

CODE COMPLIANCE CERTIFICATE
Section 95, Building Act 2004

Form 7

Building Consent No: BCo861/13

The Building

Street Address of Building: 366 B Burnett Street
ASHBURTON

Legal Description of Land where Building is Located: LOT 3 DP 463949

Lot No: 296 3 DP No: Ashburton463949

Property No: 22410 Valuation Roll No: 2456824130

Building Name: Dwelling

Location of Building within Site/Block Number: N/A

Level/Unit number :00

Current, Lawfully Established, Use Housing

No Occupants per Level N/A No Occupants use (if more than 1) : N/A

Year First Constructed: 2013

The Owner

PWSD Limited
PR and GR Wallis
60 Tarbottons Road
ASHBURTON 7700

Phone Numbers

Daytime:
Home:
Mobile: 0274102023
After Hours:
Fax:
E-Mail: wally999@xtra.co.nz
Website :

First Point of Contact for Communications:

PWSD Limited
PR and GR Wallis
60 Tarbottons Road
ASHBURTON 7700

Phone Numbers

Daytime:
Home:
Mobile: 0274102023
After Hours:
Fax:
E-Mail: wally999@xtra.co.nz

Building Work

Project: New Construction

Dwelling

Intended Use(s): Erect New Dwelling

Intended Life: Indefinite

Code Compliance

The Building Consent Authority named below is satisfied, on reasonable grounds, that:

- (a) The building work complies with the building consent.
-

Signature

PP



Name Mike Farrell

Position Building Official

Date: 16 December 2013

On behalf of Ashburton District Council 16 December 2013

ASHBURTON DISTRICT COUNCIL

5 Baring Square West

PO Box 94

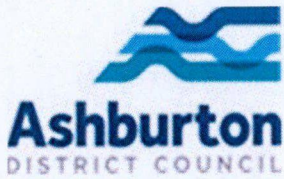
P (03) 307 7700

Ashburton 7740

Ashburton 7740

E info@adc.govt.nz

www.ashburtondc.govt.nz



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 19 AUG 2013
 BY: _____

Project Information Memorandum and/or Building Consent Application

BAM 002 PIM/BC
 Version: 8
 Issued: 19/08/2009
 Updated: 25/07/2013

FOR OFFICE USE ONLY

BC No: *BC086113*
 Date Received: *19-08-13*

Section 33 or Section 45 , Building Act 2004			
APPLICATION			
(Only complete items that are applicable to your project)			
I request that you issue a:	Project Information Memorandum only (PIM)		
(please tick one)	<input type="checkbox"/> Building Consent Only	Has a PIM previously been issued in respect of this project Yes / No <small>(attach copy if applicable)</small>	
	<input checked="" type="checkbox"/> Building Consent including Project Information Memorandum		
THE BUILDING			
Street Address (or Rapid No if applicable):		Building Name (if applicable):	
<i>366 B Burnett Street</i>		<i>N/A</i>	
Legal Description: Lot: <i>TS296</i>	<i>Ashburton TN</i>	DP:	Valuation Roll Number: <i>2456824100</i>
Number of Levels: <i>1</i>	Level/Unit No: <i>-</i>	Total Floor Area: (all floors included)	
Current lawfully established use: <i>-</i>	Existing: <i>126</i> m ²	Add:	m ²
Fencing of Swimming Pool Act 1987: <i>-</i>	Approx Year Building First Constructed: <i>2013</i>		
Is there a swimming pool/spa pool on this site or associated with this project Yes / No			
THE OWNER			
Owner's Name: <i>PWSO Limited</i>	Contact Person: (if owner is not an individual) <i>Paul Wallis</i>		
Mailing/Billing Address: <i>60 Tarbottons Rd Ashburton</i>			
Street Address/Registered Office:			
E-mail Address: <i>wally999@extra.co.nz</i>	Phone Day:		
Phone After Hours:	Fax:	Cellphone: <i>0274102023</i>	
THE AGENT <small>Note - The Agent will be the first point of contact for communications with the Council/Building Consent Authority regarding this application/building work and will receive all correspondence including all invoices.</small>			
Agent's Name:	Contact Person: (if Agent is not an individual)		
Mailing/Billing Address:			
Street Address/Registered Office:			
E-mail Address:	Phone Day:		
Phone After Hours:	Fax:	Cellphone:	
THE PROJECT			
Description of building work: (eg dwelling, commercial, farm shed, garage etc)		<i>NEW DWELLING</i>	

Will the building work result in a change of use of the building? Refer to Building (Specified Systems, Change of Use, and Earthquake-prone Buildings) Regulations 2005 if in doubt)		Yes	<input checked="" type="checkbox"/>	No	
If "Yes", provide details of the new intended use:					
Intended life of the building:	<input checked="" type="checkbox"/>	Indefinite but not less than 50 years	<input type="checkbox"/>	or specified as _____ years	
List Building Consents previously issued for this building (if any): (i.e. is this project being constructed in stages? Is this consent for a relocated or transportable building?)					
Estimated Value of Building Work on which levy will be calculated (inc GST): State estimated value as defined in Section 7 of Building Act 2004			\$ 170,000		
RESTRICTED BUILDING WORK					
Will the building work include any restricted building work?		<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
If yes, provide the following details of all Licensed Building Practitioners who will be involved in carrying out or supervising the restricted building work: (if these details are unknown at the time of the application, they must be supplied before work begins). Note: Enter the Licensed Building Practitioner (LBP) number or registration number if treated as being licensed under Section 291 of Building Act 2004					
Name:	INGOLO BUILDINGS LTD	Licence Class:	CARPENTER	LBP No:	103064
Mailing Address:	P.O BOX 5047 TINWALO		Phone (Day):	0272682754	
Particular work carried out or supervised:		BUILDER			
Name:	PAUL SUMMERFIELD PLUMBER	Licence Class:	PLUMBER	LBP No:	08065
Mailing Address:	125 Hollands Rd R.O1 Ashburton		Phone (Day):	0274346815	
Particular work carried out or supervised:		Plumber and Drainlayer			
Name:	PAT SUMMERFIELD ELECTRICAL	Licence Class:	Electrical	LBP No:	ES513
Mailing Address:	41 Pages Rd Ashburton		Phone (Day):	0274333601	
Particular work carried out or supervised:		Electrician			
Name:	KEY DESIGNS LTD	Licence Class:	Designer	LBP No:	105386
Mailing Address:	P.O BOX 20504 CHRISTCHURCH		Phone (Day):	0210347739	
Particular work carried out or supervised:		Designer			
Name:	THOMAS BEAMS	Licence Class:	Bricklayer	LBP No:	BP105774
Mailing Address:	151 Archibald Street Ashburton		Phone (Day):	033081981	
Particular work carried out or supervised:		BRICKLAYING			
Name:	Kris Waszczak	Licence Class:	Roofer	LBP No:	103101
Mailing Address:	Allerton Ashburton		Phone (Day):	0278104228	
Particular work carried out or supervised:		ROOFING			
Name:		Licence Class:		LBP No:	
Mailing Address:		Phone (Day):			
Particular work carried out or supervised:					

PROJECT INFORMATION MEMORANDUM

PROJECT INFORMATION MEMORANDUM (Complete this section if the application is for a Project Information Memorandum only)

The following matters are involved in the project: (tick the matters relevant to the project)

- Subdivision
- Alteration to land contours
- New or altered connections to public utilities
- New or altered locations and/or external dimensions of the buildings
- New or altered access for vehicles
- Building work over or adjacent to any road or public place
- Disposal of storm water and waste water
- Building work over any existing drains or sewers or in close proximity to wells or water mains
- Rapid Numbers
- Other matters known to the applicant that may require authorisations from the territorial authority: (specify)

Note that Devolvement Contributions may be levied in cases where extra demand for services is required. Refer to "Customer Guide for Development Contributions" for additional information.

BUILDING CONSENT

BUILDING CONSENT (Complete this section if the application is for a Building Consent only)

The following documentation is attached to this application:

- specifications plans calculations producer statements other (specify)

(All plans and specifications must meet the minimum requirements set out in the regulations or required by the Building Consent Authority.)

The building work will comply with the Building Code as follows:

BUILDING CODE CLAUSE		MEANS OF COMPLIANCE (refer to the relevant compliance document(s) or detail of alternative solution in the plans & specifications; if not applicable, put n/a)	WAIVER/MODIFICATION REQUIRED (state nature of waiver or modification of building code required)
B1	Structure	<input checked="" type="checkbox"/> NZS3604 <input checked="" type="checkbox"/> NZS1170 NZS4229 <input type="checkbox"/> Other... <i>B1/AS1 & v.m.l.</i> (specify)	
B2	Durability	<input checked="" type="checkbox"/> B2/AS1 NZS3101 NZS3602 <input type="checkbox"/> NZS3604 Other... <i>F2/AS1</i> ... (specify)	
C1	Objective	<input checked="" type="checkbox"/> C/AS1 – C/AS7 <input type="checkbox"/> C/MM1 <input type="checkbox"/> C/MM2 <input type="checkbox"/> Other..... (specify)	
C2	Prevention of Fire Occurring	<input checked="" type="checkbox"/> C/AS1 – C/AS7 <input type="checkbox"/> C/MM1 <input type="checkbox"/> C/MM2 <input type="checkbox"/> Other..... (specify)	
C3	Fire Affecting Areas Beyond Fire Source	<input checked="" type="checkbox"/> C/AS1 – C/AS7 <input type="checkbox"/> C/MM1 <input type="checkbox"/> C/MM2 <input type="checkbox"/> Other..... (specify))	
C4	Movement to a Safe Place	<input checked="" type="checkbox"/> C/AS1 – C/AS7 <input type="checkbox"/> C/MM1 <input type="checkbox"/> C/MM2 <input type="checkbox"/> Other..... (specify)	
C5	Access and Safety for Fire-Fighting Operations	<input checked="" type="checkbox"/> C/AS1 – C/AS7 <input type="checkbox"/> C/MM1 <input type="checkbox"/> C/MM2 <input type="checkbox"/> Other..... (specify)	
C6	Structural Stability	<input checked="" type="checkbox"/> C/AS1 – C/AS7 <input type="checkbox"/> C/MM1 <input type="checkbox"/> C/MM2 <input type="checkbox"/> Other..... (specify)	
D1	Access Routes	<input checked="" type="checkbox"/> D1/AS1 NZS4121 Other..... (specify)	
D2	Mechanical installations for access	<input type="checkbox"/> D2/AS1 NZS4332 EN81 <input type="checkbox"/> EN115 Other..... (specify)	<i>NA</i>

The building work will comply with the Building Code as follows:		
BUILDING CODE CLAUSE	MEANS OF COMPLIANCE (refer to the relevant compliance document(s) or detail of alternative solution in the plans & specifications; if not applicable, put n/a)	WAIVER/MODIFICATION REQUIRED (state nature of waiver or modification of building code required)
E1	Surface water <input checked="" type="checkbox"/> E1/AS1 AS/NZS3500.3 <input type="checkbox"/> Other(specify)	
E2	External moisture <input checked="" type="checkbox"/> E2/AS1 <input type="checkbox"/> Specific design and testing	
E3	Internal moisture <input checked="" type="checkbox"/> E3/AS1 Other..... (specify)	
F1	Hazardous agents on site <input checked="" type="checkbox"/> F1/AS1 Other..... (specify)	
F2	Hazardous building materials <input checked="" type="checkbox"/> F2/AS1 NZS4223 <input type="checkbox"/> Other(specify)	
F3	Hazardous substances and processes <input type="checkbox"/> F3/AS1 Other..... (specify)	NA
F4	Safety from falling <input checked="" type="checkbox"/> F4/AS1 FSP Act <input type="checkbox"/> Other (specify)	
F5	Construction and demolition hazards <input type="checkbox"/> F5/AS1 Other(specify)	NA
F6	Lighting for emergency <input type="checkbox"/> F6/AS1 Other(specify)	NA
F7	Warning systems <input checked="" type="checkbox"/> F7/AS1 NZS4512 <input type="checkbox"/> Other(specify)	
F8	Signs <input checked="" type="checkbox"/> F8/AS1 Other(specify)	NA
G1	Personal hygiene <input checked="" type="checkbox"/> G1/AS1 Other(specify)	
G2	Laundrying <input checked="" type="checkbox"/> G2/AS1 Other.....(specify)	
G3	Food prep. And prevention of contamination <input checked="" type="checkbox"/> G3/AS1 Other(specify)	
G4	Ventilation <input checked="" type="checkbox"/> G4/AS1 AS1668.2 <input type="checkbox"/> Other(specify)	
G5	Interior environment <input checked="" type="checkbox"/> G5/AS1 Other(specify)	
G6	Airborne and impact sound <input checked="" type="checkbox"/> G6/AS1 Other(specify)	
G7	Natural light <input checked="" type="checkbox"/> G7/AS1 Other(specify)	
G8	Artificial light <input checked="" type="checkbox"/> G8/AS1 NZS6703 <input type="checkbox"/> Other(specify) <i>vm!</i>	
G9	Electricity <input checked="" type="checkbox"/> G9/AS1 Other.....(specify)	
G10	Piped services <input checked="" type="checkbox"/> G10/AS1 NZS5261 <input type="checkbox"/> Other..... (specify)	
G11	Gas as an energy source <input type="checkbox"/> G11/AS1 Other(specify)	NA
G12	Water supplies <input checked="" type="checkbox"/> G12/AS1 AS/NZS3500.1 <input type="checkbox"/> AS/NZS3500.4 Other(specify)	
G13	Foul water <input checked="" type="checkbox"/> G13/AS1 AS/NZS3500.2 <input type="checkbox"/> BS5572 Other <i>G.13 AS.2</i> (specify)	
G14	Industrial liquid waste <input type="checkbox"/> G14/AS1 Other(specify)	NA
G15	Solid waste <input type="checkbox"/> G15/AS1 Other(specify)	NA
H1	Energy efficiency provisions <input checked="" type="checkbox"/> H1/AS1 NZS4218 NZS4243 <input type="checkbox"/> ALF Design Manual NZS4214 <input type="checkbox"/> Other(specify)	

COMPLIANCE SCHEDULE

(Not applicable if applying for a Project Information Memorandum (PIM) only)

Are there any specified systems associated with this project?

NO	There are no Specified Systems associated with this project		
YES	The following Specified Systems are being altered, added to or removed in the course of the building work: (specified systems are defined in regulations)		
SS Code	Specified Systems (tick which systems apply to your project)		Applicable Systems
1	Automatic systems for fire suppression (<i>for example, sprinkler systems</i>)		
2	Automatic emergency warning systems for fire or other dangers (<i>other than a warning system for fire that is entirely within a household unit and serves only that unit</i>)		
3	Electromagnetic or automatic doors or windows (<i>for example, ones that close on fire alarm activation</i>)		
4	Emergency lighting systems.		
5	Escape route pressurisation systems.		
6	Riser mains for use by fire services.		
7	Automatic backflow preventers connected to a potable water supply.		
8	Lifts, escalators, travelators, or other systems for moving people or goods within buildings.		
9	Mechanical ventilation or air conditioning systems.		
10	Building maintenance units providing access to exterior and interior walls of buildings.		
11	Laboratory fumes cupboards.		
12	Audio loops or other assistive listening systems.		
13	Smoke control systems.		
14	Emergency power systems for, or signs relating to, a system of feature specified in any clauses of 1 to 13.		
15	Any or all of the following systems and features, so long as they form part of a building's means of escape from fire, and so long as those means also contain any or all of the systems or features specified in clauses 1 to 6, 9, and 13:		
15a	Systems for communicating spoken information intended to facilitate evacuation; and		
15b	Final exits (<i>as defined by clause A2 of the building code</i>); and		
15c	Fire separations (<i>as so defined</i>); and		
15d	Signs for communicating information intended to facilitate evacuation; and		
15e	Smoke separations (<i>as so defined</i>)		
16	Cable Cars		
Purpose Group:		Fire Hazard Category:	Maximum Occupant Load:

REQUIRED ATTACHMENTS

The following documents are attached to this application)

✓	Plans and Specifications 2 copies for Residential and Commercial PIM only – 1 copy of Site Plans, Floor Plan and Elevations	✓	Evidence of Ownership (Certificate of Title (Less than 6 months old), Sale & Purchase Agreement, Lease, Current Rates Demand)
	Project Information Memorandum	✓	Building Consent Application Checklist (Residential or Commercial)
	Development Contribution Notice	✓	Compliance Schedule
	Memoranda (Certificate of Design Work) from Licensed Building Practitioners who carried out or supervised any design work that is restricted building work)	✓	Application Fee of \$ (Refer to the current Schedule of Fees and Charges on the Council's website)
	Certificate attached to Project Information Memorandum		

Residential PIM/Building Consent Application Checklist

BAM 002-R

Version: 8

Date Issued 19/08/2009

Updated: 25/07/2013

BC _____

(In conjunction with form BAM 002)

	Supplied	N/A
NB. The following is required on application in sufficient detail to show compliance with all aspects of the District Plan and the New Zealand Building Code. Please complete this checklist in FULL. Additional information may be requested during processing of the application.		
PIM		
Application form COMPLETED and signed		
All information identified on the cover sheet		
Application fee \$ _____ GST Inclusive (Accepted Methods of Payment: CASH - EFTPOS – CHEQUE)		
Certificate of Title: Up to date copies of the Certificate of Title that relate to the property that is being built upon.		
Copies of drawings as specified in the cover sheet		
Site Plan – showing:		
– All new and existing buildings, swimming pools		
– Any heritage buildings/trees or archaeological site information known		
– Legal and notional boundaries (existing and proposed), easements, waterways, shared access ways/other areas with building setbacks dimensioned		
– Building and site areas (including floor areas (m ²) for all floors)		
– Vehicle access, crossing location, manoeuvre, and parking area		
– Street trees, poles, sumps, manholes, traffic islands outside the property		
– Any hard-standing (sealed or concrete) areas with proposed drainage		
– Landscaped areas required by District Plan indicated		
– Any significant trees on the site		
– Retaining walls		
– Fire rated walls, eaves		
– All activities on a site indicated		
– Proposed and existing site and floor levels		
– Existing and proposed contours, drive gradients and building heights (for hill or sloping sites)		
– Intentions for the disposal of stormwater and sewer		
– Storage location and capacity of Hazardous Substances (ie LPG, diesel, home heating oil etc)		
Outline Floor Plans (for all floors)		
Outline Elevations		
Outline Cross Sections (if required) to show recession plane/daylight plane and height compliance)		

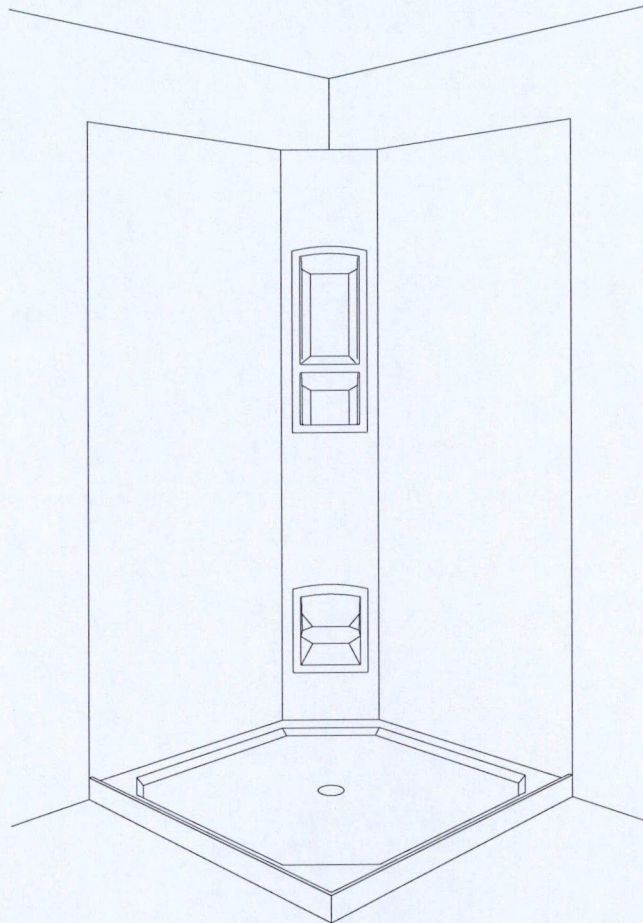
----- **STOP HERE IF THIS IS A PIM ONLY APPLICATION** -----

BUILDING CONSENT (in addition to the above)		
Project Information Memorandum (if already issued) plus all attached forms		
Foundation Plans (timber or concrete slab) including all details		
Drainage Plans - full design details including both Sewer and Stormwater and any disposal methods		
Detailed Floor Plans - fully dimensioned and notated, including location of Smoke Alarms		
Detailed Elevations - including door and window-s showing opening sashes		
Cross Sections - to show all relevant construction, especially through difficult areas of the building and changes in building form		
Timber Treatment - the species, grading and treatment of all timber specific to the project is to be specified on the drawings , ideally on the cross section		
Framing Details - including floor joist layout plans if applicable		
Construction Details - with all materials, fixings etc noted		
Weathertightness Details - including a risk assessment matrix for all walls and all flashings		
Internal Waterproofing Details - including all wet areas and surface finishes		
Plumbing Details - including layout plan/schematic and water supply details		
Specifications - relevant to the project		
Bracing Design - calculations, schedule and layout plans		
Roof Truss Design - including layout plan, fixings and specific design for lintels where required		
Ground Conditions Report - this will be either a report to show why it is assumed that the ground is "good ground" using Section 3 of NZS 3604:1999, or a specific ground assessment and foundation design by a suitably qualified and experienced engineer		
Engineers Details and Producer Statement - where any specific design has been carried out (e.g. steel beams)		
Sediment Control Management Plan (if required by site location)		



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04 SEP 2013
KL

Acrylic Shower Tray and Shower Wall Lining Installation Instructions



Dear Purchaser/Installer

Thank you for purchasing a Clearlite Bathrooms product. We are proud to be 100% NZ owned and operated with over 30 years experience in the Bathroomware industry. We hope you enjoy your Clearlite Bathroom experience.

You are about to install a Clearlite Bathrooms product. The unit that you have purchased has been designed and manufactured to the highest possible standard. Please read and ensure that you fully understand the installation principals and how they apply to your unit. Bear in mind that useful old adage "measure twice and cut once".

Please note that before wrapping this product it was cleaned and polished under bright lights.

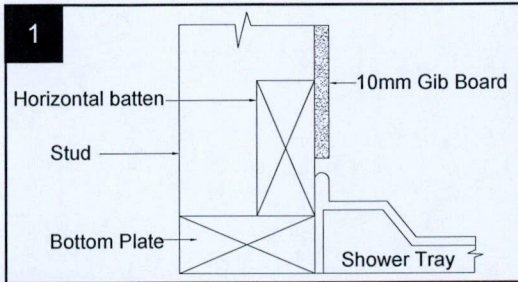
For your own peace of mind, please unwrap and check the product carefully as we cannot accept responsibility for damage that may occur in handling or installation.

Important note for Tiled Wall Installations.

Please check for any special installation requirements that may be required for the doors. Some doors will require the wall receivers to be fitted on top of the waterproof membrane prior to tiling application

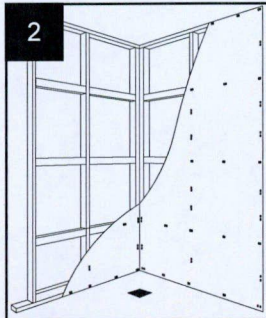
Please read these Instructions carefully

Installing the Shower Tray



To achieve optimum results when installing the shower it is important that the floor and walls are level and plumb.

As a guide - for every 1 mm that the floor is out of level, adjustment of the enclosure will be reduced by 2mm. If the floor is out of level by 5mm there may be insufficient adjustment in the door set during installation. Under no circumstance should the tray be packed, the tray must be fully supported. To level a concrete floor use leveling compounds. For timber floors, either sand or use leveling compounds

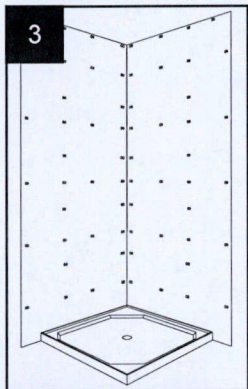


Have the Plumber install the shower fittings

Use 10mm Wet Wall Gib Board to line the walls and double nail to the studs/nogs at 200mm centres. **Do not Gib stop, seal, sand or paint the Gib Board surface as this will affect adhesion of the wall liner to the Gib Board.**

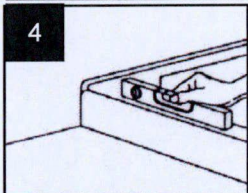
The hole cutout in the floor for the waste must be backfilled to ensure the tray is fully supported. For concrete floors backfill with concrete or a similar solid fill material. For timber floors either add additional nogs or use a leveling compound.

IMPORTANT: Warranty will be void if the tray is not fully supported



Place the shower tray in position and using a pencil mark the tray's profile on the Gib board.

Cut away the Gib Board 10mm above the pencil line. Place the tray into the rebate and check that the front face of the tray's upstand does not protrude further than the Gib board surface. (This may be a result of the two walls not being set 90 degrees to each other). If the upstand protrudes further than the Gib board face the tray will need to be rebated further into the bottom plate

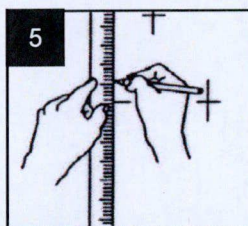


Check that the tray is level and that the waste outlet aligns with the waste that has already been installed in the floor. (If tray is not level refer to Step No.1)

Peel the protective masking away from the sides & the upstand of the tray. Leave the masking in place over the floor area.

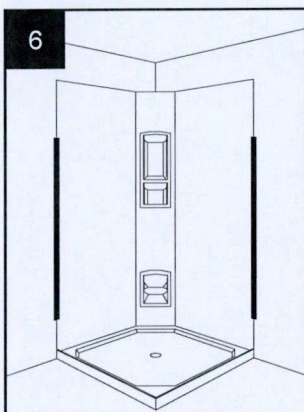
Remove the tray and apply a construction adhesive such as "Liquid Nails" to the rings on the underside of the tray. Apply a bead of silicone sealant to the face of the Bottom plates (prevents possible squeaking). Place the tray back into position.

The tray should now be left for 24hrs to allow cure of the construction adhesive

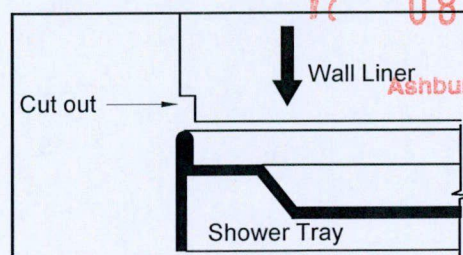


Installing the Wall Liner

Carefully measure and mark the positions of any plumbing fittings on the wall lining. Carefully drill holes in the wall liner. Refer to Cutting and Drilling details at the end of these instructions

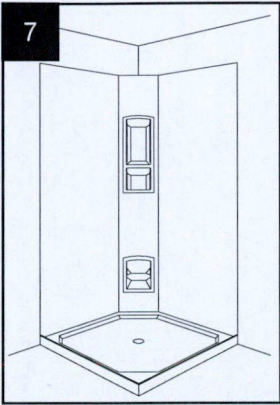


Trial fit the wall liner by taping it temporarily in position. If for any reason the wall liner requires cutting to the bottom corners use a fine tooth hacksaw. Any edges may be finished off by sanding with a medium grit sandpaper



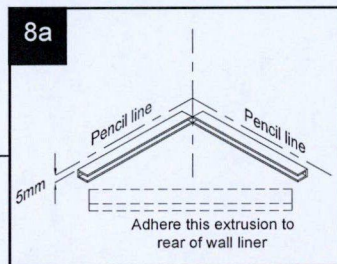
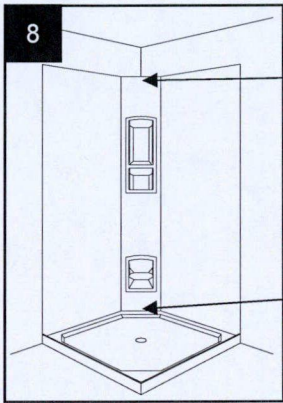
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Ashburton District Council



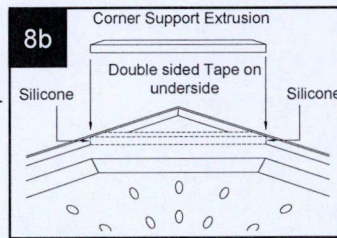
With the wall liner in position mark around its perimeter with a pencil. Remove the wall liner then wipe down the Gib board surfaces and the rear of the wall liner with a clean cloth to remove any dirt, dust and any contaminants. Check that there are no nails or screws protruding from the wall

Special instruction for Cezanne, Millennium & Platinum walls



Mark the Gib board where the wall liner cuts across the rear corner and fit the two 170mm support extrusions (supplied with the liner) 5mm below the pencil line as shown

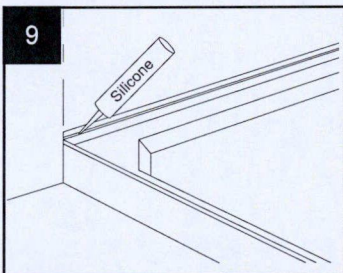
Attach the third 170mm support extrusion to the rear of the wall liner 5mm down from the top



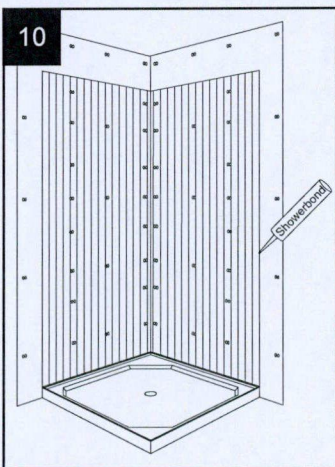
Fit the bottom diagonal support extrusion to the tray. This should be set at 45° across the corner and double sided taped in position, this will support the diagonal lower edge of the wall liner.

Seal the extrusion junctions to the tray using silicone **Refer to the section on "Detail application of silicone NG"**

Installing the Wall Liner – All types



Apply a generous & continuous bead of Silicone NG sealant along the top front edge of the shower tray upstand. If fitting a Millennium or Platinum wall liner also apply a continuous bead across the top of the diagonal wall support extrusion. (8b) **Refer to the section on "Detail application of silicone NG"**



Using the Showerbond adhesive supplied (Warning : Do not use any other adhesives as warranty will be voided).

Starting 10 mm in from the edge of the wall liner apply a 5-6 mm vertical bead of adhesive, continue to apply adhesive in vertical lines at approximately 50 mm centres.

Place the wall liner in position and apply firm pressure over the entire area of the wall liner to ensure complete contact has been made with the beads of adhesive. **Wall liner must be fitted within 15 minutes of applying the Showerbond to avoid premature curing.**

If fitting a Millennium or Platinum Wall liner install the triangular plastic corner infill to the wall support extrusions (8a) using silicone. Once in place seal the perimeter with silicone to prevent moisture entering the cavity

To the top edge of the wall lining seal with a paintable sealant such as Selleys "No More Gaps"

It is recommended that 3 sided wall liners be braced in position. Bracing should remain in position for a minimum of 18 hrs.

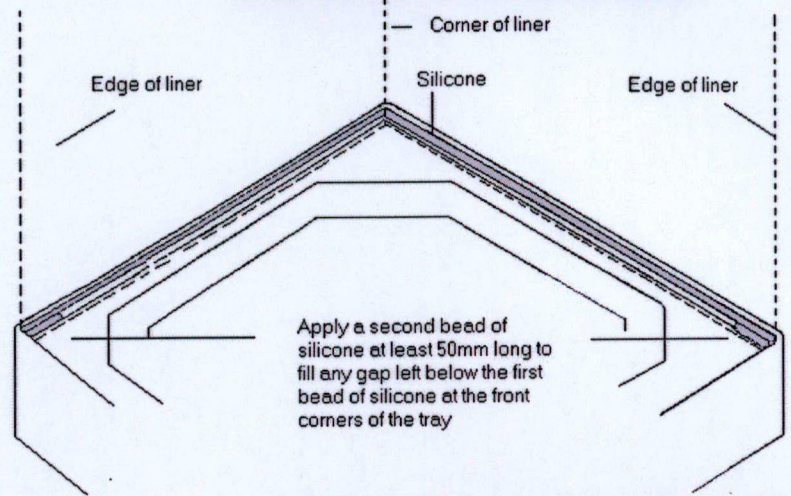
The shower door set can now be installed.



Allow the adhesives and sealants to cure for a minimum of 24hrs

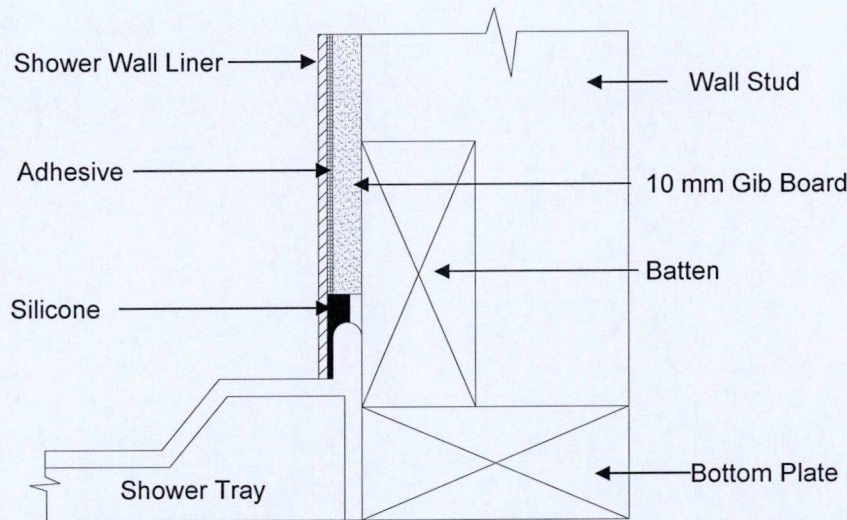
DETAILED APPLICATION OF SILICONE NG

Silicone Application

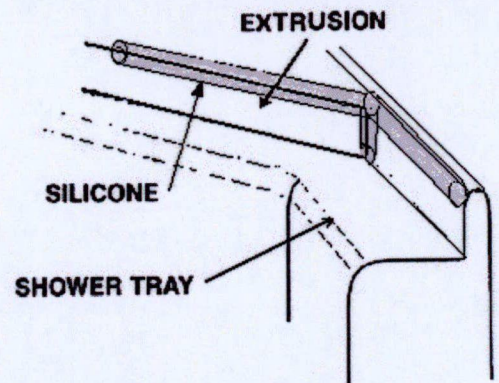


NOTE

No silicone should be visible from the inside of the shower



Corner Support Extrusion Millennium & Platinum Corner Moulded Only

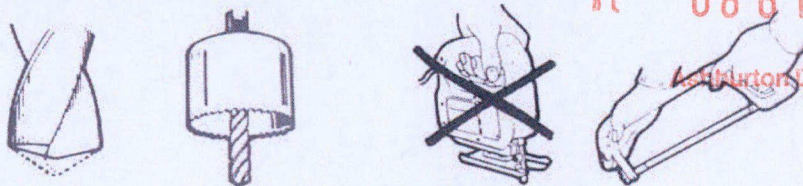


In line with BRANZ recommendation, we suggest that a sealant such as "Selleys No More Gaps" be applied to the top of the acrylic liner. This is to prevent any moisture penetrating down behind the lining.

If the acrylic is to be cut, use a fine tooth hacksaw and very carefully cut the acrylic.

To smooth edges off use a fine tooth file or a medium grade sand paper. For a high sheen finish, use an abrasive cleaner such as Brasso to burnish.

Small holes can be drilled using a twist drill with the cutting edge backed off with an oilstone (the sharp edge dulled) to prevent 'grabbing'. For larger holes, use a fine tooth hole-saw.



For further information contact:

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Painting of Interior Surfaces

Interior paint is to be applied to all walls, doors, wardrobes, cupboard doors, and ceilings. The colours are to be as specified by the client.

"All paints used are to comply with the requirements of their respective manufacturer in terms of what building products it is suitable for use on."

Internal surfaces shall have 3 coats of acrylic paint, sanding out blemishes between each coat. All walls to be fixed before wallpapering.

Painting of Wet Areas

All wet area walls & ceilings are to be lined with GIB aqualine gib-board and painted with gloss or semi-gloss paint, in compliance with NZBC E3, section 3. ~ water splash areas ~ ('DAMPFIX' Liquid System waterproofing membrane to gib. before tiling).

Completion

Allow to touch up to approval any Painter work which is damaged during the finishing works of other trades. Replace all hardware, remove all masking, covers, containers etc., thoroughly clean all affected surfaces, and leave all spaces ready for immediate occupation. Avoid scratching or abrading glass or hardware during any cleaning.

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BC 0861/13

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Revision A: Painting of Wet Areas revised.

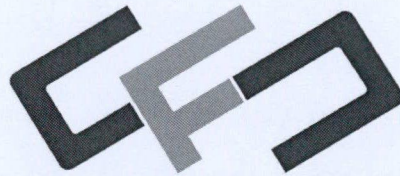
RECEIVED

19 AUG 2013

BY: _____

SPECIFICATION + ADDITIONAL INFORMATION
(additional information: H1 calculations, manufacturer specifications and BRANZ approvals,
truss layout information, LPB design certificate)

**for Team Wallis,
Lot 3 Burnett Street, Ashburton.**



CRAIG FITCHETT DESIGN

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JOB NUMBER: 2013-031

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Table of Contents

PRELIMINARY AND GENERAL	03
SITWORKS	08
CONCRETE AND REINFORCING	11
CARPENTER AND JOINER	13
BRICK VENEER	18
ROOFING CONTRACTORS	20
JOINERY	21
WINDOWS & DOORS	22
PLUMBER	26
DRAINLAYER	30
ELECTRICIAN	33
PAINTER	37
TILER	40
INTERIOR LININGS	42

ADDITIONAL INFORMATION:

H1 THERMAL CALCULATIONS
WATERGATE BUILDING WRAP INFORMATION
PROTECTO WRAP SPECIFICATION
THERMAKRAFT 215 SPECIFICATION
MANROSE SF150 SPECIFICATION
DAMPFIX BRANZ APPRAISAL
WANZ CAVITY RECOMMENDATION
TRUSS LAYOUT INFORMATION
CERTIFICATE OF DESIGN MEMORANDUM FROM LBP

PRELIMINARY AND GENERAL

Preliminary

This Specification describes the standard of work to be done and the condition and treatment of materials to be used in the construction of the house shown on the attached drawings.

The Extent of work is specified in the signed contract drawings and this construction specification. All Contractors and sub-contractors should be familiar with all documents relating to this contract as specified above.

The main contractor is expected to be familiar with the site, this specification and the signed contract drawings before commencing any work.

Contract Specifics Specific Conditions

Attention is directed to relevant clauses in the Contract Documents stating specific conditions relating to such matters as bonds, site possession to begin the works, items supplied by the Principal, retentions and their release, payment for items not yet on site, the defects liability period, or completion damages or bonus.

Project Overview Project Quality Protection

Take all appropriate precautions to protect all third party property, services, etc. and indemnify the Principal against any claims arising from the construction operations. Any damage to third party property caused by construction activities or failure to protect shall be rectified as soon as possible by the person causing the damage, or by appropriately qualified trades-persons employed by the person responsible for the damage if necessary.

Suspend operations during weather which would affect the quality of work in progress. Secure the works as soon as possible against adverse weather, dust and vandals. Avoid structural damage that is caused by overloading.

Adequately protect all finished work and maintain until the date of Practical Completion. (Each trade shall protect the work of all other trades, and each trade is responsible for making good any damage they cause to finished works). Arrange special protection as required for windows and doors, finished timber work, plumbing fittings and hardware, and cabinets and other joinery. The contractor shall protect adjoining properties during the contract and shall make good all damage at his own expense.

Any trade whose work or materials cause damage to surrounding properties will be held liable for costs to make good.

Responsibility

The Contractor will be held responsible for the full period of his legal responsibility in connection with this Contract for ensuring that all work execution, materials, and fittings, are completely in accordance with Contract requirements.

Contractor is responsible to the Principal for the appropriateness and fitness, in relation to a reasonable expectation or requirement, of all of the materials and workmanship incorporated into the works by himself or his subcontractors; for this reason few specific guarantees are required in these contract documents. The terms and conditions of any warranty or guarantee required or provided shall not in any way negate the minimum remedies available under common law as if no warranty or guarantee had been furnished.

No apparent expression of the Architect's reasonable satisfaction shall be deemed to be acceptance of defective materials or workmanship within the terms of the Contract or to be an authority for any Variation except where such variation is authorised as provided for in the Contract. Instructions that are given verbally are deemed to be instructions for proper execution of the works and do not involve extra charges.

Ashburton Building
Consents Documents

0861/13

Ashburton District Council

Workmanship in all trades is required to be equal to or better than recognised good trade practice.

Should any tradesperson consider that the surface finish or general conditions of previous work are unsatisfactory to ensure a proper finish for their own work thereon, that tradesperson shall give immediate notice to the Contractor or Architect as appropriate and shall not proceed until necessary improvements have been made. Failing such notice the trade concerned will not be relieved of the responsibility for a poor finish due to such unsatisfactory condition.

Specialist Finishes Subcontractors are responsible for ensuring that substrates are completely appropriate for them to achieve first class results, and to this end shall, in sufficient time, instruct the Contractor with regard any fixings, primings, sealings or whatever for the substrate that vary in any way from the substrate manufacturer's standard recommendations.

The Contractor and all Subcontractors affected shall be jointly and severally responsible for completion of the whole of the works in a completely watertight condition and shall therefore examine all details to be satisfied that this condition can be achieved. If any detail is considered unsatisfactory the Architect shall be notified immediately and he will then either interpret the detail to the Contractor's satisfaction, or accept responsibility for watertightness at points in question, always assuming reasonable workmanship.

For all electronic/ electrical/ mechanical operating systems all work and all necessary materials and items incidental to the primary item specified, that are incorporated into the works, shall be such as to leave a neat, efficient, easily maintained and robust installation, completely in accordance with all recommendations of the primary items manufacturers. Where appropriate source all parts of a system from a single supplier or manufacturer.

Ensure that all parts of a construction or finish are compatible and that their individual use is approved by the manufacturers and/or suppliers of other parts of the system.

Works Administration

Progress Claims

Shall be in writing, shall be in accordance with the requirements of the Construction Contracts Act, and shall include all of the following: -The Overall amount claimed. -The Percentage completion and amount claimed for each Subcontractor. For accurate claim verification please ensure that this breakdown exactly matches the trades breakdown supplied with the tender. -The total Contract Sum Adjustment for all Variations authorised prior to the claim. -Items covered by Monetary Allowances listed separately. And, if specifically requested: -Confirmation that amounts previously claimed on behalf of Subcontractors, certified by the Architect/Designer, and paid by the Principal, have actually been paid to the Subcontractor (normal retentions excluded).

Insurances

The Contractor/Owner shall insure the works in an approved Fire Office and such insurance shall cover the full value of the premises when completed. The Contractor shall maintain a Public Liability Policy with and insurance company in New Zealand indemnifying the Contractor against claims in respect of damage to property arising out of the operations of the Contractor or his subcontractors in the execution of said works. All Sub Contractors will have their own Public Liability Policy and any other insurance's required.

Works Management

Setting Out

The Contractor is responsible for accurate setting out of the works.

The Contractor shall provide all necessary setting out information and component dimensions for subcontractors and shall check and be responsible for the accuracy of their work.

Foreman

A competent foreman shall be constantly on the works and any instructions or explanations given to such person shall be deemed to have been given to the Contractor.

Co-ordination of the works

Co-ordinate the works of all trades to ensure efficient progress of the works. Ensure that all holes, sleeves, penetrations, supports etc. that are required for services are correctly incorporated as work proceeds. Identify and sufficiently forward notify the appropriate persons of all deadlines for the supply of components, fittings, information, etc.

Authorities and Charges

Comply with all relevant provisions of the NZ Building Code, and with all relevant territorial or statutory authority regulations, by-laws, obligations etc. Give all required notices.

The Principal has obtained a Land Use Consent. The Principal has applied for and paid for the Project Information Memoranda, the Building Consent and other approvals required for the works to start. The PIM and Building Consent will be forwarded to the contractor as quickly as possible after they are issued by the Territorial Authority. (It is an offence under the Building Act to carry out work not in accordance with a building consent).

Should the building consent be subject to any conditions which modify the contract documents in any way, the Architect/Designer reserves the right to negotiate any or all of these modifying conditions with the Building Consent Authority. If after these negotiations additional work is required, it will be handled as a variation to the contract.

The Principal will apply for the Code Compliance Certificate and any other licenses or approvals for the house to be used. However Practical Completion will NOT be certified until the CCC inspection has occurred and any additional works required by the local Building Consent Authority has been completed. To this end it is recommended that the Contractor obtains all required certificates, guarantees, as-built drawings, etc. required for the CCC application as work proceeds, to facilitate application for the CCC as soon as the works are completed. For his part, the Principal hereby undertakes to apply for the CCC within one day of all required material being in hand. Likewise, the Contractor should have the capacity available to attend upon as soon as possible to any items identified by the Building Consent Authority as being required prior to the issue of the CCC.

Standards

New Zealand Standards (NZS), Australian Standards (AS), joint Standards (AS/NZS), British Standards (BS), Acts of Parliament, Regulations made thereunder, Codes of Practice, and any specific Manufacturer's Instructions or Manufacturer's Recommendations that are referred to in the Contract Documents shall all be deemed to be the latest published edition thereof at the time of drawings issue and shall be followed by the Contractor and all Subcontractors to the full extent applicable consistent with the intent of this Contract. Documents cited within other cited publications are deemed to form part of this specification. Where Standards have a number of Divisions, e.g. AS/NZS 3500.1, AS/NZS 3500.2, etc., each of the Divisions relevant to this project is deemed to form part of this specification.

Retain current copies of significant cited documents and manufacturer's technical literature on the site.

Cleaning and Completion

Clear construction debris and rubbish from the works at regular intervals, and additionally if so instructed by the Architect/Designer. Clean each space thoroughly before commencing any finishing works.

In preparation for the Practical Completion inspection carry out the following: -Clean the works thoroughly, removing all debris, surplus materials, splashes, marks, temporary markings, etc. All cleaning methods and materials shall be as recommended by the manufacturer of the item being cleaned. -Remove protective wrappings and coverings unless otherwise directed. -Touch up minor painting faults, carefully matching colour, and brushing out edges. Repaint any badly marked surfaces back to suitable break lines. -Adjust,

ease and/or lubricate as required all doors, drawers, controls and other moving parts to ensure their efficient operation. -Any other works required to leave all spaces ready for immediate occupation and all electronic / electrical / mechanical systems fully operational. -Clean out all spoutings, gutters, downpipes, and gullies and flush out all drains. -Clean all sanitary appliances and check all aspects of the water services. - Thoroughly re-inspect all aspects of the works (and have any defects fully rectified) to be certain that the works are completely ready for the Practical Completion inspection - if an unreasonable number of items are noted by the Architect/Designer during the inspection it will be terminated and then rescheduled for at least a week forward to allow for proper completion to be achieved.

Note that a Code Compliance Certificate must be obtained before Practical Completion will be certified. Obtain all required certificates, guarantees, as-built drawings etc. as work proceeds to enable the CCC application to be submitted as soon as construction is completed.

Interpretation

Work and materials shown in the drawings or work and materials specified but not shown, must be supplied as though both shown and specified. Materials shown but not specified must be of the kinds commonly employed for the service they are intended to perform. All figured dimensions shall be taken in preference to scale.

The Contractor shall be held responsible for the setting out of work and he shall make good at his own expense any errors that occur through lack of checking or faulty workmanship.

Variations

No variations of any kind shall be made to the contract without direct instruction in writing from the owner. The price of any variations must be agreed to in writing before being proceeded with.

Attendance of Trades

The contractor shall leave all necessary holes, chases, sleeves, ducts etc as required by subsequent trades.

Survey Pegs

Survey pegs required by the Contractor to define the site, unless already established, shall be provided by a surveyor employed by the owner.

The contractor shall ensure that all survey markings or builder's pegs are not damaged or disturbed during site clearance. Any marks close to the works should be suitably protected by the contractor before he begins work.

Damage

The contractor shall, at his expense, be responsible for any damage to footpaths, kerbs, drains etc, to the satisfaction of the local authority. The Contractor will however be able to recover costs when it is known that such damage is caused by one of the Sub contractors, e.g. concrete truck damaging a kerb will therefore establish that the concrete supply company shall reimburse the Contractor.

Maintenance

Any defects in materials, workmanship or any part/s that require adjusting or replacing which are included in the contract for works carried out, shall be repaired, adjusted or replaced at the contractors/sub contractors expense during the maintenance period. The maintenance period is a minimum of 90 days or any extended time deemed fair.

Stability

The contractor and sub-contractor shall brace and support all parts of his work against damage by wind and protect work from the elements as necessary during construction.

Visit Site

The main contractor shall visit the site and ascertain the nature and extent of the work and the rights and interests that may be interfered with and any other matter that may influence the carrying out of the contract in its entirety. The levels shown on the drawings must be confirmed by the builder and any variations reported before any work is carried out.

Conditions of Contract

Shall be NZS 3915:2000 'Conditions of Contract for Building and Civil Engineering Construction' (where no person is appointed to act as engineer for the project)

The Specification and drawings shall be read together, and anything contained in one and not the other shall be equally binding as though in both, and everything shall be done to complete the works together with all preparatory work, expressed or implied.

Generally the drawings show the extent of the work while the Specification defines the standard. As this specification's is written to cover most situations, only those clauses that are relevant to work shown on the drawings shall apply.

Where any discrepancies exist in the documents, the project manager is to be notified.

SITWORKS

Preliminary

Refer to the General Conditions of Contract and to the Special Conditions of this Specification as appropriate. Read this section in conjunction with all other trade sections.

Drives, Paths & Paving

Driveway

Check that the excavated surface is accurately to the gradients and levels required and then install 100mm of standard basecourse M4 compacted to 95% relative compaction, and cover this with a 30mm depth of 20mm no-fines chips.

Exposed Aggregate Paving

Check that Telecoms/Telstra, power, water and gas service lines are correctly in place and have been fully operationally tested.

Accurately setout the drive ensuring that all gradients are correct.

Steel trowel finish to a true surface and immediately spread an even layer of the finishing aggregate and press it into the surface. Lightly spray the top surface with a cure retarder and, when the cement has fully bound the aggregate, sweep and wash the top surface to expose it. Ensure the finishing aggregate is spread before the initial set of the concrete to obtain a good bond - to achieve this it may be necessary to finish the slab progressively.

A very well-bonded and well cleaned finished surface with clean straight edges is required. To this end the operative carrying out the exposed aggregate paving must be experienced in work of this nature – if so requested provide two or three location references where his earlier similar work may be inspected.

Asphalt

Check the setout, gradients, alignments and compaction of the hardfill. Sweep surplus fine hardfill material off the surface.

Apply approved long term weedkiller to the compacted hardfill surface, with the application exactly to the Manufacturers Recommendations. Apply a tack priming coat of bituminous emulsion at the rate of 1sq.m/litre onto the prepared hardfill - mask adjacent surfaces as required, and completely remove any accidental marks. Install Mix 5 hotmix asphaltic concrete, with minimum compacted thickness 40mm to the full area.

Workmanship shall be to Transit Specification P9. Spread and thoroughly roll to a smooth, even surface that is evenly graded with true alignments and smooth transitions and has no local pondings. Finish with clean lines. Clean up thoroughly on completion and competently make good any damage to adjacent surfaces.

Paving Preparation

To all hard landscaping areas check that all topsoil and soft material has been removed. Check setout and gradients of landscaping profiling, and check kerbs etc. are accurate and properly cured.

Place and compact, to 95% relative compaction, 100mm minimum thickness of standard M4 basecourse. Build the compacted hardfill up to 80mm below the required finished levels.

It is suggested that the hardfilling is carried out as soon as the excavation is completed, to avoid a quagmire during use by construction activities, and that hardfilling is made good (and up to full compaction required) as necessary just prior to finish paving.

Just prior to paver installation lay a 35mm thick damp sand base on top of the prepared basecourse compacted down to approximately 30mm finished thickness to the required falls with nominal 1:40 fall.

Paving Installation

Lay pavers to true even surfaces with smooth transitions, on a 30mm bed of properly graded sand, with 2 to 3mm joints between pavers. Sand bed to have a very heavy application of approved long-term weedkiller applied just ahead of blocks.

Sand over and compact as recommended, and finish clean and free of blemishes.

