Bcon18/0095 - WDC Approved Plans - 30/04/2018

101 Guyton Street
P O Box 637, Whanganui
Phone: (06) 349 0001
Fax: (06) 349 0000
Email: wdc@whanganui.govt.nz
Web: www.whanganui.govt.nz

WHANGANUI DISTRICT COUNCIL
Te Kaunihera a Rohe o Whanganui

# INSPECTION RECORD

**This record, together with the Building Consent and approved plans, is to remain on the construction site at all times.**

| ***Project Location*** | ***TO BOOK AN INSPECTION PLEASE PHONE WDC BUILDING CONTROL ON 349 0001 AND QUOTE THE FOLLOWING APPLICATION NUMBER:*** | ***BCon18/0095*** |
|---|---|---|
| 240A Blueskin Rd<br>WHANGANUI | | |
| ***Description of Work*** | **Construct a new detached dwelling 280m2 Construct an in ground swimming pool 43m2** | |

| ***Applicant*** | Mr PT McKenna<br>3 Buxton Road, Westmere, Whanganui 4501 |
|---|---|

## SUMMARY OF CONDITIONS

Building Consent Number BCon18/0095

### PIM Conditions

| ***Code*** | ***Condition*** |
|---|---|
| | All work on the project must comply with the requirements of the NZ Building Code. |
| | A PIM only document is not an approval to build.<br>A Building Consent is required before building work commences. |
| | W.D.C will follow up on building work not completed within two years of building consent issue. |
| | A Building Consent lapses and is of no effect if the building work has not been started within 12 months of the date of issue. |
| | If the building is public premises it may not be occupied until either a code compliance certificate or certificate for public use has been issued. |
| | Please note [Electrical, and Gasfitting subtrades do not form part of the building consent inspection process. However, Council is required to receive 'Energy Certificates' from both of these trades before issue of a Code Compliance Certificate]. |
| PIMconnect | Water connection from the Westmere Water Supply Scheme is available in the ROW.<br>The following are the conditions of the scheme:<br><br>**1.** That I will bear the complete cost of installation of the service connection, including the cost of the meter, all fittings required, and any length of pipe required to reach my boundary from the supply main, the whole of the work to be performed by WDC Infrastructure Group or its agents to the standards set by WDC Infrastructure Group. (Not applicable as connection is existing)<br><br>**2.** That I agree to pay the Minimum Allocation Charge for water on a six monthly basis or as the Whanganui District Council may determine. That I also agree to pay within 20 (twenty) days of receipt of invoice for water recorded through the meter at the rate fixed by resolution of the Whanganui District Council from time to time. |

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| | |
|---|---|
| | **3.** That in the event of my failing to meet such charges under Clauses (1) and (2), WDC Infrastructure Group shall be empowered to immediately cut off the service without further notice.<br><br>**4.** That at any time a change of ownership or occupancy should take place in the premises served by the connection, I agree to advise WDC Infrastructure Group within fourteen days and meet all charges up to and inclusive of the date of cessation of occupancy or ownership by me, or in event of my failing to give such advice I will continue to remain liable for all charges incurred.<br><br>**5.** That in the event of work being carried out on the mains (whether or an emergency nature or programmed) or any other emergency, WDC Infrastructure Group cuts off the supply to my premises, it may do so without any liability devolving upon it for the interruption or discontinuance of the supply.<br><br>**6.** That in the event of WDC Infrastructure Group or its officers not being satisfied that the meter is in good working order or recording accurately, it shall be empowered to test the meter, and if found to be faulty to repair or replace the meter. During any period when the meter may be out for repair or ceased to register correctly, I agree to a charge being assessed on the basis of the average of the four previous similar periods registered through the meter.<br><br>**7.** If at any time the accuracy of the meter is called in question by me, I agree to WDC Infrastructure Group testing the meter, and if such meter is found to register within 5% over or under the absolute quantity passing through I agree to pay the cost of testing, removal and fixing.<br><br>**8.** I agree to abide by all conditions laid down in the Whanganui District Council Bylaws.<br><br>**9.** I agree to provide one day's (24 hours) storage on site. |

**Building Consent Conditions**

| ***Code*** | ***Condition*** |
|---|---|

**Your project's inspections are listed on the next page...**

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**Please Note: A minimum of 48 hours notice is required for the booking of an inspection. The inspection record sheet and accompanying building consent documentation must be on site for use by the inspector at the time of the inspection.**

All inspections are to be carried out by BCA Building Inspectors unless prior arrangements have been made by the BCA to have an approved qualified person inspect specific items (eg. Engineer). Inspections shall be carried out in accordance with the attached schedule of inspection types. It is the owner's responsibility to ensure all necessary inspections are carried out as required. Please contact WDC if you are unsure what requires inspection – do not cover or enclose any building work without inspection.

Note: Further inspections may incur additional cost at time of Code Compliance Certificate issue.

# Inspections Record For Building Consent Number BCon18/0095

| *Inspection* | *When to Request* | *Date* | *Inspector* | *Complies with Code* | *Reinspect* | *Notes* | | |
|---|---|---|---|---|---|---|---|---|
| **PILE AND/OR POST INSPECTION** | Prior to placing Concrete | | | | | | | |
| **CONCRETE SLAB INSPECTION** | Prior to placing Concrete | | | | | | | |
| **FRAMING INSPECTION** | When all framing is complete. | | | | | | | |
| **Cladding Cavity Inspection** | To inspect drainage cavity before cladding. | | | | | | | |
| **BUILDING PRELINE INSPECTION** | Before Internal linings are fixed. | | | | | | | |
| **POST LINE INSPECTION** | To inspect fixings. Prior to covering up. | | | | | | | |
| **FINAL BUILDING AND PLUMBING COMBINED INSPECTION** | On Completion | | | | | | | |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **PLUMBING SUBFLOOR INSPECTION** | Before covering up | | | | | | | |
| **PLUMBING PRELINE INSPECTION** | Before covering up | | | | | | | |
| **SANITARY DRAINS INSPECTION** | Before backfilling drains | | | | | | | |
| **STORMWATER DISPOSAL INSPECTION** | Before backfilling drains | | | | | | | |
| **WATERPROOFING INSPECTION** | Before covering up | | | | | Wet area showers. | | |
| **CONSTRUCTION REVIEWS (NO INSPECTION)** | On Completion | | | | | On completion please supply:<br>The completed CCC application.<br>All LBP memos for RBW.<br>All energy certs.<br>Any requested As Built drainage plans.<br>Producer Statement PS3 for the installation of the septic system and effluent field. | | |

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# BUILDING CONSENT NUMBER BCon18/0095

Section 51, Building Act 2004

## *The building:*

| ***Street address of building:*** | ***Legal description of land where building is located:*** |
|---|---|
| 240A Blueskin Rd<br>WHANGANUI | Lot 3 DP 510218 1.1320 Ha |
| ***Building name:*** | ***Location of building within site/block number:*** |
| | |
| ***Level/unit number:*** | |
| | |

## *The owner:*

| ***Name of Owner:*** | |
|---|---|
| Mrs SM Koubaridis, Mr MN Koubaridis | |
| ***Mailing address:*** | ***Street Address/registered Office:*** |
| 121 Tayforth Rd RD 4 Whanganui 4574 | 121 Tayforth Rd RD 4 Whanganui 4574 |

## *Phone numbers:*

| | | | |
|---|---|---|---|
| ***Landline:*** | 3484482 | ***Mobile:*** | 0274166494 |
| ***Daytime:*** | | ***After hours:*** | |
| ***Facsimile number:*** | | | |
| ***Email address:*** | | ***Website:*** | |

## *First point of contact for communications with the building consent authority:*

| ***Contact Person:*** | |
|---|---|
| Mr PT McKenna | |
| ***Mailing address:*** | ***Street Address/registered Office:*** |
| 3 Buxton Road, Westmere, Whanganui 4501 | 3 Buxton Road, Westmere, Whanganui 4501 |

## *Phone number:*

| | | | |
|---|---|---|---|
| ***Landline:*** | 3444729 | ***Mobile:*** | 0211261333 |
| ***Daytime:*** | | ***After hours:*** | |
| ***Facsimile number:*** | 3447269 | | |
| ***Email address:*** | | ***Website:*** | |

## *Building Work*

The following building work is authorised by this consent

| ***Project*** |
|---|
| Construct a new detached dwelling 280m2Construct an in ground swimming pool 43m2 |

Bcon18/0095 - WDC Approved Plans - 30/04/2018

| ***Intended Use*** | ***Intended Life*** |
|---|---|
| Single Detached Residential | 50+ Years |
| ***Estimated Value ($)*** | |
| $600000.00 | |

This building consent is issued under section 51 of the Building Act 2004. This building consent does not relieve the owner of the building (or proposed building) of any duty of responsibility under any other Act relating to or affecting the building (or proposed building). This building consent also does not permit the construction, alteration, demolition, or removal of the building (or proposed building) if that construction, alteration, demolition or removal would be in breach of any other Act.

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# CONDITIONS OF BUILDING CONSENT NUMBER BCon18/0095

Section 51, Building Act 2004

***This Building Consent is issued Subject to the following conditions:***

***Building Act 2004, Section 90:***

***Inspections by Building Consent Authorities***

Agents authorised by the building consent authority for the purposes of this section are entitled, at all times during normal working hours or while building work is being done, to inspect

(a) land on which building work is being or is proposed to be carried out; and

(b) building work that has been or is being carried out on or off the building site; and

(c) any building.

***Informative notes:***

- [Informative note: The Building Consent, conditions, inspection sheet, and approved plans must be kept on site at all times until completion of the project.]
- [Informative note: Failure to request inspections will risk the non-issuing of a code compliance certificate and the structure may be deemed non-complying.]
- [Informative note: Any inspection time required over and above that allowed may incur a further charge.]
- [Informative note: Under Section 52, a building consent lapses and is of no effect if the building work to which it relates is not commenced within 12 months after the date of issue.]
- [Informative note: Under Section 93, if the owner has not made application within 24 months, the BCA (Building Control Authority), must decide whether or not to issue a CCC (Code Compliance Certificate).]

***Compliance Schedule:***

A compliance schedule (CS) is not required for this building.

***‡Attachments***

‡Copies of the following documents are attached to this building consent:
‡Project information memorandum number BCon18/0095'
‡Inspection record

Signed for and on behalf of the Whanganui District Council

GJ Hoobin
**Building Control Team Leader** **Date**: 30 April, 2018

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# PROJECT INFORMATION MEMORANDUM NUMBER BCon18/0095

Section 31, Building Act 1991

**Mr PT McKenna**
**3 Buxton Road**
**Westmere**
**Whanganui 4501**

| ***Project Location*** | ***Assessment Number/Legal Description*** |
|---|---|
| 240A Blueskin Rd<br>WHANGANUI | Lot 3 DP 510218 1.1320 Ha |
| ***Category*** | ***Description of Work*** |
| New Residential Dwellings - $200001 & over | Construct a new detached dwelling 280m2Construct an in ground swimming pool 43m2 |
| ***Intended Life*** | ***Estimated Value ($)*** |
| 50+ Years | 600000.00 |

This Project Information Memorandum is confirmation that the proposed work may be undertaken, subject to the provisions of the Building Act 2004 and any requirements of the Building Consent (number BCon18/0095 ), which has been granted.

***This Project Information Memorandum is subject to the following conditions:***

- **Water connection from the Westmere Water Supply Scheme is available in the ROW.**

**<u>The following are the conditions of the scheme:</u>**

1. **That I will bear the complete cost of installation of the service connection, including the cost of the meter, all fittings required, and any length of pipe required to reach my boundary from the supply main, the whole of the work to be performed by WDC Infrastructure Group or its agents to the standards set by WDC Infrastructure Group. (Not applicable as connection is existing)**

2. **That I agree to pay the Minimum Allocation Charge for water on a six monthly basis or as the Whanganui District Council may determine. That I also agree to pay within 20 (twenty) days of receipt of invoice for water recorded through the meter at the rate fixed by resolution of the Whanganui District Council from time to time.**

3. **That in the event of my failing to meet such charges under Clauses (1) and (2), WDC Infrastructure Group shall be empowered to immediately cut off the service without further notice.**

4. **That at any time a change of ownership or occupancy should take place in the premises served by the connection, I agree to advise WDC Infrastructure Group within fourteen days and meet all charges up to and inclusive of the date of cessation of occupancy or ownership by me, or in event of my failing to give such advice I will continue to remain liable for all charges incurred.**

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**5.** **That in the event of work being carried out on the mains (whether or an emergency nature or programmed) or any other emergency, WDC Infrastructure Group cuts off the supply to my premises, it may do so without any liability devolving upon it for the interruption or discontinuance of the supply.**

**6.** **That in the event of WDC Infrastructure Group or its officers not being satisfied that the meter is in good working order or recording accurately, it shall be empowered to test the meter, and if found to be faulty to repair or replace the meter. During any period when the meter may be out for repair or ceased to register correctly, I agree to a charge being assessed on the basis of the average of the four previous similar periods registered through the meter.**

**7.** **If at any time the accuracy of the meter is called in question by me, I agree to WDC Infrastructure Group testing the meter, and if such meter is found to register within 5% over or under the absolute quantity passing through I agree to pay the cost of testing, removal and fixing.**

**8.** **I agree to abide by all conditions laid down in the Whanganui District Council Bylaws.**

**9.** **I agree to provide one day's (24 hours) storage on site.**

- **All work on the project must comply with the requirements of the NZ Building Code.**

Signed for and on behalf of the Whanganui District Council

GJ Hoobin
**Building Control Team Leader** **Date**: 30 April 2018

Bcon18/0095 - WDC Approved Plans - 30/04/2018

## Alan Hoskin

**From:** Paul McKenna <pmarchitecture@outlook.com>
**Sent:** Friday, 13 April 2018 2:24 p.m.
**To:** OnlineBCApps
**Subject:** BCon18/0095 240a Blueskin Rd
**Attachments:** septic 1.pdf; septic 2.pdf; septic 3.pdf; septic 4.pdf; septic 6.pdf; septic 7.pdf; Wastewater pump1 JX-180.pdf; email from NZfire.pdf

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

**Categories:** RFI to do

Hi Cameron, Bill & Chris
Please see below for my answers to your questions. Please give me a call if you have any questions.

Kind Regards
Paul McKenna

**PM architecture**
(06) 3444 729 | 021 126 1333 | 3 Buxton Rd, Wanganui 4501

RECEIVED 16/04/2018

1. Please provide evidence of a firefighting water supply and access to this supply in accordance with New Zealand Fire Service Fire Fighting Water Supply Code of Practice 2008 SNZ PAS 4509:2008. You are able to submit your plans to John Hotter of the Fire Service who will verify compliance with this code. John is able to be contacted at John.Hotter@fire.org.nz <mailto:John.Hotter@fire.org.nz>. Cameron Neilson. See Attached email from from John. I have made the small modification he requested on sheet 02
2. Wall bracing lines M &N are over 6m apart (9.3m), and nothing is shown to make that compliant? Also for lines C D to be considered as breaking up the space between outside lines B & E they must be shown or at least noted as carrying though by connection to outside wall M. (Bill Leslie -Building Control) I have added a gib diapragm ceiling- see sheet 6
3. There is an internal corner to garage slab with no saw cut running though that would require corner bars included, just an omission I'm sure. (Bill Leslie -Building Control) Added to sheet 3
4. Please provide a complete design for the waste water treatment plant and show the location of the effluent field fenced off on the site plan. (Chris Gould -BCO). See attached
5. Please show how the overflow relief gully trap is to be charged. (Chris Gould -BCO). I have changed the layout of waste pipes to the bathroom. the whb & bath now discharge to the GT- see sheet 3
6. The design for the swimming pool shows novaflow drainage around the base of the pool and steps, please detail where this is to dispose to. (Chris Gould BCO). I have added a sump and pump draining to a soak pit - see sheet 1 & 2

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**Sent at:** 5/04/2018 11:31:20 AM

# RE: New Project- Blueskin Rd

From: Hotter, John <john.hotter@fireandemergency.nz>
To: PM Architecture <pmarchitecture@outlook.com>

100mm floating female screw coupling
Cheers

**John (Luigi) Hotter**
Fire Safety Officer / Specialist Fire Investigator
Fire and Emergency Inspector
Wanganui Area

**M:** 027 2742616
**P:** 06 3850161
john.hotter@fireandemergency.nz
www.fireandemergency.nz

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**From:** Paul McKenna [mailto:pmarchitecture@outlook.com]
**Sent:** Wednesday, 4 April 2018 9:16 a.m.
**To:** john.hotter@fire.org.nz
**Subject:** Re: New Project- Blueskin Rd

Hi John
Can you send me the details of your requirements for the coupling please.

