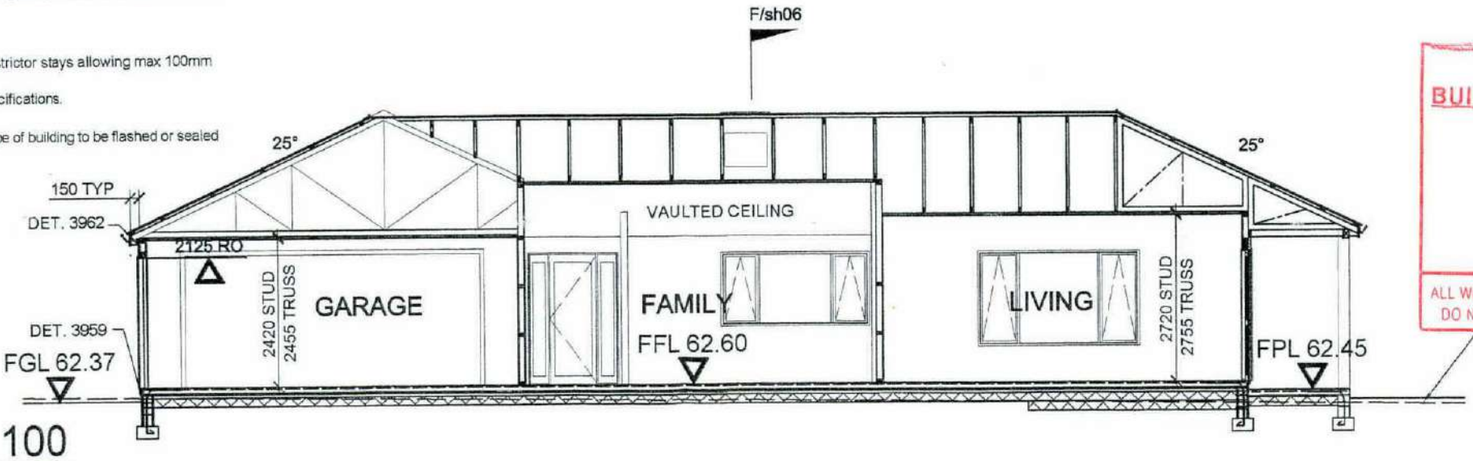
INSPECTIONS:
The Building Contractor shall notify Official Building Inspectors, Chartered Professional Engineers & other people involved in checking or approving works at required time for inspections. Arrange Chartered Professional Engineer to provide a PS4 on completion of building work to Local Territorial Authority before issue of code of compliance certificate.

CERTIFICATES:
The Contractor is required to provide a code of compliance certificate (CCC) from the Building Consent Authority to the owner including copy of certificates of works (COW) for restricted building work (RBW). All restricted building work is to be carried out by licensed building practitioners (LBP) in the relevant field of work.

TRUSS & WALL FRAME LOADINGS PS1:
Manufacturers to provide a design certificate (PS1) plus plan for trusses & specific designed beams, lintels, fixings, etc to local territorial authority.

DETAIL NUMBERS:
This drawing is to be read in conjunction with Details Nos: 1202, 1205, 1634, 1635, 1637, 2694, 2784, 3153, 3165, 3212, 3216, 3567, 3827, 3831, 3897, 3959, 3960, 3961, 3962, 3963, 3964

ROSENFELD KIDSON VERTICAL CEDAR SHIP-LAP W/B CLADDING SYSTEM DETAILS:
RKV45-RU-01, RKV45-RU-01A, RKV45-RU-02, RKV45-RU-02A, RKV45-RU-03, RKV45-RU-03A, RKV45-RU-012, RKV45-RU-22, RKV45-RU-31, RKV45-RU-41, RKV45-RU-42, RKV45-RU-46, RKV45-RU-47, RKV45-RU-48, RKNAIL, RKV45-BATT



SECTION E - E 1 : 100

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62 PITFURE ROAD, WAKEFIELD
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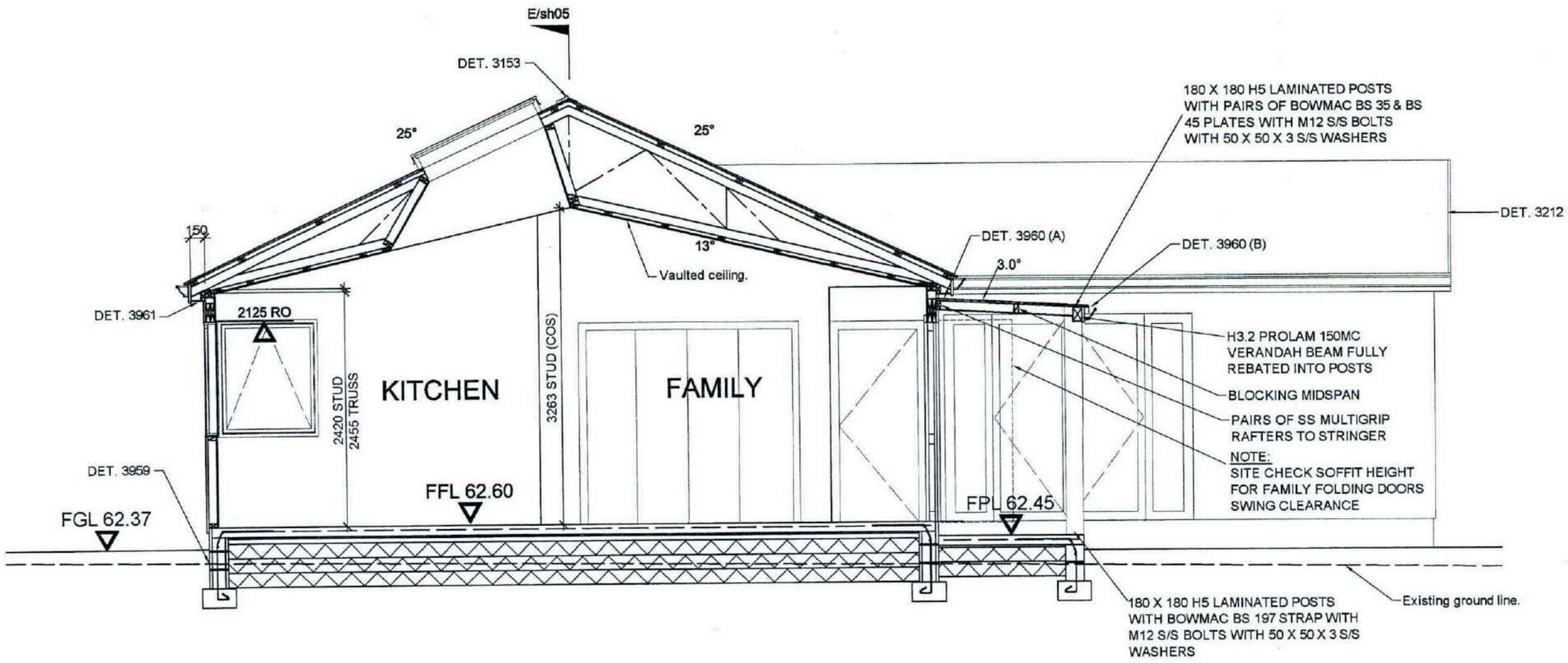
A B C D

DESIGNED	DRAWN	SHEET
A.D.C	K.M.G	05 OF 11
DATE: MAR 2014	AREA TOTAL: m sq / ft sq	
AMENDED	SCALE (A3): 1:100	

VERANDAH ROOF:

Butynol roofing on 20mm H3 CCA water based treated ply min CD grade (sanded C face upwards) with 3mm gap between joints. Flash up under roof for a min 150mm vertical rise. 90 x 45 H3.2 rafters at max 400 crs with 70 x 45 blocking midspan . All internal supporting timber members to be H3.2 treated. Fix substrate with 10 gauge x 50mm S/S countersunk screws @ 150mm crs to edges and 200mm crs to substrate to manufacturers specifications. Butynol layer to liase with builder before construction begins plus approve constructed substrate before continuing with product installation and flashings.



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2. FOUNDATIONS SHALL BE EXCAVATED TO A DEPTH OF AT LEAST 600mm TO BEAR ON GROUND COMPLYING WITH THE REQUIREMENTS OF NZS 3604: 2011

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SECTION F - F 1 : 50

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A B C D

DESIGNED A.D.C	DRAWN K.M.G	SHEET 06 OF 11
DATE MAR 2014	AREA TOTAL m sq fl sq	
AMENDED	SCALE (A3) 1:50	

NOTES:

1. A1 / BL1-H / 0.6 — Brace No. / Brace Type / Brace Length

2. A / 180 — Brace line label / Min bracing units required

3. ** Lintel uplift fixings required per NZS3604 Fig 8.12 or an alternative fixing of 7.5 KN capacity in tension along the line of the trimming stud. See NZS3604 (2011) Fig 8.12

4. Small openings in braced sheet elements for power points, circuit boards etc to comply with manufacturers specifications and NZBC including min distances from sheet edges, max opening size, location within element & fixings etc

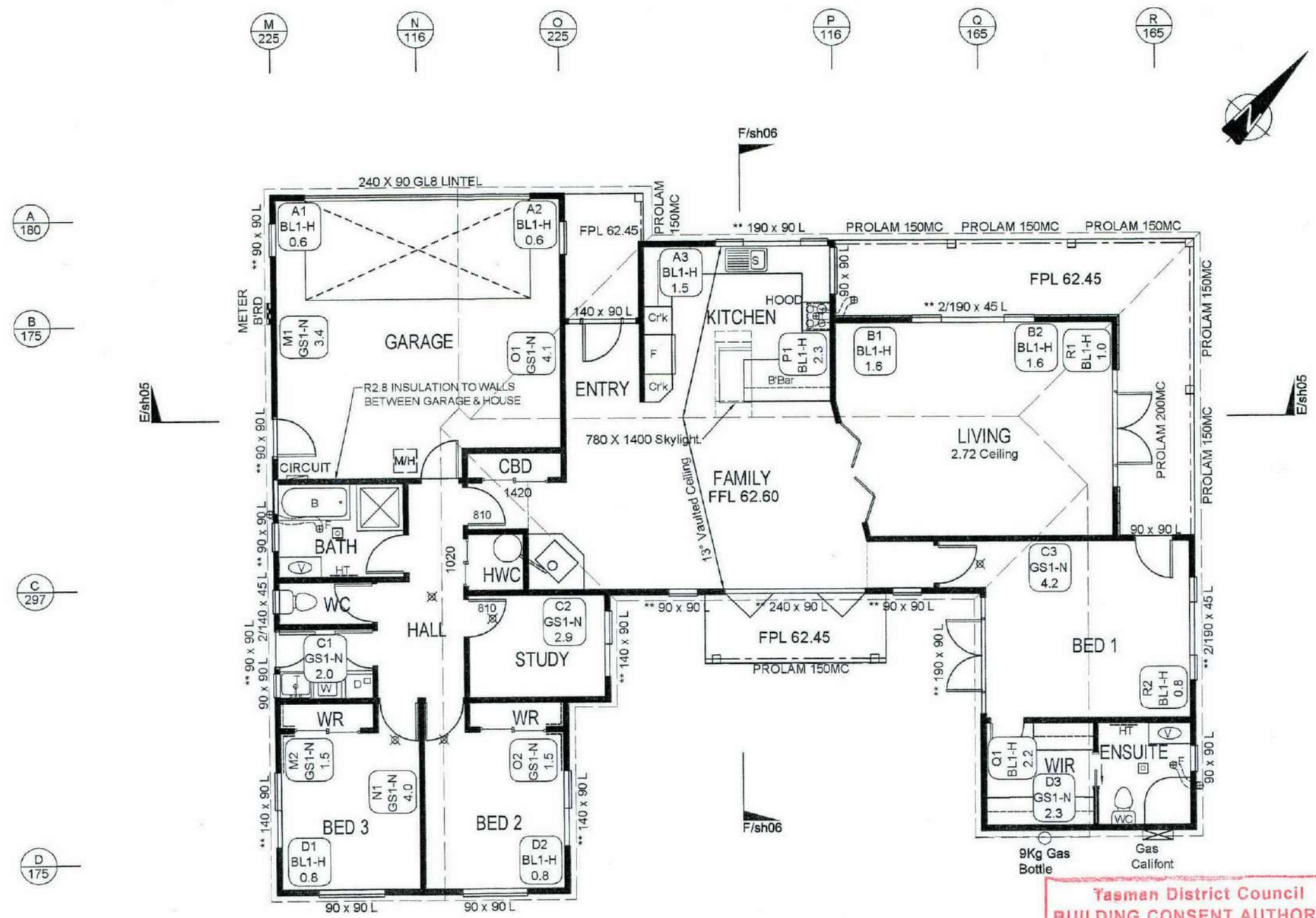
5. Use Proprietary 'Bowmac M10 x 140mm Screw Bolt' supplied for 'GIB HandiBrac' panel hold-down bracket fixing. Install to manufacturers specifications.

6. See manufacturers details & specifications for Prolam beam fixings. All verandah beams to be H3.2 treated.

Fixing types and capacity for Purlins/battens		
FIXING TYPE	FIXING DESCRIPTION Tables 10.10 NZS3604	FIXING CAPACITY (kN)
T	1 / 10g self-drilling screw, 80mm long	2.4
* if screw fixed, screws shall be sufficiently long so as to penetrate rafter by at least 50mm		

Fixing types and capacity for roof trusses		
FIXING TYPE	FIXING TO RESIST UPLIFT Table 10.13 NZS3604	ALTERNATIVE FIXING CAPACITY (kN)
See truss manufacturers layout		

Fixing of top plate of wall to supporting members such as studs & lintels at 600mm centres		
FIXING TYPE	FIXING TO RESIST UPLIFT Table 6.18 NZS3604	ALTERNATIVE FIXING CAPACITY (kN)
See truss manufacturers layout		



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BRACING & LINTEL PLAN 1 : 100

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LOT: 3. DP. 464445
62 PITFURE ROAD, WAKEFIELD
All dimensions & levels to be site checked by contractor before commencement of work. Contractor to report any discrepancy.

DESIGNED	DRAWN	SHEET
A.D.C	K.M.G	07 OF 11
DATE: MAR 2014	AREA TOTAL: 198.55 m sq / ft sq	
AMENDED	SCALE (A3): 1:100	

1. SC - Saw Cut to be $\frac{1}{4}$ of slab thickness.
2. CJ Construction joint around all tiled floor perimeters
3. Shrinkage control joints to comply with NZS3604 sec 7
4. Where a conc' floor control joint or saw cut is required under a tiled area set out the tiles to coincide with the joint / cut and use a flexible grout. Do not put control joints / cuts in conc' under tiled showers or other tiled water splash areas.
5. ⊡ Floor waste installed as per G13/AS1 clause 3.4.3 (c)
6. Rebate Door Sills into floor.

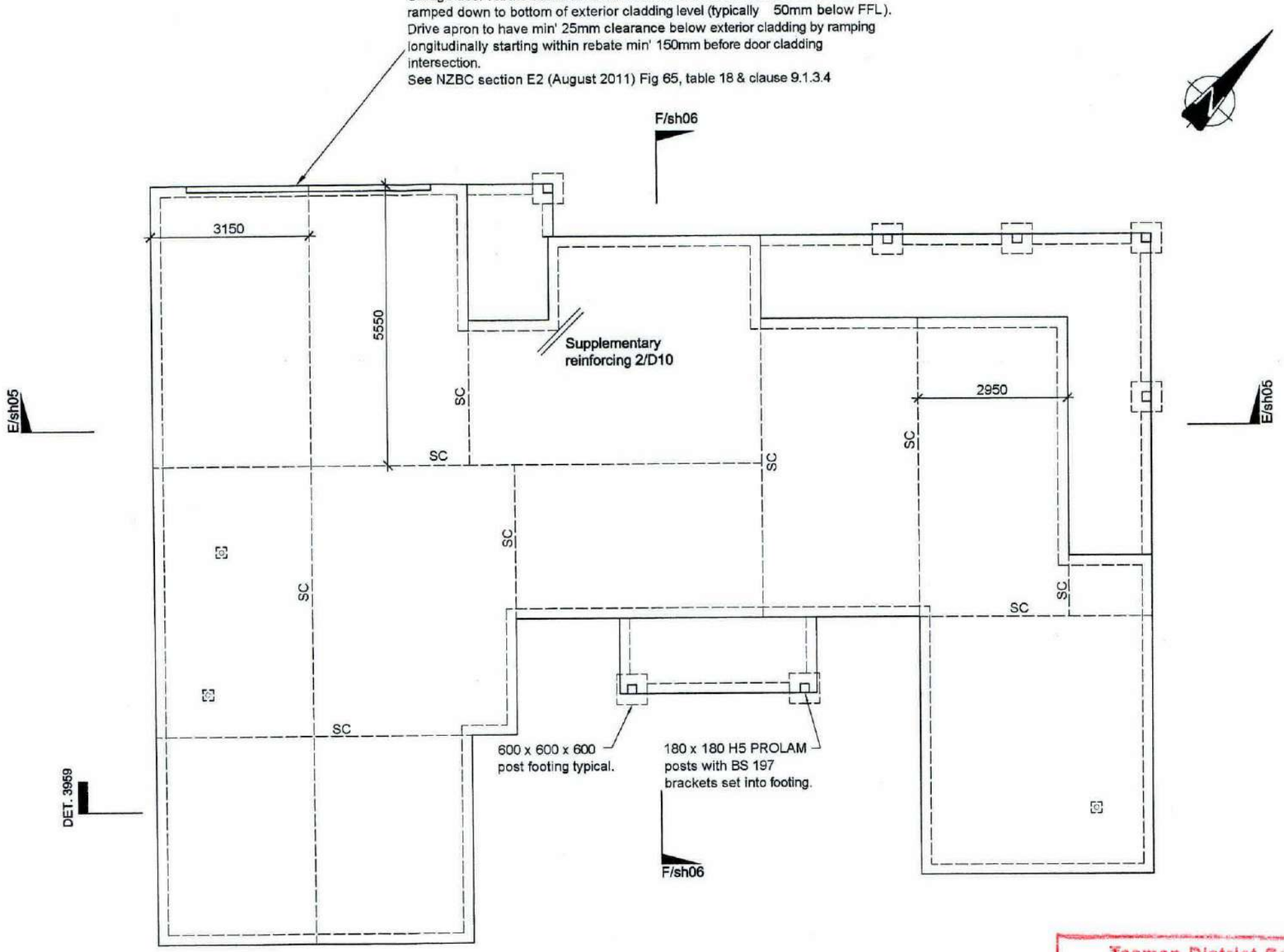
FOUNDATION/SLAB INSULATION RATING:

Slab Area= 162m²
Slab Perimeter length= 77.7m

Slab Area/Perimeter ratio = 2.08
90mm stud wall, full cover 50mm EPS polystyrene under slab = R2.45
Exceeds min R1.3 requirement.

