

SPECIFICATION

of work to be done and materials to be used in carrying out the works shown on the accompanying drawings

4 Walnut Drive



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STRIP FOOTINGS

1. GENERAL

Documents

1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZS 3104	Specification for concrete production
NZS 3109	Concrete construction
NZS 3121	Specification for water and aggregate for concrete
NZS 3604	Timber-framed buildings
NZS 4229	Concrete masonry buildings not requiring specific engineering design
NZS 4431	Code of practice for earth fill for residential development
AS/NZS 4671	Steel reinforcing materials

Requirements

1.3 QUALIFICATIONS

Concrete workers to be experienced, competent and familiar in the fabrication and erection of formwork and with the materials and the techniques specified.

All work to be installed or supervised by a Registered Mason or licensed building practitioner (LBP): Licensed for Bricklaying and Blocklaying 2: Structural Masonry. RBW must be supervised by an LBP.

1.4 QUALITY RECORDS

Do not place concrete/grout until all excavations, formwork/blockwork and reinforcing have been inspected and passed by the Building Consent Authority.

2. PRODUCTS

2.1 NORMAL CONCRETE

Normal concrete 17.5, 20 or 25 MPa grade (refer to SELECTIONS), maximum aggregate size 19mm ready-mixed to NZS 3104. Retain delivery dockets listing mix and despatch details.

Mass concrete 10 MPa grade.

2.2 REINFORCEMENT

To AS/NZS 4671 Grade 300E deformed mild steel except for ties in plain round mild steel and as detailed.

2.3 TYING WIRE

Mild drawn steel wire not less than 1.2mm diameter.

2.4 WATER

To NZS 3121. Water from a territorial authority/NUO water supply is acceptable.

2.5 SPACERS AND CHAIRS

Precast concrete or purpose made moulded PVC.

3. EXECUTION

3.1 STORAGE

Handle and store reinforcing steel and accessories without damage or contamination. Store on timber fillets on hard ground in a secure area clear of any building operation. Lay steel fabric flat.

Ensure reinforcement is clean and remains clean so that at the time of placing concrete it is free of all loose mill scale, loose rust and any other contamination that may reduce bonding capacity.

- 3.2 **SOIL BEARING**
To NZS 3604 or NZS 4229, Section 3, **Site Requirements**.
All soil bearing surfaces of footings shall be horizontal and may be stepped to accommodate variations in cleared ground level. Bearing shall be upon solid bottom in undisturbed good ground to NZS 3604 or NZS 4229, or firm fill with a "Statement Of Suitability...." to NZS 4431.
- 3.3 **DEPTH OF FOOTINGS**
As shown on drawings with minimum depth of footings below cleared ground level, to NZS 3604 or NZS 4229, clause 3.4.2.
- 200mm.
- 3.4 **MASS CONCRETE SUB FOOTING**
Where good ground is greater than 600mm deep, 10 MPa mass unreinforced concrete can be used to fill up from the good ground to the required depth of the footing, to NZS 3604 or NZS 4229, clause 3.4.1. Refer to **SELECTIONS** for minimum dimensions.
- 3.5 **WIDTH OF FOOTINGS**
Footing to be centred on foundation wall above. Refer to drawings or **SELECTIONS** for minimum dimensions.
- 3.6 **FORMWORK**
Use formwork of sufficient strength to retain and support the wet concrete to the required profiles and tolerances. Select formwork finish to produce the specified finished quality. Water blast to clean formwork. Keep formwork wet before concrete is placed.
- 3.7 **REINFORCEMENT**
Cut and bend bars using proper bending tools to avoid notching and to the requirements of NZS 3109. Do not rebend bars. Where rebending is approved, use a purpose built tool, proper preparation and preheating.
Longitudinal reinforcing and ties, refer to **SELECTIONS** for size and quantity.
Stepped footings to NZS 4229, at least 50% of the lower footing reinforcement shall be turned up the step to a minimum of 450mm beyond the rebar intersection, and at least 50% of the upper footing reinforcement shall be carry on into the lower foundation wall to a minimum of 450mm (350 with hook) beyond the rebar intersection.
- 3.8 **REINFORCING LAPS**
To NZS 3604, 6.11.7, **Foundation wall reinforcement**. Horizontal reinforcing bars lapped 500mm minimum.
To NZS 4229, 6.6.3, 40 diameter laps for deformed bars.
Tie all lapping bars to each other.
- 3.9 **STARTER BARS**
Vertical starter reinforcement to NZS 4229, to match vertical wall reinforcement in size, type, location and spacing. Starters to penetrate foundation wall by 600mm minimum, and in the footing to be bent through 90° and tied to longitudinal reinforcing.
- 3.10 **COVER**
Minimum cover 75mm.
- 3.11 **OPENINGS**
Footings to be continuous under openings unless shown otherwise.
- 3.12 **PUMPING CONCRETE**
Set up and supervise pump operation, placing and compaction of the mix to, NZS 3604
7.4 Handling and placing and **7.6 Compaction**, advise the ready-mix supplier of the type of pump and the slump required, in addition to the concrete grade, strength and quantity.
- 3.13 **STRIKE FORMWORK**
Strike formwork without damaging or overloading structure to NZS 3109. Do not remove formwork before the following minimum periods under average temperature conditions.



12 hours: Sides of beams, walls and columns

Completion

- 3.14 **PROGRESSIVE CLEANING**
Clean off concrete spills as they occur, making good any damage at the same time.
- 3.15 **FINAL CLEANING**
Clean down exposed walls and remove waste material from adjoining surfaces at completion.
- 3.16 **REMOVE**
Remove from the site materials not used.



CARPENTRY

1. GENERAL

1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC B2/AS1	Durability
AS/NZS 1328.1	Glued laminated structural timber - Performance requirements and minimum production requirements
AS/NZS 1860.1	Particleboard flooring - Specifications
AS/NZS 2269.0	Plywood - Structural - Specification
AS/NZS 2904	Damp-proof courses and flashings
AS/NZS 2918	Domestic solid fuel burning appliances - Installation
NZS 3602	Timber and wood-based products for use in building
NZS 3603	Timber structures standard
NZS 3604	Timber-framed buildings
NZS 3622	Verification of timber properties
NZS 3640	Chemical preservation of round and sawn timber
AS/NZS 4347	Damp-proof courses and flashings - Methods of test
FTMA	Frame and Truss Manufacturers Association of New Zealand Inc - Code of Practice

***A copy of NZS 3604 Timber-framed buildings, must be held on site.**

1.3 SAMPLES

Provide samples of the following for review prior to ordering:

- Boarding for exterior decks
- Timber strip flooring.

1.4 DIMENSIONS

All timber sizes except for battens are actual minimum dried sizes.

2. PRODUCTS

2.1 TIMBER FRAMING, TREATED

Species, grade and in service moisture content to NZS 3602, NZBC B2/AS1 and treatment to NZS 3640, NZBC B2/AS1. Structural grade (SG) to NZS 3604, NZS 3622 with properties to NZS 3603.

2.2 TIMBER FRAMING, CHEMICAL FREE

Species, grade and moisture content in service as set out in NZS 3602, NZBC B2/AS1.

2.3 LAMINATED TIMBER

Radiata pine laminations to AS/NZS 1328.1; treated as required by NZS 3602, NZBC B2/AS1, to the requirements of NZBC B2/AS1, NZS 3640, with special attention to Appendix B "Specification advisory notes". Supply weather resistant sealed.

2.4 TIMBER TRUSSES

To FTMA Code of Practice. Moisture content 16% at supply

2.5 TIMBER TRUSSES, CHEMICAL FREE

To FTMA Code of Practice. Moisture content 16% at supply

2.6 PLYWOOD

Structural plywood to AS/NZS 2269.0 for bracing, bracketing, sarking and floors.

2.7 NAILS

Type to NZS 3604, section 4, **Durability**, and of the size and number for each particular types of joint as laid down in the nailing schedules of NZS 3604, sections 6-10.

- 2.8 **BOLTS AND SCREWS**
Bolts and screws of engineering and/or coach type complete with washers, to the requirements of NZS 3604, section 4, **Durability**, and of the number and form required for each particular junction to NZS 3604, sections 6-10.
- 2.9 **NAIL PLATES**
Comply with the requirements of NZS 3604, section 4, **Durability**, and of the number and form required for each particular junction to NZS 3604, sections 6-10. Plates to the plate manufacturer's design for the particular locations as shown on the drawings.
- 2.10 **CONNECTORS**
Comply with the requirements of NZS 3604, section 4, **Durability**, and of the number and form required for each particular junction to NZS 3604, sections 6-10. Connectors and structural brackets to the connector manufacturer's design for particular locations shown on drawings.
- 2.11 **CORROSION RISKS**
For exterior timber, timber in damp areas and timber subject to occasional wetting, use stainless steel (or equivalent) fixings, connectors, etc, in all zones, with the timber treatments CuAz (Preservative code 58) and ACQ (Preservative code 90).
- 2.12 **DPC**
Refer to 4161 UNDERLAYS, FOIL AND DPC section
- 3. EXECUTION**
- 3.1 **EXECUTION GENERALLY**
To NZS 3603 and NZS 3604 except as varied in this specification. Execution to include those methods, practices and processes contained in the unit standards for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).
- 3.2 **SEPARATION**
Separate all timber framing timbers from concrete, masonry and brick by: -
- a full length bituminous damp-proof membrane overlapping timber by at least 6mm; or
- a 12mm minimum free draining air space
- 3.3 **ATTENDANCE**
Provide and fix blocks, nogs, openings and other items as required by other trades.
- 3.4 **MOISTURE CONTENT**
Maximum allowable equilibrium moisture content (EMC) for non air-conditioned or centrally heated buildings for framing to which linings are attached.
Framing at erection: 24% maximum
Framing at enclosure: 20% maximum
Framing at lining: 16% maximum
Timber strip flooring: 10% at time of laying
- 3.5 **SET-OUT**
Set out framing in accordance with the requirements of NZS 3604 and as required to support sheet linings and claddings.
- 3.6 **FRAMING WALLS**
Frame to required loading and bracing complete with lintels, sills and nogs, all fabricated and fastened to NZS 3604, section 8, **Walls**.
- 3.7 **INSTALLING WALL UNDERLAYS**
Refer to 4161 UNDERLAYS, FOIL AND DPC section
- 3.8 **FIT JAMB BATTENS**
For walls with direct fix cladding, fit 20mm (nominal) jamb battens over the wall underlay, to the jambs of window and door rough openings, to NZBC E2/AS1, fig 72A. Cut around sill flashings. Fix with 60 x 2.8 flat head galvanized nails at 300mm centres.

- 3.9 DPC TO LOSP TREATED TIMBER
Refer to 4161 UNDERLAYS, FOIL AND DPC section.
- 3.10 DPC TO TIMBER
Refer to 4161 UNDERLAYS, FOIL AND DPC section.
- 3.11 INSTALL PROPRIETARY FIREPLACE
Prepare for the installation as detailed and as required by the manufacturer. Install strictly in accordance with AS/NZS 2918 and the manufacturer's stated and detailed requirements.



HERMAN PACIFIC HORIZONTAL CEDAR CLADDING SYSTEM

1. GENERAL

This section relates to the supply and fixing of **Herman Pacific** (Hermipac) cedar cladding:

- Rusticated weatherboards
- Fascia

1.1 RELATED WORK

Refer to 4161 UNDERLAYS, FOIL AND DPC for building underlays.
Refer to painting sections for finishes to weatherboard cladding.

Documents

1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC B2/AS1	Durability
NZBC E2/AS1	External moisture
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 3617	Profiles of weatherboards, fascia boards and flooring
BRANZ BU 475	Structurally fix cavity battens

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Herman Pacific Ltd (Hermipac) documents relating to this part of the work:

Construction details via website
Standard profiles - via website
Custom profiles - via website
Set out tools - via website
Board to board lap and set out details - via website
Profiles catalogue - Current Volume
Grade descriptions - via website
Hermipac architectural resource box
Hermipac Table 1: Nail fixings
Machinecoat - Flood Coat Inundation versus Spray Application
Custom profile drawing template and request form
Legal and / or Sustainable Certification - via website
Maintenance of selected oil stain finishes
BRANZ Appraisal 524 - Cavity Batten System
BRANZ Appraisal 658 - Rusticated and Splaycut Weatherboard Cavity System
BRANZ Appraisal 663 - Bevelback Weatherboard Cavity System

Manufacturer/supplier contact details

Company: **Herman Pacific Ltd**

Contacts:

North Island: Kyle Deans - 021 771 857, kyle.deans@hermpac.co.nz
Jonathan Rugg - 021 770 320, jonathan.rugg@hermpac.co.nz

Web: www.hermpac.co.nz

Email: technical@hermpac.co.nz
information@hermpac.co.nz

Telephone: 09 377 1426 Auckland
04 586 9674 Wellington
03 341 2163 Christchurch
09 426 5475 Hibiscus Coast

Facsimile: 0800 329 423

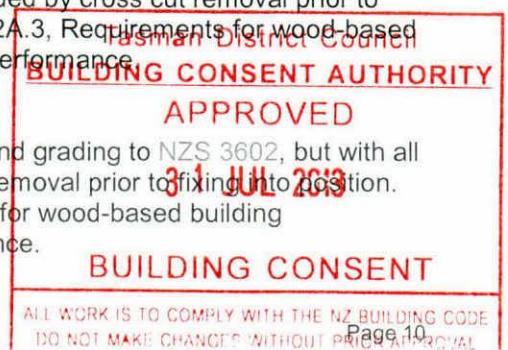
Performance

- 1.4 **FIXINGS, WIND**
Design and use the fixings appropriate for the wind zone (R) and topographical classification (T) of this site and building height; as required by NZS 3604.
- 1.5 **PERFORMANCE**
Accept responsibility for the weather-tight performance of the completed cladding system, including all penetrations. To NZBC B2/AS1 Durability and NZBC E2/AS1 External moisture.
- 1.6 **SAMPLES AND PROFILE DRAWINGS**
Hard Profiles, Technical Profile Drawings, Species samples and/or Colour Chips for Machinecoat (NZ) applied finish options are available by request at www.herpac.co.nz, or via fax, e-mail or telephone.