Kind Regards
Paul McKenna

PM architecture
(06) 3444 729 | 021 126 1333 | 3 Buxton Rd, Wanganui 4501

> On 26/03/2018 1:16:46 PM, PM Architecture <pmarchitecture@outlook.com> wrote:

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Hi John
We did discuss this one a couple of months ago, but it is in for consent now so I need you to do your bit.
Please give me a call if there is anything you need added to what I have done

Kind Regards
Paul McKenna

**PM architecture**
(06) 3444 729 | 021 126 1333 | 3 Buxton Rd, Wanganui 4501

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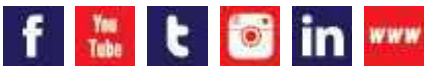

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# COMPUTER FREEHOLD REGISTER
# UNDER LAND TRANSFER ACT 1952

**Search Copy**

R.W. Muir
Registrar-General
of Land

| | |
|---|---|
| **Identifier** | **801480** |
| **Land Registration District** | **Wellington** |
| **Date Issued** | 22 August 2017 |

**Prior References**
780752

| | |
|---|---|
| **Estate** | Fee Simple |
| **Area** | 1.1320 hectares more or less |
| **Legal Description** | Lot 3 Deposited Plan 510218 |

**Proprietors**
Sarah Marie Koubaridis, Mark Norman Koubaridis and Wairere Trustees Limited

**Interests**

Appurtenant hereto is a water right specified in Easement Certificate 226029.2 - 19.5.1977 at 1.32 pm

Appurtenant hereto is an electricity supply right created by Easement Instrument 8092135.3 - 4.3.2009 at 2:24 pm

The easements created by Easement Instrument 8092135.3 are subject to Section 243 (a) Resource Management Act 1991

10791774.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 31.5.2017 at 2:27 pm

Subject to a right of way, right to convey water, telecommunications & computer media over part marked B on DP 510218 created by Easement Instrument 10791774.4 - 31.5.2017 at 2:27 pm

Appurtenant hereto is a right of way, right to convey water telecommunications & computer media created by Easement Instrument 10791774.4 - 31.5.2017 at 2:27 pm

The easements created by Easement Instrument 10791774.4 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right (in gross) to convey electricity over part marked B on DP 510218 in favour of Powerco Limited created by Easement Instrument 10791774.5 - 31.5.2017 at 2:27 pm

The easements created by Easement Instrument 10791774.5 are subject to Section 243 (a) Resource Management Act 1991

10895495.2 Mortgage to Bank of New Zealand - 19.9.2017 at 10:04 am

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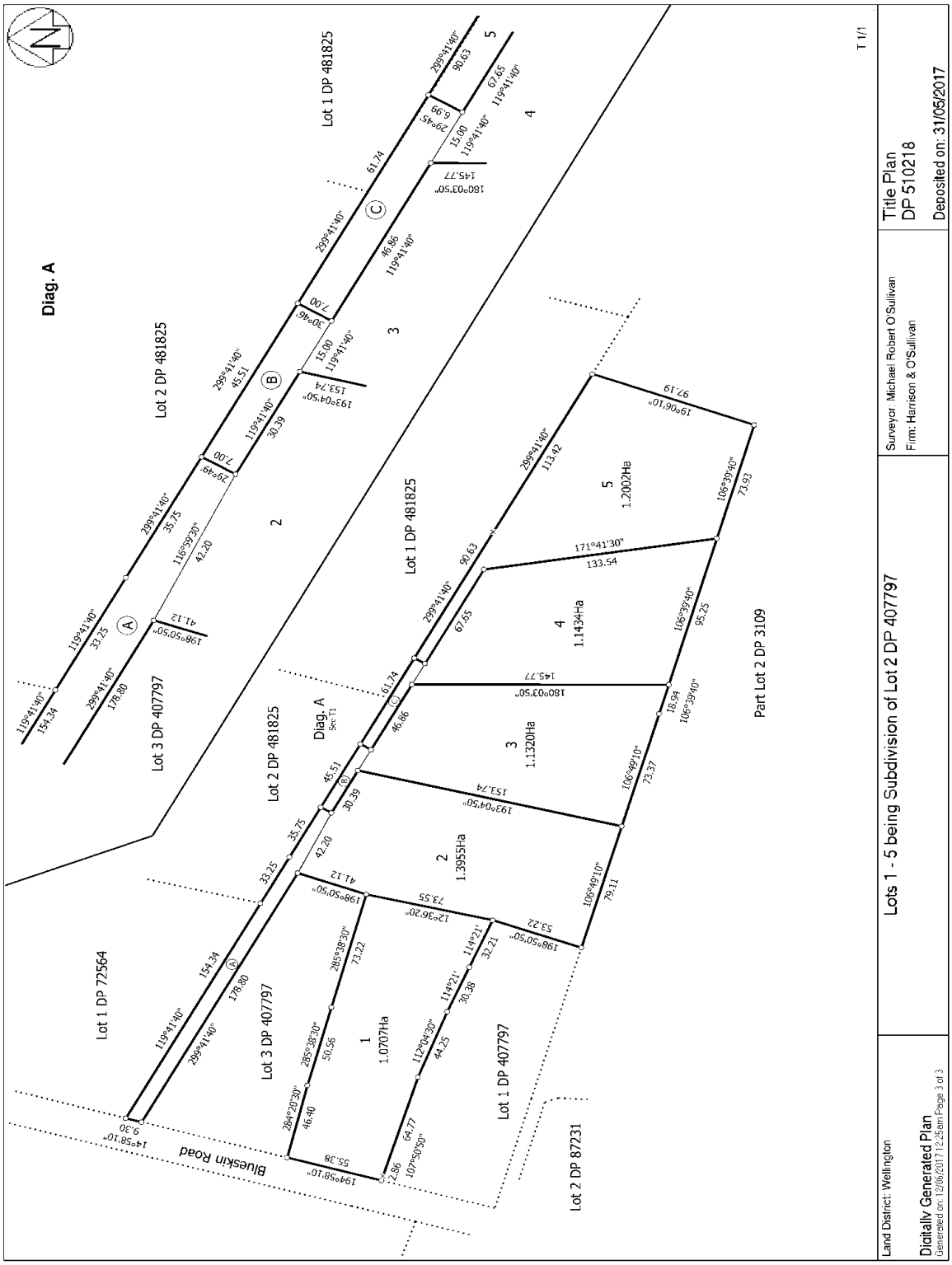
**Identifier** **801480**



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**W CHEGWIDDEN, 226 BLUESKIN ROAD, WHANGANUI: LT 510218**

**CERTIFICATE PURSUANT TO SECTION 221 OF THE**

**RESOURCE MANAGEMENT ACT 1991**

The Whanganui District Council has granted a Resource Consent under Section 104 of the Resource Management Act 1991 to W Chegwidden being a subdivision of Lot 2 DP 407797, 226 Blueskin Road, Whanganui.

The subdivision is subject to the following conditions:

1. A Consent Notice shall be registered against the Certificate of Title for Lots 2-5 which states:

   *'The owners of Lots 2-5 prior to the occupation of any dwelling on the lots, shall install an on-site secondary septic tank system approved by Council and designed and certified by a suitably qualified professional person engaged by the owner. The system shall comply with the requirements of Horizons Regional Council rules for discharge of domestic waste to land. The disposal field shall be located at least 3 metres from any dwelling and at least 1.5 metres from any other building or property boundary. The disposal field shall be separated at least 20 metres from any other effluent disposal field and at least 10 metres from any slope. There shall be a 900mm separated between the high water table and the level drip irrigation line.*

   *The disposal field shall be planted with the appropriate plants as recommended by Horizons Regional Council on approval of any system. Any system installed shall have a current maintenance contract, involving annual inspections of the plant and disposal field, while the supplier or agent for the life of the system. An 'As-Built' plan of the on-site wastewater system shall be lodged with the Whanganui District Council following the installation of the treatment plant. '*

This Consent Notice shall be registered as appropriate against the Computer Freehold Register issued for Lots 2-5 of LT 510218 being a subdivision of Lot 2 DP 407797, 226 Blueskin Road, Whanganui in terms of the Land Transfer Act 1952.

Dated at Whanganui this 24st day of April 2017.

Connor Marner
**Resource Management Planner**

(Acting pursuant to a delegated authority from the
Principal Administrative Officer)

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Paul McKenna architecture

# Engagement Agreement

Please return the form below to signify your wish to engage PMA as discussed, and to acknowledge your acceptance of the terms and conditions. Please feel free to discuss any aspect of these terms if you have any queries. **Your project cannot be formally booked until this form is received.**

**Client** (Legal Name and Address for invoicing )

M + S Koubaridis Family Trust

**Postal Address** 6 Suffolk Drive, Otamatea, Wanganui

**Contact Person** (If different from above) Mark + Sarah Koubaridis

**Project Description** New build home

**Site address of Building Project** ~~225~~ 240a Blueskin Rd, Wanganui

**Preferred method of contact** mobile or email

Work Phone 06 3490089 (s) 06 3490091 (m)
Home Phone 06 3484482
Mobile 027 4166494 (s) 027 7721761 (m)
Fax –
E mail sarah.koubaridis@milestone.co.nz

Most convenient times to contact you anytime.

Please tell me how you heard about me Shane Stone referred us.

I/we agree to engage Paul McKenna to provide architectural services for our project in accordance with the attached terms and conditions.

**Signed** MKoubaridis

**Date** 6/9/17.

Please feel free to attach any comments relating to your project....

V: 10 17/11/14

**ADDRESS** 3 Buxton Road Wanganui 4501
**PHONE** (06) 3444 729
**FAX** (06) 3447 269
**MOBILE** 021 126 1333
**EMAIL** paulmck@ihug.co.nz

Bcon18/0095 - WDC Approved Plans - 30/04/2018

# Terms of engagement

**Thank you for taking the time to read the following terms of engagement.**

1. **GENERAL**
   - 1.1. The Client authorises Paul McKenna Architecture (PMA) to provide architectural services for the project so described in the Engagement Agreement and to do all that is necessary to meet this end.
   - 1.2. The client will be consulted and the client's permission will always be sort before engaging third party professional consultants (ie: Engineers, Fire Designers etc) which may be required for the project. All costs of third party consultants will be additional to PMA fees and are payable by the client.
   - 1.3. The client may at any time suspend or cancel the design process. The client will then be liable only for work carried out to that date. A verbal notice to this effect will be honored but must be confirmed in writing or by email.
2. **USE OF DOCUMENTATION**
   - 2.1. No use of plans, specifications, and other documentation is permitted until payment is received in full.
   - 2.2. Upon full payment, the client is permitted to make as many copies of the documentation as required for tendering and construction.
   - 2.3. Documentation must not be used by any one other than the original client, or for any purpose other than that for which they were originally specified, without the written consent of Paul McKenna Architecture (PMA). Any such use will be considered a breach of copyright.
   - 2.4. PMAD requests that the client and any contractors engaged in the construction, bring any errors, discrepancies or omissions in the documentation to the attention of PMA.
3. **ALTERATIONS TO COMPLETED DRAWINGS**
   - 3.1. Changes by the client, or requested by third parties, that require alterations to the finished drawings, will incur additional costs. This includes specific consent requirements, and as-built plans that may be required by Council. (As-built plans show how a project has been built, if different to the original documentation supplied.)
4. **FEES**
   - 4.1. Fees are charged at an hourly rate of $100.00 + GST. Fees may be subject to change for projects extending more than 12 months but PMA will advise the client accordingly should fees change during the project.
   - 4.2. PMA may bill the client in a lump sum at completion, or in staggered amounts, or on a monthly basis for larger projects.
   - 4.3. By agreement, fixed price fees may be quoted for a project. Fixed price fee offers will be made in writing and will clearly state the scope of work quoted for and the basis for charging additional work.
5. **PAYMENT**
   - 5.1. The Client agrees to pay PMA for all time incurred in the project, including (but not limited to) design work, consultations, site visits, phone calls, emails liaison with local councils, liaison with third parties (Engineers, builders etc) etc.
   - 5.2. PMA will make available to the client on request the total of any fees owing at any point in the term of engagement.
   - 5.3. PMA payment terms are strictly payment on invoice. When working drawings are complete, the client will be invoiced and provided with a complete set of documents in draft format for appraisal. The final drawings will be dispatched once payment has been received in full.
   - 5.4. Bank account for direct credits. **Paul McKenna Architectural Design 03 0791 0684508 00 (Westpac)**
   - 5.5. Any unpaid amounts outstanding after 30 days may incur late payment fees and collection costs.
6. **DEPOSITS**
   - 6.1. New Residential and residential Alterations up to 100m2 require a $500.00 (Inc GST) deposit.
   - 6.2. New Residential and residential Alterations over 100m2 require a $1000.00 (Inc GST) deposit.
   - 6.3. All Commercial Projects require a $1000.00 (Inc GST) deposit.

If the project is canceled, any time spent on the project by PMA will be invoiced and any balance of the deposit will be refunded promptly.

V: 10 17/11/14

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**REVIEWED**
*By John Hotter at 11:23 am, Apr 27, 2018*

LEVELS NOTE:
CONTOURS = EXISTING LEVELS
SPOT LEVELS = PROPOSED LEVELS

BIOLYTIX WASTEWATER TREATMENT SYSTEM- REFER TO SPECIFIC DESIGN

INLET OF TO TANK IL89.90
100mm uPVC FOUL WATER DRAIN AT 1:60 FALL

600dia X 900 OPEN SIDED CONC SOAK HOLE LINER IN 1mX1mX1m RUBBLE FILLED HOLE. FIT WITH POP UP RELIEF AT GL

PROMAX 30,000l WATER TANK. FIT TANKVAC OVERFLOW TO SOAKPIT

90mm uPVC STORM WATER DRAIN AT 1:100 FALL

SUMP FOR SUBSOIL DRAIN 300mm BELOW LEVEL OF DRAIN. FORM WITH 600mm PRECAST CONCRETE AMD INSTALL WALLACE JX-180 SUBMERSIBLE PUMP (OR SIM). 32mm OUTLET PIPE TO SOAK PIT

GARDEN TAP WITH VACUUM BACKFLOW PREVENT FOR FILLING/TOP UP OF POOL

POOL

50mm uPVC DRAIN FOR POOL FILTER TO 600dia X 900 OPEN SIDED CONC SOAK HOLE LINER IN 1mX1mX1m RUBBLE FILLED HOLE. FIT WITH POP UP RELIEF AT GL

IB IL 99.15
IB IL 99.40

PROPOSED NEW HOME
FFL 100.00

20 WATER SUPPLY TO KITCHEN
IL 99.65
50TV

WATER SUPPLY TO BALL VALVE TOP UP IN TANK

WHITE ESY.BOX ELECTRONIC PUMP SYSTEM IN PROMAX PUMP COVER. ON 100mm 17.5MPa CONC PAD

BOUNDARY

HATCHED AREA = AREA OF SITE LEVELED (+/- 400mm APPROX)

600dia X 900 OPEN SIDED CONC SOAK HOLE LINER IN 1mX1mX1m RUBBLE FILLED HOLE. FIT WITH POP UP RELIEF AT GL

40mm BLUELINE WATER SUPPLY PIPE
POWER, PHONE AND FIBRE

FIRE RISER FITTED WITH 100mm FLOATING FEMALE SCREW COUPLING. SEE DETAIL BOTTOM LEFT

100mm 20MPa CONCRETE PAVING, REINFORCED WITH 668 MESH, CUT AT 3m EACH WAY.LIGHT EXPOSED AGGREGATE FINISH

DATUM- BASE OF STRAINER POST
99.75

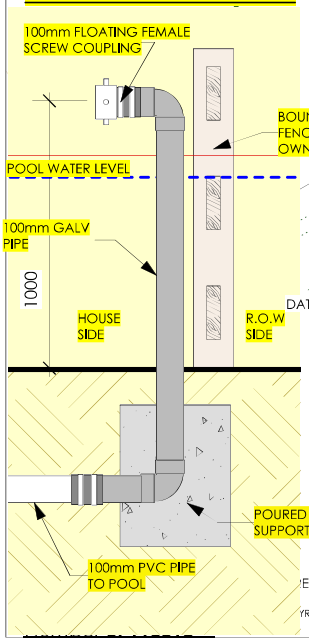
ROW. BLUESKIN RD

FIRE EMERGENCY NEW ZEALAND

**Drawing as reviewed meets the requirements of SNZ PAS 4509:2008 New Zealand Fire Service Firefighting Water Supplies Code of Practice**