Calculated by Design Navigator

NOTE:
1. CHARTERED PROFESSIONAL ENGINEER TO SITE CHECK FOUNDATION EXCAVATIONS, INCLUDING SCALA PENETROMETER TESTING OF FOUNDATION SOIL & REVIEW FOUNDATION DESIGN. SEE ENGINEERS INSPECTION SCHEDULE FOR OTHER INSPECTIONS REQUIRED.
2. FOUNDATIONS SHALL BE EXCAVATED TO A DEPTH OF AT LEAST 600mm TO BEAR ON GROUND COMPLYING WITH THE REQUIREMENTS OF NZS 3604: 2011



ROOF AREA SUPPORTED BY POST
ACCORDING TO NZS3604 FIG 9.1 & TABLE 9.1 = 3.1m ² max
VOLUME OF CONCRETE REQUIRED FOR ROOF
AREA SUPPORTED = 0.20m³
COLUMN BASE IS (0.6 X 0.6 X 0.6) = 0.22m³,
MIN VOLUME EXCEEDED
TABLE 9.2 MIN 5.9kN POST & BEAM CONNECTIONS

Tasman District Council
BUILDING CONSENT AUTHORITY
APPROVED
16 APR 2014
BUILDING CONSENT
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

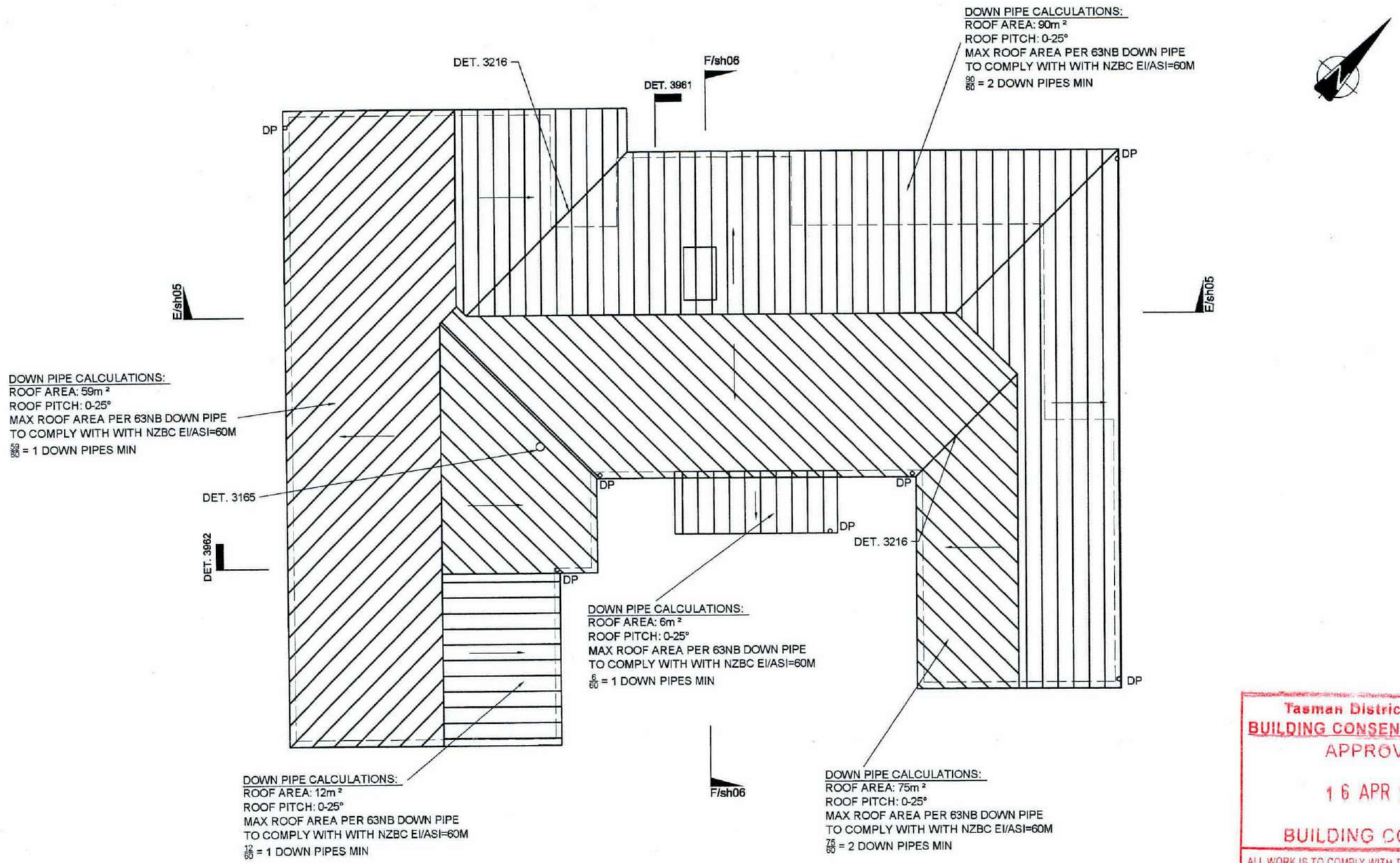
SLAB CONTROL JOINTS PLAN 1 : 100

Plans READY
PHONE / FAX [03] 544 0799
[03] 548 8188
design77@ihug.co.nz
P.O BOX 3209, RICHMOND NELSON
A.D. COCHRANE DESIGN & DRAW LTD.

RADFORD II 25/850
HA. KEOGAN
LOT: 3. DP. 464445
62 PITFURE ROAD, WAKEFIELD
All dimensions & levels to be site checked by contractor before commencement of work. Contractor to report any discrepancy.

A B C D

DESIGNED	DRAWN	SHEET
A.D.C	K.M.G	08 OF 11
DATE: MAR 2014	AREA TOTAL: 198.55 m sq / ft sq	
AMENDED	SCALE (A3): 1:100	



Tasman District Council
BUILDING CONSENT AUTHORITY
APPROVED
16 APR 2014
BUILDING CONSENT
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

ROOF CATCHMENT PLAN 1 : 100

PHONE / FAX [03] 544 0799
[03] 548 8188
design77@ihug.co.nz
P.O BOX 3209, RICHMOND NELSON
A.D. COCHRANE DESIGN & DRAW LTD.

RADFORD II 25/850
HA. KEOGAN
LOT: 3. DP. 464445
62 PITFURE ROAD, WAKEFIELD

All dimensions & levels to be site checked by contractor before commencement of work. Contractor to report any discrepancy.

A B C D

DESIGNED	DRAWN	SHEET
A.D.C	K.M.G	09 OF 11
DATE: MAR 2014	AREA TOTAL: 198.55 m sq ft sq	
AMENDED	SCALE (A3): 1:100	

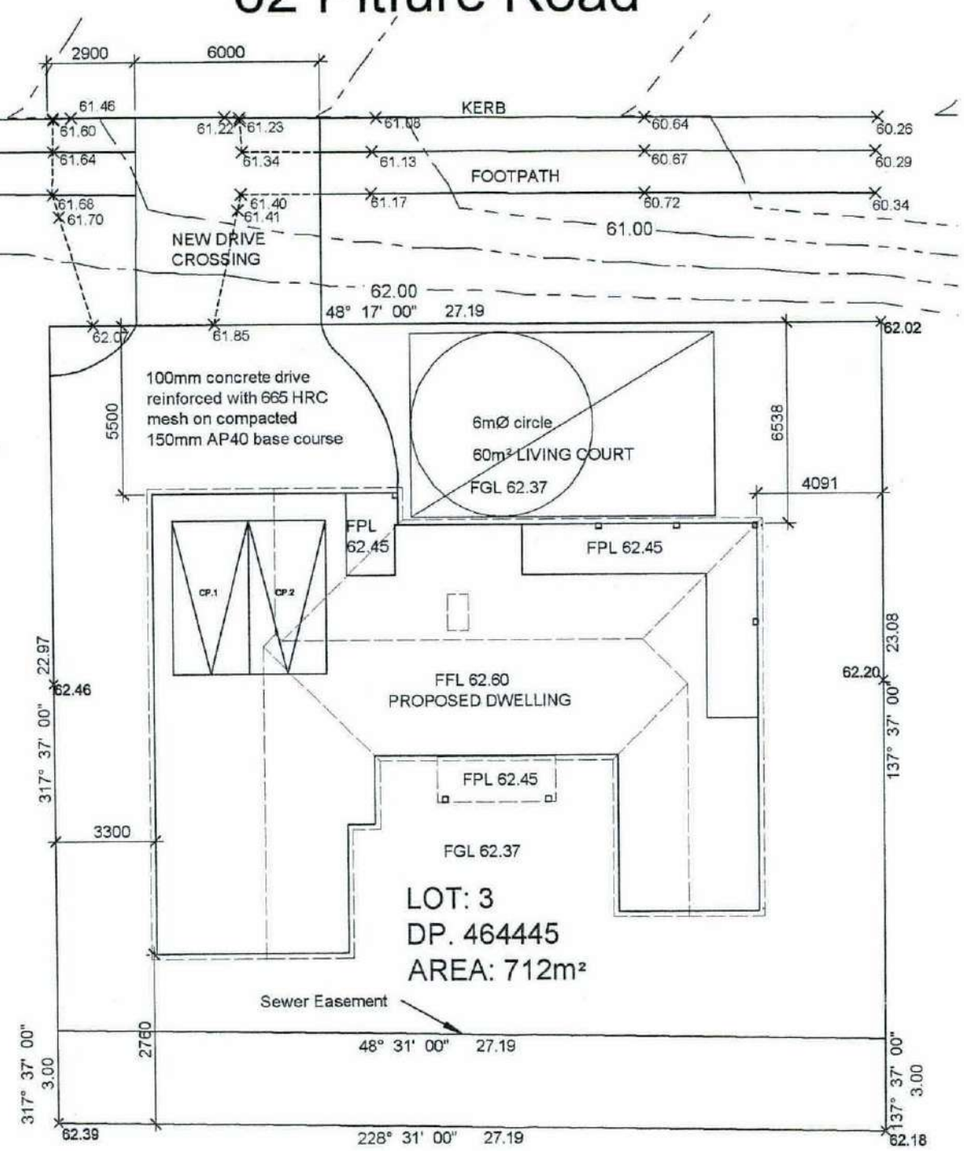
KEY:

FFL	Finished Floor Level
FPL	Finished Paving Level
FGL	Finished Ground Level

NOTE:
1. CHARTERED PROFESSIONAL ENGINEER TO SITE CHECK FOUNDATION EXCAVATIONS, INCLUDING SCALA PENETROMETER TESTING OF FOUNDATION SOIL & REVIEW FOUNDATION DESIGN. SEE ENGINEERS INSPECTION SCHEDULE FOR OTHER INSPECTIONS REQUIRED.
2. FOUNDATIONS SHALL BE EXCAVATED TO A DEPTH OF AT LEAST 600mm TO BEAR ON GROUND COMPLYING WITH THE REQUIREMENTS OF NZS 3604: 2011

SITE AREA = 712m²
HOUSE COVERAGE = 198.55m² (27.89%)

62 Pitfure Road



SITE PLAN 1 : 200

Tasman District Council
BUILDING CONSENT AUTHORITY
APPROVED
16 APR 2014
BUILDING CONSENT
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

Plans READY
PHONE / FAX [03] 544 0799
[03] 548 8188
design77@ihug.co.nz
P.O BOX 3209, RICHMOND NELSON
A.D. COCHRANE DESIGN & DRAW LTD.

RADFORD II 25/850
HA. KEOGAN
LOT: 3. DP. 464445
62 PITFURE ROAD, WAKEFIELD

All dimensions & levels to be site checked by contractor before commencement of work. Contractor to report any discrepancy.

A B C D

DESIGNED A.D.C	DRAWN K.M.G	SHEET 10 OF 11
DATE MAR 2014	AREA TOTAL 198.55 m sq / ft sq	
AMENDED	SCALE (A3) 1:200	

INSPECTION REPORT

Name: **H A Keogan**	Consent No: **BC140191**
Address: **62 Pitfure Road**	Inspected by: Graham Fittock

On **24/04/2014** at **11:28 a.m.** this site was inspected pursuant to the Building Act 2004 (section 222/230) and the Local Government Act 2004 (Section 174). The purpose of the inspection was:

01 SITING/FOUNDATIONS BUILDING PROFILES IN PLACE, TRENCHES DUG & STEEL PLACED IN, ANY PLUMBING PENETRATIONS PUT IN.

Notes Summary: Stephen Keogan 124054. siting only with bearing by Bill Andrew, PS to come.. Pegs sighted with foundation offsets as consented.. FFL datum taken as top edge of footpath adjacent to site north end. FFL as consented . Next inspection reinforcing . Consent notes block foundation, amended detail required for change to boxed. Discussed with builder the requirements of E 1 surface water, the need for chanell at drive way boundary. Ap proved to place steel. Passfail to amended foundation detail

Next Inspection: foundation reinforcing.

INSPECTION REPORT

Name: **H A Keogan**	Consent No: **BC140191**
Address: **62 Pitfure Road**	Inspected by: Graham Fittock

On **10/02/2015** at **2:47 p.m.** this site was inspected pursuant to the Building Act 2004 (section 222/230) and the Local Government Act 2004 (Section 174). The purpose of the inspection was:

07 PRE-LINE BRACE/INSULATION/PLUMBING: INTERNAL FRAMING AND BRACING LOCATION AND FIXINGS AND INSULATION MATERIAL IN PLACE BEFORE THE WALLS ARE LINED.

Notes Summary: Preline Steve Keogan, 124054. head flashing tape to wrap sighted. All bracing as consented. Handibraks to BLs , wedge anchors to GS. 75 x 35 pine ceiling battens at 600mm c. Three gun nails per truss. Tile showers over gib aqualine, metal corners to install and site at postline. Foam air seals in place. MC 12%. Pink batt insulation, R 2.8 walls, R 5 ceiling. Plumbing by Dion Hunter using Pex plus, well supported and placed within insulated envelope. Wastes to G 13. Pass/fail to plumbers rego and shower corners.

Next Inspection: Postline.

INSPECTION REPORT

Name: **H A Keogan**	Consent No: **BC140191**
Address: **62 Pitfure Road**	Inspected by: Graham Fittock

On **5/11/2014** at **2:26 p.m.** this site was inspected pursuant to the Building Act 2004 (section 222/230) and the Local Government Act 2004 (Section 174). The purpose of the inspection was:

06 POST-WRAP/CAVITY DIRECT FIX-WRAP-FLASHING TAPE IN PENETRATIONS INSTALLED - CAVITY - WRAP - FLASHING TAPE - BATTENS & CLOSERS-ROOF KICK-OUTS INSTALLED

Notes Summary: Post wrap to new house,stage one, vertical corrugated colour steel and vertical cedar. Steve Keogan 124054. Fast wrap and Watergate wrap with watergate to gables. Thermakraft tape to full sills and corners. Colour steel corrugated cladding direct fixed. Clourssteel sill tray ,flashing jamb and head flashings. Colour steel base flashing installed. Cedar clad areas have horozontal grooved H 3 cavity battens at 450 mm c. Colourssteel cavity closer in place. Due to the manor in which corrugated cladding is installed all flashing need to be installed as cladding is fixed. One window was sighted set up as intended. for remaining I have asked the builder to book another inspection part way through cladding to sight flashing systems in place. Builder is fine with this and will unscrew any sheets to expose flashings. Flashings to see are head, jamb, sill, meterbox and transition. Wanz to sight to cedar. Approved to clad. Pass/fail.

Next Inspection: Stage two postwrap.

☒ Failed Inspection Points

Meter box / gas unit flashing installed as per plan
Meter box to sight flasings at next inspection.

Head and sills turned up at ends
To sight when instlled.

Penetrations flashed as per plan
Wite and pipe penetrations to soght next inspection.

Window/Door sill support bar installed as per E2/VM1 or consent approved documents
Wanz bars to sight to cedar areas next inspection

BC140191

06 POST-WRAP/CAVITY DIRECT FIX-WRAP-FLASHING TAPE IN PENETRATIONS INSTALLED - CAVITY - WRAP - FLASHING TAPE - BATTENS & CLOSERS-ROOF KICK-OUTS INSTALLED

INSPECTION REPORT

Name: **H A Keogan**	Consent No: **BC140191**
Address: **62 Pitfure Road**	Inspected by: Graham Fittock

On **23/05/2016** at **3:24 p.m.** this site was inspected pursuant to the Building Act 2004 (section 222/230) and the Local Government Act 2004 (Section 174). The purpose of the inspection was:

32 CCC RE-INSPECTION ONCE ALL OUTSTANDING ITEMS FROM PREVIOUS FINAL INSPECTION ARE COMPLETED

Notes Summary: All remedial work completed and document supplied. CCC can now be issued.

INSPECTION REPORT

Name: **H A Keogan**	Consent No: **BC140191**
Address: **62 Pitfure Road**	Inspected by: Chris Hill

On **30/04/2015** at **3:43 p.m.** this site was inspected pursuant to the Building Act 2004 (section 222/230) and the Local Government Act 2004 (Section 174). The purpose of the inspection was:

16 WET AREA MEMBRANE (SHOWERS): PROPRIETARY WET AREA SHOWER/WALL MEMBRANE INSTALLATION BEFORE COVERING UP.

Notes Summary: 30-04-15-Membrane inspection to new dwelling.2x Shower areas including floors and bath area. Mapei aquadefence used. New specifications required for this as Ardex is specified on the plans. Waterproofing carried out by Carpet court. 3 coats in place with bond breaker. PS3 required. Result-Fail-ppwk.

Next Inspection:

☒ **Failed Inspection Points**

Membrane as per consent
New specs required.

INSPECTION REPORT

Name: **H A Keogan**	Consent No: **BC140191**
Address: **62 Pitfure Road**	Inspected by: Chris Hill

On **15/09/2014** at **2:49 p.m.** this site was inspected pursuant to the Building Act 2004 (section 222/230) and the Local Government Act 2004 (Section 174). The purpose of the inspection was:

05 FRAMING & STRUCTURE/WALLS/ROOF AND ASSOCIATED WIDE LINTEL AND BOTTOM PLATE FIXING BEFORE COVERING IN.

Notes Summary: 15-09-14-Framing inspection to new dwelling. LBP-Steve Keogan 124054. Framing to high wind zone with 25 degree roof with purlins fixed with blue screw and 2 nails to each rafter and truss.

All external truss connections in place. Internal still to complete.(see plans). all stud to top plates in place.All lintel fixings complete.

All internal and external bracing in place. DPC under bottom plates.M12 bolts with 50x50x3mm square washers in place at 900C's.

All layout as per plans.

Result-pass-fail.

Next Inspection:

INSPECTION REPORT

Name: **H A Keogan**	Consent No: **BC140191**
Address: **62 Pitfure Road**	Inspected by: Graham Fittock

On **18/04/2016** at **3:25 p.m.** this site was inspected pursuant to the Building Act 2004 (section 222/230) and the Local Government Act 2004 (Section 174). The purpose of the inspection was:

29 FINAL INSPECTION: INTERIOR/EXTERIOR/CERTS CCC NEW RESIDENTIAL DWELLING WHEN CONSTRUCTION HAS BEEN COMPLETED & CCC APPLICATION RECEIVED WITH REQUIRED FINAL DOCUMENTATION

Notes Summary: Final to house. Please see failed items for remedial work amended plans and documents required. Please hold all documents on site to pick up at reinspection. A reinspection fee applies.

Next Inspection: Reinspection required.

☒ **Failed Inspection Points**

Layout as per plans
Kitchen sky light deleted, wodd burner not installed.

Joinery installed and sealed to walls
Vanities to be sealed to wall. Ensuite mirror to install.

Mechanical vents fitted and ducted to exterior - Number
One to each bathroom consented, not noted on site. Either install or amend plan.