Unless otherwise shown install paving with a minimum fall of 1:40 away from buildings.

Excavation & Filling

Excavation

Excavation work shall be carried out in accordance with the OSH Excavation Code of Practice. Co-ordinate with other trades as to set-out and timing to ensure that all cut faces are covered or finished etc. as soon as possible after the excavation is complete.

Plan the excavation carefully to ensure that stockpiles will not interfere with concrete construction, to stockpile just sufficient material for the filling, backfilling and reshaping required later, and to avoid overlaying areas outside the works area with material.

Cease machine excavation above final levels and trim to the finish profiles by hand where appropriate. Any over excavation in critical foundation, etc. areas made up with 10MPa concrete unless otherwise approved. Trim slab benches exactly to the required level to allow for hardfill and blinding.

Noisy excavation equipment shall be used only during hours which will avoid undue nuisance to the occupants of adjacent properties.

Excavate accurately in position and true to line and minimum sizes and to levels and grades required for all slabs, footings and foundations, and over the rest of the areas shown for levels adjustment.

Excavations down to firm undisturbed ground, and footings and foundations 200mm minimum into solid, except where shown otherwise.

Below slabs on ground the general intent is to excavate to a stable undisturbed subgrade (of 600 kPa ultimate bearing capacity).

Remove all surplus material from the site as soon as it is excavated, taking care to avoid damaging the footpath or streets or spilling material on to them.

Ensure that rainwater runoff from excavated surfaces does not carry material onto adjacent properties.

Excavation Completion

All workmanship and materials shall comply with the New Zealand Building Code, relevant New Zealand Standards, and accepted trade practice. All work is to be carried out in accordance with the plans, specifications, and job sheets supplied with this contract and as varied from time to time.

Hardfill & Blinding

25mm (max.) layer of sand binding on 150mm (min.) deep compacted AP40 hardfill in accordance with NZS 3604: 2011, clause 7.5.3.2. **NOTE: WELL GRADED HARDFILL MATERIAL IS TO BE COMPACTED IN LAYERS AND NOT DEFORM UNDER THE WEIGHT OF AN ADULTS HEEL IN ACCORDANCE WITH NZS 3604: 2011, 7.5.3.1.** Any concrete floors requiring hardfill to a depth exceeding 600mm shall require an engineer's specific design in terms of NZS 4431:1989

Site & Scope

Site

Note that no claims will be recognised on the grounds of insufficient description of existing site conditions in the Contract Documents.

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Scope

Excavation for construction of foundations, retaining walls and slabs.
Supply and placing of tailings.

Clear Site

The contractor shall be responsible for the removal of all vegetation, trees, roots and other unsuitable material from the area to be covered by the new building, decks, verandas and other associated works. This material is to be removed from the site and suitable disposed of.

Remove a minimum of 100mm topsoil within area to be covered by the building, driveway and paths. Stockpile topsoil on site as directed by owner. Do not remove any other trees or vegetation without consent of owner.

CONCRETE AND REINFORCING

Preliminary

Refer to the General Conditions of Contract and to the Special Conditions of this Specification as appropriate. Read this section in conjunction with all other trade sections.

Standards

Concrete shall be as required and in accordance with NZS 3604:2011, NZS 3109:1997, NZS 3124:1887 or engineer specifications. All concrete to be supplied by a certified ready mix plant and shall comply with NZS 3104:2003 Surface finish grades shall be as specified in NZS 3114; 1987.

Workmanship

Formwork

Provide all necessary formwork to produce finished concrete to the required dimensions, surface finishes and structural tolerances (NZS 3109 table 4, note that slab surfaces shall not vary by more than 3mm from a 3m straightedge placed anywhere on the surface, and that this maximum variation shall extend over a minimum distance of 1m).

Design and construct formwork to withstand total weights and all construction loads. Formwork constructed tightly to prevent undue slurry leaks, with no wire formwork ties, and no part of the formwork ties left within required concrete cover. 20 x 20mm fillet corners. Any release agents used shall be non staining and shall be compatible with all subsequently applied finishes.

Position construction/crack control joints (except where shown otherwise) under walls or elsewhere as approved, in accordance with the following maximum criteria: - Slabs on ground - length 6.0m.

Formwork suitable for required F2 finish to exposed locations for subsequent plastering.

Coordinate with all trades to build in all necessary starters, fixings, anchorages, chases, sleeves, bolts, conduits, electrical / plumbing devices etc., and check their exact positioning before pouring. Coordinate with all trades to form all necessary holes, openings etc. with their positions and sizes exactly as required.

Strike formwork without shock or vibration, and without disturbing, damaging or overloading the structure. Fill all bolt holes as soon as practicable.

Concreting & Curing

All concrete shall be power mixed in a plant approved by the Ready Mixed Concrete Association for required grade. All structural concrete shall have a compressive strength of 20MPa at 28 days. 19mm max aggregate, 80mm slump, and with a maximum water cement ratio of 0.55.

Where considered desirable the manufacturer may add an air entrainment agent complying with NZS 3109 and 3119. No other additives may be used without specific approval of the engineer. Mixes shall be capable of being readily placed and compacted and finished as specified. The manufacturer shall carry out quality control testing to NZS 3104. All other concrete 20 MPa Ordinary Grade with maximum water cement ratio 0.7.

Note that appropriate cold weather pouring and curing techniques MUST be adopted if construction timing/temperatures so dictate.

Advise for inspection 24 hours before placing any concrete. Sequence and size of concrete pours to approval. No concrete pouring in wet weather. Clean out all formwork thoroughly before pouring. Handling, placing and vibration/compaction of concrete shall all be exactly to NZS 3109 requirements, and carried out by skilled operatives. Slabs power float finished to NZS 3114 U2 surface by kelly float, with steel troweling to a similar finish in corners etc., and to a U3 finish localized to resilient flooring areas.

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Cure all concrete for 14 days. Do not use sprayed membranes. As soon as practicable pond all horizontal surfaces, or fully cover with polythene or hessian (kept wet). Periodically hose down all formwork. Stripped vertical surfaces shall be kept wet with perforated hoses or similar.

Saw cut crack control joints in slabs on ground in a manner that prevents edge chipping during the operation - generally between one and three days after pouring, in the positions shown. Cuts 20mm deep unless otherwise noted.

Materials

Damp Proof Membrane

Polythene damp proof membrane shall be 0.25mm thick and shall be continuous under slabs on grade or fill and under foundations. All joints lapped 200mm and continuously sealed with pressure sensitive tape. Tape seal around penetrations. Inspect immediately before pouring concrete and repair any holes or other damage.

Reinforcement

Reinforcing grades are identified by bar diameters prefixed with letters thus: D indicates Grade 300E deformed bar R indicates Grade 300E plain round bar HD indicates Grade 500E deformed bar HR indicates Grade 500E plain round bar RB indicates Grade 500 Reidbar (uniquely deformation patterned bars).

NOTE: all reinforcing steel rods are to be Ductility class E in accordance with NZS 4671.

All terminal ends of reinforcing bars shall be hooked. Intersecting walls, beams and foundations shall contain return longitudinal reinforcement, as detailed for the intersecting members, all to NZS 3109 unless shown otherwise on the drawings.

Unless detailed otherwise all bars assumed to be continuous, with lap lengths not shown otherwise to be 40 diameters for grade 300 steel, 60 diameters for grade 500 steel, 250mm for mesh. Bars shall generally have minimum bends of five times their diameter.

Support slab steel at 1 metre maximum centres. Use plastic spacers for fairface concrete. Co-operate with others to accurately place all block/brick starters, as the bending of starters to the core position will not be permitted.

Completion

Leave all clean and tidy at finish and make good any defective work.

CARPENTER AND JOINER

Preliminary

Refer to the General Conditions of Contract and to the Special Conditions of this Specification as appropriate. Read this section in conjunction with all other trade sections.

Carpenter Preliminary

Refer to the General Conditions of Contract and to the Special Conditions of this Specification as appropriate. Read this section in conjunction with all other trade sections.

Standards

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of: -

1491:1996(AS/NZS)	Finger Jointed structural timber.
1562.2:1999(AS/NZS)	Design and installation of sheet roof and wall cladding – Corrugated fibre-reinforced cement.
1859.1:2004(AS/NZS)	Reconstituted wood-based panels - Specifications - Dry-processed fibreboard.
2269.0:2008(AS/NZS)	Plywood - Structural – Specifications.
2295:2006(NZS)	"Pliable, permeable building underlays".
2589:2007(AS/NZS)	Gypsum linings - Application and finishing.
2904:1995(AS/NZS)	Damp-proof courses and flashings.
2908.2:2000(AS/NZS)	Cellulose-cement products - Flat sheets.
3602:2003(NZS)	Timber and wood-based products for use in building.
3603:1993(NZS)	Timber Structures Standard.
3604:2011(NZS)	Timber-framed buildings.
3610:1979(NZS)	Specification for profiles of mouldings and joinery.
3617:1979(NZS)	"Specification for profiles of weatherboards, fascia boards, and flooring".
3618:1984(NZS)	Mechanical stress grading of timber.
3622:2004(NZS)	Verification of timber properties.
3631:1988(NZS)	New Zealand timber grading rules.
3640:2003(NZS)	Chemical preservation of round and sawn timber.
4121:2001(NZS)	Design for access and mobility: Buildings and associated facilities.

4218:2009(NZS)	Thermal insulation - Housing and small buildings.
4232.2:1988(NZS)	Performance criteria for fire resisting enclosures - Part 2: Fire resisting glazing systems.
4234:2008(AS/NZS)	Heated water systems - Calculation of energy consumption.
4244:2003(SNZ/PAS)	Insulation of lightweight-framed and solid-timber houses.
BRANZ	House Insulation Guide Third Edition.
NZBC E2	External moisture

Workmanship

All work carried out by or under the direct supervision of competent and experienced tradesmen and in accordance with the best and latest trade practice.

Cladding & Lining

Fibre Cement Cladding

4.5mm fibre cement to soffits. All aspects of work exactly to the manufacturer's latest recommendations. Dry sheets to equilibrium moisture content before fixing. Incorporate relief and control joints in sheeting as required. Allow timber framing substrate to be dry before jointing and coating. Joint filling compound, reinforcing tape, flexible flushing compound, and coating all by Painter.

Plasterboard Linings

10mm thick to framed walls, 13mm thick to framed ceilings, except use reinforced plasterboard where shown on the Bracing Plan, and water-resistant plasterboard to wet areas walls and ceilings. Install perforated galvanized steel reinforcing angles to all external corners. Fixings and all other aspects of this work, and particularly regarding framing moisture content when the plasterboard is fixed, shall be exactly in accordance with the manufacturer's latest recommendations. Stopping quality Level 4 to all plasterboard. Take care stopping in all positions to avoid plaster staining of finished timbers or other absorbent surfaces. Plasterboard to Plasterboard wall to ceiling junctions square stopped in all situations.

Construction

Enclosed Framing

All enclosed framing shall be thickened, true to line, plumb and square, with a maximum tolerance of 3mm in 2400mm without local irregularities. Plates shall be accurately positioned, halved joined except to braced walls, where the plates shall be 6kN steel strap joined. Dwang or block as required for all linings and services. The security of framing fixings shall be to the Architect's approval, and shall be increased if so directed.

Studs at 600mm centres generally, dwangs at 800mm centres, set out from bottom plate. Refer to floor plan. All roof timbers and their spacings shall be as noted on the drawings.

Materials

Timber

All timber shall be seasoned or kiln dried to the stable moisture content suitable for its location in the finished construction (approx 18% for framing timbers, 12% for finishing timbers), and if the use of inadequately seasoned timber results in damage or opening joints in the finished building the timber shall be replaced. Fixing of linings delayed after closing in until the framing has dried back below 20% (and to allow for the maximum settling of substrates).

All non-durable timber, including components in manufactured items, shall be appropriately treated against moisture and/or insect decay by a member of the NZ Timber Industry Federation Inc. Treatment shall be to

the requirements of NZS 3602 as an absolute minimum, however it is preferred that all ground contact structural timbers be H5, all ground contact non-structural timbers be H4, and ALL other non-durable timbers used be H3.2 treated. Ensure all treated timber is identified and marked as specified.

All kiln dried, dressed or finishing timbers shall be stacked under cover on delivery to the site, and all timber shall be full to the nominal sizes shown or specified, subject only to normal cutting and dressing tolerances.

All finishing timber shall have machine marks, stains and roughness removed and shall be sanded smooth. (Even traces of planer marks are unacceptable on door jambs, architraves, and other trim).

Ensure that enclosed surfaces and ends of paint finished exterior finishing timbers are fully primed before fixing. If this trade carries out the priming it shall be to the standards required of the Painter.

Other Materials

Shall be delivered with the packaging and labeling intact, shall be of the same type, finish or colour to maintain continuity, shall be handled, stored, and conditioned if required all in accordance with manufacturers recommendations, and shall be protected from rain or dampness where appropriate. The use of items damaged in any way is subject to approval.

Fixings

Nails

Comply with the Nailing Schedules in NZS 3604. All nails fixing exterior timbers shall be stainless steel, (OR hd galv. and nails in cedar shall be st.st), and nails that will be covered with plaster or any similar material shall be hot dip galvanized, unless otherwise specified. Finishing brads to all finishing timbers shall be set out neatly and punched to the diameter of the nail below the surface. Bore slightly undersize holes for nailing that will possibly cause splitting. Machine staples are completely unacceptable in finishing timbers.

Screws

Shall be of suitable gauge, thread design and length to provide secure fastening, stainless steel/hot dip galvanized to the exterior, hot dip galvanized or similar corrosion resistant for damp situations. Screws fixing hardware or similar shall be of the same material and finish as the hardware.

Bolts

Holding down bolts shall be M12 galvanized at 900mm centres, cast in 120mm minimum unless otherwise noted. Timber/timber and timber/steel - Hexagonal head mild steel with metric thread and with 50 x 50 x 3mm washers, all hot dip galv, M16 unless otherwise noted. Timber/concrete (dry situations) - Ramset Trubolts, T12140 at 0.6m centres unless noted otherwise (for damp or exterior situations use stainless steel Trubolts). All bolt holes 1mm larger than the bolt. Bolts tightened until the washer just indents the timber surface, and re-tightened just prior to Practical Completion to remove any slack consequent on timber shrinkage. Secure all nuts by punching thread.

Framing Hardware

Multigrips, joist shoes, Z nails, gang nails and similar hardware may be used to obviate traditional jointing procedures where specifically approved, or where required on the drawings or by NZS 3604 schedules.

Adhesives

Aliphatic PVA for dry timber applications. All other adhesives are subject to specific approval. Check surfaces are in appropriate condition to receive adhesive, and all adhesives use strictly in accordance with the manufacturers instructions. Check alignment of adhesive fixed items pre final set.

Sealants

For critical joints, i.e. primary water/weatherproofing seals, precast panels primary seals, structural floor slab control joints, structural glazing, immersion or hydrostatic pressure seals, etc. etc., either use the sealant noted on the drawings or obtain a reputable sealant manufacturers recommendation for the precise

situation, and submit the manufacturers specifications covering all relevant criteria and characteristics of the proposed sealant, primers, joint surfaces preparation, etc. to the Architect/Designer for review and confirmation to proceed. If so requested additionally submit a sample of the proposed sealant made up into a demonstration joint, incorporating the same materials, preparation, finish tooling, etc. After confirmation to proceed with the proposed sealant install a sample joint to approval, length approx. 2% of the overall length of the joints required, with a minimum length of two metres; when accepted this joint becomes the quality control for all subsequent similar joints.

For less critical joints (generally in covered or protected situations) and bathroom and kitchen ceramics and sanitaryware etc., select the sealant from a reputable manufacturers range for the substrate materials involved, with due regard for the flexibility required, acid or neutral curing, mould resistance, paintability (or clear or standard colours), slumping characteristics, temperature extremes expected, etc. (silicone, polymer or polyurethane sealants are anticipated). For all simple gap-filling and draught sealing situations select a paintable acrylic sealant with good adhesion characteristics for the substrates involved. (Be particularly careful in sealant selection with bare metal, polycarbonate, polystyrene or similar substrates or where bituminous based membranes are adjacent or where exposure to solvents is possible).

All joint surfaces preparation and all sealant installation work shall be exactly in accordance with the sealant manufacturers recommendations, and carried out by competent and experienced operatives.

Ensure that the sealant is being used within the manufacturer's stated design parameters, particularly with regard joint design and anticipated cyclic movement. Check that the joint faces are sound, completely clean and free of dirt rust oil grease laitance etc., dry (and frost-free), and they are primed to suit the surface porosity (particularly for critical locations). Insert a polyethylene tape slip layer at the back of the joint or a closed cell polyethylene backer rod where required, and to the sealant manufacturers recommendations. Mask joint edges where a clean straight finish line is required.

Check the toxicity of the selected sealant and handle it appropriately. Check that the temperature during sealant installation is within the manufacturers guidelines. Install the sealant and then tool the filled joints surfaces smooth and even, utilizing a lubricant as necessary and strictly within the manufacturers guidelines. Remove any masking immediately after tooling, clean up all adjacent surfaces using the recommended cleaning agents as required, and protect the finished joints until they have properly cured.

Damp Proofing

Install building paper or breathable/absorbent building wrap behind all exterior claddings, fixed horizontally with 150mm laps, finished at edges as detailed, staple fixed at 300crs to all studs and with staples through nylon straps in exposed locations, all in exact accordance with the manufacturers recommendations. Any damage shall be made good by lapping in a new section.

Insulation

All ceiling spaces, are to be insulated in with Pink Batts Fibreglass insulation, all in accordance with NZS 4214 and NZS 4218 P and minimum NSBC H1/AS1. All insulation materials are to be installed in accordance with manufacturer's recommendations. Ensure that the fibreglass fills all framing voids through wall / ceiling junctions and wall corners. Ensure that the ceiling fibreglass is fitted such that its bottom surface will sit tightly on the linings, to leave air space between the fibreglass and the roofing.

Ceiling insulation: R3.6 Wall insulation: R2.6

Uplift Protection

All work is to be in accordance with NZS 3604:2011 regarding fixings and systems resisting uplift. Allow for high wind zone.

Wall Bracing

Provide all wall bracing as shown on drawings and in accordance with NZS 3604:2011.

Roof Bracing

Roof framing is to be in accordance with NZ Standard 3604:2011 and the manufacturer's instructions. Location and type of brace to be in strict accordance with the plans and bracing schedule that form part of this contract.

Purlins, Eaves & Ceiling Battens

Purlins are to be 70x45 H1.2 douglas fir timber framing in accordance with NZBC. Eave framing to be 70x35 H1.2 douglas fir timber framing. Ceiling battens are to be rondo steel battens @ 600mm ctrs (max).

Architraves & Skirtings

Generally skirtings shall be MDF 60mm x 12mm house & 60x12 bevelled pine skirting to wet areas or use tile skirtings (confirm with client).

Finish at junction of floor and wall with 60x10mm MDF skirtings neatly mitred at angles and scribed to floor. Supply and fix beads and half rounds where required (confirm with client).

Bathrooms

Generally bathroom wall linings shall be 10mm aqualine gib-board. All wall linings to be fixed to manufacturer's specification. Provide for all sanitary fittings shown on plan and seal between fitting and wall with flexible paintable sealant.

The building contractor is to ensure that the plumber has installed the shower tray (plumbed) and any other required fittings are in place before he commences work refer clause 9.7 of this specification. 912/AS1/Fig 6 are to be positioned as required.

Concrete slab shall be steel float finished providing an impervious surface.

Meter Box

Provide recess for electric meter board where shown on the floor plan & to the satisfaction of the local electric supply authority. Meter box to be installed in accordance with E2/AS1/E3 NZBC.

Laundry Cabinet & Tub

Install laundry cabinet and tub as shown on the plans and in the client specification. Laundry layout and joinery is to comply with the NZBC G2/AS1 particularly Fig. 1.

The building contractor to ensure that tub pre-plumbing is completed before final fitting of the cabinet.

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Consents Documents

BC 0861/13

BRICK VENEER

Preliminary

Refer to the General Conditions of Contract and to the Special Conditions of this Specification as appropriate. Read this section in conjunction with all other trade sections.

Standards

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of: -

2699.1:2000(AS/NZS)	Built-in components for masonry construction - Wall ties.
3103:1991(NZS)	Specification for sands for mortars and plasters.
3604:2011(NZS)	Timber-framed buildings.
4210:2001(NZS)	Masonry construction: Materials and workmanship.
4236:2002(SNZHB)	Masonry veneer wall cladding.
NZBC B2	Durability.
NZBC E2/AS1	External Moisture.

Scope

Supply and lay the selected bricks to form the brick elements as shown on the drawings. All aspects of this work shall be in accordance with the related compliance documents and as shown on the drawings.

Workmanship

All work shall be by or under the direct supervision of a Registered Mason certified by NZ Masonry Trades Registration Board, and conform to the requirements of NZS 4210.

Co-operate with the concreter and carpenter in the setting out of the works. Co-operate with other trades to ensure that all preliminary and preparatory works, including all framing, membranes, wraps, rigid air barriers, and flashings, all relevant clearances, and any other related works, are completed to specification and as shown on the drawings. Co-ordinate with trades the locations of pipes, outlets, cables, meter boards and other fittings installed by others.

All brick veneer walls shall be true to line, level and plumb, and within the tolerances tabled in NZS 4210 and SNZ HB4236. All brickwork laid to stretcher bond pattern, with joints width 10mm +/- 3mm.

Installation

Install all brickwork related damp proof courses in accordance with the requirements of NZBC E2/AS1 and to the details shown on the drawings.

Mortar shall have a minimum compressive strength of 12.5 MPa, and be manufactured from cement, sand, lime, and admixtures, and be accurately measured and mixed in accordance with NZS 4210. Mineral oxide pigment dosages shall be to NZS 4210.

Form all necessary openings, reveals, sills, weepholes, separation and control joints, and cavities to the locations and details shown on the drawings, and in accordance with the requirements of NZBC E2/AS1 and NZS 4210. Install necessary vermin stops. Weatherproof all separation joints to the details shown on the drawings.

Wall tie type, durability, spacing, fixing and installation shall be as defined in NZBC E2/AS1 Tables 18A, 18B, 18C, and NZS 4210.

Install all necessary flashings to openings, and other locations as required, to the details shown on the drawings and in accordance with NZBC E2/AS1 requirements.

During the progress of work every care must be taken to prevent moisture penetration of the bricks. No bricklaying shall proceed during wet weather. Upon completion of each days work, exposed tops of brick veneers shall be protected from inclement weather. Comply with NZS 4210 Cold Weather Construction and Hot Weather Construction requirements.

On completion or the works leave brickwork clean and free of marks and staining. All brickwork cleaning shall be done to the brick manufacturer's recommendations. Thoroughly clean all other surfaces affected by the brickworks.

Mortar Pointing

Mortar joints shall be concave, tooled to a depth not exceeding 6mm and burnished after the initial stiffening has occurred.

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BC 0861/13

Ashburton District Council

ROOFING CONTRACTORS

Roofing Systems - Profiled Steel

Scope

Supply standard corrugated profile 0.55BMTxG300 galvanised steel roofing and install it to the areas shown on the Roof Plan. All handling and fixing techniques, and all jointing and sealing materials and techniques, shall be exactly as recommended by the roofing manufacturer.

Preparation

Co-operate to ensure that roof framing has appropriate spacing's and fixings, is in accordance with NZS 3604, and coordinate to ensure that all timber members required for ridges, hips, valleys, barges, penetrations, junctions with vertical faces, etc. are correctly in place. Lap sheets away from the prevailing wind. Set-out the roofing sheets exactly square to the building axis and maintain this throughout the works.

Installation

Install the specified underlay running up and down the slope with minimum 300mm side laps. Do NOT install any fixings to the underlay (to avoid dissimilar metals/electrolysis) - install the underlay length by length as the roofing proceeds and ensure it is taut and evenly lapped when the roofing screws are installed.

Fixings

Screw fix with screws that comply with AS 3566 (Self-drilling construction screws) Class 3 or 4. Use only low carbon (<15%) non-conductive sealing washers. Screw at centres as advised by the local Rollformer, to fully comply with the Wind Zone requirements, purlins, spacings etc. Use fixing systems that will accommodate thermal expansion for long lengths. NO use of abrasive disc cutters.

Flashing

Ridges, hips, and barge flashings etc. shall all be matching galvanized steel, and as detailed. Soft edge flashings very neatly dressed down where required, plumbing penetrations custom flexible rubber flashed (fully sealed), and instruct the Plumber that no copper (or brass) pipes are to discharge on to the roof.

Completion

Protect the galvanizing from damage at all times; replace the whole sheet where a significant depth of the coating has been damaged. Completely clean off all drill and power saw swarf and pop-rivet shanks as the work proceeds (at least daily, and keep them and other rubbish out of the spoutings).

Workmanship

Guarantees

The whole of the roof covering work shall be complete in all respects and absolutely watertight. Commencement of roofing works by any Subcontractor indicates their full agreement to and acceptance of an unwritten guarantee to maintain the whole of their work in a satisfactory and watertight condition, and to arrange and pay for any damage consequential upon the failure of their materials or workmanship, for the periods stated below, irrespective of the 90 day general maintenance period. -Butyl roofer - ten years from completion. -Galvanised steel roofer - two years after completion. -Aluminium roofer - ten years after completion. -Acrylic/f.glass roofer - ten years after completion. -Butyl roofer - ten years from completion.

Co-operation

Co-operate with other trades to ensure that framed roofing substrates have appropriate spacings, alignments and fixings, and to ensure that sheet roofing substrates have the correct edge and central fixings, appropriate alignments and gradients, edge priming if necessary, and are completely clean. Ensure that each section is waterproofed as soon as possible after preparatory work is complete; allow to carry out the works in several operations if necessary to comply with this condition.

JOINERY

Joiner Preliminary

Refer to the General Conditions of Contract and to the Special Conditions of this Specification as appropriate. Read this section in conjunction with all other trade sections.

Standards

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of: -

1491:1996(AS/NZS)	Finger jointed structural timber.
1859.1:2004(AS/NZS)	Reconstituted wood-based panels - Specifications – Particleboard.
2208:1996(AS/NZS)	Safety glazing materials in buildings.
2924.1:1998(AS/NZS)	High pressure decorative laminates - Sheets made from thermosetting resins - Classification and specifications.
3601:1987(NZS/BS)	Specification for carbon steel pipes and tubes with specified room temperature properties for pressure purposes.
3602:2003(NZS)	Timber and wood-based products for use in building.
3610:1979(NZS)	Specification for profiles of mouldings and joinery.
3619:1979(NZS)	Specification for timber windows.
3631:1988(NZS)	New Zealand timber grading rules.

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BC 0861/13

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WINDOWS & DOORS

Doors

All aspects of exterior and interior doors are specified and noted on the schedules.

Exterior Windows / Doors

All windows shall be to NZS 421:1985 to suit location and double-glazed.

All aluminium window joinery is to be installed in the positions shown on the plans and to the type specified. The main contractor is to ensure the window reveals are fitted securely and square and that any flashings are watertight. Any manufacturer's instructions provided or indicated are to be strictly adhered to. All reveals to be H3.1 treated radiata for paint finish.

Glass cut true and square, sized to give correct edge clearances, blocked in place as required, bedded fully, and securely beaded or sprigged and puttied.

Interior Doors

All joinery for interior, exterior, wardrobes and cupboards is to be installed as shown on the plans and of the type specified by the owner. Ensure that all doors are hung in a tradesman like manner being true and plumb. All sliding doors units are to be installed to permit the doors to slide truly along the tracks.

Cabinets

Site check overall dimensions as appropriate. Allow positioning tolerances for cabinets full length between walls. Cabinets shall be assembled true and square. Allow 2mm paint/varnish tolerance where appropriate.

Materials

Timber

All timber true to NZS 3631 and equal or better than dressing A for all joinery work. Items fabricated from timber.

All timber shall be seasoned to the stable moisture content (approximately 12% for most joinery applications) suitable for its location in the finished work; if the use of inadequately seasoned timber results in winding, warping, twisting or shrinkage opening of joints in the finished work the item shall be replaced (by the Joiner, excepting where the damage has resulted from excessive heating, placing in direct sun or other improper handling). Installation of cabinets shall be delayed until the building is watertight and has dried sufficiently to allow for the maximum settling of substrates.

All timber shall be to nominal sizes shown or specified subject only to normal cutting and dressing tolerances. All non-heart timber used, including cores to doors, etc. shall be treated, and shall be re-seasoned to the correct moisture content after treatment. Joinery timber shall have all machine marks, stains and roughness removed and shall all be sanded smooth.

Ensure that all enclosed surfaces of exterior joinery frames are fully primed before fixing. (If this trade carries out the priming it shall be to the standards required of the Painter).

Hardware

Nails and screws for construction shall be of appropriate gauge, thread design, corrosion resistance, length, material, and finish. Screws to hardware of material and finish to match the hardware item.

Refer to drawing notes for all finishing hardware.

Plastic Laminate

All work shall be by an approved specialist firm, in accordance with recognised good trade practice, and shall be exactly in accordance with the laminate manufacturers recommendations. Check that substrates are completely appropriate for laminating. External corners lightly arrissed, internal cutouts shall be small radiused in corners to prevent stress cracking. Any chipped, scratched or bubbled laminates shall be replaced.

Workmanship

All work shall be carried out by or under the direct supervision of competent and experienced joiners in accordance with recognised good trade practice, and shall be carried out in a properly established workshop complete with all mechanical equipment appropriate for the work. All work shall be in strict accordance with the drawings.

Confer with the Main Contractor to check openings sizes, fittings limiting dimensions and available access dimensions (and make provision for site assembly if appropriate). Additional dimensions will be supplied by the Architect/Designer if required.

All items assembled by appropriate joints customarily employed in good quality work. Joints shall be accurately cut, fitted and full surface glued and shall be tongued, mortice and tenon, doweled or housed in preference to scarfed or mitred. Use screws in preference to nails or brads. Install glue blocks in appropriate locations. Unavoidable screw pockets matching buttoned in clear finished work.

Fine machine sand all visible surfaces and handsand finish to a clean, even surface all clear finished cabinets. Lightly sand arris all projecting edges.

The following are unacceptable defects and will most likely result in rejection of cabinets specified for clear finishing: a) Scratches, bruises, machine or hammer marks on exposed surfaces; b) Glue stains on clear finish specified work; c) Iron-on veneers; d) Corrugated fasteners and machine staples; e) Baseboard showing through veneers through excessive sanding (to remove marks presumably).

Delivery

Brace and / or crate all items as required to prevent distortion or disfigurement during transit. Arrange for delivery to site, not during inclement weather. Attend upon the carpenter to identify items and instruct in assembly procedures.

Aluminium Windows Preliminary

Refer to the General Conditions of Contract and to the Special Conditions of this Specification as appropriate. Read this section in conjunction with all other trade sections.

Standards

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of: -

- | | |
|-------------------|---|
| 1734:1997(AS/NZS) | "Aluminium and aluminium alloys - Flat sheets, coiled sheet and plate". |
| 2208:1996(AS/NZS) | Safety glazing materials in buildings. |
| 3504:2006(AS/NZS) | Fire blankets. |
| 4211:2008(NZS) | Specification for performance of windows. |
| 4223.3:1999(NZS) | Glazing in buildings - Part 3: Human impact safety requirements. |

bc 0861/13

4666:2000(AS/NZS)	Insulating glass units.
4667:2000(AS/NZS)	Quality requirements for cut-to-size and processed glass.
AS/NZS 1231	Aluminium, anodic coatings.
AS/NZS 1865	Drawn aluminium rod, bar and strip.
AS/NZS 1866	Aluminium / alloys - extruded sections

Aluminium Windows

Alternatives

The materials and elements specified indicate the required standards for these works. Alternatives which are equal to or superior to these materials and elements may be tendered for approval. Thermal performance (NZBC H1/AS1) must be as required to meet the Designer's Thermal Evaluation.

Installation Type

Timber Frame Installation - Cavity Construction

All windows (and aluminium frame external doors) installation work shall be exactly in accordance with NZBC E2/AS1, the Windows Association's Windows Installation System (WANZ:WIS), and details on the drawings or supplied by the windows manufacturer. Check framing alignment, and that window openings are square and the correct size for fitting tolerances. Prepare framing openings by neatly cutting the building wrap at 45° into the corners, turning wrap through the frame depth and fixing to the inside face, flashing the bottom corners with moulded plastic and over-flashing the full sill and 200mm up the jambs with the specified flexible flashing tape, stapled to hold the stretched external corners. At head corners install flashing tape 200mm each way from the corners. Install the WANZ extruded aluminium support bar with built in drainage and ventilation to NZBC E2, to provide continuous support to the window unit. Install the head cavity closer, positioned to provide a 15mm drip edge to the cladding. Set shims or pack as necessary and install the frames exactly true and square, blocked-up off the support bar as required. Use appropriate separators between aluminium and other materials, and fix securely with due regard for any anticipated movements and for linings, trim etc. Install the head flashing, extending 35mm up behind the cladding (and in turn over-flashed with an additional piece of wrap cover extended up under the wrap or flashing or eaves above), sloping at 15° down to the exterior, and turning down to cover the top of the aluminium frame by at least 10mm, before finishing with a 5mm 45° 'kick out'. Upstand the head flashing ends as detailed. Install jamb flashings/ sealant or scribes as detailed. After frames installation install closed cell backing rods as required and expanding foam air-seal the gap between framing and liners.

Reveal

Timber reveals for paint finish with all sides primed.

Glass Platform

Double Glazed.

Finish

Powder Coated Aluminium - Semi Gloss

Polyester powder coating in accordance with WANZ Powder Coating Quality Assurance System and AAMA 2603-98 performance is required.

Hardware

Hardware colour matched to Aluminium Joinery. Hinges, stays, catches, fasteners, latches, locks and furniture as offered by the window and door manufacturer. Key alike all lockable window hardware able to be keyed alike. Account for all keys and deliver separately to the site manager. Factory fit all required and scheduled hardware.

Workmanship

These windows will be manufactured in workshops containing all mechanical equipment appropriate for the work, and by experienced and competent tradesmen who are familiar with the techniques and materials specified. The manufacturer will co-ordinate with other trades to establish the exact sizes for all frames before fabrication. Frames and sashes will be fabricated true, square, rigid, and 'out of wind', with all joints strongly mechanically fixed, and with mitres tight and fully sealed. Potential thermal, wind and seismic movements will be accommodated within the construction. All cavities will drain to the exterior, and all drilling swarf etc. will be removed during fabrication. Stays, hinges, running gear and glazing will be installed as scheduled (the Designer will be notified if any scheduled hardware of fixing position appears to be inappropriate for this project). Hardware will be fixed true to line and position, and adjusted and oiled as required for correct operation. Glass will be cut true and square, sized to provide correct edge clearances, blocked into place as required, and all units will be delivered either pressure fit, pocket glaze, or beaded/wedged, unless site glazing is required. Glazing gaskets will be compatible with all adjacent materials, and cut 1% over-length to absolutely avoid stretching during installation. Frames will be braced etc. as necessary for transportation to the site. Flashings as detailed will be supplied. Flashing materials will be compatible with the windows.

Delivery and Installation

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and the construction principles that are embodied in the Acceptable Solutions. Arrange for delivery of windows to the site only when a suitable storage situation is available for them, handle the windows in accordance with the manufacturers requirements, avoid any frame distortion, avoid rubbing damage, avoid contact with concrete, plaster, mud etc. and keep them dry. Retain protective coverings for as long as possible, and remove them at completion. Experienced and competent tradesmen who are familiar with the techniques and materials specified shall carry out all installation work. Fix in accordance with the manufacturer's instructions. Take utmost care to avoid damage to anodized or powder coated surfaces - correction of any such disfigurement requires written authority - replace any badly damaged items. Use fixings compatible with the materials involved, as recommended by the windows manufacturer and to comply with the DWP requirements, basically aluminium or Type 316 stainless steel where exposed externally; galvanized to AS/NZS 4680, 610g/m², may be used where not exposed. Thoroughly check all preparatory work to openings prior to installation, including wrap, corner seal tapes, adjacent cladding, pre-installed flashings, etc. as appropriate. Use inert barriers or coatings to prevent contact between dissimilar metals or between aluminium and concrete. Install flashings as detailed and supplied by the windows manufacturer, installed tightly and neatly with absolute minimum tolerances, with head weathering jamb, jamb weathering sill, and sill open (draining) to exterior. Except where the window is recessed all head flashings shall extend 30mm minimum beyond the frame. Air-seal all frame perimeters to adjacent structure to a depth of 15 - 20mm with expanding foam or appropriate sealant including a PEF rod at head, sill and jambs to retard the spread of sealant. Weather-seal frame jambs etc. to adjacent surfaces (or to each other) as detailed or as required by the windows manufacturer, to achieve a fully watertight installation. In preparation for sealant the joints shall be clean, dry, and primed if necessary. Insert closed cell polyethylene backer rods or a polyethylene tape slip layer if required. Mask adjacent surfaces if appropriate, install the sealant fully in accordance with the sealant manufacturers recommendations, and finish to even smooth surfaces. Remove trade debris progressively, appropriately clean any affected adjacent surfaces, thoroughly clean the windows, check that all hardware is in full working order, and provide safety indication of the glass for the balance of adjacent works.

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BC 08 61 / 13

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PLUMBER

Preliminary

Refer to the General Conditions of Contract and to the Special Conditions of this Specification as appropriate. Read this section in conjunction with all other trade sections.

Standards

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of: -

1254:2010(AS/NZS)	PVC-U pipes and fittings for stormwater and surface water applications.
1260:2009(AS/NZS)	"PVC-U pipes and fittings for drain, waste and vent application".
1477:2006(AS/NZS)	PVC pipes and fittings for pressure applications.
2032:2006(AS/NZS)	Installation of PVC pipe systems.
2033:2008(AS/NZS)	Installation of polyethylene pipe systems.
2492:2007(AS/NZS)	Cross-linked polyethylene (PE-X) pipes for pressure applications.
2537.1:2011(AS/NZS)	Mechanical jointing fittings for use with crosslinked polyethylene (PE-X) for pressure applications - Part 1: Plastics piping systems for hot and cold water installations - Crosslinked polyethylene (PE-X) – General.
2642.2:2008(AS/NZS)	Polybutylene pipe systems - Polybutylene (PB) pipe for hot and cold water applications.
3500.1:2003(AS/NZS)	Plumbing and drainage - Water services.
3500.2:2003(AS/NZS)	Plumbing and drainage - Sanitary plumbing and drainage.
3500.3:2003(AS/NZS)	Plumbing and drainage - Stormwater drainage.
3500.4:2003(AS/NZS)	Plumbing and drainage - Part 4: Heated water services.
3500.5:2000 (AS/NZS)	Plumbing and drainage - Domestic installations.
3501:1976(NZS)	"Specification for copper tubes for water, gas, and sanitation".
4121:2001(NZS)	Design for access and mobility: Buildings and associated facilities.
4603:1985(NZS)	Installation of low pressure thermal storage electric water heaters with copper cylinders (open-vented systems).
4606.1:1989(NZS)	Storage water heaters - General requirements.
4607:1989(NZS)	Installation of thermal storage electric water heaters: valve-vented systems.
4611:1982(NZS)	Non-thermostatic shower mixing valves.
4617:1989(NZS)	Tempering (3-port mixing) valves.

4692.1:2005(AS/NZS)	"Electric water heaters - Energy consumption, performance and general requirements".
7602:1977(NZS)	Specification for polyethylene pipe (Type 5) for cold water services.
7643:1979(NZS)	Code of practice for the installation of unplasticized PVC pipe systems.
AS/NZS 2053	uPVC conduit and fittings.

Elements

Sanitary Fittings

Supply and fix all of the sanitary fittings as scheduled on the drawings. All fittings checked on delivery for 'perfect' condition, and all fittings plain white. Supply and fix all normal accessories that are not usually supplied with the fitting. The Plumber is responsible for fittings from delivery until Practical Completion of the contract.

Flashings

Ridges, hips, barges, valleys, aprons etc. flashings all supplied and installed by the Roofer. Metal windows flashings (those installed during windows installation ONLY) will be supplied by the windows subcontractor and installed by the Carpenter. All other flashings including wall penetration flashings, soakers, etc. that are required to leave the building completely water and weathertight are the Plumber's responsibility.

All flashings shall be machine folded to profiles as shown or required, incorporating capillary breaks where appropriate, shall be formed in one piece where possible, and lead or other soft edged where required. Stop ends, external angles, junctions etc. soldered or sealed and blind riveted as appropriate.

All flashings 1mm powder coated aluminium unless otherwise noted. Supply the flashings to appropriate trades for building in as work proceeds, with all flashings neatly dressed to substrates.

Downpipes

Position downpipes as they are shown on drawings. Down pipes to comply with NZBC E1/AS1 clause 4.0 and table 5.

Materials

Materials shall be delivered with packaging and labeling intact. Incidentals (jointing compounds, PTFE tape, seals, washers, silfos, solvent cements, etc.) shall be completely appropriate for the application involved. The use of imperfect items or items damaged in any way is always subject to approval.

Materials Separation

Separate dissimilar metals in any circumstances which could produce contact or electrolytic action by a water film, with thick plastic tape, bituminous felt or other inert material. Pipes in contact with or built into concrete or masonry shall be fully spiral wrapped in Denso tape or equal.

Systems

Wastes & Vents

All traps sized to G13/AS1/AS2. Wastes and vents all uPVC. Wastes shall be to AS 3500.2 falls as a minimum. Vents shall be generally as indicated, but avoid where permissible in compliance with AS 3500.2, or shall be combined above the flood level of the fittings. Fit bird proof domes to all vents.

BC 0861/13

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Cold Water System

Supply From Existing Toby

All cold water supply pipework shall be polybutylene, arranged and fixed so that all joints are in a fully 'relaxed' condition, without any stress or tension. Lay on a 20mm main from the existing toby along the route shown on the Site Plan to the connection position noted on the Floor Plan (pipe depth, protection, backfilling, signal strip etc. to comply with all Supply Authority requirements). At the connection position take a branch feed off for the hosecocks (and reticulate to the positions shown and install angle hosecocks) and toilet cisterns and then take the main feed through an accessibly positioned cleanable in-line sediment and dirt filter. Primary distribution from the water filter shall be in 20mm piping, reducing to 12mm for the final feed to individual items. Install conveniently located isolating valves to turn off each group of fittings, and install a small isolating valve alongside each toilet cistern not integrally fitted with one.

Electric Hot Water System

Install 300 Litre Hot Water Cylinders complete with 1500 watt element and thermostat with 20mm dia supply pipe and 15mm dia branches or risers to sink, wash hand basin, bath, shower and laundry tub. Hot water supply pipe work to be polybutylene.

HWC tempering valve to comply with NZ Standards to all hot water supply pipe work prior to all fittings: Set valve to 55 degrees centigrade in accordance with NZBC G12/AS1 Clause 4.13.2. Fit seismic restraints as per NZBC.

All pipe work to be clipped in accordance with NZBC G12/AS1 Table 7 and G13/AS1 7.1.3 Table 7.

Consult with owner on choice of brands and fixing of all taps, faucets and mixing valves. Provide and fix all other water supply fittings as necessary, to manufacturer's instructions and specifications.

Workmanship Co-operation

Co-operate with all other trades. Attend upon Concretor, Drainlayer and Carpenter to set out the exact positions of pipe runs before adjacent work is put in hand, and to ensure that all pipes, sleeves, fixings, flashings etc. are correctly incorporated into the structure as construction proceeds.

Workmanship

All plumbing work shall be carried out by, or under the direct control of, properly qualified tradesmen, and shall be to recognised high standards.

Observe best local trade practice to avoid problems which arise from freezing winter conditions.

The cutting away and checking of timbers shall be limited to such dimensions as will not prejudice the purpose for which the timber is used; observe NZS 3604 restrictions on the holing and checking of joists and beams. Chasing and checking of other materials only to approval. Install seismic restraints to storage tanks and HWCs.

Weatherseal wherever pipes, screws, bolts or other fastenings penetrate an external surface, and particularly roofing; seal with gaskets, flashings (and overflashings if necessary) or mastic as appropriate - any damage that results from failure of such seals will be made good at the Plumber's expense.

Adequately protect all surfaces. Any damage to fittings or surfaces made good by the appropriate trade at the Plumber's expense.

Pipework

Joints between pipes of different materials shall always be to the approval of the TA Plumbing Inspector.

Pipework set-out neatly with a minimum number of bends, and more or less parallel to and at right angles to structural elements - avoid diagonal piping.

All internal pipework shall be concealed except where otherwise is either shown or approved. Exposed pipework shall be accurately and neatly run. Arrange all pipework (and particularly traps) in a manner which will allow maximum future accessibility for repairs or maintenance. Arrange for access panels to any primary maintenance positions, and install conveniently located isolating valves for each group of fittings. Wingbacks securely and squarely fixed. Crox unions usually acceptable only at the final connection to fittings. Install white plastic flanges where pipes penetrate linings in visible locations.

Where pipes are covered with nail fixed linings and trim ensure that their positions are marked on the linings to minimise the risk of subsequent nailings penetrating the pipe. Any such damage shall be rectified immediately, with all consequential damage made good.

Set pipework out in straight runs to even gradients. Fix all pipes to the structure sufficiently to fully support and to prevent sagging or vibration. Clips and saddles shall be the same material as the pipe. Exterior pipes on stand-off brackets. Fixings to the exterior or damp locations shall all be hot dip galvanized unless otherwise noted. Sleeves for pipes or drains penetrating concrete or masonry shall be uPVC, 20mm minimum larger internal diameter than the external diameter of the pipe, finished flush with concrete or masonry, and packed and mastic sealed.

Close open ends of the systems during construction to prevent the entry of foreign matter.

Temperature Movement

All work shall respect in full all probable thermal movements - layouts, fixings and jointings shall be arranged to allow thermal movement without risk of prejudice to watertight conditions, or risk of damage from straining of the pipes which will generate failures. In particular, observe best local trade practice to avoid problems arising from freezing conditions.

Excavation

Allow to carry out all excavation that is required to suit the services installed by this trade. Check for other services before excavation. Trenches true to line and level, base of trenches clear of loose material, and shore trenches as required to suit the ground conditions. Backfilling shall be carried out by this trade, and be to the requirements specified in Siteworks.

Testing

All plumbing services shall be completed in stages which will allow for proper testing under normal working pressures prior to the application of insulation, concealment or other enclosure. All leaks remedied and retested. On completion the whole of the plumbing services to be subjected to full operational tests in the presence of the plumbing inspector, with any defects revealed in these tests properly remedied.

Warranties

Warranty cards and manufacturer's guarantees for all items supplied and installed by this trade shall be correctly filled in and handed over at Practical Completion.

Cleaning

On completion thoroughly clean down all fittings and ensure no debris is remaining. Check no damage has been sustained during installation.

All wastage is to be removed from site or if possible placed in waste bin on site. At no times shall any waste be left uncontained on site.

ALL DRAIN PIPE MATERIAL AND JOINTS TO COMPLY WITH AS/NZS 1260.

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BC 0861/13

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DRAINLAYER

Preliminary

Refer to the General Conditions of Contract and to the Special Conditions of this Specification as appropriate. Read this section in conjunction with all other trade sections.

Standards

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of: -

1254:2010(AS/NZS)	PVC-U pipes and fittings for stormwater and surface water applications.
1260:2009(AS/NZS)	"PVC-U pipes and fittings for drain, waste and vent application".
1547:2000(AS/NZS)	On-site domestic wastewater management.
2032:2006(AS/NZS)	Installation of PVC pipe systems.
3500.2:2003(AS/NZS)	Plumbing and drainage - Sanitary plumbing and drainage.
3500.3:2003(AS/NZS)	Plumbing and drainage - Stormwater drainage.
7643:1979(NZS)	Code of practice for the installation of unplasticized PVC pipe systems.
BS 5572	Code of practice for sanitary pipework.

Elements

Drainlaying

Commence drainlaying at the low end of even fall sections of drains and proceed in a continuous sequence to the fittings connections. Sumps, gullies, etc. solidly bedded. Lay 110mm uPVC drains to connect gullies, sumps, stacks, and downpipes through to the street edge connections. Every junction and bend shall be an inspection position. Temporarily seal the open ends of incomplete drains to prevent entry of foreign matter. Make appropriate provision for any anticipated differential settlement. Place signal strip above all drains. Ensure that stormwater drains are very accurately positioned so that downpipes can drop directly into them, without offsets.

Testing

The sewer and stormwater systems shall both be fully tested to the approval of the Territorial Authority Inspector before being covered in. If any defects show rectify and then fully retest.

Workmanship

General

Carry out all required works to leave the sewer and stormwater systems shown on the drawings in correct working order complete with all normal incidentals. Comply with Local Authority By-laws and Health Department Regulations as appropriate. Obtain all necessary permits and consents, serve all necessary notices, arrange all tests and pay all fees and customary charges in connection with the works.

Co-operation

Cooperate with all trades and attend upon the Concretor and Plumber to set out exact pipe runs before any adjacent work is put in hand and ensure that all sleeves etc. are correctly incorporated as work proceeds.

Materials

All pipes and other materials shall comply with the appropriate Standards, and shall be protected from damage of any kind until installation is complete. All incidentals appropriate for the applications involved. Concrete shall be 17.5MPa and as specified under Concretor, Mortar shall be as specified in Blocklayer.

Workmanship

All drainlaying shall be carried out by, or under direct control of, properly qualified tradesmen, and shall be to recognised high standards. Ensure cast-in items are installed when required so that no delay is caused by this trade. Adequately protect all adjacent surfaces - clean down to remove dirt etc., and any damage shall be made good by the appropriate trade at the Drainlayer's expense. On completion of drainlaying clean up full area affected by this trade to the condition it was in before drainlaying commenced. Site is to be returned as close as possible to its present condition on completion of the contract.

Excavation

As required for sewer and stormwater. Check for other service lines before excavation - the Drainlayer is responsible for making good any damage. Trenches true to line and with even gradients between gullies, soil stack terminations or downpipes, etc. Keep the bottom of trenches clear of loose material. All pipes shall be laid in appropriate bedding material, compacted as required. Shore trenches if required to suit ground conditions. Backfilling shall be by this trade, to the standards required in Siteworks.

Drain Trenches

The excavation of trenches for drains is to be a minimum of 600mm in depth for mains cable, to be backfilled and shall be accurately made with base clean and true to grade so that no unnecessary filling is required. Adequate width shall be allowed in accordance with depth of drain to enable laying and jointing to be properly carried out. Trenches shall be kept firm and dry and shall be opened up only in lengths that can be protected, utilized and refilled within a reasonable time.

Laying of Drains

All drains are to be laid on 100mm thick base and surrounded to mid point with approved 20mm stone chip. The pipes are to be laid to straight lines and even grades with socket against fall in all cases.

Joining & Bedding of Pipes

The pipes are to be jointed with rubber sealing rings in a proper manner and each and every junction or change of direction is to have removable cover plates for inspection.

Fall of Drains

The whole of the soil and stormwater drains are to be laid to a regular and even fall.

Gully Traps

Supply all gully traps and securely bed and build up with 5:1 concrete surround 100mm above finished ground levels. All gully traps are to be fitted with gratings above the wastes discharging in to them.

Connecting to Services

Connect foul water pipe to existing. The drainlayer is to seek all permits and approvals prior to connection.

Comply with the NZBC and the relevant NZ Standard.

Refer to the SITE PLAN for the layout of stormwater drains:

- Provide all necessary bends, junctions, inspection fittings, etc.
- Bed "easy bends" in concrete below downpipe entries; fit grating and cover plate cut around downpipe.
- Connect stormwater to soak pits in compliance with NZBC.

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Consents Documents
08 61 / 13

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Completion

Properly backfill all trenches, consolidate as filling proceeds and leave area in a tidy state. At time of full water test inspection, provide an accurate as laid plan to a local council officer.

Cleaning

On completion, ensure no debris remains. Check no damage has been sustained during installation. All wastage is to be removed from site or if possible placed in a waste bin on site. At no time shall any waste be left uncontained on site.

ALL DRAIN PIPE MATERIAL AND JOINTS TO COMPLY WITH AS/NZS 1260.

ELECTRICIAN

Preliminary

Refer to the General Conditions of Contract and to the Special Conditions of this Specification as appropriate. Read this section in conjunction with all other trade sections.