RECEIVED 27/04/2018

## FIRE HOSE COUPLING

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THIS PLAN AND ALL COPIES MADE OF THIS PLAN REMAIN THE PROPERTY OF PAUL McKENNA ARCHITECTURAL DESIGN

| ISSUE | DATE | REVISION |
|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE 1:200 |
| DWG | SITE SERVICES | DATE 14/2/18 |
| | | DWG # 02 |
| | | REVISION |

Paul McKenna Architecture
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E: paulmck@ihug.co.nz

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# 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: 240b Blueskin Rd | |
| Suburb: | |
| Town/City: Wanganui | Postcode: |

| THE OWNER(S) | |
|---|---|
| Name(s): Sarah & Mark Koubaridis | |
| Mailing address: 6 Suffolk Dr | |
| Suburb: | PO Box/Private Bag: |
| Town/City: WANGANUI | Postcode: |
| Phone number: | Email address: |

## BASIS FOR PROVIDING THIS MEMORANDUM

I am providing this memorandum in my role as the: Please tick the option that applies ✓

- [x] **sole** designer of all of the RBW design outlined in this memorandum – I carried out all of the RBW design work myself – no other person will be providing any additional memoranda for the project
- [ ] **lead** designer who carried out some of the RBW design myself but also supervised other designers – this memorandum covers their RBW design work as well as mine, and **no other** person will be providing any additional memoranda for the project
- [ ] **lead** designer for all but specific elements of RBW – this memorandum only covers the RBW design work that I carried out or supervised and the **other** designers will provide their own memorandum relating to their specific RBW design
- [ ] **specialist** designer who carried out specific elements of RBW design work as outlined in this memorandum – other designers will be providing a memorandum covering the remaining RBW design work

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

I Paul McKenna carried out / supervised the following design work that is restricted building work

### PRIMARY STRUCTURE: B1

| Design work that is RBW | Description of RBW | Carried out or supervised | Reference to plans and specifications |
|---|---|---|---|
| Tick ✓ if included. Cross ✗ if excluded | If appropriate, provide details of the RBW | Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work | If appropriate, specify references |
| **All** RBW design work relating to B1 ☑ | All except Roof Trusses- see below | ☑ Carried out ☐ Supervised | |
| Foundations and subfloor framing ☐ | | ☐ Carried out ☐ Supervised | |

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| Design work that is RBW | Description of RBW | Carried out or supervised | Reference to plans and specifications |
|---|---|---|---|
| Tick ✓ if included.<br>Cross ✗ if excluded | If appropriate, provide details of the RBW | Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work | If appropriate, specify references |
| Walls ○ | | ○ Carried out<br>○ Supervised | |
| Roof ✓ ○ | Roof Trusses | ○ Carried out<br>✓ Supervised | |
| Columns and beams ○ | | ○ Carried out<br>○ Supervised | |
| Bracing ○ | | ○ Carried out<br>○ Supervised | |
| Other ○ | | ○ Carried out<br>○ Supervised | |

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| Design work that is RBW | Description of RBW | Carried out or supervised | Reference to plans and specifications |
|---|---|---|---|
| Tick ✓ if included.<br>Cross ✗ if excluded | If appropriate, provide details of the RBW | Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work | If appropriate, specify references |
| **EXTERNAL MOISTURE MANAGEMENT SYSTEMS: E2** | | | |
| **All** RBW design work relating to E2 ☑ | | ☑ Carried out<br>○ Supervised | |
| Damp proofing ○ | | ○ Carried out<br>○ Supervised | |
| Roof cladding or roof cladding system ○ | | ○ Carried out<br>○ Supervised | |
| Ventilation system (for example, subfloor or cavity) ○ | | ○ Carried out<br>○ Supervised | |
| Wall cladding or wall cladding system ○ | | ○ Carried out<br>○ Supervised | |
| Waterproofing ○ | | ○ Carried out<br>○ Supervised | |
| Other ○ | | ○ Carried out<br>○ Supervised | |

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| Design work that is RBW | Description of RBW | Carried out or supervised | Reference to plans and specifications |
|---|---|---|---|
| Tick ✓ if included.<br>Cross ✗ if excluded | If appropriate, provide details of the RBW | Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work | If appropriate, specify references |
| **FIRE SAFETY SYSTEMS: C1 - C6** | | | |
| Emergency warning systems<br>Evacuation and fire service operation systems ◯<br>Suppression or control systems<br>Other | | ◯ Carried out<br>◯ Supervised | |

**Note:** The design of fire safety systems is only restricted building work when it involves small-to-medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011.

## WAIVERS AND MODIFICATIONS

Waivers or modifications of the Building Code are required. ◯ Yes ✗ No

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

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

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## ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise design work that is restricted building work.

| | |
|---|---|
| Name: Paul McKenna | LBP or Registration number: 113318 |
| The practitioner is a: (X) Design LBP ( ) Registered architect ( ) Chartered professional engineer | |
| Design Entity or Company (optional): | |
| Mailing address (if different from below): | |
| Street address/Registered office: 3 Buxton Rd | |
| Suburb: Springvale | Town/City: Wanganui |
| PO Box/Private Bag: | Postcode: 4501 |
| Phone number: 06 3444 729 | Mobile: 021 126 1333 |
| After hours: 06 3444 729 | Fax: 06 344 7269 |
| Email address: paulmck@ihug.co.nz | Website: |

## DECLARATION

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

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

Signature:

Date: 20/2/18

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**Alan Hoskin**

**From:** Chris Gould
**Sent:** Tuesday, 17 April 2018 3:06 p.m.
**To:** Kaden Clark
**Cc:** Alan Hoskin
**Subject:** RE: SDI

Thanks Kaden

**From:** Kaden Clark [mailto:k.clark@laserplumbing.co.nz]
**Sent:** Tuesday, 17 April 2018 1:41 PM
**To:** Chris Gould <Chris.Gould@whanganui.govt.nz>
**Subject:** Fwd: SDI

H Chris

Please see below from Peter Gearing

---

**Kaden Clark** | Director
Laser Plumbing Wanganui

**Address:** 1A Liffiton Street, Gonville, Wanganui 4500 | PO Box 5056, Aramoho, Wanganui 4542
**Phone:** +64 6 348 0162
**Mobile:** +64 027 289 4883
**Email:** k.clark@laserplumbing.co.nz

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---

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---

---------- Forwarded message ----------
From: **Peter Gearing** <peter.gearing@biolytix.com>
Date: 17 April 2018 at 10:59
Subject: SDI
To: Kaden Clark <k.clark@laserplumbing.co.nz>

Kaden

We write to confirm our conversation of today, for both your records and those of Whanganui District Council – that as we understand it, the installations of the dripline for effluent disposal at the properties of:

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- 240A Blueskin Rd (Ref our design Eco1089);

will both be installed subsurface.

Kind regards,

**Peter Gearing** | Technical Sales Manager
**Biolytix Ltd** | **DDI:** +64 9 869 3773 I **Mobile:** 027 483 7136 | **Fax:** +64 9 579 1090

Biolytix® Wastewater Naturally

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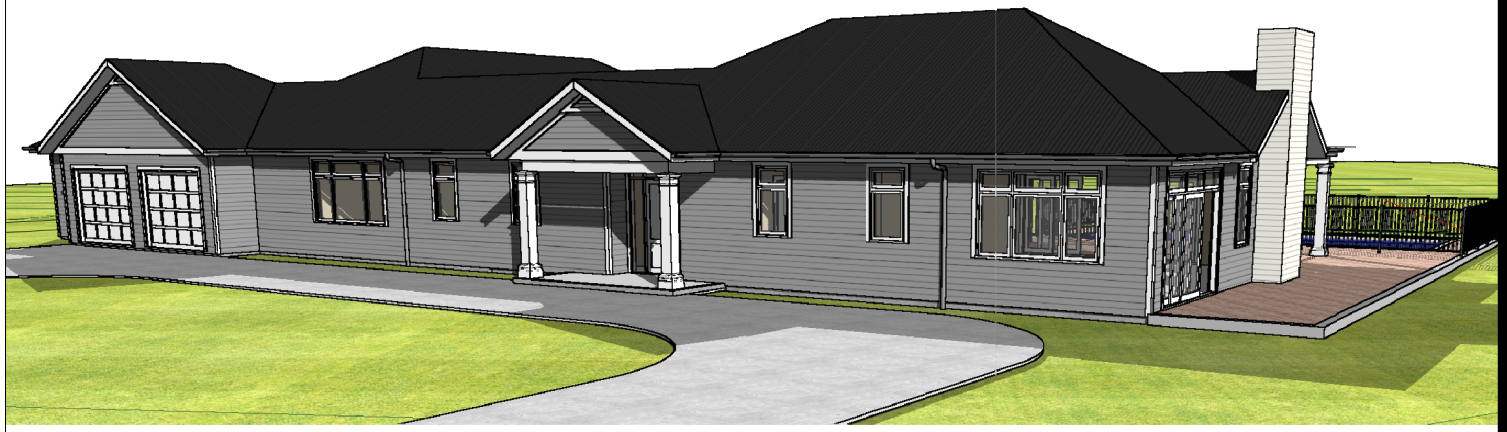

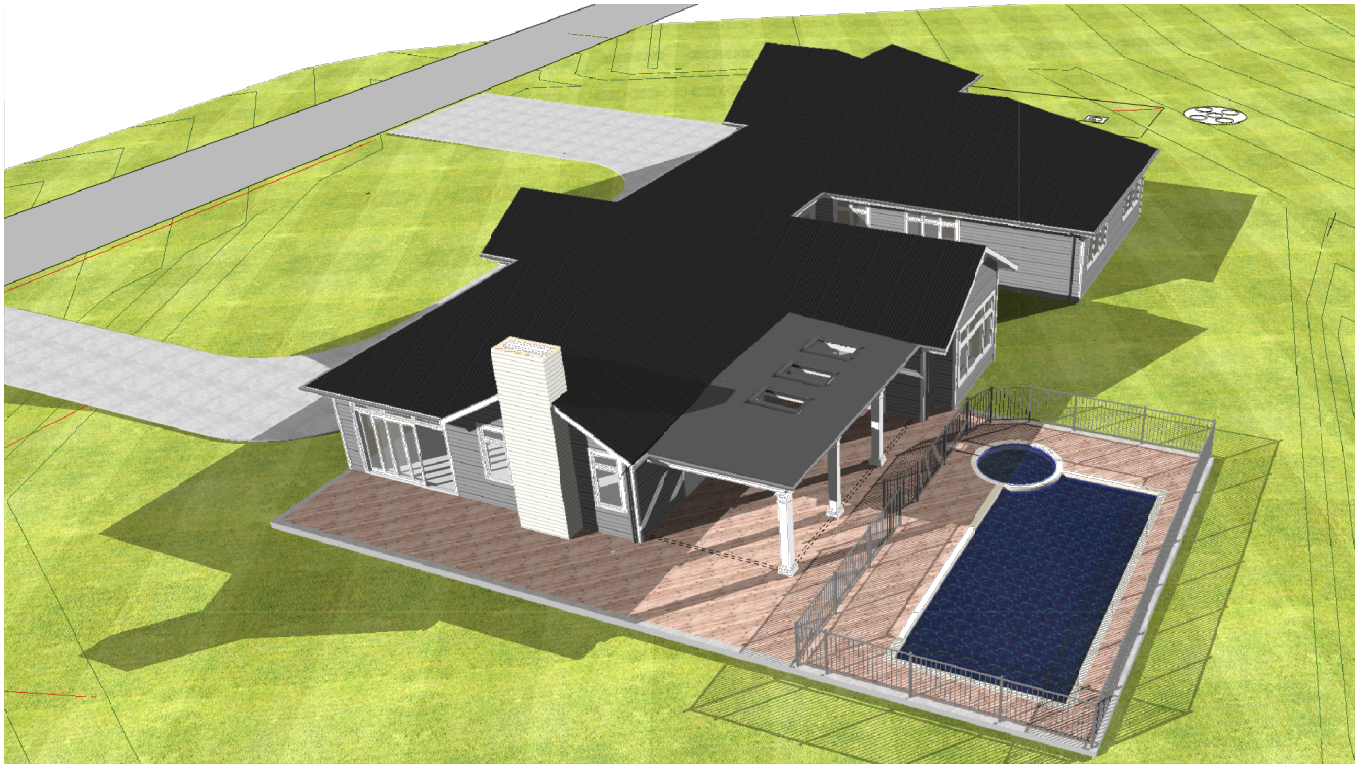

KOUBARIDIS HOME BLUESKIN RD

| No | Drawing Title |
|---|---|
| | |
| 00 | COVER SHEET |
| 01 | SITE PLAN |
| 02 | SITE SERVICES |
| 03 | FOUNDATION PLAN |
| 04 | FLOOR PLAN |
| 05 | ELECTRICAL |
| 06 | BRACING |
| 07 | ROOF LAYOUT |
| 08 | ROOF FRAMING |
| 09 | ELEVATIONS 1 & 2 |
| 10 | ELEVATIONS 3 & 4 |
| 11 | SECTIONS 1 |
| 12 | SECTIONS 2 |
| 13 | SECTIONS 3 |
| 14 | JOINERY SCHEDULE 1 |
| 15 | JOINERY SCHEDULE 2 |
| 16 | JOINERY 3- FIREPLACE |
| 17 | DETAILS 1 |
| 18 | DETAILS 2 |
| 18b | ROOF DETAILS |
| 19 | ENSUITE |
| 20 | DRESSING ROOM UNITS |
| 21 | KITCHEN |
| 22 | POOL |
| 23 | POOL DETAILS |
| 24 | INTERIOR FINISHES |
| 25 | WINDOW & CLADDING DETAILS |
| | |
| | |
| | |

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LICENSED BUILDING PRACTITIONER
www.dbh.govt.nz
BUILDING CONFIDENCE

Building Practitioner
Number **BP113318**

Paul McKenna
architecture

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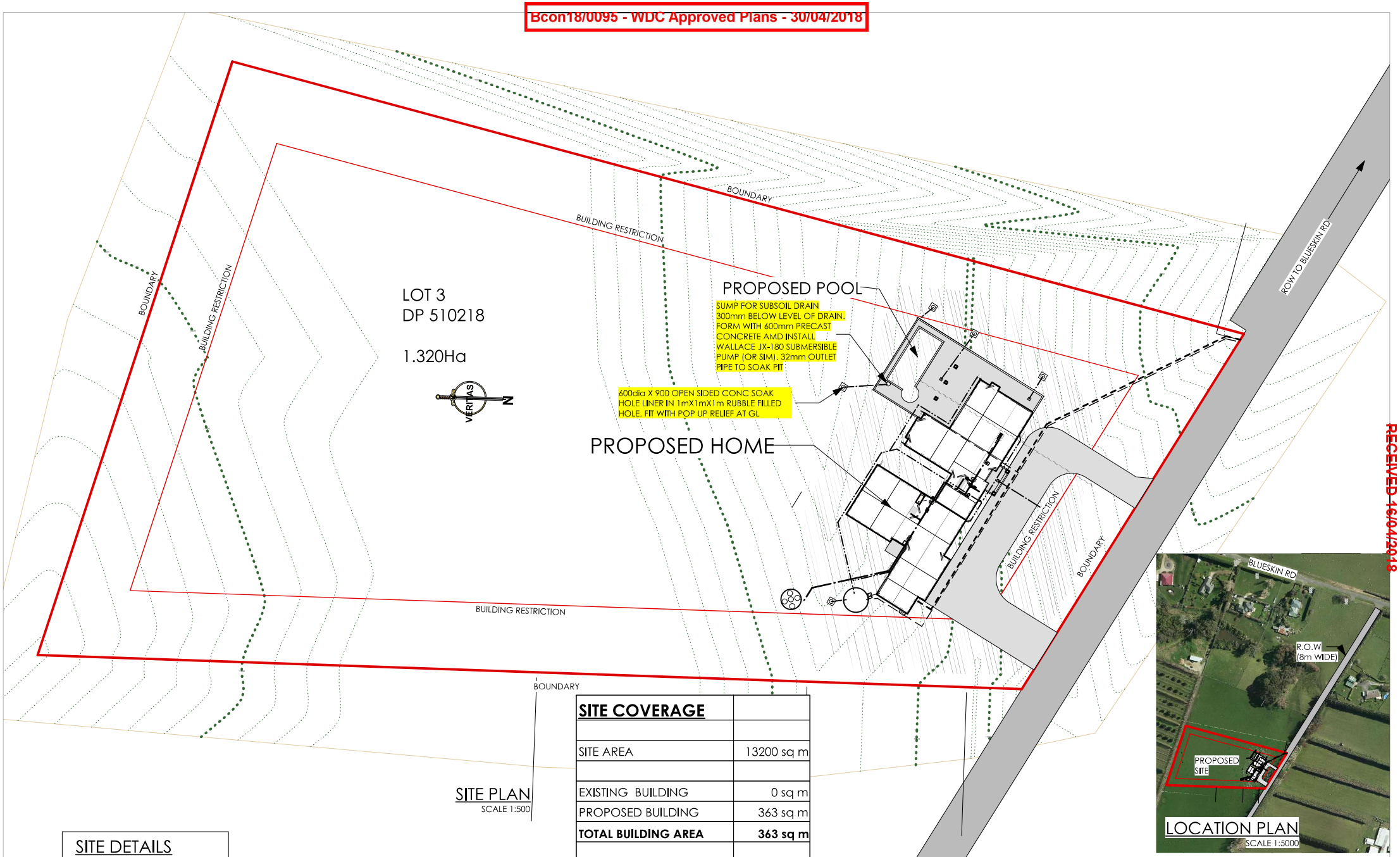