Smoke detectors fitted
One required to passage as consented.

Safety glazing to windows and doors and plans verified
Written confirmation required from glazier confirming that side panels to lounge and bedroom doors are not required to have safety glass .

Waterproof seal to shower and basin
Top of shower walls to be sealed to wall above. Vanities to seal to wall.

HWC secure - 3 straps
Back blocking required as noted in G12 water supplies.

BC140191
29 FINAL INSPECTION: INTERIOR/EXTERIOR/CERTS CCC NEW RESIDENTIAL DWELLING WHEN CONSTRUCTION HAS BEEN COMPLETED & CCC APPLICATION RECEIVED WITH REQUIRED FINAL DOCUMENTATION

Windows flashed/sealed to soffit
Flashed to corragate, pass. Doors require sealing to soffit.

Exterior cladding painted and weatherproof
Windows and doors in vertical cladding require side facings sealed to cladding.

PSCR Received - Structural/retaining walls
Received for house foundation and slab. PS 4 and signed dated inspection schedule required for stormwater disposal system.

Amended plans received if required
Required, delete or install 1) wood burner, 2) bathroom vents, 3)kitchen skylight.

BC«ConsentNo»
«INSPECTIONTYPE»

Stormwater soakage field.

INSPECTION REPORT

Name:	**H A Keogan**	Consent No:	**BC140191**
Address:	**62 Pitfure Road**	Inspected by:	Paul Farrar

On **27/05/2014** at **2:32 p.m.** this site was inspected pursuant to the Building Act 2004 (section 222/230) and the Local Government Act 2004 (Section 174). The purpose of the inspection was:

03 CONCRETE FLOOR SLAB: WHEN REINFORCING, DPM AND SUB-FLOOR SERVICES ARE IN PLACE BEFORE THE PLACING OF CONCRETE.

Notes Summary: Concrete floor slab inspection to new dwelling.

Builder on site Steve Keogan 124054.

100mm slab with mesh on chairs on 50mm insulation on DPM.

DPM lapped and taped.

No insulation under garage.

Pipework by Dion Hunter Reg 14259.

Laid to fall to exterior of building.

Pipework requires lagging and sealing to DPM.

Another inspection is required.

Next Inspection:

☒ **Failed Inspection Points**

DPC Penetrations lapped
DPM to be taped to pipe work penetrations

Pipes protected through slab
Pipes to have 6mm compressible material through slab with waterproof material sealed to DPM

APPLICATION FOR CODE COMPLIANCE CERTIFICATE

1. What is the Building Consent? *Complete this field*

Building consent number:	170353
Issued by: *(name of building consent authority)*	Tasman District Council

2. Who owns the building? *Complete all fields, using N/A if a field is not applicable*

Owner name:	Ricky + Brigette Hovenden	Title: e.g. Mr, Mrs, Ms, Dr			
Contact person:	Brigette.				
Owner mailing address:	62 Pitfure Road Wakefield				
Street address/ registered office:	As above				
Owner email address:	b_hovenden@hotmail.com				
Owner contact number:	0210431095				
Are you using an Agent?	☐ Yes	☑ No	*If Yes, please also complete the following:*		
Who is the first point of contact for further correspondence?			☐ Agent	☐ Owner	
Agent name:					
Agent email:					
Agent contact number:					
Agent mailing address:					

3. When was the building work completed? *Complete this field*

All building work to be carried out under the building consent specified on this form was completed on:	*dd/mm/yyyy* 17/06/2017

4. Who completed the building work? *Complete all fields on each line. You will need to complete one line for each building practitioner. Use a separate sheet if necessary.*

The licensed building practitioner(s) who carried out/supervised the restricted building work is/are:

Name	Licensing class	LBP or registration number	Work carried out/ supervised

Name	Licensing class	LBP or registration number	Work carried out/ supervised

Tradespeople who carried out building work other than restricted building work are as follows:

Name	Address	Contact number	Registration number
Allen Plumbing + Gas Ltd.	437 Nayland Rd Stoke.	03 5472809	214640

Please list specified systems installed in the building or use N/A if this section is not applicable ☑ N/A

The following specified systems are contained on **the compliance schedule for the building and, in the opinion** of the personnel who **installed them, are capable of performing to the performance standards set out in the building consent:**

5. Declaration

☑ **I understand that this application may *only* be made with the owner's approval** *(tick to indicate agreement)*

I request that you issue a code compliance certificate for this work under section 95 of the Building Act 2004. The code compliance certificate should be sent to:

☑ Owner ☐ Agent ☐ Owner address as per Section 2 ☐ Agent address as per Section 2

Name:	Brigette Hovenden
Signature:	
Date:	22/6/17

You can add a digital signature to this document, either using Adobe or your existing digital signature.

Once you have filled out the form, including signatures, please save the application to your computer. You can then submit the application with supporting documentation to your local council.

If you are unsure about what information to include in your application, a guidance document is available (click here).

INSPECTION REPORT

Name:	**Brigette Hovenden & Ricky Hovenden**	Consent No: **BC170353**
Address:	**62 Pitfure Road, Wakefield**	Inspected by: Pete Fitzgerald

On **30/06/2017** at **4:27 p.m.** this site was inspected pursuant to the Building Act 2004 (section 222/230) and the Local Government Act 2004 (Section 174). The purpose of the inspection was:

26 FINAL INSPECTION: FIRE FREE-STANDING WHEN FREE-STANDING FIRE HAS BEEN COMPLETELY INSTALLED & SMOKE ALARMS FITTED

Notes Summary: Out standing point has now been fixed, fire is ready to light, please issue CCC.

Next Inspection:

☒ **Failed Inspection Points**

INSPECTION REPORT

Name:	**Brigette Hovenden & Ricky Hovenden**	Consent No: **BC170353**
Address:	**62 Pitfure Road, Wakefield**	Inspected by: Pete Fitzgerald

On **27/06/2017** at **4:00 p.m.** this site was inspected pursuant to the Building Act 2004 (section 222/230) and the Local Government Act 2004 (Section 174). The purpose of the inspection was:

26 FINAL INSPECTION: FIRE FREE-STANDING WHEN FREE-STANDING FIRE HAS BEEN COMPLETELY INSTALLED & SMOKE ALARMS FITTED

Notes Summary: Framing in roof incorrect, have spoken to the owner where the problem area is, and to be fix as per the insterlation gide shows.

Next Inspection:

☒ **Failed Inspection Points**

Framing in roof correct

Application for Building Consent

COUNCIL USE ONLY
BC Number

RECEIVED
5 - APR 2017
TASMAN DISTRICT COUNCIL
CUSTOMER SERVICES 4

1. What are you applying for? *Tick all applicable*

[1] *For PIM only applications, complete Sections 1-7, and 13 only*
Follow instructions as per section

- ☑ Building Consent
- ☐ Amendment to Building Consent[2]
- ☐ Staged Consent[2]
- ☐ Project Information Memo (PIM)[1]
- ☐ Building Consent using a National Multiple-Use Approval ('MultiProof')[3]

[2] *Please enter existing building consent number below:*	[3] *Please enter National Multiple-Use Approval number below:*

2. What building work are you doing? *Tick all applicable*

If your building work is not listed, tick ***Other*** *and provide details (this includes amendments to building consents*

☑ **Residential**		
☐ New detached dwelling	☐ New multi-residential dwelling (more than 2 household units)	☐ Plumbing works
☐ Major alterations/additions – any work that **includes** altering or attaching to the exterior of a building	☐ Minor alterations – any internal work that **does not include** altering the exterior of the building	☑ New solid fuel burner
☐ Garage/detached carport	☐ Other *(please provide details below)*	
☐ **Commercial/Industrial**		
☐ New commercial/industrial building	☐ Major alterations/additions – any work that **includes** altering or attaching to the exterior of a building	☐ Seismic strengthening
☐ Minor alterations – any internal work that does **not include** altering the exterior of the building	☐ Internal fit-out only (including plumbing and ventilation)	☐ Other *(please provide details below)*

3. Where is the building work? *Complete all fields, enter N/A where not applicable*

What is the street address?	*No street address? State nearest street intersection and distance/direction from that intersection. 62 Pitfure Road Wakefield.			
Legal description:	Lot: 3		DP: 464445	
Building name:				
Location of building within site/block including near street access:				
Does the building or site have any cultural or heritage significance, or is it a marae?	☐ Yes	☑ No		
If yes, provide details				
Is the subdivision of an existing site involved?	☐ Yes	☑ No		
If a subdivision is proposed and you have not yet received a s224 certificate, the application will also need to provide any relevant information stating legal description as at the date of application and, if subdivision is proposed, include details of the relevant resource consent number and any proposed lot number.				
If Yes, complete the following:	Resource Consent No.			
	Proposed Lot No.			

4. Who owns the building or land? *Complete all fields*

Owner name:	Ricky + Brigette Hovenden	Title: eg Mr, Mrs, Ms, Dr	Mr + Mrs
Owner email address:	b_hovenden@hotmail.com.		
Owner contact number:	0210431095.		
Owner mailing address:	62 Pitfure Road Wakefield.		
Indicate which of the following Proof of Ownership documents is attached to your application Your document **must** be less than **3** months' old			
☑ Copy of Certificate of Title	☐ Copy of Lease Agreement	☑ Agreement for Sale and Purchase	☐ Other document showing full name of legal owner
Are you using an Agent?	☐ Yes	☑ No	*If Yes, please also complete the following*
Who is the first point of contact for further correspondence?		☐ Agent	☑ Owner
Who is the first point of contact for invoicing?		☐ Agent	☑ Owner
Agent name:		Title: eg Mr, Mrs, Ms, Dr	
Agent email:			
Agent contact number:			
Agent mailing address:			

5. Who's involved in the build? *Complete all fields per line, or select N/A where not applicable. If you have additional roles to add, please use the table in Appendix A.*

	Role	N/A
Trade	Designer	✓
Name:		
Address:		
Contact No:		
Email:		
Registration No:	*LBP:*	
Trade	Architect	✓
Name:		
Address:		
Contact No:		
Email:		
Registration No:	*NZRAB:*	

6. What are the specifics of the site? *Complete all fields*

What is the wind zone?					
☑ Low	☐ Medium	☐ High	☐ Very High	☐ Extra High	☐ Specific Design *State value below*
What is the exposure zone?	☑ Low (B)	☐ Medium (C)	☐ High/Sea spray (D)		

Does the proposed building work cover two or more allotments?	☐ Yes	☑ No
Are there public drains on the site?	☐ Yes	☑ No
Is the site subject to natural or created hazards such as erosion, subsidence, flooding, slips, cut and fill or contamination?	☐ Yes	☑ No
Are there any alterations to land contours (eg earthworks)?	☐ Yes	☑ No
Are there new or altered connections to public utilities?	☐ Yes	☑ No
Are there new or altered locations and/or external dimensions of buildings?	☐ Yes	☑ No
Is there new or altered access for vehicles?	☐ Yes	☑ No
Is the building work over or adjacent to any road or public place?	☐ Yes	☑ No
Does the building work involve the disposal of storm-water or wastewater?	☐ Yes	☑ No
Is the building work over any existing drains or sewers or in close proximity to wells or water mains?	☐ Yes	☑ No
Are there any other matters known to the applicant that may require authorisation from the territorial authority?	☐ Yes	☑ No

If Yes, please provide a summary here

7. What are the details of the building work? *Complete all fields, or enter N/A if not applicable*

Provide a full description of the building work: *Eg 4-bedroom dwelling with multiple cladding types and attached garage*	Installing new Masport Osburn 1600 Freestanding wood burner. ~~N/A~~

Estimated value of the building work (including GST): $	5000	
If the application is for an amendment to a building consent, please add the additional value if applicable (including GST): $		☑ N/A
What is the intended life of the building?	☐ 50+ years	☑ Limited Life
If Limited Life, please indicate the intended life of the building:	years	
Have you discussed this project with Council prior to applying?	☑ Yes	☐ No
Does the project include Restricted Building Work?	☐ Yes	☑ No
Are you applying for Owner/Builder exemption to complete the Restricted Building Work?	☐ Yes	☑ No

If Yes, please complete and attach the **Statutory Declaration as to Owner Builder** *form (click here)*

If No, please complete and attach the **Memorandum from Licensed Building Practitioner – Certificate of Design Work** *form for each type of building work being undertaken (click here)*

Total number of floor levels:		Levels below ground:	
Current floor area:		Proposed new floor area:	

If you are making alterations to an existing dwelling, please complete the following:

Is there any recladding?	☐ Yes	☑ No	Is recladding covered by a claim under the Financial Assistance Package scheme?	☐ Yes	☑ No
If Yes, please provide Financial Assistance Package reference number:					

Does the building work involve a swimming pool?	☐ Yes	☑ No
Year first constructed:	2014-2015	
Current lawful established use:	Residential.	
Proposed use:		
Will the building work result in a change of use of the building?	☐ Yes	☑ No

If you are unsure how to determine if a change of use will occur, please refer to the guidance provided by the Ministry of Business, Innovation and Employment: http://www.building.govt.nz/managing-buildings/change-of-use-and-alterations/

If Yes, please provide details

8. What clauses of the building code does your building work comply with?

Please read the following carefully

- *You are required to indicate what code clause(s) your building work complies with*
- *Unless otherwise noted below, your application will be assessed under Acceptable Solutions*
- *If you are using another means of compliance, please provide details of the standard(s) that your building work complies with and the means of compliance in the space provided. Use a separate sheet of paper if necessary.*
- *If you do not provide all the necessary information to show how your application complies with the Building Code, it will be returned unprocessed.*

☑ I understand that this application is to be assessed against Acceptable Solutions, unless otherwise stated in the following section. *Please tick to indicate your agreement*

☑ B1 Structure	☐ F1 Hazardous agents on site	☐ G5 Interior environment
☑ B2 Durability	☐ F2 Hazardous building materials	☐ G6 Airborne and impact sound
☐ C1 Protection from fire	☐ F3 Hazardous substances and processes	☐ G7 Natural light
☐ C2 Prevention of fire occurring	☐ F4 Safety from falling	☐ G8 Artificial light
☐ C3 Fire affecting areas beyond fire source	☐ F5 Site safety	☐ G9 Electricity
☐ C4 Movement to place of safety	☐ F6 Visibility in escape routes	☐ G10 Piped services
☐ C5 Access and safety for fire-fighting operations	☑ F7 Warning systems	☐ G11 Gas as an energy source
☐ C6 Structural stability	☐ F8 Signs	☐ G12 Water supplies
☐ D1 Access routes	☐ F9 means of restricting access to residential pools	☐ G13 Foul water
☐ D2 Mechanical installations	☐ G1 Personal hygiene	☐ G14 Industrial liquid waste
☐ E1 Surface water	☐ G2 Laundering	☐ G15 Solid waste
☑ E2 External moisture	☐ G3 Food preparation and prevention of contamination	☐ H1 Energy efficiency
☐ E3 Internal moisture	☐ G4 Ventilation	

Provide details of all Verification Methods being used *(include relevant code clause and means of compliance)*

Provide details of all Alternative Solutions being used *(include relevant code clause and means of compliance) or details of any waivers and modifications (including applicable code clauses)*

9. What specified systems are included in your building work? *Complete all fields*

Does your building work involve or affect any Specified Systems (SS)?	☐ Yes	☑ No

Residential *Please complete the following:*							N/A ☑
If Yes, please complete Specified System 16 (Cable Car) below							
SS16 Does your building work involve a cable car?		☐ Yes	☐ No	*If Yes, please provide detail below*			
		Existing	**Altered**	**Added/New**	**Removed**	**Complete this section if the cable car is being altered or added/new**	
						Inspection performance standards	**Maintenance performance standards**	**Reporting Frequency**
SS16	Cable cars	☐	☐	☐	☐			
Provide any other details								

Commercial/Industrial *Please complete the following:*	N/A ☑
If applicable, what is the existing compliance schedule number?	
Risk group:	
Total occupancy numbers:	
If yes, please complete Appendix B (Specified Systems)	

10. Does your build require a fire design review?

Certain applications for building consent must be submitted to the New Zealand Fire Service Commission Fire Engineering Unit (FEU) for review. *For commercial/industrial applications please complete the following:*

Is your building of a type defined in the Gazette notice and section 46 of the Building Act 2004?	☐ Yes	☑ No

11. Have you attached all required documents?

You are required to provide all the necessary documents to support your application. This includes (but is not limited to) the following sections:

- *Section 4: Proof of Ownership*
- *Section 6: Plans showing land and boundary features as required*
  PIM, development of contribution notice or certificate attached to PIM
- *Section 7: Statutory Declaration as to Owner Builder form OR Memorandum of Licensed Building Practitioners – Certificate of Design Work (for each type of building work being undertaken)*
- *Section 8: Plans, specifications and other supporting information in relation to the compliance method of the build, eg where the work deviates from an Acceptable Solution method.*

Please check your application and ensure all the supporting information is attached otherwise your application will be returned ***unprocessed.***

When you are satisfied your application is complete, please complete section 13 and send to your local Building Consent Authority.

If you are unsure about what information to include in your application, a guidance document is available (click here).

Privacy Information

The information you have provided on this form is required so that your building consent application can be processed under the Building Act 2004. The Council collates statistics relating to issued building consents and has a statutory obligation to forward these regularly to Statistics New Zealand. The Council stores the information on a public register, which must be supplied (as previously determined by the Ombudsman) to whoever requests the information. Under the Privacy Act 1993 you have the right to see and correct personal information the Council holds about you.

12. Your application fees

Your council will charge fees for your consent application. These will include statutory levies payable to BRANZ and the Ministry of Business, Innovation & Employment.

A full fee schedule can be found on the council's website. Please consult this before submitting your application.

13. Have you signed the application?

All the information contained in this application is, to the best of my knowledge, true and correct.