2. **PRODUCTS**

Materials

- 2.1 **TIMBER SPECIES**
Western Red Cedar:
Herman Pacific Canadian Western Red Cedar (*Thuja plicata*) harvested from the sustainable managed forests of British Columbia, Canada. Herman Pacific Western Red Cedar is supplied from forest sources, certified legal and sustainable under one or more independent third party verified certification systems (PEFC, CSA, SFI or FSC). Refer to website for Herman Pacific's policy on sustainability and for links to suppliers websites and forest management goals and policies.
- Yellow Cedar:
Herman Pacific Canadian Yellow Cedar (*Chamaecyparis nootkatensis*) harvested from the sustainable managed forests of British Columbia, Canada. Herman Pacific Yellow Cedar is supplied from forest sources, certified legal and sustainable under one or more independent third party verified certification systems (PEFC, CSA, SFI or FSC). Refer to website for Herman Pacific's policy on sustainability and for links to suppliers websites and forest management goals and policies.
- 2.2 **WEATHERBOARDS**
Western Red Cedar weatherboards to **Herman Pacific** (Hermpac) profiles, Lap and Rebate details to BRANZ BU 411 and general design to NZS 3617, species and grading to NZS 3602, table 2, reference 2A.1, Requirements for wood-based building components to achieve a 15-year durability performance. Weatherboards in lengths relevant to profile selection and application, with all unsound and open split knots excluded by cross cut removal prior to fixing into position.
Acceptable Solution is limited to the following types of weatherboards and their derivatives:
- Horizontal Rusticated and Hermpac Custom Profiles
- A selection of the above profiles are also available in Western Red Cedar Finger-Joint/Edge Glued (CEDARONE) Pre-Primed and Undercoated, Sanded and/or de-nibbed between coats.
- 2.3 **COVER BOARDS, MOULDINGS AND SCRIBERS**
To **Herman Pacific** (Hermpac) profiles as detailed, with species and grading to NZS 3602, but with all unsound and open split knots excluded by cross cut removal prior to fixing into position. To NZS 3602, table 2, reference 2A.3, Requirements for wood-based building components to achieve a 15-year durability performance.
- 2.4 **FASCIA BOARDS**
To Herman Pacific (Hermpac) profiles, with species and grading to NZS 3602, but with all unsound and open split knots excluded by cross cut removal prior to fixing into position. To NZS 3602, table 2, reference 2A.3, Requirements for wood-based building components to achieve a 15-year durability performance.



- 2.5 BUILDING UNDERLAYS
Breather type, waterproof, to NZBC E2/AS1, table 23: **Properties of roof underlays and wall underlays**. Refer to section 4161 UNDERLAYS, FOIL AND DPC for type and fixing details.

Components

- 2.6 NAILS, SILICON BRONZE
Hermpac Crown, Rose or Flat Head, Annular Grooved Shank Silicon bronze fixings to NZBC E2/AS1 Table 24. Refer to **Herman Pacific** construction details for fixing details and to SELECTIONS for fixing sizes.
- 2.8 FLASHINGS
To NZBC E2/AS1, 4.0 **Flashings**. Material, grade and colour as detailed and scheduled and to NZBC E2/AS1; Table 21: **Compatibility of materials in contact** and Table 22: **Compatibility of materials subject to run-off**. Ensure that materials used for flashings are compatible with the window frame materials and fixings and cladding materials and fixings.
- 2.9 SOAKERS, STAINLESS STEEL / COLORSTEEL ZINCALUME / ALUMINIUM
To NZBC E2/AS1, 4.0 **Flashings**. Machine folded stainless steel/zinc coated steel sheet to profile of weatherboard and mitred corner joints. To NZBC E2/AS1; Table 21: **Compatibility of materials in contact** and Table 22: **Compatibility of materials subject to run-off**. Ensure that materials used for soakers are compatible with adjacent materials and fixings, cladding materials and fixings.
- 2.10 SOAKERS, COPPER
To NZBC E2/AS1, 4.0 **Flashings**. Machine folded half-hard copper sheet to profile of weatherboard and mitred corner joints. To NZBC E2/AS1; Table 21: **Compatibility of materials in contact** and table 22: **Compatibility of materials subject to run-off**. Ensure that materials used for Soakers are compatible with adjacent materials and fixings and cladding materials and fixings.

Finishes

Premium Alkyd Primer and Undercoat, Premium Acrylic base Top coat:

Factory spray application of selected solvent based oil primer and undercoat starter coats and / or acrylic base finish coat on to timber surface.

Refer to: Hermpac Coating instructions

Primer Colour: Hermpac Off White or as specified by special contract.

Undercoat Colour: Hermpac Green or as specified by special contract.

Factory applied Starter coats: Primary coat - Primer.
Secondary coat - Undercoat.

Factory applied Finish coats: Refer to SELECTIONS.

Site applications to coating manufacturer's specifications.

3. EXECUTION

Conditions

- 3.1 GENERALLY
Execution to NZBC E2/AS1: 3.0 **Weathertightness risk factors**, and 9.0 **Wall claddings**, 9.1.8 **Drained cavities** and 9.4 **Timber weatherboards**.
- 3.2 STORAGE
Take delivery of **Herman Pacific** timber products, dry, unmarked and undamaged from freight and handling (Grade characteristics excluded). Store on site, laid flat and true under cover.

- 3.3 **SUBSTRATE**
Before starting fixing ensure that the substrate conforms with NZS 3604, section 2, table 2.1, **Timber framing tolerances** and the requirements of NZS 3604, section 6, **Foundation and subfloor framing** and NZBC E2/AS1, governing support for timber board cladding.
- Application - preparation**
- 3.4 **FIX UNDERLAYS**
Refer to section 4161 UNDERLAYS, FOIL AND DPC for type and fixing details.
- Application - fixing**
- 3.5 **FIXING - OIL STAIN FINISH**
Install level, true to line and face, to NZBC E2/AS1: 9.4 **Timber weatherboards**. Coat all cut ends before fixing. Pilot drill all fixings slightly smaller than gauge of fixing to ensure a snug fit and to minimise risk of moisture entry. Finish the heads of Herman Pacific Crown, Rose and Flat head nails flush onto and not into the board surface. Do not 'over drive' the nail head and crush the timber surface beneath and surrounding the nail.
- 3.6 **INSTALL FLASHINGS**
Install flashings, covers and soakers as detailed on the drawings and to NZBC E2/AS1.
- 3.7 **COMPLETE**
Ensure the work is complete with all flashings, finishings and trim properly installed so the cladding system is completely weathertight.
- Completion**
- 3.8 **REPLACE**
Replace all damaged or marked elements.
- 3.9 **LEAVE**
Leave work to the standard required for following procedures.
- 3.10 **REMOVE**
Remove all debris, unused materials and elements from the site.



PINK® BATTS® INSULATION

1. GENERAL

This section relates to Tasman Insulation **Pink® Batts®** insulation materials installed into residential buildings.

It includes:

Thermal:

- **Pink® Batts® Wall Insulation (Pink® Batts® Classic and Pink® Batts® Ultra®)**
- **Pink® Batts® Ceiling Insulation (Pink® Batts® Classic and Pink® Batts® Ultra®)**

Documents

1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC H1/AS1	Energy efficiency
AS/NZS 3000	Electrical installations
NZS 4218:2004	Energy Efficiency - Small building envelope
NZS 4220	Code of practice for energy conservation in non-residential buildings
NZS 4243.1	Energy Efficiency - Large buildings - Building thermal envelope
NZS 4246	Energy efficiency - Installing insulation in residential buildings
AS/NZS 60598.2.2	Luminaires- Particular Requirements - Recessed luminaires
AS/NZS 60695.11.5	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents related to this section are:

Tasman Insulation New Zealand: Product Data Sheets

BRANZ Appraisal 632 - Pink® Batts® SnugFloor® Underfloor Insulation

Manufacturer/supplier contact details

Company: **Tasman Insulation New Zealand**

Web: www.pinkbatts.co.nz

Telephone: 0800 PINK BATTS (746 522)

Warranties

1.4 GUARANTEE

Provide a Tasman insulation guarantee.

- For **Pink® Batts®** insulation products.
- Provide on completion of the installation, a **PinkFit® Home Insulation Installation Guarantee** form, to confirm the insulation has been installed to NZS 4246.

Requirements

1.5 QUALIFICATIONS, PINK® BATTS® AND PINK® BATTS® SILENCER®

Installers to be **PinkFit® - Preferred Pink® Batts® installers**. A list of approved installers can be obtained from the web, by telephone or from the local building supplies merchant.

Web: www.pinkbatts.co.nz

Telephone: Freephone 0800 746 534 (0800 PINKFIT)

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Tasman Insulation **Pink® Batts®** insulation or associated products, components or accessories.

2. PRODUCTS

Materials - thermal

- 2.1 **PINK® BATTS® CEILING INSULATION**
Pink® Batts® Ceiling Insulation (Pink® Batts® Classic and Pink® Batts® Ultra®) is a light weight flexible bio-soluble glass wool manufactured from up to 80% recycled glass, bonded with a thermosetting resin to form rectangular slabs. Refer to SELECTIONS for R values and thickness options.

NOTE: When insulation abutting or covering recessed downlights is intended to be in contact with IC, CA 80, CA 135 luminaries the insulation must withstand a 30s Needle Flame test to AS/NZS 60695.11.5. Pink® Batts® insulation meets this requirement.

- 2.2 **PINK® BATTS® WALL INSULATION**
Pink® Batts® Wall Insulation (Pink® Batts® Classic and Pink® Batts® Ultra®) is a light weight flexible bio-soluble glass wool manufactured from up to 80% recycled glass, bonded with a thermosetting resin to form rectangular slabs. Refer to SELECTIONS for R values and thickness options.

Components

- 2.3 **FASTENERS**
Insul anchors complete with retaining washer.
- 2.4 **TAPES**
Proprietary plastic tape stapled across framing to retain insulation in unlined wall and ceiling locations.
- 2.5 **ADHESIVE TAPE**
Pressure sensitive adhesive tape.

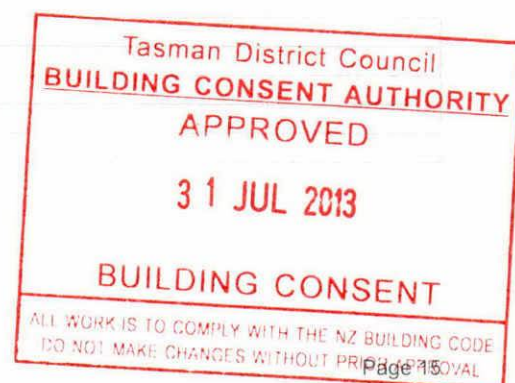
3. EXECUTION

- 3.1 **STORAGE**
Accept materials undamaged and dry and store in a location that protects them from the weather and damage. Avoid distortion, stretching, compression, puncturing and damage to edges of materials. Do not use damaged or wet insulation materials.
- 3.2 **HANDLING**
Wear protective clothing as necessary and when handling, avoid delamination or distortion of the rectangular form. Maintain full thickness unless compression is an installation system requirement.
- 3.3 **INSPECTION**
Before starting installation of blankets and slabs, check that the location and framing are free from moisture, that the cavities are not interconnected and that mesh, wall underlays and vapour barriers are in place.

Application - general

- 3.4 **INSTALL INSULATION - GENERAL**
Lay, install, fit and fix to NZBC H1/AS1: Energy efficiency, 2.0 Building thermal envelope, and to manufacturer's requirements. Install in housing to NZS 4218 and NZS 4246. Install in large buildings to NZS 4243.1 and NZS 4220. Allow insulation to re-loft/relax prior to installation. Do not cover vents. Allow a clear gap around metal flues as recommended by the fireplace manufacturer. Lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.

Application, thermal insulation



- 3.5 **INSTALL PINK® BATTS® CEILING INSULATION**
Ensure that the product is installed dry; if wet replace before installation. If cutting is required, cut oversize by 5-10mm to ensure a friction fit. Insulate around vents (not over them) to allow unhindered ventilation.
Fit **Pink® Batts® Ceiling Insulation** beneath electrical wiring and plumbing. Install to the outer edge of the top plate. Maintain a 25mm gap clearance between the **Pink® Batts®** insulation and roof underlay. Refer to NZS 4246 for installation guidelines and Pink® Batts® Product Data Sheets, for detailed installation instructions.

- 3.6 **INSTALL PINK® BATTS® WALL INSULATION**
Ensure the product is installed dry; if wet replace before installation. If cutting is required, cut oversize by 5-10mm to ensure a friction fit. Fill gaps around windows and doors with off-cuts. Insulate around vents (not over them) to allow unhindered ventilation.

Fit **Pink® Batts® Wall Insulation** behind electrical wiring and plumbing. Ensure there are no gaps, folds or undesirable compression at edges.

Refer to NZS 4246 for installation guidelines and Pink® Batts® Product Data Sheets, for detailed installation instructions.

Completion

- 3.7 **CLEAN UP**
Clean up as the work proceeds, so no spare offcuts or any other matter or item remain behind claddings or linings.

- 3.8 **LEAVE**
Leave work to the standard required by following procedures.

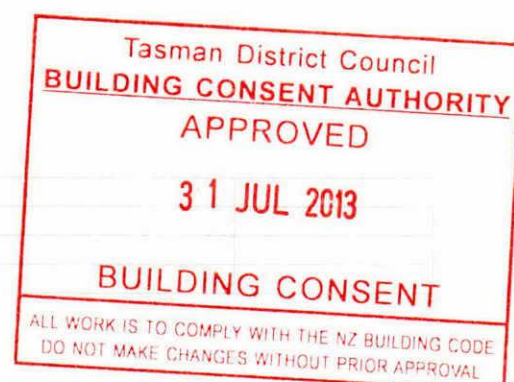
- 3.9 **REMOVE**
Remove debris, unused materials and elements from the site.

4. **SELECTIONS**
For further details on selections go to www.pinkbatts.co.nz.
Substitutions are not permitted to the following, unless stated otherwise.