SITE PLAN
SCALE 1:500

| SITE COVERAGE | |
|---|---|
| | |
| SITE AREA | 13200 sq m |
| | |
| EXISTING BUILDING | 0 sq m |
| PROPOSED BUILDING | 363 sq m |
| **TOTAL BUILDING AREA** | **363 sq m** |
| | |
| **SITE COVERAGE** | **2.8%** |
| *(TOTAL BUILDING AREA / SITE AREA)* | |
| | |




LOCATION PLAN
SCALE 1:5000

## SITE DETAILS

| | |
|---|---|
| EARTHQUAKE ZONE: | 3 |
| ZONE: | HIGH |
| CORROSION ZONE: | ZONE C |

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Building Practitioner Number **BP113318**

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| ISSUE | DATE | REVISION |
|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE 1:500 |
| DWG | SITE PLAN | DATE 14/2/18 |
| | | DWG # 01 |
| | | REVISION |

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E: paulmck@ihug.co.nz

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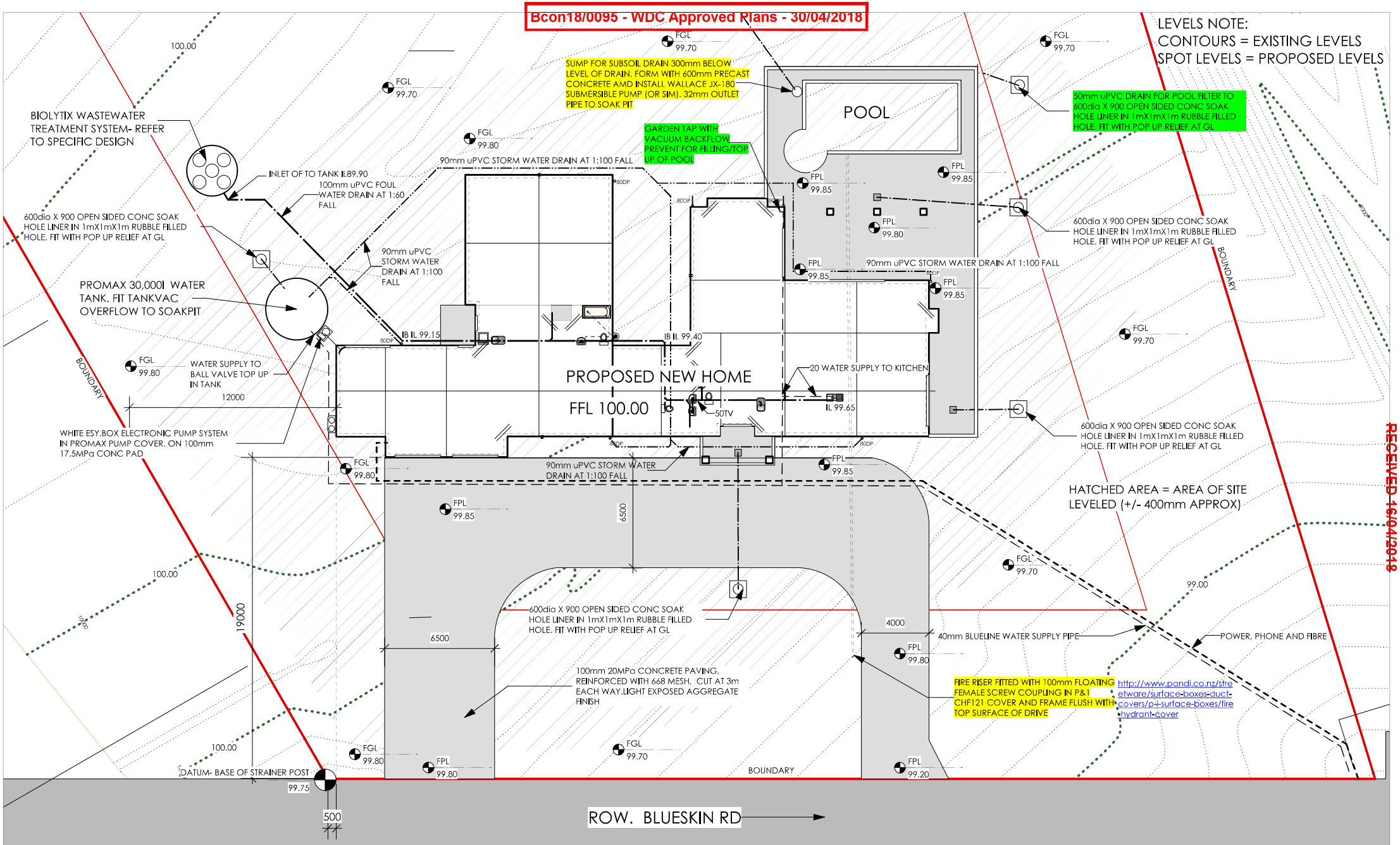


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| ISSUE | DATE | REVISION |
|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE 1:200 |
| DWG | SITE SERVICES | DATE 14/2/18 |
| | | DWG # 02 |
| | | REVISION |

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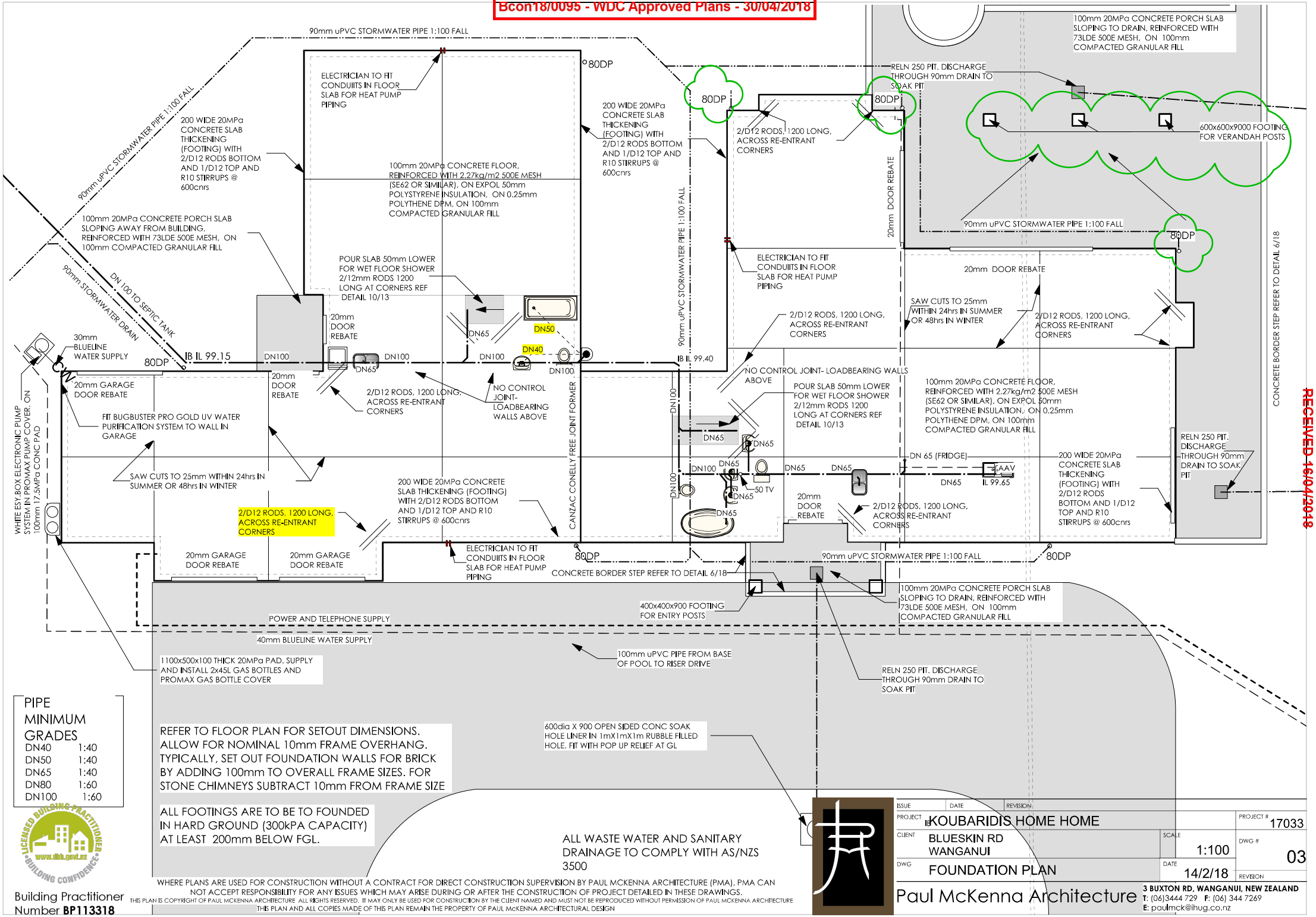


| PIPE MINIMUM GRADES | |
|---|---|
| DN40 | 1:40 |
| DN50 | 1:40 |
| DN65 | 1:40 |
| DN80 | 1:60 |
| DN100 | 1:60 |

REFER TO FLOOR PLAN FOR SETOUT DIMENSIONS. ALLOW FOR NOMINAL 10mm FRAME OVERHANG. TYPICALLY, SET OUT FOUNDATION WALLS FOR BRICK BY ADDING 100mm TO OVERALL FRAME SIZES. FOR STONE CHIMNEYS SUBTRACT 10mm FROM FRAME SIZE

ALL FOOTINGS ARE TO BE TO FOUNDED IN HARD GROUND (300kPA CAPACITY) AT LEAST 200mm BELOW FGL.

ALL WASTE WATER AND SANITARY DRAINAGE TO COMPLY WITH AS/NZS 3500

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| ISSUE | DATE | REVISION |
|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE 1:100 |
| DWG | FOUNDATION PLAN | DATE 14/2/18 |
| | | DWG # 03 |
| | | REVISION |

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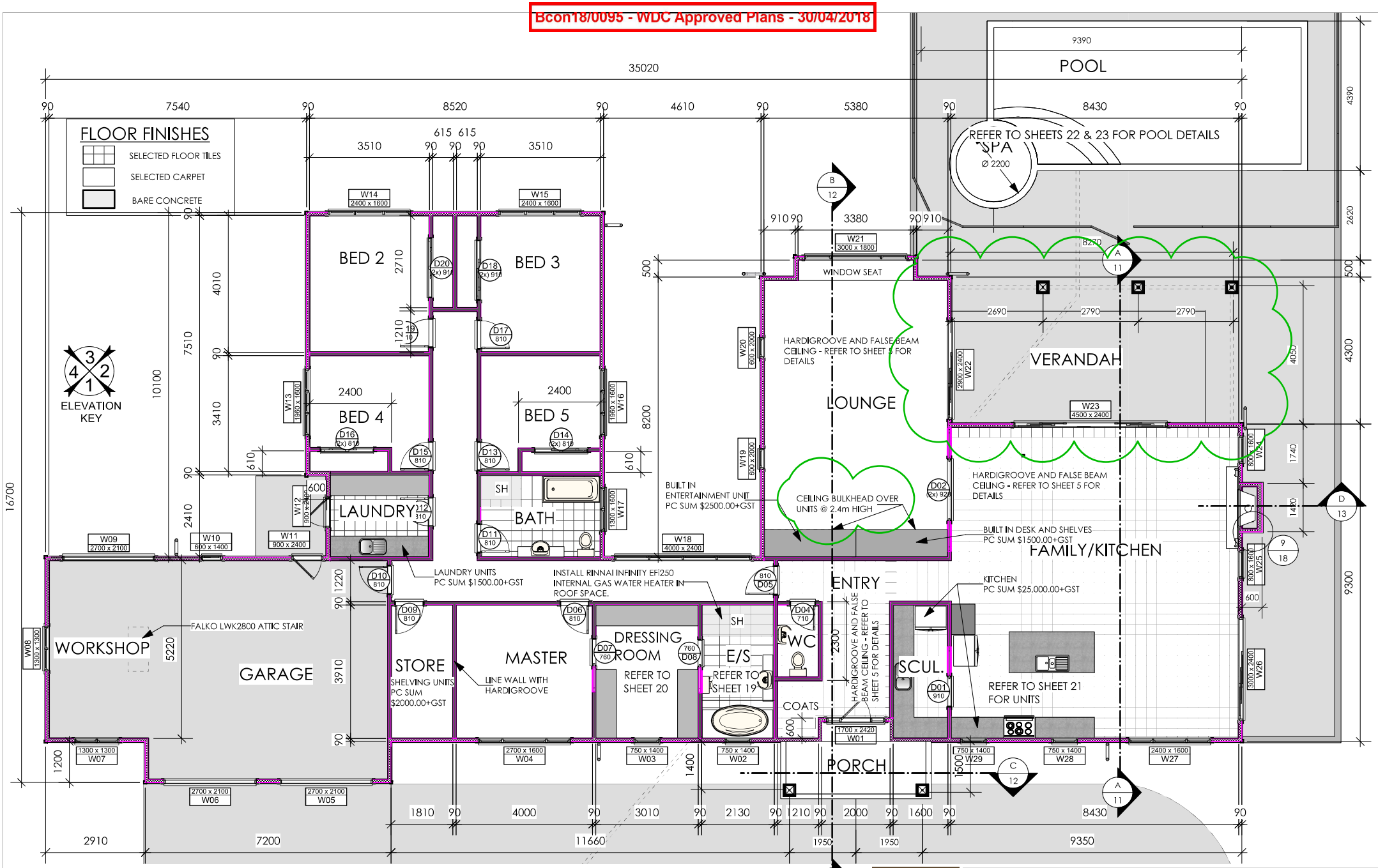


SEE SHEET 5 FOR INTERNAL DOOR SCHEDULE AND SHEET S 14-16 FOR EXTERNAL JOINERY SCHEDULE

FLOOR AREA = 363sq.m

Building Practitioner Number **BP113318**

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| ISSUE | DATE | REVISION |
|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE 1:100 |
| DWG | FLOOR PLAN | DATE 14/2/18 |
| | | DWG # 04 |
| | | REVISION |

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## NOTES

CONFIRM THE LAYOUT OF FIXTURES WITH OWNER AFTER FRAMING IS COMPLETE.