I understand that work must not commence until the building consent is issued and uplifted

Name and signature of the owner/agent on behalf of and with the authority of the owner

Owner/Agent Name:	Brigette Hovender
Owner/Agent Signature: *(Enter your name and tick the acknowledge box if you do not have a digital signature)*	
Date:	5/4/18

X X X

Your local council (or its website) ***will*** *be able to help you with information specific to the site your application covers.*

Appendix A List of those involved in the build

	Role
Trade	
Name:	Allen Plumbing + Gas Ltd.
Address:	437 Nayland Road Stoke.
Contact number:	03 5472809
Email:	admin@allenplumbing.co.nz.
Registration number:	214640.
Trade	
Name:	
Address:	
Contact number:	
Email:	
Registration number:	
Trade	
Name:	
Address:	
Contact number:	
Email:	
Registration number:	
Trade	
Name:	
Address:	
Contact number:	
Email:	
Registration number:	
Trade	
Name:	
Address:	
Contact number:	
Email:	
Registration number:	

Appendix B List of Specified Systems (Commercial/Industrial Building Consent Applications)

The specified systems for the building are as follows:

Tick all applicable and outline the performance standards and reporting frequency

The following specified systems are existing, being altered, added to or removed in the course of the building work		Existing	Altered	Added/New	Removed	Complete this section if systems are new, altered or added only		
						Inspection performance standards	Maintenance performance standards	Reporting Frequency
SS1	Automatic systems for fire suppression (eg sprinkler systems) (includes Gas/Flood Systems)	☐	☐	☐	☐			
SS2	Automatic or manual emergency warning systems for fire or other dangers	☐	☐	☐	☐			
SS3	Electromagnetic or automatic doors or windows							
SS3.1	Automatic doors	☐	☐	☐	☐			
SS3.2	Access control doors	☐	☐	☐	☐			
SS3.3	Interfaced fire or smoke doors or windows	☐	☐	☐	☐			
SS4	Emergency lighting systems	☐	☐	☐	☐			
SS5	Escape route pressurisation systems	☐	☐	☐	☐			
SS6	Riser mains for use by fire services	☐	☐	☐	☐			
SS7	Automatic backflow preventers connected to a potable water supply	☐	☐	☐	☐			
SS8	Lifts, escalators, travellators or other systems for moving people or goods within buildings							
SS8.1	Passenger-carrying lifts	☐	☐	☐	☐			

The following specified systems are existing, being altered, added to or removed in the course of the building work	Existing	Altered	Added/New	Removed	Complete this section if systems are new, altered or added only		
					Inspection performance standards	Maintenance performance standards	Reporting Frequency
SS8.2 Service lifts	☐	☐	☐	☐			
SS8.3 Escalators and moving walkways	☐	☐	☐	☐			
SS9 Mechanical ventilation or air conditioning systems	☐	☐	☐	☐			
SS10 Building maintenance units (for providing access to the exterior and interior walls of a building)	☐	☐	☐	☐			
SS11 Laboratory fume cupboards	☐	☐	☐	☐			
SS12 Audio Loops or other assistive listening system							
SS12.1 Audio loops	☐	☐	☐	☐			
SS12.2 FM radio frequency systems and infrared beam transmission systems	☐	☐	☐	☐			
SS13 Smoke control systems							
SS13.1 Mechanical smoke control	☐	☐	☐	☐			
SS13.2 Natural smoke control	☐	☐	☐	☐			
SS13.3 Smoke curtains	☐	☐	☐	☐			
SS14 Emergency power systems for, or signs relating to, a specified system in 1-13 above							
SS14.1 Emergency power systems	☐	☐	☐	☐			

The following specified systems are existing, being altered, added to or removed in the course of the building work	Existing	Altered	Added/New	Removed	Complete this section if systems are new, altered or added only		
					Inspection performance standards	Maintenance performance standards	Reporting Frequency
SS14.2 Signs for systems	☐	☐	☐	☐			
SS15 Other fire safety systems or features							
SS15.1 Systems for communicating spoken information intended to facilitate evacuation	☐	☐	☐	☐			
SS15.2 Final exits	☐	☐	☐	☐			
SS15.3 Fire separations	☐	☐	☐	☐			
SS15.4 Signs for communicating information intended to facilitate evacuation	☐	☐	☐	☐			
SS15.5 Smoke separations	☐	☐	☐	☐			
SS16 Cable cars	☐	☐	☐	☐			

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**616798**
Land Registration District	**Nelson**
Date Issued	31 May 2013

Prior References
570959

Estate	Fee Simple
Area	712 square metres more or less
Legal Description	Lot 3 Deposited Plan 464445

Proprietors
Brigette Jill Hovenden and Ricky Jay Hovenden

Interests

K2691 imposing Building Line Restriction

9193226.5 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 28.9.2012 at 11:39 am

Subject to a right (in gross) to drain sewerage over part marked C on DP 464445 in favour of Tasman District Council created by Easement Instrument 9193226.9 - 28.9.2012 at 11:39 am

The easements created by Easement Instrument 9193226.9 are subject to Section 243 (a) Resource Management Act 1991

Appurtenant hereto is a right of way, right to convey water, electricity, telecommunications and computer media and right to drain sewage created by Easement Instrument 9193226.11 - 28.9.2012 at 11:39 am

The easements created by Easement Instrument 9193226.11 are subject to Section 243 (a) Resource Management Act 1991

9417169.1 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 31.5.2013 at 9:46 am

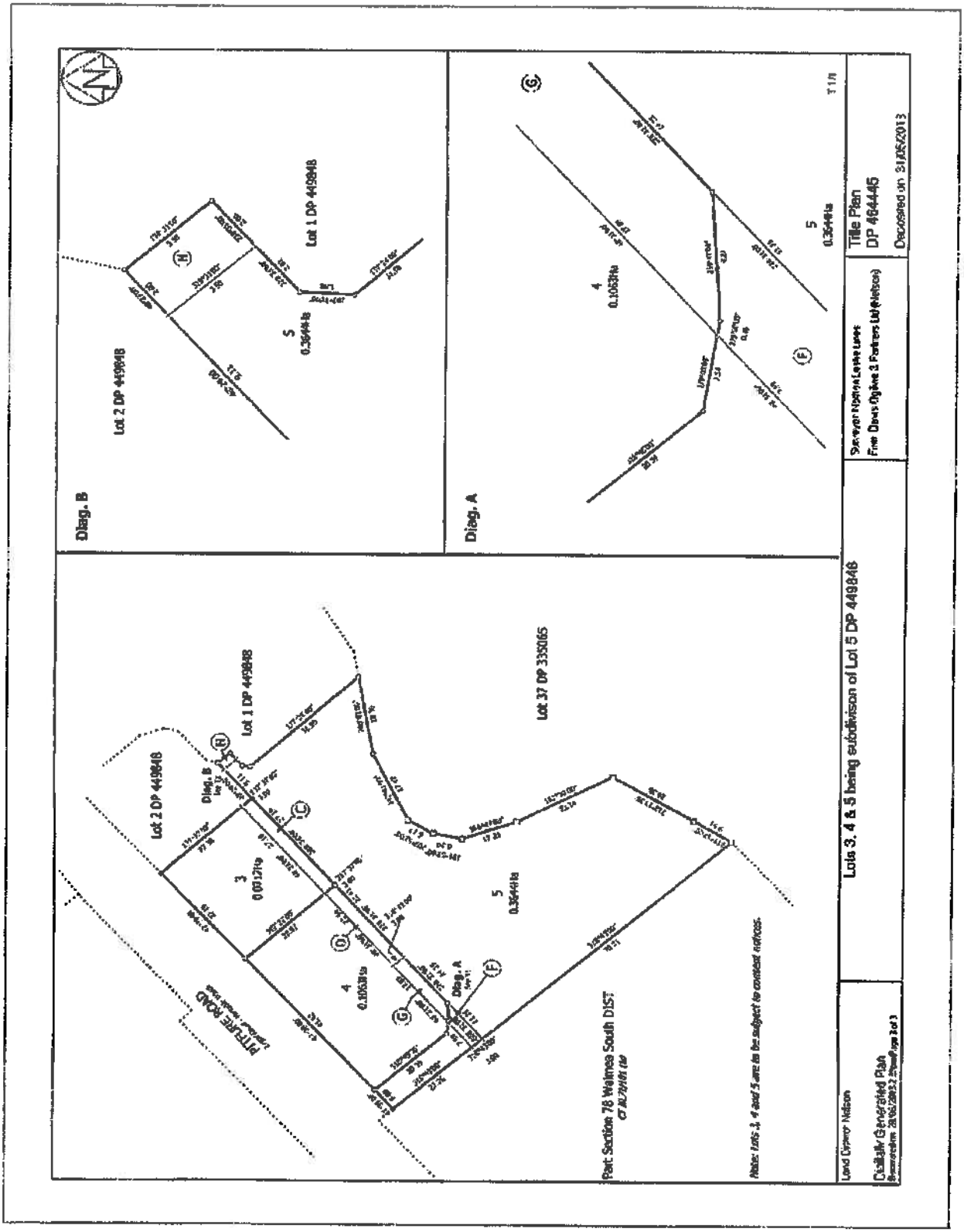
Subject to a right to convey sewage over part marked C on DP 464445 created by Easement Instrument 9417169.3 - 31.5.2013 at 9:46 am

The easements created by Easement Instrument 9417169.3 are subject to Section 243 (a) Resource Management Act 1991

Land Covenant in Easement Instrument 9417169.4 - 31.5.2013 at 9:46 am

10710507.3 Mortgage to ANZ Bank New Zealand Limited - 24.3.2017 at 2:41 pm

Identifier **616798**



Tasman District Council

TAX INVOICE GST 51076806
Received with thanks by 34/01 2
Tasman District Council

5-04-17 14:44 Receipt no.883107

COPY *COPY* *COPY*
GL 32019220
62 Pitfure Rd, Brigette 320.00-
CQ EFTPOS EFT
BUILDING CONSENTS SU 320.00

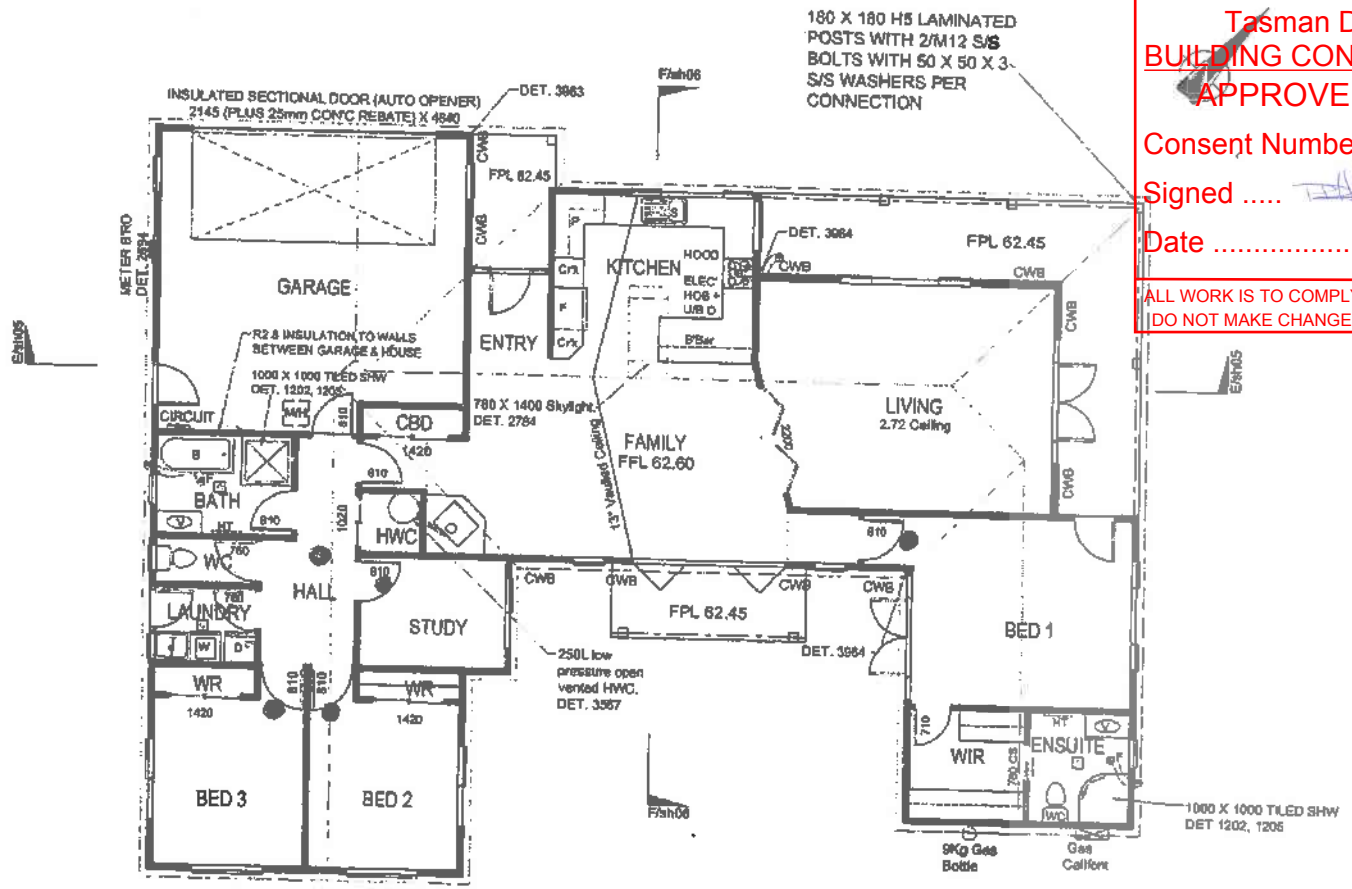
Tasman District Council
Approved Plans

BC 170353

02/05/17

NOTES
01. Site check all window & door rough opening frame sizes on site before manufacturing windows.
02. All window sizes shown are rough opening sizes. Allow for shim, air seal & flashing space both ways.
03. Install ceiling fan/range hood vented to exterior through soffit.
Install automatically controlled humidity sensor switches to ensuite & bathroom fans.
Mechanical ventilation to comply with NZBC sections E2, E3 & G4.
04. Type 1 Domestic interconnected Smoke alarm to be installed as per NZBC F7/AS1, with hush facility allowing minimum duration of 60 seconds & test facility.
05. Floor waste installed as per G13/AS1 clause 3.4.3 (c)
06. H.W.C copper drain pipe (min 20mm) to finish over external gully trap & comply with NZBC G12/As1 6.7.2
07. H.W.C. to be seismically restrained & have a tempering valve to the hot water line before services complying with NZBC.
08. 'Tiled' showers where noted on floor plan to be read in conjunction with details 1202, 1205 & water proof membrane manufacturers details.
See detail M13 in specifications for plumbing penetrations.
09. Pre-wire house for security system.
10. Install energy saving Skope Smart-timer for each heated towel rail.
11. Install Cat7 Ethernet cabling or better, 'star wired' so that it travels out from a central point with dedicated cabling to most rooms complying with 'TCF Premises Wiring Code of Practice'.
Install wiring so it can provide an open, flexible platform for the communication and entertainment needs of the modern "smart home" & provide good long-term performance and reliability for the home owner.
12. 9Kg Gas Cylinder on 50mm concrete paving. Install seismic restraint by chain & hooks secured to the building structure complying with NZBC & Gas Regulations 1993.
13. Free Standing Fire with Wetback on 65mm conc' hearth secured for earthquake & installed to Manufacturers Specs & NZBC

● - smoke alarms



Tasman District Council
BUILDING CONSENT AUTHORITY
APPROVED DRAWINGS
Consent Number BC 170353
Signed .....
Date 2/05/2017
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

DESIGN BASIS
Wind Zone: High
Earthquake Zone: 2
Snow Zone: N3 (<400 = 1kPa)
Exposure Zone: B
Design Standards: NZ Building Code / approved documents & means of compliance, including NZS 3604

FLOOR PLAN 1 : 100

PHONE / FAX [03] 544 0799
[03] 548 8188
design77@ihug.co.nz
P.O BOX 3209, RICHMOND NELSON
A.D. COCHRANE DESIGN & DRAW LTD.

RADFORD II 25/850
HA. KEOGAN
LOT: 3. DP. 464445
62 PITFURE ROAD, WAKEFIELD

All dimensions & levels to be site checked by contractor before commencement of work. Contractor to report any discrepancy

All construction to comply with local authority requirements, NZBIA NZ Building Code / approved documents & means of compliance, inc NZS 3604

A B C D

DESIGNED A.D.C	DRAWN K.M.G	SHEET
DATE MAR 2014	AREA TOTAL 198.55 m sq	01 OF 11
AMENDED 04/04/14	SCALE (A3) 1:100	

Masport Heating

WOOD FIRE INSTALLATION GUIDE

WARNING: Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. For assistance or additional information consult an authorized technician, or your Masport Wood Fire Dealer.

FOR YOUR SAFETY: Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this appliance. Installation and service must be performed by authorized personnel.

PLEASE KEEP THESE INSTRUCTIONS FOR FURTHER REFERENCE.

Manufactured in New Zealand by:
GLEN DIMPLEX AUSTRALASIA LIMITED
38 Harris Road, East Tamaki, Auckland
Ph: 0800 666 2824
Fax: 09 274 8472
Email: sales@glendimplex.co.nz
Web: www.glendimplex.co.nz

Distributed in Australia by:
GLEN DIMPLEX AUSTRALIA PTY LIMITED
Unit 2, 205 Abbotts Road, Dandenong South, Victoria, 3175
Ph: 1 300 566 816
Fax: 1 800 058 900
Email: sales@glendimplex.com.au
Web: www.glendimplex.com.au

Part No.593287

THE INSTALLATION INSTRUCTIONS IN THIS MANUAL APPLY TO MASPORT WOODFIRES:-

(Softwood and Hardwood refer to the fuel used for emission testing. See the compliance plate attached to the heater)

Fireplace insert models may be installed in a timber framed structure instead of a masonry fireplace by using a 'zero clearance' installation kit. Full instructions are included with the kit.

NOTE: WHILE ALL MODELS HAVE BEEN TESTED TO SHOW COMPLIANCE WITH THE EMISSION LIMITS OF AS/NZS.4013:1999, ONLY SOME MODELS MAY BE INSTALLED IN DISTRICTS HAVING LOWER ALLOWABLE EMISSION LIMITS. PLEASE CHECK WITH YOUR BOROUGH OR SHIRE COUNCIL BEFORE PURCHASING A HEATER OR INSTALLING A WATER BOOSTER.

THIS BOOK CONTAINS IMPORTANT INFORMATION.
PLEASE KEEP IT IN A SAFE PLACE FOR FUTURE REFERENCE.

CONTENTS

INTRODUCTION

In the interests of your safety, most building regulatory Authorities in Australia and New Zealand require any wood fire installation to comply with Installation Standard AS/NZS 2918. They may also have local requirements in addition to those in the Standard. Check with your local Building Authority before commencing installation to find if you will require a Permit and whether there are extra requirements. All MASPORT Wood fires have been tested to ensure that they will meet the appropriate safety Standard requirements if the instructions in this book are followed. As the safety and emissions performance can be affected by altering the appliance, no modifications are allowed without written permission from the manufacturer.

Wood fire models covered by this manual have been tested to demonstrate compliance with current general emission requirements in Australia and New Zealand, but some areas have stricter limits. Only some of the models meet those limits, so check before purchasing or installing a particular model.

In areas covered by stricter emission regulations:-

(I) If a water-heating device is permitted, it must be factory fitted or be a MASPORT accessory retrofitted strictly in accordance with the instructions supplied by MASPORT.

(II) Coal must not be used as a fuel.

(III) Wood fuel must have a moisture content of less than 25%.

WE RECOMMEND THAT THE INSTALLATION OF YOUR MASPORT WOODFIRE BE CARRIED OUT BY A QUALIFIED SPECIALIST INSTALLER.

IF ANY ELECTRICAL WORK IS REQUIRED, IT MUST BE CARRIED OUT BY A LICENSED ELECTRICIAN.

WARNING: THE APPLIANCE AND FLUE SYSTEM MUST BE INSTALLED IN ACCORDANCE WITH AS/NZS 2918 AND THE APPROPRIATE REQUIREMENTS OF THE RELEVANT BUILDING CODE OR CODES.

WARNING: APPLIANCES INSTALLED IN ACCORDANCE WITH THIS STANDARD SHALL COMPLY WITH THE REQUIREMENTS OF AS/NZS 4013 WHERE REQUIRED BY THE REGULATORY AUTHORITY, I.E. THE APPLIANCE SHALL BE IDENTIFIABLE BY A COMPLIANCE PLATE WITH THE MARKING 'TESTED TO AS/NZS 4013'. ANY MODIFICATION OF THE APPLIANCE THAT HAS NOT BEEN APPROVED IN WRITNG BY THE TESTING AUTHORITY IS CONSIDERED TO BE IN BREACH OF THE APPROVAL GRANTED FOR COMPLIANCE WITH AS/NZS 4013.