Thermal insulation

- 4.1 **PINK® BATTS® CLASSIC CEILING INSULATION**
Location: Ceiling
Brand: **Pink® Batts® Classic Ceiling**
R-value: 2.6

- 4.2 **PINK® BATTS® CLASSIC WALL INSULATION**
Location: Walls
Brand: **Pink® Batts® Classic Wall**
R-value: 3.6
Thickness: 90mm



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

1.2 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
NASH	Residential and Low-Rise Steel Framing Part 1 2010 Design Criteria

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:

BRANZ Appraisal 294 (2011) - GIB® Ezybrace® Systems
BRANZ Appraisal 427 - GIB Aqualine® Wet Area Systems

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 BRACING REQUIREMENTS

Provide braced wall systems using GIB® Ezybrace® Systems (June 2011) or GIB® Ezybrace® Software (2011) to meet the requirements of NZS 3604 when tested to BRANZ Technical paper P21. Alternatively use GIB® Ezybrace® for Steel Frame Housing (NASH) Software 2011 to meet the requirements of NASH Residential and Low-Rise Steel Framing Part 1 2010 Design Criteria. 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 Braceline® & GIB® Noiseline dual purpose wall bracing & noise control plasterboard

GIB Aqualine® wet area plasterboard

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).

Size: 30mm, 40mm

2.6 TAPE ON TRIMS AND EDGES

GIB® Goldline® tape-on trims

GIB® UltraFlex high impact corner mould

2.7 METAL ANGLE TRIMS

GIB® galvanized steel slim angle trims.

2.8 CONTROL JOINTS

GIB® Rondo® P35 control joints.

GIB® Goldline® tape-on trims

Accessories

2.9 ADHESIVE

Timber frame and/or steel frame:

GIBFix® One ultra low VOC water based wallboard adhesive

GIBFix® All-Bond solvent based wallboard adhesive

2.10 JOINTING COMPOUND

Bedding compound: GIB Tradeset®, GIB Lite Blue®, GIB MaxSet®, GIB ProMix® All Purpose, GIB Plus 4®

Finishing compound: GIB ProMix® All Purpose, GIB® Trade Finish®, GIB® Trade Finish® Lite, GIB ProMix® Lite, GIB® U-Mix, GIB Plus 4®



Cove:	GIB-Cove [®] Bond
-------	----------------------------

- 2.11 JOINTING TAPE
GIB[®] paper jointing tape.

- 2.12 GAP FILLER
GIB[®] Gap Filler ultra low VOC multi-purpose acrylic flexible filler

3. EXECUTION

Conditions

- 3.1 STORAGE
Store GIB[®] plasterboard sheets and accessories in dry conditions stored indoors out of direct sunlight in neat flat stacks on either an impervious plastic sheet or clear of the floor with no sagging and avoiding damage to ends, edges and surfaces. Reject damaged material. Refer to GIB[®] Site Guide (Jan 2010).
- 3.2 LEVELS OF PLASTERBOARD FINISH
Provide the selected plasterboard surfaces to the pre decorative levels of finish specified in AS/NZS 2589.
- 3.3 CONFIRM LEVELS OF PLASTERBOARD FINISH ACCEPTANCE
Before commencing work, agree in writing upon the surface finish assessment procedure towards ensuring that the quality of finish expectations are reasonable and are subsequently obtained and acceptable.

Do not apply decorative treatment until it is agreed in writing by the contractor, subcontractors and decorator that the specified plasterboard Level of Finish has been achieved.

"Levels of plasterboard finish" is a tool for specifying the required quality of finish when installing and flush stopping GIB[®] plasterboard **prior** to the application of a range of decorative finishes under various lighting conditions. Refer to **AS/NZS 2589**.

- 3.4 SUBSTRATE
Do not commence work until the substrate is plumb, level and to the standard required by the sheet manufacturer's requirements. Refer to GIB[®] Site Guide (Jan 2010).
- 3.5 TIMBER FRAME MOISTURE CONTENT
Maximum allowable moisture content to AS/NZS 2589 for timber framing at lining: 18% or less for plasterboard linings. Refer to NZBC E2/AS1 and GIB[®] Site Guide (Jan 2010).
- 3.6 METAL FRAMING
Metal framing, to which gypsum lining is fixed, shall comply with AS 1397, AS/NZS 4600, or NASH Residential and Low-Rise Steel Framing Part 1 2010 Design Criteria, as applicable. Where adhesion of gypsum linings is required, surfaces shall be free of oil, grease, dust and other foreign materials. Refer to the metal framing manufacturers specifications where high density gypsum linings (>800 kg/m³) such as GIB Braceline[®] and GIB Noiseline[®] are specified for fixing to light gauge steel framing.
- 3.7 PROTECTION
Protect surfaces; cabinetwork, fittings, equipment and finishes already in place from the possibility of water staining and stopping damage. Refer to GIB[®] Site Guide.

Application

- 3.8 INSTALL CEILING BATTENS
Install to GIB[®] Rondo[®] Ceiling Batten Systems.
- 3.9 LINING WALLS AND CEILINGS GENERALLY
Form to GIB[®] Site Guide (Jan 2010). Ensure bulk insulation thickness shall not exceed that of the wall framing.

- 3.10 **BOARD ORIENTATION**
Minimise joints by careful sheet layout using the largest sheet sizes possible, and generally fixing horizontally. Where part sheets are required for various stud heights they should be positioned so the cut sheet is as low as possible to keep joints below eye level.
- 3.11 **FORM WET AREA SYSTEMS**
Form to GIB Aqualine® Wet Area Systems.
- 3.12 **FORM BRACING SYSTEMS**
Form to GIB® Ezybrace® Systems (June 2011).
- 3.13 **FORM CONTROL JOINTS**
Form control joints to GIB® Site Guide.
- 3.14 **INSTALL COVES**
Install to GIB-Cove® literature using GIB-Cove® Bond.
- 3.15 **INSTALL TAPE-ON TRIMS**
Install to GIB® Goldline® Tape-on trims literature and/or GIB® Ultraflex high impact corner mould literature.

Finishing

- 3.16 **FINISHING GENERALLY**
To GIB® Site Guide (Jan 2010) and AS/NZS 2589.

Completion

- 3.17 **REPLACE**
Replace damaged sheets or elements.
- 3.18 **CLEAN DOWN**
Clean down completed surfaces to remove irregularities and finally sand down with fine paper to the sheet manufacturer's requirements, to leave completely smooth and clean.
- 3.19 **REMOVE**
Remove debris, unused materials and elements from the site.
- 3.20 **LEAVE**
Leave work to the standard required by following procedures.

100x100x6 SHS post

3 coats Flintcoat to SHS
200mm above and below concrete level

450Ø concrete encasement, 17.5MPa concrete

2/ D12 through SHS post

1500

1300

200

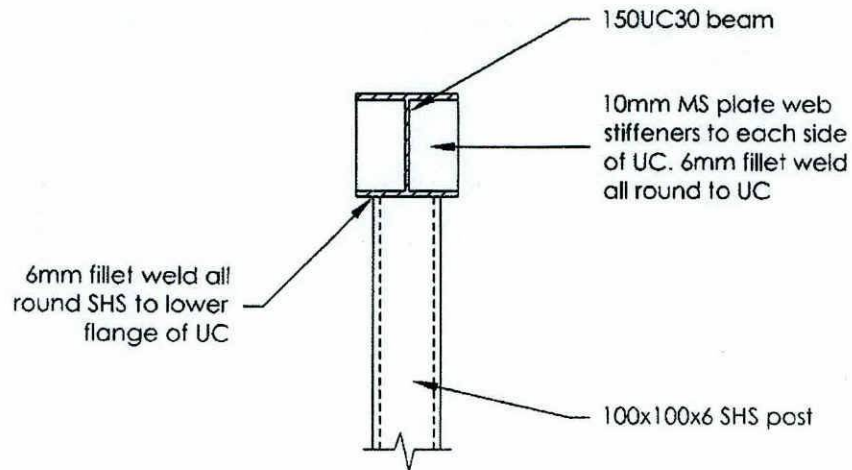
450

SHS post footing
1:10

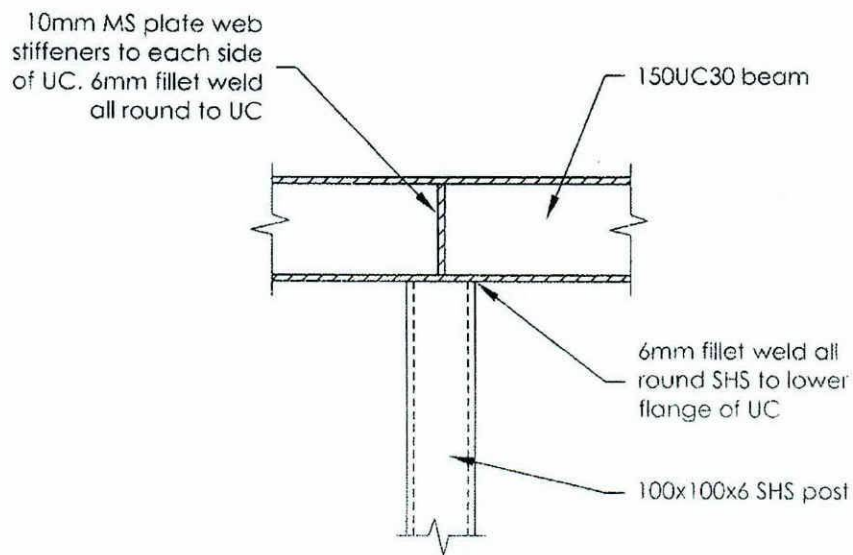
Notes:
All exterior steelwork galvanised

Tasman District Council
BUILDING CONSENT AUTHORITY
 Fax: 046 6375
 DWG Page: 1 **APPROVED**
31 JUL 2013
BUILDING CONSENT
 ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
 DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

STRUCTURAL DETAILS FOR TACK VENTURES, FEARON STREET, MOTUEKA



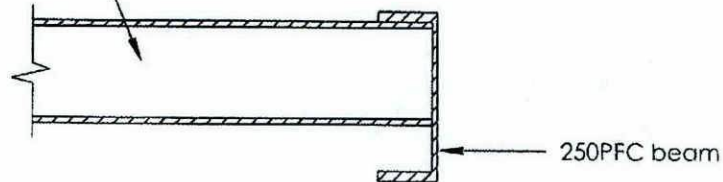
beam to post section
1:10



beam to post elevation
1:10

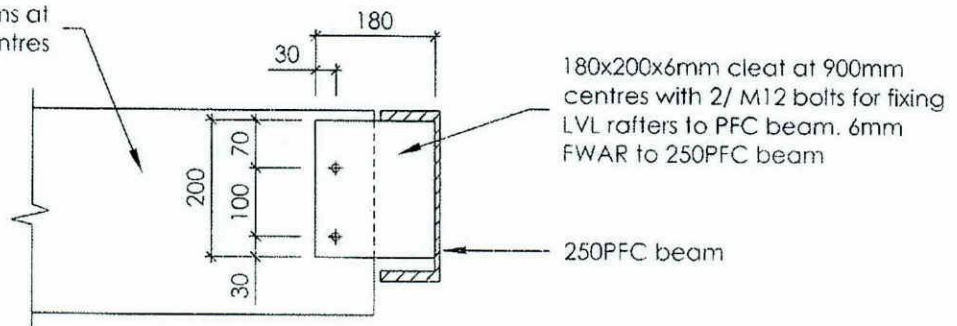
STRUCTURAL DETAILS FOR TACK VENTURES, FEARON STREET, MOTUEKA

150UC30 beam. 6mm
FWAR to 250PFC beam



beam to PFC elevation
1:10

300x45 LVL beams at
900mm centres

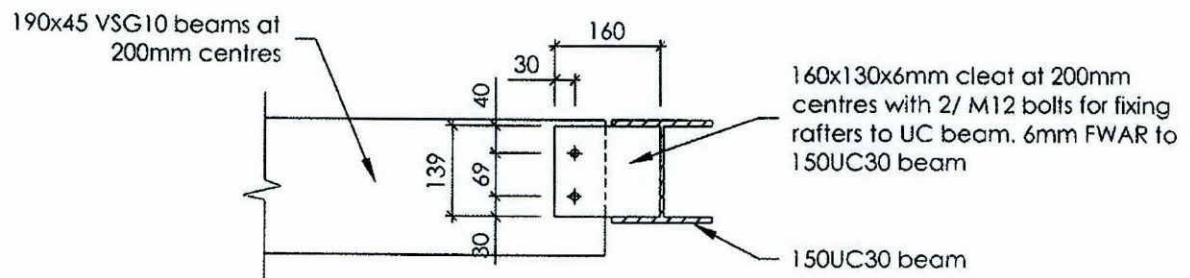


PFC bracket elevation
1:10

W R Andrew Ltd Consulting Engineers
12 Paru Paru Road, Nelson Ph: 546 4565 Fax: 546 8575
Date: 28.05.10 File: TACKVENTURES.DWG Page: 3

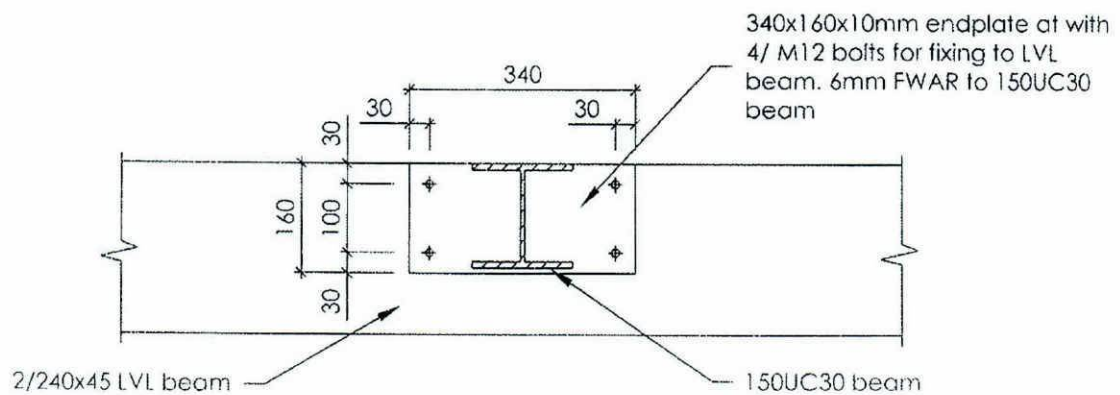
Tasman District Council	
BUILDING CONSENT AUTHORITY	
APPROVED	
Detail	C
31 JUL 2013	
BUILDING CONSENT	
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL	

STRUCTURAL DETAILS FOR TACK VENTURES, FEARON STREET, MOTUEKA



UC bracket elevation

1:10



UC endplate elevation

1:10

Table B2(b) – Strip footing for cantilevered walls (solid or partially filled) where footing is on one side of wall (see B4.3.2)

Spacing of vertical wall reinforcement at base of wall (mm)	All earthquake zones	
	Footing W X T (mm)	Reinforcement in slab
* D12 @ 200 cs	1700 X 300	D12 @ 200
D12 @ 400 cs	1400 X 300	D12 @ 400
→ D12 @ 600 cs	1300 X 300	D12 @ 600
D12 @ 800 cs	1200 X 300	D12 @ 800

* D16 at 400 mm cs. may be used provided lap is increased to 640 mm.