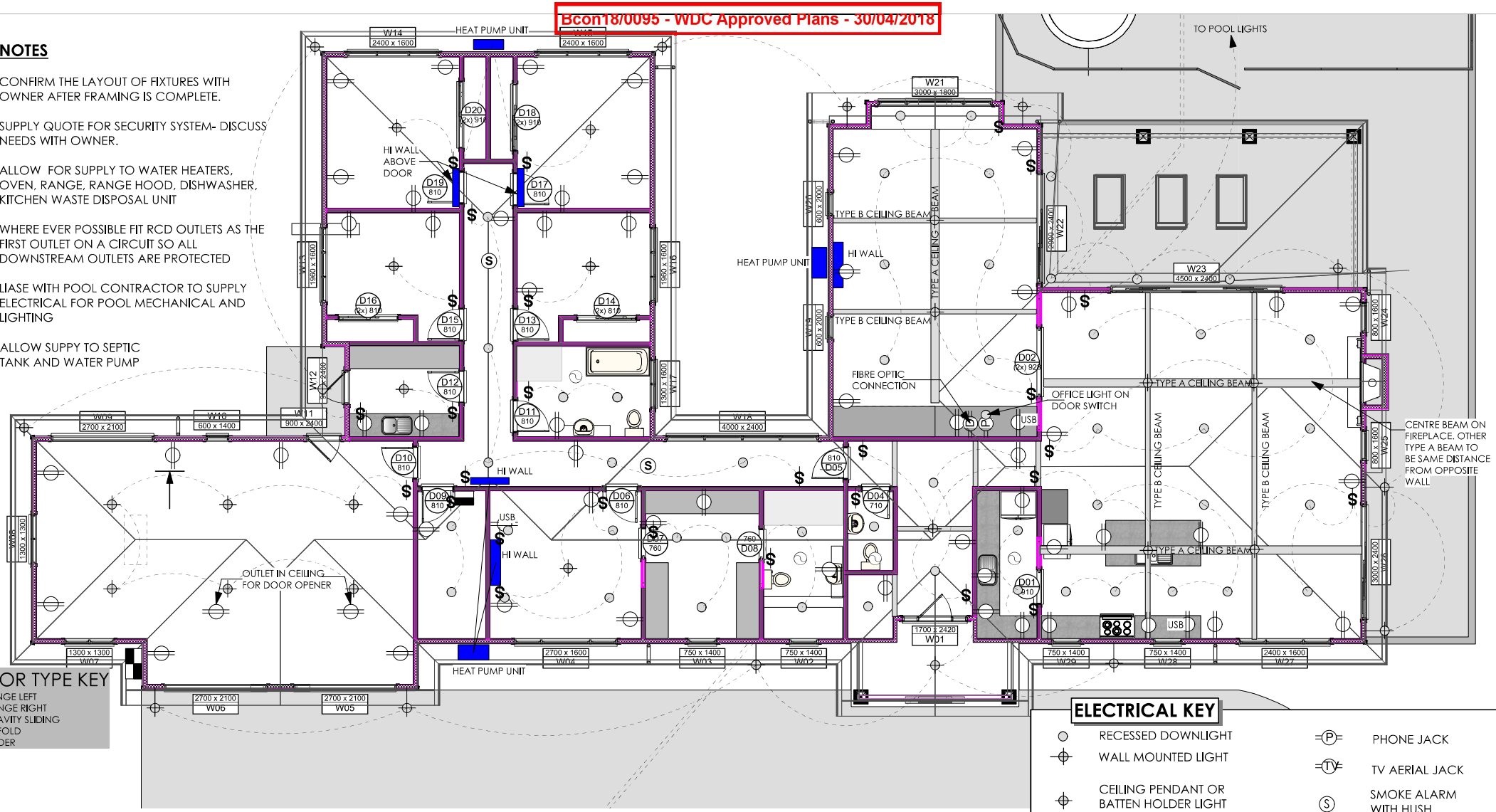
SUPPLY QUOTE FOR SECURITY SYSTEM- DISCUSS NEEDS WITH OWNER.

ALLOW FOR SUPPLY TO WATER HEATERS, OVEN, RANGE, RANGE HOOD, DISHWASHER, KITCHEN WASTE DISPOSAL UNIT

WHERE EVER POSSIBLE FIT RCD OUTLETS AS THE FIRST OUTLET ON A CIRCUIT SO ALL DOWNSTREAM OUTLETS ARE PROTECTED

LIASE WITH POOL CONTRACTOR TO SUPPLY ELECTRICAL FOR POOL MECHANICAL AND LIGHTING

ALLOW SUPPY TO SEPTIC TANK AND WATER PUMP

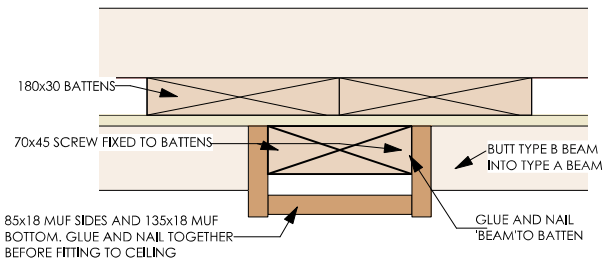



## DOOR TYPE KEY

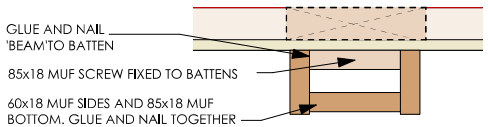
HL= HINGE LEFT
HR= HINGE RIGHT
CS= CAVITY SLIDING
FO= BIFOLD
LP= SLIDER

## ELECTRICAL KEY

- RECESSED DOWNLIGHT
- WALL MOUNTED LIGHT
- CEILING PENDANT OR BATTEN HOLDER LIGHT
- 150mm FAN UNIT DUCTED TO SOFFIT
- LIGHT SWITCH
- DOUBLE WALL SOCKET
- DOUBLE WALL SOCKET WITH USB
- OVEN/ RANGE OUTLET
- PHONE JACK
- TV AERIAL JACK
- SMOKE ALARM WITH HUSH FACILITY
- METER BOX
- FUSE BOX
- POINT OF ENTRY




TYPE A BEAM




TYPE B BEAM

ALL CEILING BEAMS IN ENTRY ARE TYPE B

| ISSUE | DATE | REVISION |
|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE 1:100 |
| DWG | ELECTRICAL | DATE 14/2/18 |
| | | DWG # 05 |
| | | REVISION |

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## BRACING SCHEDULE

| TAG | TYPE | LENGTH (m) | TAG | TYPE | LENGTH (m) |
|---|---|---|---|---|---|
| A1 | EP1 | 0.5 | M1 | BLP | 0.4 |
| A2 | BPG | 0.5 | M2 | BLP | 1.2 |
| A3 | EP1 | 0.5 | N1 | BLG | 1.1 |
| B1 | GS1 | 1.4 | N2 | BLG | 1.1 |
| B2 | GS1 | 1.8 | N3 | GS1 | 1.1 |
| B3 | GS1 | 1.5 | O1 | GS1 | 3.3 |
| B4 | GS1 | 1.1 | P1 | GS1 | 23.3 |
| B5 | GS1 | 1.7 | P6 | BLP | 1.2 |
| B6 | GS1 | 1.7 | Q1 | GS1 | 2.5 |
| C1 | GS1 | 1.4 | Q2 | GS1 | 2.5 |
| C2 | GS1 | 5.3 | Q3 | GS1 | 3.8 |
| D1 | GS2 | 1.4 | R1 | GS1 | 1.3 |
| D2 | GS1 | 3.9 | R2 | GS1 | 0.9 |
| D3 | GS1 | 1.8 | S1 | GS1 | 1.3 |
| D4 | GS1 | 1.8 | S2 | GS1 | 1.3 |
| E1 | GS1 | 2.4 | S3 | GS1 | 4.0 |
| E2 | GS1 | 1.4 | T1 | GS2 | 3.8 |
| E3 | GS1 | 2.8 | T2 | GS2 | 3.8 |
| F1 | GS1 | 1.0 | U1 | GS2 | 3.8 |
| F2 | GS1 | 1.0 | U2 | GS1 | 3.9 |
| F3 | GS1 | 3.4 | V1 | BLP | 1.0 |
| G1 | GS1 | 2.5 | W1 | GS1 | 1.9 |

WING C

WING A

WING B

13mm GIB CEILING DIAPHRAGM
FIX @ 100cnrs AROUND PERIMETER

GIB ULTRALINE CEILING DIAPHRAGM: REFER TO PG 15 OF 'GIB EzyBrace Systems' GUIDE. LINING IS TO BE FIXED AROUND PERIMETER TO 140x35 TOP HAT @ 100mm CNRS USING 50-50-50-75-75-100 ETC NAILING PATTERN AT CORNERS. BATTENS TO BE FIXED AT 450cnrs. NAILS MUST BE A MINIMUM OF 12mm FROM PAPERFACED FACTORY EDGES AND 18mm FROM CUT EDGES (INCLUDING FACTORY CUT EDGES). SHEET LENGTHS SHALL BE A MIN OF 1800 AT ENDS OF DIAPHRAGM. SHEETS SHALL BE A MINIMUM WIDTH OF 900 (OR 600mm PROVIDED ALL ADJACENT JOINTS ARE BACK BLOCKED).FIX PRIOR TO FIXING HARIDIGROOVE SARKING

90x45 TRUSS BOTTOM CHORD RUNNER- FIX TO TOP PLATES AS PER DRAGON TIE

TRUSS TO TOP PLATE FIXING AS PER TRUSS DESIGN.
TOP PLATE TO STUD FIXING = LUMBERLOK STUD STRAP + 2/90x3.15 NAILS
REFER TO JOINERY SCHEDULE FOR LINTEL FIXINGS.

ALL STRUCTURAL TIMBER TO BE MSG8 UNLESS OTHERWISE NOTED
ALL CONSTRUCTION TO BE IN ACCORDANCE WITH NZS 3604

**ALL GIB TO BE FIXED IN ACCORDANCE WITH GIB BRACING GUIDE**

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| ISSUE | DATE | REVISION |
|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE 1:100 |
| DWG | BRACING | DWG # 06 |
| | | DATE 14/2/18 |
| | | REVISION |

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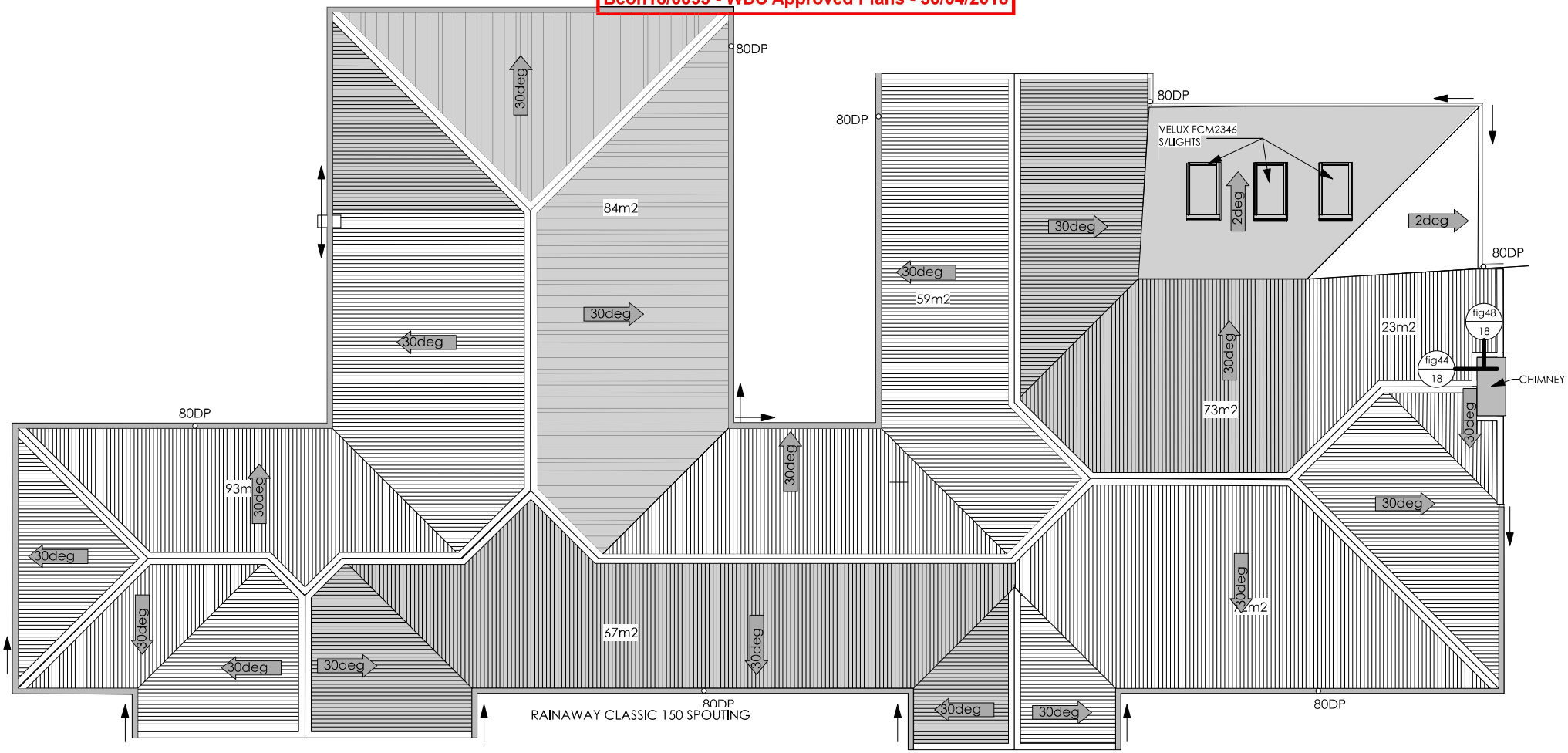


## DP & GUTTER SIZING

FROM TABLE 5 E1/AS1 MAXIMUM AREA OF DISCHARGE FOR 80mm PIPE IS 30deg = 70sq.m BASED ON 100mm/hr
SITE RAINFALL INTENSITY IS 70mm/ hr (REFER TO APPENDIX A) THEREFORE MAX ALLOWABLE AREA IS
70 x (100/70) = 100sq.m

GUTTER X-SECTION AREA IS 5250mm2 AND IS CAPABLE OF DISCHARGING A ROOF AREA OF 50sq.m. FOR 100mm/hr. THEREFORE ALLOWABLE DISCHARGE FOR LOCATION IS 70 x (100/70) = 100sq.m
**LOCATE DP CENTRALLY IN ROOF DISCHARGE AREA, TO ENSURE GUTTERS ARE NOT OVERLOADED.**

**SPOUTING IS RAINAWAY CLASSIC 150 LONGRUN COLORSTEEL**

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| ISSUE | DATE | REVISION |
|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE 1:100 |
| DWG | ROOF LAYOUT | DWG # 07 |
| | | REVISION |

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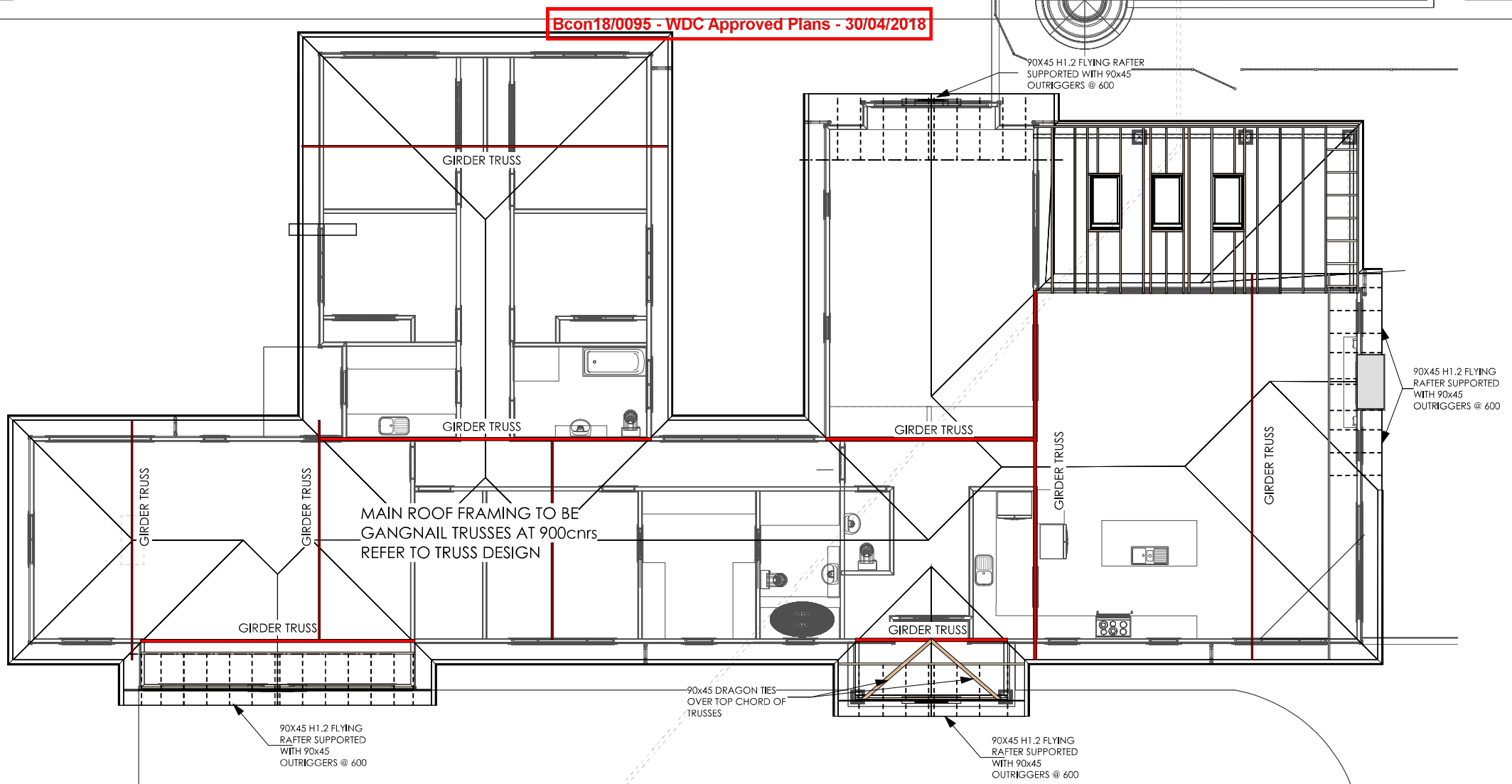