Standards

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of: -

2201.1:2007(AS/NZS)	"Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance".
3000:2007(AS/NZS)	Electrical installations (known as the Australia/New Zealand Wiring Rules).
3350.2.35:1999(AS/NZS)	Safety of household and similar electrical appliances - Particular requirements - Instantaneous water heaters.
5000.1:2005(AS/NZS)	Electric cables - Polymeric insulated - For working voltages up to and including 0.6/1 (1.2) kV.
60335.2.30:2009(AS/NZS)	Household and similar electrical appliances - Safety - Particular requirements for room heaters.
AS/NZS 1125	Conductors in insulated electric cables.
AS/NZS 2053	uPVC conduit and fittings.
AS/NZS 3012	Construction site electrical installations.
AS/NZS 3018	Domestic electrical installations.
AS/NZS 3085	Telecommunications installations.
AS/NZS 3100	Requirements for electrical apparatus.
AS/NZS 3191	PVC insulated flexible cords.
AS/NZS 3439	Electrical switchgear and controlgear.
AS/NZS 3947	Low-voltage switchgear.
AS/NZS 60227	PVC insulated cables and flexible cords.
AS/NZS 60598	Light fittings.
AS/NZS 60898	Miniature circuit breakers.
AS/NZS 61009	Residual current operated circuit-breakers.
NZCEP 54	Recessed luminaires.

NZS 1989	Plugs and socket outlets.
NZS 6206	Electric meter boxes

Elements

Appliances

All appliances are exactly identified on the drawings notes. Main Contractor will establish, in consultation with the Plumber and Electrician, which of them will be supplied by each of these trades. The Electrician shall supply appliances that are his responsibility, install them exactly in accordance with their manufacturer's instructions, and protect them until completion.

Light Fittings

All light fittings are identified as to type on the drawing, and will be supplied by the Principal. Take delivery, install in accordance with any directions supplied and protect until Practical Completion.

Tele Communications

Workmanship shall be recognised best trade practice, and in accordance with the manufacturers' recommendations. All work shall be by competent and experienced operatives.

Other Wired Services

Co-operate with all other trades to ensure that the following services are installed complete and in accordance with their manufacturer's recommendations with all normal or necessary incidentals and with all wiring concealed. SKY TV, Garage door operating mechanisms, wall mounted fan heaters & front door bell, supply electrical feed and connect. Kitchen, laundry (if not in garage) and wet areas air exhaust fans and ducting as noted, supply and install. Under-tile electric heating to the bathroom (if applicable) complete with thermostat control installed where shown. Supply and install (immediately prior to tiles installation) exactly to the suppliers recommendations. Heated towel rails to bathroom. Hot water cylinders installed complete by the Plumber. Main contract Electrician shall verify that all aspects of this work comply with all relevant main contract requirements. Heat pump-Supply a Heavy Duty TV Aerial (suitable for TV1, 2, and 3, Sky, and all local and community TV stations) and install on the roof ridges where directed, stayed against wind, and with all connections compatible with the roofing and waterproof. Feed to the outlets shown with the complete system exactly to aerial suppliers recommendations.-Heating.-Install ceiling fans with variable speed controllers supplied by owner.

Electronic Security System

If specified by the owner, the system shall include in-built anti-tamper devices, and shall comprise:-Smoke Detectors.-Passive infra-red detectors.-Motion detector activated cameras.-Primary digital pad indicating activated zone and for passcode changing, testing, checking and other control functions.-Digital pads for access.-Control box for zone system and incorporating a back-up battery, etc. Connect to the telephone distribution system for silent monitoring.-110db piezo sirens.-Polycarbonate satellite siren/strobe.-Main bedroom panic button.-A proposal for a Testing Contract for regular maintenance complying with NZS 4301.-Digital video recorder, Dedicated Micron or equal, also located in the foyer cupboard, complete with a 30 cm flat panel monitor.

Materials & Control

Materials

All materials delivered with packaging and labeling intact. All required incidentals (insulating tape, seals, fixings, etc.) shall be completely appropriate for the application involved. The use of items damaged in any way is subject to approval in each instance.

Switchboard

The main switchboard and the subboard(s) shall be appropriate sized standard PDL DBF series boards installed fully recessed where shown and at 2m to the top of the boards. Install appropriate sized MCB's for

all circuits, including a minimum of two power and one lighting RCDs as required to cover all outlets to each board. Submain(s) from the main switchboard to the subboard(s) shall be neutral screened 16mm or 2 x 16mm as appropriate, run along the routes indicated / as approved. Pay particular attention to spreading the distribution of the various probable loadings evenly across the phases to obtain an optimum balance of the system.

Systems

Earth

Provide a driven main earth suitable for the full installation, close to the meterboard, complying fully with all appropriate regulations and to the complete approval of a certified inspector. Bond all exposed metals, including light fittings and piped services and provide earth conductors for the entire system. Sheathing to any neutral screened cables may be used for earthing.

Mains

Install a neutral screened 2 x 16mm main cable underground (depth, cover/protection, backfilling, signal strip etc. to comply with all relevant regulations) from the grid connection position noted on the Site Plan along the route indicated to the meterboard, positioned where shown on the Floor Plan, and make appropriate arrangements for the grid connection. Install pilot as required. The meterboard shall be metalclad with a meter reading window, recessed maximum depth into the wall and at 2m to the top of the board, with the meters and water heater controllers by the supply company nominated by the Principal. Install all switches and fuses that are necessary. From the meterboard run (route to approval) a neutral screened 2 x 16mm main plus controllers etc. to the main switchboard.

Workmanship

General

Supply and install all materials, including all necessary minor and incidental items, for proper completion of all of the electrical services specified or shown on the drawings. The contract will not be deemed to be complete until the Electrician has provided an Electrical Certificate of Compliance in accordance with NZECP 11 (made available to the Contractor in time for the Code Compliance Certificate application).

The position of switches, light and power outlets and other fittings, although shown specifically in some instances, are in general only shown diagrammatically. The exact location of each of these items will be as directed on site by the Architect/Designer; the Electrician shall give reasonable notice of when this information is required. Items positioned in contravention of this shall be repositioned if directed, including rewiring if necessary, all at the Electrician's expense. Unless drawn (on 1:20 wall elevations) or specified otherwise the mounting height to the centreline of the following items above the floor shall be: -1000mm for lighting switches; -2000mm for wall mounted lights; -2100mm for the bayonet of pendant lights; -300mm for power points, except at benches. (Notify the Architect/Designer if either the actual fitting or mounting position seem to make the mounting height noted above inappropriate).

Warranty cards and manufacturers guarantees for items supplied and installed by this trade shall be filled in correctly and handed over at Practical Completion. Arrange all circuits to obtain an optimum balance of the system, and check and reconnect where necessary to achieve this on completion. Leave the works clean and tidy and in full operational order.

Co-operation

Co-operate with all other trades and attend upon the Concretor and Carpenter to set out all required penetrations and to ensure that all wiring and fittings are correctly incorporated as work proceeds. The Carpenter will provide and fix all necessary dwangs and timber supports in locations determined by the Electrician.

BC 0861/13

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Workmanship

All electrical work shall be carried out by, or under the direct control of, registered tradesmen, and shall be to recognized high standards. All work shall be such as to leave a neat, efficient and robust installation. Neatly label switchboards to identify each circuit.

The cutting away and checking of timbers shall be limited to such dimensions as will not prejudice the purpose for which the timber is used; observe NZS 3604: 2011 restrictions on the holing and checking of joists and beams. Chasing and checking of other materials shall be only to approval.

Adequately protect all surfaces. Any damage to fittings or surfaces made good by the appropriate trade at the Electrician's expense.

Wiring

Joints within cable runs will not normally be accepted. TPS cable shall be adequately supported, and clipped at regular intervals. At terminations all strands of conductors shall be fully secured in a terminal block or clamped under a screw head washer; do not cut away any strands. Wiring which terminates in enclosed fittings and/or where subject to heat liable to cause deterioration, shall be high temperature type, with the tails made off with heat resisting sleeves, to protect the permanent wiring.

Conceal all wiring except as noted on drawings or below. All wiring cast into concrete shall be run in conduit pipes. All cables shall be stranded (single core is unacceptable).

Wire more or less parallel to and at right angles to the structural elements - avoid any diagonal wiring. Layout of the principal distribution wiring shall be to approval. Position all wires to minimise the risk of damage from subsequent nailing of linings etc.

Generally, do not run TPS horizontally within timber walls except in the area up to 300mm above floor. Wire in the ceiling framing and drop vertically to outlets and switches.

Wire exterior lighting in screened cable.

Low voltage 2 core wire in parallel from the vacuum system outlets back to the vacuum unit position. (Vacuum unit has transformer).

PAINTER

Preliminary

Refer to the General Conditions of Contract and to the Special Conditions of this Specification as appropriate. Read this section in conjunction with all other trade sections.

Standards

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of: -

2310:2002(AS/NZS)	Glossary of paint and painting terms.
2311:2009(AS/NZS)	Guide to the painting of buildings.
AS 1580	Methods of test for paints.
BRANZ IB 257	Wood primers.
NZS 7702	Colours for specific purposes.

General

Alternatives

The materials specified in this section or on the drawings indicate the required standards for these works. Alternatives which are considered equal to or superior to these may be tendered for approval (in writing, and they must NOT be used unless they are approved in writing).

Co-operation

Co-operate with all trades and attend upon Concretor, Joiner, Carpenter, etc. to ensure that the surfaces provided by these trades are completely suitable for the Painter works that are required.

Preparation

No painting or varnishing or other surface coating work shall be undertaken unless the surfaces to be coated are in a correct and proper condition to ensure first class results. Inspect the works of other trades on which Painter work is scheduled and report to the Main Contractor and the Architect any defects or irregularities that would affect the permanency or finish of the painting work, and do not proceed until the defects or irregularities have been completely rectified. Failure to examine and report will be construed as an acceptance that all preparatory works are completely satisfactory. This clause does not relieve the Painter of any of the usual preparatory work to surfaces customarily performed by this trade. Clean down all surfaces with sugar soap, strippers, mould killers, etching agents, etc. as required. Sand or rub all sharp edges off exterior timbers and other materials as appropriate before painting. Finish rub down ALL surfaces. Ensure that the moisture content of all substrates is appropriate. Remove locks, fastenings, and similar hardware before painting and refix on completion. Remove all electrical switch and power plates before painting and refix them on completion. Mask adjacent surfaces as required to a true line and remove the masking on completion. Dust and wipe down all surfaces for Painter work and completely remove all dust, rubbish, dirt etc. from areas involved immediately prior to commencement. To each area of the works complete all surface preparation before applying paint to any surface.

Protection

Take adequate precautions to prevent paint spots falling on prefinished or similar surfaces, and extreme care to keep absorbent materials (e.g. cedar, sawn framing, decking, paving) completely clean during all adjacent painting work. Correction of any such disfigurement shall be to the Architects approval.

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Qualifications

All work by the Painting Subcontractor shall be of the highest reasonable standard, and executed by experienced and competent tradesmen to the Architects approval.

Workmanship

Strictly adhere to all Manufacturers' instructions. Strictly observe Manufacturers requirements with regard to surface and air temperatures for painting. No work shall be carried out on surfaces that are not completely dry, and no external work shall be carried out during damp or wet conditions. In all finishes any irregularities or brushmarks or dust etc. in each preceding coat shall be rubbed down to provide a smooth clean surface for the following coat. Each coat shall be finished over all surfaces before a further coat is applied, and each coat shall be completely dry before subsequent coats. Finish broad areas before painting trim, paint ceilings before walls and walls before joinery, trim and other items. Each coat and the full completed system shall be of uniform finish, colour, texture and sheen, shall have proper covering of thin edges, corners, end grain etc. and shall be free of blemishes such as runs, sags, fat edges, entrained hairs, brush marks, starved patches etc.

Wallpapers & Lining Papers

Wallpapers and lining papers, where scheduled, shall be hung plumb, true and square, and with precise butts. Patterns shall be accurately matched at each join. All rolls used in any one area shall be from the same batch. Use a fungicide incorporated adhesive that is recommended by the supplier. Edges neatly and precisely cut to the adjacent element. Finish free of air bubbles, wrinkles, gaps or stains.

General

The schedules indicate the general extent of the works to be carried out but are in no way exhaustive in their description of the actual items for painter work. Complete all work necessary for the proper and entire completion of the works. All items and portions of items reasonably inferable but not specifically mentioned are deemed included, i.e. cupboard interiors, the top and bottom of doors, unseen cabinetry tops, etc. All doors shall have equal painter work on ALL surfaces. Where timber work is specified for priming before fixing the priming shall be thoroughly brushed in to all surfaces, and all exterior timber work for paint finishing shall be fully primed within one week of fixing. Should more than one month elapse between priming and undercoating the timber shall be fully reprimed. Stopping up work shall be carried out immediately the priming or sealing coat is dry, and shall be solidly placed to finish clean and dry. Stopping tinted to match the timber for clear finished work. Paint putties within one month of glazing timber frames; paint to impinge on glass to assist sealing.

Materials

Generally all materials shall be of New Zealand manufacture of approved brands. All glazing to comply with F4/AS1 and F2/AS1 NZBC. All Painter materials shall be ready mixed and delivered in unopened containers. Materials shall be used only for the purpose and in the manner intended by the manufacturer. Where surfaces are specified to be finished in a particular manner or material, all preparatory work, priming, or undercoating, that is necessary to ensure a proper finish shall be provided, irrespective of any apparent omission herein. Thinning shall only be to manufacturers specification. Thoroughly stir as required to lift any settled pigment and ensure the paint is homogenous. Paints shall be factory or shop tinted to the colour required. Undercoats shall be fully tinted to match the final colour scheduled. All paints shall have the finished film thickness that is specified by the manufacturer (checked by monitoring the coverage per litre).

Painting of Exterior Surfaces

Exterior paint is to be applied to all soffits and other areas as specified by the Building Overseer.

Soffits to be three-coat lumbersider system. Skirtings and reveals to be one coat quickdry, one coat acrylic undercoat and one coat Enamacryl.

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Painting of Interior Surfaces

Interior paint is to be applied to all walls, doors, wardrobes, cupboard doors, and ceilings. The colours are to be as specified by the client.

"All paints used are to comply with the requirements of their respective manufacturer in terms of what building products it is suitable for use on."

Internal surfaces shall have 3 coats of acrylic paint, sanding out blemishes between each coat. All walls to be fixed before wallpapering.

Painting of Wet Areas

All wet area walls & ceilings are to be lined with GIB aqualine gib-board and painted with a 3coat Resene low sheen acrylic paint, to comply with NZBC E3, section 3. ~ water splash areas ~ ('DAMPFIX' Liquid System waterproofing membrane to gib. before tiling).

Completion

Allow to touch up to approval any Painter work which is damaged during the finishing works of other trades. Replace all hardware, remove all masking, covers, containers etc., thoroughly clean all affected surfaces, and leave all spaces ready for immediate occupation. Avoid scratching or abrading glass or hardware during any cleaning.

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Ashburton

TILER

Preliminary

Refer to the General Conditions of Contract and to the Special Conditions of this Specification as appropriate. Read this section in conjunction with all other trade sections.

Materials

All adhesives/beddings/grouts shall be selected for each specific tile/substrate situation, selected as the best readily available, and each is subject to approval by the Architect/Designer (who may require appropriate manufacturers information for consideration prior to approval).

Water, cement, sand and sand particle size grading, all exactly to the relevant NZS requirements.

Crack control joint filler as recommended by the tiles supplier, with the colours selected from the standard range. Materials shall be from the same batch for even type and colour, and shall be delivered with their packaging and labeling intact.

Store in dry areas, machine mix all materials to the manufacturers requirements, and do not mix proprietary materials.

Tiles/Scope

All tiles true to shape, free of warp, and accurate in dimensions to facilitate laying with minimum joint width. All tiles true to samples and free of imperfections. Tiles from the same batch where possible, and delivered with the original packaging and labeling intact. Tiles handled and stored carefully to preserve edges.

The square metre referred to in the Tile Prime Cost allowances includes sufficient additional tiles for cutting to margins and for minimal wastage. The Sums will be adjusted Net against the invoiced Trade Price or as Trade Price quoted to the Architect/Designer for the purchase in the quantities required. The Tiler shall state in his tender the area allowed for each type of tile.

The exact setout will be notified with the tile(s) selection.

Installation

All laying methods, cutting, grouting, and positioning of movement control joints shall be carried out by competent and experienced tillers, who shall ensure that all services and accessories are in place and located to suit the tile layout, with the substrate required for tiling work. Commencement of the work means the substrate and environment are accepted by the tile layer as satisfactory. Do not carry out tiling where the ambient temperature is below 5 degrees C, or onto a substrate with a temperature higher than 40 degrees C. Before commencing work, obtain approval for the proposed layout of tiles, expansion joints and other visual considerations of the finished work. Prepare surfaces and carry out the tiling work in accordance with AS 398, part 1 as modified by BRANZ "good tiling practice". Remove all contaminants that may affect bonding or adhesion.

Movement Control Joints

Minimum width of 6mm, carried through tile and bedding. Where substantial movement is anticipated, carry through the rigid sheet to the structure. Install joints over expansion joints in structure at junctions between different backgrounds, where abutting other materials, at storey heights horizontally and 3.0 metres vertically, at internal corners and at junctions with floors and columns.

Ensure joints are clean, formed and filled and the sealant inserted, all to the sealant manufacturers requirements.

Waterproofing

All waterproofing shall be in accordance with AS 3740 as set out below:

Apply flexible mastic around any tap body intersections. Apply flexible mastic in place of the grout at tiled junction of the wall/wall, wall/floor, hob/floor and hob/wall.

Provide glazed ceramic floor & ceiling tiling to client's choice to areas denoted on the drawings over 'DAMPFIX' Liquid System waterproofing membrane system.

All tiles are to be laid to best trade practice and in accordance with the relevant NZ Standards.

Clean Up

Upon completion of setting and grouting, thoroughly sponge and wash the tiles to leave clean and free of blemish. Finally polish tiles with a clean dry cloth. Remove unused materials from the site. Protect from damage by later trades.

Approved Building
Consents Documents

BC 08 61 / 13

Ashburton District Council

INTERIOR LININGS

Preliminary & General

Read and note all clauses under preliminary and general of this specification where they apply to this trade.

Work Included

The application of Gypsum board sheet to wall or ceiling surfaces as specified and the plastering of all surfaces as specified.

Materials & Workmanship

All Gypsum board and other products shall be manufactured and fixed, strictly in accordance to NZS 4221 or with the code of practice of the New Zealand Gypsum board Manufacturers. The whole of the labour required for the erection, fixing, wadding and stopping shall be that of competent gypsum board fixers. Admixtures, release agents and stopping materials shall not be of a deleterious nature nor used in quantities sufficient to impair the properties of the sheet when used with or without decoration.

All interior plastering finished to level 4 minimum.

Framing

All dwangs, trimmings, straightening and packing of studs or joists necessary for the fixing of gypsum board products shall be provided and completed by the main contractor before the commencement of such work. The surface to which gypsum board is fixed must be clean, straight and dry.

Bracing

Allow to install all structural bracing as shown on drawings in accordance with GIB bracing systems manual and NZS 3604:2011.

Wet Areas

Line all wet areas with gib-board 10mm aqualine to walls.

Ceiling

On completion remove all wastage and rubbish from site, including mixing drums, application boards, bags, sandpaper etc. Scrape plaster droppings from floor areas and sand off droppings which have contacted reveals or skirtings. Leave the job in first class condition free from sanding dust and contaminates, ready for painting contractor.

Insulation Calculations - Lot 3 Burnett Street, Ashburton

East Wall Total Wall Area: 33.44 sq.m
 Total Glazing Area: 3.29 sq.m

$3.288 \quad / \quad 33.4371 \quad = \quad 0.0983 \times 100 = \quad \mathbf{9.83 \%}$

West Wall Total Wall Area: 33.44 sq.m
 Total Glazing Area: 9.96 sq.m

$9.957 \quad / \quad 33.4371 \quad = \quad 0.2978 \times 100 = \quad \mathbf{29.78 \%}$

South Wall Total Wall Area: 31.30 sq.m
 Total Glazing Area: 8.05 sq.m

$8.05 \quad / \quad 31.30125 \quad = \quad 0.2572 \times 100 = \quad \mathbf{25.72 \%}$

North Wall Total Wall Area: 31.30 sq.m
 Total Glazing Area: 11.13 sq.m

$11.13 \quad / \quad 31.30125 \quad = \quad 0.3556 \times 100 = \quad \mathbf{35.56 \%}$

East / West / South Walls

Total Wall Area: 98.18 sq.m
 Total Glazing Area: 21.30 sq.m

$21.295 \quad / \quad 98.17545 \quad = \quad 0.2169 \times 100 = \quad \mathbf{21.69 \%}$

East / West / South / North Walls

Total Wall Area: 129.48 sq.m
 Total Glazing Area: 32.43 sq.m

$32.4271 \quad / \quad 129.4767 \quad = \quad 0.2504 \times 100 = \quad \mathbf{25.04 \%}$

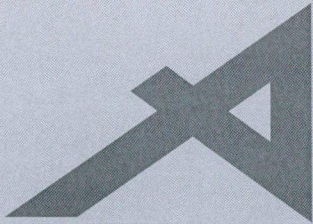
The Schedule Method was allowed to be used as the building total area of glazing for the combined area of glazing on east, west & south facing walls is 30% or less of the combined total area of these walls as per NZS 4218 2004 3.0.

Climate Zone 3		Achieved	Specified
Roof Requirement:	R 3.3	YES	R 3.6
Wall Requirement:	R 2.0	YES	R 2.6
Floor Requirement:	R 1.3	YES	concrete slab

Approved Building
Consents Documents

0861/13

Ashburton District Council



BRANZ Appraised
Appraisal No.729 [2011]

BRANZ Appraisals
Technical Assessments of products
for building and construction

**BRANZ
APPRAISAL
No. 729 (2011)**

**WATERGATE-PLUS
FLEXIBLE HOUSE
WRAP**

Thermakraft Industries Australia
Pty Ltd
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Ringwood East,
VICTORIA 3134
AUSTRALIA

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Product

1.1 Watergate-Plus is a fire retardant, synthetic wall sarking for use under masonry veneer and other direct fixed and cavity-based wall cladding on timber and steel framed buildings. The product is manufactured from coated, non-woven polyolefin and is coloured white.



Scope

2.1 Watergate-Plus has been appraised for use as a wall sarking on buildings within the following scope:

- Class 1 and Class 10 buildings; and,
- Class 2 to Class 9 buildings subject to specific weathertightness design; and,
- constructed with timber framing in accordance with the BCA 2010, or steel framing in accordance with the BCA 2010; and,
- with absorbent and non-absorbent wall claddings directly fixed to framing; and,
- with absorbent and non-absorbent wall claddings installed over an 18 mm minimum drained cavity; and,
- with masonry veneer in accordance with the BCA 2010; and,
- situated in non-cyclonic wind zones up to, and including N3.

2.2 Building designers are responsible for the building design and for the incorporation of Watergate-Plus into their design in accordance with the declared properties and the instructions of Thermakraft Industries Australia Pty Ltd.

Building Regulations

Building Code of Australia (BCA 2010)

3.1 In the opinion of BRANZ, Watergate-Plus, if used, designed, installed and maintained in accordance with the statements and conditions of this Appraisal, will contribute to meeting the following provisions of the BCA 2010:

BCA 2010 Volume 1 - Class 2 to Class 9 Buildings

Part F1 - Damp and Weatherproofing: Performance Requirement FP1.4. Watergate-Plus will contribute to meeting this requirement. See Paragraphs 13.1 and 13.2.

BCA 2010 Volume 2 - Class 1 and Class 10 Buildings

Part 2.2 Damp and Weatherproofing: Performance Requirement P2.2.2. Watergate-Plus will contribute to meeting these requirements. See Paragraphs 13.1 and 13.2.

3.2 This is an Appraisal of an **Alternative Solution** in terms of Building Code of Australia compliance.

Technical Specification

4.1 Watergate-Plus is a white, 112 g/m² non-woven, microporous polyolefin fabric sarking.

4.2 The product is supplied in rolls 1.370 m wide x 30m long (41 m²) and 2.740 m wide x 30m long (82 m²). The product is printed with the Watergate-Plus logo repeated along the length of the roll and is labelled with the marketing or construction company's name. The rolls are wrapped in clear polythene film.

Accessories

4.3 Accessories used with Watergate-Plus which are supplied by the installer are:

- Fixings - staples, clouts, screws or proprietary sarking fixings, or other temporary fixings to attach the wall sarking to the framing.
- Wall sarking support - polypropylene strap, 75 mm galvanised mesh or galvanised wire, or vertical cavity battens where required to support the wall underlay (refer to Paragraph 7.5).

Handling and Storage

5.1 Handling and storage of the product, whether on or off site, is under the control of the installer. The rolls must be protected from damage and weather. They must be stored on end, under cover, in clean, dry conditions and must not be crushed.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Watergate-Plus. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

Timber and Steel Framing

7.1 Studs must be provided at maximum 600 mm centres. Nogging must be fitted flush between the studs at maximum 1200 mm centres.

General

7.2 Watergate-Plus is intended to be fixed over timber or steel framed walls in order to limit the entry of wind into building cavities, and to act as a secondary barrier to wind-driven rain.

7.3 The sarking also provides a degree of temporary weather protection during early construction. However, the sarking will not make the building weathertight and some wetting of the underlying structure is always possible before the building is closed in. Hence, the building must be closed-in and made weatherproof before moisture sensitive materials such as wall or ceiling linings and insulation materials are installed.

7.4 Refer to Table 1 for details of the material properties of Watergate-Plus and the relevant AS/NZS 4200.1 classifications.

Table 1: Watergate-Plus Material Properties

AS/NZS 4200.1 Properties	Property Performance Requirement	Actual Property Performance	AS/NZS 4200.1 Classification
Resistance to dry delamination		Pass	Not Applicable
Resistance to wet delamination		Pass	Not Applicable
Shrinkage	≤ 0.5%	Pass	Not Applicable
Folding Endurance (machine direction)	≥ 2.00	Pass	Not Applicable
Folding Endurance (cross direction)	≥ 1.70	Pass	Not Applicable
Absorbency	≥ 100 g/m ²	Pass	High
Vapour Barrier	≤ 7 MN s/g	Pass	Low
Water Barrier	≥ 100 mm	Pass	High
Emittance			Non-reflective
Edge Tear and Tensile Strength		Edge tear: Machine direction (average) = 110 N Cross direction (average) = 91 N Tensile strength: Machine direction (average) = 2.09 kN/m Cross direction (average) = 1.78 kN/m	Extra Heavy Extra Heavy Unclassified Unclassified
Flammability	≤ 5	Pass	Low

7.5 Watergate-Plus is deemed to be a satisfactory sarking material for the waterproofing of walls in accordance with BCA 2010 Volume One, Paragraph F1.6.

7.6 In masonry veneer installations and wall cladding installations over a cavity, where the studs or cavity battens are installed at greater than 450 mm centres, the sarking must be supported to prevent the sarking bulging into the cavity space when bulk insulation is installed in the wall frame cavity.

Structure

8.1 Watergate-Plus is suitable for use on buildings situated in non-cyclonic wind zones up to, and including N3.

Durability

Serviceable Life

9.1 Provided it is not exposed to the weather or ultra-violet light for a total of more than 42 days, and provided the exterior cladding is maintained in accordance with the cladding manufacturer's instructions and the cladding remains weather resistant, Watergate-Plus is expected to have a serviceable life equal to that of the cladding.

Flammability

10.1 Watergate-Plus has an AS 1530 Part 2 Flammability Index of less than 5 and therefore has a flammability index classification of low in accordance with AS/NZS 4200.1.

Heating Appliances, Fireplaces, Chimneys and Flues

11.1 Watergate-Plus must be separated from fireplaces, heating appliances, flues and chimneys in accordance with the requirements of the BCA 2010 for the protection of combustible materials.

Fire Resistance

BCA 2010 Bush Fire Zones

12.1 Where regulations require special attention in bushfire prone areas, it may be necessary for Watergate-Plus sarking to comply with AS 3959. The building designer is responsible for determining the compliance requirements.

Damp and Weatherproofing

13.1 Wall claddings installed over Watergate-Plus must meet the performance requirements of the BCA 2010, e.g. Deemed to Satisfy wall claddings covered by the BCA 2010, or wall claddings covered by a valid BRANZ Appraisal.

13.2 Watergate-Plus, when installed in accordance with the Technical Literature and this Appraisal will assist in the total cladding systems compliance with the Damp and Weatherproofing performance clauses of the BCA 2010.

Installation Information

Installation Skill Level Requirements

13.1 Installation must always be carried out in accordance with the Watergate-Plus Technical Literature and this Appraisal, by competent tradespersons with an understanding of wall sarking installation.

Sarking Installation

14.1 Watergate-Plus must be fixed to all framing members at maximum 300 mm centres with large-head clouts 20 mm long, 6-8 mm staples, self drilling screws or proprietary sarking fixings. The sarking must be pulled taut over the framing before fixing.

14.2 Watergate-Plus must be run horizontally and must extend from the upper-side of the top plate to the under-side of the bearers or wall plates supporting ground floor joists, or below bottom plates on concrete slabs. Horizontal laps must be no less than 150 mm wide, with the direction of the lap ensuring that water is shed to the outer face of the membrane. End laps must be made over framing and be no less than 150 mm wide.

14.3 The wall sarking should be run over openings and these left covered until windows and doors are ready to be installed. Openings are formed in the sarking by cutting on a 45 degree diagonal from each corner of the penetration. The flaps of the cut sarking must be folded inside the opening and stapled to the penetration framing. Excess sarking may be cut off flush with the internal face of the wall frame.

14.4 Where the sarking needs to be supported, polypropylene strap or galvanised wire must be installed over the sarking at 300 mm centres. Alternatively, 75 mm galvanised wire mesh can be installed over the entire sarking surface.

14.5 Watergate-Plus can be added as a second layer over window and door joinery head flashings.

14.6 When used behind masonry veneer cladding, the brick ties must be fixed to the face of the stud only.

14.7 When fixing the product in windy conditions, care must be taken due to the large sail area created by wide roll widths.

14.8 Any damaged areas of Watergate-Plus, such as tears, holes or gaps around service penetrations, must be repaired. Damaged areas can be repaired by covering with new material lapping the damaged area by at least 150 mm and taping, or by taping small tears.

Inspections

14.9 The Technical Literature must be referred to during the inspection of Watergate-Plus installations.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

15.1 The following tests have been carried out on Watergate-Plus in accordance with AS/NZS 4200.1: Resistance to dry delamination, resistance to wet delamination, shrinkage, folding endurance, tensile strength, edge-tear resistance, resistance to water vapour transmission, resistance to water penetration, and surface water absorbency. A range of these tests were completed before and after Watergate-Plus was exposed to ultra-violet light.

15.2 The Flammability Index of Watergate-Plus has been evaluated in accordance with AS/NZS 1530.2.

Other Investigations

16.1 A durability opinion has been given by BRANZ technical experts.

16.2 The practicability of installation of Watergate-Plus has been assessed by BRANZ and found to be satisfactory.

16.3 The Technical Literature, including installation instructions, has been examined by BRANZ and found to be satisfactory.

Quality

17.1 The manufacture of Watergate-Plus has not been examined by BRANZ, but details of the methods adopted for quality control and the quality of the materials used, have been obtained and found to be satisfactory.

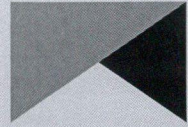
17.2 The quality of supply to the market is the responsibility of Thermakraft Industries Australia Pty Ltd.

17.3 Building designers are responsible for the design of the building, and for the incorporation of the wall sarking into their design in accordance with the instructions of Thermakraft Industries Australia Pty Ltd.

17.4 Quality of installation is the responsibility of the installer in accordance with the instructions of Thermakraft Industries Australia Pty Ltd.

Sources of Information

- AS 1530.2 - 1993 Test for flammability of materials.
- AS 3959 - 2009 Construction of buildings in bushfire-prone areas.
- AS/NZS 4200.1: 1994 Pliable building membranes and sarkings - materials.
- Building Code of Australia, Australian Building Codes Board, 2010.



BRANZ

In the opinion of BRANZ, Watergate-Plus Flexible House Wrap is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to Thermakraft Industries Australia Pty Ltd, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
 - a) relates only to the product as described herein;
 - b) must be read, considered and used in full together with the technical literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. Thermakraft Industries Australia Pty Ltd:
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions.
 - d) Warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
 - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by Thermakraft Industries Australia Pty Ltd.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to Thermakraft Industries Australia Pty Ltd or any third party.

For BRANZ

P Burghout
Chief Executive

Date of issue: 21 March 2011



Premium Building Products
That Protect

1. Product Name

Protecto Flex Peel-and-Stick Flashing Tape

Primers & Accessories

- BT-Primer
- Protecto-Tak Spray Adhesive

2. Manufacturer

Protecto Wrap Co.
955 South Cherokee St.
Denver, CO 80223
(800) 759-9727
(303) 777-3001
Fax: (303) 777-9273
E-mail: info@protectowrap.com
www.protectowrap.com

3. Product Description

BASIC USE

Protecto Flex is a 60 mil (1.5 mm) thick peel-and-stick flashing tape. The flexible cross-laminate top surface will expand and conform to irregular or curved surfaces, while the aggressive adhesive adheres to form a permanent bond between the window fin and the building substrate. Protecto Flex provides a complete air and water seal, and it eliminates the need to cut and patch the membrane to conform to door and window openings. Protecto Flex is suitable for sealing the following applications:

- Window and door perimeters to the building substrate
- Joints in stucco insulation systems
- Wallboard joints
- Beneath metal cap flashings for full building coverage as an air/vapor barrier
- Other areas where a water or air seal is needed

BENEFITS

- Protecto Flex can expand and conform to radius or curved window fins
- Aggressive adhesive forms a permanent bond between the window fins and the building substrate
- Ease of application - Peel and stick; no fasteners required
- Adheres to plywood, OSB, vinyl, polyethylene, aluminum, metal, foam, concrete and



Protecto Flex application

- masonry surfaces
- May be left exposed up to 120 days
- Has among the most aggressive adhesives of any flashing tapes
- Backed by over 50 years of manufacturing expertise

COMPOSITION & MATERIALS

Protecto Flex is a 60 mil (1.5 mm) polyethylene-backed, aggressive rubberized adhesive membrane that forms an air/vapor moisture barrier system. Protecto Flex can be installed and left exposed for 120 days without any UV degradation.

ACCESSORY MATERIALS

BT-Primer and Protecto-Tak Spray Adhesive are specially formulated for use with Protecto Flex. BT-Primer and Protecto-Tak Spray Adhesive are high tack primers for use over Dens-Glass Gold®, OSB, metal, wood, dry concrete and dry masonry. BT-Primer is moisture tolerant and is suitable for use on moist or damp Dens-Glass Gold. BT-Primer is VOC compliant. BT25XL Window & Door Sealing Tape is a tough-faced, self-adhering air/vapor barrier

and waterproofing membrane that provides superior performance when applied to straight vertical sides of windows and doors.

PACKAGING

See Tables 2 and 3 for packaging information.

LIMITATIONS

Do not use solvent based caulks in conjunction with Protecto Flex.

4. Technical Data

APPLICABLE STANDARDS

- ASTM International
- ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension
- ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials

APPROVALS

Consult manufacturer for current information on approvals by code bodies and other industry entities.



PHYSICAL PROPERTIES

See Tables 1 and 4 for additional testing information.

5. Installation

STORAGE & HANDLING

Store all materials in a dry space at temperatures between 50 and 90 degrees F (10 and 32 degrees C). Do not store in direct sunlight. Do not remove from box until ready to use.

PREPARATORY WORK

Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

Verify that site conditions are acceptable for installation. Do not proceed with installation until unacceptable conditions are corrected.

Surfaces should be clean, dry, free of dirt and other foreign matter. There should be no solvent based caulks used in conjunction with Protecto Flex. This product eliminates the need for caulk.

For best results, apply Protecto Flex at a temperature above 45 degrees F (7 degrees C). For applications from 20 - 45 degrees F (-7 - 7 degrees C), the material must be stored in a warm area prior to use and must be applied with either Protecto Wrap BT-Primer or Protecto-Tak Spray Adhesive. OSB surfaces must be primed with spray adhesive.

BT-Primer Application

Apply primer to all surfaces by roller or brush. The primed surface must be free of runs, puddles or excessive primer, as this can cause blistering.

Brush or roll out all primer puddles or drips immediately. Prime only as much area as can be covered in half a day's work. Reprime areas not covered in half a day's work with a light coat of BT-Primer.

The primer will become tack free in approximately 10 - 20 minutes. When not in use, containers must be tightly sealed to minimize evaporation of the solvents.

Note - Some surface bubbling in the primer may occur as it cures. This will not affect performance of the product. Bubbles will smooth out as the membrane is applied.

Protecto-Tak Application

Shake can before using. Turn spray tip so arrow points to dot on rim. Hold can 6" - 8" (152 - 203 mm) from surface to be sprayed and apply.

TABLE 1 TYPICAL PHYSICAL PROPERTIES (PROTECTO FLEX)

Thickness, mil	60 mil (1.5 mm)
Color	White/gray
Elongation (ASTM D412), %	500 (rubberized asphalt adhesive only)
Tensile strength (ASTM D412), psi (kPa)	975 (6718)
Moisture vapor transmission rate (ASTM E96) perms, max	0.01
Maximum exposure time, days	120

TABLE 2 PACKAGE INFORMATION (PROTECTO FLEX)

Roll size	Rolls/case	lb (kg)/case	Cases/pallet
4" x 50' (102 mm x 15.2 m)	12	82 (37.2)	18
6" x 50' (152 mm x 15.2 m)	8	82 (37.2)	18

Note - Other sizes are available upon request.

TABLE 3 PACKAGE INFORMATION (BT-PRIMER, PROTECTO-TAK SPRAY ADHESIVE)

Product	Quantity	Packaging	Weight
BT-Primer	1 gal (3.8 L)	4 gal/carton	9 lb (4.1 kg)
BT-Primer	5 gal (19 L)	1 pail	46 lb (21 kg)
Protecto-Tak	16.5 ounce can	12 cans/carton	17 lb (7.7 kg)

TABLE 4 TYPICAL PHYSICAL PROPERTIES (BT-PRIMER & PROTECTO-TAK SPRAY ADHESIVE)

Properties	BT-Primer	Protecto-Tak
Adhesion to wood	Excellent	Excellent
Adhesion to steel	Excellent	Excellent
Adhesion to dry concrete	Excellent	Excellent
Adhesion to masonry	Excellent	Excellent
Adhesion to membrane	Excellent	Excellent
Coverage	150 ft ² /gal (3.8 m ² /L)	2 oz - 4" x 100' (102 mm x 31 m)
Shelf life (minimum)	1 year	1 year
Tack-free time (minutes)	10 - 20	10 seconds - 15 minutes
Flash point	24 degrees F (-4 degrees C)	-42 degrees F (-41 degrees C)



Clean oversprayed areas with a 3:1 isopropyl alcohol to water ratio.

APPLICATION

After BT25XL has been applied to the vertical sides, cut a piece of Protecto Flex Tape to the length required to cover curved top and allow for 4" (102 mm) overlaps over the BT25XL on both sides. Remove approximately 4" (102 mm) of release paper and begin adhering Protecto Flex Tape. Smooth the Protecto Flex Tape as the adhesive back comes into contact with the window fin and building substrate.

Protecto Flex Tape will expand and follow the contours of the radius of a window as it completely seals the window fin to the building substrate. Trim any excess Protecto Flex Tape from the window area.

PRECAUTIONS

- Care should be taken not to leave the membrane exposed to direct sunlight for over 120 days
- Any caulking that contains solvents must not be used on or around the Protecto Flex membrane
- BT-Primer or Protecto-Tak Spray Adhesive must be used in applications with temperatures below 45 degrees F (7 degrees C)
- BT-Primer or Protecto-Tak Spray Adhesive must be used on weathered surfaces, masonry, concrete, Dens-Glass Gold® and OSB surfaces
- Protecto Flex must be stored in a location with temperatures above 50 degrees F (10 degrees C)
- Protecto Wrap solvent-based primers/mastic are flammable. Avoid exposure to open flames, sparks, etc. Use only in areas with adequate ventilation. Refer to MSDS for additional information and warnings

6. Availability & Cost

AVAILABILITY

Protecto Flex is manufactured in Denver, CO, and is available worldwide through a network of Protecto Wrap distributors. For detailed product information or to find a local representative or distributor, contact the Protecto Wrap Co.

COST

Protecto Flex is competitively priced. Contact a local representative or the corporate office for information.

7. Warranty

Protecto Wrap Co. expressly warrants, subject to the Exclusion Of Warranties provision, that its products shall be fit for the ordinary purposes for which such products are intended for a period of 5 years. Contact the manufacturer for complete warranty details.

8. Maintenance

None required, if installed in accordance with manufacturer's recommendations.

9. Technical Services

Complete technical assistance and information are available from Protecto Wrap field representatives and distributors or by contacting the manufacturer.

10. Filing Systems

- Reed First Source
- MANU-SPEC®
- Additional product information is available from the manufacturer.

Approved Building
Construction

BC 0861

Ashburnham

DESIGNER AND USER GUIDELINES

THERMAKRAFT 215 BITUMINOUS SELF SUPPORTING ROOFING UNDERLAY

Product Description	<p>Thermakraft 215 Bituminous Self Supporting Roofing Underlay is specifically designed for use in Domestic and Commercial type buildings.</p> <p>Thermakraft 215 Bituminous Self Supporting Roofing Underlay will provide the following functions:</p> <ol style="list-style-type: none"> 1) Permeable to water vapours. 2) Resistance to water and air penetration. 3) Resistance to dust and excessive air movement. 4) Is self supporting up to 1200mm rafter/purlin spacing. 												
Applications	<p>Thermakraft 215 Bituminous Self Supporting Roofing Underlay provides the ideal temporary protection against wind, snow and rain prior to the application of the wall cladding or roofing material. It is ideally used to reduce condensation under roofing.</p> <p>Care should be taken not to expose Thermakraft 215 Bituminous Self Supporting Roofing Underlay to continuous wet and windy conditions. Apply during mild conditions.</p>												
Note	<p>Applications outside our recommendations or if unusual conditions exist the suitability of Thermakraft 215 Bituminous Self Supporting Roofing Underlay should be established by contacting a representative of Thermakraft Industries (NZ) Ltd.</p>												
Standard Roll Dimensions	<p>Thermakraft 215 Bituminous Self Supporting Roofing Underlay is coloured black.</p> <p>Rolls are girth wrapped and labelled with the company name and manufacture batch number.</p> <table style="margin-left: 40px;"> <tr> <td>Roll Sizes</td> <td>1250mm x 40m</td> <td>50m²</td> <td>18 kg</td> </tr> <tr> <td></td> <td>1250mm x 20m</td> <td>25m²</td> <td>9 kg (2 per pack)</td> </tr> <tr> <td></td> <td>1450mm x 34.5m</td> <td>50m²</td> <td>18 kg</td> </tr> </table>	Roll Sizes	1250mm x 40m	50m ²	18 kg		1250mm x 20m	25m ²	9 kg (2 per pack)		1450mm x 34.5m	50m ²	18 kg
Roll Sizes	1250mm x 40m	50m ²	18 kg										
	1250mm x 20m	25m ²	9 kg (2 per pack)										
	1450mm x 34.5m	50m ²	18 kg										
Standards	<p>Thermakraft 215 Bituminous Self Supporting Roofing Underlay complies with the requirements of AS/NZS 4200.1: 1994 Pliable Building Membranes and Underlays.</p>												
Durability	<p>Thermakraft 215 Bituminous Self Supporting Roofing Underlay when In accordance with the approved document E2 of the Building Code and:</p> <ul style="list-style-type: none"> • is installed correctly. • is not subjected to unreasonable conditions of exposure. • is not damaged due to design defects. • is not covered by faulty or thin sheathing. • must not be exposed to the weather for more than 7 days. • is not subjected to prolonged humidities in excess of 90% RH. <p>Thermakraft 215 Bituminous Self Supporting Roofing Underlay will last for 50 years.</p>												

THERMAKRAFT 215 Bituminous Self Supporting Roofing Underlay

Installation **Thermakraft 215 Bituminous Self Supporting Roofing Underlay** may be run vertically over purlins with a 150mm lap. Fix securely to purlins with galvanised fixing clips. The membrane should be firmly laid to avoid excessive dishing between purlins. Avoid prolonged exposure by installing the roof immediately.

NOTE: However if used vertically individual runs should be limited to 10 metres.

Thermakraft 215 Bituminous Self Supporting Roofing Underlay may be run horizontally across rafter/trusses with a 150mm lap, prior to fixing of purlins or battens. Secure to rafters/trusses using appropriate fixing clouts or clips. Avoid prolonged exposure by installing the roof immediately.

NOTE: To conform to NZS 3604: 1999 Section 11.2, underlays under an 8° pitch shall be laid horizontally and the upper sheets shall be lapped over the lower sheet on the roof.

Availability **Thermakraft 215 Bituminous Self Supporting Roofing Underlay** is available from leading hardware and builders supplies merchants and roofing manufacturers. In case of difficulty contact our office toll free 0800-806-595 for assistance.

Storage **Thermakraft 215 Bituminous Self Supporting Roofing Underlay** should be stood on end and kept dry.

Fire Retardancy **Thermakraft 215 Bituminous Self Supporting Roofing Underlay** is a bitumen based product and is therefore not intended for use as a fire retardant product.

Classification **In accordance With AS/NZS 4200.1**

Duty:	Heavy
Flammability Index:	Unclassified

Technical Data **(As per AS/NZS 4200.1 and NZS 2295)**

Nominal Weight	370 g/m ²
Tensile Strength MD	15.57 kN/m
Tensile Strength CD	7.50 kN/m
Edge Tear	99.8 N
Ph Reaction	7.3 nominal
Permeability	197 g/m ² / day
Water Absorption	277 g/m ² nominal
Water Penetration	Pass

The information contained in this document is believed to be correct and accurate. However all due care should be exercised by those who use it. If in doubt contact a **Thermakraft Industries (NZ) Ltd** representative for advice. Care should be taken to ensure that fixing clips, nails and staples used with **Thermakraft 215 Bituminous Self Supporting Roofing Underlay** are of a type that will have a life of not less than 50 years.



Thermakraft Industries (NZ) Ltd

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Approved Building
Consents Documents

E. & O. E.

IC 0861/13

Ashburton District Council

ORDER CODE: FAN010

MANROSE SF150



BATHROOM



WC



SHOWER



LAUNDRY



150mm (6") In-Line Ducted Shower Fan Kit

Contents:

150mm (6") in-duct axial flow fan
5 metres of 150mm (6") flexible moisture-proof ducting
Interior and exterior grilles for ceiling/soffit
Fixings and fasteners supplied

Specifications:

Electrical: 220-240VAC 25W (45W on models with
Auto Back Draught Shutter option)
Fan Performance: 313 cubic metres/hour (87 Litres/sec)
free air performance. Fan performance will be affected
by length of duct.
Max. pressure: 50 Pa.
Sound level: 40 dB(A).
Max. Temp: 40 degrees C.

Complies to
EN60 335-2-80: 1997
EN60 335-1: 1994 +A1, A11 to A14



OPTIONS AND FEATURES

This fan is available with the following options. The feature symbols indicate exactly which options this model incorporates:

SWITCHING OPTIONS



STANDARD: The fan is switched using the existing or a new light switch (switch not supplied)



TIMER: The fan is still switched using the existing or a new light switch. However, a built-in timer allows the fan to run on after the light/fan is switched off. The timer is adjustable at time of installation adjustable between 1-20 mins (approx).

THIS FAN INCORPORATES THE FOLLOWING FEATURES:

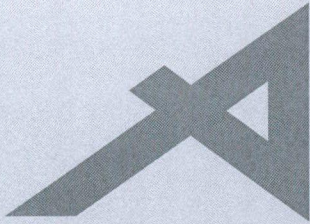


STANDARD SWITCH



MANROSE Manrose Manufacturing Ltd. British made
Distributed by *Securimax*
Securimax Ltd. Auckland/Christchurch, NZ
Email: sales@securimax.co.nz Website: www.securimax.co.nz





BRANZ Appraised

Appraisal No.581 [2007]

BRANZ Appraisals

Technical Assessments of products
for building and construction

BRANZ APPRAISAL No. 581 (2007)

Amended 22 December 2010

DAMPFIX 2 AND DAMPFIX 3 WET AREA MEMBRANES

Bostik New Zealand Limited

P O Box 35 093

Naenae

Wellington

Tel: 04 567 5119

Fax: 04 577 3776



BRANZ

BRANZ Limited
Private Bag 50 908
Porirua City
New Zealand

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Product

1.1 Dampfix 2 and Dampfix 3 Wet Area Membranes are liquid-applied waterproofing membranes for use under ceramic or stone tile finishes in internal wet areas.



Approved Building
Consents Documents

Scope

2.1 Dampfix 2 and Dampfix 3 Wet Area Membranes have been appraised for use as waterproofing membranes for internal wet areas of buildings, within the following scope:

- on floor substrates of concrete, flooring grade particle board, plywood, compressed fibre cement sheet and fibre cement sheet tile underlay, and on wall substrates of concrete, concrete masonry, wet area fibre cement sheet lining systems and wet area plasterboard lining systems; and,
- when protected from physical damage by ceramic or stone tile finishes; and,
- where floors are designed and constructed such that deflections do not exceed 1/360th of the span.

2.2 The use of Dampfix 2 and Dampfix 3 Wet Area Membranes on concrete slabs where hydrostatic or vapour pressure is present is outside the scope of this Appraisal.

2.3 Movement and control joints in the substrate must be carried through to the tile finish. The design and construction of the substrate and movement and control joints is specific to each building, and therefore the responsibility of the building designer and building contractor and is outside the scope of this Appraisal.

2.4 Ceramic or stone tile finishes are outside the scope of this Appraisal.

2.5 The membranes must be installed by Bostik New Zealand Limited Trained and Approved Applicators.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Dampfix 2 and Dampfix 3 Wet Area Membranes if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 (b) 15 years. Dampfix 2 and Dampfix 3 Wet Area Membranes meet this requirement. See Paragraph 9.1.

Clause E3 INTERNAL MOISTURE: Performance E3.3.6. Interior wet area floors and walls incorporating Dampfix 2 and Dampfix 3 Wet Area Membranes will meet this requirement. See Paragraphs 11.1 to 11.4.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Dampfix 2 and Dampfix 3 Wet Area Membranes meet this requirement and will not present a health hazard to people.

This is an Appraisal of an **Alternative Solution** in terms of New Zealand Building Code compliance.

Technical Specification

4.1 Materials supplied by Bostik New Zealand Limited are as follows:

Dampfix 2

- A single component, acrylic, fibre reinforced, ready-to-use, liquid applied membrane. It is supplied as a white paste in 4, 10 and 20 litre pails.

Dampfix 3

- A two-component, cementitious, acrylic modified, fibre reinforced waterproofing membrane. It is supplied as a powder in 10kg multi-wall bags and a liquid in 10kg plastic pails. When dry, the membrane is grey in colour.

ASA Multiprime

- A synthetic latex based primer for a variety of porous substrates. It is supplied as an opaque pink liquid in 1, 5 and 20 litre cans.

Bostik N40 Primer

- A solvent based etching primer for priming PVC wastes. It is available in 1 litre cans.

Dampfix Moisture Seal

- A two part water based epoxy for sealing against rising damp, seepage, grease, oil, detergent and mild chemicals. It is supplied as 4, 8, 20 and 40 litre kits.

ASA Neutral Cure Silicone

- A flexible, neutral cure silicone for use as expansion joint filler and bond breaker for wall/wall and wall/floor junctions. It is supplied as a white or coloured paste in 300 ml cartridges.

ASA Epoxy Prime

- A 2 component water based epoxy primer for non porous substrates. It is available in 4 and 8 litre kits.

Handling and Storage

5.1 All materials must be stored inside, up off concrete floors, in dry conditions, out of direct sunlight and out of freezing conditions. The membrane products have a shelf life of 24 months from date of manufacture in the original unopened packaging. Once opened, the products must be used within 3 months.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Dampfix 2 and Dampfix 3 Wet Area Membranes. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

General

7.1 Dampfix 2 and Dampfix 3 Wet Area Membranes are for use in buildings where an impervious waterproof membrane is required to floors and walls to prevent damage to building elements and adjoining areas.

7.2 Dampfix 3 is designed to be used where a quicker curing time is required, such as in cool or humid conditions.

7.3 The membranes must be protected from physical damage by the application of ceramic or stone tile finishes.

7.4 Movement and control joints may be required depending on the shape and size of the building or room, and the tile finish specified. Design guidelines can be found in the BRANZ Good Practice Guide to Tiling.