As P 187.

Table B5(a) – Maximum spacing (mm) of D12 or D16 bar reinforcement for 200 mm cantilevered walls construction of partially filled masonry (block density 2200 kg/m³) (see B3.2)

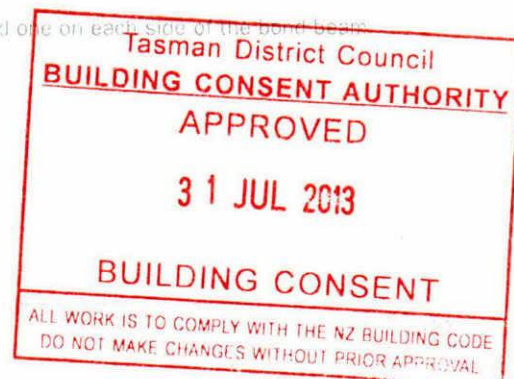
Bar size	Zone A		Zone B			Zone C			
	Height (maximum) of wall (mm)	Horiz. steel spacing	Bond beam			Bond beam			
			Vert. steel spacing	Horiz. steel spacing	No. of horiz. bars	Vert. steel spacing	Horiz. steel spacing	No. of horiz. bars	Vert. steel spacing
D12	2000	600	600	2000	4	600	2000	4	800
	2400	600	600	2400	4	600	2400	4	800
	2800	600	600	2800	4	600	2800	4	800
	3200	600	400	1600	4	400	1600	4	800
D16	3600	NA	NA	1800	4	400	1800	4	600
	4000	NA	NA	NA	4	NA	2000	4	400

NOTE – 2/D16 can be substituted for 4/D12 provided bars are placed one on each side of the bond beam.

Table B5(b) – Maximum spacing (mm) of single D12 or D16 bar reinforcement for 200 mm cantilevered walls constructed of solid filled masonry (block density 2200 kg/m³) (see B3.2)

Bar size	Height (maximum) wall (mm)	Zone A		Zone B		Zone C	
		Horiz. steel spacing	Vert. steel spacing	Horiz. steel spacing	Vert. steel spacing	Horiz. steel spacing	Vert. steel spacing
D12	2000	600	600	800	800	1000	800
	2400	600	400	800	600	1000	800
	2800	600	400	800	400	1000	600
D16	3200	600	400	800	400	1000	400
	3600	600	400	800	400	1000	400
	3800	600	400	800	400	1000	400
	4000	NA	NA	800	400	1000	400
	4400	NA	NA	NA	NA	1000	400
	4600	NA	NA	NA	NA	1000	400

NOTE – 2/D16 can be substituted for 4/D12 provided bars are placed one on each side of the bond beam.





NEW ZEALAND INSTITUTE OF
ARCHITECTS
INCORPORATED



B.C. No.
Building Regulation Clause(s)

PRODUCER STATEMENT – PS1 – DESIGN

(Guidance notes on the use of this form are printed on the reverse side)

ISSUED BY: **W R Andrew Ltd**
(Design Firm)

TO:
(Owner/Developer)

TO BE SUPPLIED TO: **Tasman District Council**
(Building Consent Authority)

IN RESPECT OF: **New House – Hardfill platform, LVL roof beams, and structural steelwork and their foundations only**
(Description of Building Work)

AT: **Fearon Street**
..... **MOTUEKA**
(Address)

LOT **10** DP **416740** SO

We have been engaged by the owner/developer referred to above to provide **structural engineering design**
(Extent of Engagement)
..... services in respect of the requirements of

Clause(s) **B1 & B2** of the Building Code for
☐ All or ☒ Part only (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

☒ Compliance Documents issued by Department of Building & Housing
(verification method/acceptable solution) OR

☐ Alternative solution as per the attached schedule

The proposed building work covered by this producer statement is described on the **Total Design & Build Ltd** drawings titled **Tick Tack House, Tack Ventures** and numbered **A3/ 2-5, 8 & 13B** together with the specification and other documents set out in the schedule attached to this statement.

On behalf of the Design Firm, and subject to:

- (i) Site verification of the following design assumptions See inspection schedule
- (ii) All proprietary products meeting their performance specification requirements;

I believe on reasonable grounds the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code.

I, **Steven Geoffrey KING-TURNER** am ☒ CPEng **142318** #
(Name of Design Professional)

☐ Reg Arch #

I am a member of: ☒ IPENZ ☐ NZIA and hold the following qualifications

The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than \$200,000*

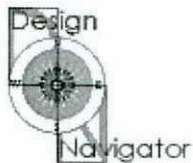
The Design Firm is a member of ACENZ ☐ YES ☒ NO

SIGNED BY **S King-Turner** ON BEHALF OF **W R Andrew Ltd**
(signature) (Design Firm)

Date **28.05.10**

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of \$200,000*.

This form to accompany Form 2 of the Building (Forms) Regulations 2004 for the application of a Building Consent.



Design Navigator H1 Compliance Report

Project Summary

H1 Report created by:	Total Design and Build
Project Name:	New Project
Client:	Rex Smith
Lot No:	37
Comment:	
Project Id:	48957
Report Date:	29/05/2013

Compliance Result

This building **complies with H1 via the following methods** :

- the Calculation Method in NZS4218:2004 (Sept 2008 R-values)
- the BPI Method

H1 Compliance Details

NZS4218:2004 Calculation Method Compliance

The use of the Calculation Method is **permitted** .

In order to comply the Actual Heat Loss must be the same or smaller than the Reference Heat Loss AND all component R-values must be the same or larger than 60% of the R-values in the '60% Rule' table below. This design **complies** with the NZS4218:2004 Calculation Method.

HeatLoss:

Reference building	Proposed building
378	283

Minimum R-values ("60% rule"):

	Permitted Minimum	Proposed Minimum	
Floor:	0.8	1.18	✓
Solid Timber Walls:	0.8	3.2	✓
Glazing in Solid Timber Walls:	0.15	0.26	✓
Other Solid Walls:	0.7	3.2	✓
Glazing in Other Solid Walls:	0.15	0.26	✓
Roof:	2.1		✓
Skylights:	0.2		✓

The Reference building has the following areas and R-values.



		Non-solid	Solid Timber	Other Solid
		0.0%	91.3%	8.7%
Floor:	Area: 115 m ² R-values:	1.3	1.3	1.5
Walls excl. glazing:	Area: 122.6 m ² R-values:	2	1.4	1.2
Glazing (up to 30%):	Area: 52.5 m ² R-values:	0.26	0.26	0.26
Glazing (surplus of 30%):	Area: 0 m ² R-values:	0.34	0.34	0.34
Roof:	Area: 0 m ² R-values:	3.3	3.5	3.5
Skylights:	Area: 0 m ² R-values:	0.34	0.34	0.34
Heat Loss:		352	378	381

For mixed constructions the heat loss of the reference building is calculated as the sum of the heat losses for each type of wall construction multiplied by the fraction of the wall area of each type. This approach is based on clause 4.2.6 of NZS4218:2009 because NZS4218:2004 has no clear guidance on mixed constructions. Note that all other requirements (window area (30%) and skylight area (1.2m²) threshold for Schedule Method, maximum R-value tradeoff (40%), etc.) are still using NZS4218:2004 including the 2007 H1 amendments because this is the Acceptable Solution for Clause H1.

Compliance with Clause E3

This building **complies with the R-value targets in NZBC Clause E3**.

Component	Minimum R-value	Project R-value
Framed wall constructions with cavities	1.5	_____
Single skin masonry wall without a cavity	0.6	_____
Solid timber wall no less than 60 mm thick	0.6	_____
Roof or ceilings	1.5	_____

Design DetailsBuilding Dimensions

Floor Area	115
Gross Wall Area	175.2
Net Wall Area	138.2
Wall (North) Area	33.6
Wall (East, South and West) Area	104.6
Gross Roof Area	0
Net Roof Area	0
Glazing Area	37
Window (North) Area	16.8
Window (East, South and West) Area	20.2
Skylight Area	0

Glazing Area Percentages

Total Glazing Percentage	21.1%
East, South and West Window Percentage	16.2%
Total over 30%	no
East, South and West over 30%	no
Total over 50%	no

Information required for BPI calculation

Living Floor Area	115	Note: This includes also internal floors.
Average Room Height	2.4	
Thermal Mass Level	Medium weight	<u>Slab floor with some carpeting or direct glued timber, timber framed walls.</u>
<u>Climate</u>		
Location	Riwaka, Motueka & Takaka	
Climate Zone	3	



Heat Loss Details








	ID	Orient.	Width	Height	Gross Area	Net Area	R-value*	Heat Loss	Shad. Coeff.**	Solid Wall***
<u>Floors</u>										
Floor 1					115.0	115.0	1.18	97.5		
<u>Walls</u>										
Wall 1		N	21.0	2.4	50.4	33.6	3.20	10.5		T
Window 1-1	1		2.2	2.1		4.6	0.26	17.8	0.00	
Window 1-2	2		0.7	2.1		1.5	0.26	5.7	0.00	
Window 1-3	3		0.7	2.1		1.5	0.26	5.7	0.00	
Window 1-4			2.2	2.1		4.6	0.26	17.8	0.00	
Window 1-5			2.2	2.1		4.6	0.26	17.8	0.00	
Wall 2		E	8.0	2.4	19.2	12.1	3.20	3.8		H
Window 2-1			3.4	2.1		7.1	0.26	27.5	0.00	
Wall 3		S	22.0	2.4	52.8	41.7	3.20	13.0		T
Window 3-1			2.2	2.1		4.6	0.26	17.8	0.00	
Window 3-2			2.2	2.1		4.6	0.26	17.8	0.00	
Window 3-3			0.9	2.1		1.9	0.26	7.3	0.00	
Wall 4		S	22.0	2.4	52.8	50.9	3.20	15.9		T
Window 4-1			0.9	2.1		1.9	0.26	7.3	0.00	
<u>Roofs</u>										
<u>Total Heat Loss</u>								282.8		

* Any concrete slab-on-ground floor regardless of its dimensions can be assumed to have an R-value of at least R-1.3 (H1/MM1 and H1/AS1, Replacement Table 1, Note (4)).

** The Shading Coefficient is only required for BPI calculations.

*** C: Cavity Construction (any construction that is not solid), T: Solid Timber, S: Other Solid Construction (Note that the use of solid timber and other solid construction types is discretionary, i.e. solid timber walls and other solid walls can be treated as if they are non-solid (NZS4218:2004 section 3.1.4.).)

Floor Construction Details1: Slab floor

internal surface 0.09	
Flooring	none (Example: polished surface of a concrete floor) 
R-value: 0	
Insulation value of the slabfloor	
Slab floor area [m²]:	<input type="text" value="115"/>
Perimeter length [m]:	<input type="text" value="52.2"/>
External wall thickness [mm]:	<input type="text" value="90"/> 
Soil conductivity [W/m C]:	<input type="text" value="1.2"/> 
Underslab insulation:	<input type="text" value="none"/>  Insulation: <input type="text"/> 
Piles Footings:	Number: <input type="text"/> Penetration Diameter: <input type="text"/> mm
Slab edge insulation:	<input type="text" value="none"/>  Insulation: <input type="text"/> 
R-value: 1.18	
Construction R-value:	<input type="text" value="1.27"/> m²K/W.

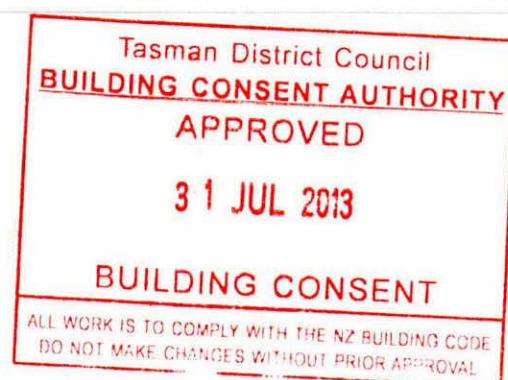


Wall Construction Details1: Timber frame (direct fixed cladding)

external surface 0.03	
Cladding	Rusticated or shiplap weatherboard <i>R-value: 0.16</i>
Air Barrier	Building paper <i>R-value: 0.01</i>
Timber Frame & Cavity 45mm, studs @ 600mm, dwangs @ 800mm	
Frame Area: 15.1%	Cavity Area: 84.9%
Timber Frame <i>R-value: 0.37</i>	Insulation 3.2
	still Airgap none <i>R-value: 0</i>
Wall Lining	Gypsum plasterboard 10mm <i>R-value: 0.04</i>
internal surface 0.09	

Construction R-value: **1.81** m²K/W.2: Solid wall (concrete, masonry or other) without vented cavity, external insulation

external surface 0.03	
Cladding	None (facing outside air) <i>R-value: 0</i>
Air Barrier	none <i>R-value: 0</i>
Strapping no strapping <i>Strapping Area: 0%</i>	
Thermal Break none <i>R-value: 0</i>	Cavity Area: 100%
Strapping <i>R-value: 0</i>	Insulation still Airgap none <i>R-value: 0</i>
Solid Wall Standard Blocks, 200mm, all cells filled <i>R-value: 0.14</i>	
Wall Lining	none <i>R-value: 0</i>
internal surface 0.09	

Construction R-value: **0.26** m²K/W.