WARNING FOR APPLIANCES WITH WATER HEATING DEVICES: DO NOT CONNECT TO AN UNVENTED HOT WATER SYSTEM. INSTALL IN ACCORDANCE WITH AS 3500.4.1 OR NZS 4603 AND THE APPROPRIATE REQUIREMENTS OF THE RELEVANT BUILDING CODE OR CODES.

IN SOME REGIONS POWER POINTS ARE NOT PERMISSIBLE WITHIN THE FLOOR PROTECTOR AREA, PLEASE CHECK WITH YOUR LOCAL AUTHORITY.

PLEASE ENSURE THAT ONLY COMPONENTS APPROVED BY MASPORT ARE USED FOR THE INSTALLATION, as substitutes may adversely affect performance and might nullify compliance with the requirements of AS/NZS 2918.

CAUTION: MIXING OF APPLIANCE OR FLUE SYSTEM COMPONENTS FROM DIFFERENT SOURCES OR MODIFYING THE DIMENSIONAL SPECIFICATION OF COMPONENTS MAY RESULT IN HAZARDOUS CONDITIONS. WHERE SUCH ACTION IS CONSIDERED, THE MANUFACTURER SHOULD BE CONSULTED IN THE FIRST INSTANCE.

CAUTION: CRACKED AND BROKEN COMPONENTS, e.g. GLASS PANELS, MAY RENDER THE INSTALLATION UNSAFE.

TO AVOID THE RISK OF ELECTRIC SHOCK OR CONTACT WITH MOVING PARTS, ONLY THE MANUFACTURER, THE MANUFACTURER'S SERVICE AGENTS OR SIMILARLY QUALIFIED PERSONS SHOULD REMOVE PANELS WHICH ALOW ACCESS TO FANS.

FREESTANDING MODELS (See page 11 for in-built models)

UNPACKING

After removal of the shipping carton, open the door and lift it from its hinges. Do not remove the polystyrene packers above the top baffle of the firebox at this stage. Do NOT discard the top baffle. Remove the pedestal components from the firebox in the case of fires requiring pedestal assembly. Remove and discard the four bolts holding the wood fire to the shipping pallet.

Remove the wood fire from the pallet, lifting only from the lower edge of each side.
DO NOT LIFT BY THE LOWER FRONT PANEL OR THE REAR PANEL.

ASSEMBLY OF FREESTANDING MODELS

PEDESTAL.

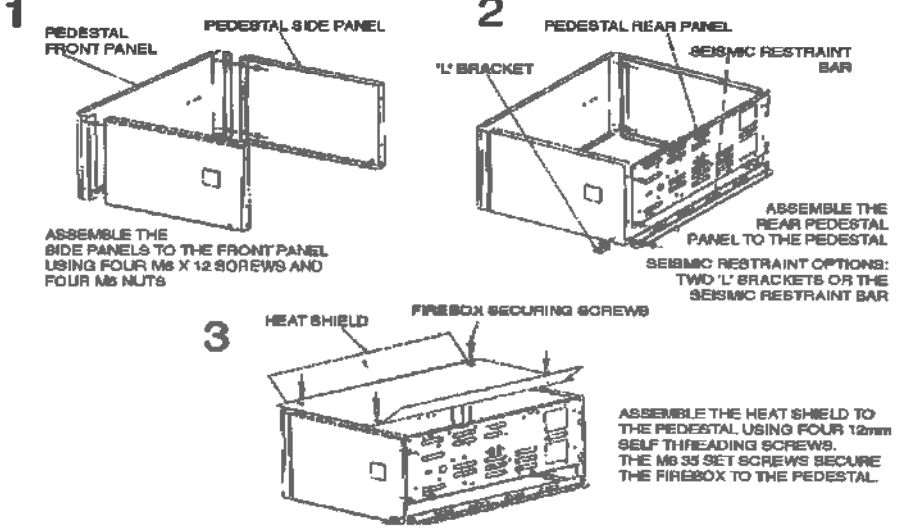
Some models are shipped with the pedestal dis-assembled. For these models, the first step is to assemble the pedestal. The table inside the front cover of the owners manual will help you identify the various fastenings. Secure the two pedestal sides to the front, using four M6x12 set screws and taking care that the bottom flanges of the side panels align with the bottom flange of the front panel. The side with the square hole for the fan switch, (some models only), goes on the right (as viewed when looking at the front of the front panel). The top flange of the front panel will be above the top flanges of the side panels. Fit the slotted pedestal rear panel, positioned as shown in the diagram, using the four black 12mm long self-threading screws (sharp points).

FAN.

On some models a fan is available as an accessory and, **when permitted by the local authority,** can be retrofitted to the fire. The fan is **not** permitted in the Christchurch Clean Air Zones and Canterbury.
The fan MUST only be operated when the air control is set on 'HIGH'.
Fit the fan to the fire as per instructions supplied with the fan.

BOTTOM HEAT SHIELD.

Using the four zinc plated 12mm long self-threading screws (blunt points), screw the heat shield to the top of the pedestal assembly with the turned up ends of the heat shield facing upwards. Check that the pedestal foot and trim (if any) will fit snugly around the assembled pedestal before tightening all assembly screws fully.
Roll the wood fire carefully onto its back, using the flattened carton to protect the floor.
Taking care that the slotted pedestal rear panel will be at the rear, attach the pedestal and heat shield assembly to the firebox using the four M6 x 35 set screws, four M6 flat washers and four M6 Hexagon nuts. Place the washers on the setscrews and pass the screws from inside the firebox into the pedestal. The nuts will be inside the pedestal. Check the alignment of the pedestal before tightening the nuts firmly.
Roll the wood fire carefully back into the upright position.



POSITIONING YOUR FREE-STANDING WOODFIRE

Freestanding wood fires must not be installed in a fireplace or alcove, or under a ceiling of less than 2.3m height.

No wall or other fixed object may be closer to the front of the wood fire than one metre.

When fitting a hot water booster, the wood fire should be close to the water cylinder.

Determine the installation position for your wood fire only after considering the necessary clearances (See Installation Specification Sheet) and checking the practicability of installing the flue system.

Regard heat resistant walls with heat sensitive surface treatments (e.g. wallpaper or heat sensitive paints) as heat sensitive walls.

There must be a 25mm gap between the flue shieldings (see Installation Specification Sheets for size) and any combustible material. This space must be available without the removal of structural beams.

Flue installations other than strictly vertical ones are possible. See AS/NZS 2918 for information on non-vertical flues and flues passing through walls and eaves.

FLOOR PROTECTOR (Hearth) REQUIREMENTS — Freestanding models

Unless your wood fire will be standing on an un-covered fireproof floor (containing no combustible material) extending at least 500mm from the appliance, it will be necessary to provide a floor protector (hearth). See below for construction details. Where the minimum size requirements bring the side of the floor protector nearly to a wall, it is advisable to extend the protector to meet the wall.

CORNER FLOOR PROTECTORS (Hearths)

The Installation Specification Sheets of your heater, details the MINIMUM size of floor protector necessary to comply with the Safety Standards, it may often be desirable to use a larger size for aesthetic reasons. A particular example is when the wood fire is installed diagonally in a corner. It will be more practical to carry the protector right into the corner and shape it as shown. The chart facilitates calculation of the MINIMUM dimensions required for floor protectors of this shape. Minimum allowable values for dimension 'E' are given in the Installation Specification Sheets for your particular model.

FLOOR PROTECTOR (Hearth) CONSTRUCTION

In AUSTRALIA, the minimum floor protection requirement is a sheet of 6mm fibre cement board. It is usually fastened directly to the floor.

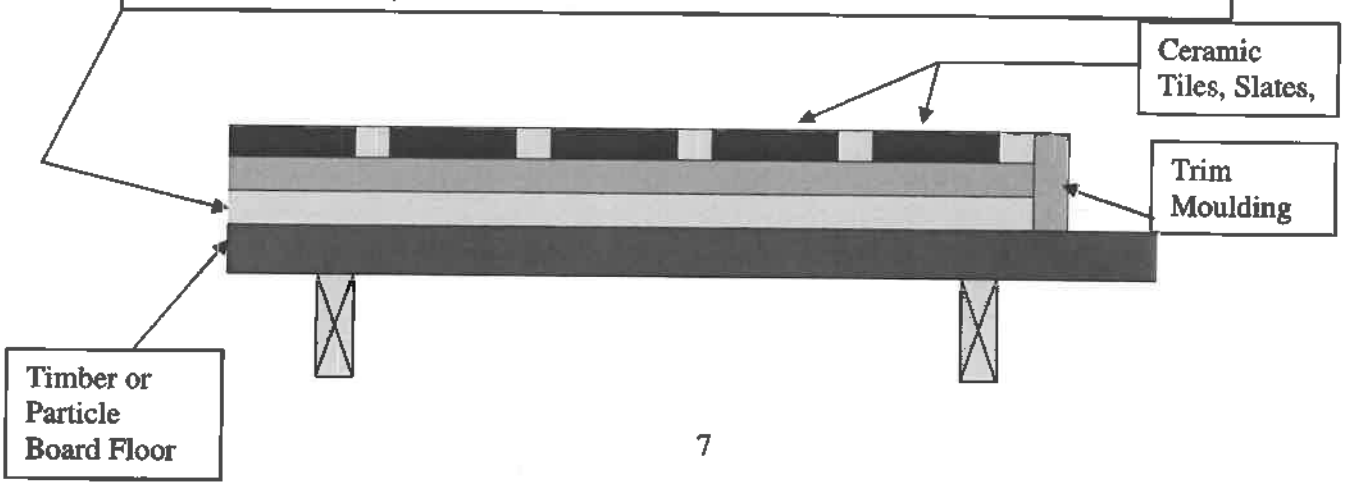
In NEW ZEALAND, some wood fires must have an insulating floor protector. (See Installation Specification Sheets). All other current models may be installed on an ash type floor protector. Of course, all models may be installed on insulating floor protectors if desired. The necessary minimum construction details for ash and insulating floor protectors are shown below, and such constructions are suitable for use on solid timber or particleboard floors. Bricks or concrete in contact with the flooring material **DO NOT provide the required insulation.** If the floor within 500mm of the appliance is concrete and has no combustible material in contact with it, a floor protector is not required. In this case, if tiles or pieces of slate etc. are required for decorative purposes, they may be fixed directly to the concrete floor.

In BOTH COUNTRIES, the protector must extend right under the wood fire and a durable top surface will be needed to resist damage from heat or dropped embers. Obvious surface materials are slate, bricks and ceramic tiles. Any gaps in the top surfacing material must be grouted to prevent the penetration of embers. A trim moulding will provide a neat edge finish.

Minimum Floor Protector (Hearth) Construction Requirements

AUSTRALIA - One Sheet 6mm Fibre Cement Board

NEW ZEALAND – Insulating Floor Protectors:- Two Sheets of 16mm thick MICORE 160 or One Sheet of WOODEX (35 Thick).
Ash Floor Protectors:- One Sheet 6mm Fibre Cement Board (e.g. Hardies TILE & SLATE UNDERLAY)



INSTALLING THE FLUE

You MUST use a flue system, which complies with the current installation Standard AS/NZS 2918.

Full instructions are supplied with the flue kit, and these MUST be followed closely, including the minimum flue exit height from the top of the floor protector and the minimum exit height above the roofline or roof ridge as detailed in the instructions.

Always seal the flue to the flue socket of the firebox using firebox cement or fiberglass rope.

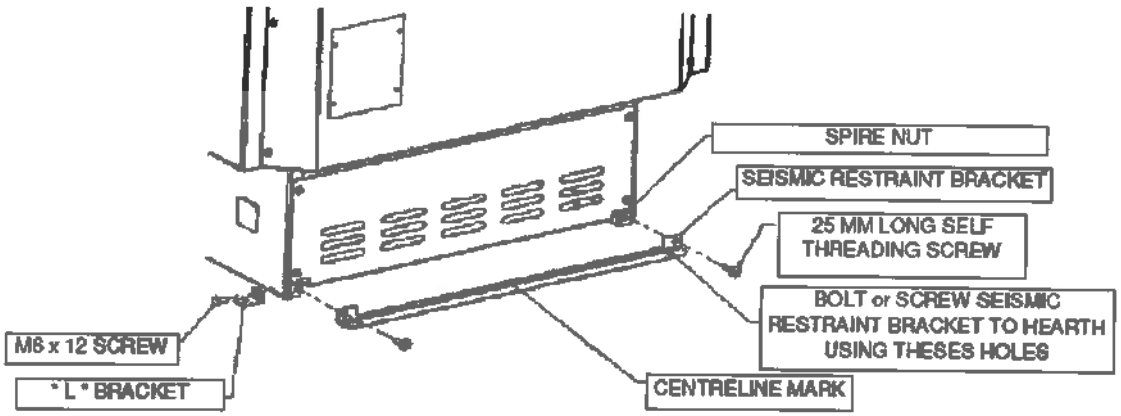
Only flue systems tested with your particular model are approved for use at the tabled clearances, see Installation Specification Sheets.

OTHER FLUE SYSTEMS

Flues and flue heat shields other than those listed on the Installation Specification Sheets may be used, but if they have not been tested with these heaters, their installation clearances will be those specified in AS/NZS 2918 : 2001 for untested flue installations. Unless otherwise specified, all heat sensitive wall material must be kept at least 600mm away from any flue, which is not fitted with a flue heat shield.

FIXING THE WOODFIRE IN POSITION

Once the flue shielding system has been installed through the ceiling and roof, the wood fire can be placed in its approximate position on the floor protector, and the flue pipes installed. First, reach down through the flue spigot and carefully remove the polystyrene packing above the firebox top baffle, remembering that the baffle can be broken by rough handling. Finally adjust the stove position making sure the flue is vertical and that the necessary minimum wood fire-to-wall distances are being achieved. In New Zealand and some parts of Australia, Standards require that the wood fire and floor protector be secured to prevent shifting in the event of an earthquake. This is best done by fastening the wood fire right through the protector to the floor, using two screws not less than 12 gauge, or the equivalent size of coach bolts or toggle fasteners. Anchor the appliance through the holes in the seismic restraint bracket at the rear of the pedestal or in the two angle brackets supplied with some models. The angle brackets attach at each side of the pedestal (except for some of the smaller models, where they attach at the rear). The pedestal can be fastened to the seismic restraint bracket either before or after fitting the anchor screws. The small centerline hole in the bracket will help in pre-positioning it.



FINAL ASSEMBLY

Before using the wood fire, confirm that the internal firebox components are in their correct positions. (See 'FIREBOX LINERS" in the Maintenance section of the Owners Manual).

Make sure that the baffle is correctly placed on top of the supporting shelves at each side of the firebox, and that it is back far enough for the two front corners to drop behind the retaining ribs on top of the shelves. On some models, a metal reinforcing channel is provided for the baffle. Fit this along the edge of the baffle nearest the door.

If you need to remove the top baffle, first withdraw the secondary air tube following the instructions in the Maintenance section of the Owners Manual.

In cases where a pedestal foot is to be fitted, simply fit the trim into the foot and slide the assembly onto the pedestal, keeping the foot in contact with the Floor protector all the time to avoid marking the finish on the sides of the pedestal.

INSTALLING A WATER HEATING BOOSTER

Water heating booster tubes can be fitted to MASPORT wood fires but the local emission regulations in some areas may preclude their use on some models. Only the booster tubes proven by test may be fitted, and in some cases, the air metering plate must be changed at the same time to ensure that emission requirements are still met. The air metering plate is fitted directly under the sliding plate that controls the stove heat output, and it can be reached by removing the air control knob (remove the screw underneath), and lifting off the air grille.

Water booster tube holes are provided and plugged in the back wall of the fireboxes and in the side walls of some in-built models. All plumbing work must meet the requirements of local plumbing standards. Pipe connections are 1" BSP and the pipe positions are illustrated on the specific Installation Specification Sheets. Special piping methods must be followed to ensure effective circulation, and the hot water storage cylinder will need to have an internal riser pipe to two thirds of the cylinder height to discourage unwanted water circulation when the wood fire is not burning. This internal riser pipe must be connected to the flow pipe from the wood fire.

THE HOT WATER SYSTEM **MUST** BE VENTED TO AVOID DANGEROUS EXPLOSIONS.

For effective circulation, the pipes from the wood fire should rise at the rate of one in five toward the storage cylinder, and ideally, the cylinder should be within three meters of the wood fire. Detailed piping instructions are included in the conversion kit, but two safety requirements deserve special emphasis.

THERE MUST BE NO NON-RETURN OR SHUT-OFF VALVES IN THE PIPES BETWEEN THE WOODFIRE AND THE STORAGE CYLINDER.

A WOODFIRE FITTED WITH A WATER HEATING BOOSTER MUST NOT BE FIRED UNLESS IT IS CONNECTED TO A VENTED STORAGE CYLINDER FILLED WITH WATER FREE TO CIRCULATE.

FIREPLACE INSERT MODELS (See page 5 for freestanding models)

NOTE. The following instructions cover the installation of any insert heater into a sound masonry fireplace, which has an integral masonry chimney. Where such a chimney is not available, the heater can be installed into a timber framed structure provided that it is mounted in a special 'built in' (or 'zero clearance') metal shielding box. Built-in (zero clearance) installation kits and the special flue components necessary are available from your MASPORT Dealer. Full assembly instructions are included in the kit.
All insert models (Australian and New Zealand), are fitted with air circulating fans. These are mounted inside the ash shelf (below the firebox door).

UNPACKING

After removal of the shipping carton, remove any shipping restraints, remove the retaining screw under the air control knob and pull the knob off. Lift the top grille clear. To avoid the risk of electric shock or contact with moving parts, only the manufacturer, the manufacturer's service agents or similarly qualified persons should remove the bottom grille or ash shelf of any Provincial fitted with a fan. To release the bottom grille or ash shelf, it will be necessary on some models to turn the retaining screw(s) underneath it anti-clockwise one quarter of a turn. Swing the bottom away from the heater and lift clear.

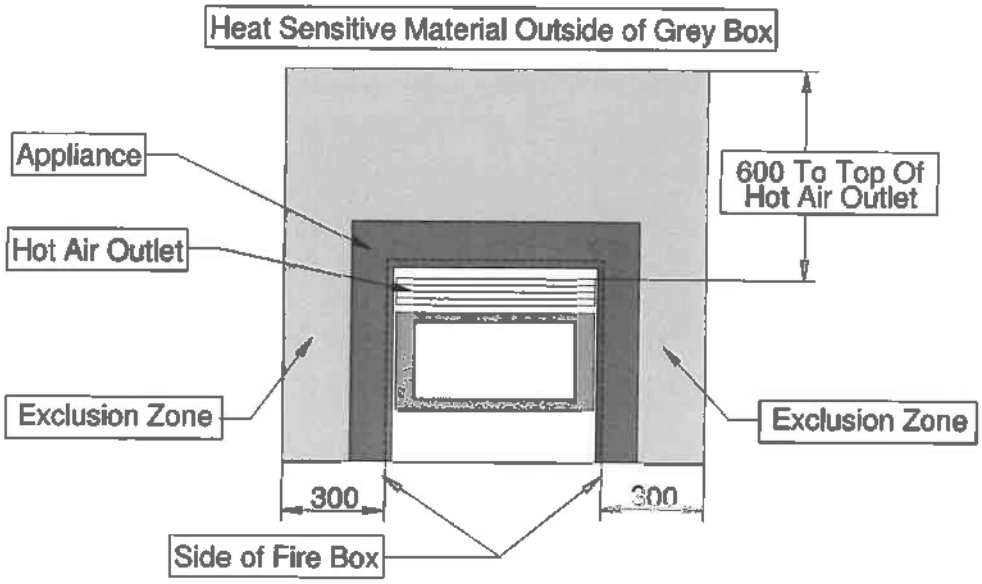
Keeping the fire upright, release it from the shipping pallet by unscrewing the shipping bolts.