7.5 Timber framing systems must comply with NZS 3604, or where specific engineering design is used, the framing shall be of at least equivalent stiffness to the framing provisions of NZS 3604, or comply with the serviceability criteria of NZS 4203 (AS/NZS 1170). In all cases framing must be provided so that the maximum span of the substrate as specified by the substrate manufacturer is met and all sheet edges are fully supported. Timber framing systems supporting the substrates must be constructed such that deflections do not exceed 1/360th of the span. Where NZS 3604 is used, the allowable joist spans given in Table 7.1 shall be reduced by 20%.

Substrates

Plywood

8.1 Plywood must be a minimum of 17mm thick complying with AS/NZS 2269, CD Grade Structural with sanded C face upwards and treated to H3.2 (CCA treated). **LOSP treated plywood must not be used.** The Plywood must be supported with dwangs or framing with a maximum span of 400mm in each direction, fixed with 10g x 50mm stainless steel countersunk head screws at 150mm centres on the edges and 200mm through the body of the sheets.

Fibre Cement Compressed Sheet/ Fibre Cement Sheet Tile Underlay

8.2 Fibre cement compressed sheet and tile underlay must be manufactured to comply with the requirements of AS 2908.2 and must be specified by the manufacturer as being suitable for use as a wet area substrate.

Concrete and Concrete Masonry

8.3 Concrete and concrete masonry substrates must be to a specific engineering design meeting the requirements of the NZBC, such as concrete construction to NZS 3101 and NZS 3604 Concrete Slab-On-Ground Floors and Concrete masonry to NZS 4229 and NZS 4230.

Wet Area Wall Linings

8.4 Plasterboard wall linings must be manufactured to comply with AS/NZS 2588, and be covered by a valid BRANZ Appraisal for use in internal wet areas.

- 8.5 The Fibre Cement Compressed Sheet must be of a thickness to meet specific structural design requirements.

Durability

Serviceable Life

9.1 The Dampfix 2 and Dampfix 3 Wet Area Membranes, when subjected to normal conditions of environment and use, are expected to have a serviceable life of at least 15 years and be compatible with ceramic or stone tile finishes with a design service life of 15-25 years.

Maintenance

10.1 No maintenance of the membranes will be required provided significant substrate movement does not occur and the tile finish remains intact. 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.

10.2 In the event of damage to the membranes, the tiling must be removed and the membrane repaired by removing the damaged portion and applying a patch as for new work.

10.3 Drainage outlets must be maintained to operate effectively, and ceramic or stone tile finishes must be kept clean.

Internal Moisture

11.1 Dampfix 2 and Dampfix 3 Wet Area Membranes are impervious to water and when appropriately designed and installed will avoid the likelihood of water penetrating behind linings or entering concealed spaces.

11.2 Dampfix 2 and Dampfix 3 Wet Area Membranes are suitable for use to contain accidental overflow to meet NZBC Clause E3.3.2. A means of Code Compliance for overflow is given in NZBC Acceptable Solution E3/AS1 Paragraph 2.

11.3 Surfaces must be finished with ceramic or stone tile finishes. A means of Code Compliance to NZBC Clause E3.3.3 is given in NZBC Acceptable Solution E3/AS1 Paragraph 3.1.1 (b) and 3.1.2 (b).

11.4 Falls in showers and shower areas must be a minimum of 1 in 50. In unenclosed showers, falls must extend a minimum of 1500 mm out from the shower rose. Floor wastes must be provided and the floor must fall to the outlet.

11.5 The waterproofing membrane must completely cover shower bases, and for unenclosed showers it must extend a minimum of 1500 mm out from the shower rose. Further design guidance on waterproofing wet areas, including waterproofing walls and junctions can be obtained from AS 3740, the 'BRANZ Good Practice Guide to Tiling', and flooring and wallboard manufacturers.

11.6 Where water resistant wall finishes such as prefinished sheet materials are used, they must flash over the membrane a minimum of 30mm.

11.7 BRANZ recommends the entire floor be covered by a waterproof membrane for bath, shower and spa rooms where timber and plywood floors are used.

Installation Information

Installation Skill Level Requirement

12.1 Installation of the membranes must be completed by Bostik New Zealand Limited Trained and Approved Applicators.

12.2 Installation of substrates must be completed by tradespersons with an understanding of internal wet area construction, in accordance with instructions given within the Bostik New Zealand Limited Technical Literature and this Appraisal.

Preparation of Substrates

13.1 Substrates must be dry, clean and stable before installation commences. Surfaces must be even and free from nibs, sharp edges, dust, dirt or other materials such as oil, grease or concrete formwork release agents.

13.2 Concrete substrates can be checked for dryness by using a hygrometer as set out in BRANZ Bulletin No. 424. The relative humidity of the concrete must be 75% or less before membrane application.

13.3 All voids, cracks, holes, joints and excessively rough areas must be filled to achieve an even and uniform surface. Junctions of substrate abutments, such as at wall/floor and wall/wall junctions must have a bond breaker joint system or reinforced underflashing installed as set out in the Technical Literature.

13.4 Substrates must be primed and allowed to cure before the membrane is installed.

Membrane Installation

14.1 Installation must not be undertaken where the substrate surface temperature is below 10°C or above 35°C.

14.2 Dampfix 3 powder and liquid must be mixed and left to stand for 5 minutes before re-mixing, then applying. Dampfix 2 must be thoroughly stirred before application.

14.3 The membrane must be applied in a minimum of two coats at the rates set out in the Technical Literature. Subsequent coats must be applied in an opposite direction to the previous coat. The total finished system thickness of the Dampfix 2 membrane must be a minimum of 1.0 mm and the Dampfix 3 Membrane must be a minimum of 1.2 mm.

14.4 Application can be made by roller (medium/long nap), brush (long bristle), or a notched steel trowel (finished with a flat steel trowel).

14.5 A reinforcement fabric may be embedded into the wet 2nd coat to provide movement protection at wall/wall and wall/floor junctions, or any other areas such as joints in the flooring substrate, floor cracks, or around penetrations in the membrane. In all other situations, reinforcement provisions as set out in this Appraisal and the Technical Literature apply.

14.6 Clean up may be undertaken with water.

Tiling

15.1 The membranes must be fully cured before tiling. The cured membranes must be protected at all times to prevent mechanical damage, so may require temporary covers until the finishing is completed.

15.2 Tiling must be undertaken in accordance with AS 3958.1 and the 'BRANZ Good Tiling Practice Guide'. The compatibility of the tile adhesive must be confirmed with the adhesive manufacturer or Bostik New Zealand Limited.

Inspections

16.1 Critical areas of inspection are:

- Construction of substrates, including crack control and installation of bond breakers and movement control joints.
- Moisture content of the substrate prior to the application of the membrane.
- Acceptance of the substrate by the membrane installer prior to application of the membrane.

BC 0861/13

- Installation of the membrane to the manufacturer's instructions, particularly installation to the correct thickness and use of reinforcement.
- Membrane curing and integrity prior to the installation of tiles including protection from mechanical damage during curing and prior to tile installation.

Health and Safety

17.1 Safe use and handling procedures for the membranes are provided in the Technical Literature. The materials must be used in conjunction with the relevant Material Safety Data Sheet.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

18.1 The testing on Dampfix 2 and 3 has been undertaken by various organisations:

- Testing to AS/NZS 4858, Water Vapour Transmission to ASTM E96-92 and Water absorption.
- Adhesion to various substrates, low temperature flexibility to AC148: 2001 and cyclic movement.

Test methods and results were reviewed by BRANZ and found to be satisfactory.

Other Investigations

19.1 An assessment was made of the durability of the Dampfix 2 and Dampfix 3 Wet Area Membranes by BRANZ technical experts.

19.2 Site visits have been carried out by BRANZ to assess the practicability of installation and to examine completed installations.

19.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

20.1 The manufacture of the membranes has been examined by BRANZ, and details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.

20.2 The quality management system of the membranes manufacturer has been assessed and found to be satisfactory.

20.3 The quality of supply of the membrane system materials to the market is the responsibility of Bostik New Zealand Limited.

20.4 Quality on site is the responsibility of the Bostik New Zealand Limited Trained and Approved Applicators.

20.5 Designers are responsible for the substrate design, and building contractors are responsible for the quality of construction of substrate systems in accordance with the instructions of the substrate manufacturer, Bostik New Zealand Limited and this Appraisal.

20.6 Building owners are responsible for the maintenance of the tiling or stone finishing systems in accordance with the instructions of Bostik New Zealand Limited.

Sources of Information

- AS 2908.2: 2000 Cellulose-cement products – Flat sheet.
- AS/NZS 2269: 1994 Plywood-Structural.
- AS 3958.1 Guide to the installation of ceramic tiles.
- AS/NZS 4858: 2004 Wet area membranes.
- NZS 3101: 1995 The design of concrete structures.
- NZS 3604: 1999 Timber framed buildings.
- New Zealand Building Code Handbook Department of Building and Housing, Third Edition May 2007.
- The Building Regulations 1992, up to, and including June 2007 Amendment.
- Good Practice Guide to Tiling, BRANZ, March 2004.



Ashburton District Council
Step C4 – Air Seal

The Air Seal is designed to hold pressure in the trim cavity to enable pressure equalisation to occur. Typically the Air Seal is a low expansion polyurethane foam installed over a PEF backing rod, as described in *Clause 9.1.6*.

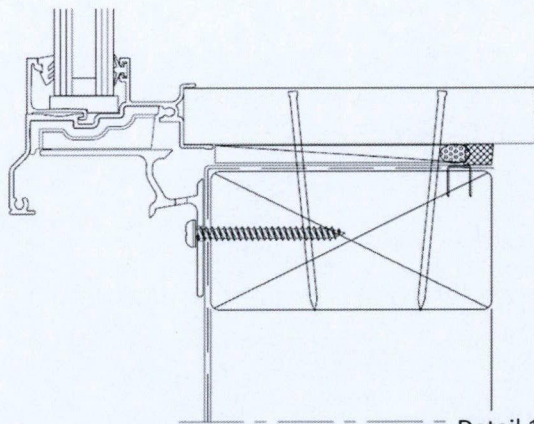
The detail drawings contained within E2/AS1 show the air seal as a single entity. Please note *Clause 9.1.6 b*).

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
- 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.

Amend 5
 Aug 2011



Note: *Clause 9.1.6 makes this comment regarding air seals.*

COMMENT:

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

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.

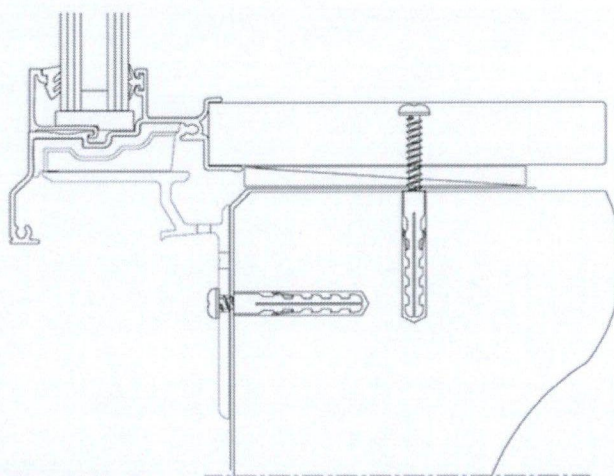
For further information refer to ASTM C1330 for backing rod material performance.



Step C3a – Fixing – Full Height

For full height units fixed to concrete floors replace the nail fixings with 8g x 65mm screws driven into Rawl plugs or similar.

If the installer prefers to use masonry anchors, these can be substituted as noted on Page 15. Regardless of fixing type, ensure edge clearances, as recommended by the anchor supplier, are observed.

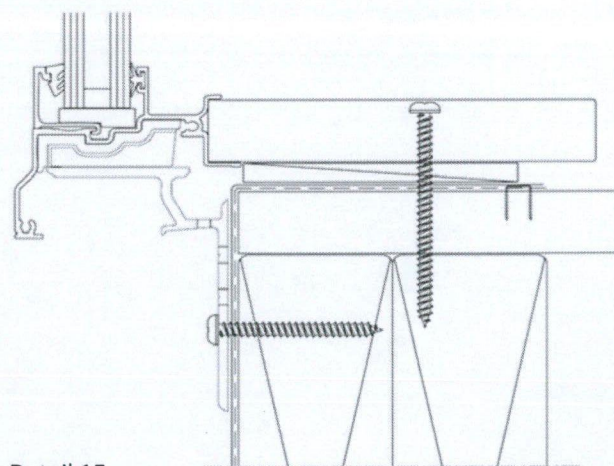


Detail 14



Note: Fixing holes into concrete should be pre-filled with sealant prior to the installation of the fixing as noted in Figure 17A (Page 17).

For timber floors, ensure the screw fixing is positioned a minimum of 20mm from the edge of the joist. This may require re-drilling of the sill support bar.



Detail 15



Step C3 – Fixing

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Consent Document

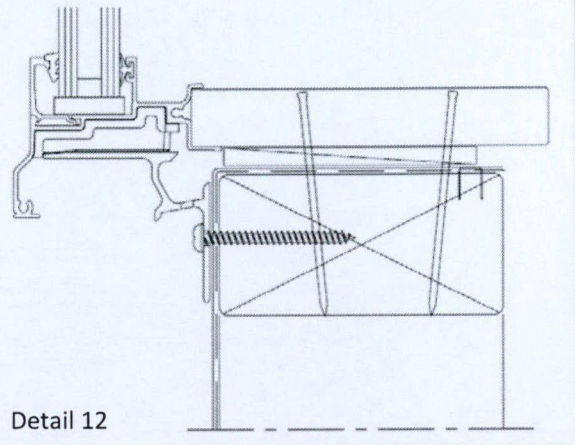
- BC 0861/13
Ashburton District Council
- a. Insert flat packers between the wall framing and the window or door reveals at the head, sill and jambs at fixing points. **DO NOT use wedges.**
 - b. Fix off the unit as described in *Clause 9.1.10.8.*

9.1.10.8 Attachments for windows and doors

Install windows and doors using pairs of minimum 75 x 3.15 galvanised jolt head nails or 8 gauge x 65 mm stainless steel screws, through reveals into surrounding *framing* at:

- a) Maximum 450 mm centres along sills, jambs and heads, and
- b) Maximum 150 mm from reveal ends.

Install packers between reveals and *framing* at all fixing points, except between head reveals and lintels.



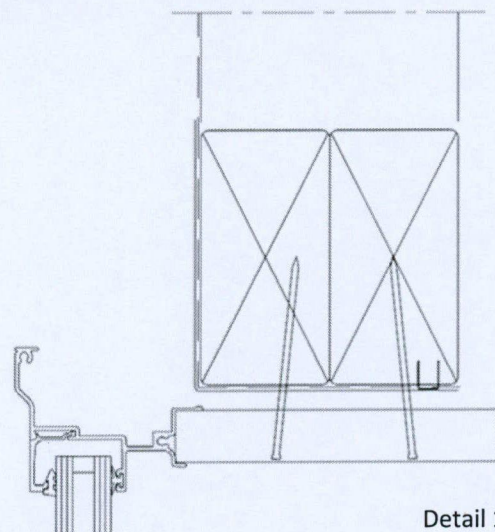
Detail 12

Amend 5
Aug 2011



Note: This Clause describes the fixing method for typical windows and doors. Larger units or those subject to higher wind loads may require additional fixing. If in doubt contact your window manufacturer to confirm.

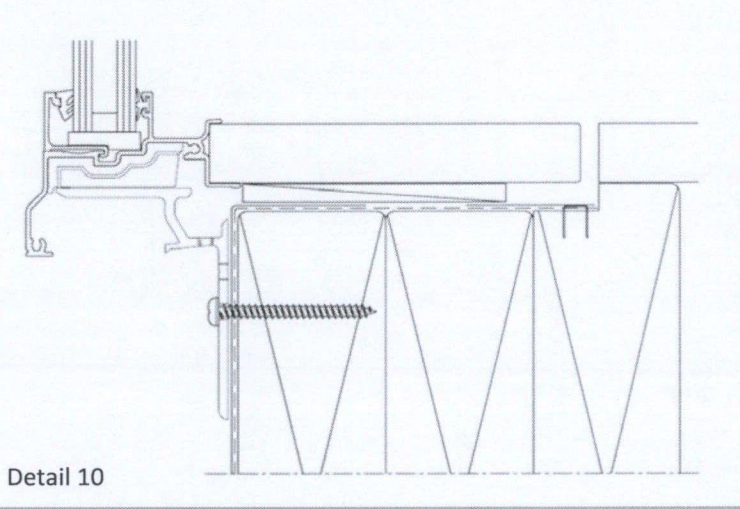
- c. After fixing the unit in place, remove the packers from the head of the unit to allow any potential settlement of the building structure.



Detail 13

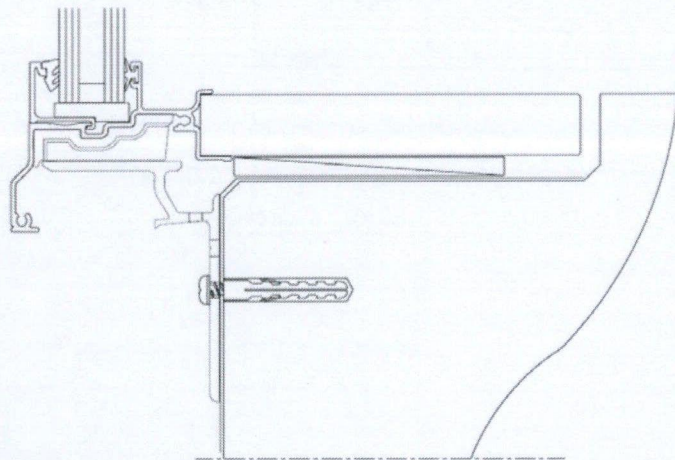


Note: Some find the on-floor details described in Figure 17C to be undesirable. If so then a rebated sill detail will need to be designed for the situation. In this case the rebate becomes the threshold level, i.e. the floor level inside of the window or door is irrelevant to the Acceptable Solution.



Detail 10

Rebated Timber Floor



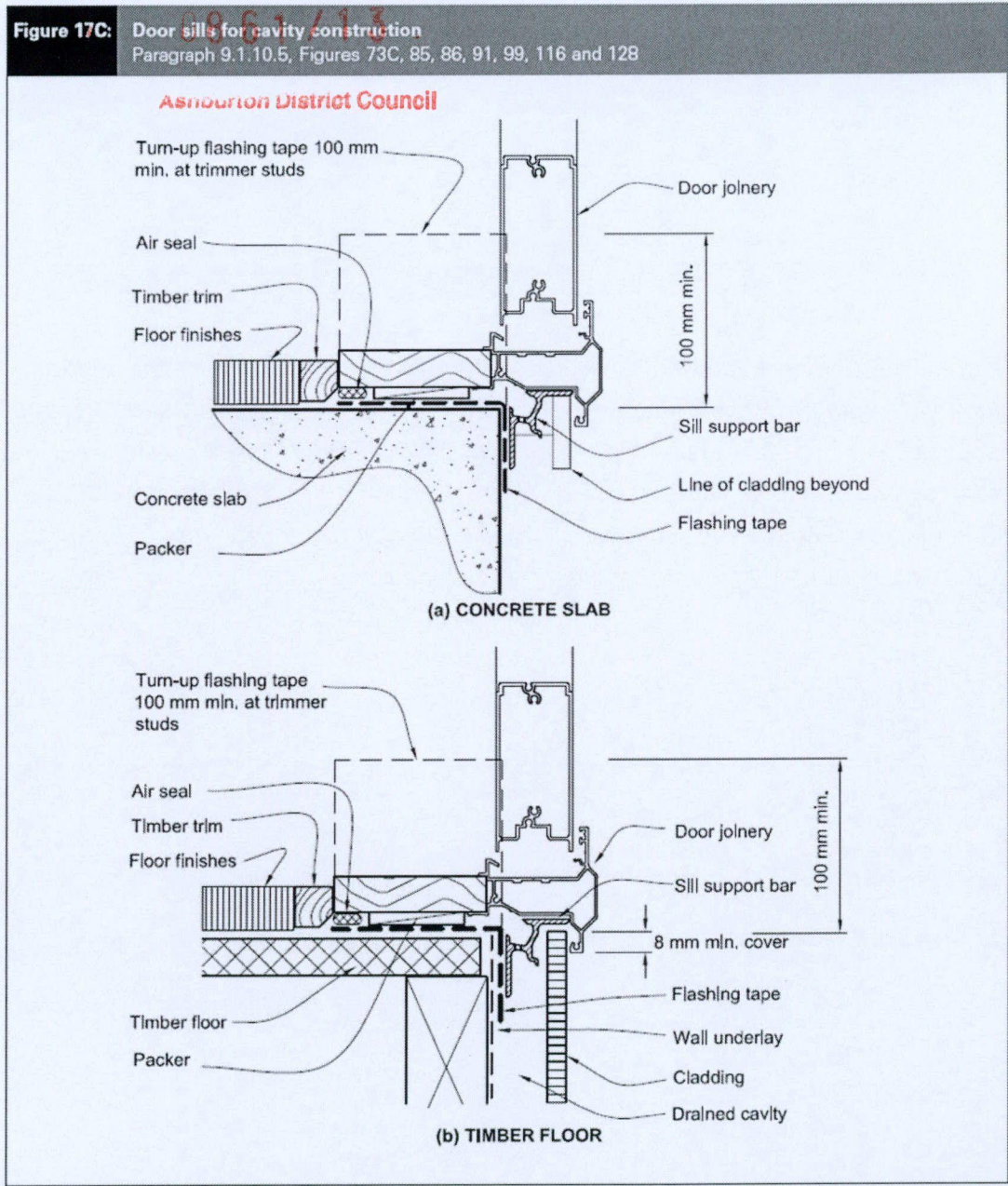
Detail 11

Rebated Concrete Floor



Step C2a – Position the Unit – Full Height

Figure 17C, describes the sill details for full height window and door units for cavity construction. The positioning of the unit is essentially the same as described in Step C2 above.



Note: Ensure the correct sill support bar is selected for these details, as described on Pages 15 & 16, so that fixings are positioned appropriately.

iv) Once the installation has been completed, that the required cover over the exterior cladding as described in *Clause 9.1.10*, has been achieved.

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

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

Amend 5
Aug 2011



Note: Traditionally a nominal clearance of 5mm is detailed between the window jamb liner and the framed opening. The purpose of this is i) to allow space for the application of an air seal and ii) to avoid water being drawn into or being held within the opening due to capillary action.

The industry now typically calls for an installation tolerance of 15mm (7.5mm each side) on the framed opening, to allow for flashing tapes etc.



Step C2 – Position the Unit

- a. Before positioning the window or door unit into the opening ensure that, where applicable, that the sill corners have been fitted with corner soaker as described in *Clause 9.1.10.5 c).*

Check with your window manufacturer regarding the types of corner soaker used with their systems and that they are indeed applicable.

c) Mitred aluminium window and door sills, for both *cavity* and *direct fixed*, shall have a corner soaker fitted to the back of the sill/jamb joint and installed at point of manufacture. The soaker will be designed to act as a secondary device to prevent water ingress to the *building* in support of the primary mitre seals. Soaker materials shall be either uPVC, aluminium, polypropylene, high impact styrene or other semi rigid moulded polymeric material.

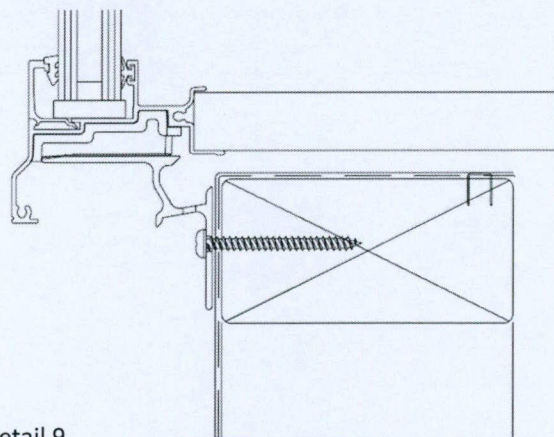
- b. Ensure the unit is positioned so that;

i) The unit is positioned 5mm forward of the exterior cladding line, as described in *Clause 9.1.10.2 d),*

d) For cavity fixed *claddings*, windows and doors shall finish against the *cladding*, except for flat fibre cement and ply *claddings* that require a 5 mm stand-off to allow for sealant weather seals between facings and *cladding* – eg, Figure 116.

ii) The interior linings finish in the correct positions,

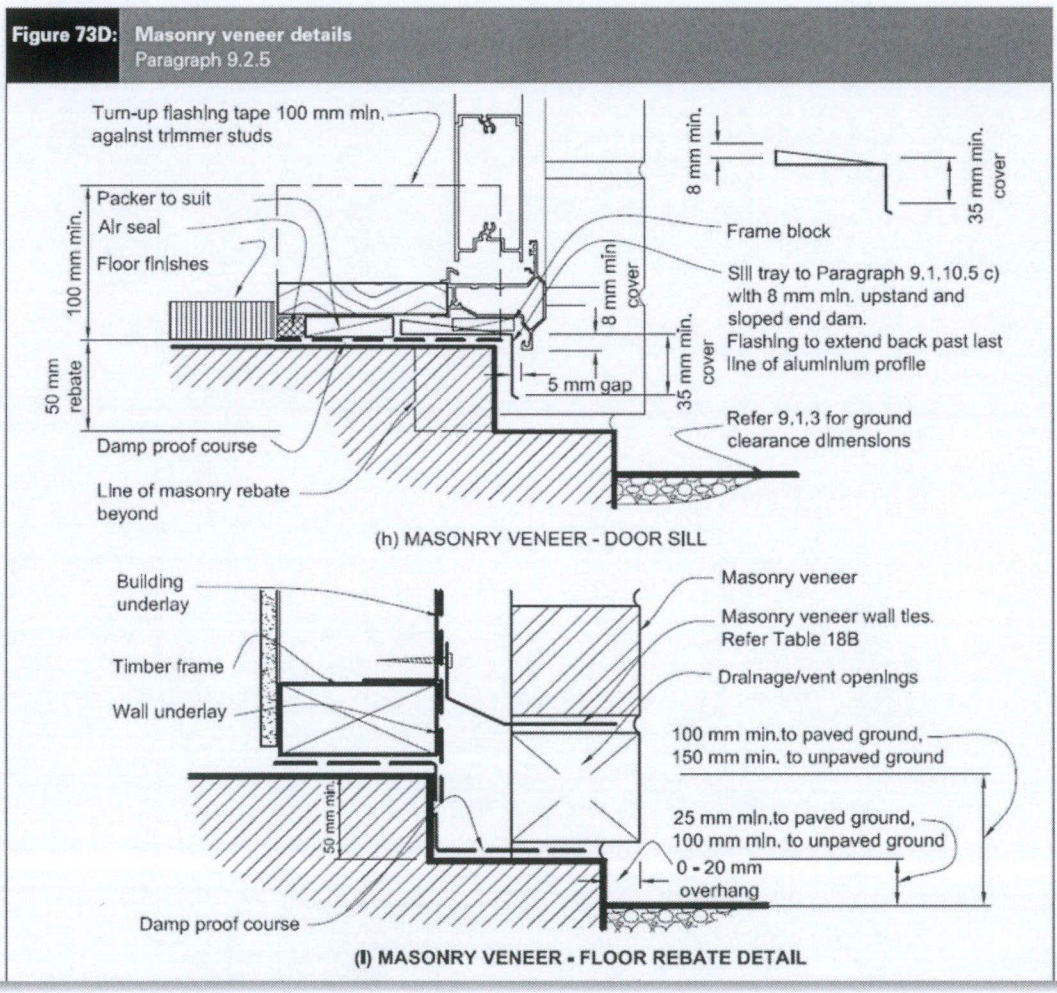
iii) The unit is sitting correctly on the sill support bar,



Detail 9



Note: Figure 73D, describes an alternative sill support detail for masonry veneer, which includes a poured concrete extension to the slab edge under the window or door and uses a sill tray flashing as detailed for direct fixed cladding situations.



Approved Building
Consents Documents



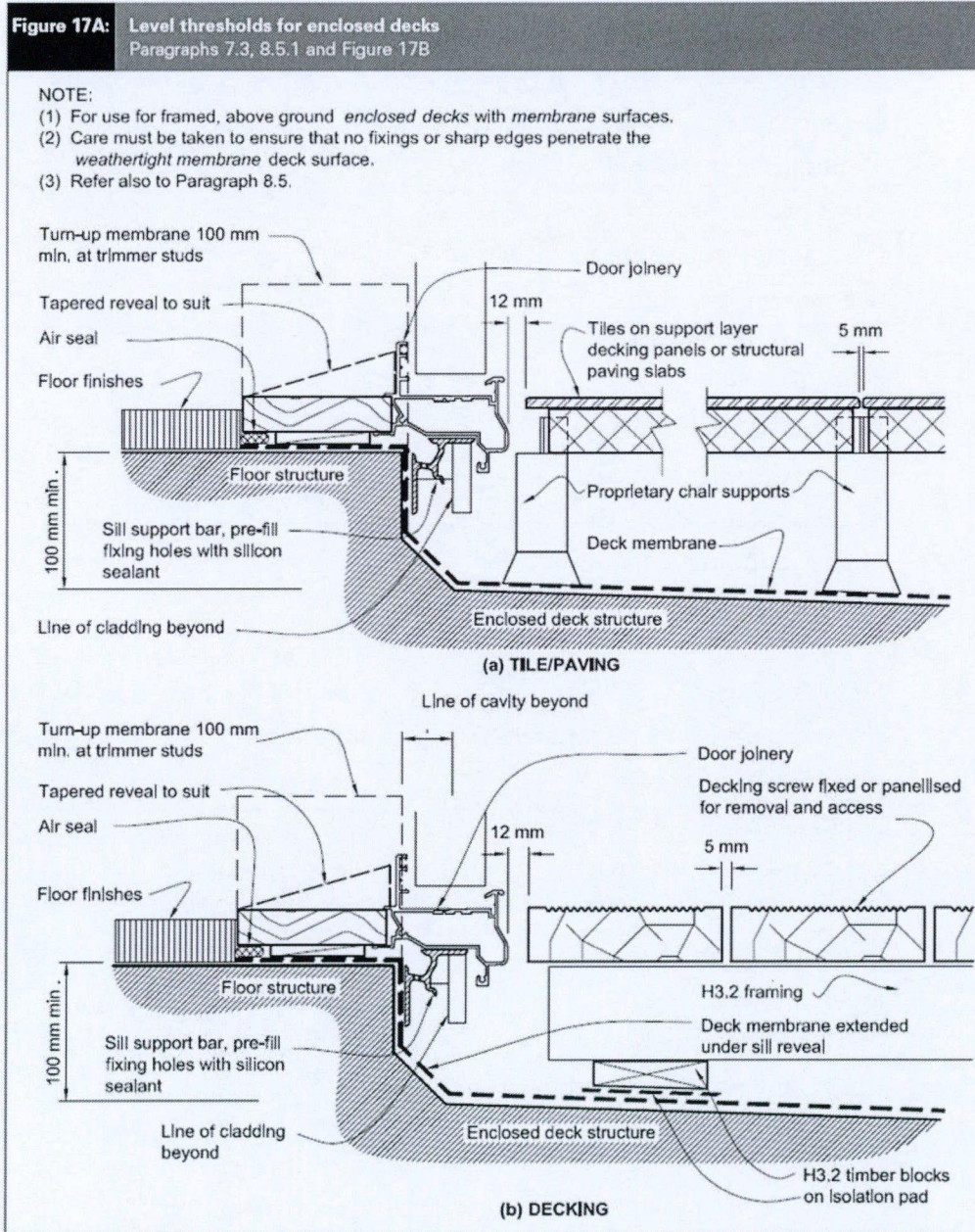
RC 0861/13

Note: Fixing holes into concrete should be pre-filled with sealant prior to the installation of the fixing as noted in Figure 17A.

Errata 2
Dec 2011

Errata 2
Dec 2011

Errata 2
Dec 2011





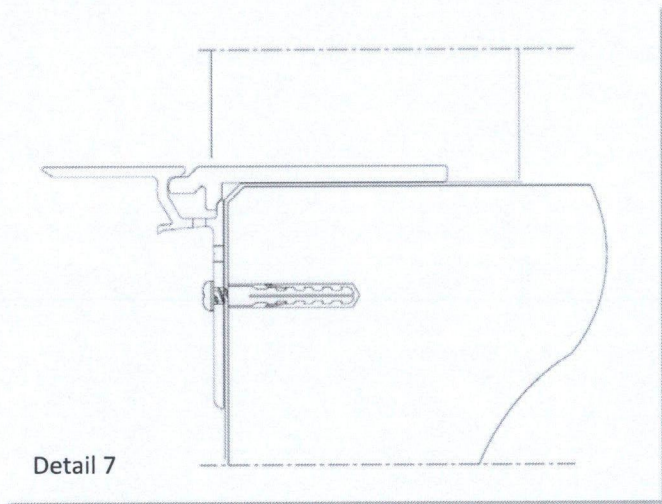
Step C1a – Sill Support – Full Height

For window or door units that extend to the floor there are two sill support bar options available;

- a. Where the sill support bar is installed as described in Step C1 above, using the Heavy Duty bar.

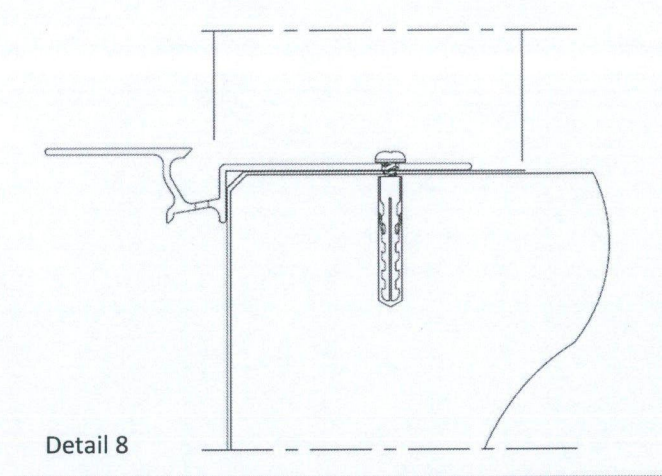
The major difference here would be where the bar is being fitted to a concrete floor. In this case the fixing sizes and positions would be identical except that the screws would drive into Rawl plugs or similar.

If the installer prefers to use masonry anchors, these can be substituted as noted in vii) above. Regardless of fixing type, ensure edge clearances, as recommended by the anchor supplier, are observed.



- b. Included in the WANZ Sill Support Bar range is a bar designed for situations where there is insufficient room to fit a standard bar, i.e. units fitted as an option over a masonry veneer rebate or those set over an enclosed deck.

The full height bar is designed to be fixed vertically into the top of the floor / rebate instead of into the face of the floor.



As with the standard bar it must be installed level. This may require packing between the substrate and the bar to ensure weight is adequately supported. For fixing type and centres refer above.



Approved Building
Consents Documents

Note: The range of WANZ sill support bars, as described on the Components page (Page 31) are designed to fit a number of different claddings and circumstances. Selection of the correct bar, and its installation, is important. Please refer to the following to assist in the selection.

COMMENT

Support bars and mechanisms are rated for their capacity to support the total weight of a joinery unit when installed at given offsets from the frame depending on *cladding* type. Designers select the an appropriate complying support mechanism for the joinery weight. Manufacturers provide build-in instructions for support bars and mechanisms.

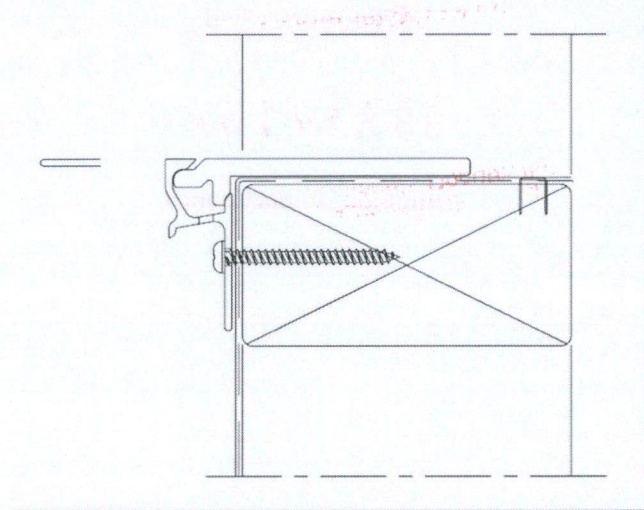
WANZ offer six variations of the sill support bar;

- i. Standard bars at 19mm, 30mm, 40mm and 55mm deep. These are designed for windows that do not extend to the floor **and** are for use with timber framing. These generically have a weight carrying limit of 60kg/lm.
- ii. A Full Height bar at 55mm deep which is similar to the standard bars but has a horizontal fixing leg rather than a vertical leg. The projecting support leg can be cut back to suit the depth of the cladding. The bar is designed for windows and doors that extend to the floor and also has a weight carrying limit of 60kg/lm.
- iii. A Heavy Duty bar at 55mm deep which is similar to the standard bars but is designed for windows and doors that extend to the floor where the fixing is into the vertical face of the floor or slab edge. Again the projecting support leg can be ripped to suit the depth of the cladding. The weight carrying limit for this bar is 150kg/lm.
This bar can also be used, where required, for part height installations.
- iv. Beyond these parameters a custom solution is required.

Fixing Options;

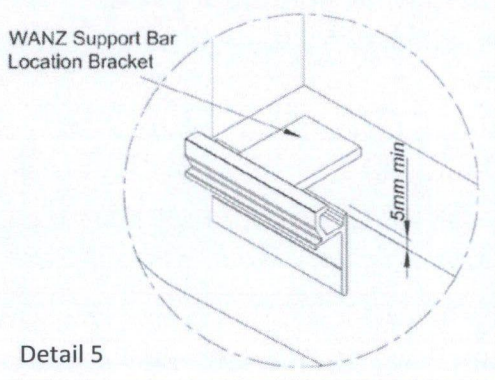
- v. The generic fixing method into timber is 10g x 50mm SS screws positioned at each end of the bar and at a maximum of 300mm centres between.
- vi. When fixing to concrete the Heavy Duty bar must be used. The same screws and fixing centres, as noted above, apply but the screws would be driven into Rawl Plugs or similar.
- vii. For concrete the screws may be substituted for 6mm masonry anchors, at the same centres. However in order to achieve the required 55mm edge clearance that these fasteners require, the Heavy Duty bar must be re-drilled to suit.

The range of WANZ sill support bars, as described on the Components page (Page 31) and below, offer not only support to the window or door unit, but also drainage and ventilation of the trim cavity. The WANZ bars have been tested to EM6 and have demonstrated compliance with E2/VM1. In order to comply with these documents they must be used in a continuous length across the trim opening.



Detail 4

- a. The sill support bar is positioned below the opening, and set so that the upper edge sits a minimum of 5mm above the sill trimmer

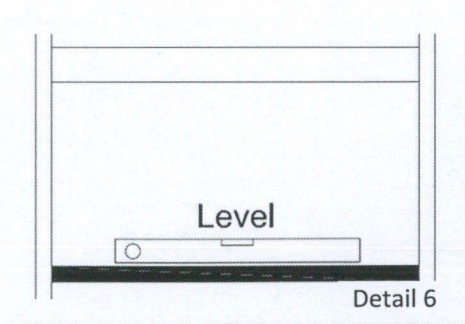


Detail 5

The WANZ sill support bar is supplied with locator blocks which are a quick and easy method of setting the bar in the correct position.

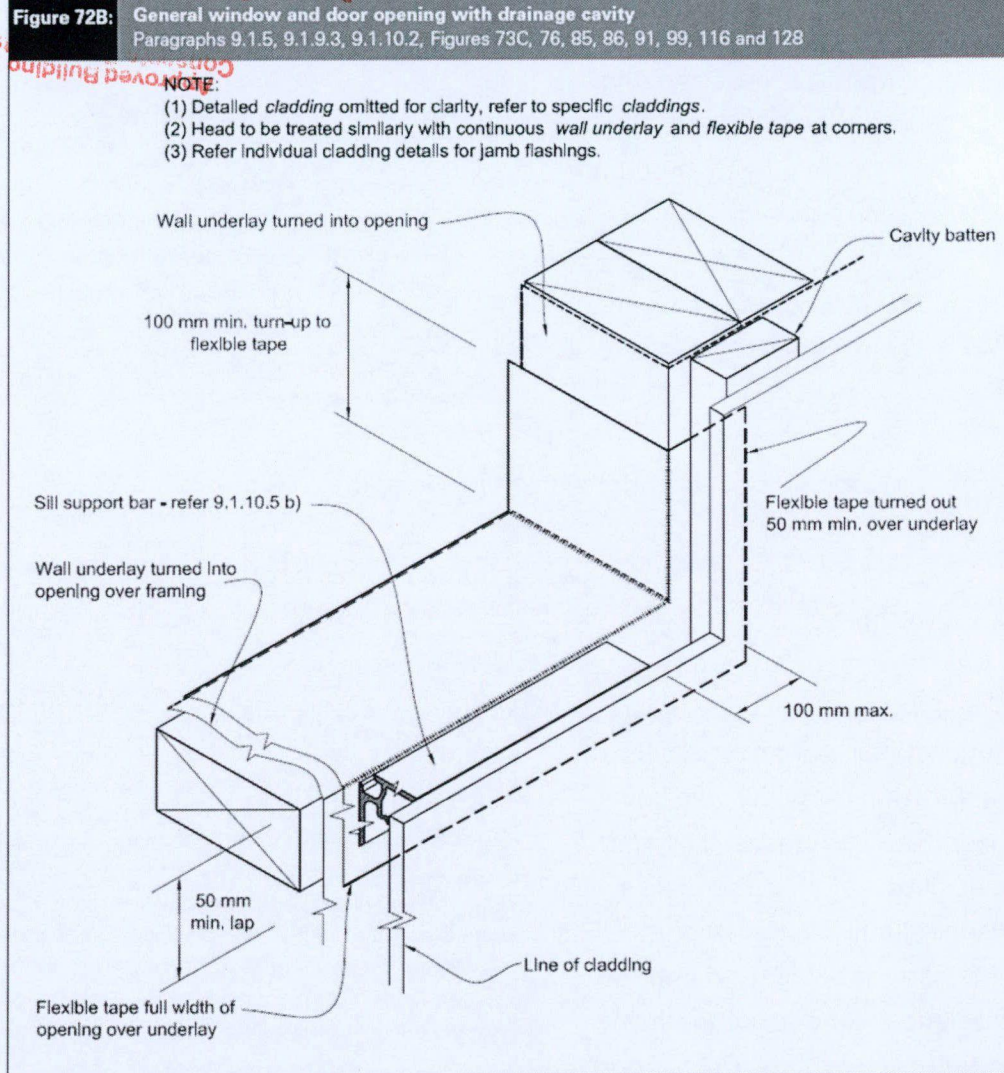
The locator blocks are designed to be re-used but can remain if desired.

- b. After fitting a locator block at each end of the bar, position it into the trim opening. Using a level find the high end of the bar and fix the bar in place. Now adjust the other end of the bar to level and fix this end.



Detail 6

Figure 72B shows the general arrangement of the sill for a window installed into wall claddings, over a cavity.



Note: Figure 72B indicates that the sill support bar may be up to 100mm short of the trim opening at either end. It is recommended that the bar installed to the full width of the opening to ensure it picks up the window or door frame support blocks. However in some cases the use of non-proprietary corner soakers may require shortening of the bar.



Step C1 – Sill Support Bar

Clause 9.1.10.5 b) v) describes the requirements of the Sill Support bar in terms of compliance with E2/AS1. There are some important points to note;

- a. Support is required on all window and door units with a trim opening over 600mm wide,
 - b. The sill support bar must comply with EM6, E2/ VM1 & B2/AS1,
 - c. Must be installed prior to the window or door unit.
 - d. The bar must be fitted in a manner that does not trap water on the sill trimmer
- v) Sill support bars and mechanisms for all doors, and for windows with a trim opening wider than 600 mm. Support bars and mechanisms shall comply with BRANZ Evaluation Method EM6, E2/VM1 and B2/AS1. Support bars and mechanisms must be installed prior to installation of the window or door.

The comment following Clause 9.1.10.5 b) v) makes reference to ensuring the support bar is appropriate for the application for which it is being used. The EM6 test will allow the calculation of an acceptable weight limit for the support mechanism being used and the size and frequency of the fixings required to achieve the support.

COMMENT

Support bars and mechanisms are rated for their capacity to support the total weight of a joinery unit when installed at given offsets from the frame depending on *cladding* type. Designers select the an appropriate complying support mechanism for the joinery weight. Manufacturers provide build-in instructions for support bars and mechanisms.

Clause 9.1.10.5 c) also makes this note regarding the design of the sill support bars.

Sill support bars and mechanisms must be designed to not impede the possible drainage of water from surfaces of sill *flashing* tape, and permit an air passage (of at least 1000 mm²/m sill width) from the *drained cavity* to the window/door trim cavity.



Note: Selection of the appropriate sill support bar is important. Please refer below for a guide to the options offered by WANZ.

Ashburton District Council

08 61 / 13

Approved Building
Consents Department

Cavity Construction

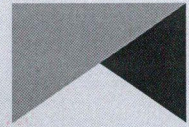
Clause 9.1.10.2 c) & d) describes the basics of window installation for wall claddings over a cavity.

- c) Window openings for *wall claddings* over *drained cavities* shall be as shown in Figure 72B. Note there shall be no *sill flashing*.
- d) For cavity fixed *claddings*, windows and doors shall finish against the *cladding*, except for flat fibre cement and ply *claddings* that require a 5 mm stand-off to allow for sealant weather seals between facings and *cladding* – eg, Figure 116.



Note: The use of a sill tray with cavity construction should be avoided. Its use will impact on the airflow into the cavity around the window and therefore its ability to pressure equalise. If a sill tray is desired then a Direct Fix type solution for the window installation must be created.

- b) *Claddings* over a *drained cavity* shall have:
 - iii) window sills as shown in Paragraphs 9.2 to 9.9, without *sill flashings*



BRANZ

In the opinion of BRANZ, Dampfix 2 and Dampfix 3 Wet Area Membranes are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to Bostik New Zealand Limited, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
 - a) relates only to the product as described herein;
 - b) must be read, considered and used in full together with the technical literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. Bostik New Zealand Limited:
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions.
3. Warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
4. BRANZ makes no representation or warranty as to:
 - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by Bostik New Zealand Limited.
5. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
6. BRANZ provides no certification, guarantee, indemnity or warranty, to Bostik New Zealand Limited or any third party.

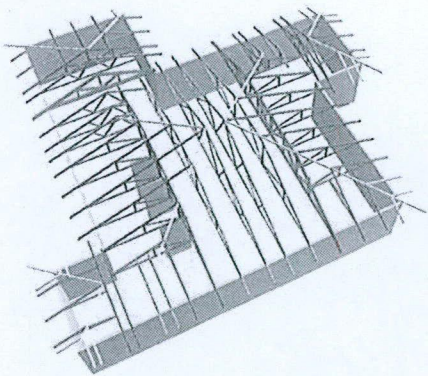
For BRANZ

Chief Executive

Date of issue: 17 December 2007

Amendment No. 1, dated 22 December 2010.

This Appraisal has been amended to update the Appraisal Holder details.



PRELIMINARY DESIGN

THIS LAYOUT ASSUMES ALL MECHANICAL SERVICES WILL FIT WITHIN THE WEB PATTERN PROVIDED. ANY CHANGES WILL RESULT IN A REDESIGN, SUBSEQUENT COSTS AND WILL BE CLASSED AS A VARIATION.

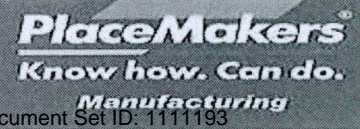
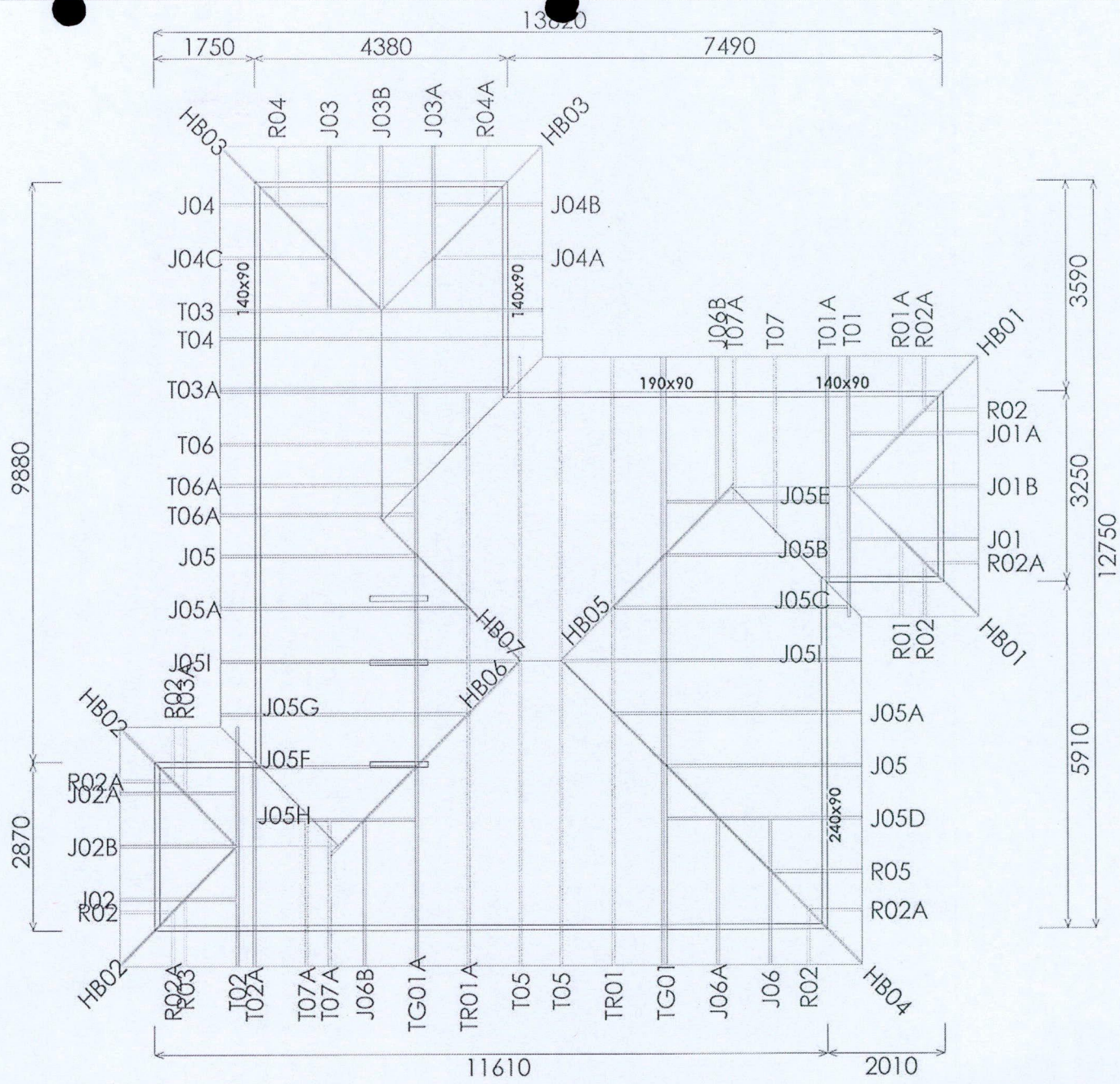
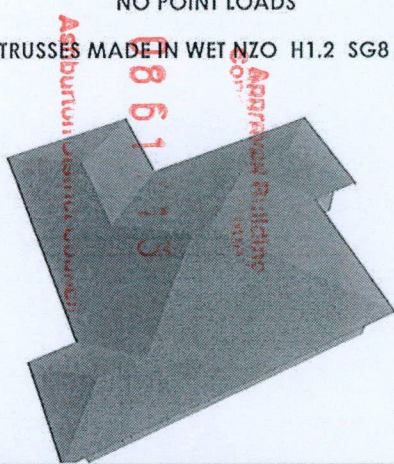
CERTAIN MEASUREMENTS HAVE BEEN SCALED
VERIFY DIMENSIONS PRIOR TO MANUFACTURE.

ALL INDICATED WALLS ARE ASSUMED TO BE LOAD BEARING.