Roof Construction Details1: Timber framed roof, direct fixed or battened flat ceiling

external surface 0.03	
Roofing	Corrugate iron with building paper v
R-value: 0.01	
Insulation i 3.6	
Timber Frame & Cavity	
350mm rafters or joists @ 900mm, battens (covered with insulation) v	
Frame Area: 5%	Cavity Area: 95%
Roof space (still air) 0.11	Roof space (still air) 0.11
Trusses and dwangs R-value: 2.9	Insulation v
Ceiling Lining	
Gypsum plasterboard 10mm v	
R-value: 0.04	
internal surface 0.09	
Recessed downlights	
Ceiling area [m²]: 115	Number of downlights: 0
Clearance from lamp holder side [m]: 0 i	
Construction R-value: 3.89 m²K/W.	

Building Performance Index Compliance

The use of the Building Performance Index (BPI) method is **permitted**.

This design **complies** with the BPI.

In order to comply the design must have a BPI smaller or equal to 1.55 kWh/DegMonth.m². Your building has a BPI of 1.53 kWh/DegMonth.m².

Please refer to www.design-navigator.co.nz/BPICorrelation.pdf regarding the recognition of the BPI for NZBC compliance verification.



This tool was created by [Design Navigator Ltd.](http://www.design-navigator.co.nz)

Design Certificate -- Technical basis for structural design methodology contained in designIT for houses - New Zealand.

designIT for houses, New Zealand has been developed by experienced timber engineers to assist designers in selecting appropriate sizes of structural laminated veneer lumber products manufactured by Carter Holt Harvey (including hySPAN, hy90, hyONE and hyJOIST) and other generic stress grades of timber, to be used as structural elements for the construction of buildings that fall within the scope and limitations of NZS 3604.

The design methodology used for the software complies with the loading and general design requirements contained within AS/NZS 1170:2002 and with timber structural design in accordance with NZS 3603:1993 including Amendment 4 (Verification method B1/VM1, 6.1).

The methodology for designIT uses the most up to date information available from joint Australian/New Zealand standards to ensure designIT solutions correspond with performance levels of design solutions given in NZS 3604:1999

designIT relies on the accurate input of span and loading information by the user. Where accurate inputs are submitted the product and/or stress grade and the size given will comply with the structural requirements of the New Zealand Building Code, provided the installation is in accordance with the installation requirements provided by designIT and/or in product literature and/or NZS 3604, as appropriate.

References:

NZS 3603:1993 Timber Structures Standard.

NZS 3604:1999 Timber Framed Buildings.

AS 1720.1 – 1997 Timber structures, Part 1: Design methods.

AS/NZS 1170:2002 Structural design actions, Parts 0, 1 and 2.

AS/NZS 1170:2003 Structural design actions, Part 3: Snow and ice actions.

AS 1684.1 – 1999 Residential timber framed construction. Part 1: Design criteria.

7 July 2009

For further information or advice please contact:

Carter Holt Harvey Woodproducts New Zealand
173 Captain Springs Road, Onehunga, Auckland

Telephone 0800 808 131

Facsimile 0800 808 132

Email: designit@chhwoodproducts.co.nz

Specifier details:

Specifier:	Aaron		
Business name:	Total Design & Build		
Address:	387 High Street Motueka		
Phone: 03 528 50 60	Mobile: 021 866 741	Facsimile:	

Project & Site details:

Project:		Ref. no.:	House
At (address):			
For (owner/s):			
Wind Zone:	Medium		
Snow loading	Snow region: N0, snow loading not applicable		

MEMBER DESIGN DETAILS

Member 1

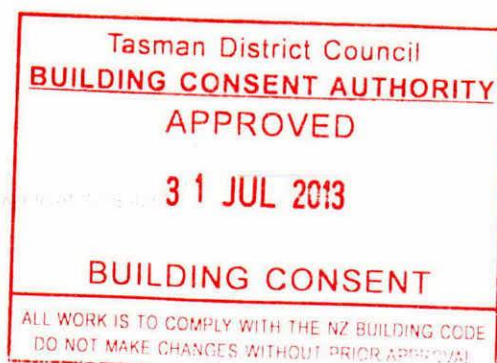
- | | |
|--------------------------------|---|
| 1) Member code and description | RB1 - Intermediate beam |
| 2) Date prepared | 8/06/2010 |
| 3) Design inputs | |
| Span | 6.0 m - single |
| Roof Load Width (RLW) | 2.5 m |
| Roof type and mass | Light roof & ceiling - 40 kg/m ² |
| Serviceability criteria | AS 1684.1-1999 |
| Overhang | 1.00 m |

2) Member specification

Size: 80x250x10000
Material: LVL

Use: 3,300 x 1000 mm

Notes: 1) 1000mm x 1000mm x 1000mm



5) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - $G + \psi_L Q^*$	20.0 mm	16.3 mm (long term)	$\frac{20.0}{16.3} = 1.23$

*Critical serviceability load case

See 'Notes for interpretation of serviceability data' at the end of this report

6) Installation requirements

Provide at least 30 mm bearing at end supports

Nail lamination in accordance with Detail H1.

Overhang - 1.00 m ok with minimum bearing at overhang support, 30 mm

Provide at least 30 mm bearing at overhang support

Notes for interpretation of serviceability data

- "average deflection" is an engineering concept based upon a notional estimated load, notional member rigidity and, in some cases, an approximate model of material response to environmental conditions. These parameters are, 'standardised' in AS/NZS 1170, AS 1684.1 and AS 1720. Deflections calculated using this methodology cannot therefore be usefully compared with deflections calculated using other methods, eg GLTAA design methodology.
- Deflection is the flexural response to load – 'out-of-level' measurements of installations are not necessarily deflections and can incorporate 'initial out-of-straightness', whether intended or not. Furthermore, loads can be higher/lower than the notional estimate and in any comparison with measured levels, material variability needs to also be considered. AS 1720 gives the following basis for estimation of upper bound deflections for various materials.

No 1 Framing – visually graded to NZS 3631	Average + 100%
MSG grades - mechanically graded to AS/NZS 1748	Average + 43%
GL grades for glulam to AS/NZS 1328	Average + 33%
LVL to AS/NZS 4357 (includes hySPAN and hyJOIST)	Average + 18%

As can be seen, comparison of the 'average deflection' for different materials, even if calculated on the same basis, does not give the whole picture!
- The limits referred are those specified in AS 1684.1 for the stated load case.
- 'Rigidity ratio' expresses the rigidity of the specified beam relative to the rigidity of a notional beam just meeting the serviceability requirements of AS 1684.1



NEW ZEALAND INSTITUTE OF
ARCHITECTS
INCORPORATED



B.C. No.

Building Regulation Clause(s)

PRODUCER STATEMENT – PS1 – DESIGN

(Guidance notes on the use of this form are printed on the reverse side)

ISSUED BY: **W R Andrew Ltd**
(Design Firm)

TO: **R Smith**
(Owner/Developer)

TO BE SUPPLIED TO: **Tasman District Council**
(Building Consent Authority)

IN RESPECT OF: **New House - Hardfill platform, LVL roof beams, structural steelwork and their foundations only**
(Description of Building Work)

AT: **4 Walnut Drive**
..... **MOTUEKA**
(Address)

LOT DP SO

We have been engaged by the owner/developer referred to above to provide **structural engineering design**
(Extent of Engagement) services in respect of the requirements of

Clause(s) **B1** of the Building Code for
☐ All or ☒ Part only (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

☒ Compliance Documents issued by Department of Building & Housing **B1/AS1 & VM1**
(verification method/acceptable solution) OR

☐ Alternative solution as per the attached schedule

The proposed building work covered by this producer statement is described on the drawings by **Total Design & Build + W R Andrew Ltd details** titled **4 Walnut Drive** and numbered **sht 2-6 & 14-16 + details A-D** together with the specification and other documents set out in the schedule attached to this statement.

On behalf of the Design Firm, and subject to:

- (i) Site verification of the following design assumptions **refer inspection schedule**
- (ii) All proprietary products meeting their performance specification requirements;

I believe on reasonable grounds the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code.

I, **Steven Geoffrey KING-TURNER** am ☒ CPEng **142318** #
(Name of Design Professional)

☐ Reg Arch #

I am a member of: ☒ IPENZ ☐ NZIA and hold the following qualifications... **ME BE(civil) MIPENZ CPEng IntPE**

The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than \$200,000*

The Design Firm is a member of ACENZ ☐ YES ☒ NO

SIGNED BY **Steven King-Turner** ON BEHALF OF **W R Andrew Ltd**
(Design Firm)
Date **15-7-13** (signature)

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of \$200,000*.

This form to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.

CONSULTING ENGINEERS

12 PARU PARU ROAD, PO BOX 7036, NELSON
PHONE (03) 546 4565 FAX (03) 546 8575
BILL 0274 369 508 STEVEN 027 247 3961
EMAIL: wrandrewltd@xtra.co.nz

Inspection Schedule

This schedule to be kept on site and signed by the inspecting Engineer at the time of each inspection. On completion of the project this schedule is to be returned to the Engineer and a Producer Statement of Construction Review can be issued. Please advise the Engineer at least 24 hrs before an inspection is required.

PROJECT: R Smith

ADDRESS: 4 Walnut Drive

Motueka

The following structural elements of this project require inspection by a suitably qualified Engineer or his representative during construction in order to ensure compliance with the New Zealand Standard Code of Practice under which they were designed. Such inspections are considered an integral part of the structural design process, and are carried out to ensure that the structure will perform adequately. Failure to notify the Engineer that an inspection listed below is required may in some circumstances limit the designers liability for subsequent problems. This is particularly applicable to inspections of foundations and reinforcing steel where verification of compliance with the structural design may not be possible after construction is complete.

Inspection Required

Inspected / Comments

Hardfill platform - confirm bearing
Holes for STS posts - confirm depth
Structural steelwork
Roof beam connections to steelwork


Steven King-Turner

ME BE(civil) NZCE MIPENZ CPEng IntPE

15-7-13

Date _____

Memorandum from licensed building practitioner: Certificate of design work
Section 45 and Section 30C, Building Act 2004

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

THE BUILDING

Street address:	4 Walnut Drive	
Suburb:		
Town/City	Moteka	Postcode:

THE OWNER

Name(s):	R Smith		
Mailing address:			
Suburb:		PO Box/Private Bag:	
Town/City:		Postcode:	
Phone number:		Email address:	

BASIS FOR PROVIDING THIS MEMORANDUM

I am providing this memorandum in my role as the: Please tick the option that applies (✓)	
<input type="checkbox"/>	sole designer of all of the RBW design outlined in this memorandum – I carried out all of the RBW design myself – no other person will be providing any additional memoranda for the project
<input type="checkbox"/>	lead designer who carried out some of the RBW design myself but also supervised other designers – this memorandum covers their RBW design work as well as mine, and no other person will be providing any additional memoranda for the project
<input type="checkbox"/>	lead designer for all but specific elements of RBW – this memorandum only covers the RBW design work that I carried out or supervised and the other designers will provide their own memoranda relating to their specific RBW design
<input checked="" type="checkbox"/>	specialist designer who carried out specific elements of RBW design work as outlined in this memorandum – other designers will be providing a memorandum covering the remaining RBW design work

IDENTIFICATION OF DESIGN WORK THAT IS RESTRICTED BUILDING WORK (RBW)

I, Steven KING-TURNER, carried out / supervised the following design work that is restricted building work

Tasman District Council
BUILDING CONSENT AUTHORITY
APPROVED
31 JUL 2013
BUILDING CONSENT
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

PRIMARY STRUCTURE: B1

Design work that is restricted building work	Description	Carried out/ supervised	Reference to plans and specifications
Tick (✓) if included Cross (X) if excluded	[If appropriate, provide details of the restricted building work]	[Specify whether you carried out this design work or supervised someone else carrying out this design work]	[If appropriate, specify references]

Primary structure

All RBW Design work relating to B1	(x)		() Carried out () Supervised	
Foundations and subfloor framing	(✓)	Fill platform foundations verandah	(✓) Carried out () Supervised	Detail A
Walls	(x)		() Carried out () Supervised	
Roof	(x)		() Carried out () Supervised	
Columns and beams	(✓)	Steelwork, posts & beams	(✓) Carried out () Supervised	Detail B-D
Bracing	(x)		() Carried out () Supervised	
Other	(x)		() Carried out () Supervised	

WAIVERS AND MODIFICATIONS

Waivers or modifications of the building code are required () Yes (✓) No

If Yes, provide details of the waivers or modifications below:

Clause	Waiver/modification required
[List relevant clause numbers of building code]	[Specify nature of waiver or modification of building code]

Note: continue on another page if necessary.