INSTALLATION REQUIREMENTS

Please read the INTRODUCTION on page 4, as this applies also to in-built models.

FIREPLACE PREPARATION

- For a safe installation, the following matters must be attended to.
- The masonry fireplace and chimney must be thoroughly cleaned and checked for soundness.
- The chimney must not connect to a second fireplace.
- The joint between the chimney face and the fireplace surround must be checked and sealed to prevent leakage if necessary.
- As per AS/NZ 2918:2001 no heat Sensitive Wall Cladding shall be closer to the fire box than shown in the figure below.



HEAT - SENSITIVE MATERIALS EXCLUSION ZONES

- **In NEW ZEALAND:-**
  The LE 4000 Provincials can be installed in a masonry fireplace even though the fireplace has not been constructed to meet the 50 mm timber-to-masonry separation requirements specified in the Building Code and even though timber is in contact with the outside of the masonry. The LE 4000 Provincial has a curved sheet metal heat shield on the top surface of the heater cabinet to shield the flue spigot area from the front breast of the surround. A 25mm thick layer of compressed insulation blanket covers the top surface of the heater cabinet of the LE 4000 Provincial. Where New Zealand fireplaces can be shown to comply with those separation requirements, the LE 7000 Provincial and Grande Provincial models can also be installed. As noted above, all models can be installed in a timber framed enclosure using a 'zero clearance' installation kit.
- **In AUSTRALIA:-**
  All models may be installed in any sound masonry fireplace equipped with a sound masonry chimney. Further, they may be installed in a masonry enclosure by following the requirements detailed in AS/NZS 2918. Again, they may also be installed in a timber framed enclosure using a 'zero clearance' installation kit.

- In **BOTH COUNTRIES:-**
  The flue pipe must be fitted right up the masonry chimney to exit above the chimney top, and the space between the flue pipe and chimney must be ventilated at the top. The area of this vent must be not less than 10,000mm^2. The vent must be fitted with means to prevent significant ingress of water and debris. The flue must be free to move up and down at the top as it expands and contracts with temperature changes. This movement can be 25mm or more.

MANTEL-SHELF SHIELDING

Mantel-shelves wider or lower than those shown on the Installation Specification Sheets can be used provided that they have heat shields below them. We recommend a sheet metal shield fixed 20mm below the shelf on non-combustible spacers. The shield must abut the wall and protect the entire depth of the shelf. It must extend at least 200mm from each side of the appliance or to the ends of the shelf if this is less. The 20mm air space under the shelf must be open at the ends and front to allow free air circulation.

FLOOR PROTECTOR CONSTRUCTION

If the original masonry floor protector is not large enough, any extension must be securely fixed to the floor, and the extension joint must be sealed to prevent entry of ash or embers. The extension should be a 6mm layer of fibre cement (e.g. Hardies Tile and Slate Underlay, topped with tiles or slate. Additionally, in New Zealand there should be one layer of 16mm thick Micore 160 beneath the fibre cement sheet. A decorative trim can be fitted around the edges to tidy up the construction.

INSTALLING THE FIREBOX AND FLUE

The flue recommended for use in Australia is a stainless steel chimney kit such as the Shamic #4. In New Zealand, we recommend the use of the MASPORT Provincial flue kit. Measure the fireplace recess and remove bricks as necessary to accept the firebox outer case. The dimensions are shown in the Table on the Installation Specification Sheets. Clear away any rubble and clean, inspect and seal the chimney and fireplace as detailed under INSTALLATION REQUIREMENTS.

Remove the polystyrene packing from above the baffle taking care not to damage the baffle.

Check the distance back from the face of the surround to the centre of chimney to determine whether the flue will require an offset fitting. If needed, fix it to the lower end of the assembled flue sections in the chimney and lift the flue assembly up while the firebox case is pushed back into the recess. Verify that the case will be fully supported in a level position when installed. Slide the case in and adjust its position so that its flange is in line with the face of the surround.

To provide seismic restraint, screw the case to the base of the fireplace recess with at least two 12 gauge screws through the holes in the bottom of the firebox outer case.

Slide out the top front section of the case for access for fitting and fixing the flue. Alternatively, the top firebox baffle may be removed for this purpose. Baffle removal is described in the MAINTENANCE section of the OWNERS MANUAL, under FIREBOX TOP BAFFLE. Lower the flue into position.

Seal the flue at the firebox spigot using fire cement or fiberglass rope. Secure the flue to the spigot. Re-fit the sliding panel with the insulating blanket (if provided) on top of the firebox outer cabinet. Do not forget to replace the baffle and secondary air tube if they have been removed.
Instructions for fixing and weather-proofing the top end of the flue are supplied with the flue kit.

INTERNAL PARTS

Check for correct positioning. See 'FIREBOX LINERS' in the Maintenance section of the OWNERS MANUAL.

FASCIA.

Assemble the fascia to the firebox case as per the instructions accompanying it, fitting the wiring (if any) exactly as shown on the Installation Specification Sheets.

DOOR

Hook the bottom pivot over the lower end of the hinge pin and lift the door up until the top pivot drops over the top end of the hinge pin.

ASH SHELF OR LOWER GRILLE

TO AVOID THE RISK OF ELECTRIC SHOCK OR CONTACT WITH MOVING PARTS, ONLY THE MANUFACTURER, THE MANUFACTURER'S SERVICE AGENTS OR SIMILARLY QUALIFIED PERSONS SHOULD REMOVE PANELS WHICH ALOW ACCESS TO FANS.
To fit the grille or shelf, hang it on the posts at the bottom of the fascia, taking care to feed the mains flex for the fan through the fascia side panel as the shelf is lowered into position. Hook the top on first, then swing the bottom into position. If a retaining screw (or screws) is fitted underneath, align the screw with the socket and press inward gently on the screw head until it 'clicks' into engagement.

UPPER GRILLE

The primary air control knob must be removed before the upper grille can be fitted or removed. It is retained by a Phillips-head screw from underneath. To avoid damaging the knob, check that the screw hole and the hole in the plate are in line before replacing the screw.

INSTALLING A WATER HEATING BOOSTER

The necessary piping arrangements must be made for this before the case is fitted into the recess. If it is a side entry model, the tube may be fitted on either side of the firebox. The plumbing requirements are the same as those for the free-standing models.

Masport Heating OSBURN™

MODELS:
OSBURN 1600 DRY
OSBURN 1600 WET
OSBURN 1600 MKII WET

Floor Protector Construction (Hearth)

For minimum Floor protector dimensions refer to following data. The floor protector must extend at least 300mm beyond the door opening of the heater (measured from glass) and 200mm to each side of the door opening. Floor protector specification (AS/NZS2918: 2001) minimum floor protector only eg. Ceramic tiles glued to a continuous sheet of 6mm fibre cement sheet. A provision has been made on the base (behind pedestal) for seismic restraint by bolting through the two holes through the hearth and floor.

Clearance Requirements

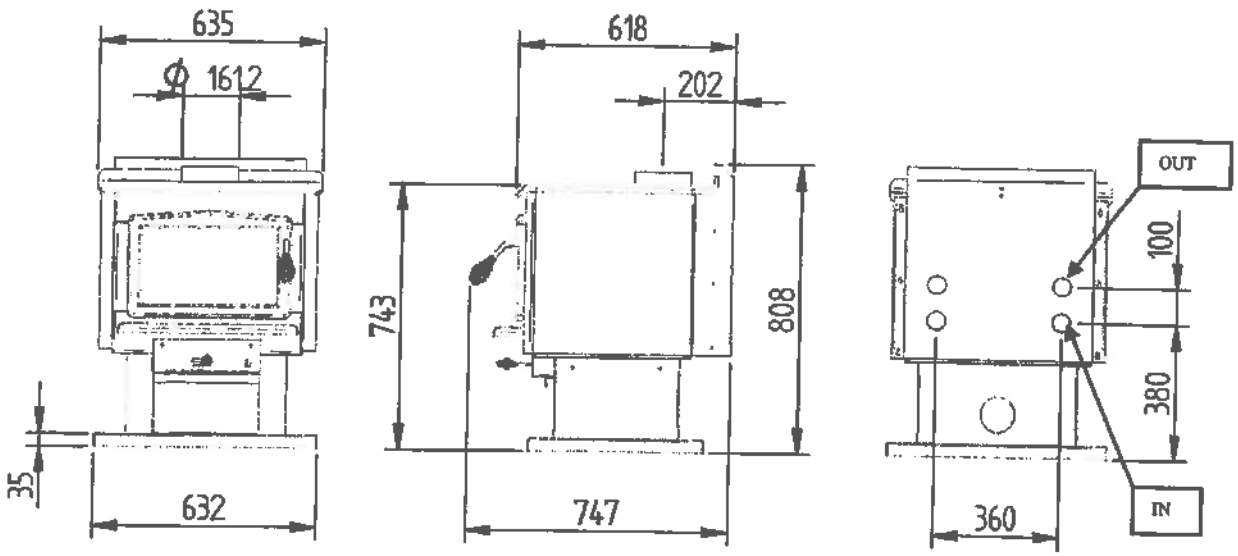
The Osburn 1600 (Dry or Wet) has been tested and complies to the Australian/New Zealand Standard AS/NZS 2918:2001 and all installations must be in accordance with the minimum clearances to combustibles indicated in these instructions.

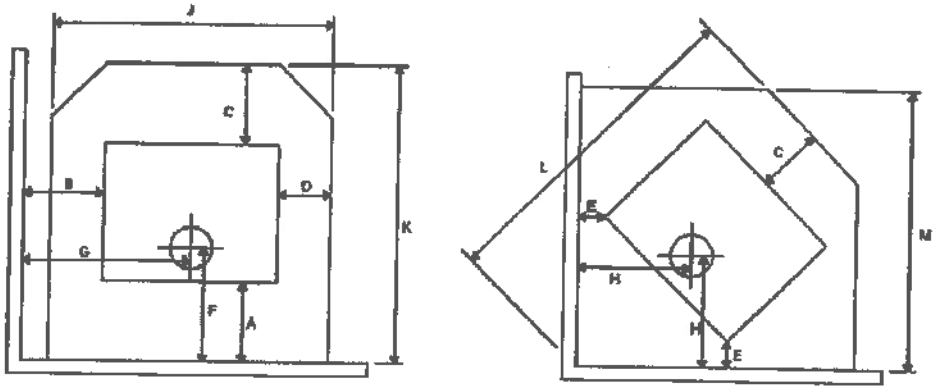
The minimum clearances to combustibles may be reduced if the combustible walls are shielded with an approved non-combustible material. Details of suitable shielding materials and appropriate clearance reduction factors are present in Section 3 of AS/NZS 2918:2001.

Minimum clearances to combustibles in millimetres AS/NZS 2918:2001

NEW ZEALAND	A	B	C	D	E	F	G	H	J	K	L	M
With MASPORT double skin flue shield	100	360	300	81	150	300	678	483	796	1003	1386	1156

*** Note : All specifications are subject to change or variation without notification.**





GLEN DIMPLEX AUSTRALASIA LTD
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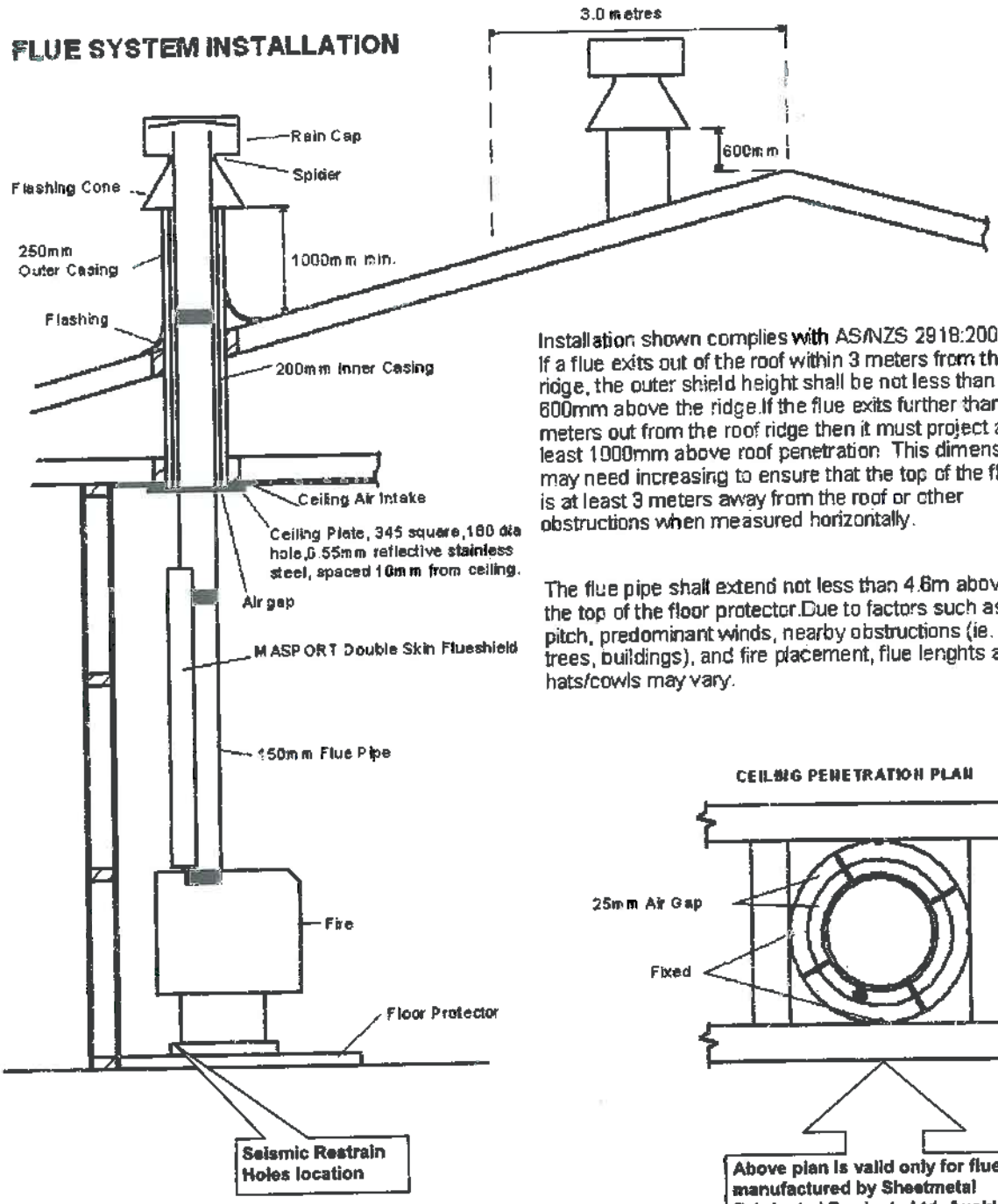
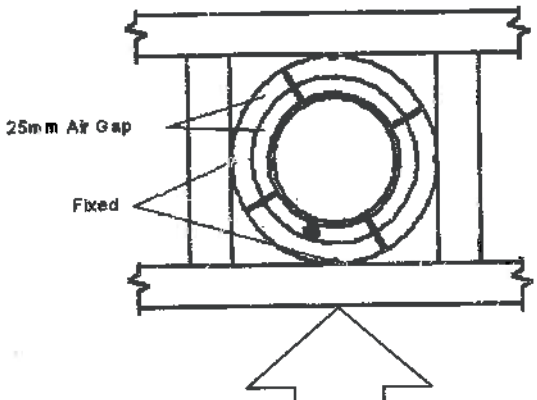
FLUE SYSTEM INSTALLATION



Installation shown complies with AS/NZS 2918:2001. If a flue exits out of the roof within 3 meters from the ridge, the outer shield height shall be not less than 600mm above the ridge.If the flue exits further than 3 meters out from the roof ridge then it must project at least 1000mm above roof penetration. This dimension may need increasing to ensure that the top of the flue is at least 3 meters away from the roof or other obstructions when measured horizontally.

The flue pipe shall extend not less than 4.6m above the top of the floor protector.Due to factors such as roof pitch, predominant winds, nearby obstructions (ie. trees, buildings), and fire placement, flue lenghts and hats/cowls may vary.

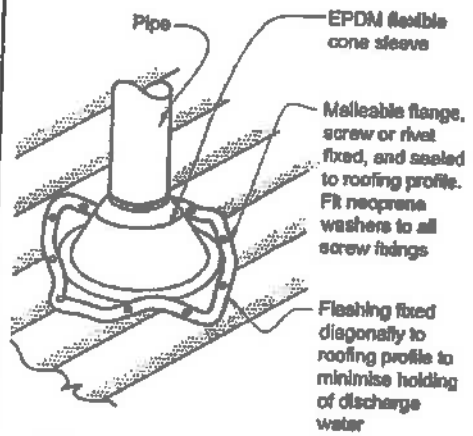
CEILING PENETRATION PLAN



Above plan is valid only for flue manufactured by Sheetmetal Fabricated Products Ltd, Auckland, New Zealand.
For other products, use specific flue installation specifications supplied by the manufacturer.

Seismic Restrain - In New Zealand and some part of Australia, it is required that the wood fire and floor protector are secured to prevent shifting in the event of an earthquake. This is best done by fastening the wood fire right through the protector to the floor, using two screws not less than 12 guage or the equivalent size of coach bolts or toggle fasteners.