DESIGN SUBJECT TO A SITE MEASURE

NO POINT LOADS

TRUSSES MADE IN WET NZO H1.2 SG8 & SG10



Site Address:
**LOT 3
BURNETT STREET
ASHBURTON**

Job Title:
**For Building Consent
Buildable Truss Layout**

Date: 9 Aug 2013 Drawn: ALLAN THOMPSON
Scale: 1:110 System: MiTek 20/20

Job Details

Roof Pitch : 22.00deg
Roof Material : Light
Ceiling Material : Gib Board 13mm
Wind Zone : Medium
Roof Snow Load : 0.479kPa

Truss Centres : 900mm
Roof Live Load : 0.250kPa
Floor Live Load :
Wind Speed : 37m/s
Overhang : 600mm



Job Title:
PA21168

Sheet:
1

Revision Number:



Correspondence from : AUCKLAND
40 Neales Road, East Tamaki 2013
PO Box 58-014, Botany 2163
Phone: 09 274 7109
Fax: 09 274 7100

CHRISTCHURCH
14 Pilkington Way, Wigram 8042
PO Box 8387, Riccarton 8440
Phone: 03 348 8691
Fax: 03 348 0314

www.mitek.nz.co.nz

MiTek 20/20 Engineering 4.6.6.148

Printed: 08:54:18 09 Aug 2013

PRODUCER STATEMENT for MiTek 20/20[®] TRUSS DESIGN - Version 4.6

ISSUED BY: MiTek New Zealand Limited

TO: MiTek New Zealand Ltd.

IN RESPECT OF: MiTek[®] Truss Designs

This producer statement covers the MiTek 20/20[®] truss design and the structural performance of the GANG-NAIL[®] connector plate for the job reference **PA21168** and may be used by a Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

The MiTek 20/20[®] truss design program has been developed by MiTek New Zealand Limited for the design of MiTek[®] timber roof, floor and attic trusses in New Zealand. The truss designs computed by MiTek 20/20[®] are prepared using sound and widely accepted engineering principles, and in accordance with compliance documents of the New Zealand Building Code and Verification Method B1/VM1; and internationally accepted standard ANSI/TPI 1 - 2002 as an alternative solution to satisfy the requirements of Clause B1 of the New Zealand Building Code.

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

- i) All proprietary products meeting their performance specification requirements
- ii) The provision of adequate roof bracing and overall building stability
- iii) Correct selection and placement of GANG-NAIL connector plates
- iv) Correct input of Truss Design Data as shown in the Fabricator Design Statement for this job
- v) The design being undertaken by the accredited fabricator under the terms of the software licence

I believe on reasonable grounds that the trusses, if constructed in accordance with the MiTek 20/20[®] truss design and shop drawings, will comply with the relevant provisions of the New Zealand Building Code.

MiTek New Zealand Limited holds a current policy of Professional Indemnity Insurance no less than \$500,000.

On behalf of MiTek New Zealand Limited,

Date: Friday, 9 August 2013

In Ling Ng, BE (Hons), CPEng, IntPE, MIPENZ (ID: 146585)
TECHNICAL SERVICES MANAGER, MiTek New Zealand Limited

Job: PA21168

Client: PAUL WALLIS
Phone:

Site: LOT 3
BURNETT STREET
ASHBURTON

Description: LOT 3 BURNETT
Building Consent No.:
MiTek 2020 Engineering 4.0.0.148

Phone:

Printed: 08:54:23:09 Aug 2013

Truss	Qty	Span (mm)	Joint	Down (kN)	Uplift (kN)	Bearing	----- Fixing -----		
							Qty	Selected	
*R01	1	1315							Refer NZS3604:2011 Tables 15.6
*R01A	1	1315							Refer NZS3604:2011 Tables 15.6
*R02	5	913							Refer NZS3604:2011 Tables 15.6
*R02A	5	913							Refer NZS3604:2011 Tables 15.6
*R03	1	1125							Refer NZS3604:2011 Tables 15.6
*R03A	1	1125							Refer NZS3604:2011 Tables 15.6
*R04	1	980							Refer NZS3604:2011 Tables 15.6
*R04A	1	980							Refer NZS3604:2011 Tables 15.6
*R05	1	1570							Refer NZS3604:2011 Tables 15.6
T01	1	3250	B	4.228	1.199	Cross	1		Pair of Wire Dog Staples
			D	4.228	1.199	Cross	1		Pair of Wire Dog Staples
T01A	1	3250	A	6.993	1.784	Cross	1		Pair of Wire Dog Staples
			E	5.794	1.367	Cross	1		Pair of Wire Dog Staples
T02	1	2870	B	3.628	0.994	Cross	1		Pair of Wire Dog Staples
			D	3.628	0.994	Cross	1		Pair of Wire Dog Staples
T02A	1	2870	B	4.658	1.143	Cross	1		Pair of Wire Dog Staples
			D	4.758	1.521	Cross	1		Pair of Wire Dog Staples
T03	1	4380	B	6.590	1.926	Cross	1		Pair of Wire Dog Staples
			F	6.590	1.926	Cross	1		Pair of Wire Dog Staples
T03A	1D	4380	B	7.610	2.004	Cross	1		Pair of Wire Dog Staples
			F	12.758	3.902	Cross	1		CT400
T04	1	4380	B	4.612	1.160	Cross	1		Pair of Wire Dog Staples
			F	4.612	1.160	Cross	1		Pair of Wire Dog Staples
T05	2	9160	B	8.708	2.452	Cross	2		Pair of Wire Dog Staples
			H	8.708	2.452	Cross	2		Pair of Wire Dog Staples
T06	1	2757	G	3.888	0.753	Butt	1		JH 47x90
			E	3.217	0.675	Cross	1		Pair of Wire Dog Staples
	2	2757	F	2.235	0.812	Butt	2		JH 47x90
			D	3.414	0.655	Cross	2		Pair of Wire Dog Staples
T07	1	1857	B	2.585	0.421	Cross	1		Pair of Wire Dog Staples
			F	2.406	0.536	Butt	1		JH 47x90
T07A	3	1857	B	2.658	0.439	Cross	3		Pair of Wire Dog Staples
			E	1.669	0.540	Butt	3		JH 47x90
TG01	1D	9160	B	17.401	5.368	Cross	1		CT400
			G	17.817	5.444	Cross	1		CT400
TG01A	1	9160	B	4.566	1.114	Cross	1		Pair of Wire Dog Staples
			G	5.724	1.589	Butt	1		JH 47x90
			O	12.298	3.883	Cross	1		CT400
			Q	10.142	2.708	Cross	1		Pair of Wire Dog Staples
			M	4.967	0.987	Cross	1		Pair of Wire Dog Staples
TR01	1	9160	B	8.623	2.453	Cross	1		Pair of Wire Dog Staples
			G	8.623	2.453	Cross	1		Pair of Wire Dog Staples
TR01A	1	9160	B	8.649	2.453	Cross	1		Pair of Wire Dog Staples
			G	7.756	2.478	Butt	1		Pair of MultiGrips

Fixing List

Qty	Selected Fixing
65	Pair of Wire Dog Staples
32	Pair of 3.15d Nails
21	JH 47x90
4	CT400
1	Pair of MultiGrips

Note:

- 1) Fixings have been selected based on loading only. Please check that selected fixings are practical for each situation and that appropriate nailing can be applied on site.
- 2) Fixings are selected from the LUMBERLOK Brochure 03/4 (Timber Connectors Characteristic Loadings Data) with down and uplift characteristic loads of at least the values shown for each joint.

Job No: PA21168
Job Name: PAUL WALLIS

Client: LOT 3
Building Consent No:

Site: BURNETT STREET

DESIGN STATEMENT
MiTek Beam Program v1.10 June 2011

Certification of MiTek Beam Program v1.10 June 2011

The MiTek Beam Program v1.10 June 2011 has been developed by MiTek New Zealand Ltd for the design of these beams: Timber, Glulam, GANGLAM and GANG-NAIL FLITCH BEAMS. The beam designs calculated by this program are prepared using sound and widely accepted engineering principles, and in accordance with Compliance Documents of the New Zealand Building Code and Verification Method B1/VM1 to satisfy the requirements of Clause B1 of the Building Code. We believe on reasonable grounds that these beams for the proposed building, if constructed in accordance with the drawings, specifications and other documents provided will comply with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements; the provision of adequate bracing and fixings; and the correct input of design data carried out by suitably trained personnel. This document may be used by the Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

Summary of MiTek Beam Program v1.10 June 2011 Data and Output

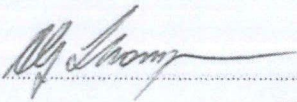
Roof		Wind		Wall	
Weight:	light + ceiling	Area/Speed:	medium (37.0 m/s)	Type:	NA
Dead Load:	0.45 kPa				
Live Load:	0.25 kPa	Snow		Floor	
		Area:	0.479 kPa	Live Load:	NA

Beam List

Opening Label	Beam Material	Beam Size	Beam Length	Design Status	Opening Label	Beam Material	Beam Size	Beam Length	Design Status
GARAGE DOOR	MSG8/VSG8	2/240x45	3000	OKAY					
LIVING WNDW	MSG8/VSG8	2/140x45	2000	OKAY					
LIVING SLIDR	MSG8/VSG8	2/140x45	2000	OKAY					
KITCHN SLIDR	MSG8/VSG8	2/190x45	2000	OKAY					
DINING WNDW	MSG8/VSG8	2/140x45	2000	OKAY					

GANGLAM plating details indicated with RD (regular duty plating), HD (heavy duty plating) and SHD (super heavy duty plating)

The design input has been carried out by:

Signed: 

Date: 9/08/2013

Name of Computer Operator:

Qualifications and Title:

Company:

10/08/2013 10:00 AM

Memorandum from licensed building practitioner: Certificate of design work

Section 45 and section 30c, Building Act 2004

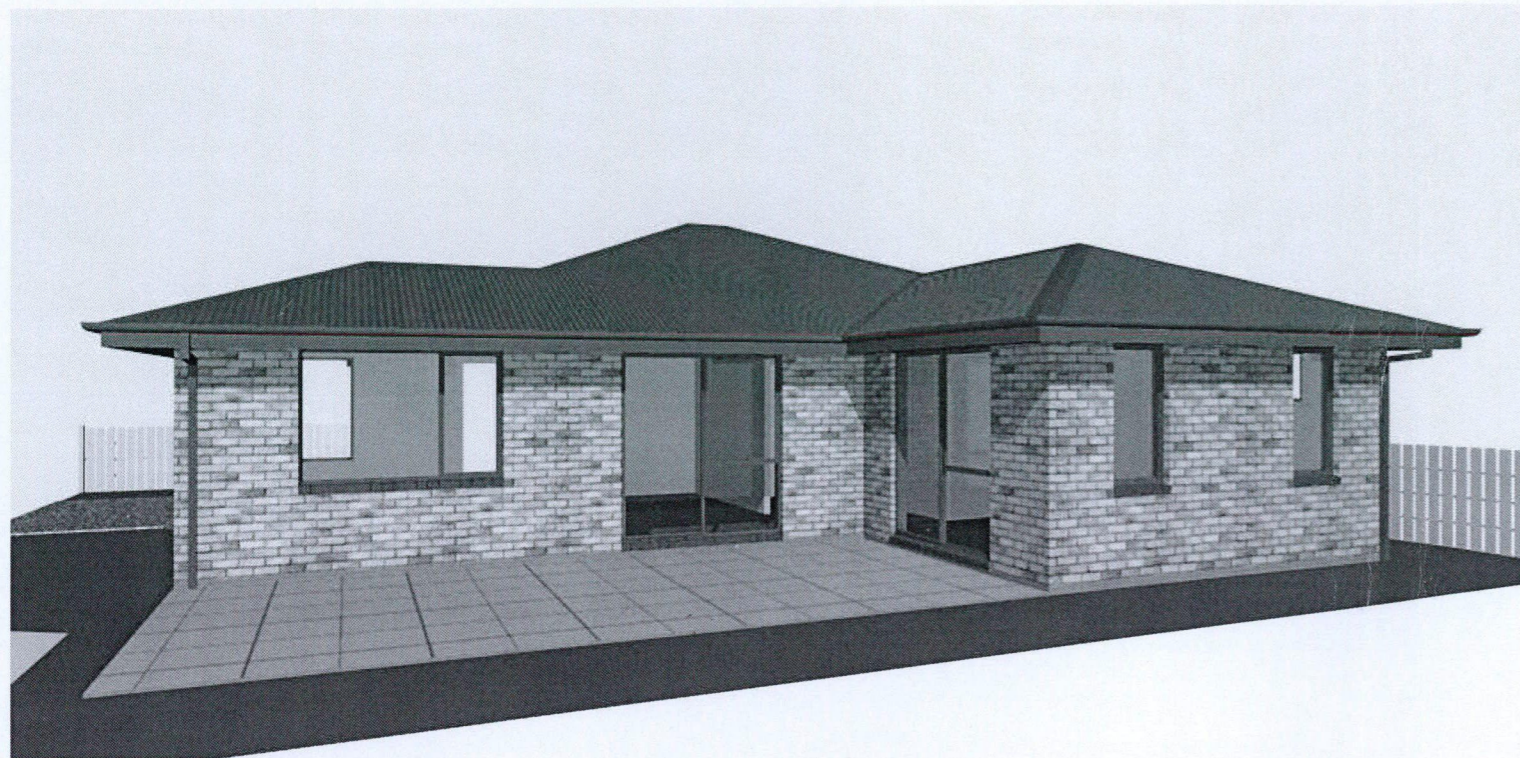
Please fill in the form as fully and correctly as possible.

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: Burnett Street	
Suburb:	
Town/City: Ashburton	Postcode:

THE OWNER(S)	
Name(s): Team Wallis (Paul & Glennis Wallis)	
Mailing address: 60 Tarbottons Road	
Suburb: Tinwald	PO Box/Private Bag:
Town/City: Ashburton	Postcode: 7700
Phone number:	Email address: wally999@xtra.co.nz

RECEIVED
19 AUG 2013
BY:



ARTIST IMPRESSION

Compliance Schedule

New House Construction,

B1 Structure	B1/AS1 & VM1 for trusses, beams, lintels etc..., timber construction to NZS 3604, masonry construction to NZS 4229 or specific design, including steel stud and composite panels, to NZS 1170.
B2 Durability	B2/AS1 with timber treated to NZS 3602, fixings to NZS 3604 and flashings and claddings to E2/AS1.
C1-C4 Outbreak of Fire:	C1/AS1, C2/AS1, C3/AS1.
D1 Access Routes	D1/AS1 for stair dimensions, slip resistance and hand rails.
E1 Surface water:	E1/AS1 for storm water drainage.
E2 External Moisture:	E2/AS1 for risk assessment, cladding materials & details, and sizing of gutters and downpipes.
E3 Internal Moisture:	E3/AS1 for wet area finishes and ventilation to prevent fungal growth.
F2 Hazardous Building Materials:	F2/AS1.
F4 Safety from falling:	F4/AS1 for balustrades and any changes in levels, opening levels.
F5 Construction & Demolition Hazard:	n/a
F6 Lighting for Emergency:	n/a.
F7 Warning Systems:	F7/AS1.
G1 Personal Hygiene:	G1/AS1 Sanitary facilities to be provided.
G2 Laundering:	G2/AS1 for Household units of more than 2 people.
G3 food Preparation:	G3/AS1.
G4 Ventilation:	G4/AS1 covers natural ventilation or mechanical.
G5 Interior Environment:	G5/AS1 Temperature control & space.
G7 natural Light:	G7/AS1 provides for natural light and visual awareness of the outside to all habitable spaces.
G8 Artificial Light:	G8/AS1 & VM1 Illuminance.
G9 Electricity:	G9/AS1 for electrical installations by a registered electrician. Energy work certificates are required on completion.
G10 Piped Services:	G10/AS1 gas installation.
G11 Gas as an Energy Source:	G10/AS1. Energy work certificates are required on completion
G12 Water Supplies:	G12/AS1.
G13 Foul Water:	G13/AS1 for sanitary plumbing and G13/AS2 for foul water drainage.
H1 Energy Efficiency:	H1/AS1.

INDEX

1. ARTIST IMPRESSION & INDEX
2. SITE PLAN & TYP. SOAK PIT DETAIL
3. FOUNDATION PLAN & ROOF PLAN
4. FLOOR PLAN
5. ELEVATIONS & RISK MATRIXS
6. BRACING LAYOUT
7. BRACING CALCULATIONS
8. BRACING FIXING DETAILS
9. BRACING DETAILS (GS1 & BL1)
10. TYPICAL PLYWOOD DETAILS
11. TYPICAL GIB DETAILS/WET AREA DETAILS
12. PRELIMINARY LIGHTING/ELECTRICAL LAYOUT & TYP. DOWNLIGHT DETAIL
13. CROSS SECTION A
14. DETAILS 1 - 4
15. DETAILS 5 - 10
16. DETAILS 11 - 16
17. DETAILS 17 - 21
18. DETAIL 22 & 23
- David Smith Surveying Ltd Scheme Plan

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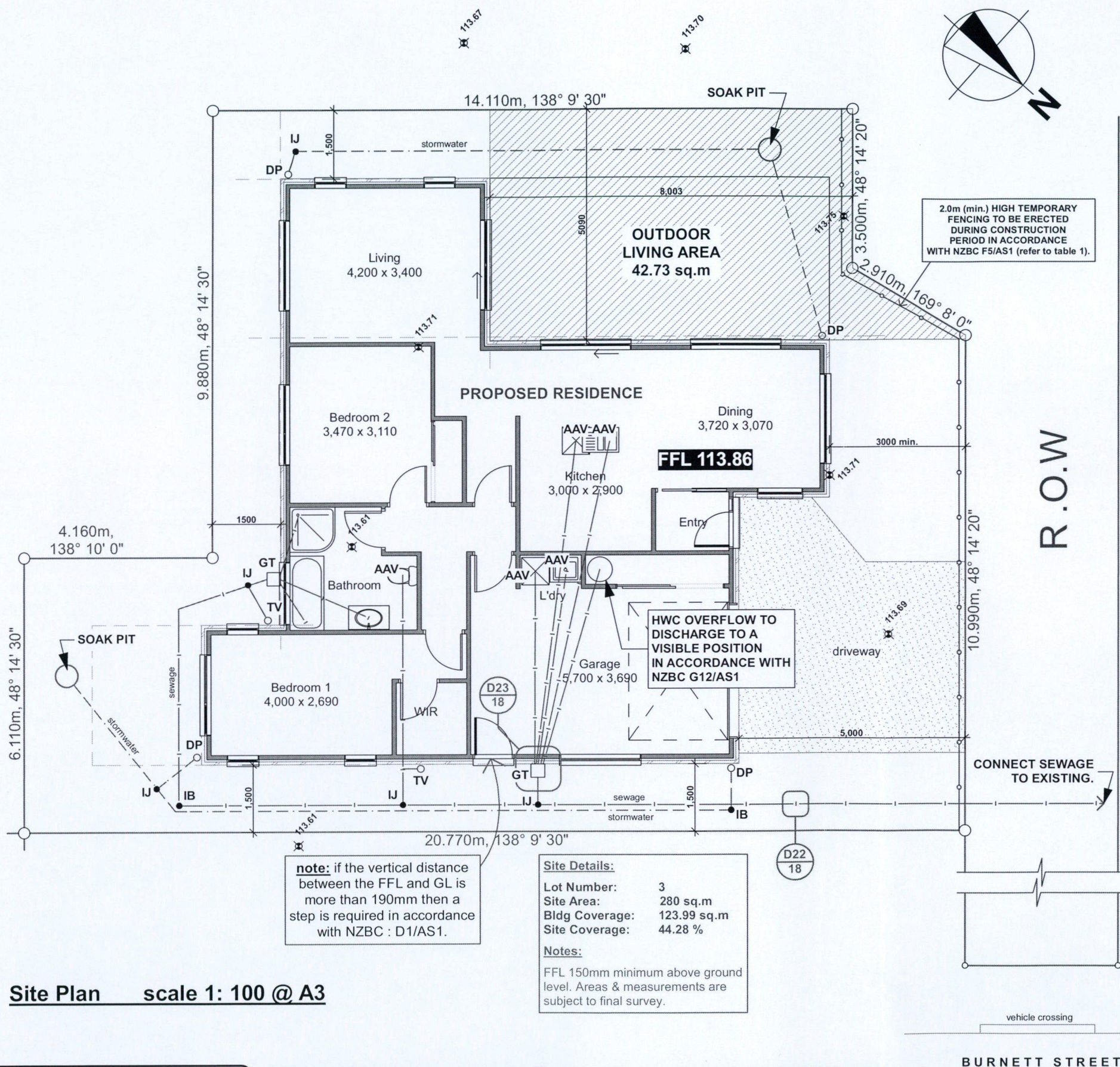
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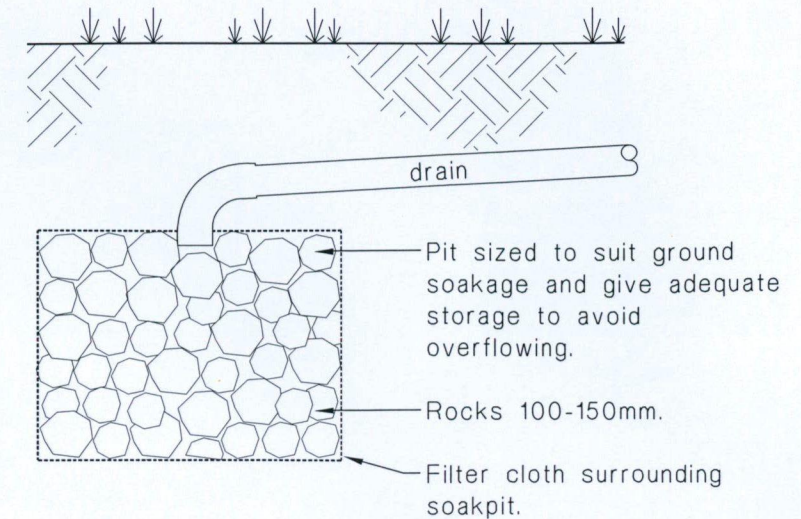
ARTIST IMPRESSION & INDEX

JOB NUMBER: 2013-031-Wallis-WD.pln	DATE OF ISSUE: 16/08/2013	DRAWN BY: Craig Fitchett	SHEET NUMBER: 1 of 18
DRAWING STATUS: CONSENT DWGS		VERSION / REVISION: ISSUE 1	

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52a Mandeville Street, Riccarton, Christchurch
P.O. Box 124, Bishopdale, Christchurch 8543



Site Plan scale 1: 100 @ A3



Typical Soak Pit Detail 1:50

SEDIMENT CONTROL PLAN

1. Provide 2.0m wide entry/exit rumble pad (150-200mm deep 40mm crushed rock) to driveway area, from kerb to slab with 200mm high hump pad across pad deflecting stormwater runoff to sediment fence.
2. Provide geotextile sediment fencing/barrier (or similar approved) to the low side of the soil disturbance.
3. Stockpile topsoil within the sediment controlled zone.
4. Stabilise earth banks.
5. Downpipes to be connected as soon as roof and drainage is available.
6. All other work is to be completed in accordance with Environment Canterbury "Best Practice Guidelines."

KEY:

- Proposed Stormwater: 100mm dia, 1:120 gradient
 Proposed Sewer: 100mm dia, 1:80 gradient
- Terminal Vent (80mm min. dia) TV
 Down Pipe: DP ○
 Drainage Outlet: DO ○
 Gully Trap GT □
 Silt Trap ST □
 Type 1 Surface Water Sump SP □
 Inspection Junction/Bend/Point: IJ/IB/IP ●
 Vented Soil Stack SS ○
 Air Admittance Valve AAV

All to comply with NZBC.

SOIL PIPE SIZES:

- toilets: 100mm dia (1:40 gradient)
 sinks: 40mm dia (1:40 gradient)
 w/m: 40mm dia (1:30 gradient)
 tubs: 40mm dia (1:30 gradient)
 bath: 40mm dia (1:40 gradient)
 d/w: 40mm dia (1:40 gradient)
 shower: 40mm dia (1:40 gradient)
 whb: 32mm dia (1:20 gradient)
 vanities: 32mm dia (1:20 gradient)

NOTES:

Drainage shown is diagramatic, drainlayer & plumber to confirm on site local council.
 All drains to comply with G13/AS1 and AS2
 Air Admittance valves are to be fitted to all fittings greater than 3.5m.
 All pipe penetrations through concrete shall be wrapped in 'Denso Tape' or similar product to allow for pipe movement or any pipe work to go under any strip footing in the horizontal plane, shall be not less than 45°, and clear the underside of the footing by 25mm.
 uPVC pipes shall be supported at centres not exceeding:
 32-50mm dia pipes - 1.0m vertically, 0.5m graded.
 65-100mm dia pipes - 1.2m vertically, 1.0m graded.
 greater than 100mm dia pipes - 1.8m vertically, 1.2m graded.
 Thermal movement shall be accommodated using pipe sleeves or a durable and flexible lagging material
 Separation from all services 100mm min.
 HWC overflow pipe to be copper.
 AN INSPECTION POINT/JUNCTION IS TO BE LOCATED WITHIN 2.0m OF THE EXIT FROM THE BUILDING.

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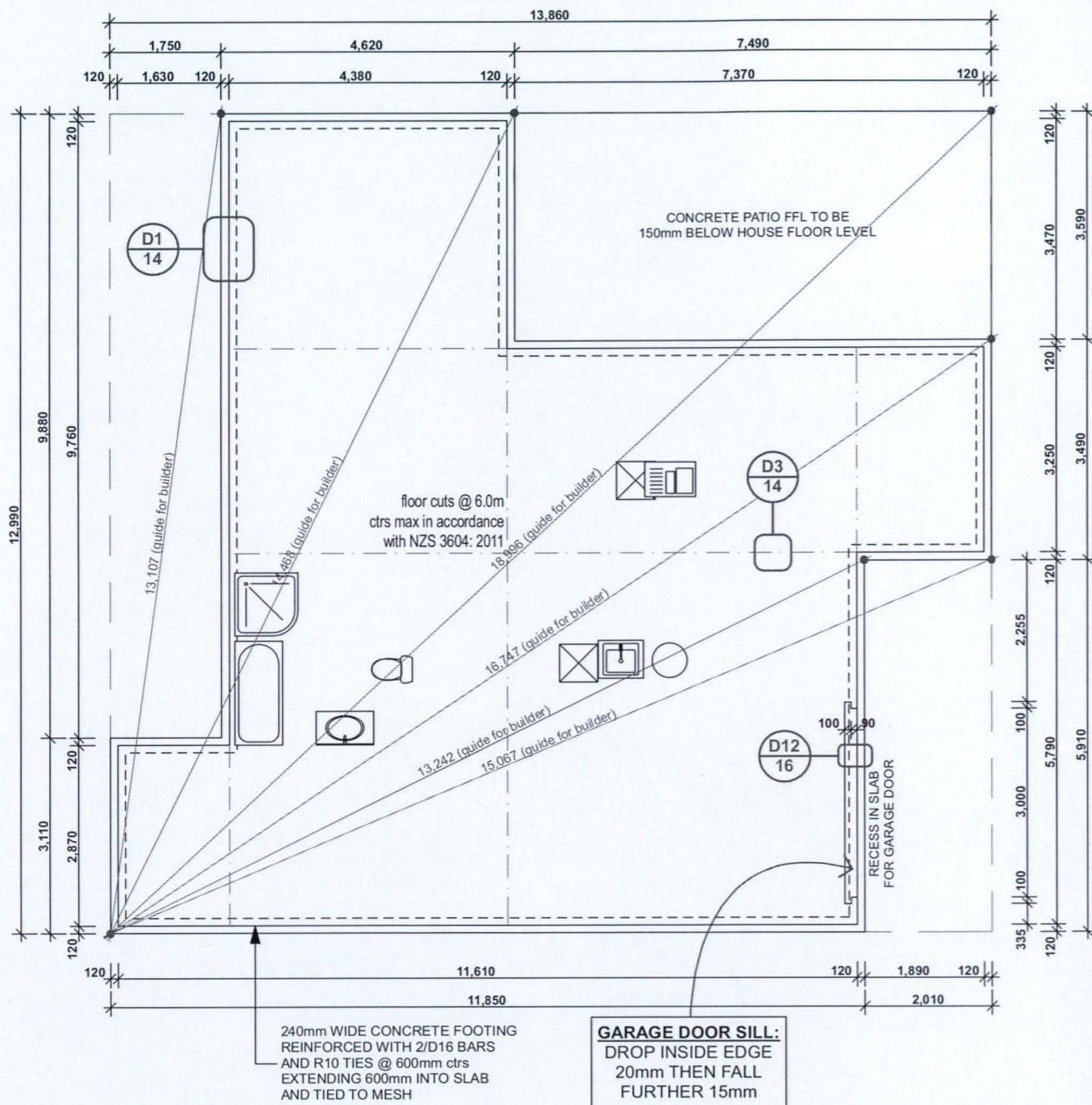
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SITE PLAN & TYP. SOAK PIT DETAIL

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DRAWING STATUS: CONSENT DWGS		VERSION / REVISION: ISSUE 1	

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Date 4/9/13

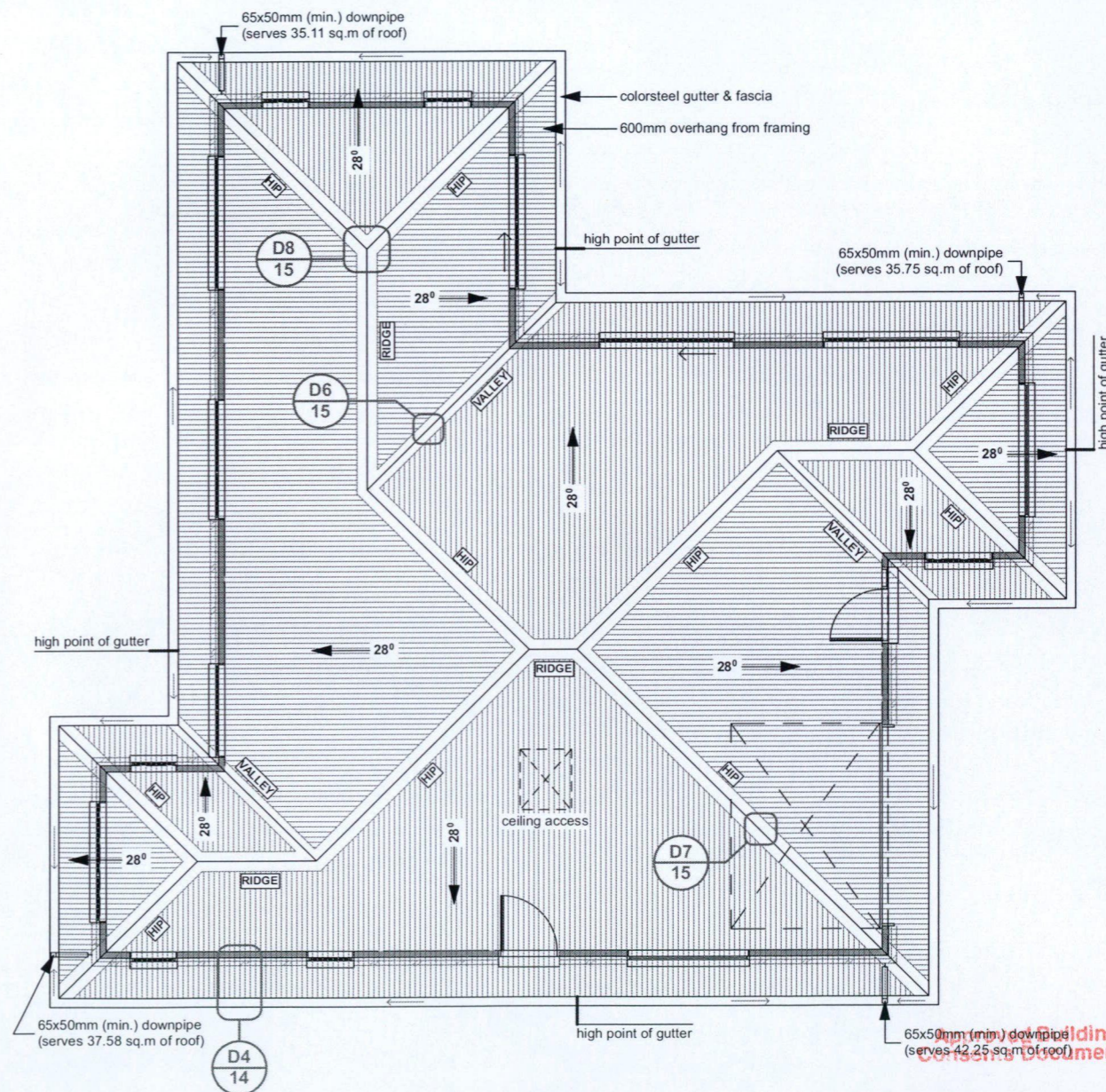


Foundation Plan

scale 1:100

TRUSS MANUFACTURER
-Lintel Sizes: Truss manufacturers to size all lintels with special loads. (truss manufacturers lintel sizes take precedence over designers sizes (refer to truss manufacturers documentation)).
Wall, lintel and truss fixings are also to be supplied.
Truss manufacturer to confirm foundation thickenings and supply if necessary relevant documentation for point loads and thickenings.
Roof trusses at 900mm ctrs with H1.2 treated douglas fir timber members.
All dimensions shown are to framing.
Metal gutter to have minimum cross sectional area of 8700mm²
Note:
Down pipes are to be as indicated 65x50mm (capacity of 60.00m² of the floor plan) (Roof Pitch 0-25°).

:Colorsteel longrun roofing fixed over self supporting building paper to 70x45 H1.2 treated douglas fir purlins laid in accordance with manufacturers specifications, on manufacturer designed trusses @ 22° pitch.
:600mm eaves off outside edge of framing.
:Refer to manufacturers documentation for roof bracing details, and any specific lintel requirements regarding girder trusses.



Roof Plan

scale 1:100

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FOUNDATION PLAN & ROOF PLAN

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HWC PIPE SIZES:

HWC pipe sizes and lengths shall comply with NZS 4305: 1996 clause 3.2.1 & table 5.
 10mm dia pipe: maximum length 25.0m
 15mm dia pipe: maximum length 12.0m
 20mm dia pipe: maximum length 7.0m

notes:
 where the pipe supplying the sink unit is composed of sections of different diameters, the total volume of water in the pipe run shall not exceed 2 litres.
 HWC overflow pipe to be copper.

PIPE SUPPORT

Pipes shall be supported at centres not exceeding:

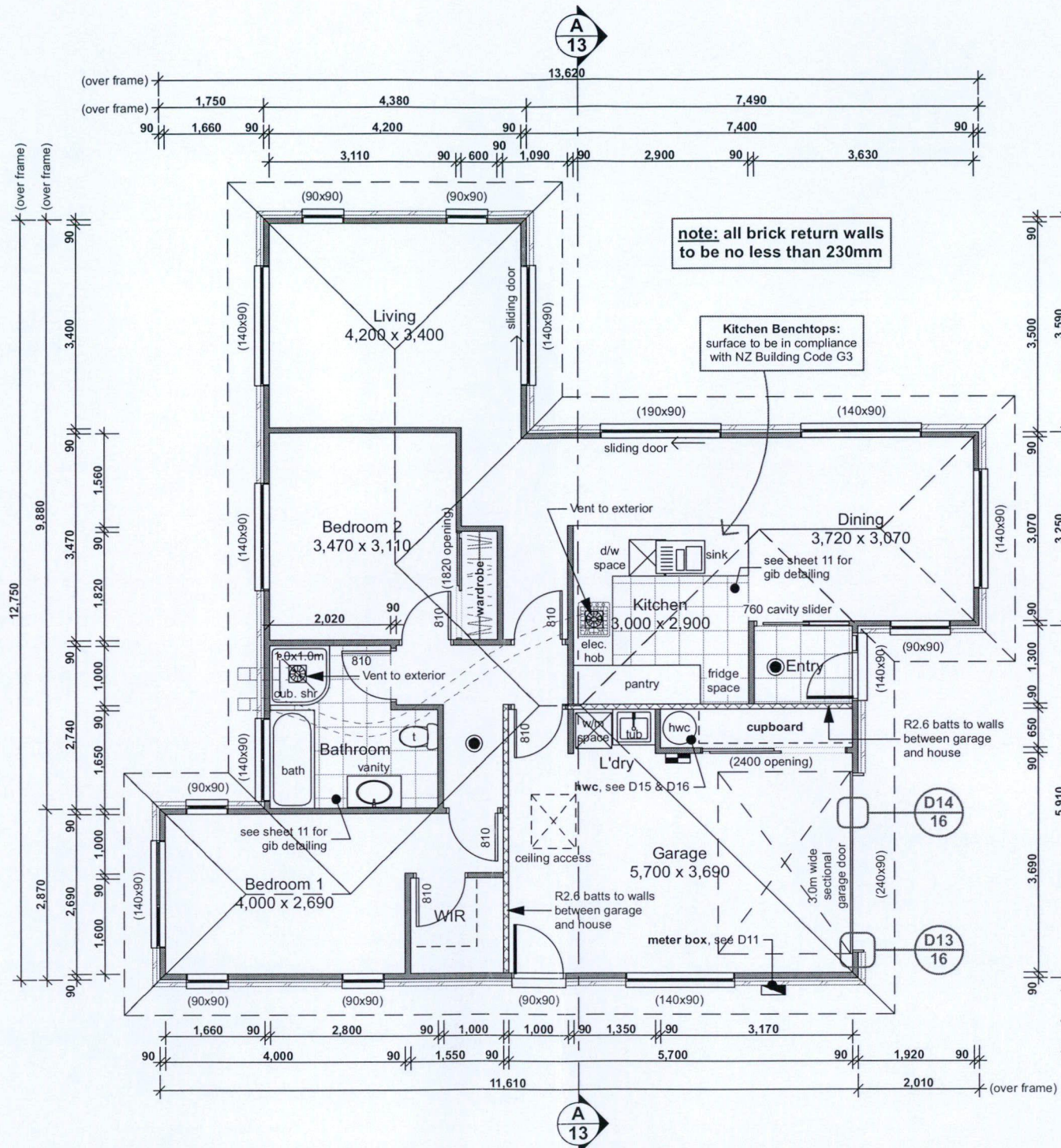
	Pipe Diameter	Max distance between supports
Copper Pipes:	32 - 50mm	3.0m (vertical pipe) 2.5m (graded pipe)
	greater than 50mm	3.5m (vertical pipe) 3.0m (graded pipe)
PVC-U Pipes:	32 - 50mm	1.0m (vertical pipe) 0.5m (graded pipe)
	65 - 100mm	1.2m (vertical pipe) 1.0m (graded pipe)
	greater than 100mm	1.8m (vertical pipe) 1.2m (graded pipe)

note: for PVC-U pipes carrying discharges of greater than 60°C, support for the pipe shall in accordance with Paragraph 6.3.2 of AS/NZS 2032.

THERMAL MOVEMENT

The plumbing system shall accommodate without failure the expected longitudinal movement in pipes resulting from temperature changes. All copper and PVC-U pipes shall incorporate expansion joints. The provisions described in Section 6.4 of AS/NZS 2032 shall be used for PVC-U pipes.

At Supports, and at wall and floor penetrations not incorporating expansion joints, movement shall be accommodated using pipe sleeves or a durable and flexible material.



FLOOR COVERING KEY:
 all floor coverings shall comply with NZBC E3/AS1.
Tiles: [hatched pattern] **Carpet:** Living, Dining, Bedrooms & Hallways.
Vinyl: [dotted pattern]
Vinyl Planking: [horizontal lines pattern] **Concrete:** Garage.
ANTI-SLIP: on all access routes (both external and internal), provide anti-slip surfaces complying with NZBC D1/AS1/Table 2 (except surfaces inside entry doors of housing may be considered as dry areas).

- NOTES:**
- External & Internal Wall Framing:** 90x45 H1.2 treated douglas fir timber framing with studs @ 600mm ctrs and dwangs @ 800mm ctrs unless otherwise stated. Top & bottom plates to be H1.2 treated pinus radiata timber framing).
 - Roof Framing:** Trusses and ceiling joists are to be H1.2 treated douglas fir timber framing.
 - Exterior Wall Wraps:** Watergate-plus building paper fixed to exterior framing. All wraps shall comply with NZ Building Code E2/AS1.
 - Timber Framing Grade:** All timber to have a framing grade of SG 8.
 - Beam/lintels:** sizes shown are to be confirmed by the precut manufacturer and shall comply with NZS 3604: 2011.
 - Smoke Detectors:** Installed throughout the dwelling complying with NZ Building Code F7/AS1.
Note: do not install smoke detectors more than 3.0m away from a bedroom door. Indicates Smoke Detector Position
 Mount detectors on ceilings, minimum 300mm from any adjacent walls.
ALL SMOKE ALARMS TO HAVE HUSH & TEST FACILITIES

Floor Area:
 117.60 sq.m (over frame)
 123.99 sq.m (over foundation)

Floor Plan scale 1:100

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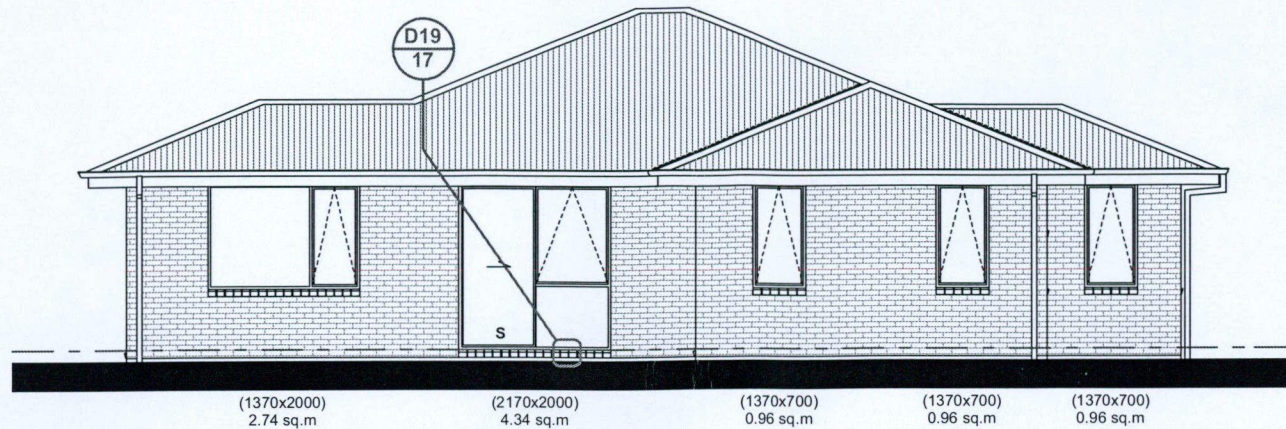


FLOOR PLAN

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BUILDING ENVELOPE RISK MATRIX		
SOUTH WEST ELEVATION		
Risk Factor	Risk Severity	Risk Score
Wind zone (per NZS 3604)	Low	0
Number of storeys	Low	0
Roof/wall intersection design	Low	0
Eaves width	Low	0
Envelope complexity	Low	0
Deck design	Low	0
Total Risk Score:		0

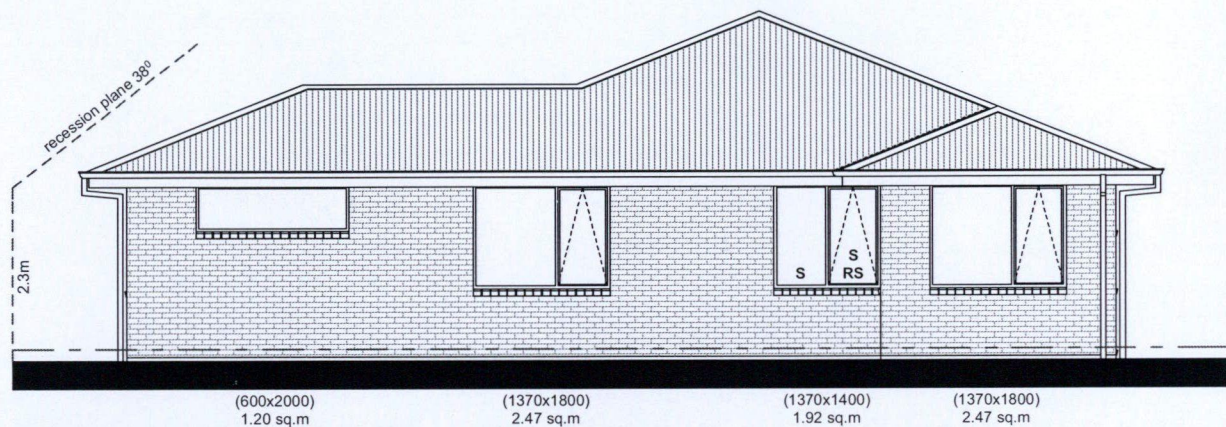


South West Elevation scale 1:100

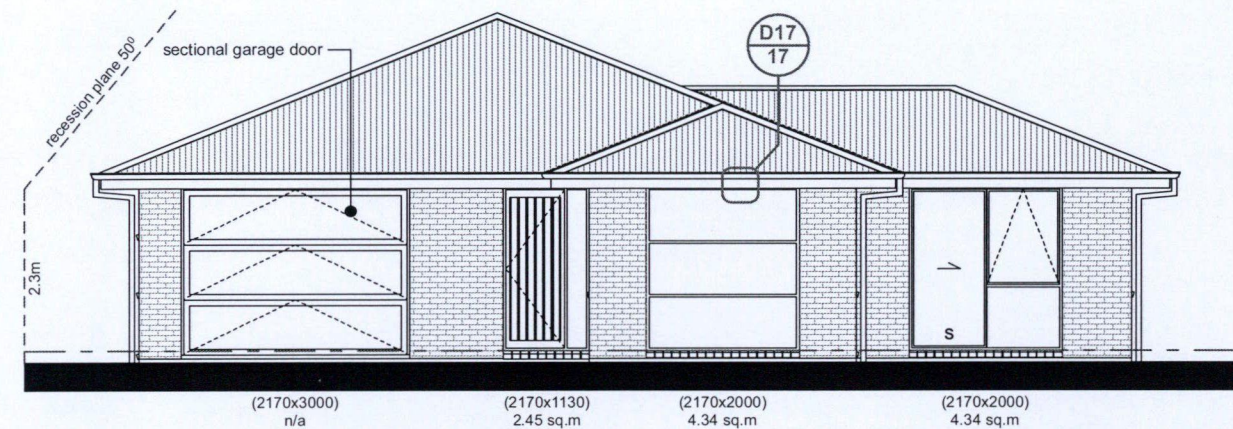
NOTES:

- S - denotes safety glazing to be in accordance with NZS 4223.
- All glazing to be in accordance with NZS 4223.
- All lintels are to comply with NZS 3604: 2011.
- All glazing, except garage to be rated @ R value = 0.26 (minimum).
- All opening sizes are to be measured on site before windows & doors are to be manufactured.
- RS - denotes windows that is to have a 100mm (maximum opening) restrictor stay installed.
(h x w) Indicates size of window & door opening

WANZ support bar: Provide to all doors & windows.