ISSUED BY


Name: Steven KING-TURNER		LBP or Registration number: 142318	
The practitioner is a: () Design LBP ()		Registered architect (✓)	Chartered professional engineer
Design Entity or Company (optional): W R Andrew Ltd			
Mailing address (if different from below):			
Street address / Registered office: 12a Paru Paru Road			
Suburb:		Town/City: Nelson	
PO Box/Private Bag: PO Box 7036		Postcode: 7042	
Phone number: 546 4565		Mobile: 027 2473961	
After Hours:		Fax: 546 8575	
Email address: steve.kt@xtra.co.nz		Website:	

DECLARATION

I Steven King-Turner [name of practitioner], LBP,

state that I have applied the skill and care reasonably required of a competent design professional in carrying out or supervising the Restricted Building Work (RBW) described in this form, and that based on this, I also state that the RBW:

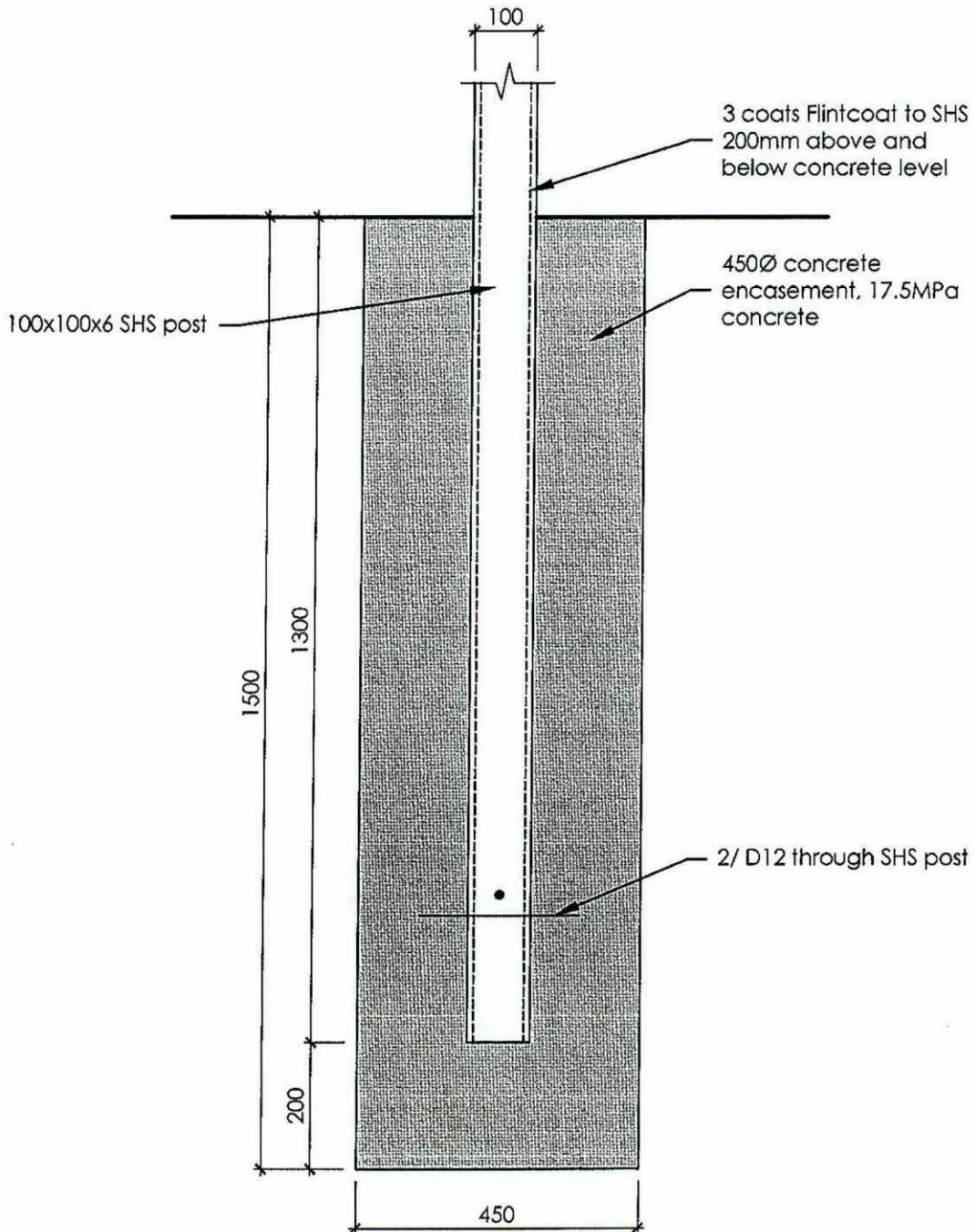
- Complies with the building code; or
- ~~Complies with the building code subject to any waiver or modification of the building code recorded on this form.~~

Signature: 

Date: 15-7-13



STRUCTURAL DETAILS FOR R SMITH AT 4 WALNUT DRIVE, MOTUEKA

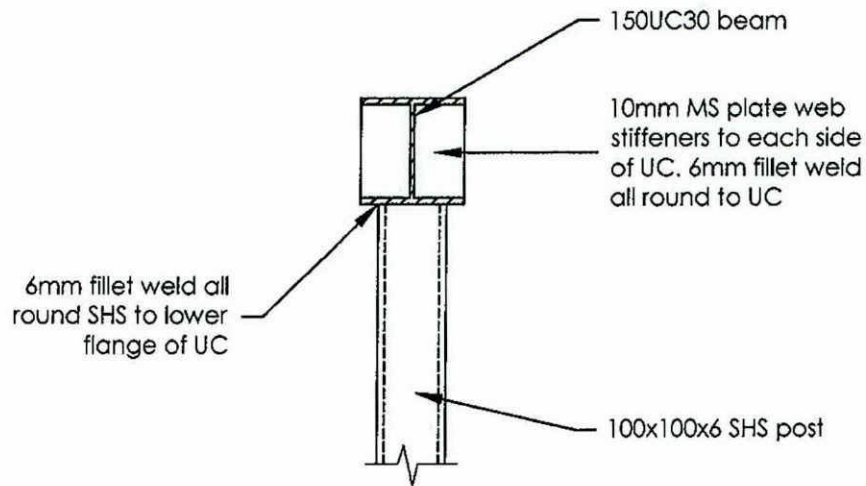


SHS post footing
1:10

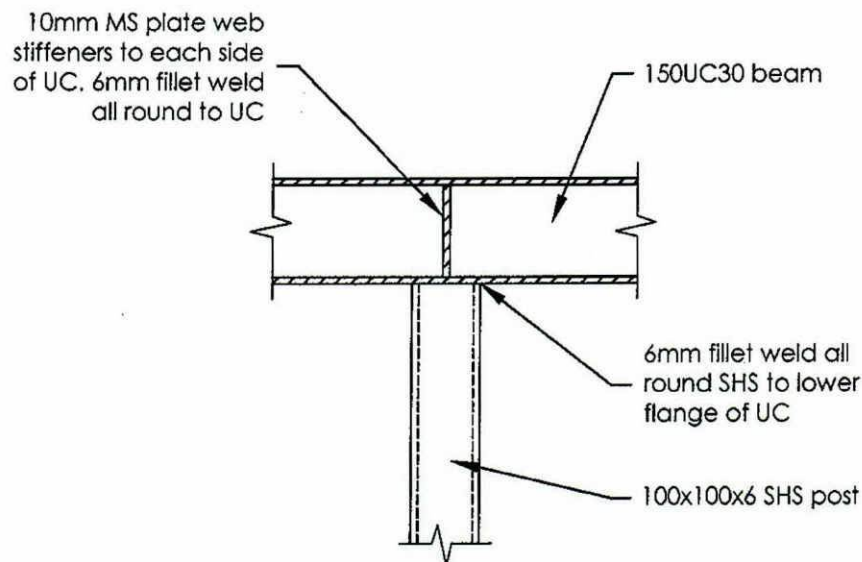
Notes:

All exterior steelwork to be
zinc arc sprayed to
standard TSZ100

STRUCTURAL DETAILS FOR R SMITH AT 4 WALNUT DRIVE, MOTUEKA

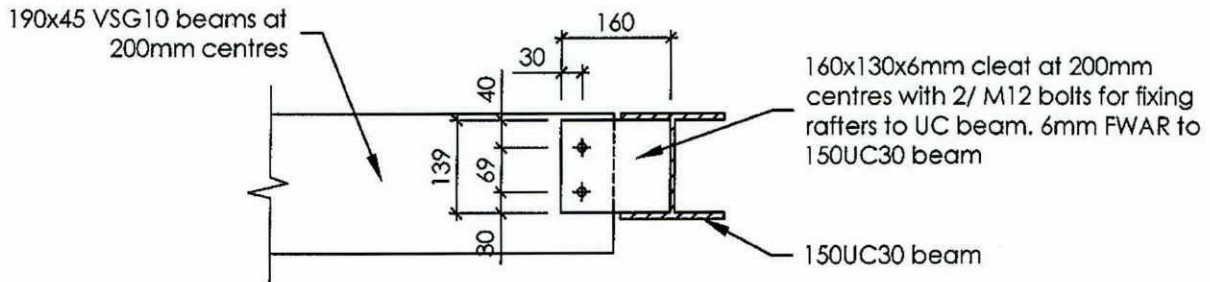


beam to post section
1:10

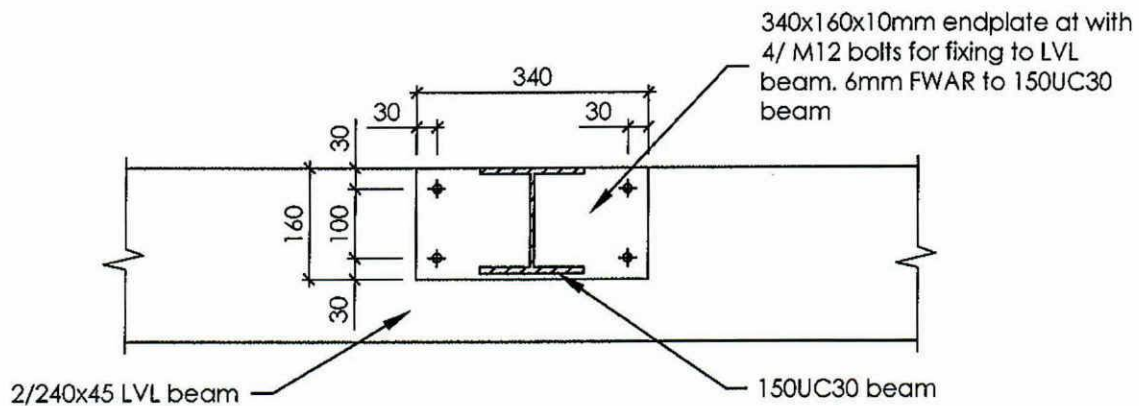


beam to post elevation
1:10

STRUCTURAL DETAILS FOR R SMITH AT 4 WALNUT DRIVE, MOTUEKA



UC bracket elevation
1:10

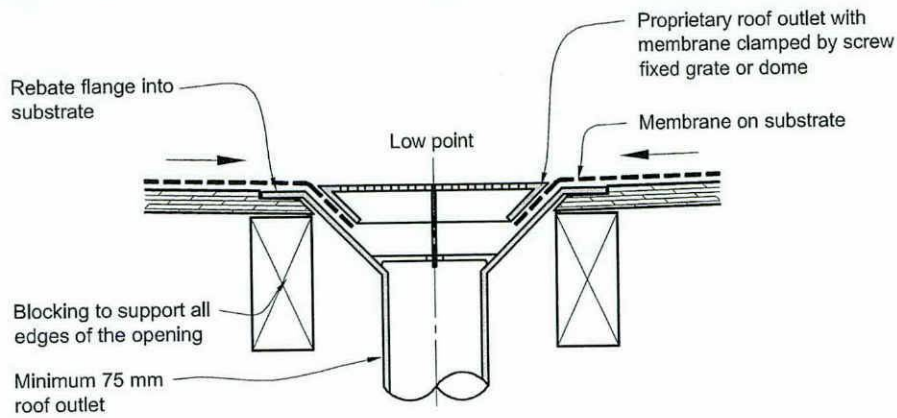


UC endplate elevation
1:10

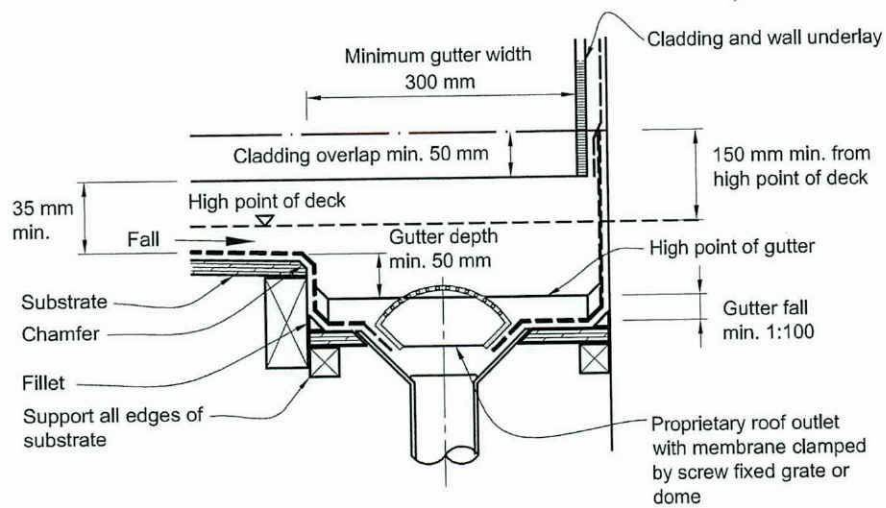
W R Andrew Ltd Consulting Engineers
12 Paru Paru Road, Nelson Ph: 546 4565 Fax: 546 8575
Date: 09.07.13 File: SMITH_4WALNUT.DWG Page: 4

Tasman District Council	
BUILDING CONSENT AUTHORITY	
APPROVED	Detail D
31 JUL 2013	
BUILDING CONSENT	
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL	

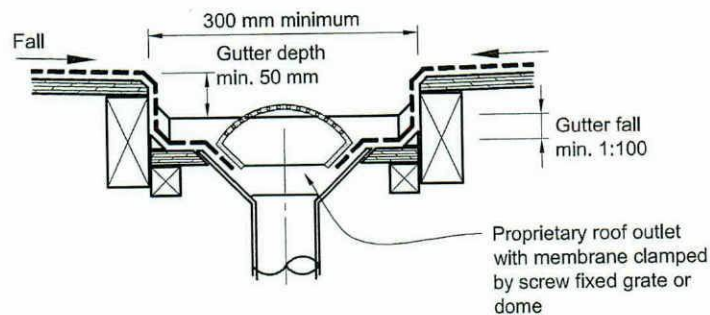
Figure 64: Gutters and outlets in membrane
Paragraphs 8.5.6 and 8.5.10