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



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

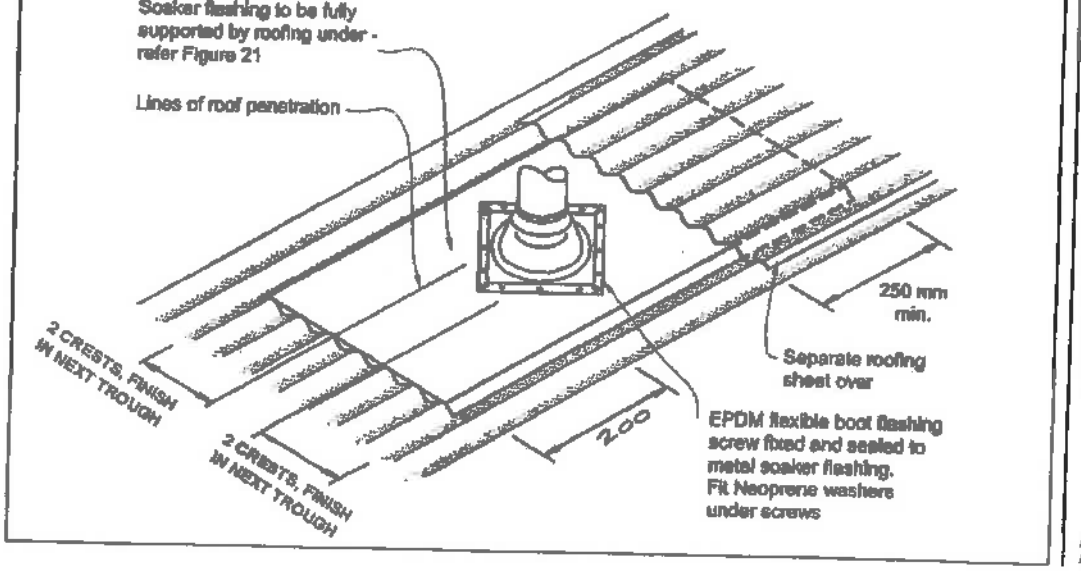
Amend 5 Aug 2011

Figure 54: Soaker flashing for pipe penetrations
Paragraph 8.4.17

Errata 2 Dec 2011

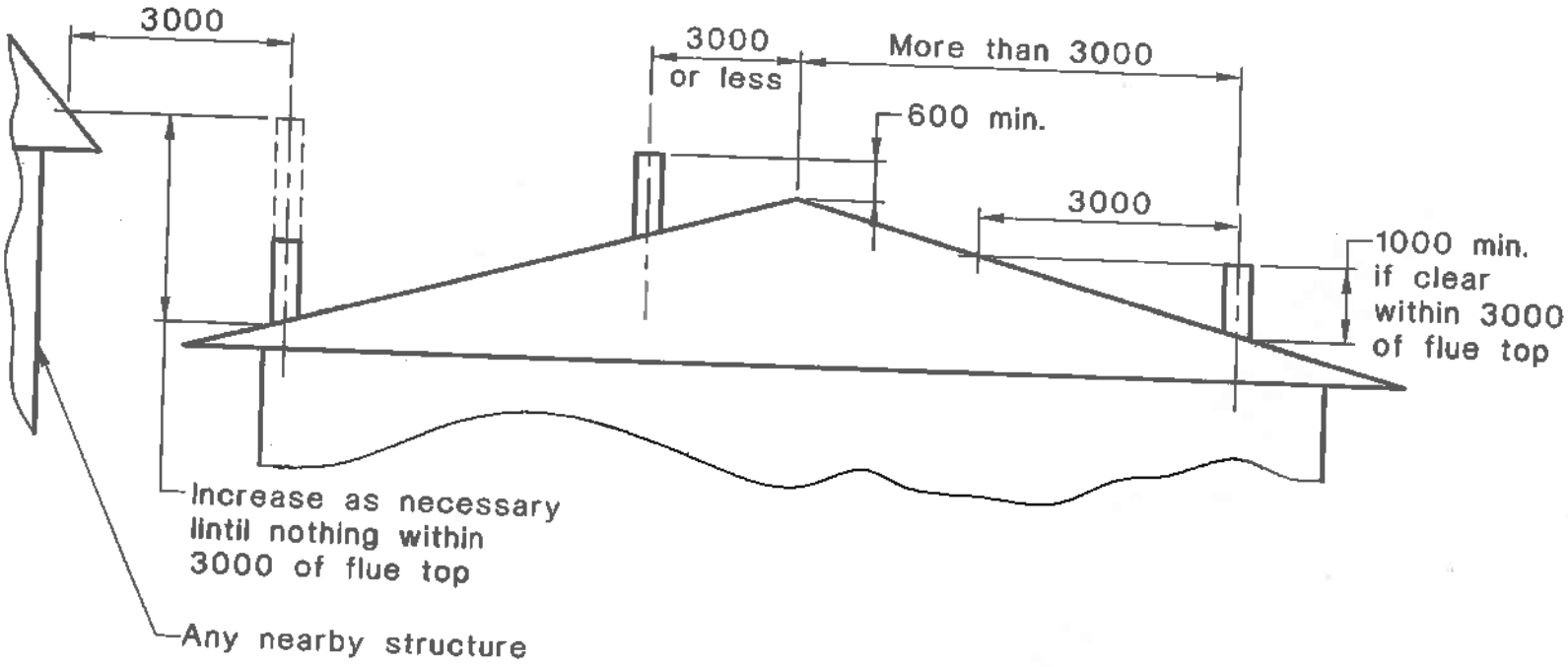
NOTE: (1) Suitable for pipes from 86 mm to 500 mm diameter.
(2) Suitable only for roof pitches of 10° or more.

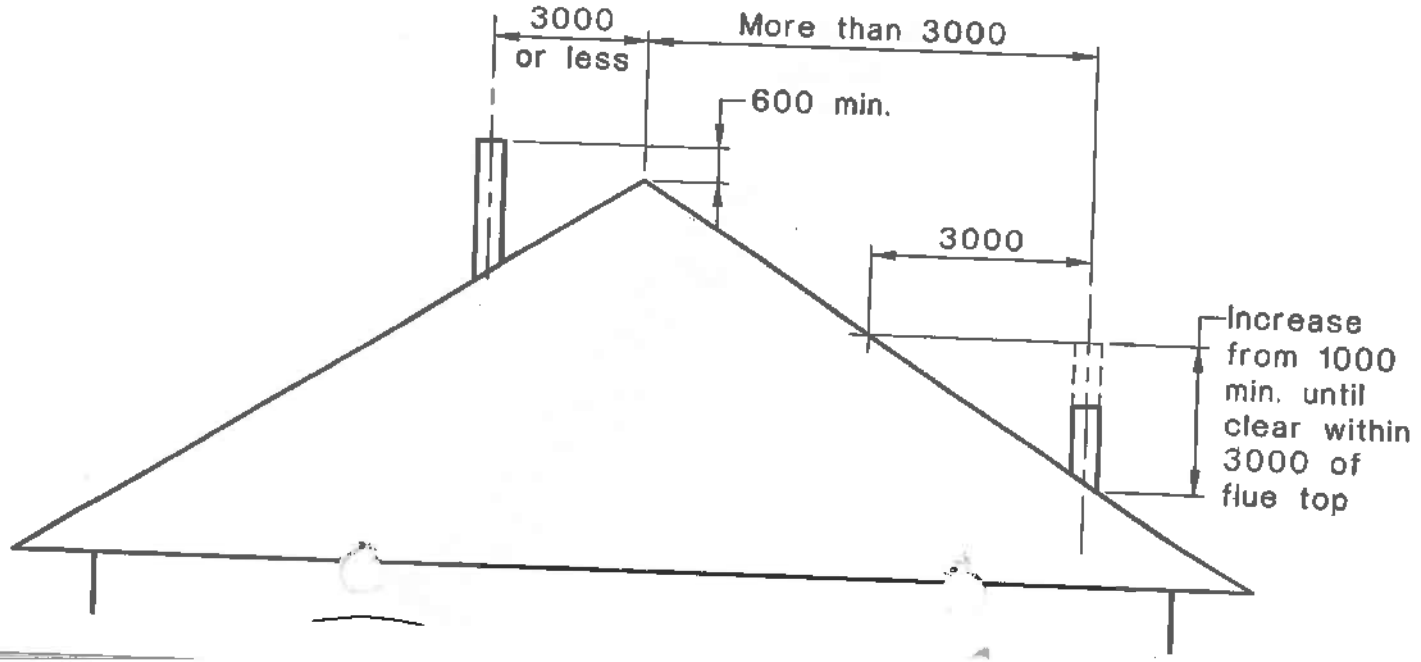
Amend 2 Jul 2005



Amend 2 Jul 2005

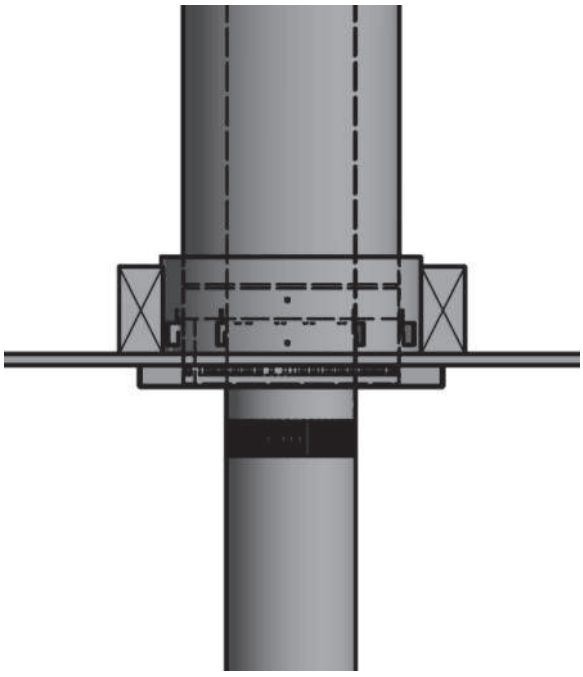
Amend 5 Aug 2011

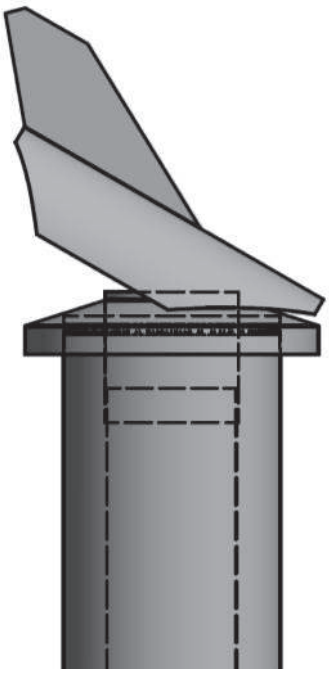

3000
3000
or less
More than 3000
600 min.
3000
1000 min.
if clear
within 3000
of flue top
Increase as necessary
lintil nothing within
3000 of flue top
Any nearby structure


3000
or less
More than 3000
600 min.
3000
Increase
from 1000
min. until
clear within
3000 of
flue top

HeatSaver Flue Kit
Installation Instructions
For Solid Fuel Appliances

HeatSaver
FLUE SYSTEM





KEEP THESE INSTRUCTIONS FOR FUTURE REFERENCE

Proudly Manufactured By:

harris HOME FIRES

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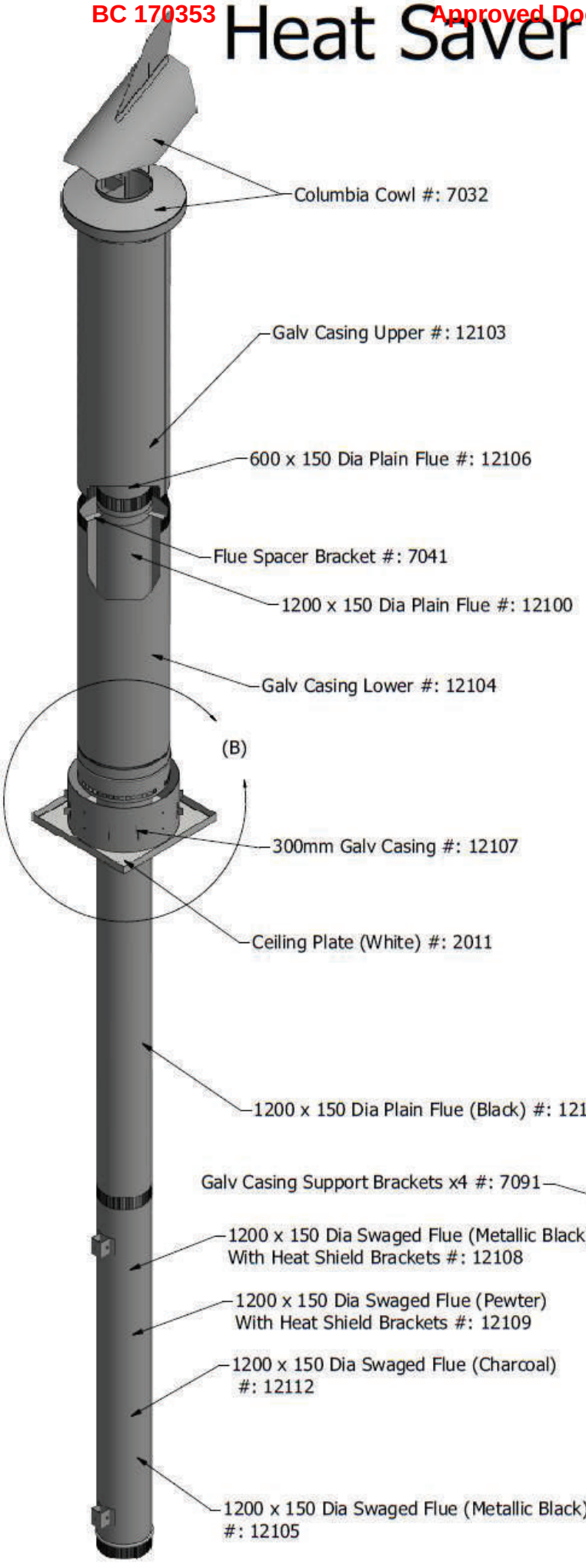
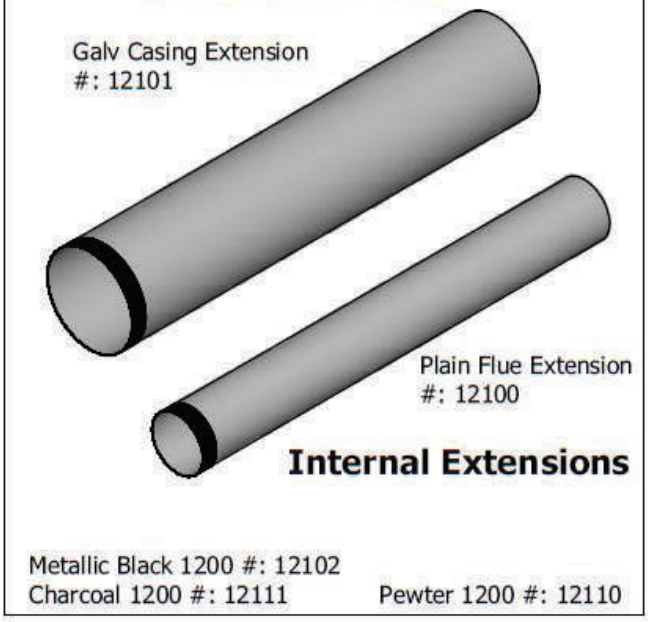
Phone 03 366 1796
Freephone 0800 3661796
Fax 03 366 1795

Heat Saver II Flue Kit

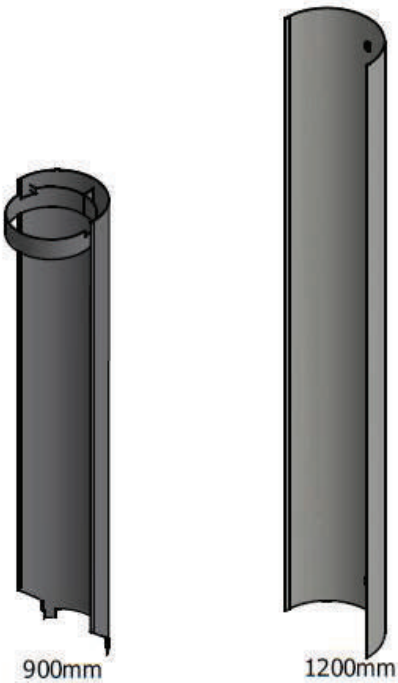


Extension Set

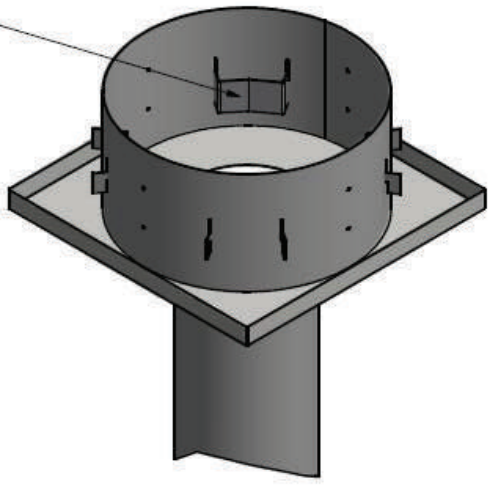


Internal Extensions

Metallic Black 1200 #: 12102
Charcoal 1200 #: 12111
Pewter 1200 #: 12110



(B)



INSTALLATION INSTRUCTIONS

- This HeatSaver flue system is tested and certified to AS/NZS 2918:2001 Appendix F, which means it is approved for use on all solid fuel appliances with a flue diameter of 150mm.
- A copy of the Laboratory Test Certificate for this HeatSaver Flue System is included as part of these Installation Instructions, (refer to paperwork with flue kit).
- Installation of any solid fuel appliance should only be carried out by suitably trained and qualified personnel.
- Position the stove to the desired position, always ensuring that the manufacturer's minimum clearances to combustibles are complied with.
- Check that there are no roofline ridges or valleys in the way, or if they cannot be avoided, that the installer knows how to weatherproof the penetration and reinstate the full strength of the structure.
- At the ceiling level, construct a square frame of 300mm x 300mm internal dimensions and cut away the ceiling materials from the inside of this frame.
- Lower the 300mm flue pipe casing into this frame and nail in place when the bottom edge is 25mm below the ceiling level and the 8 nail holes provided are touching the timber frame.
- Check all 4 locating brackets are securely in place and drop 250mm diameter lower casing in place. This will naturally settle so it protrudes 25mm below the ceiling.
- Make roof penetration, assemble and fit required flue length and install with upper casing. Secure all joins with at least 3 stainless steel rivets or self tapping screws.
- Frame and brace upper installation as required and flash the roof to shield penetration.
- Fit ceiling plate to ceiling.
- When trimming the stainless steel flue length, remember to allow for expansion when flue is hot.
- Fix HeatSaver Columbia Cowl in place.
- Secure the flue to the fire, drill through flue neck on fire and secure with 2 to 3 s/s screws or rivets.
- **All flue joints should be sealed using a flue cement. (see page 4)**

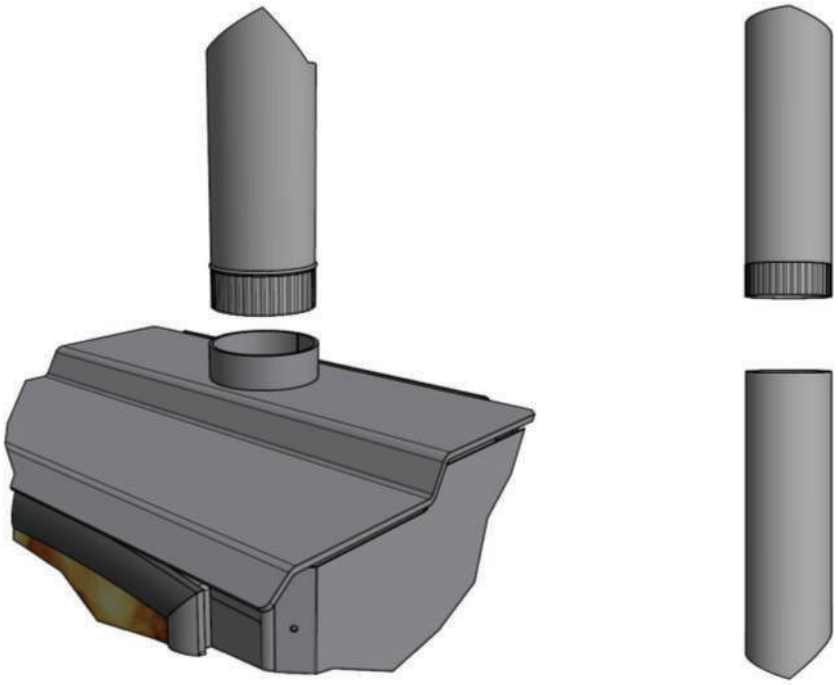
IMPORTANT
All Flue Joints Are Required To Be Sealed Using Flue Cement

It is extremely important that ALL flue joins are sealed at the time of installation using flue cement or a suitable exhaust cement.
Woodsman fires are designed and tested with all flue joins sealed.