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| ISSUE | DATE | REVISION |
|---|---|---|

PROJECT: KOUBARIDIS HOME HOME
PROJECT #: 17033
CLIENT: BLUESKIN RD WANGANUI
SCALE: 1:100
DWG #: 08
DWG: ROOF FRAMING
DATE: 14/2/18
REVISION:

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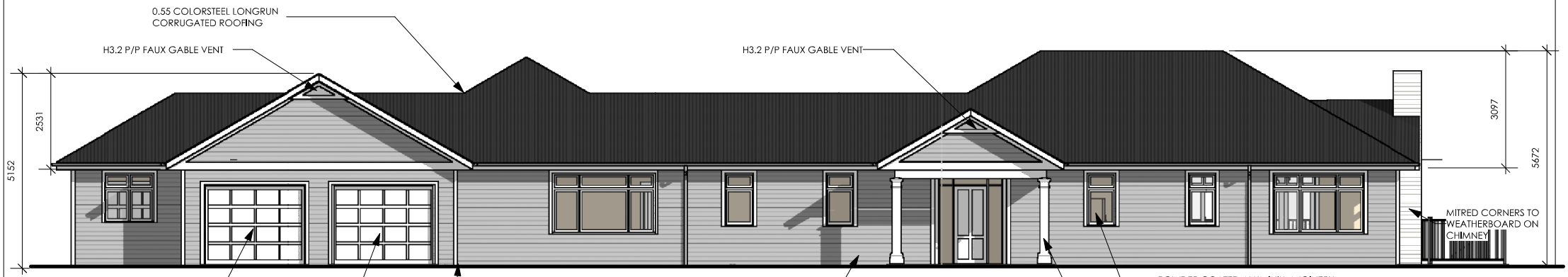
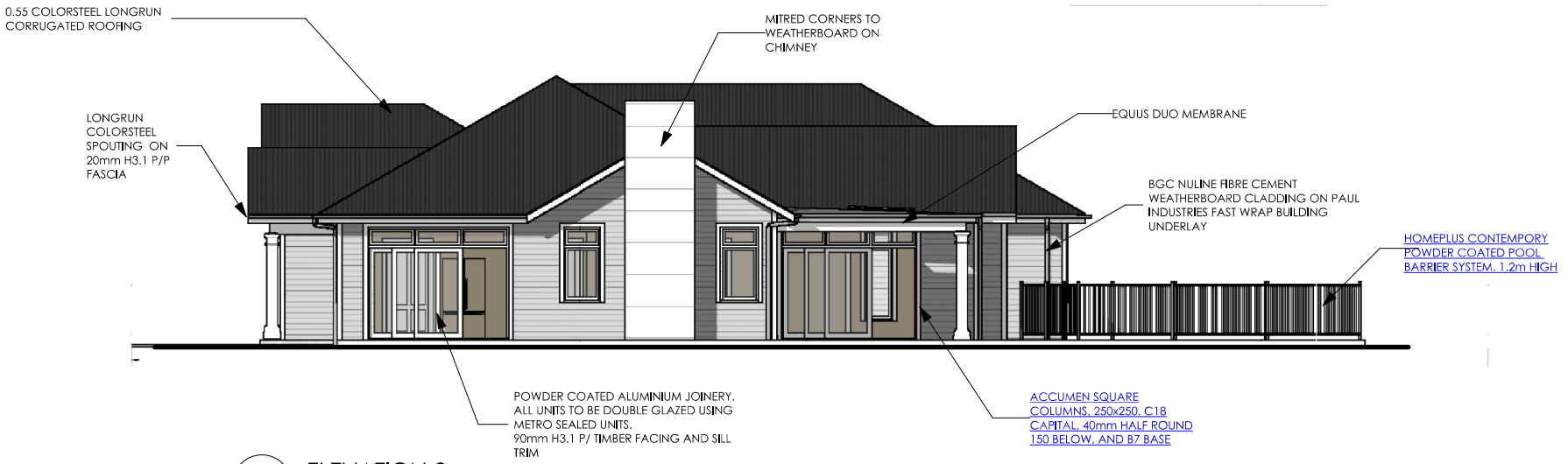



1 ELEVATION 1
Scale 1:100




2 ELEVATION 2
Scale 1:100

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|---|---|---|

| | | | |
|---|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE 1:100 | DWG # 09 |
| DWG | ELEVATIONS 1 & 2 | DATE 14/2/18 | REVISION |

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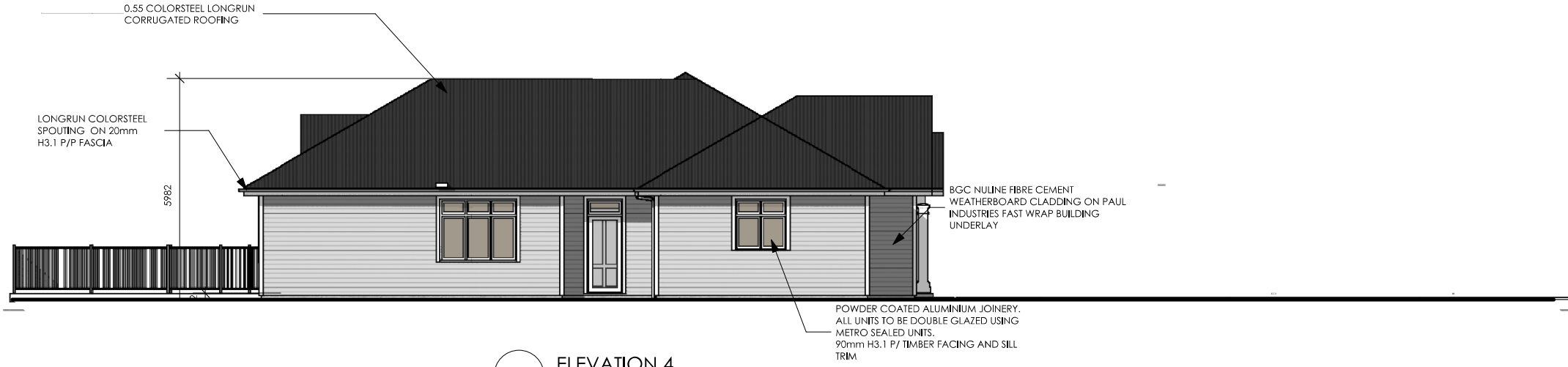
3 ELEVATION 3
Scale 1:100




4 ELEVATION 4
Scale 1:100

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| ISSUE | DATE | REVISION |
|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE 1:100 |
| DWG | ELEVATIONS 3 & 4 | DATE 14/2/18 |
| | | DWG # 10 |
| | | REVISION |

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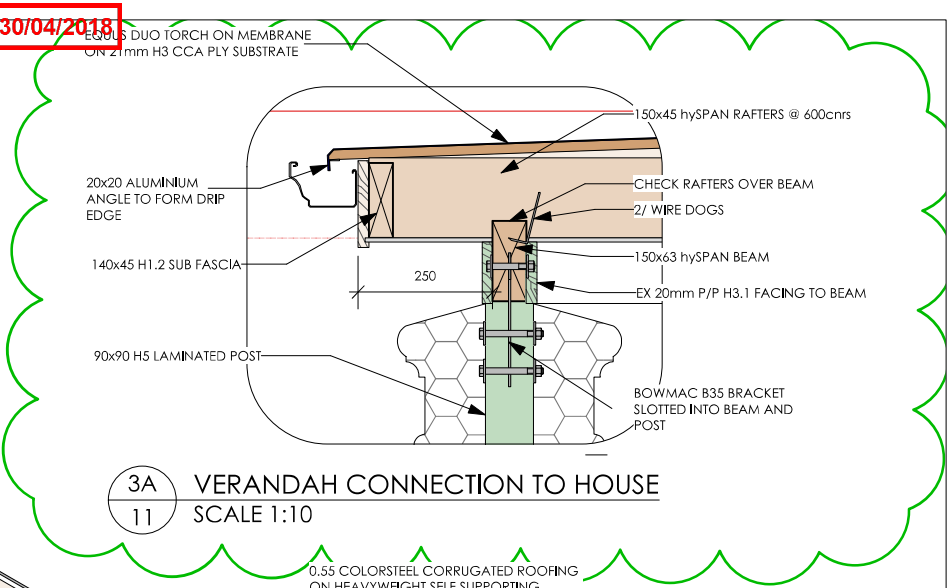
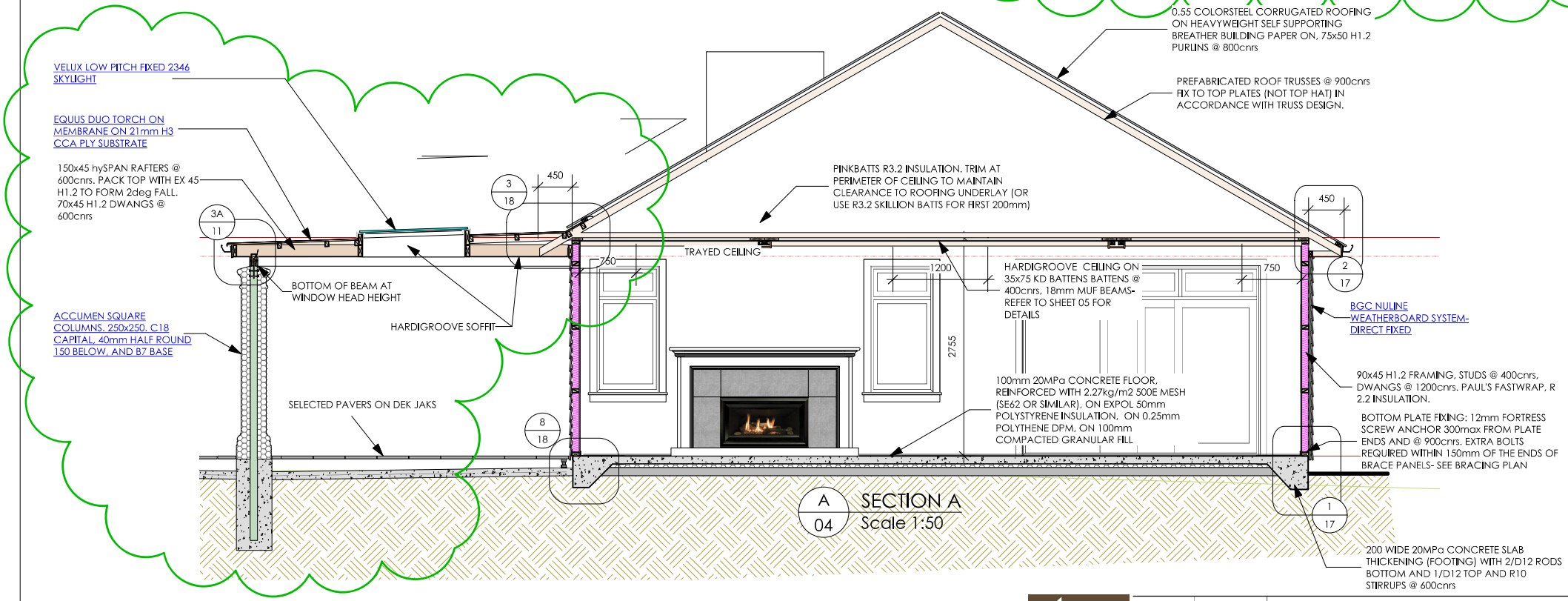
## INTERNAL DOOR SCHEDULE

| ID | Width | Height | Type | Comments |
|---|---|---|---|---|
| D01 | 910 | 2080 | CS | CS CAVILOK TIMBER EDGE PULL WITH SELECTED FLUSH PULL TO EACH FACE |
| D02 | 928 | 2080 | CS | CS CAVILOK TIMBER EDGE PULL WITH SELECTED FLUSH PULL TO EACH FACE |
| D04 | 710 | 2080 | HL | Privacy Set |
| D05 | 810 | 2080 | HL | Passage Set |
| D06 | 810 | 2080 | HL | Privacy Set |
| D07 | 760 | 2080 | CS | CS CAVILOK TIMBER EDGE PULL WITH SELECTED FLUSH PULL TO EACH FACE |
| D08 | 760 | 2080 | CS | CS CAVILOK TIMBER EDGE PULL WITH SELECTED FLUSH PULL TO EACH FACE |
| D09 | 810 | 2080 | HL | Passage Set |
| D10 | 810 | 2080 | HL | Passage Set |
| D11 | 810 | 2080 | HL | Privacy Set |
| D12 | 810 | 2080 | HL | Passage Set |
| D13 | 810 | 2080 | HR | Passage Set |
| D14 | 810 | 2080 | LP | FLUSH PULL |
| D15 | 810 | 2080 | HR | Passage Set |
| D16 | 810 | 2080 | LP | FLUSH PULL |
| D17 | 810 | 2080 | HL | Passage Set |
| D18 | 910 | 2080 | LP | FLUSH PULL |
| D19 | 810 | 2080 | HL | Passage Set |
| D20 | 910 | 2080 | LP | FLUSH PULL |
| W01 | 860 | 2420 | CU | Security stay |




3A / 11 VERANDAH CONNECTION TO HOUSE
SCALE 1:10




A / 04 SECTION A
Scale 1:50

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ALL STRUCTURAL TIMBER TO BE MSG8 UNLESS OTHERWISE NOTED
ALL CONSTRUCTION TO BE IN ACCORDANCE WITH NZS 3604

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| ISSUE | DATE | REVISION |
|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE 1:100 |
| DWG | SECTIONS 1 | DATE 14/2/18 |
| | | DWG # 11 |
| | | REVISION |