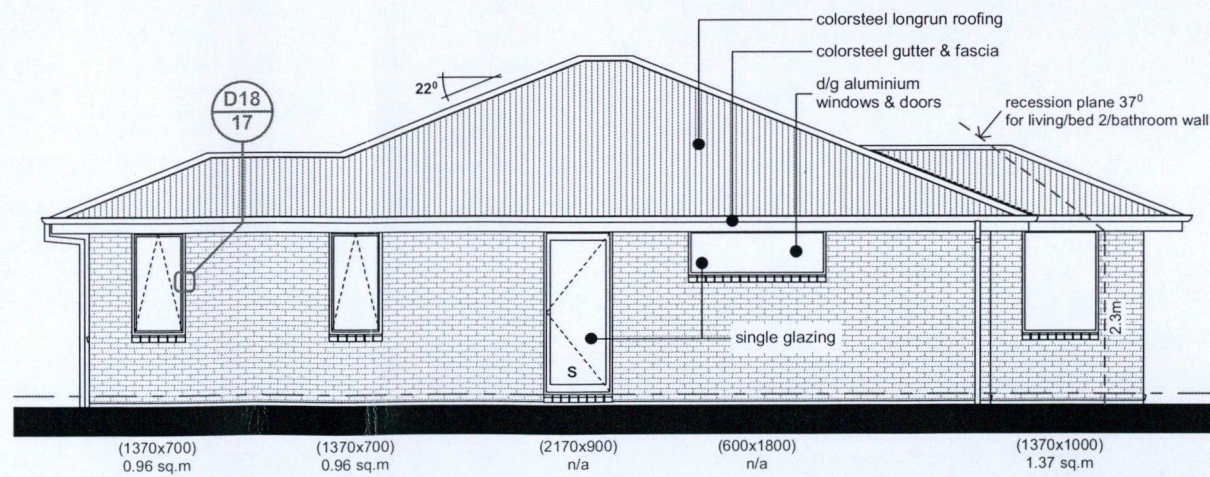
South East Elevation scale 1:100



North West Elevation scale 1:100

BUILDING ENVELOPE RISK MATRIX		
SOUTH EAST ELEVATION		
Risk Factor	Risk Severity	Risk Score
Wind zone (per NZS 3604)	Low	0
Number of storeys	Low	0
Roof/wall intersection design	Low	0
Eaves width	Low	0
Envelope complexity	Low	0
Deck design	Low	0
Total Risk Score:		0

BUILDING ENVELOPE RISK MATRIX		
NORTH EAST ELEVATION		
Risk Factor	Risk Severity	Risk Score
Wind zone (per NZS 3604)	Low	0
Number of storeys	Low	0
Roof/wall intersection design	Low	0
Eaves width	Low	0
Envelope complexity	Low	0
Deck design	Low	0
Total Risk Score:		0



North East Elevation scale 1:100

BUILDING ENVELOPE RISK MATRIX		
NORTH WEST ELEVATION		
Risk Factor	Risk Severity	Risk Score
Wind zone (per NZS 3604)	Low	0
Number of storeys	Low	0
Roof/wall intersection design	Low	0
Eaves width	Low	0
Envelope complexity	Low	0
Deck design	Low	0
Total Risk Score:		0

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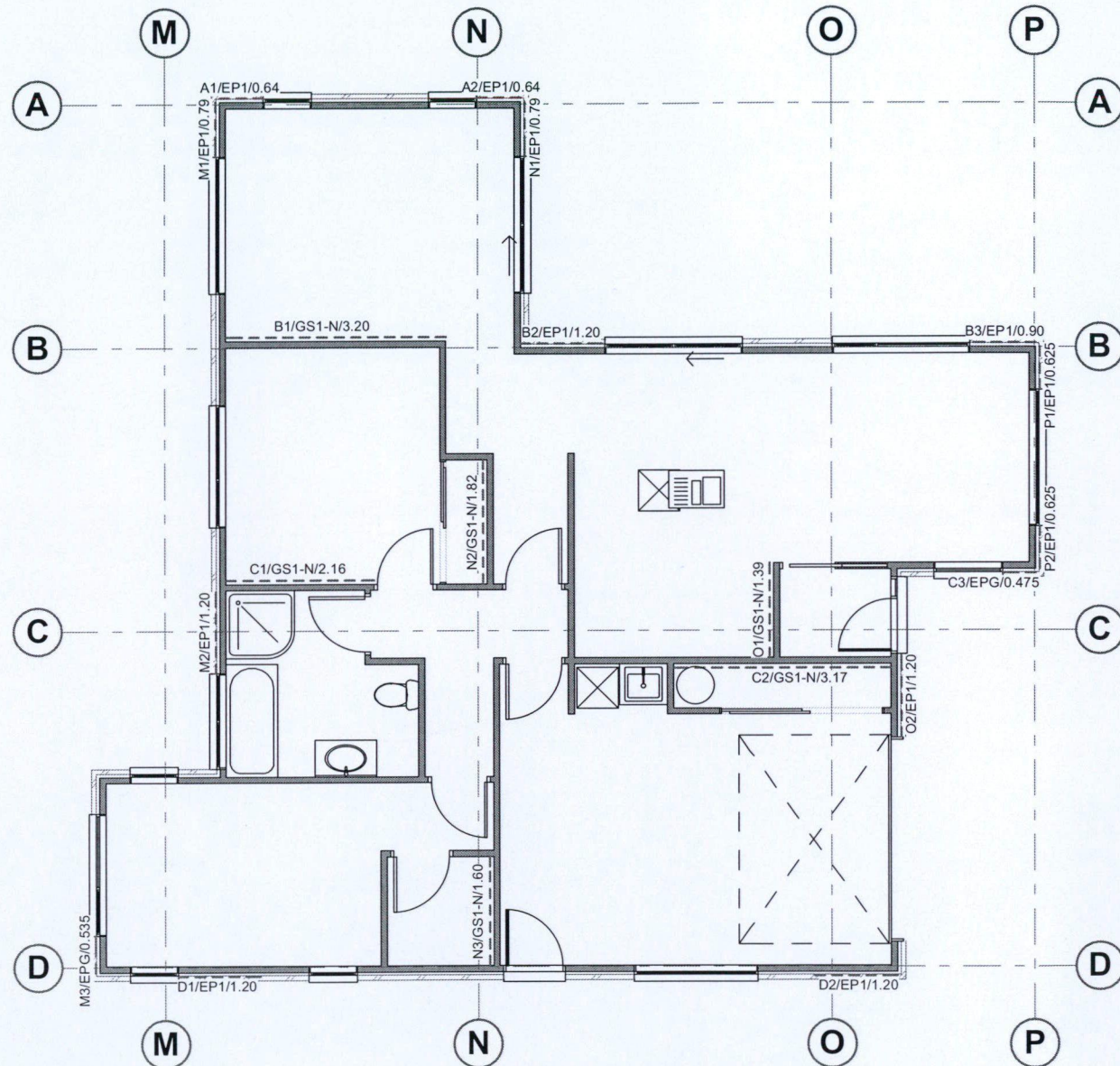
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ELEVATIONS & RISK MATRIXS

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Bracing Layout

scale 1:100

Structural Plywood brace with plasterboard other side

Specification No.	Minimum Wall Length	Lining Requirements	BU's/m Wind	BU's/m Earthquake
EPG	0.4 m	7mm Ecopy [®] or Ecopy Barrier one side and 10mm GIB [®] Standard plasterboard other side	100	115
	1.2 m		150	150

Single sided structural plywood brace

Specification No.	Minimum Wall Length	Lining Requirements	BU's/m Wind	BU's/m Earthquake
EP1	0.6 m	7mm Ecopy [®] , or Ecopy Barrier one side	125	130

Table 1: GIB[®] Standard Plasterboard Bracing Unit ratings

Type	Minimum Length (m)	Lining	Other Requirements	BU/m	
				W	EQ
GS1-N	0.4	GIB [®] Standard Plasterboard one side	N/A	50	55
	1.2			70	60
GS2-N	0.4	GIB [®] Standard Plasterboard both sides	N/A	70	65
	1.2			95	85
GSP-H	0.4	GIB [®] Standard Plasterboard one side plywood the other	Panel hold-down fixings	100	115
	1.2			150*	150*

Table 2: GIB Braceline[®] Bracing Unit ratings

Type	Minimum Length (m)	Lining	Other Requirements	BU/m	
				W	EQ
BL1-H	0.4	GIB Braceline [®] one side	Panel hold-down fixings	90	100
	1.2			125*	105
BLG-H	0.4	GIB Braceline [®] one side GIB [®] Standard Plasterboard the other	Panel hold-down fixings	110	115
	1.2			150*	145*
BLP-H	0.4	GIB Braceline [®] one side plywood the other	Panel hold-down fixings	135*	135*
	1.2			150*	150*

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BRACING LAYOUT

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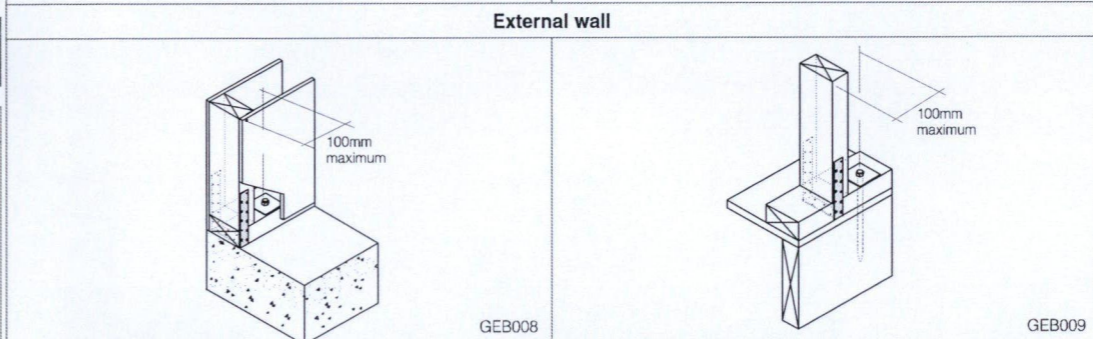
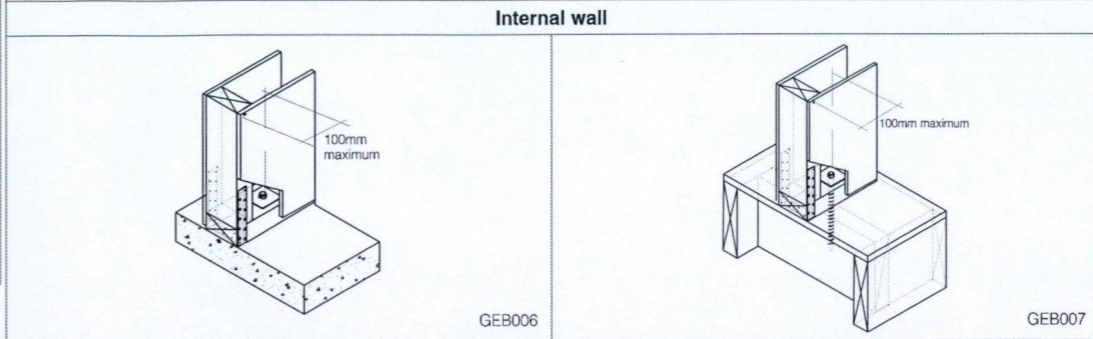
Bottom Plate Fixing JUNE 2011

Panel Hold-down Details JUNE 2011

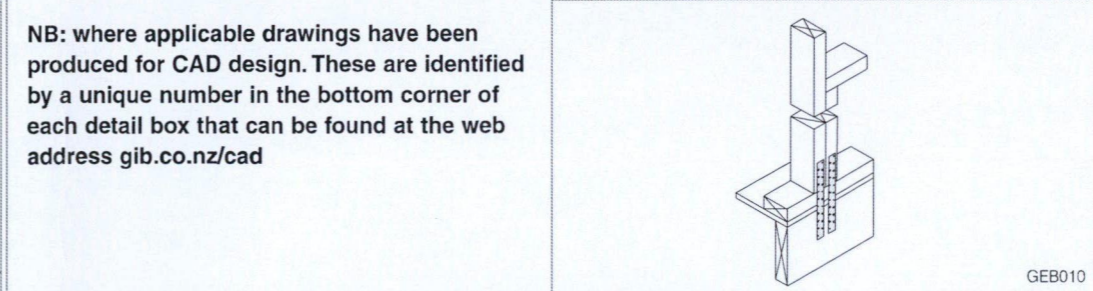
Bottom plate fixings for GIB® Bracing Elements			
Brace type	Concrete slabs		Timber floors
	External wall	Internal wall	External and Internal walls
GS1-N	As per NZS 3604:2011. No specific additional fastening required	As per NZS 3604:2011. Alternatively use 75 x 3.8mm shot-fired fasteners with 16mm washers, 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	

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.	



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.



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.

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
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.

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PROJECT INFORMATION:
PROPOSED RESIDENCE for WALLIS
Lot 3 Burnett Street, Ashburton

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Craig Fitchett
licence number BP105386
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BRACING FIXING DETAILS			
JOB NUMBER: 2013-031-Wallis-WD.pln	DATE OF ISSUE: 16/08/2013	DRAWN BY: Craig Fitchett	SHEET NUMBER: 8 of 18
DRAWING STATUS: CONSENT DWGS		VERSION / REVISION: ISSUE 1	

GIB EzyBrace® Systems

GIB EzyBrace® Systems

GIB EzyBrace® System Specification – BL1-H JUNE 2011

GIB EzyBrace® System Specification – GS1-N 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

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
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.

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.

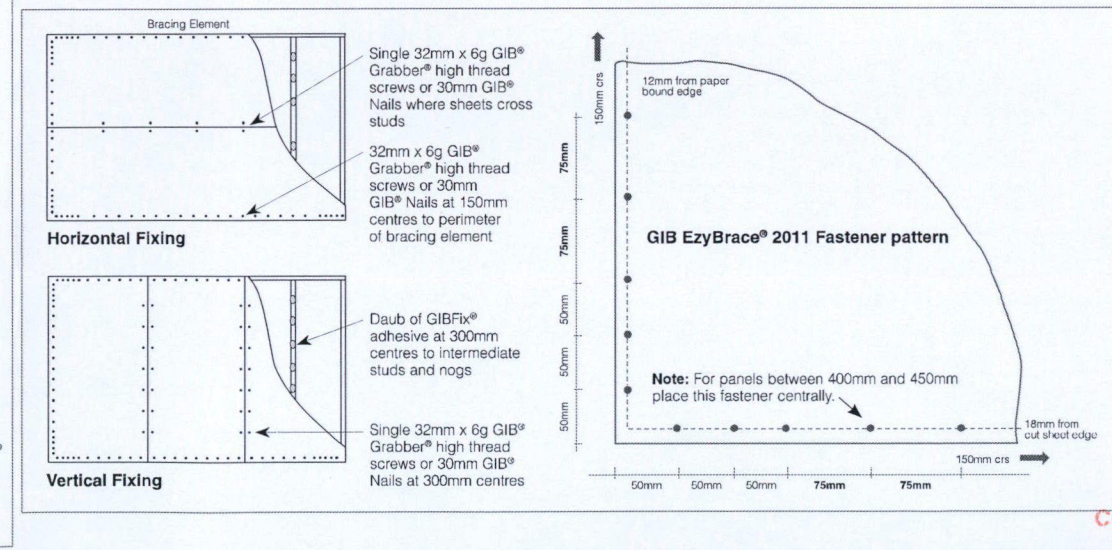
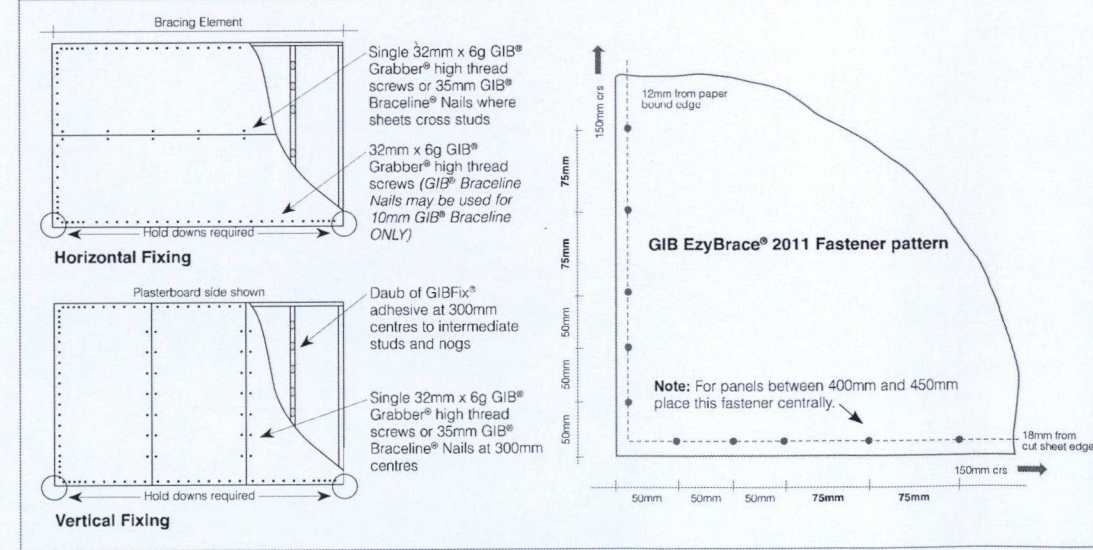
Concrete floor
INTERNAL WALL BRACING LINES
In accordance with the requirements of NZS 3604:2011 for internal wall plate fixing or 75 x 3.8mm shot fired fasteners with 16mm discs spaced at 150mm and 300mm from end studs and 600mm centres thereafter.
EXTERNAL WALL BRACING LINES
In accordance with the requirements 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).

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).

26 FOR FURTHER INFORMATION VISIT WWW.GIB.CO.NZ OR PHONE THE GIB® INFORMATION HELPLINE 0800 100 442

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Lot 3 Burnett Street, Ashburton

Craig Fitchett
licence number BP105386
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BRACING DETAILS (GS1 & BL1)

JOB NUMBER: 2013-031-Wallis-WD.pln	DATE OF ISSUE: 16/08/2013	DRAWN BY: Craig Fitchett	SHEET NUMBER: 9 of 18
DRAWING STATUS: CONSENT DWGS		VERSION / REVISION: ISSUE 1	

CRAIG FITCHETT DESIGN LIMITED
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Document Set ID: 111193 Bishopdale, Christchurch 8543
Version: 1, Version Date: 01/12/2023

Approved Building Consents Documents
8361/13
BRANZ Appraised Appraisal No. 294 (2011)
Ashburton District Council

Ecoply Bracing Specification - EP1

Framing

Wall framing must comply with:

NZBC B1 - Structure: AS1 Clause 3 Timber (NZS3604:2011)

NZBC B2 - Durability: AS1 Clause 3.2 Timber (NZS3602)

Framing dimensions and height are as determined by the NZS3604:2011 stud and top plate tables for load bearing and non load bearing walls. Kiln dried verified structural grade timber must be used. Machine stress graded timber, such as Laserframe®, is recommended.

Bottom Plate Fixing

Use GIB HandiBrac® hold-down connections at each end of the bracing element. Refer to installation instructions supplied with the connectors for correct installation instructions and bolt types to be used for either concrete or timber floors. Within the length of the bracing element, bottom plates are fixed in accordance with the requirements of NZS 3604:2011.

Lining

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

Fastening the Ecoply

Fasteners

Fasten with 50 x 2.8 mm galvanised or stainless steel flat head nails. Place fasteners no less than 7 mm from sheet edges.

Fasteners for H3.2 CCA treated Ecoply

Where fasteners are in contact with CCA treated timber or plywood, fasteners shall be a minimum of hot dip galvanised

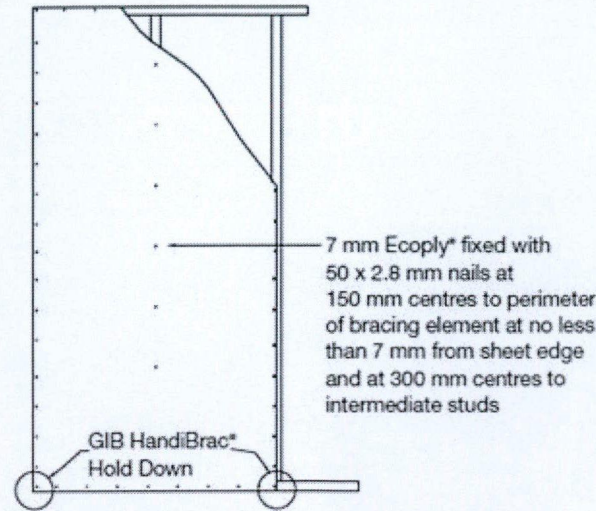
In certain circumstances stainless steel fasteners may be required. Refer to section 4 of NZS 3604:2011 for these circumstances.

Refer to Table 8 in the Ecoply Specification and Installation Guide for further fastener selection advice.

Stainless steel fasteners must be annular grooved.

Fastening Centres

Fasteners are placed at 150 mm centres around the perimeter of each sheet and 300 mm centres to intermediate studs.



Ecoply Bracing Specification - EPG

Framing

Wall framing must comply with:

NZBC B1 - Structure: AS1 Clause 3 Timber (NZS3604:2011)

NZBC B2 - Durability: AS1 Clause 3.2 Timber (NZS3602)

Framing dimensions and height are as determined by the NZS3604:2011 stud and top plate tables for load bearing and non load bearing walls. Kiln dried verified structural grade timber must be used. Machine stress graded timber, such as Laserframe®, is recommended.

Bottom Plate Fixing

Use GIB HandiBrac® hold-down connections at each end of the bracing element. Refer to installation instructions supplied with the connectors for correct installation instructions and bolt types to be used for either concrete or timber floors. Within the length of the bracing element, bottom plates are fixed in accordance with the requirements of NZS 3604:2011.

Lining

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

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

Fastening the Ecoply

Fasteners

Fasten with 50 x 2.8mm galvanised or stainless steel flat head nails. Place fasteners no less than 7mm from sheet edges.

Fasteners for H3.2 CCA treated Ecoply

Where fasteners are in contact with CCA treated timber or plywood, fasteners shall be a minimum of hot dip galvanised

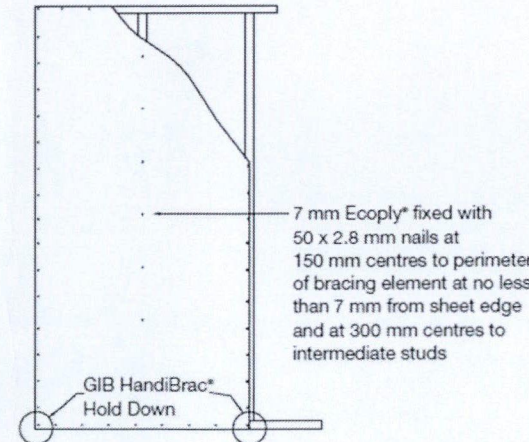
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Refer to Table 8 in the Ecoply Specification and Installation Guide for further fastener selection advice.

Stainless steel fasteners must be annular grooved.

Fastening Centres

Fasteners are placed at 150mm centres around the perimeter of each sheet and 300mm centres to intermediate studs.



Fastening the GIB® Plasterboard

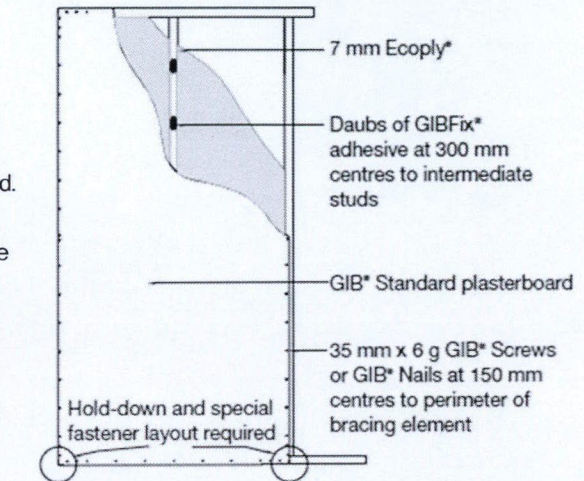
Fasteners

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

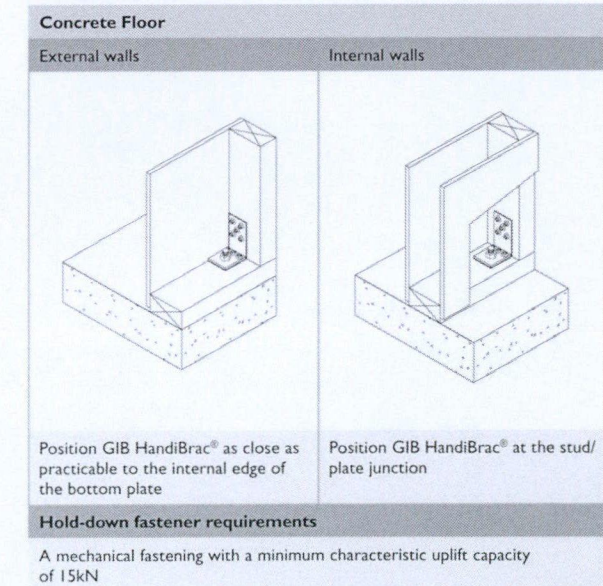
Fastener Centres

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

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



GIB HandiBrac Installation Method



Approved Building Consent Documents

n.t.s

0861/13

Ashburton District Council

Typical Plywood Fixing Details

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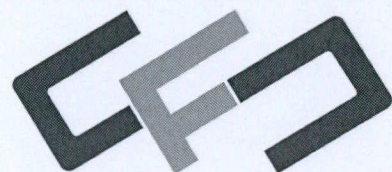
Craig Fitchett
 licence number BP105386

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TYPICAL PLYWOOD DETAILS

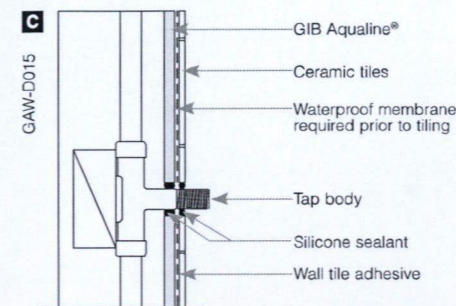
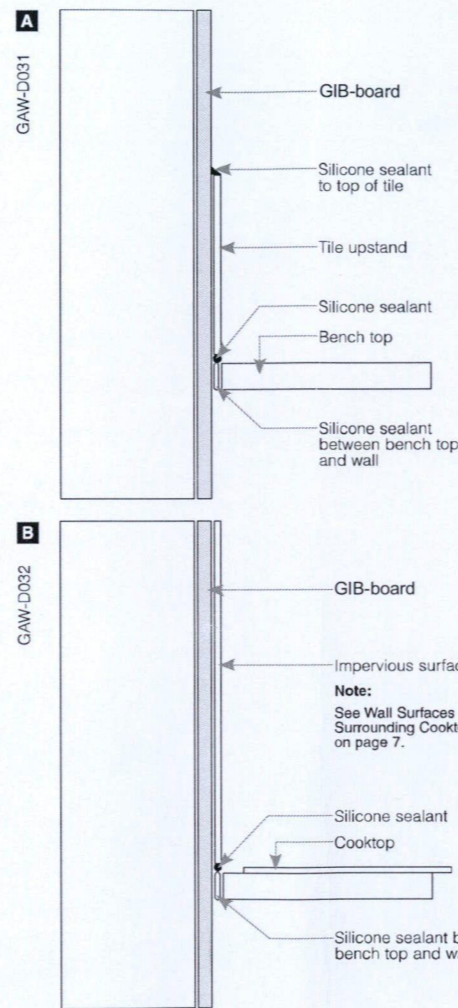
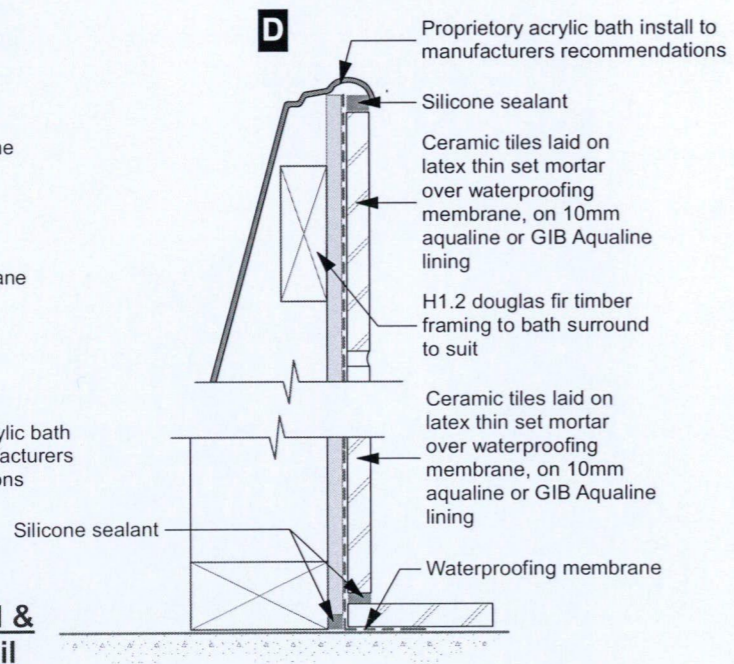
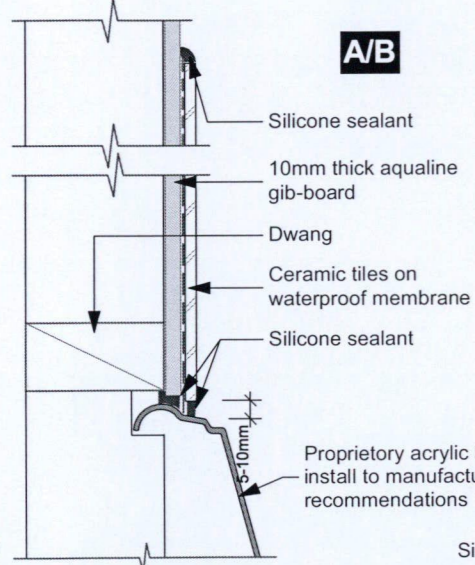
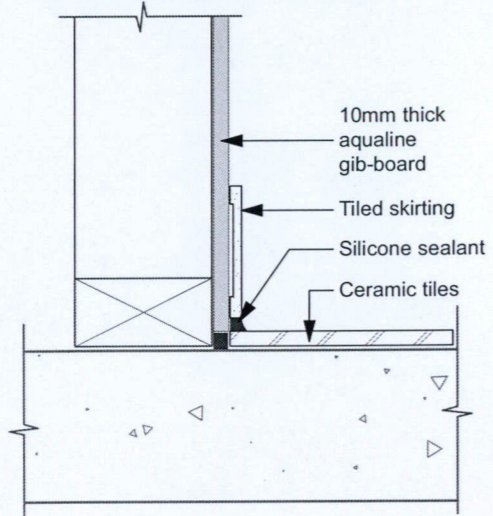
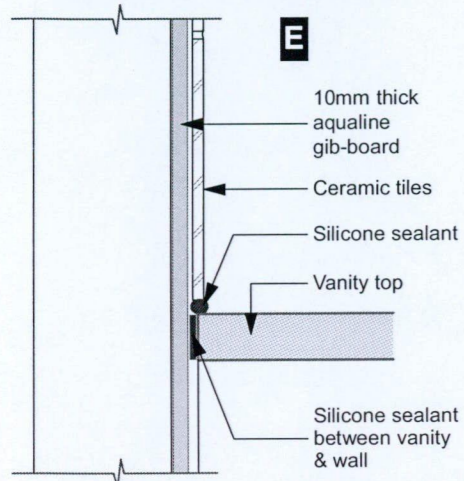
JOB NUMBER: 2013-031-Wallis-WD.pln	DATE OF ISSUE: 16/08/2013	DRAWN BY: Craig Fitchett	SHEET NUMBER: 10 of 18
DRAWING STATUS: CONSENT DWGS		VERSION / REVISION: ISSUE 1	



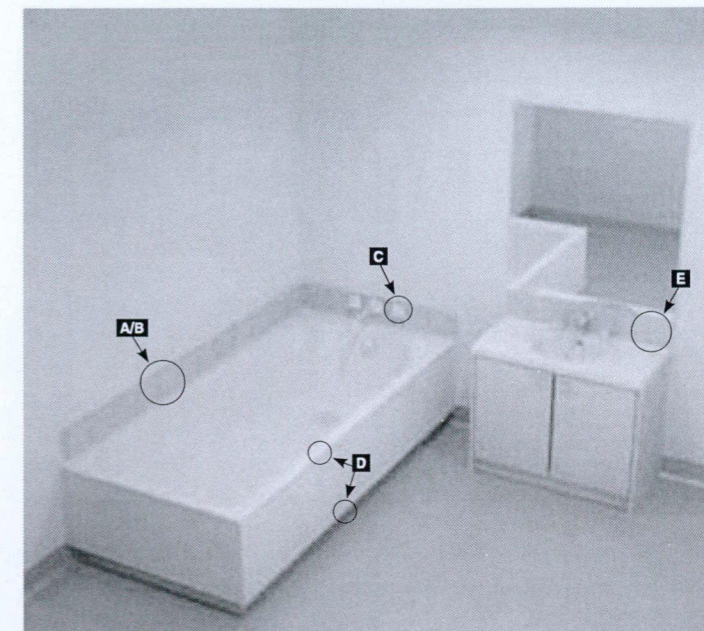
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Vanity/Wall Junction Detail

Tiled Floor/Wall Junction Detail



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



Typical Gib Wet Area Details

scale 1:5

Typical Gib Details

n.t.s

Approved Building Consents Documents

0861/13

Asburton District Council



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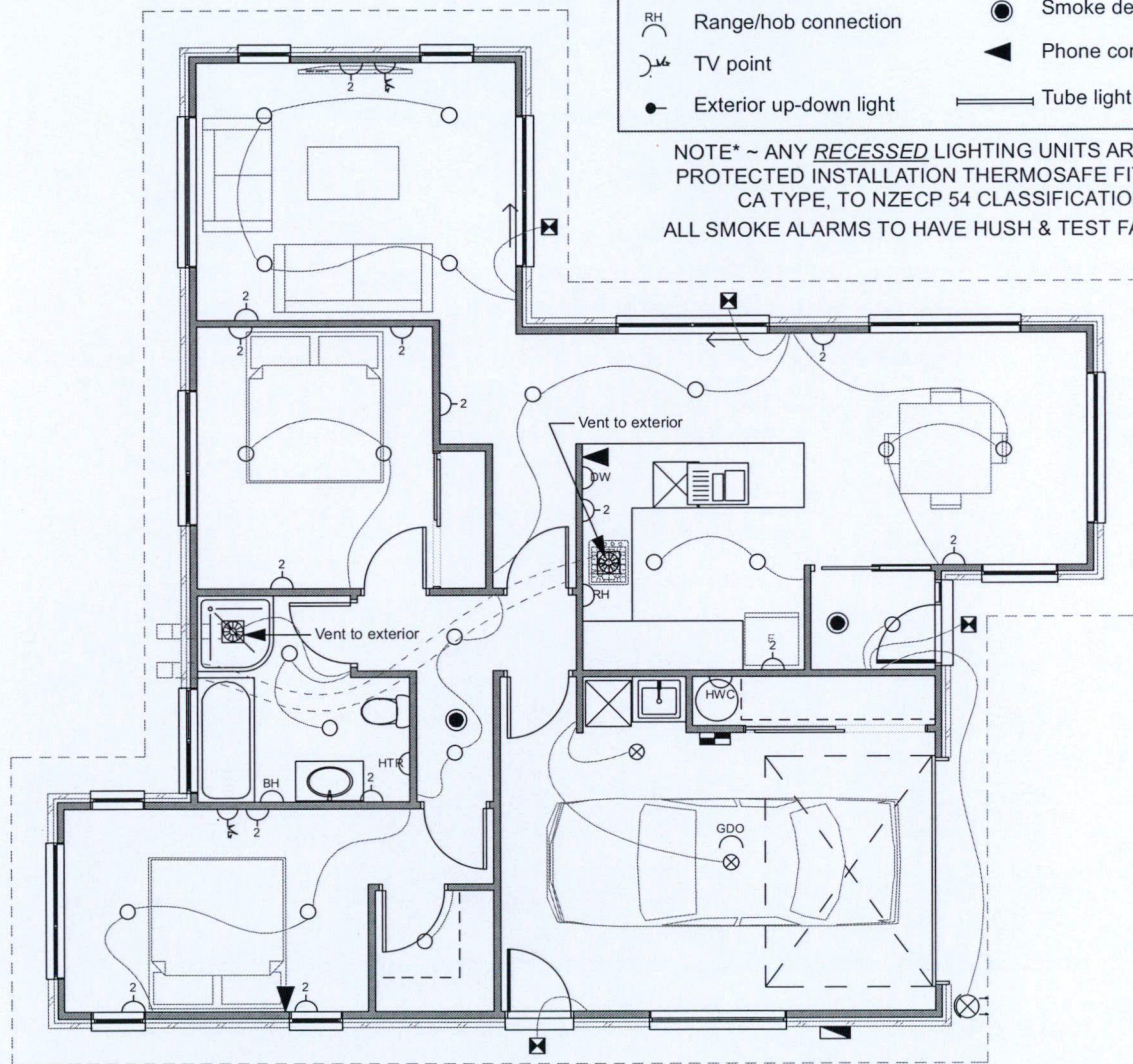


TYPICAL GIB DETAILS/WET AREA DETAILS

JOB NUMBER: 2013-031-Wallis-WD.pln	DATE OF ISSUE: 16/08/2013	DRAWN BY: Craig Fitchett	SHEET NUMBER: 11 of 18
DRAWING STATUS: CONSENT DWGS		VERSION / REVISION: ISSUE 1	

Electrical Key			
	Double power point		Dish washer connection
	Halogen light fitting		Bathroom heater
	Downlight fitting		Hot water cylinder
	Batten light fitting		Heated towel rail
	Outside light fitting		Garage door opener
	Outside light & sensor		Extract fan
	Meter board		Smoke detector
	Switch board		Phone connection
	Range/hob connection		Tube light fitting
	TV point		
	Exterior up-down light		

NOTE* - ANY RECESSED LIGHTING UNITS ARE TO BE PROTECTED INSTALLATION THERMOSAFE FITTINGS, CA TYPE, TO NZECP 54 CLASSIFICATION. ALL SMOKE ALARMS TO HAVE HUSH & TEST FACILITIES

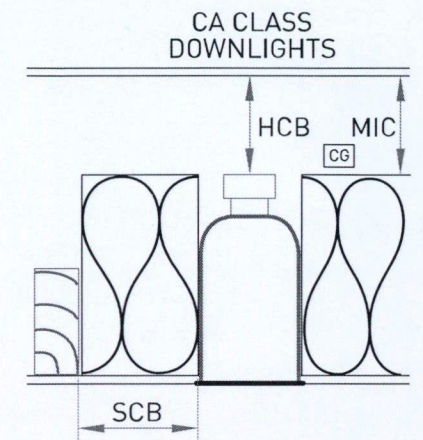


Preliminary Electrical Lighting Layout

scale 1:100

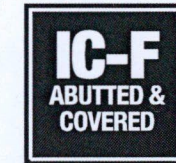
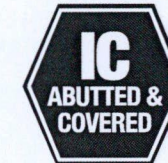
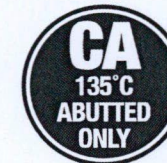
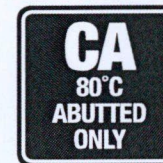
Risk of Fire Instructions must include minimum clearances to building elements and insulation type

SCB	Side clearance to building elements
HCB	Height clearance to building elements
SCI	Side clearance to building insulation (non-IC only)
MIC	Minimum clearance above building insulation for ventilation
Insulation type	Class Markings and manufacturer's specifications dictate what type of insulation is safe for each model of downlight



Information provided by Gartner Superlux Ltd

When selecting a recessed downlight ensure it is labelled with one of the following:



Current technology limits the durability and availability of these classes of downlights

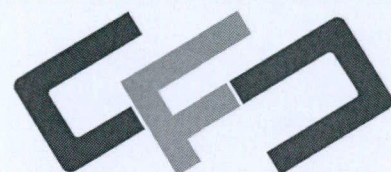
Typical Downlight Detail

n.t.s

Approved Building Consents Documents

08 61 / 13

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PROPOSED RESIDENCE for WALLIS
#Client Full Address

Craig Fitchett
licence number BP105386

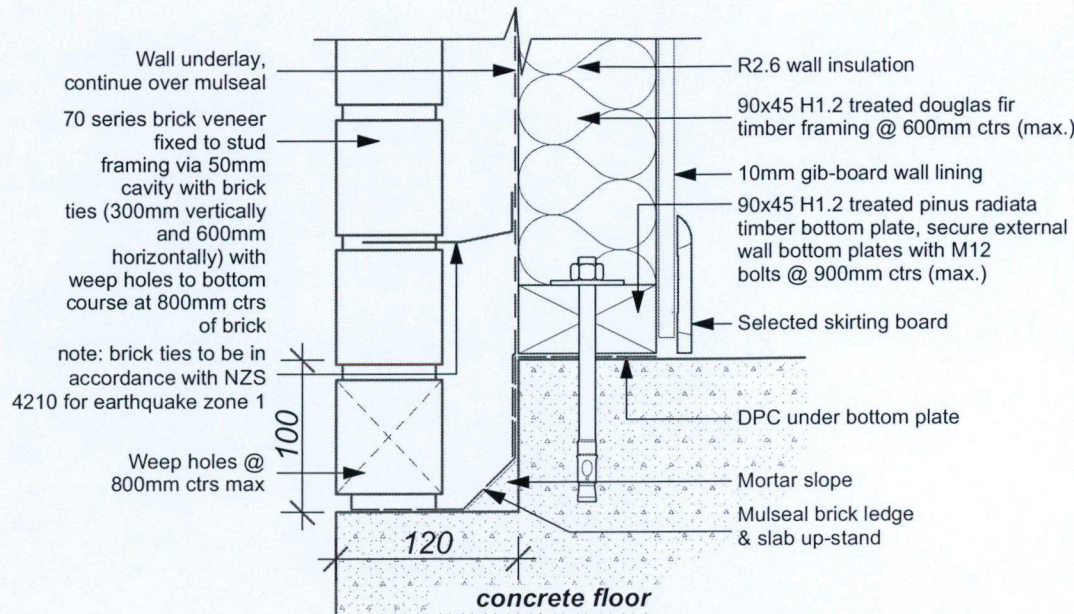
Always check the LBP register to ensure your building practitioner is licensed.



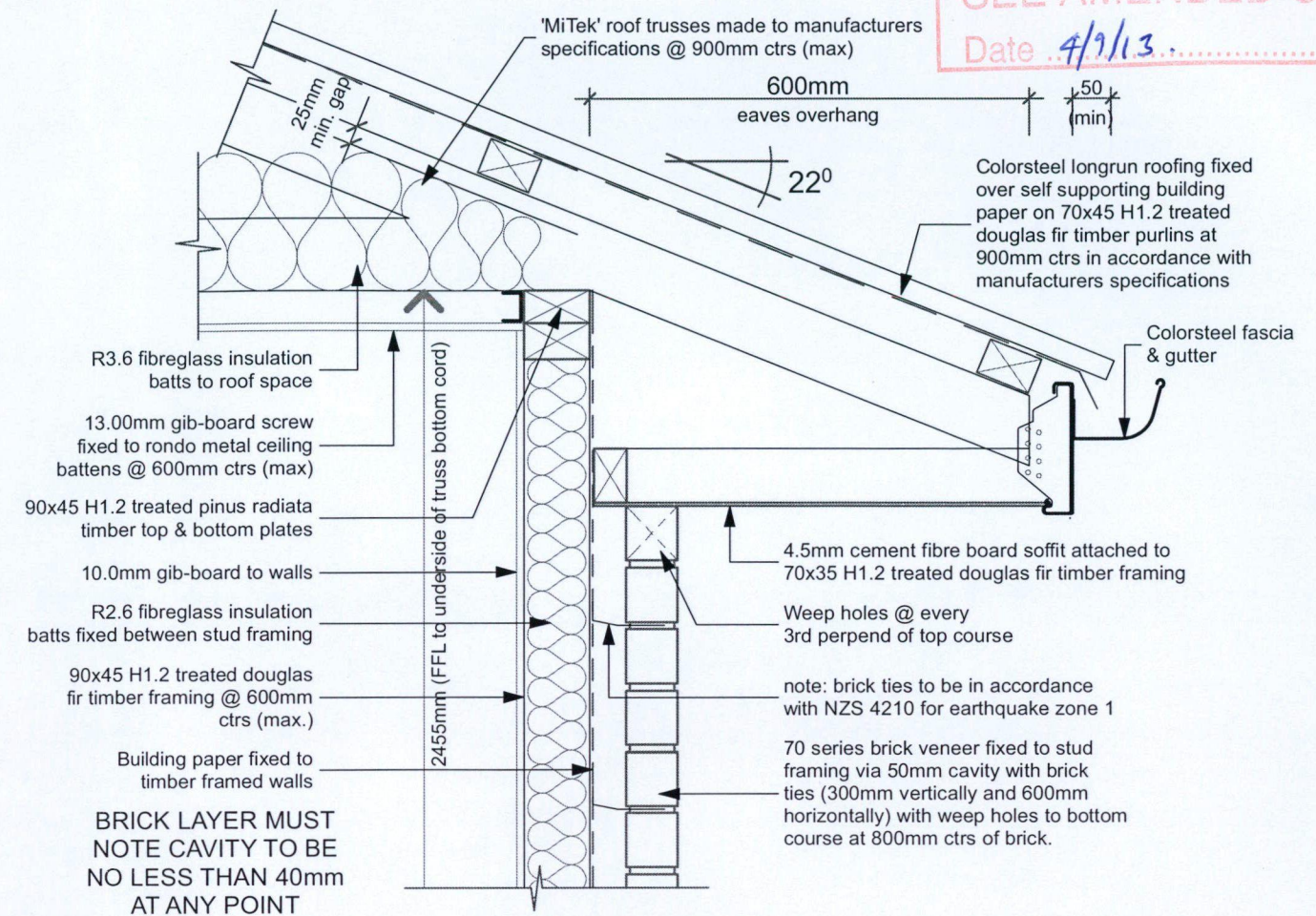
PRELIMINARY LIGHTING/ELECTRICAL LAYOUT & TYP. DOWNLIGHT DETAIL

JOB NUMBER: 2013-031-Wallis-WD.pln	DATE OF ISSUE: 16/08/2013	DRAWN BY: Craig Fitchett	SHEET NUMBER: 12 of 18
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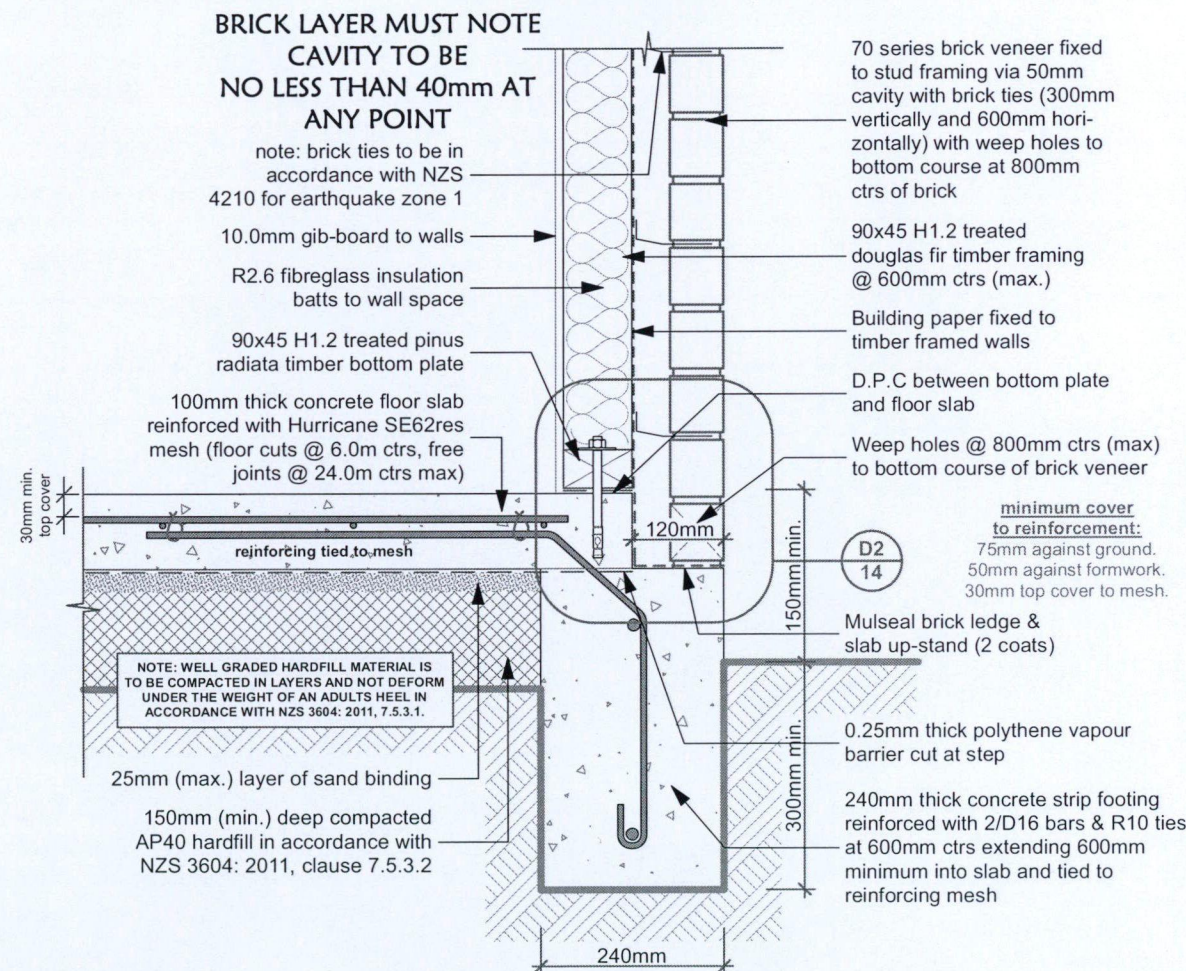
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SEE AMENDED COPY
Date: 4/7/13



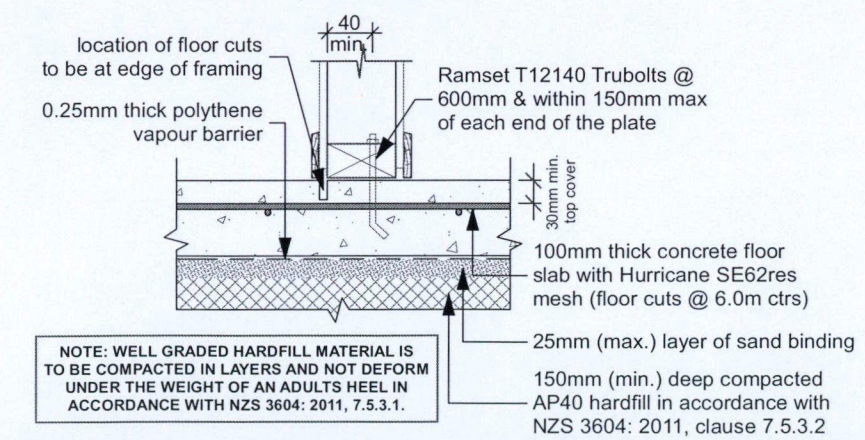
D2 **Typ. Foundation @ Base Detail** **scale 1:5**



D4 **Typ. Eave Detail** **scale 1:10**



D1 **Typ. Foundation Detail** **scale 1:10**



D3 **Typ. Floor Cut Detail** **scale 1:10**

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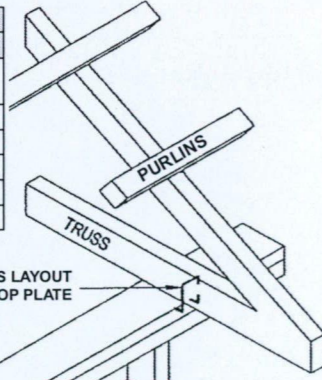


DETAILS 1 - 4			
JOB NUMBER: 2013-031-Wallis-WD.pln	DATE OF ISSUE: 16/08/2013	DRAWN BY: Craig Fitchett	SHEET NUMBER: 14 of 18
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P.O. Box 147, Bishopdale, Christchurch 8543

BEFORE CONSTRUCTION BEGINS, BUILDER MUST CHECK ALL DIMENSIONS ARE CORRECT AND ALL CONSTRUCTION WORK COMPLIES WITH THE NEW ZEALAND BUILDING CODE, LOCAL BODY BYLAWS AND RELEVANT NEW ZEALAND STANDARDS

ROOF WEIGHT	MAX. PURLIN SPAN (mm)	MAX. PURLIN CRS. (mm)	WIND ZONE				
			L	M	H	VH	EH
HEAVY ROOF Tile Battens	900	370	A	A	A	A	A
LIGHT ROOF Tile Battens	900	370	A	A	B	C	C
LIGHT ROOF Purlins	1200	270	A	B	C	C	C
	900	900	C	C	C	C	D
	1200	900	C	C	C	D	D
	1200	1200	C	C	D	E	E



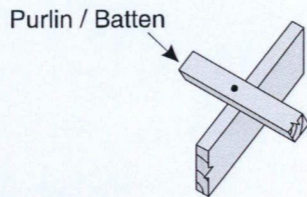
25 x 1mm STRAP WITH 6 / 30 x 2.5mm NAILS ON ONE SIDE ONLY INTO BOTH LINTEL AND STUD

FIX STUDS TOGETHER WITH 100 x 3.75mm NAILS AT 600crs WITH 2 / 100 x 3.75mm IMMEDIATELY UNDER THE LINTEL

25 x 1mm STRAP TAKEN UNDER PLATE AND 150 UP EACH SIDE OF STUD, WITH 6 / 30 x 2.5mm NAILS INTO EACH SIDE OF STUD

DOWEL OR BOLT PLATE TO SLAB WITHIN 150mm OF STUD OF OPENING

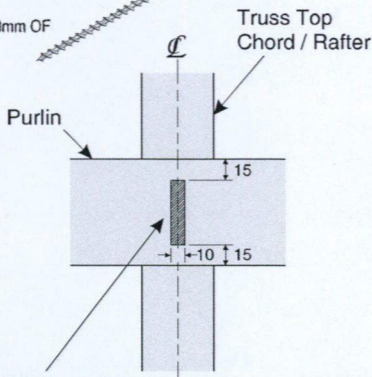
FIXING TYPE C
2.4kN
1 BLUE SCREW



BLUE SCREW =
80mm x 10 gauge LUMBERLOK BLUE SCREW

SECURE EXTERNAL WALL BOTTOM PLATES WITH M12 BOLTS @ 900mm (max) crs ALL EXTERNAL BOTTOM PLATES TO BE ON dpc. ALL BRACED WALLS TO HAVE M12 DYNA BOLTS AT EACH END OF BRACE

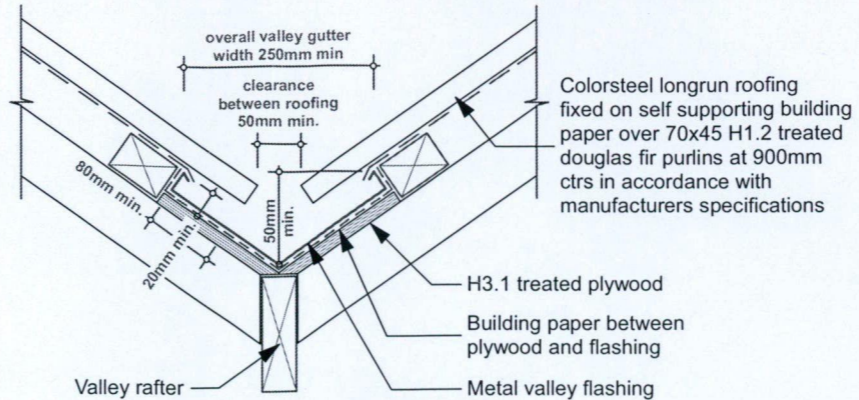
FIXING TOLERANCES
LUMBERLOK BLUE SCREW



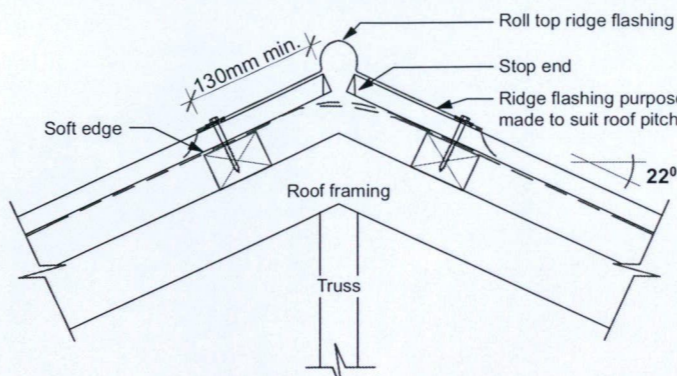
NOTE:
Locate fixings within the shaded area. Care to be taken to avoid over tightening of screws.