(a) TYPICAL ROOF OUTLET

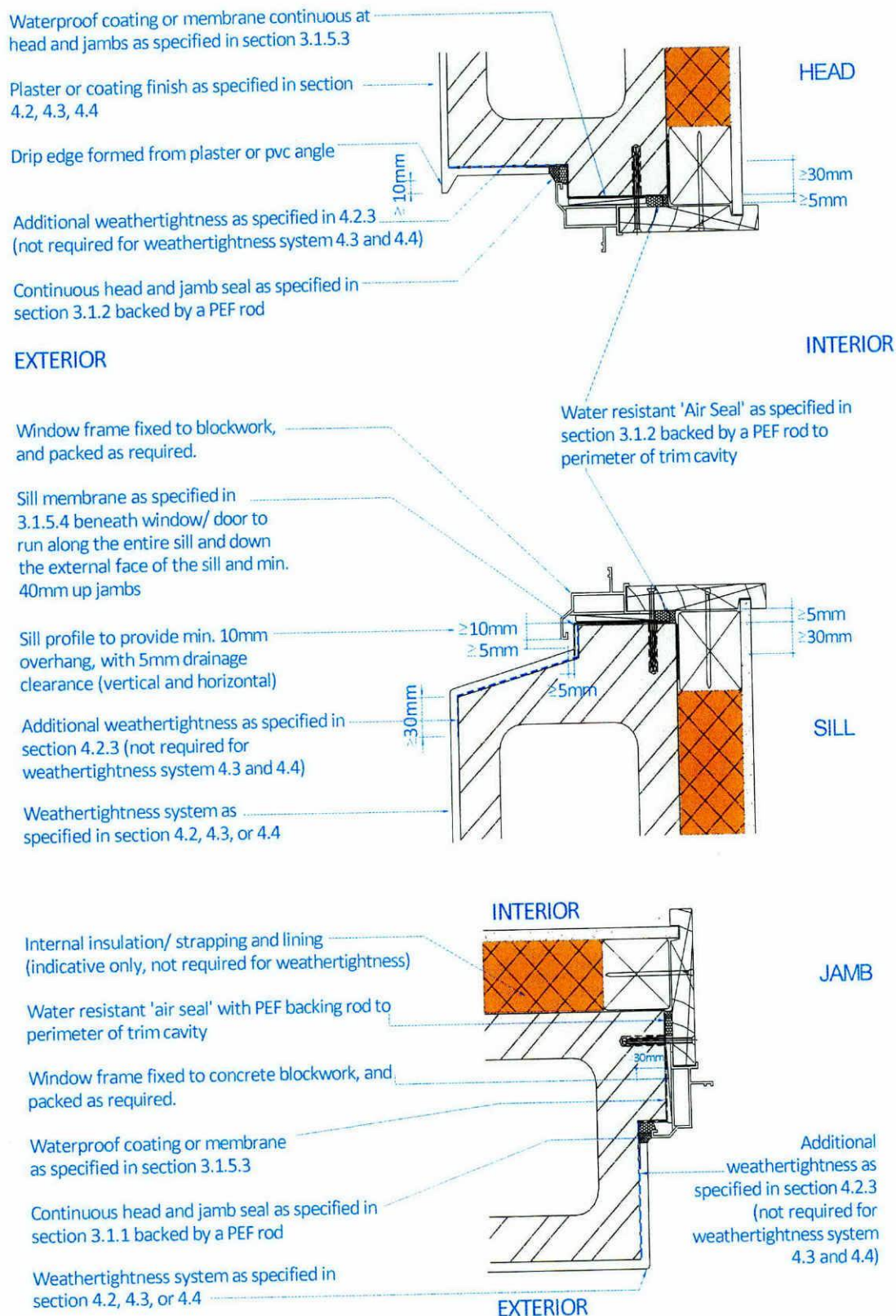


(b) EDGE GUTTER



(c) CENTRAL GUTTER

Amend 5
Aug 2011



Details 12

(not to scale)

Window - Head, Sill and Jamb

Concrete Masonry: Internal or integral Insulation

Wall type: A1, A3



Job Details (tick appropriate boxes)

Box 1

Name	REX SMITH.		
Street Address	4 WALNUT DRIVE.		
Lot No		DPS No	
City/Town	MOTUEKA		
Location of Storey:	Floor type:	Floor load:	
Single/upper storey <input checked="" type="checkbox"/>	Sub-floor <input type="checkbox"/>	2kPa <input checked="" type="checkbox"/>	
Upper storey of two <input type="checkbox"/>	Slab <input checked="" type="checkbox"/>	3kPa <input type="checkbox"/>	
Lower storey of two <input type="checkbox"/>			
Key dimensions			
Building height to apex	3.6	Metres	
Roof height above eaves	0.9	Metres	
Stud height	2.4	Metres	
Average roof pitch	22.5°	Degrees	
Building Length	BL 21	Metres	
Building Width	BW 8.5	Metres	
Gross Plan Area	GPA 150	Sq Metres	
Note: When the average roof pitch is over 25 degrees, use the eaves length and width to determine BL and BW			
Cladding weight	Light	Medium	Heavy
Sub-floor			
Lower storey	<input checked="" type="checkbox"/>		
Upper or Single Storey	<input checked="" type="checkbox"/>		
Roof weight	Light <input checked="" type="checkbox"/>	Medium	
Room in roof space	Yes	No <input checked="" type="checkbox"/>	

Wind Zone

Box 2

Factors	Select relevant option	Points	Enter points from the relevant options
Region	R1	0	<input type="radio"/>
	R2	1	<input type="radio"/>
Terrain	Inland	0	<input type="radio"/>
	Coastal	1	<input checked="" type="radio"/> M
Exposure	Sheltered	0	<input type="radio"/>
	Exposed	1	<input type="radio"/>
Topography	Gentle	0	<input type="radio"/>
	Moderate	1	<input type="radio"/>
	Extreme	3	<input type="radio"/>
		Total Points	1

Total Points	Applicable Wind Zone	Tick
0	Low	
1	Medium	<input checked="" type="checkbox"/>
2	High	
3	Very High	
4	Requires specific design	

Earthquake Zone

Box 3

From Earthquake Region EQ1 select Earthquake Zone

A <input checked="" type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>
---------------------------------------	----------------------------	----------------------------

BUs required Wind

Box 4

Refer to NZS 3604; 1999 Tables 5.6 or 5.7 to determine the BUs required for Wind (W Across and W Along)

W Across		24	BUs per m
W Along		34	BUs per m

Total Wind Load

W Across	Enter BL from box 1	Multiply by	BUs per m Across	Equals Across W required	W Along	Enter BW from box 1	Multiply by	BUs per m Along	Equals Along W required
	21	x	24	504		8.5	x	34	289

453

BUs required Earthquake

Box 5

Refer to NZS 3604; 1999 Tables 5.8, 5.9 or 5.10 to determine the BUs required for Earthquake (EQ)

E = 3.6 BUs per m²

Note: For a room in the roof space use E + 3 BU/m²

Total Earthquake Load

EQ Requirement Along and Across	Enter GPA from box 1	Multiply by	E	Equals E required
	150	x	3.6	540

784 higher.

Transfer to calculation sheet B

For manual calculations only

Please photocopy this page

APRIL 2009

Design

EARTHQUAKE	
6 E	7 E
Rating BU/m	BUs Achieved (BU/m x L)
E	E
48	33
48	48
89	89
89	44
48	96
48	96
48	96
48	48
48	72
48	144
287	430

E achieved	1196
E required*	540

E achieved must exceed
E required*

✓ ok

EARTHQUAKE	
6 E	7 E
Rating BU/m	BU Achieved (BU/m x L)
E	E
48	96
48	96
48	38
48	115
48	96
48	96
48	96
48	33
48	96
287	574

E achieved	1336
E required*	540
E achieved must exceed E required*	

✓ ok
7/14

Please photocopy this page



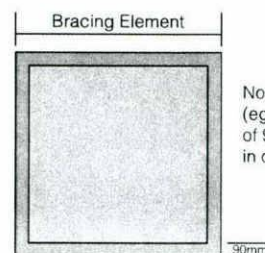
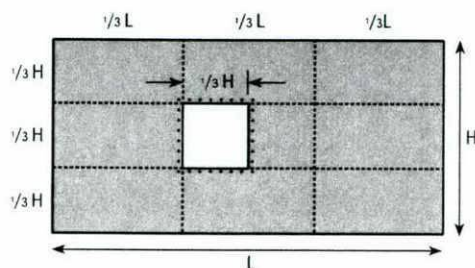
Panel Hold-Down Details

GIB® Standard Bracing Systems GS1a and GS2 do not require specific connections at the bracing element ends.

GIB Braceline® Bracing Systems BL1, BL1a, BLP and BLG all have panel hold-down connections at each end of the bracing element. Refer to page 29 for construction details.

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.

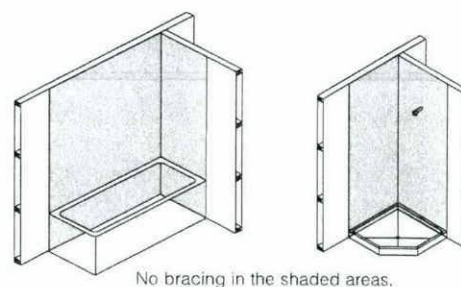


GIB® Bracing in Water-Splash Areas

Bracing elements are required to have a durability of 50 years. Winstone Wallboards recommends that bracing elements are not 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® Bracing 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.

GIB Aqualine® can be used in place of GIB® Standard in bracing elements. GIB Aqualine® can be used in place of GIB Braceline® in bracing elements 900mm or longer, provided the perimeter of the element is fixed with GIB Braceline® nails or screws at 100mm centres generally, using the GIB Braceline® corner fixing pattern.



No bracing in the shaded areas.

Renovation

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

Angle Braces

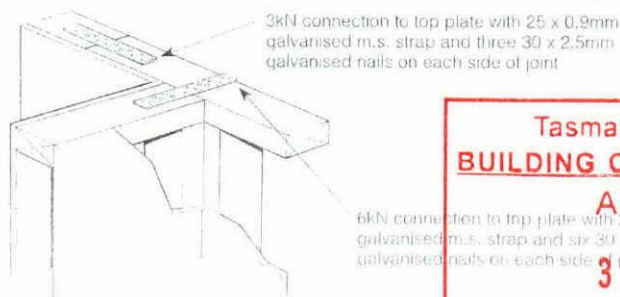
Angle braces serve to keep frames square during transport and construction. They also act as part of the temporary bracing of a building under construction.

Where specified, metal angle braces must be placed at an angle no steeper than 55 degrees, and within the designated length of the bracing element. For elements longer than 3.6 metres, pairs of angle braces (in opposite directions) are required. Fixing of angle braces is with three 30 x 2.8mm galvanised flat head nails to top and bottom plates, and two 30 x 2.8mm nails to intermediate framing.

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:

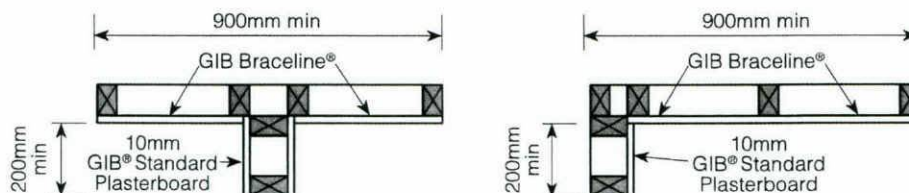
- Rating not exceeding 100 bracing units: A 3kN connection as shown or by an alternative fixing of 3kN capacity in tension or compression along the plate;
- Rating exceeding 100 bracing units: A 6kN connection as shown or by an alternative fixing of 6kN capacity tension or compression along the plate.





Guidelines for Intersecting Walls

GIB® Bracing Elements may have intersecting walls with a minimum length of 200mm. Bracing element sheets shall be fixed and jointed as given on pages 30 and 31. Fasteners are required around the perimeter of the bracing element. Vertical joints at T-junctions (illustrated below) 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 above).

Fixing the Perimeter of a Bracing Element

A bracing element can consist of a part sheet (such as in a 600 mm long BL1 element), or multiple sheets (such as in a 2.4 metre or longer GS1a element). The critical fasteners are located around the perimeter of a bracing element as outlined on the fastener layout pages. The perimeter of a bracing element must be connected to a continuous member such as studs or plates. Connection to a row of nogs is not acceptable.

Fixing in the Field of the Bracing Element

Fixing in the field of a bracing element is conventional and for GIB® wall bracing elements this means that adhesive fixing is recommended, eliminating the need for mechanical fasteners in the body of the sheets.

For GIB® ceiling diaphragms the screw and glue method is recommended resulting in a minimum number of mechanical fasteners along the centre line in the body of the sheets.

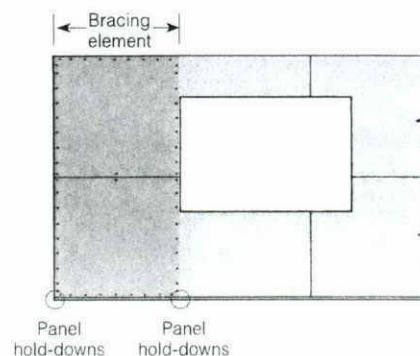
When applied correctly, paper-tape and stopped joints within the bracing element are strong enough to transfer loads within the element and conventional fixing of intermediate sheet joints to framing is sufficient.

Any sheet end butt joints within the field of the bracing element must be back-blocked in accordance with the "GIB® Site Guide".

Consult the "GIB® Site Guide" for further details on recommended fixing details.

Horizontal Fixing

GIB Braceline® linings may be fixed horizontally when linings extend under/over door or window openings. GIB Braceline® fasteners are provided around the perimeter of the bracing element.