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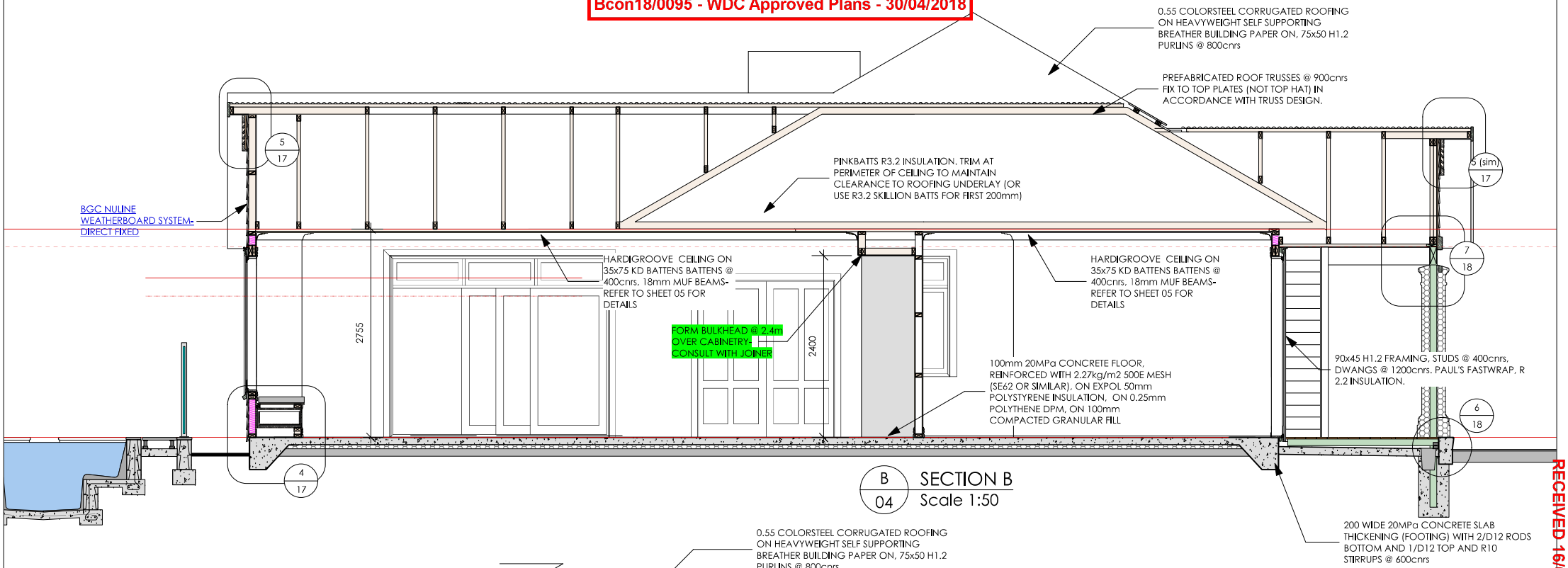
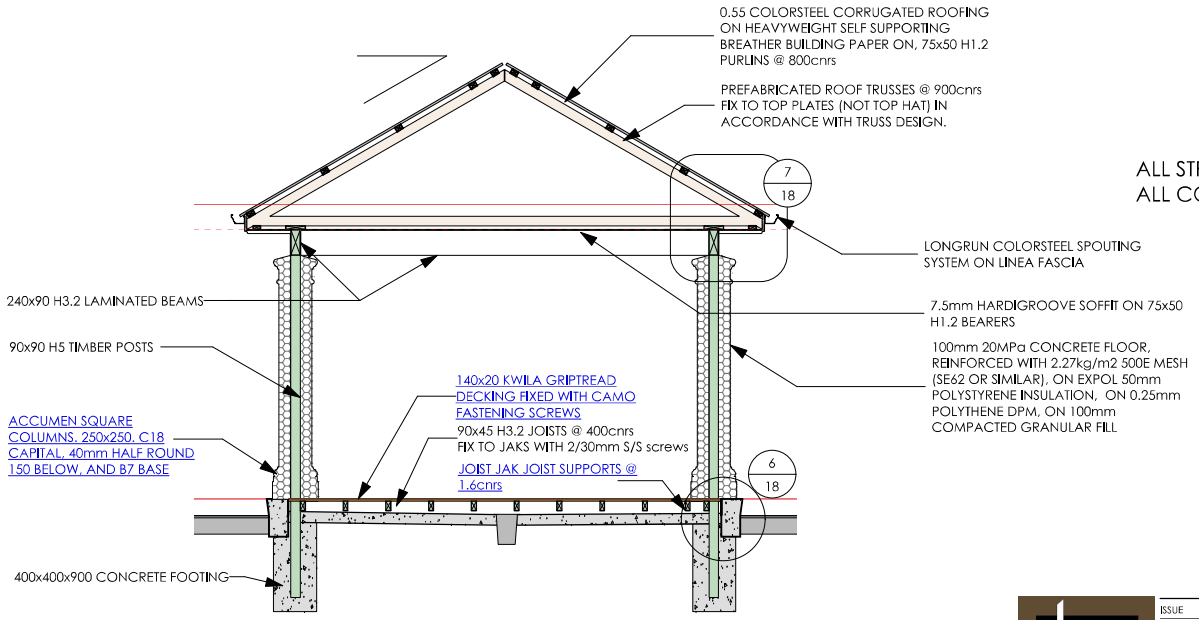



B 04 SECTION B
Scale 1:50




C 04 SECTION C- ENTRY PORCH
Scale 1:50

ALL STRUCTURAL TIMBER TO BE MSG8 UNLESS OTHERWISE NOTED
ALL CONSTRUCTION TO BE IN ACCORDANCE WITH NZS 3604

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|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE 1:100 |
| DWG | SECTIONS 2 | DATE 14/2/18 |
| | | DWG # 12 |
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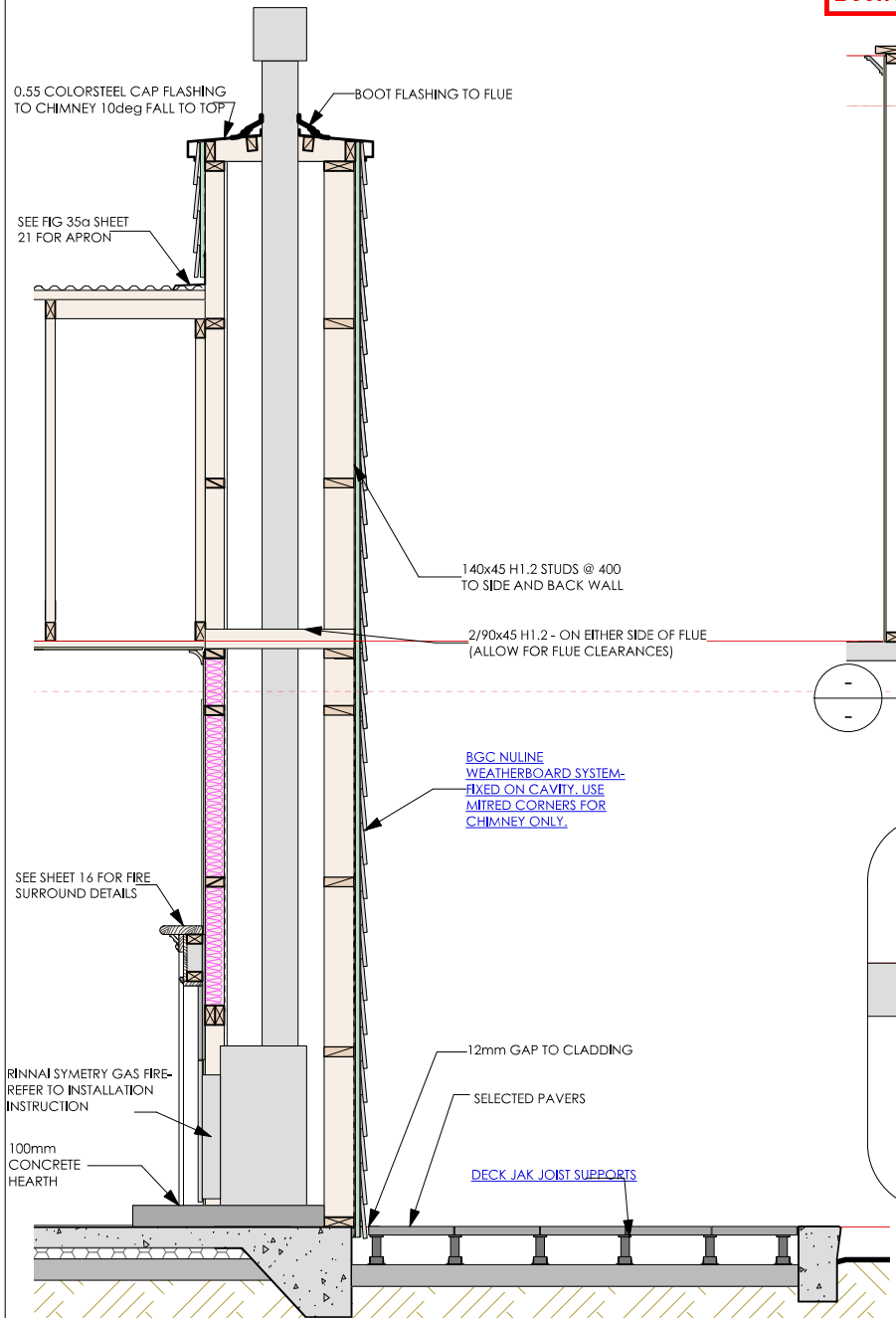
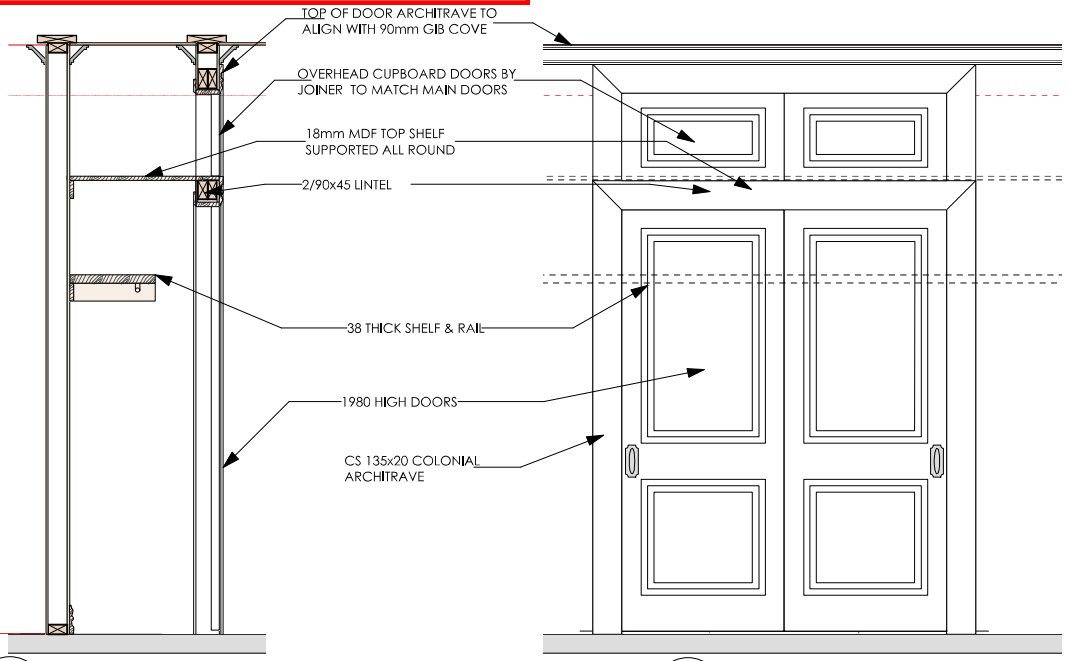
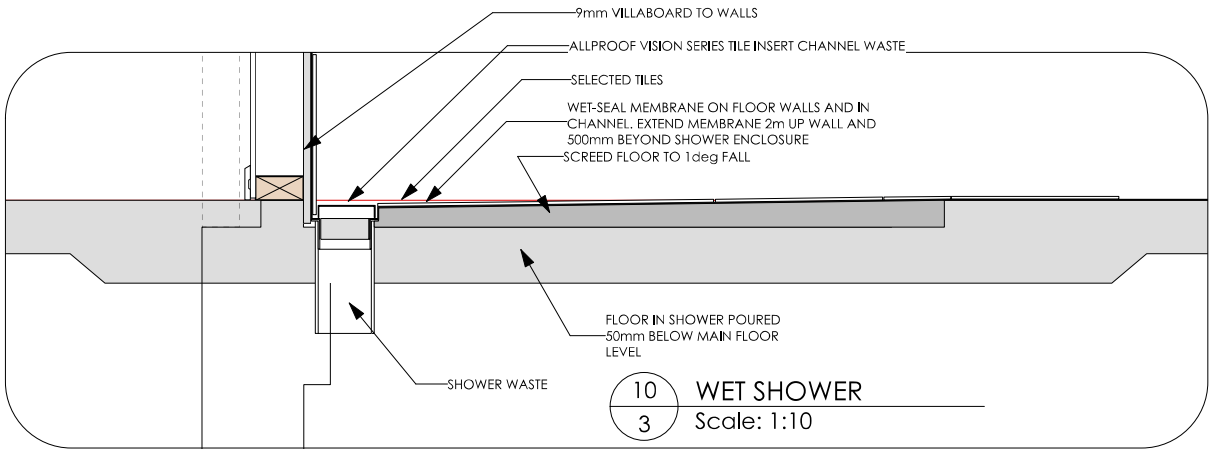



D / 04 CHIMNEY SECTION 1:25




\- / - CLOSET SECTION 1:25

\- / - CLOSET SETOUT 1:25




10 / 3 WET SHOWER Scale: 1:10

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| ISSUE | DATE | REVISION |
|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE 1:100 |
| DWG | SECTIONS 3 | DATE 14/2/18 |
| | | DWG # 13 |
| | | REVISION |

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## WINDOWS

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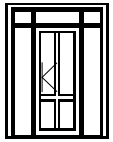
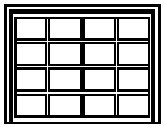
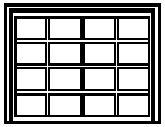
|  | W01 | 2420 | 1700 | 2/140x45 MSG8 LINTEL TYPE F LINTEL FIXING | |
| | W02 | 1400 | 750 | 2/90x45 MSG8 LINTEL TYPE F LINTEL FIXING | |
| | W03 | 1400 | 750 | 2/90x45 MSG8 LINTEL TYPE F LINTEL FIXING | |
| | W04 | 1600 | 2700 | 240x90 PROLAM PL8 LINTEL TYPE G LINTEL FIXING | GIRDER TRUSS LAYOUT |
|  | W05 | 2100 | 2700 | 2/190x45 MSG8 LINTEL TYPE F LINTEL FIXING | |
|  | W06 | 2100 | 2700 | 2/190x45 MSG8 LINTEL TYPE F LINTEL FIXING | |
| | W07 | 1300 | 1300 | 2/90x45 MSG8 LINTEL TYPE F LINTEL FIXING | |

## WINDOWS

| Image | ID | Frame Height | Frame Width | LINTEL | Comments |
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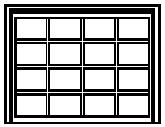
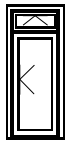
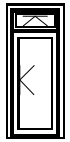
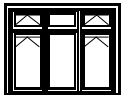
| | W08 | 1300 | 1300 | 2/90x45 MSG8 LINTEL TYPE F LINTEL FIXING | |
|  | W09 | 2100 | 2700 | 190x90 PROLAM PL8 LINTEL TYPE G LINTEL FIXING | GIRDER TRUSS LAYOUT |
| | W10 | 1400 | 600 | 2/90x45 MSG8 LINTEL TYPE E LINTEL FIXING | |
|  | W11 | 2400 | 900 | 140x90 PROLAM PL8 LINTEL TYPE F LINTEL FIXING | GIRDER TRUSS ALLOWED FOR |
|  | W12 | 2400 | 900 | 2/90x45 MSG8 LINTEL TYPE F LINTEL FIXING | |
|  | W13 | 1600 | 1960 | 2/190x45 MSG8 LINTEL TYPE G LINTEL FIXING | |

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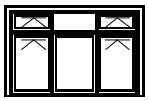
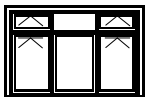
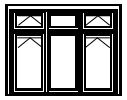
|  | W14 | 1600 | 2400 | 2/190x45 MSG8 LINTEL TYPE F LINTEL FIXING | |
|  | W15 | 1600 | 2400 | 2/190x45 MSG8 LINTEL TYPE F LINTEL FIXING | |
|  | W16 | 1600 | 1960 | 2/190x45 MSG8 LINTEL TYPE G LINTEL FIXING | |
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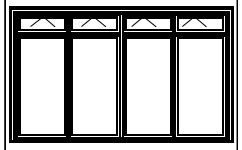
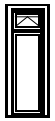
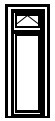
|  | W18 | 2400 | 4000 | 240x90 hyone LINTEL TYPE H LINTEL FIXING | |
|  | W19 | 2000 | 600 | 2/90x45 MSG8 LINTEL TYPE E LINTEL FIXING | |
|  | W20 | 2000 | 600 | 2/90x45 MSG8 LINTEL TYPE E LINTEL FIXING | |