TOP PLATE FIXING TO STUD FRAMING	
LOADED DIMENSION OF WALL	FIXING TYPE
2.0m	2/90x3.15 end nails + 2 wire dogs
3.0m	2/90x3.15 end nails + 2 wire dogs
4.0m	2/90x3.15 end nails + 2 wire dogs
5.0m	2/90x3.15 end nails + 2 wire dogs
6.0m	2/90x3.15 end nails + 2 wire dogs

D5 **Typ. Fixing Details** **n.t.s**

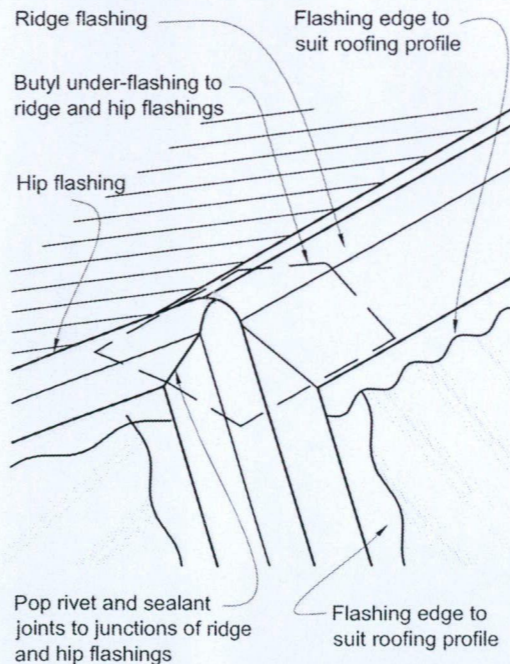


D6 **Typ. Valley Detail** **scale 1:10**



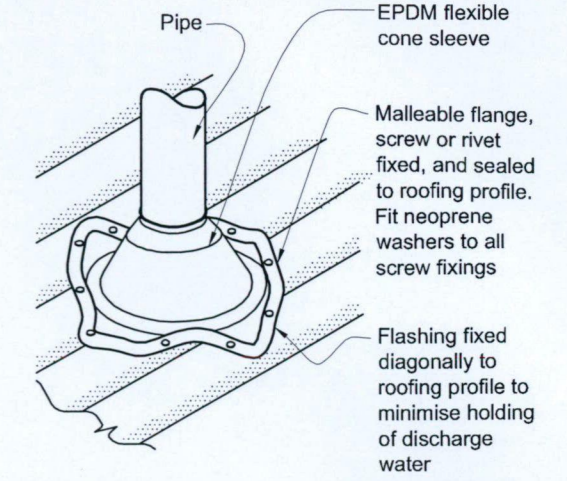
D7 **Typ. Ridge/Hip Detail** **scale 1:10**

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.



D8 **Typ. Ridge to Hip Detail** **n.t.s**

FOR PIPES UP TO 85mm DIAMETER



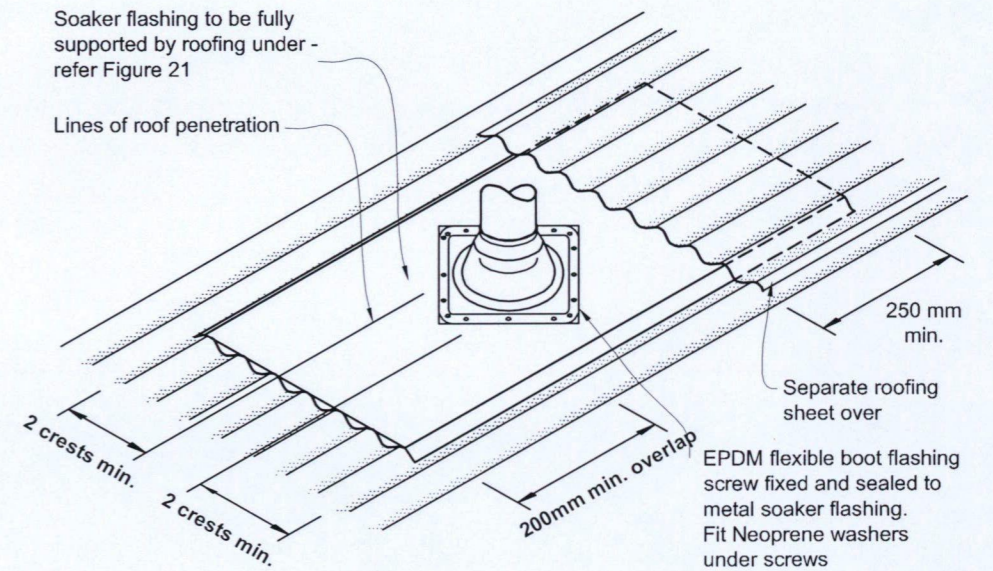
NOTE:
(1) Max. roof pitch for this flashing 45°, minimum pitch 10° if base of flange covers one or more complete troughs.
(2) For pipes up to 85 mm diameter.

FOR PIPES 86mm - 500mm DIAMETER

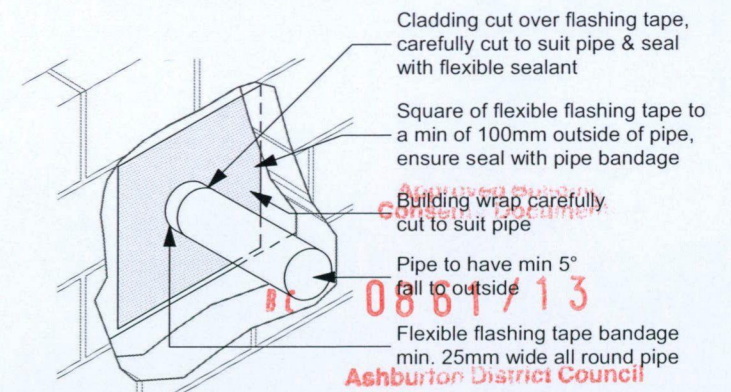
NOTE: (1) Suitable for pipes from 86 mm to 500 mm diameter.
(2) Suitable only for roof pitches of 10° or more.

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

Lines of roof penetration



D9 **Typ. Pipe Through Roof Detail** **n.t.s**



D10 **Typ. Pipe Through Wall Detail** **n.t.s**

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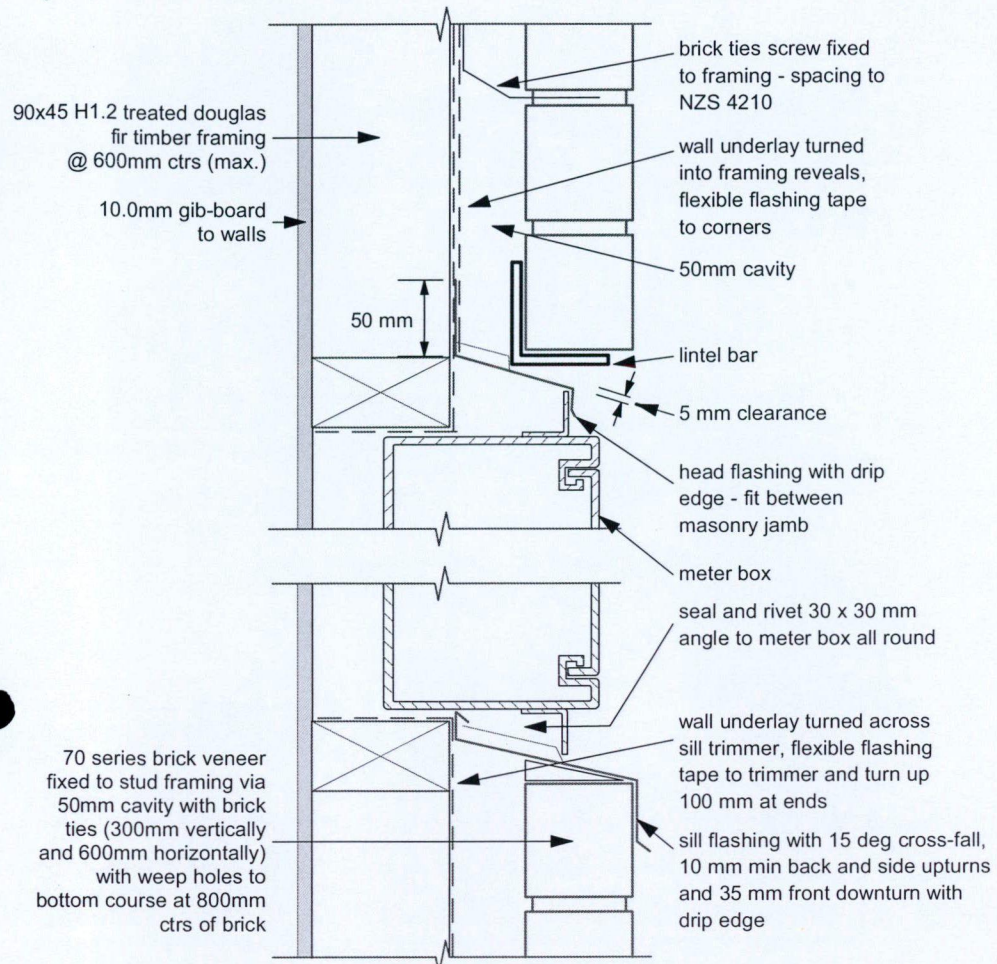
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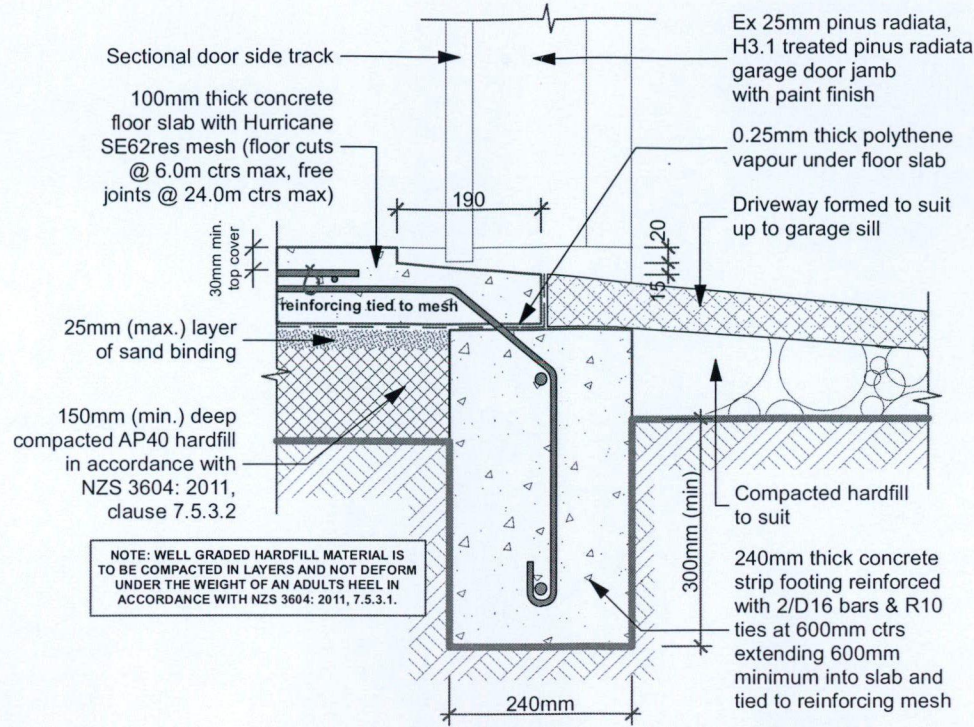
DETAILS 5 - 10

JOB NUMBER: 2013-031-Wallis-WD.pln	DATE OF ISSUE: 16/08/2013	DRAWN BY: Craig Fitchett	SHEET NUMBER: 15 of 18
DRAWING STATUS: CONSENT DWGS		VERSION / REVISION: ISSUE 1	

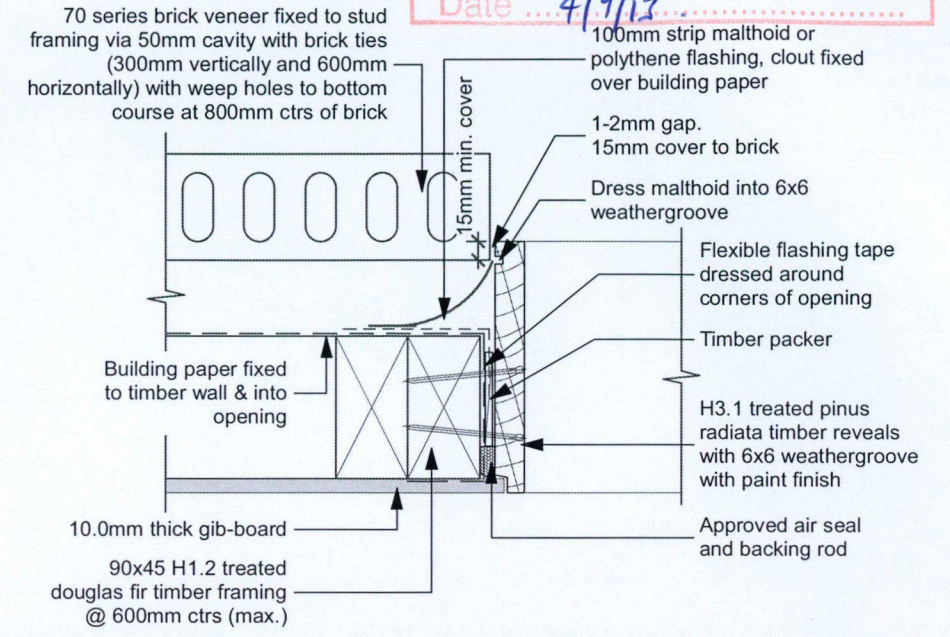
SUPERSEDED
SEE AMENDED COPY
Date ... 4/9/13



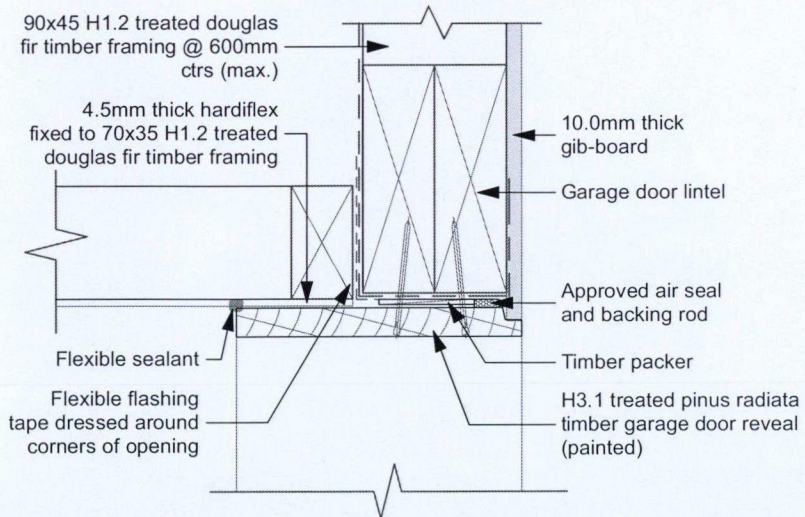
D11 Typ. Meter Box Detail scale 1:5



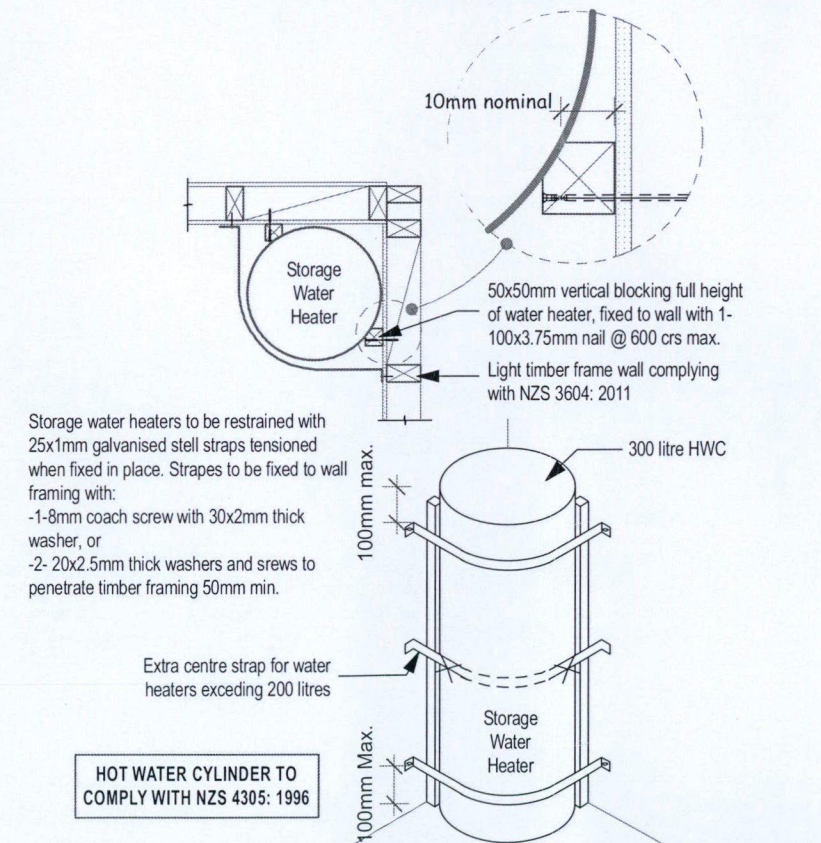
D12 Typ. Garage Door Sill Detail scale 1:10



D13 Typ. Garage Door Jamb Detail scale 1:5

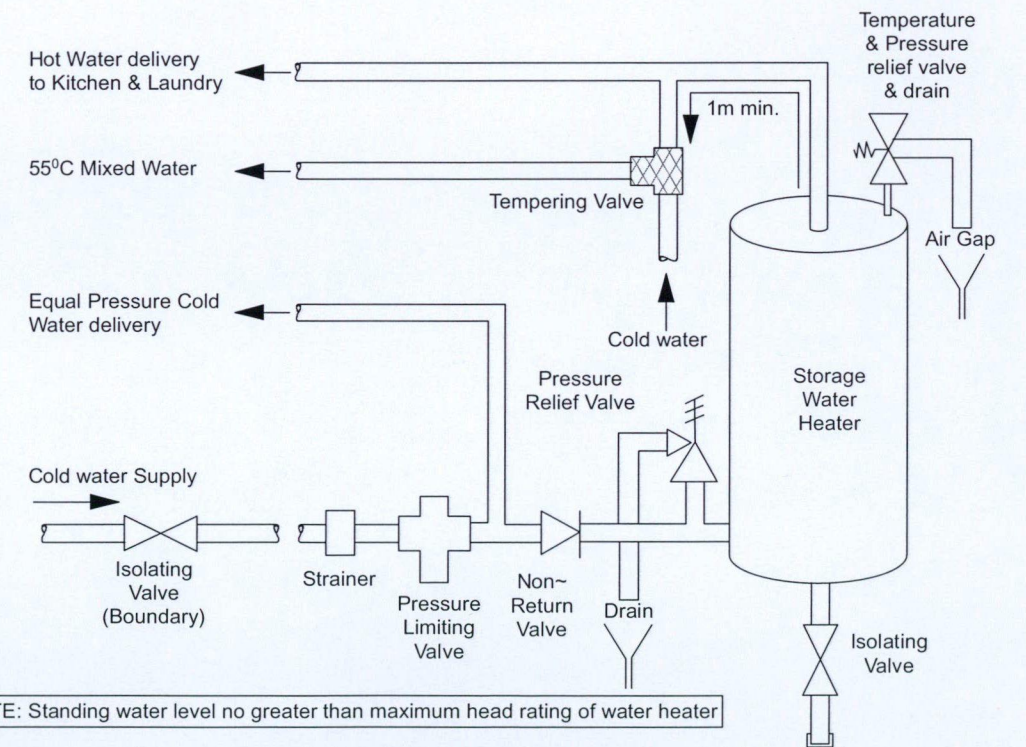


D14 Typ. Garage Door Head Detail scale 1:5



Seismic Restraint of Storage Water Heaters 90-360 Litres (AS1/ G12 Fig 14)

D15 Typ. HWC Restraint Detail scale 1:20



NOTE: Standing water level no greater than maximum head rating of water heater

D16 Typ. HWC Valves Diagram n.t.s

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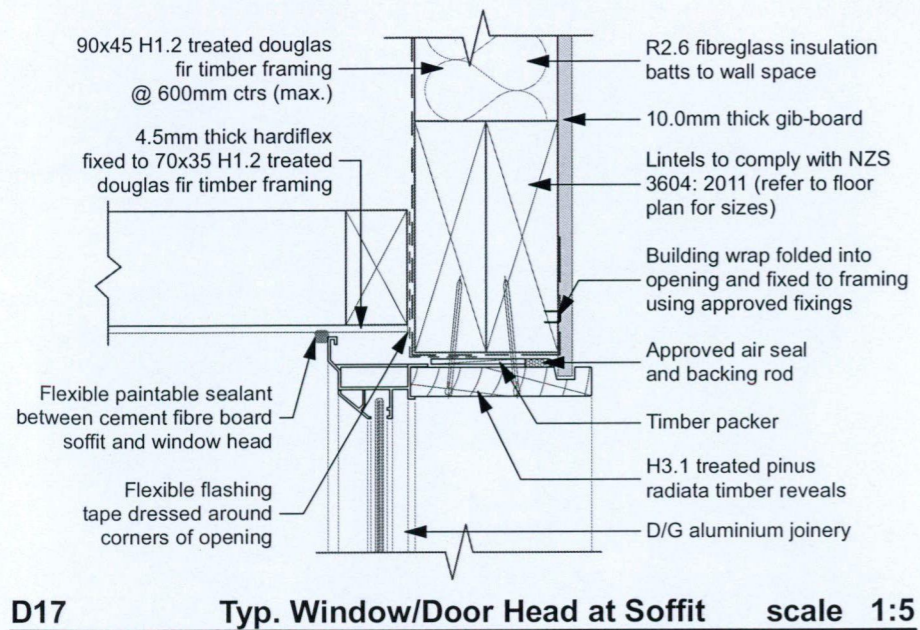
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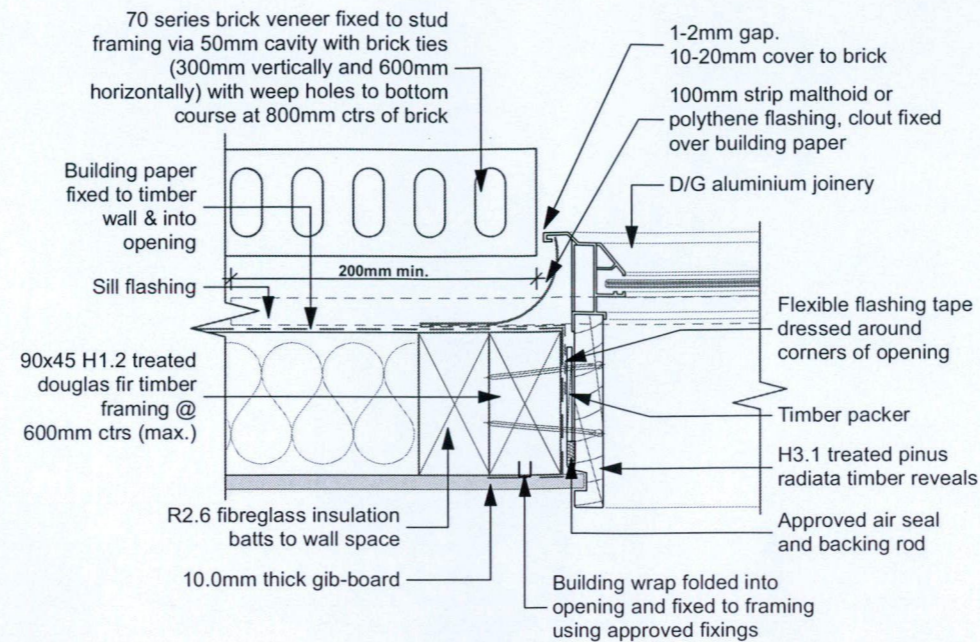


DETAILS 11 - 16

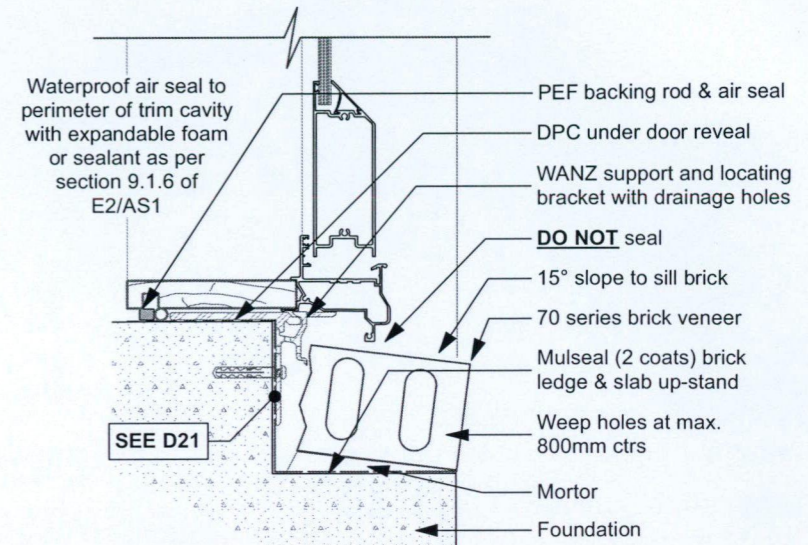
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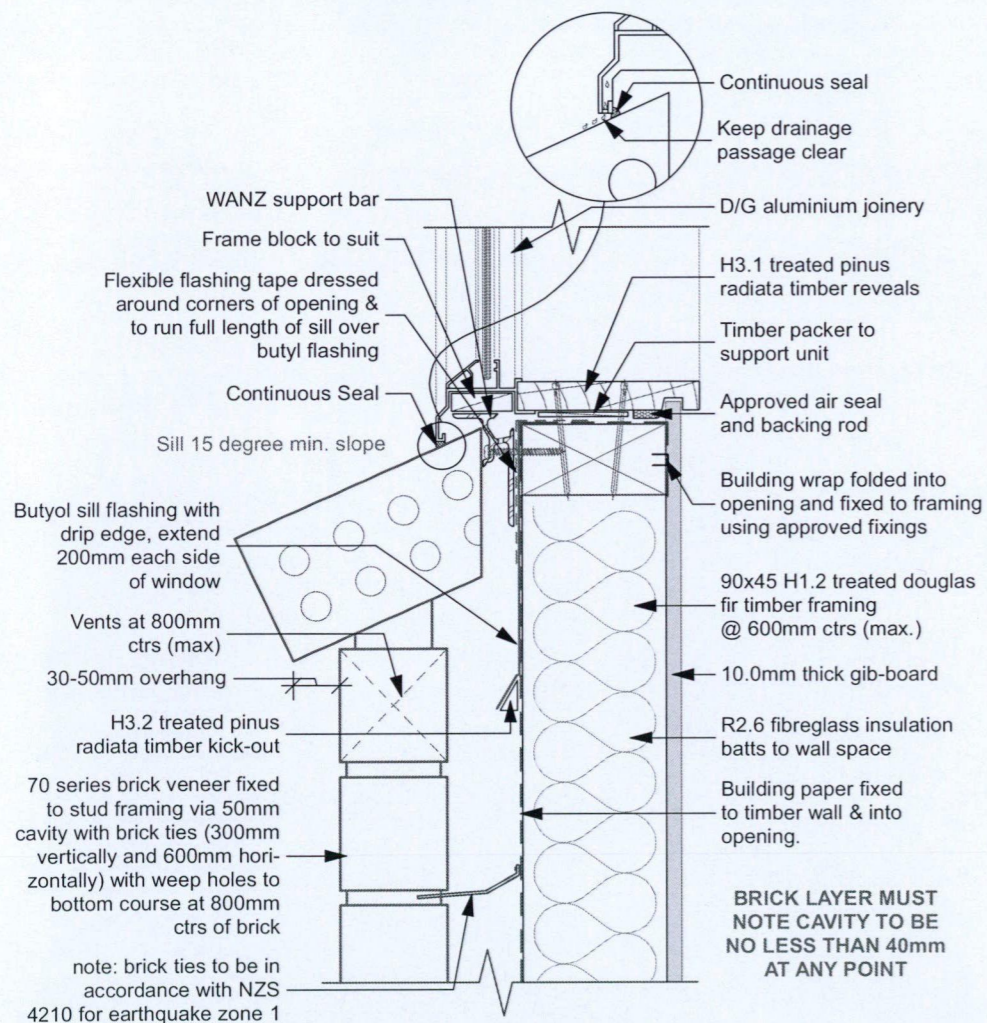
D17 **Typ. Window/Door Head at Soffit** scale 1:5



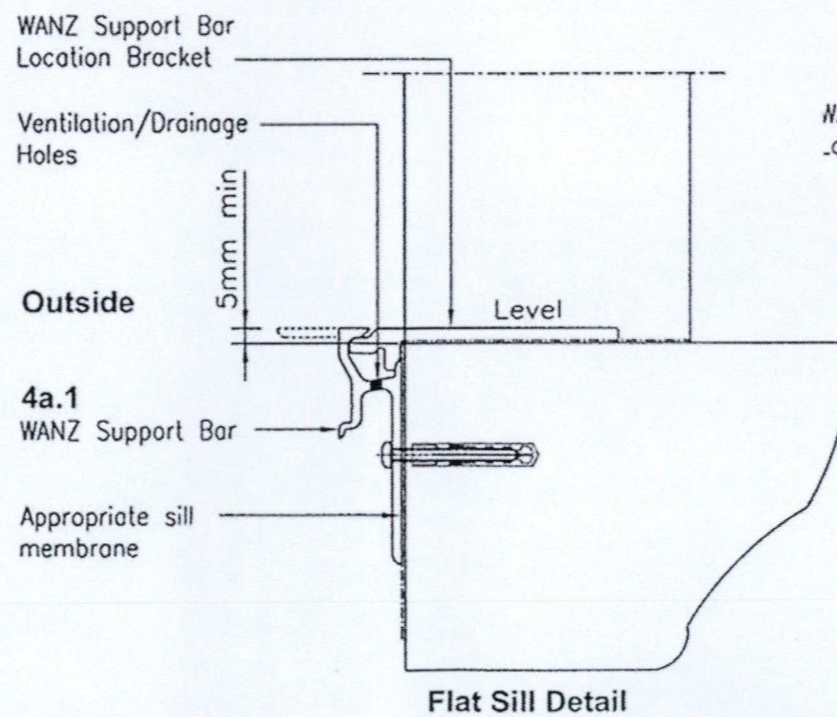
D18 **Typ. Window/Door Jamb Detail** scale 1:5



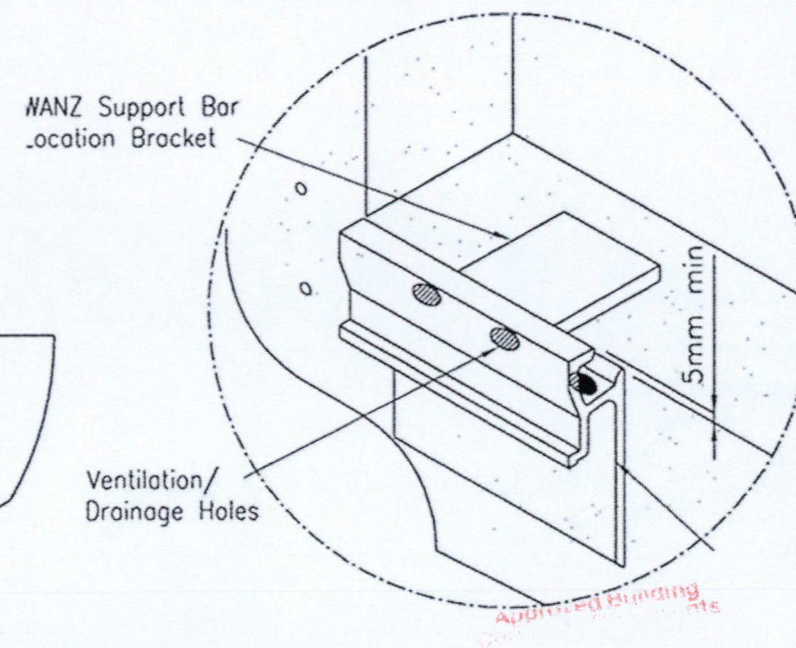
D19 **Typ. Window/Door Sill Detail @ FFL** scale 1:5



D20 **Typ. Window Sill Detail** scale 1:5



D21 **Typ. WANZ Bar Detail**



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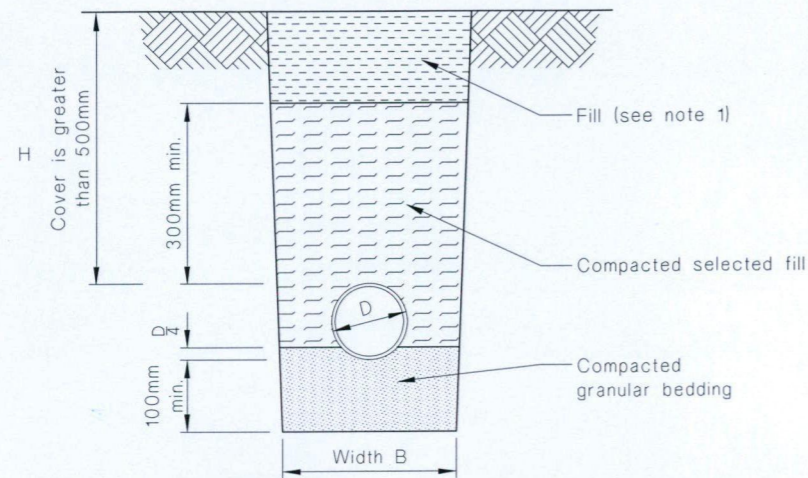
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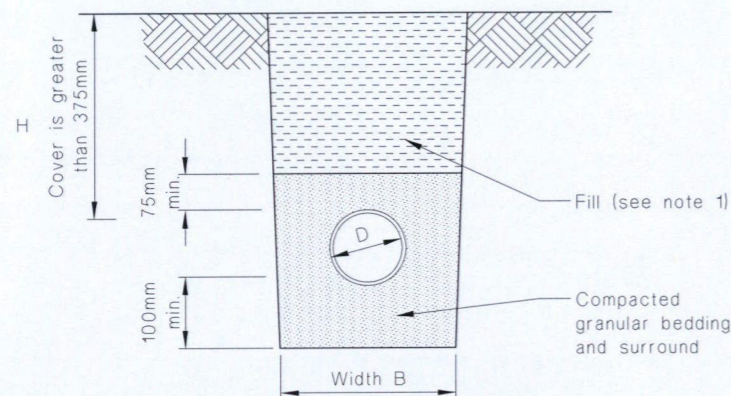
DETAILS 17 - 21

JOB NUMBER: 2013-031-Wallis-WD.pln	DATE OF ISSUE: 16/08/2013	DRAWN BY: Craig Fitchett	SHEET NUMBER: 17 of 18
DRAWING STATUS: CONSENT DWGS		VERSION / REVISION: ISSUE 1	

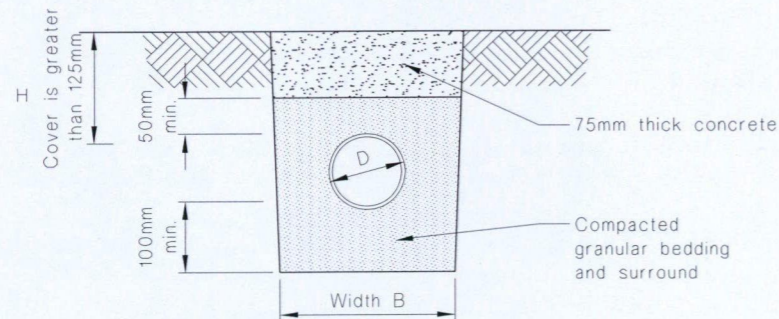
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P.O. Box 114, Shildale, Christchurch 8543



(a) Bedding type 'B' of NZS 7643
Cover greater than 500mm



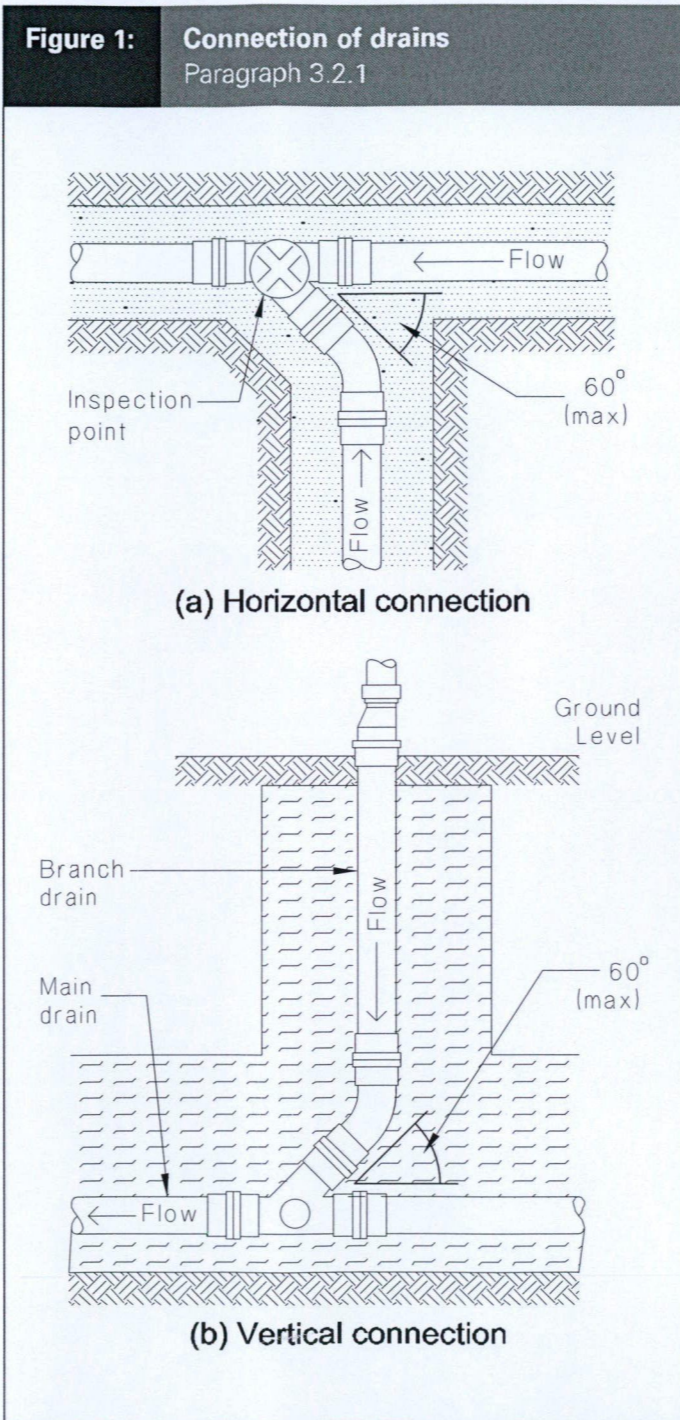
(b) Bedding type 'D' of NZS 7643
Cover greater than 375mm



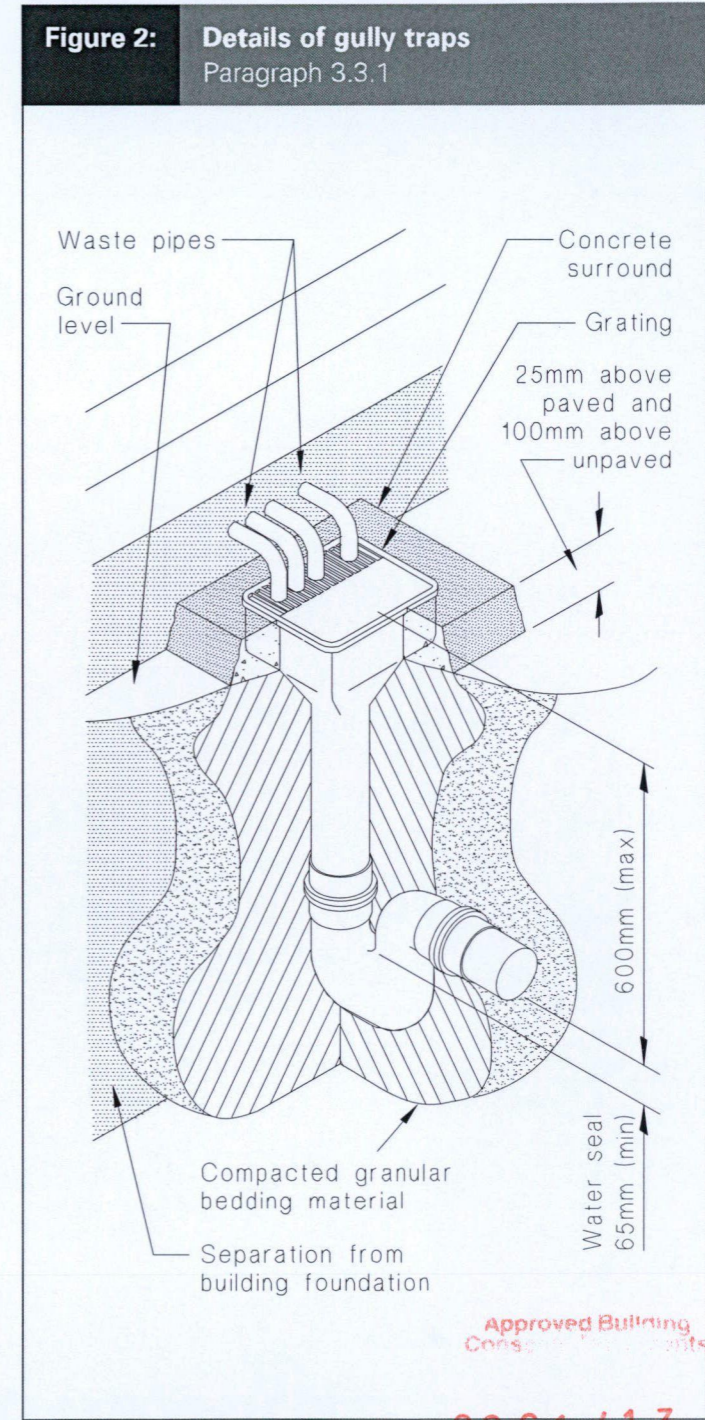
(c) Cover between 125mm and 375mm

NOTE:
1. Fill shall be:
- Ordinary fill where drains are located below gardens and open country.
- Compacted selected fill where the drains are located below residential driveways and similar areas subject to light traffic.

D22 Typ. Bedding Details n.t.s



D23 Typ. Connection of Drains Detail & Gully Trap Detail n.t.s



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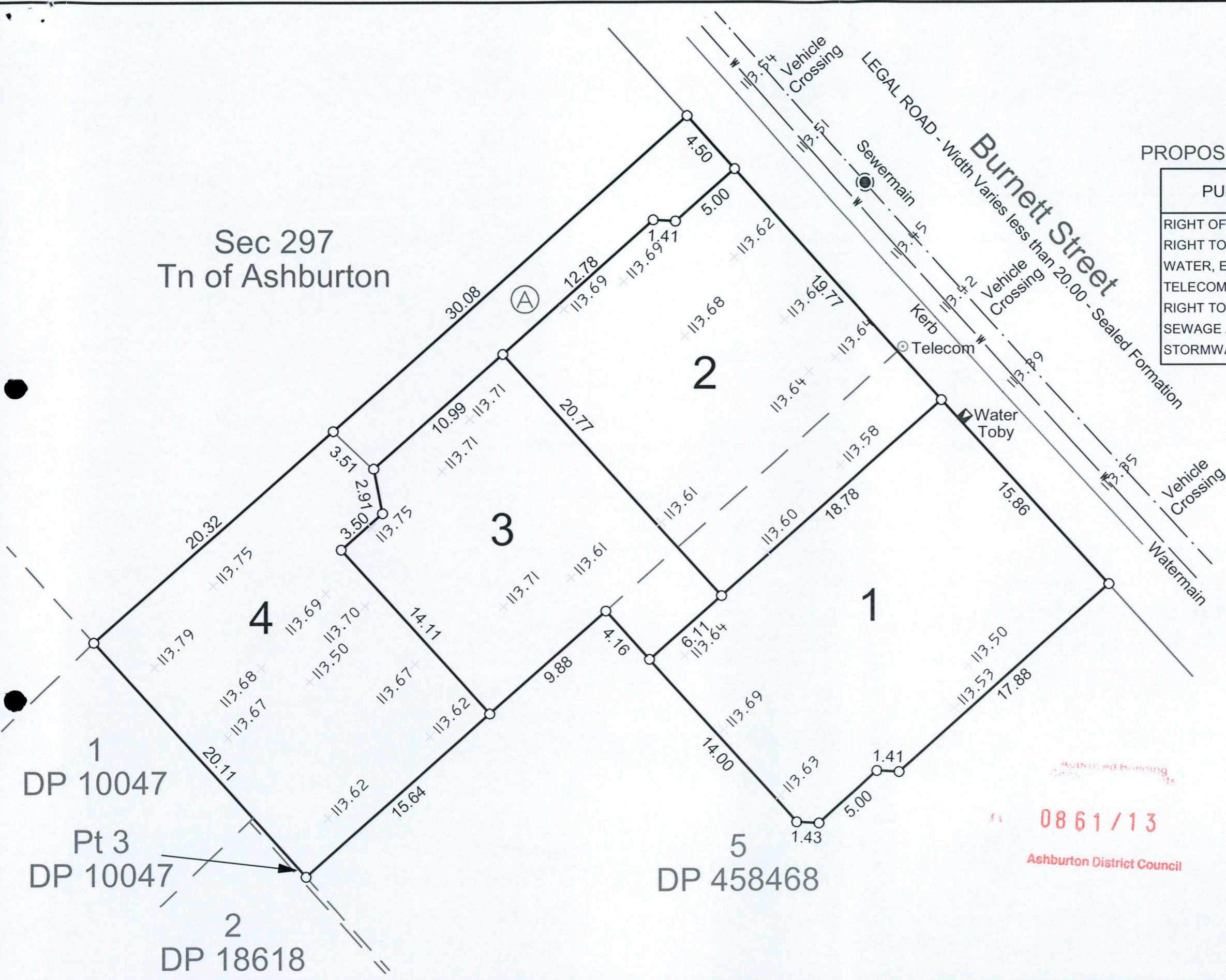
DETAIL 22 & 23			
JOB NUMBER: 2013-031-Wallis-WD.pln	DATE OF ISSUE: 16/08/2013	DRAWN BY: Craig Fitchett	SHEET NUMBER: 18 of 18
DRAWING STATUS: CONSENT DWGS		VERSION / REVISION: ISSUE 1	



Sec 297
Tn of Ashburton

PROPOSED MEMORANDUM OF EASEMENTS

PURPOSE	SHOWN	SERV TEN	DOM TEN
RIGHT OF WAY, RIGHT TO CONVEY WATER, ELECTRICITY, TELECOMMUNICATIONS, RIGHT TO DRAIN SEWAGE AND STORMWATER	A	LOT 4	LOT 3



Comprised in: C'sT CB74/159
& 595971
Registered Proprietor(s):
CJ Gourdie
TW Holdings Ltd
Total Area: 1505m²

Prepared by:
Date:

Note: Areas and dimensions are approximate only and subject to survey. This plan was prepared to accompany a resource consent application and is not to be relied on or used for any other purpose

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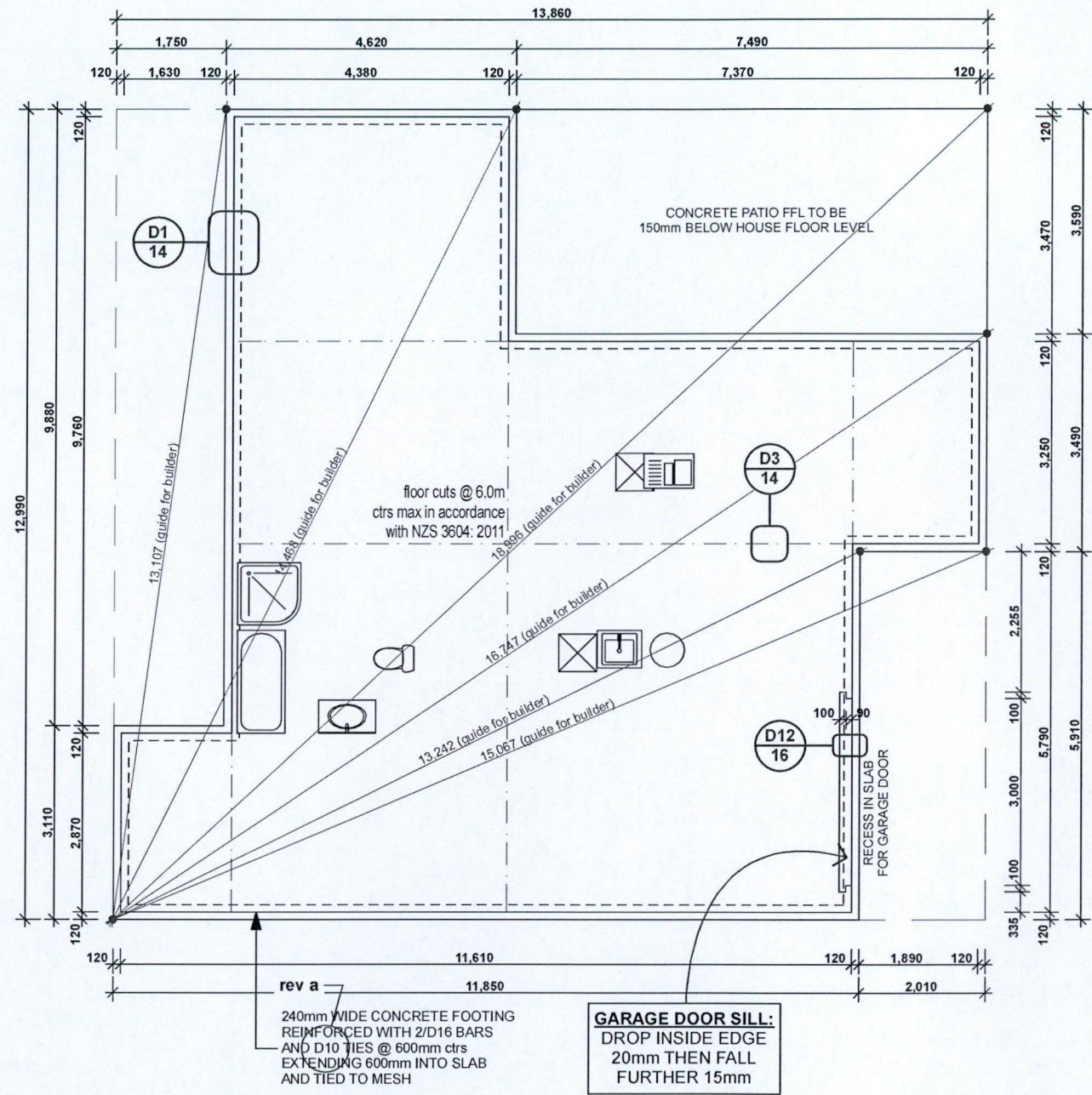
David Smith Surveying Ltd
Licensed Surveyors
Land Development Consultants

Lots 1-4 Being Subdivision of
Lot 1 DP 458168 & Section 296
Town of Ashburton

Territorial Authority Ashburton District
Land District Canterbury

Scale 1:250
Date: 26-02-13
File: 4645

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BY: KZ



Foundation Plan scale 1:100

TRUSS MANUFACTURER

-Lintel Sizes: Truss manufacturers to size all lintels with special loads. (truss manufacturers lintel sizes take precedence over designers sizes (refer to truss manufacturers documentation)).

Wall, lintel and truss fixings are also to be supplied.

Truss manufacturer to confirm foundation thickenings and supply if necessary relevant documentation for point loads and thickenings.

Roof trusses at 900mm ctrs with H1.2 treated douglas fir timber members.

All dimensions shown are to framing.