GIB® Bracing Systems – EzyBrace™ Specification Numbering System

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

GS = GIB® Standard Plasterboard

BL = GIB Braceline®

BLP = GIB Braceline® / Plywood

BLG = GIB Braceline® / GIB® Standard Plasterboard

1 = lined one side

2 = lined both sides

a = angle brace

Therefore:

GS1a = GIB® Standard Plasterboard one side with an angle brace

GS2 = GIB® Standard Plasterboard both sides

BL1 = GIB Braceline® one side

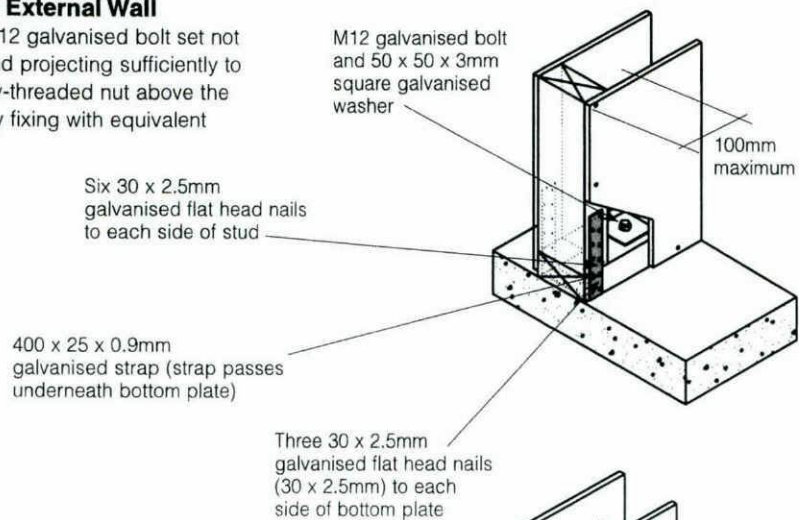
BL1a = GIB Braceline® one side with an angle brace

BLP = GIB Braceline® one side, Plywood on the other

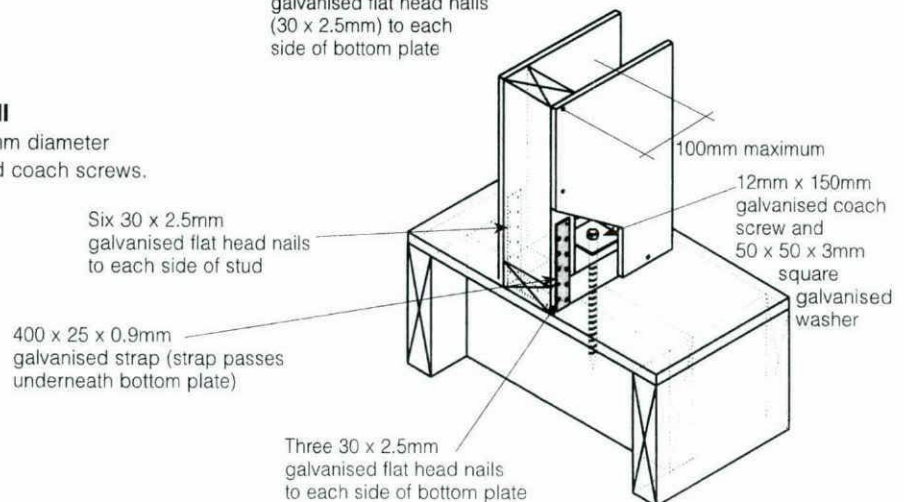
BLG = GIB Braceline® one side, GIB® Standard Plasterboard on the other

**Concrete Floor – Internal / External Wall**

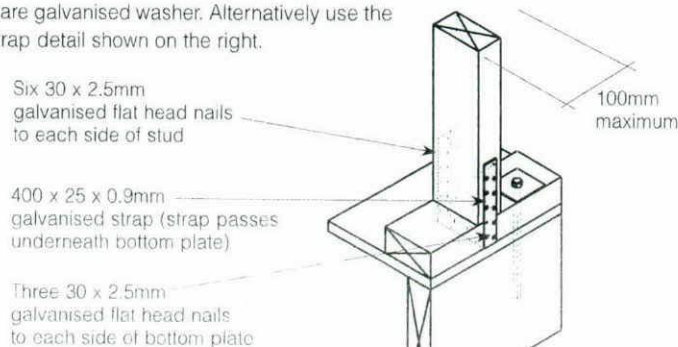
Bottom plate is fixed using an M12 galvanised bolt set not less than 75mm into concrete and projecting sufficiently to allow for a 3mm washer and fully-threaded nut above the timber. Alternatively a proprietary fixing with equivalent capacity may be used.

**Timber Floor – Internal Wall**

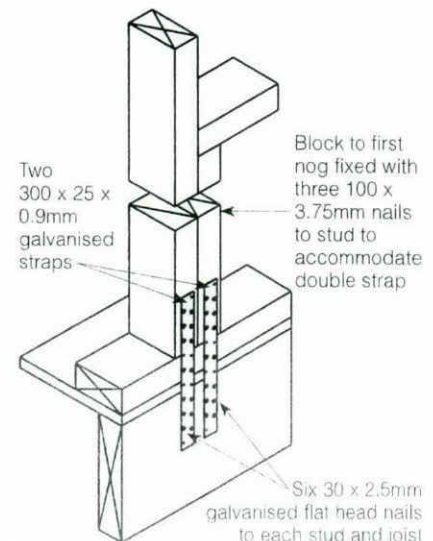
Bottom plate is fixed using a 12mm diameter minimum 150mm long galvanised coach screws.

**Timber Floor – External Wall Alternatives**

Bottom plate is fixed using a 12mm diameter minimum 150mm long galvanised coach screw with 50 x 50 x 3mm square galvanised washer. Alternatively use the double strap detail shown on the right.



Option 1



Option 2

Notes:

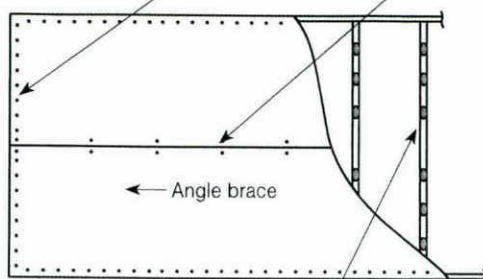
Additional thickness and/or corrosion protection is required in exposed and sheltered applications. (Consult NZS 3604:1999)
To maintain a flush surface for the wall linings, it is recommended that hold down straps are checked into the framing.



For 10mm GIB® Standard Plasterboard and any other 10mm and 13mm GIB® plasterboard

32mm x 6g GIB® Grabber® Drywall Screws or 30mm GIB® Nails at 150mm centres to perimeter of bracing element

Single 32mm x 6g GIB® Grabber® Drywall Screws or 30mm GIB® Nails where sheets cross studs

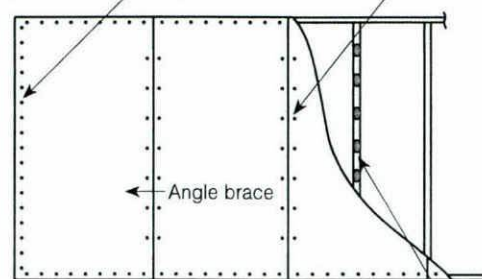


**GS1a (lined one side)
(Horizontal Fixing)**

Daub of GIBFix® adhesive at 300mm centres to intermediate studs

32mm x 6g GIB® Grabber® Drywall Screws or 30mm GIB® Nails at 150mm centres to perimeter of bracing element

Single 32mm x 6g GIB® Grabber® Drywall Screws or 30mm GIB® Nails at 300mm centres

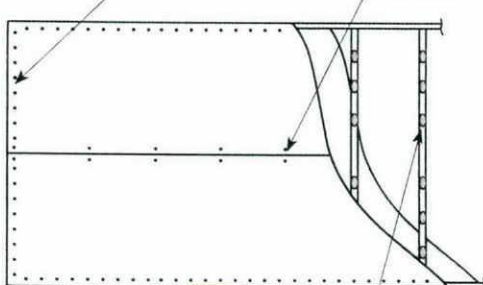


**GS1a (lined one side)
(Vertical Fixing)**

Daub of GIBFix® adhesive at 300mm centres to intermediate studs and nogs

32mm x 6g GIB® Grabber® Drywall Screws or 30mm GIB® Nails at 150mm centres to perimeter of bracing element

Single 32mm x 6g GIB® Grabber® Drywall Screws or 30mm GIB® Nails where sheets cross studs

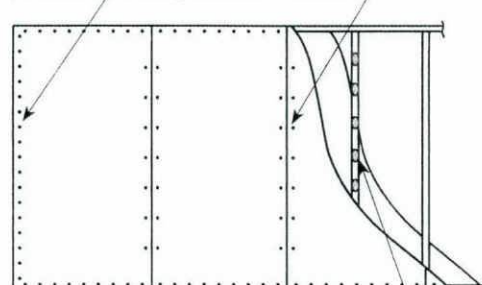


**GS2 (lined both sides)
(Horizontal Fixing)**

Daub of GIBFix® adhesive at 300mm centres to intermediate studs

32mm x 6g GIB® Grabber® Drywall Screws or 30mm GIB® Nails at 150mm centres to perimeter of bracing element

Single 32mm x 6g GIB® Grabber® Drywall Screws or 30mm GIB® Nails at 300mm centres



**GS2 (lined both sides)
(Vertical Fixing)**

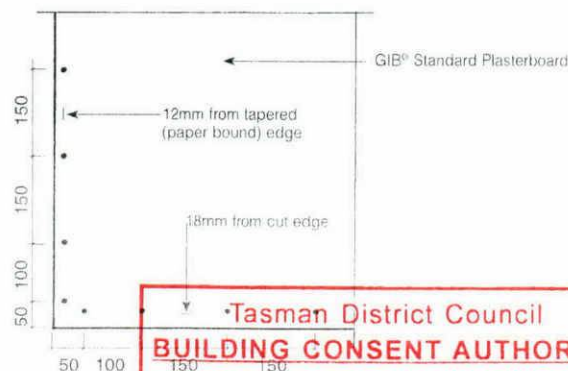
Daub of GIBFix® adhesive at 300mm centres to intermediate studs and nogs

Fixing the perimeter of a GIB® Standard Plasterboard bracing element

Fasteners are placed no closer than 12mm to the tapered (paper bound) machine edge of the GIB® plasterboard sheets. Fasteners are placed no closer than 18mm to a sheet end or a cut sheet edge.

For GIB® Standard bracing elements fasteners are placed at 150mm centres around the bracing element perimeter, starting at 50 and 150mm from the sheet corners.

Fastening pattern for GIB® Standard bracing elements

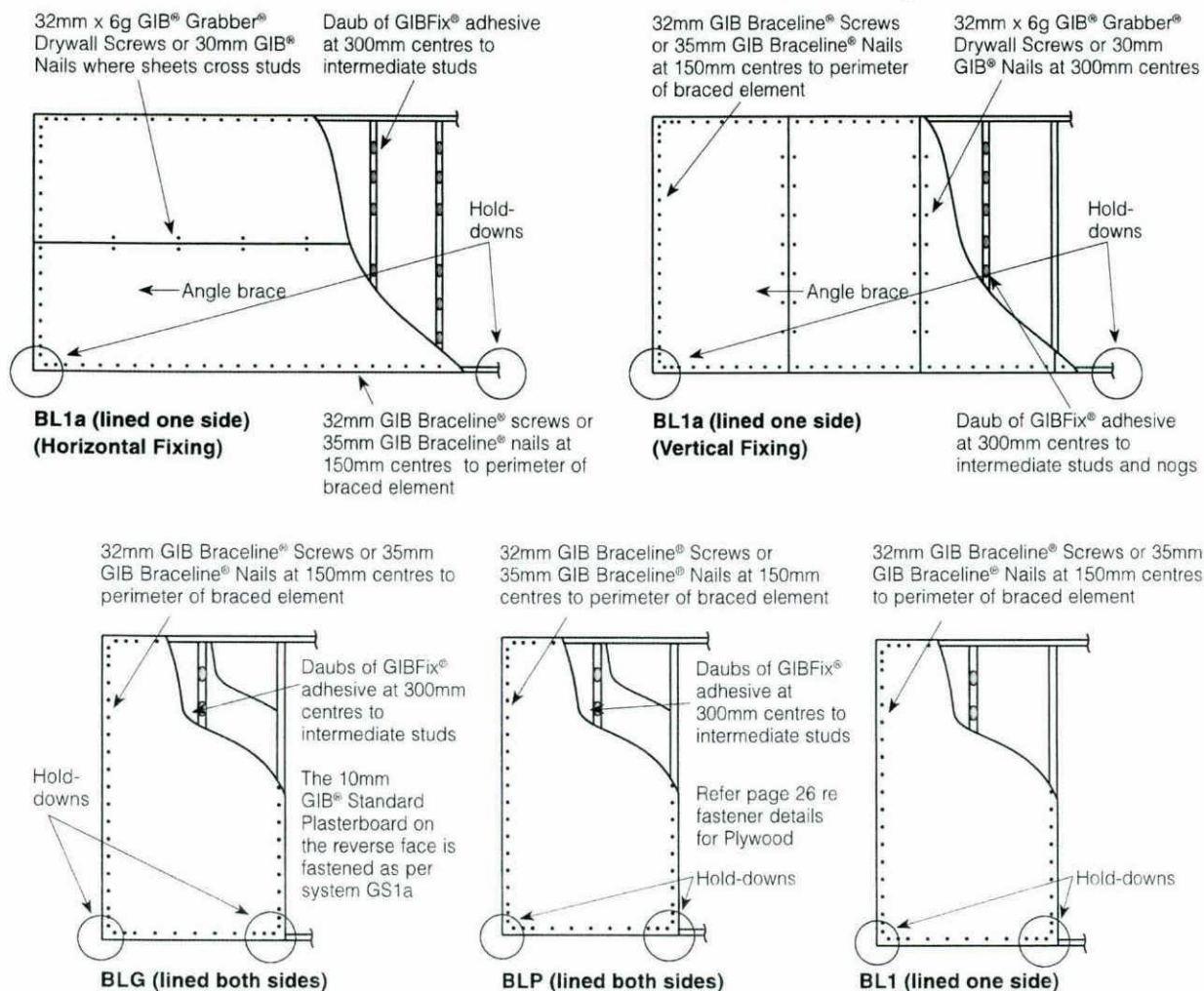


**Tasman District Council
BUILDING CONSENT AUTHORITY
APPROVED
31 JUL 2013
BUILDING CONSENT**

ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL



For 10mm GIB Braceline®, 10mm and 13mm GIB Noiseline® and 13mm GIB Toughline®



Fixing the perimeter of a GIB Braceline® bracing element

Fasteners are placed no closer than 12mm to the tapered (paper bound) machine edge of the GIB® plasterboard sheets. Fasteners are placed no closer than 18mm to a sheet end or a cut sheet edge.

For GIB Braceline® systems, fasteners are placed at 150mm centres around the bracing element perimeter, starting at 50, 100 and 150mm from the sheet corners.

Fastening pattern for GIB Braceline® bracing elements