If flue joins are not sealed properly, it can lead to performance issues with the fire such as;

- Lower heat output of the fire, due to decreased performance
- Blocked flue
- Smoke coming out the door when open, due to decreased suction
- Hard to light

The formation of soot and creosote will not seal the flues, especially on the lower lengths, as the high temperatures inhibit its formation.



Any issues that arise as a result of the flues not being sealed, are not covered by the warranty and are not the responsibility of the manufacturer.
It is the installer's responsibility to ensure that this is done at the time of installation.

Fitting Factory Flue Shields

Your HeatSaver Flue System comes standard with a factory flue shield of one of 2 types;

- **900mm high**, contains 1 x painted metal strap. This is used for the Woodsman ECR, Blaze, Boston, Manhattan, RMF and Milford.
- **1200mm high**, This is suitable for the Woodsman Brunner, Tasman, Aspen, Tarras, Strongman and other branded fires which can use 1200mm high single heat shields.

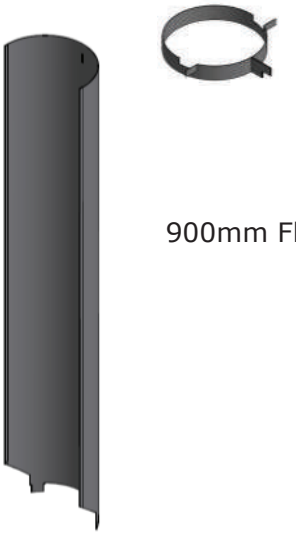
Fitting the 900mm High Flue Shield

1. The heat shield has 2 'tabs' at the bottom which corresponds to 2 slots on the fire behind the flue neck. Insert the tabs.
2. Take the metal strap and fold the two ends around the flue until the meet at the back of the flue at about the height of the top of the heat shield.
3. Hold both ends together and push the tabs through the single slot at the back of the heat shield and fold out tabs to secure in place.

Fitting the 1200mm high heat shield

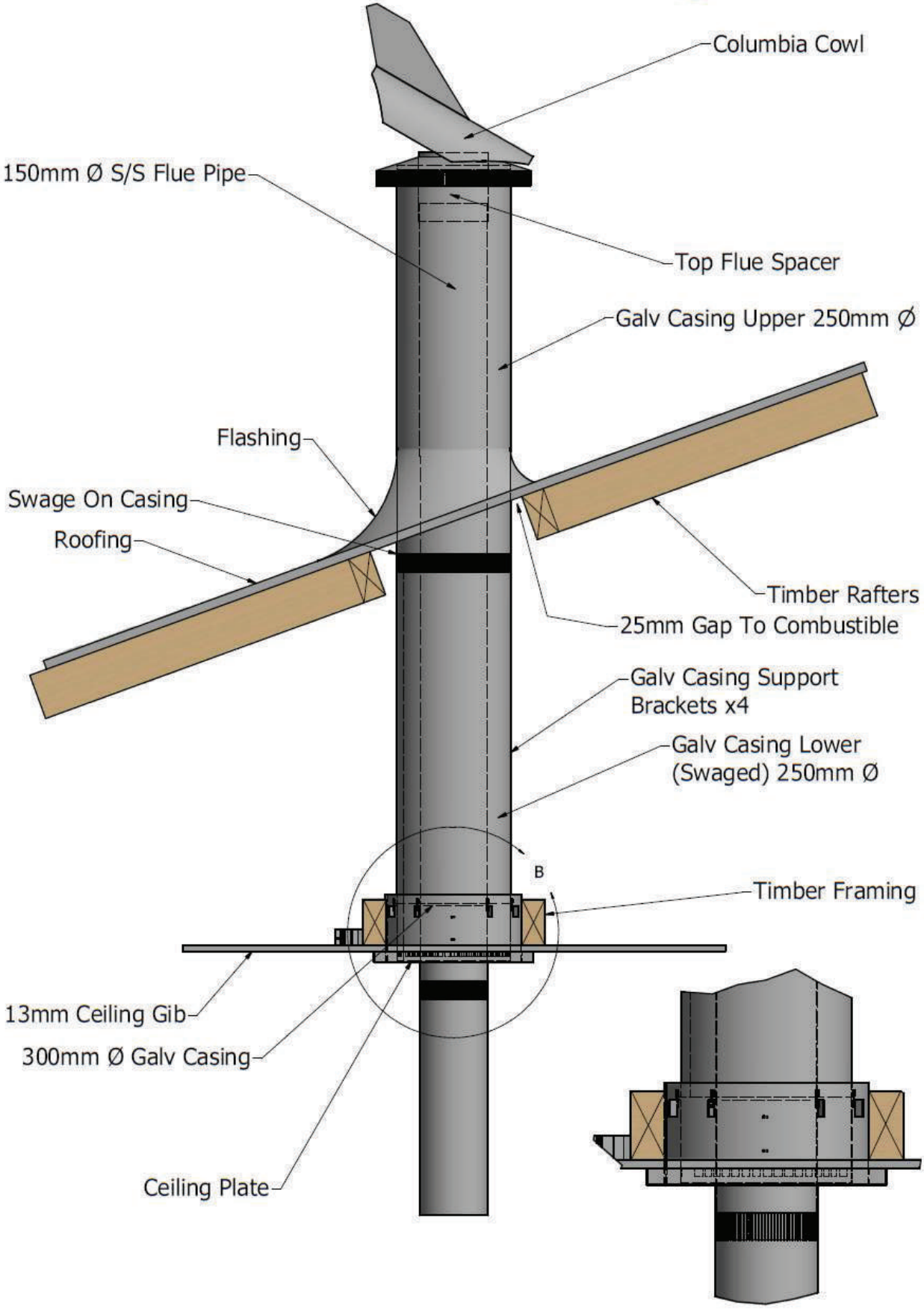
Your lower length of painted flue already has 2 location brackets attached.
1. Ensure these brackets are facing towards the back wall and centralised.
2. Secure the flue shield in place with screws

1200mm Flue Shield

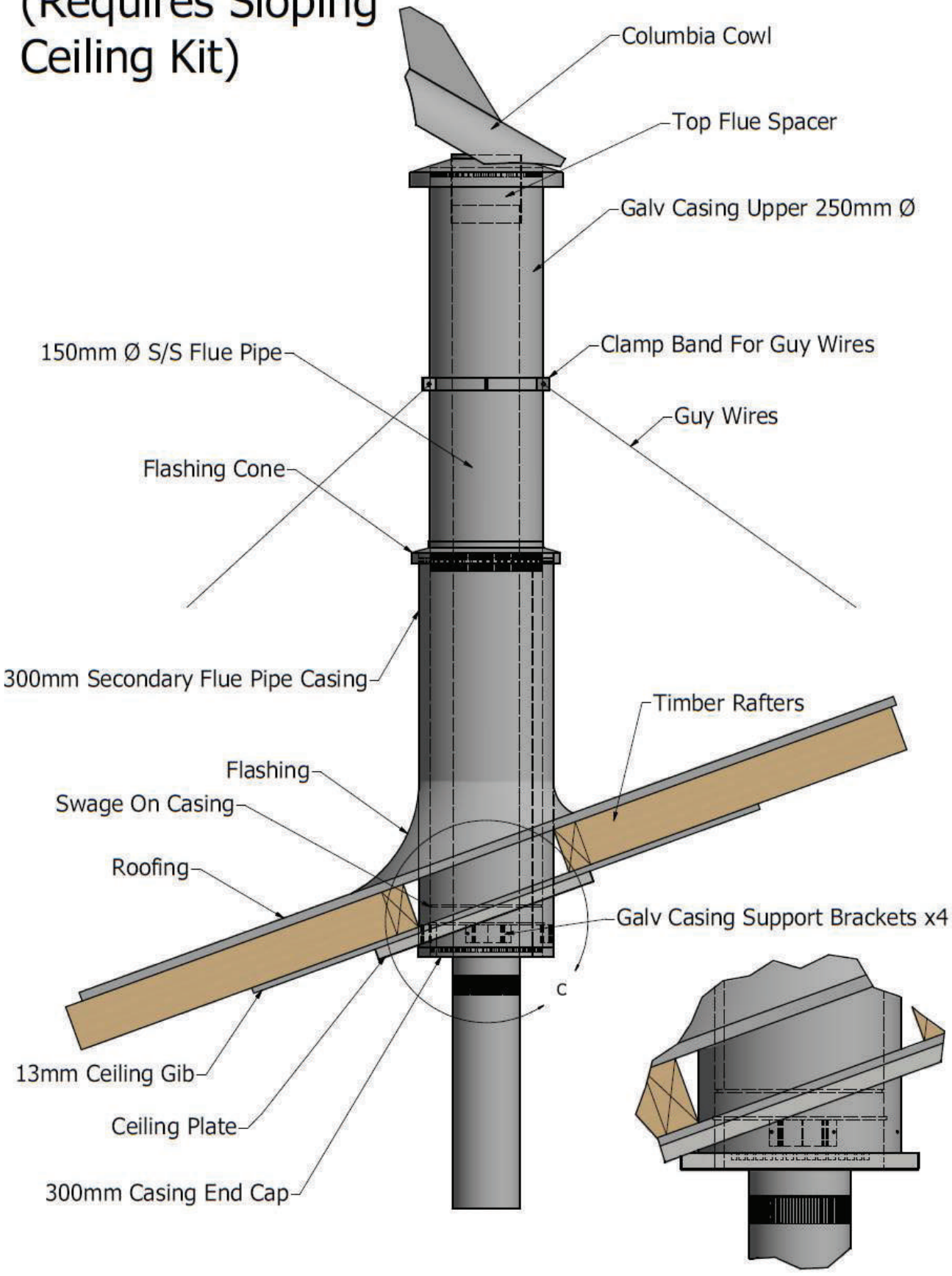


900mm Flue Shield

Standard Ceiling



No Cavity (Requires Sloping Ceiling Kit)



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Accreditation Laboratory Registration Number 395

This laboratory is accredited by International Accreditation New Zealand (IANZ). The tests reported herein have been performed in accordance with the terms of our accreditation. This accreditation does not extend to any opinions or any interpretations of test results contained in this report.

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Compliance Certificate

Appliance: HeatSaver 150 mm Diameter Flue Kit

Test Standard: AS/NZS2918:2001 Appendix F

Full Report: 02/749R

(The full report contains the information on the test methods, details of the appliance tested and the results of the test)

This report:

Prepared by: W. S. Webley W S Webley

Approved by: W. S. Webley W S Webley

Release Date: 2/3/09

Building Consent 170353

Form 5: Section 51, Building Act 2004

The building

Street address of building: 62 Pitfure Road, Wakefield

Legal description of land where the building is located: Lot 3 DP 464445

Valuation number: 1937010216

Building name: Level/unit number:

Location of building within site block no:

The owner

Name of owner:	Brigette Hovenden & Ricky Hovenden	
Contact person:		
Mailing address:	62 Pitfure Road, Wakefield 7025	
Street address/registered office:		
Phone number:	Landline:	Mobile: 0210431095
	Daytime:	After hours:
Facsimile number:	Email address: b_hovenden@hotmail.com	
Website:		

First point of contact for communications with the council/building consent authority:
As above

Building work

The following building work is authorised by this building consent:

Install Masport Osburn 1600 Freestanding Woodburner.

Intended Use: Heating

IMPORTANT NOTE: In accordance with the Building Act 2004, this Building Consent will lapse and have no effect 12 months from the date of issue if the building work to which it relates does not commence, or an extension to this period has not been agreed with the building consent authority.

This building consent is issued under section 51 of the Building Act 2004. This building consent does not relieve the owner of the building (or proposed building) of any duty or responsibility under any other Act relating to or affecting the building (or proposed building).

This building consent also does not permit the construction, alteration, demolition, or removal of the building (or proposed building) if that construction, alteration, demolition, or removal would be in breach of any other Act.

This building consent is subject to the following conditions:

Compliance schedule

A compliance schedule is not required for the building.

Attachments

Copies of the following documents are attached to this building consent:

Site Inspection Sheet
Application for Code Compliance Certificate
Additional Information

TASMAN DISTRICT
Issued by
ADMINISTRATION OFFICER
pursuant to delegated
authority under the
Building Act
on behalf of

8/05/2017
COUNCIL

On behalf of: Tasman District Council Date: 8/05/17

Additional Information to Building Consent

The owner

Name of owner: Brigette Hovenden & Ricky Hovenden

Contact person:

Building work

The following building work is authorised by this building consent:

Install Masport Osburn 1600 Freestanding Woodburner: Intended Use: Heating

Plumber: Allen Plumbing & Gas Ltd : 035472809

The following information accompanies Building Consent 170353 and should be read in conjunction with inspection conditions.

General Requirements

The Building Inspector is to be given 24 hours' notice before carrying out inspections.

It is Council policy to apply a standard charge, however it reserves the right to assess individual cases as required. Additional charges may be requested if costs or inspections incurred exceed the standard.

If this project contains Restricted Building Work (RBW), the details of the site Licensed Building Practitioner (LBP) will be required prior to the first inspection taking place.

At the completion of RBW, and in conjunction with your Application for Code Compliance Certificate, a Record of Works (RoW) will be required from any site LBP's that have been involved in the project.

The owner or person undertaking the building work shall advise of completion of work by returning the Application for Code Compliance Certificate form which accompanied this consent.

A copy of this consent is to remain on site at all times and you should ensure that a copy is given to any tradesmen e.g. builder, plumber and drainlayer.

Please note: all requested documents will be required prior to booking a final inspection. Your Application for Code Compliance Certificate will be required after all building work has been completed.

Site Inspection Sheet

Application		
Brigette Hovenden & Ricky Hovenden	No.	170353
62 Pitfure Road, Wakefield 7025	Issue date	8/05/17

Project	
Description	Install Masport Osburn 1600 Freestanding Woodburner
Location	62 Pitfure Road, Wakefield
Legal Description	Lot 3 DP 464445
Valuation No.	1937010216

This inspection list and all the approved plans relating to this building consent are to be kept on site and available to the building and/or plumbing and drainage inspector, or approved building certifier, on request.

Please give at least 24 hours' notice for the next required inspection.

Work cannot proceed past each step until that step has been inspected and approved, and this form signed by the relevant inspector or certifier.

This sheet is to be returned to Tasman District Council when applying for your code compliance certificate.

Note: If this form is not completed, the code compliance certificate will not be issued until Council is satisfied that the building complies with the New Zealand Building Code.

When this project is completed this inspection sheet will be attached to the relevant property file held at the Council office.

Please note! The approved plans are to be available on site, on request, at all times.

Inspections

26 Final Inspection: Fire Free-standing When Free-standing fire has been completely installed & smoke alarms fitted

Contractors	Name	Address	Signatures
Plumber:	Allen Plumbing & Gas Ltd : 035472809		

APPLICATION FOR CODE COMPLIANCE CERTIFICATE

1. What is the Building Consent? *Complete this field*

Building consent number:	170353
Issued by: *(name of building consent authority)*	Tasman District Council

2. Who owns the building? *Complete all fields, using N/A if a field is not applicable*

Owner name:	Ricky + Brigette Hovenden	Title: e.g. Mr, Mrs, Ms, Dr			
Contact person:	Brigette.				
Owner mailing address:	62 Pitfure Road Wakefield				
Street address/ registered office:	As above				
Owner email address:	b_hovenden@hotmail.com				
Owner contact number:	0210431095				
Are you using an Agent?	☐ Yes	☑ No	*If Yes, please also complete the following:*		
Who is the first point of contact for further correspondence?			☐ Agent	☐ Owner	
Agent name:					
Agent email:					
Agent contact number:					
Agent mailing address:					

3. When was the building work completed? *Complete this field*

All building work to be carried out under the building consent specified on this form was completed on:	*dd/mm/yyyy* 17/06/2017

4. Who completed the building work? *Complete all fields on each line. You will need to complete one line for each building practitioner. Use a separate sheet if necessary.*

The licensed building practitioner(s) who carried out/supervised the restricted building work is/are:

Name	Licensing class	LBP or registration number	Work carried out/ supervised

Name	Licensing class	LBP or registration number	Work carried out/ supervised

Tradespeople who carried out building work other than restricted building work are as follows:

Name	Address	Contact number	Registration number
Allen Plumbing + Gas Ltd.	437 Nayland Rd Stoke.	03 5472809	214640

Please list specified systems installed in the building or use N/A if this section is not applicable ☑ N/A

The following specified systems are contained on **the compliance schedule for the building and, in the opinion** of the personnel who **installed them, are capable of performing to the performance standards set out in the building consent:**

5. Declaration

☑ **I understand that this application may *only* be made with the owner's approval** *(tick to indicate agreement)*

I request that you issue a code compliance certificate for this work under section 95 of the Building Act 2004. The code compliance certificate should be sent to:

☑ Owner ☐ Agent ☐ Owner address as per Section 2 ☐ Agent address as per Section 2

Name:	Brigette Hovenden
Signature:	
Date:	22/6/17

You can add a digital signature to this document, either using Adobe or your existing digital signature.

Once you have filled out the form, including signatures, please save the application to your computer. You can then submit the application with supporting documentation to your local council.

If you are unsure about what information to include in your application, a guidance document is available (click here).

Code Compliance Certificate BC170353

Form 7: Section 95, Building Act 2004

The building

Street address of building: 62 Pitfure Road, Wakefield

Legal description of land where building is located: Lot 3 DP 464445

Valuation number: 1937010216

Current, lawfully established, use: Residential home

Year first constructed: 2014

The owner

Name of owner: Hovenden Ricky Jay & Hovenden Brigette Jill

Mailing address: 62 Pitfure Road, Wakefield 7025

Phone number: Landline: Mobile: 0210431095

Facsimile number: Email address: b_hovenden@hotmail.com Website:

First point of contact for communications with the council/building consent authority:
As above

Building work

Building consent number: 170353 Issued by: Tasman District Council

Install Masport Osburn 1600 Freestanding Woodburner: Intended Use: Heating

Code compliance

The building consent authority named below is satisfied, on reasonable grounds, that —

(a) the building work complies with the building consent.

TASMAN DISTRICT
Issued by
ADMINISTRATION OFFICER
pursuant to delegated
authority under the
Building Act
on behalf of

13/07/2017

COUNCIL

Signature Position Date: 13/07/17
On behalf of: Tasman District Council

INSPECTION REPORT

Name:	**Brigette Hovenden & Ricky Hovenden**	Consent No: **BC170353**
Address:	**62 Pitfure Road, Wakefield**	Inspected by: Pete Fitzgerald

On **30/06/2017** at **4:27 p.m.** this site was inspected pursuant to the Building Act 2004 (section 222/230) and the Local Government Act 2004 (Section 174). The purpose of the inspection was:

26 FINAL INSPECTION: FIRE FREE-STANDING WHEN FREE-STANDING FIRE HAS BEEN COMPLETELY INSTALLED & SMOKE ALARMS FITTED

Notes Summary: Out standing point has now been fixed, fire is ready to light, please issue CCC.

Next Inspection:

☒ **Failed Inspection Points**