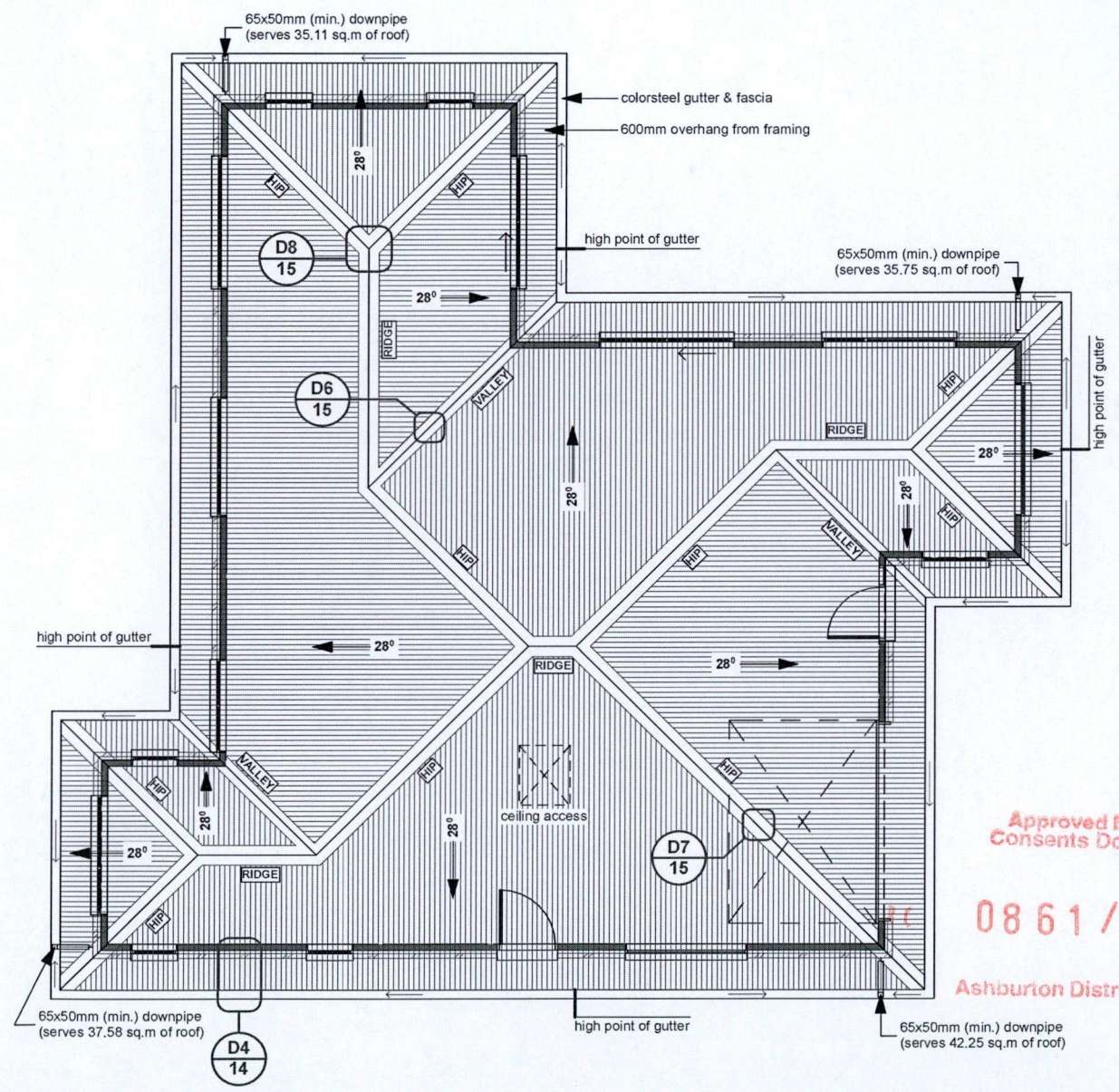
Metal gutter to have minimum cross sectional area of 8700mm²

Note:
Down pipes are to be as indicated 65x50mm (capacity of 60.00m² of the floor plan) (Roof Pitch 0-25°).

:Colorsteel longrun roofing fixed over self supporting building paper to 70x45 H1.2 treated douglas fir purlins laid in accordance with manufacturers specifications, on manufacturer designed trusses @ 22° pitch.

:600mm eaves off outside edge of framing.

:Refer to manufacturers documentation for roof bracing details, and any specific lintel requirements regarding girder trusses.



Roof Plan scale 1:100

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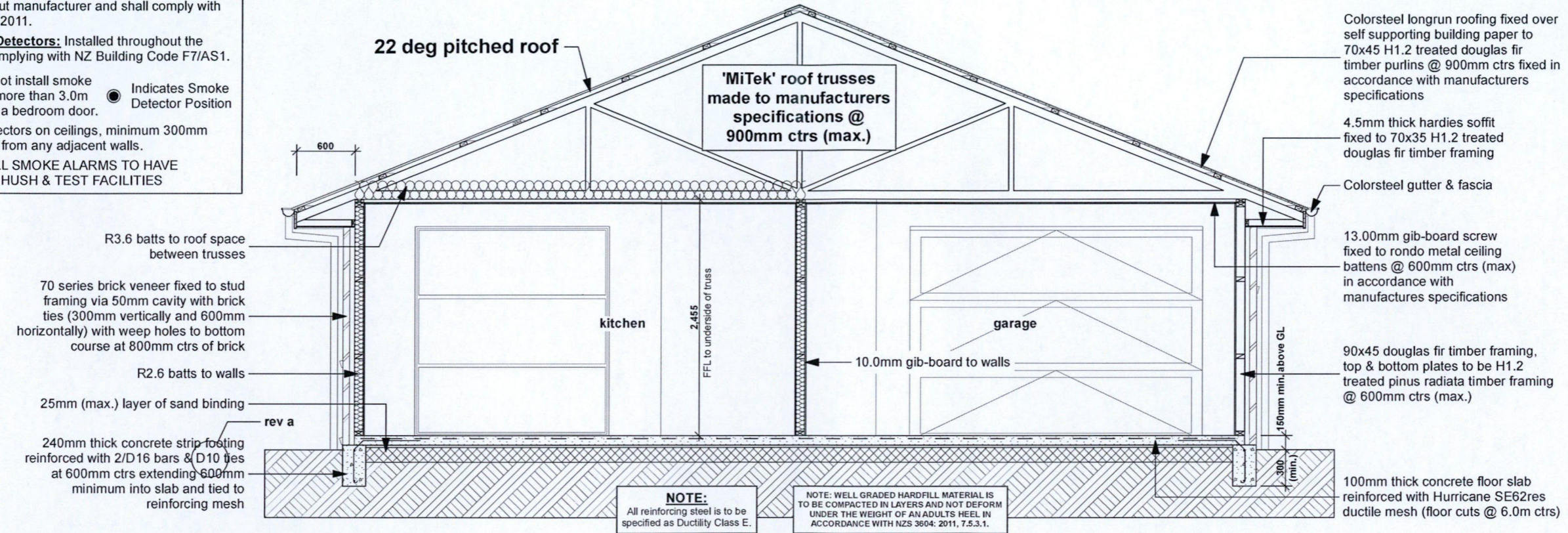
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rev a: R10 ties revised to D10 ties on foundation plan.

FOUNDATION PLAN & ROOF PLAN			
JOB NUMBER: 2013-031-Wallis-WD-1.pln	DATE OF ISSUE: 3/09/2013	DRAWN BY: Craig Fitchett	SHEET NUMBER: 3 of 18
DRAWING STATUS: CONSENT DWGS	VERSION / REVISION: REVISION A		

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- NOTES:**
- External & Internal Wall Framing:** 90x45 H1.2 treated douglas fir timber framing with studs @ 600mm ctrs and dwangs @ 800mm ctrs unless otherwise stated. Top & bottom plates to be H1.2 treated pinus radiata timber framing).
 - Roof Framing:** Trusses and ceiling joists are to be H1.2 treated douglas fir timber framing.
 - Exterior Wall Wraps:** Watertight-plus building paper fixed to exterior framing. All wraps shall comply with NZ Building Code E2/AS1.
 - Timber Framing Grade:** All timber to have a framing grade of SG 8.
 - Beam/lintels:** sizes shown are to be confirmed by the precut manufacturer and shall comply with NZS 3604: 2011.
 - Smoke Detectors:** Installed throughout the dwelling complying with NZ Building Code F7/AS1.
- Note:** do not install smoke detectors more than 3.0m away from a bedroom door.  Indicates Smoke Detector Position
- Mount detectors on ceilings, minimum 300mm from any adjacent walls.
- ALL SMOKE ALARMS TO HAVE HUSH & TEST FACILITIES**



Cross Section A scale 1:50

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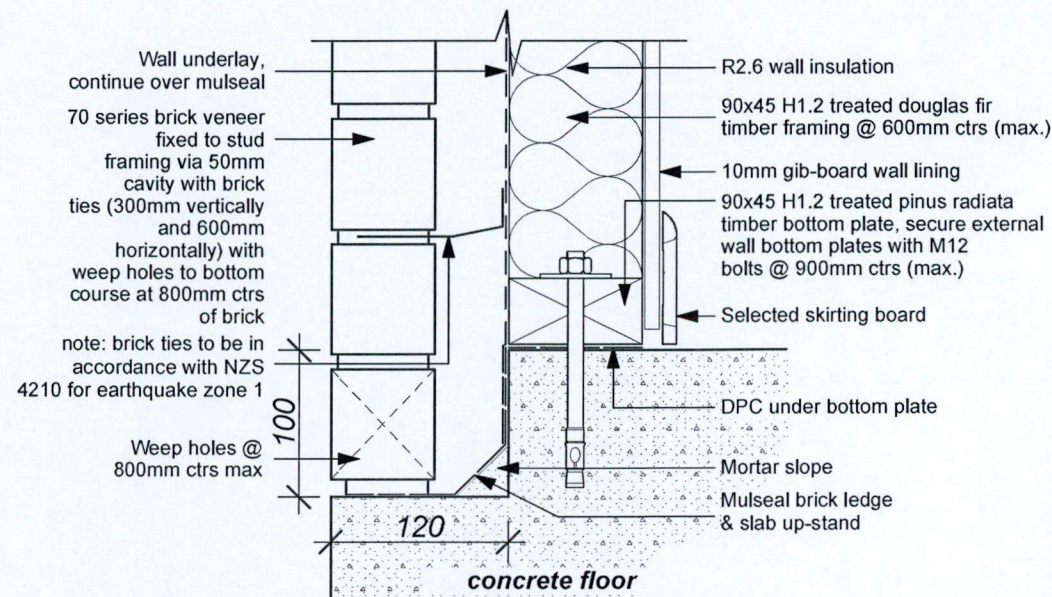
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CROSS SECTION A			
JOB NUMBER: 2013-031-Wallis-WD-1.pln	DATE OF ISSUE: 3/09/2013	DRAWN BY: Craig Fitchett	SHEET NUMBER: 13 of 18
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rev a: R10 ties revised to D10 ties.

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D2 Typ. Foundation @ Base Detail scale 1:5

BRICK LAYER MUST NOTE
CAVITY TO BE
NO LESS THAN 40mm AT
ANY POINT

note: brick ties to be in accordance with NZS 4210 for earthquake zone 1

10.0mm gib-board to walls
R2.6 fibreglass insulation batts to wall space
90x45 H1.2 treated pinus radiata timber bottom plate

100mm thick concrete floor slab reinforced with Hurricane SE62res mesh (floor cuts @ 6.0m ctrs, free joints @ 24.0m ctrs max)

NOTE: WELL GRADED HARDFILL MATERIAL IS TO BE COMPACTED IN LAYERS AND NOT DEFORM UNDER THE WEIGHT OF AN ADULTS HEEL IN ACCORDANCE WITH NZS 3604: 2011, 7.5.3.1.

25mm (max.) layer of sand binding
150mm (min.) deep compacted AP40 hardfill in accordance with NZS 3604: 2011, clause 7.5.3.2

70 series brick veneer fixed to stud framing via 50mm cavity with brick ties (300mm vertically and 600mm horizontally) with weep holes to bottom course at 800mm ctrs of brick

90x45 H1.2 treated douglas fir timber framing @ 600mm ctrs (max.)

Building paper fixed to timber framed walls
D.P.C between bottom plate and floor slab

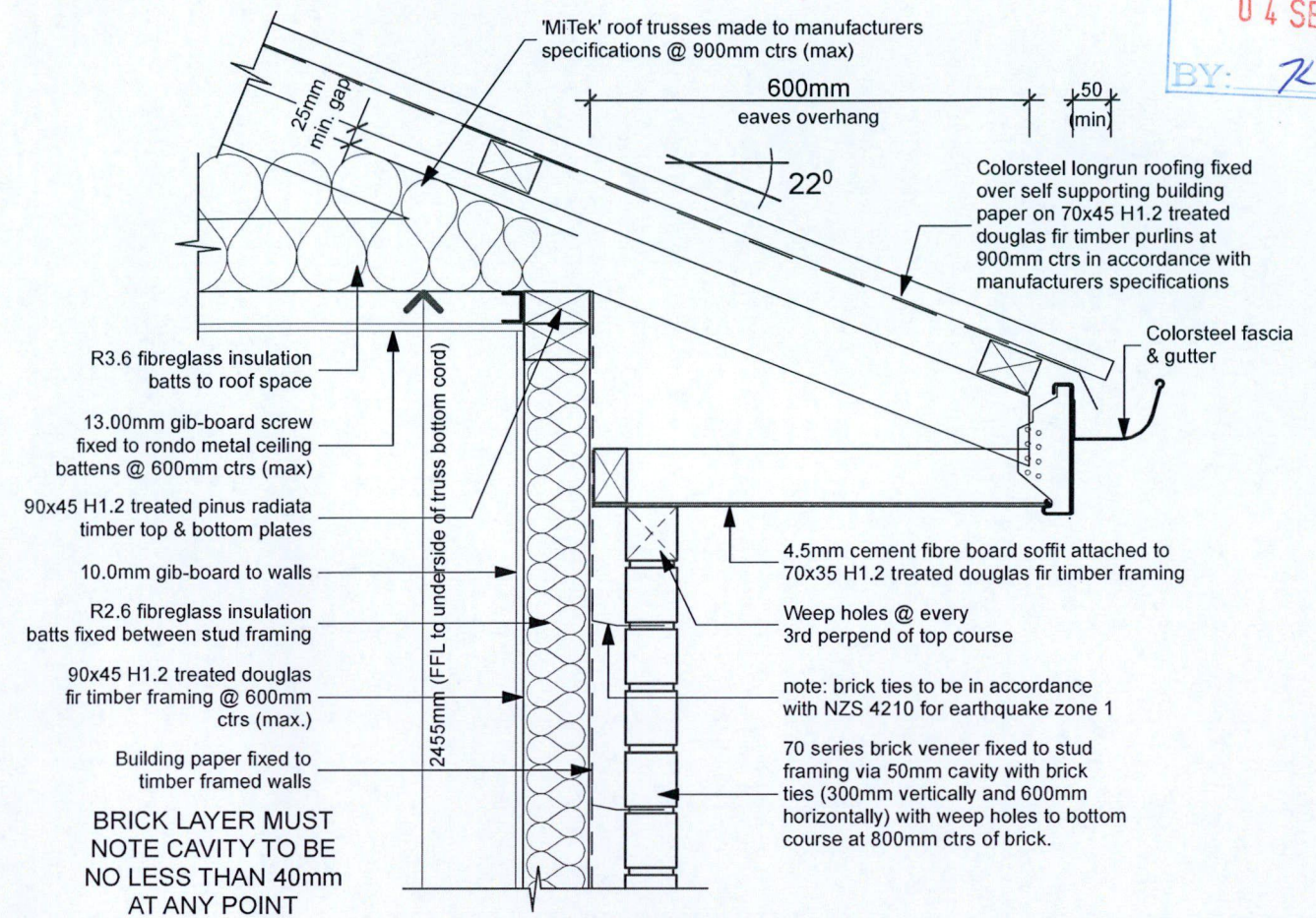
Weep holes @ 800mm ctrs (max) to bottom course of brick veneer

minimum cover to reinforcement:
75mm against ground.
50mm against formwork.
30mm top cover to mesh.

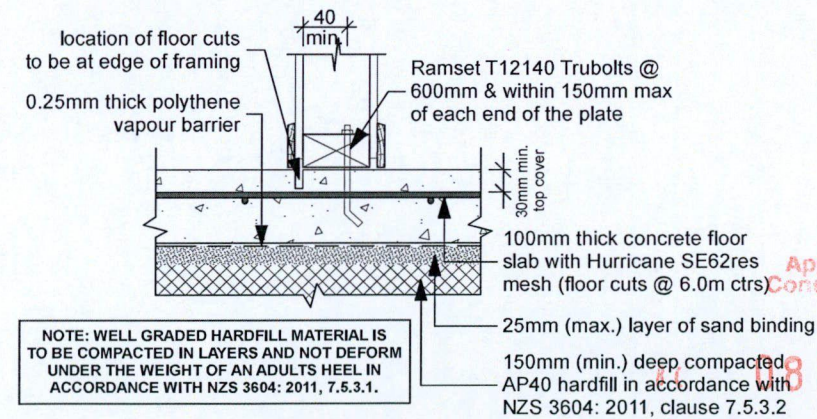
Mulseal brick ledge & slab up-stand (2 coats)

0.25mm thick polythene vapour barrier cut at step
240mm thick concrete strip footing reinforced with 2/D16 bars & R10 ties at 600mm ctrs extending 600mm minimum into slab and tied to reinforcing mesh

D1 Typ. Foundation Detail scale 1:10



D4 Typ. Eave Detail scale 1:10



D3 Typ. Floor Cut Detail scale 1:10

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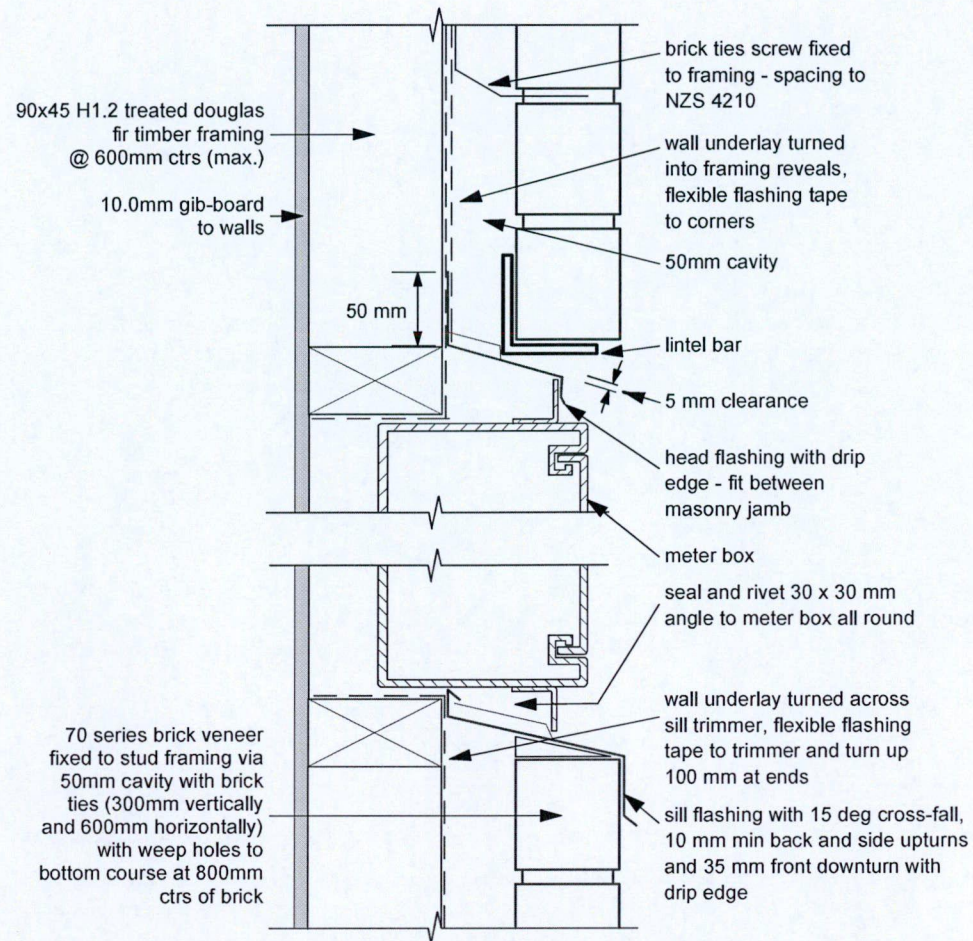


rev a: R10 ties revised to D10 ties on detail 1.

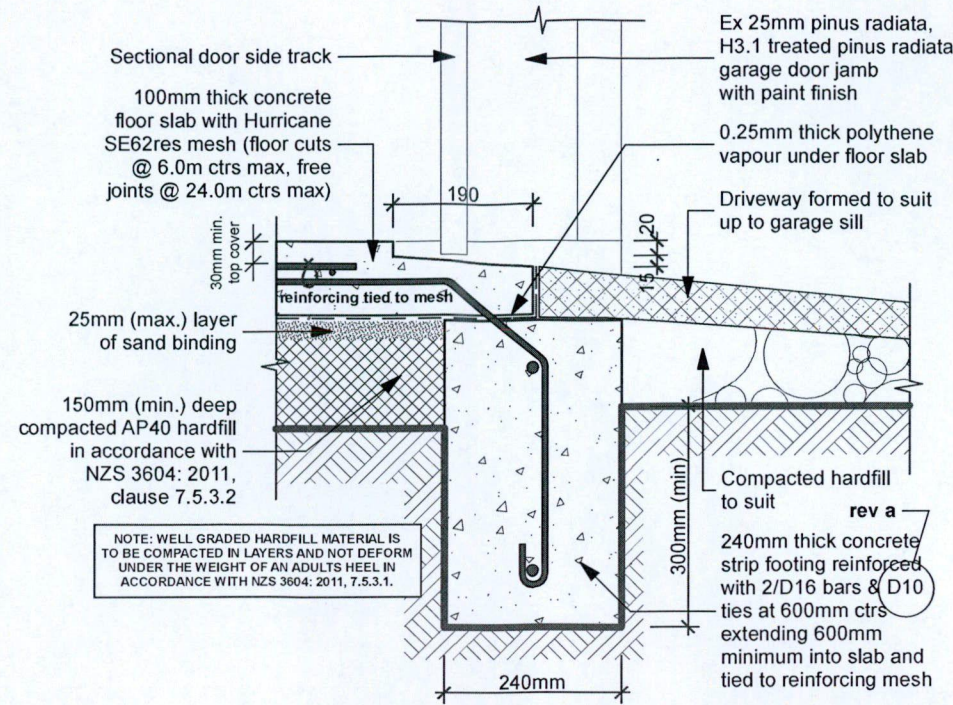
DETAILS 1 - 4

JOB NUMBER: 2013-031-Wallis-WD-1.pln	DATE OF ISSUE: 3/09/2013	DRAWN BY: Craig Fitchett	SHEET NUMBER: 14 of 18
DRAWING STATUS: CONSENT DWGS		VERSION / REVISION: REVISION A	

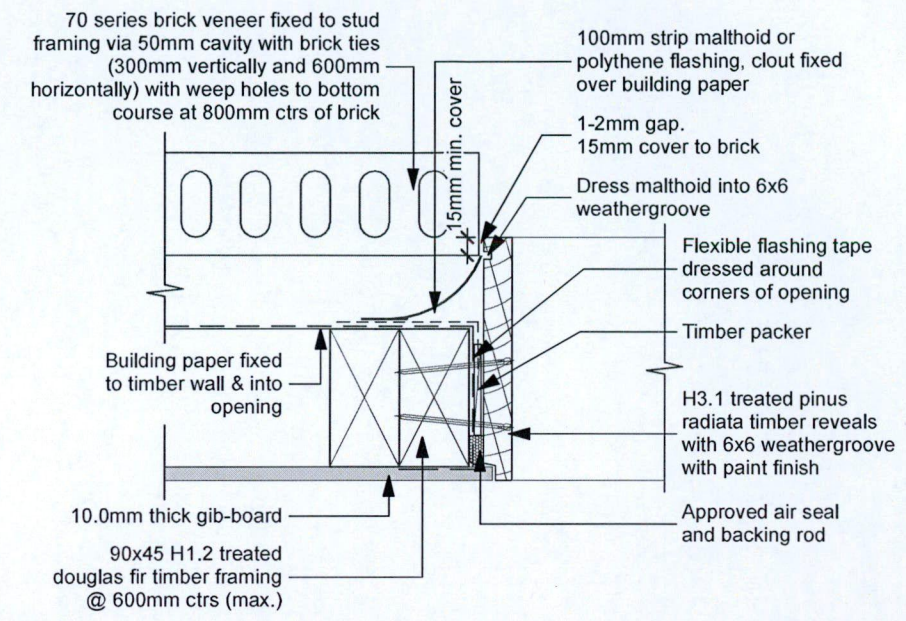
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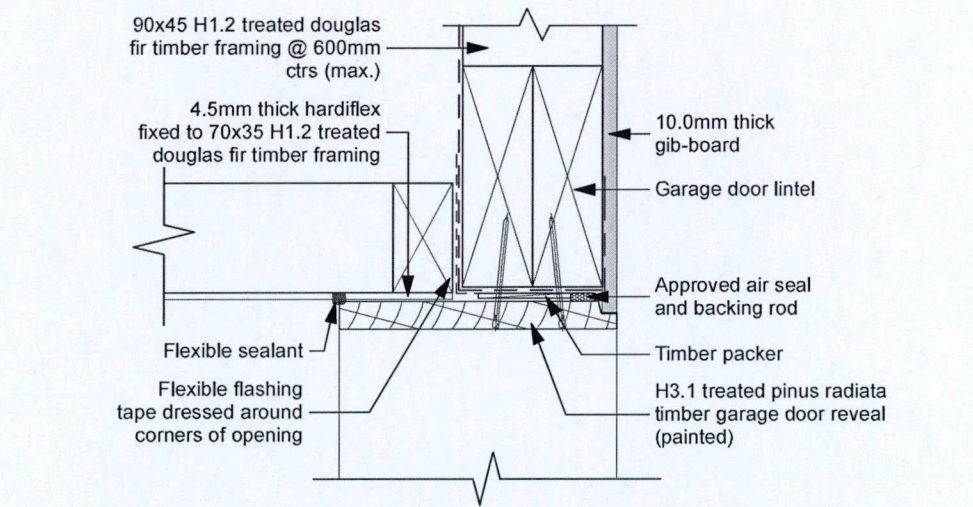
D11 Typ. Meter Box Detail scale 1:5



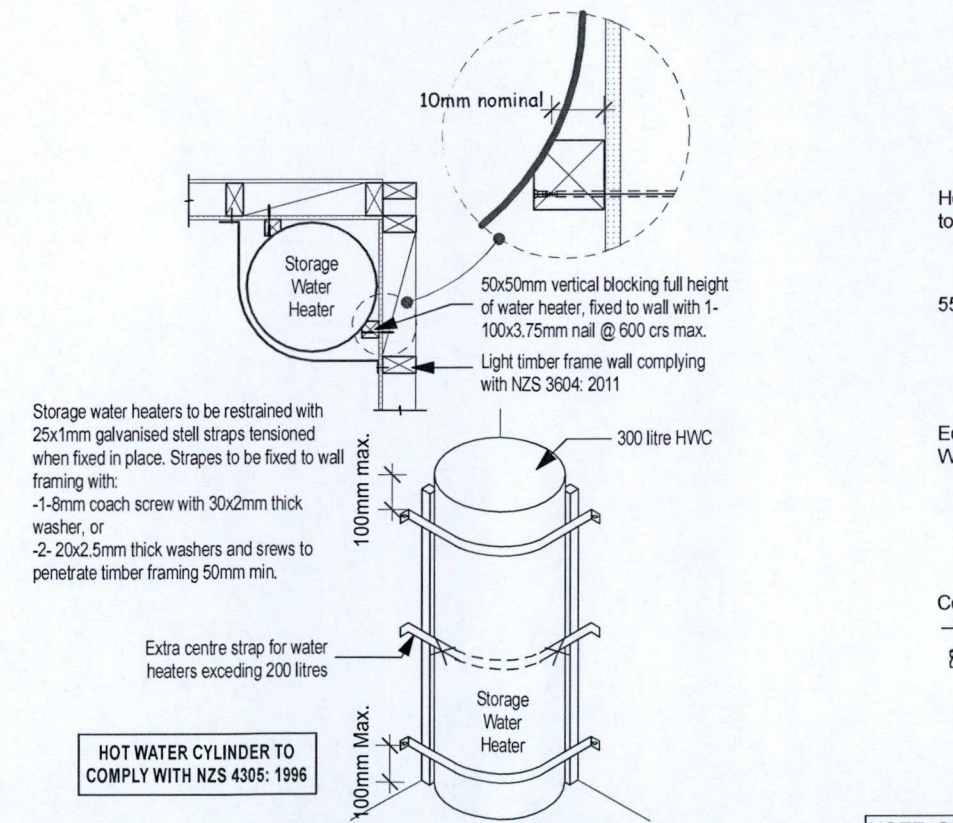
D12 Typ. Garage Door Sill Detail scale 1:10



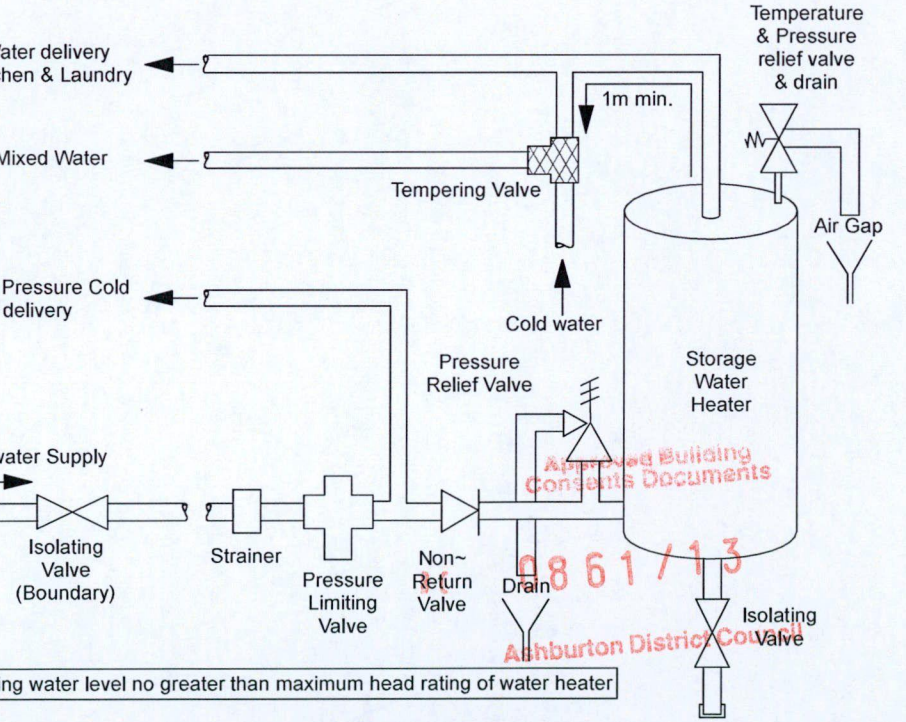
D13 Typ. Garage Door Jamb Detail scale 1:5



D14 Typ. Garage Door Head Detail scale 1:5



D15 Seismic Restraint of Storage Water Heaters 90-360 Litres (AS1/ G12 Fig 14) scale 1:20



D16 Typ. HWC Valves Diagram n.t.s

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PROJECT INFORMATION:
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Craig Fitchett
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APPROVED BUILDING PRACTITIONER
www.dhb.govt.nz

rev a: R10 ties revised to D10 ties on detail 12.

DETAILS 11 - 16

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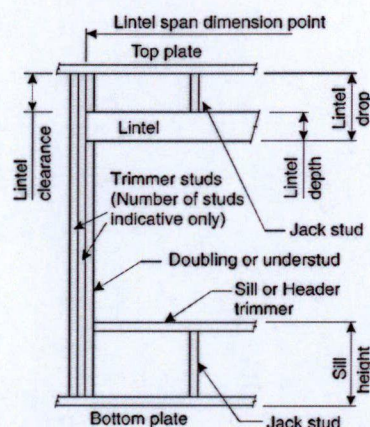
10/2011

LINTEL FIXING SCHEDULE ALTERNATIVE TO TABLE 8.14 & FIGURE 8.12 NZS 3604:2011

NOTE:

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

DEFINITIONS



Lintel Supporting Girder Trusses:

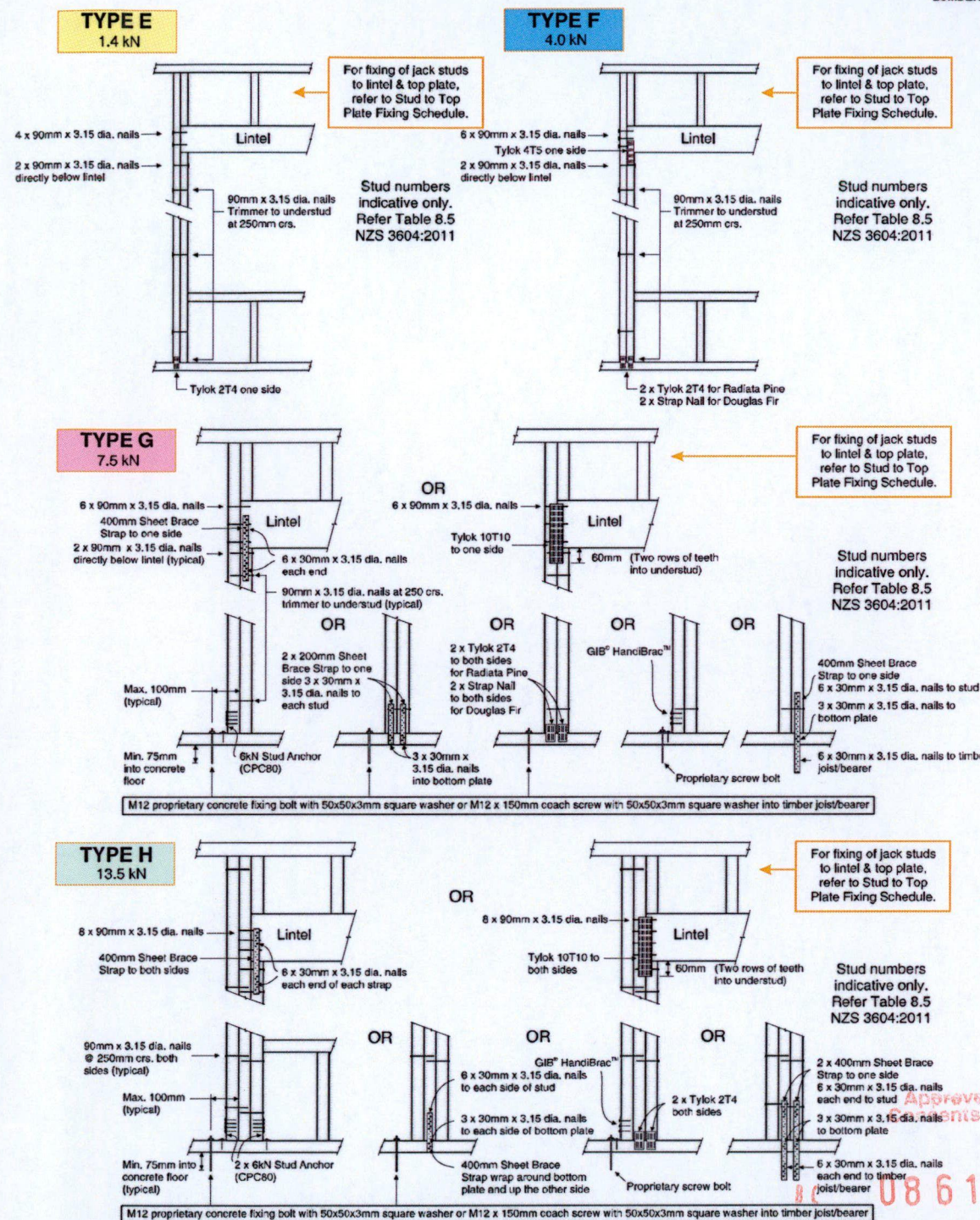
Roof Tributary Area	Light Roof				Heavy Roof			
	L	M	H	EH	L	M	H	EH
8.6 m ²	G	G	H	G	G	G	H	H
11.6 m ²	G	H	H	G	G	G	H	H
12.1 m ²	G	H	H	G	G	H	H	H
15.3 m ²	H	H	-	G	H	H	H	H
19.1 m ²	H	-	-	G	H	-	-	-
20.9 m ²	H	-	-	H	H	-	-	-
21.8 m ²	H	-	-	H	-	-	-	-
34.3 m ²	-	-	-	H	-	-	-	-

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

SELECTION CHART FOR LINTEL FIXING

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

LINTEL FIXING OPTIONS



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MiTek New Zealand Limited
AUCKLAND: PO Box 58-014, Botany 2163
CHRISTCHURCH: PO Box 6387, Riccarton 8440
GANG-NAIL® LUMBERLOK® BOWMAC®

Ashburton District Council

Typical Lintel Hold Down Fixing Details n.t.s

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PROJECT INFORMATION:
PROPOSED RESIDENCE for WALLIS
#Client Full Address

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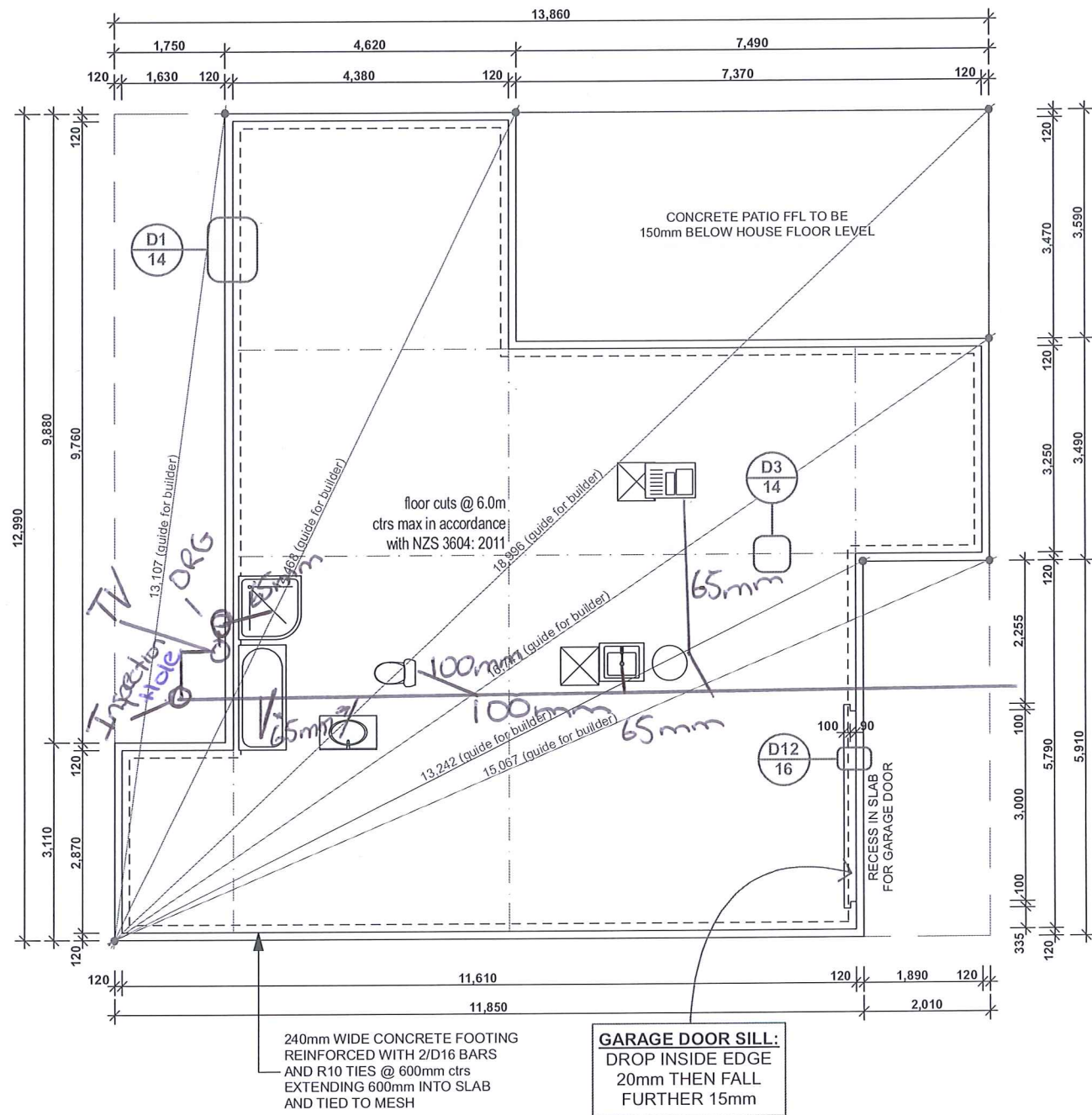
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TYPICAL LINTEL HOLD DOWN FIXING DETAILS

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DRAWING STATUS: CONSENT DWGS	VERSION / REVISION: ISSUE 1		

Variation for 366 B Burnetts St
BC 0861/13



Foundation Plan

scale 1:100

TRUSS MANUFACTURER

-Lintel Sizes: Truss manufacturers to size all lintels with special loads. (truss manufacturers lintel sizes take precedence over designers sizes (refer to truss manufacturers documentation)).

Wall, lintel and truss fixings are also to be supplied.

Truss manufacturer to confirm foundation thickenings and supply if necessary relevant documentation for point loads and thickenings.

Roof trusses at 900mm ctrs with H1.2 treated douglas fir timber members.

All dimensions shown are to framing.

Metal gutter to have minimum cross sectional area of 8700mm²

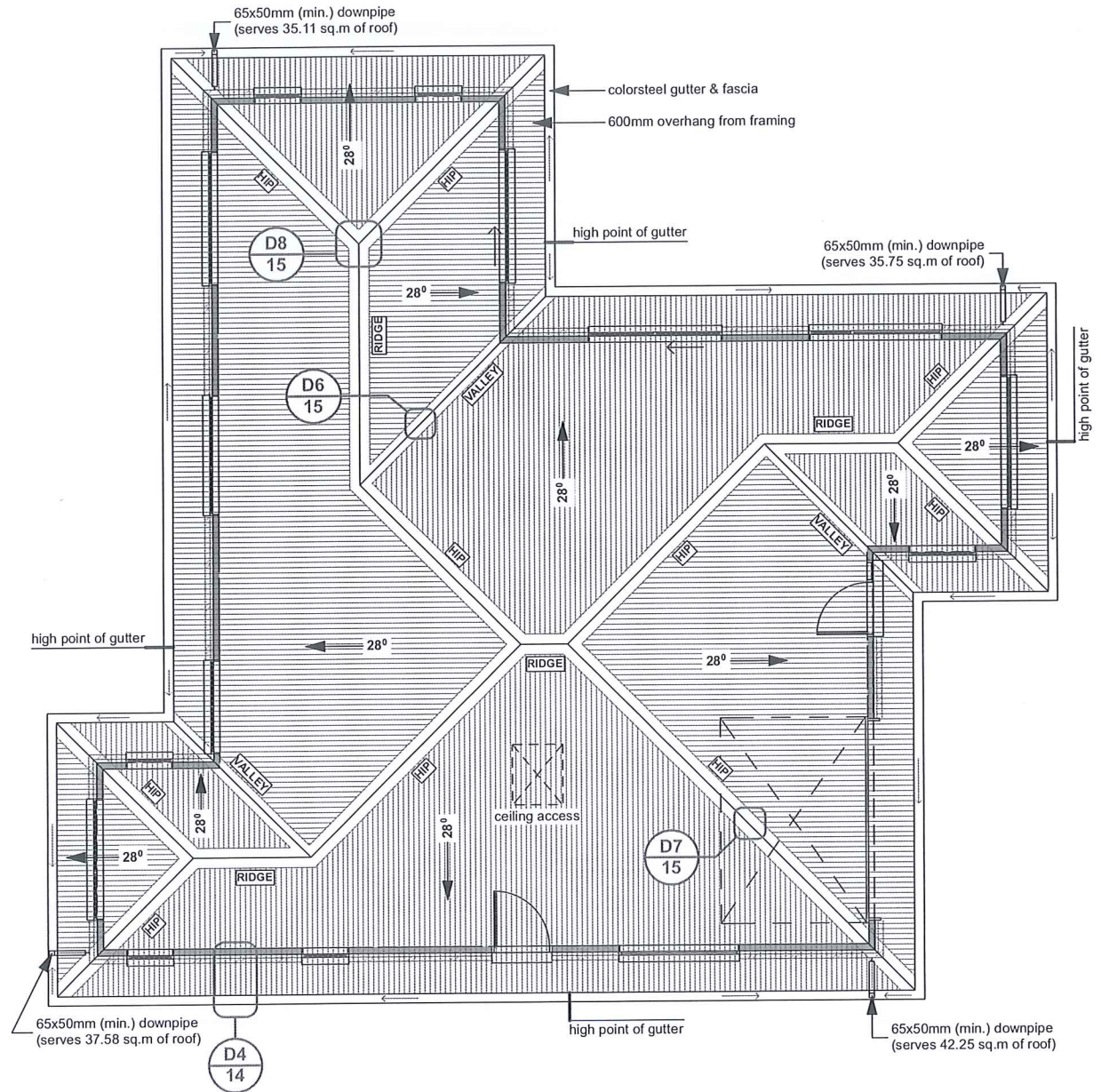
Note:

Down pipes are to be as indicated 65x50mm (capacity of 60.00m² of the floor plan) (Roof Pitch 0-25°).

:Colorsteel longrun roofing fixed over self supporting building paper to 70x45 H1.2 treated douglas fir purlins laid in accordance with manufacturers specifications, on manufacturer designed trusses @ 22° pitch.

:600mm eaves off outside edge of framing.

:Refer to manufacturers documentation for roof bracing details, and any specific lintel requirements regarding girder trusses.



Roof Plan

scale 1:100

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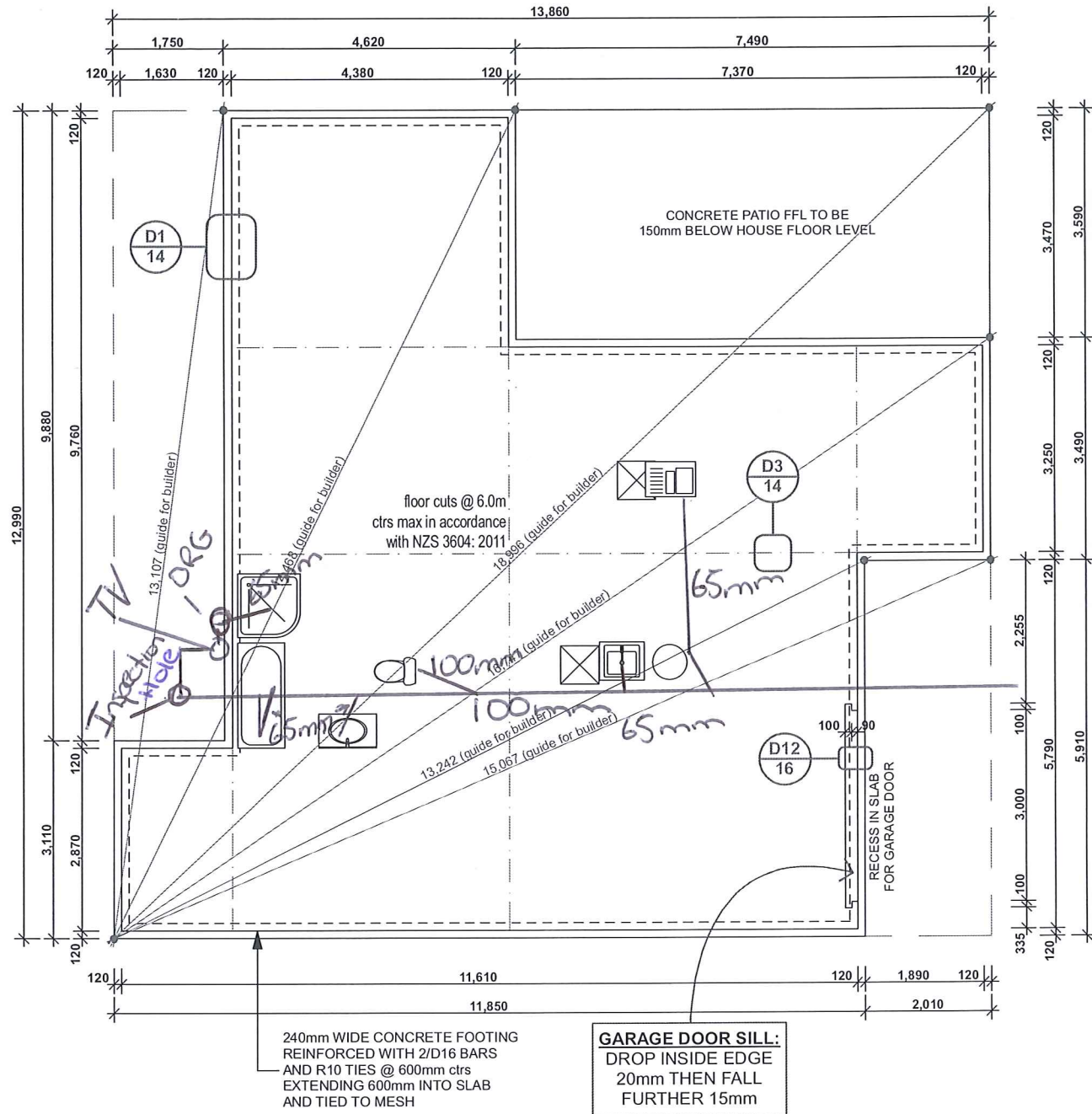


FOUNDATION PLAN & ROOF PLAN

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Variation for 366 B Burnetts St
BC 0861/13



Foundation Plan

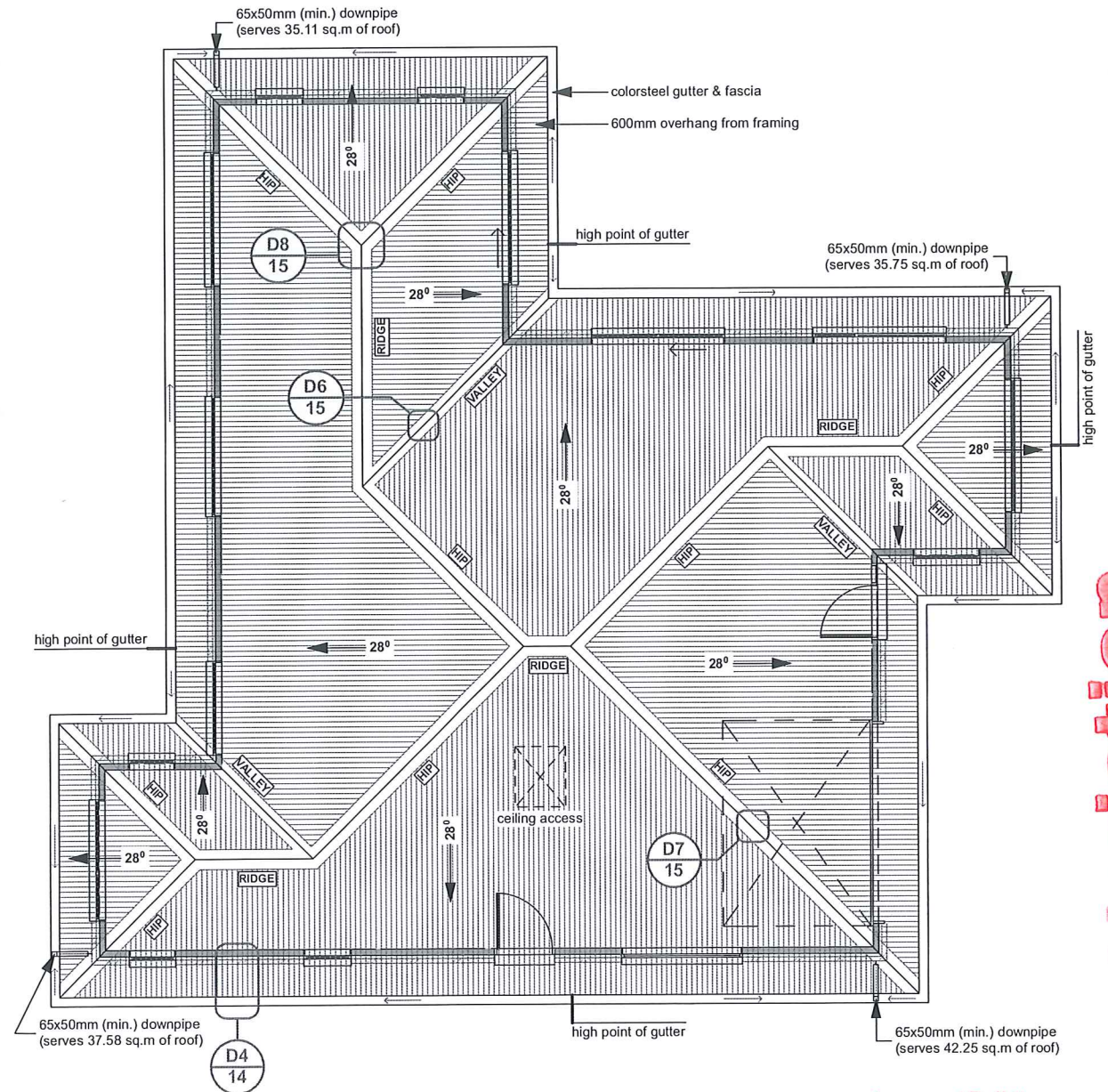
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Variation

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Roof Plan

scale 1:100

Approved Building Consents Documents

BC 0861/13

07 OCT 2013
Ashburton District Council

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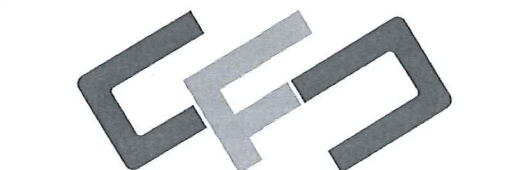
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