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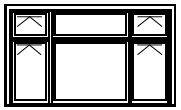
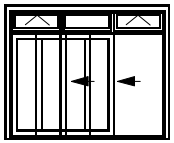
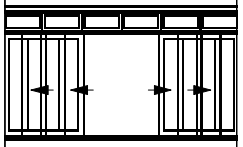
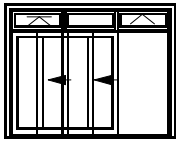
|  | W21 | 1800 | 3000 | 2/240x45 MSG8 LINTEL TYPE F LINTEL FIXING | |
|  | W22 | 2400 | 2900 | 2/240x45 MSG8 LINTEL TYPE G LINTEL FIXING | |
|  | W23 | 2400 | 4500 | 2/315x90 PROLAM 17 LINTEL TYPE H LINTEL FIXING | GIRDER TRUSS ALLOWED FOR |
| | W24 | 1600 | 800 | 2/90x45 MSG8 LINTEL TYPE E LINTEL FIXING | |
| | W25 | 1600 | 800 | 2/90x45 MSG8 LINTEL TYPE E LINTEL FIXING | |
|  | W26 | 2400 | 3000 | 2/240x45 MSG8 LINTEL TYPE F LINTEL FIXING | |

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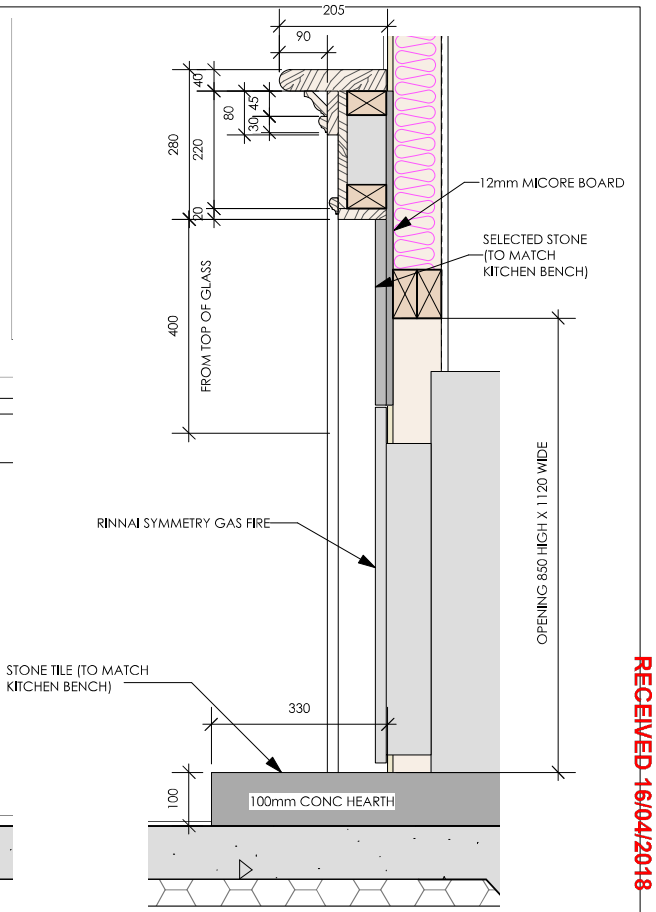


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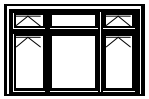
|  | W27 | 1600 | 2400 | 240x90 PROLAM PL8 LINTEL TYPE H LINTEL FIXING | GIRDER TRUSS ALLOWED FOR |
| | W28 | 1400 | 750 | 2/90x45 MSG8 LINTEL TYPE F LINTEL FIXING | |
| | W29 | 1400 | 750 | 2/90x45 MSG8 LINTEL TYPE F LINTEL FIXING | |

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DWG: JOINERY 3- FIREPLACE
DATE: Date
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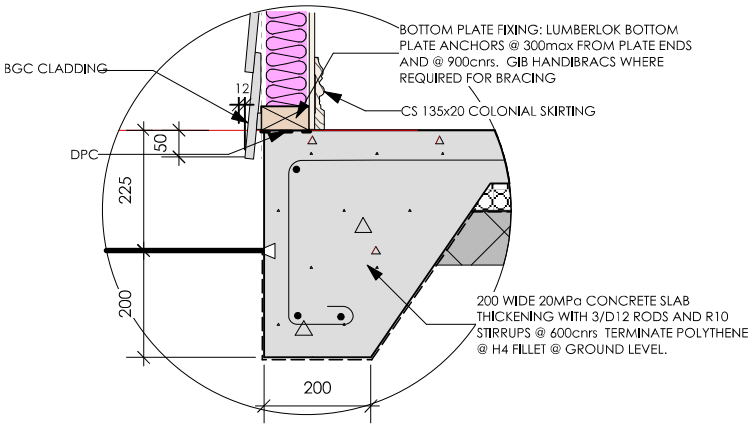
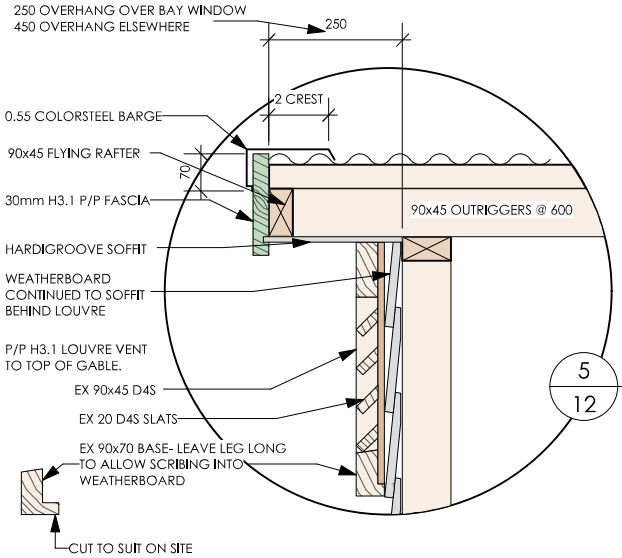
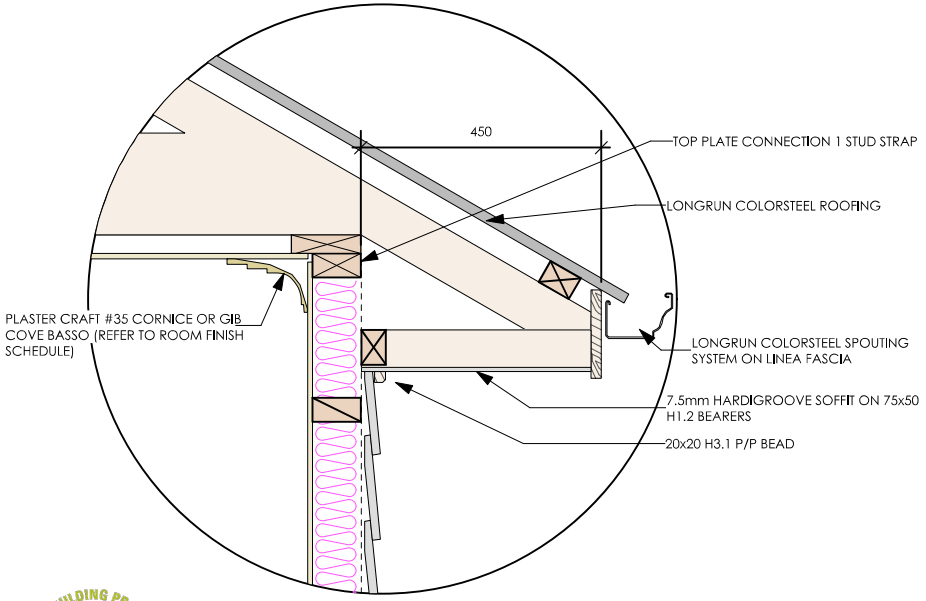


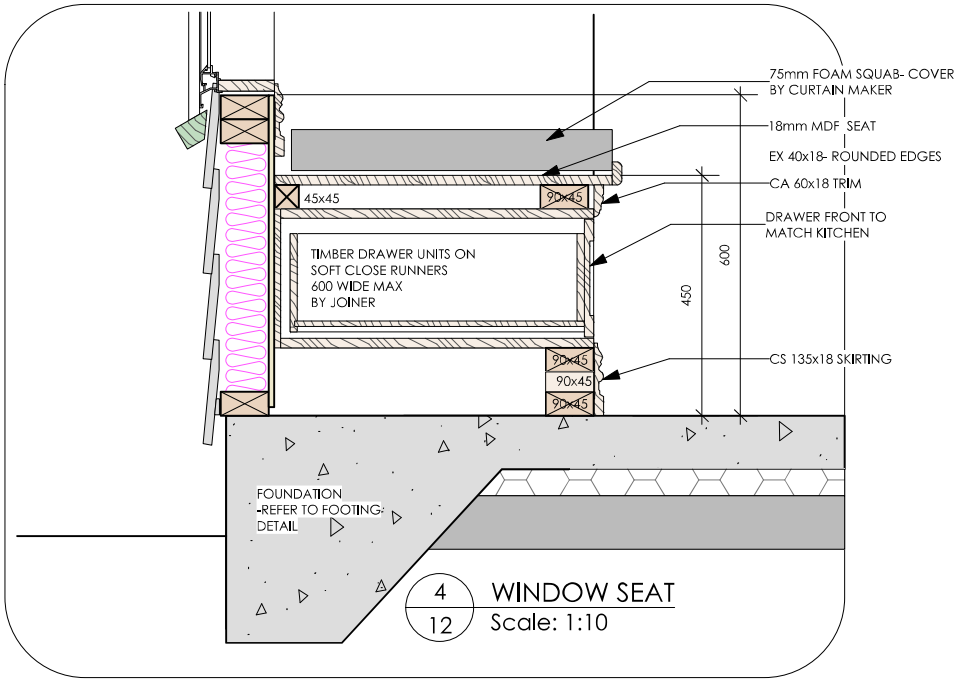

1/11 FOOTING
Scale: 1:10




5/12 GABLE 'VENT'
Scale: 1:10




2/11 SOFFIT
Scale: 1:10




4/12 WINDOW SEAT
Scale: 1:10

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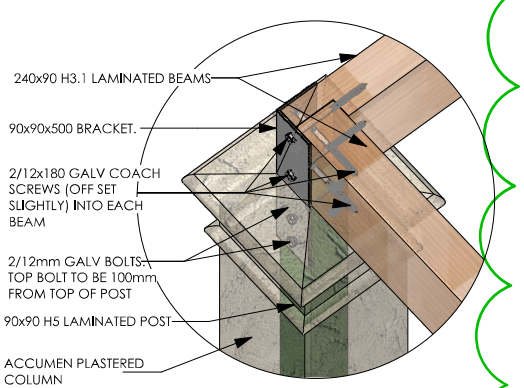
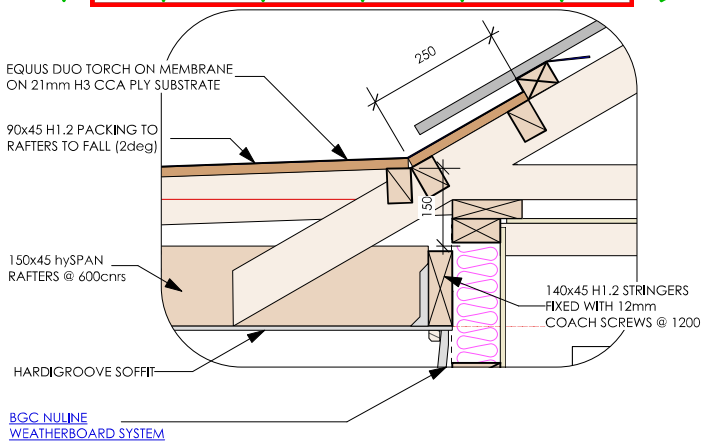


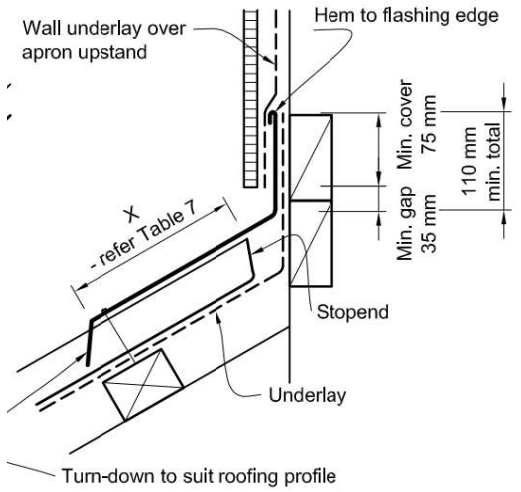

7/12 ENTRY POST CONNECTION
SCALE 1:10



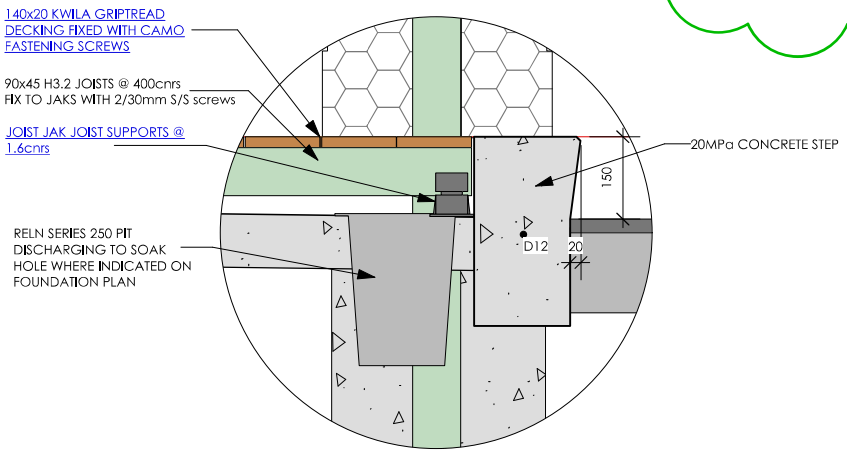

3/11 VERANDAH CONNECTION TO HOUSE
SCALE 1:10

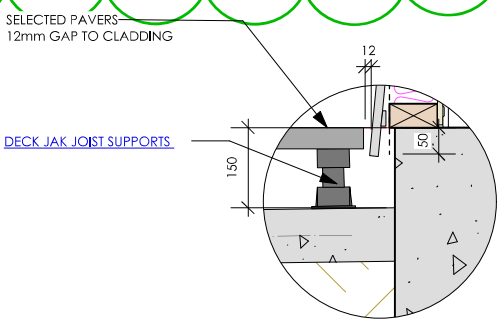
**Figure 44: Apron flashing and change in pitch for profiled metal**
Paragraphs 4.5, 8.4.11, 8.4.12, Table 7

NOTE: X = variable according to *wind zone* – refer Table 7.

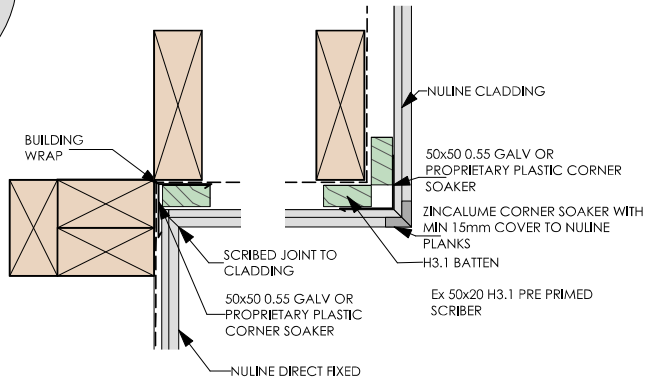



**(b) APRON FLASHING**



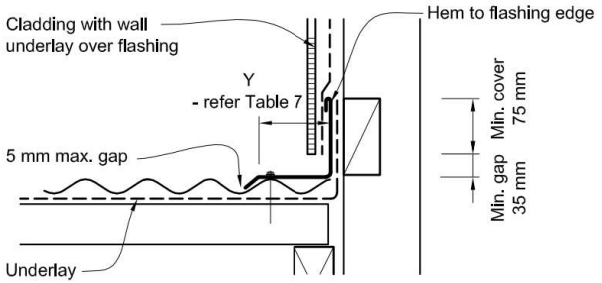




8/11 TIMBER DECK TO HOUSE
SCALE 1:10




9/13 CLADDING JUNCTIONS AT CHIMNEY
SCALE 1:10

**Figure 48: Parallel apron flashings for profiled metal**
Paragraphs 8.4.11, 8.4.12, Table 7




**(a) CORRUGATED PROFILE**

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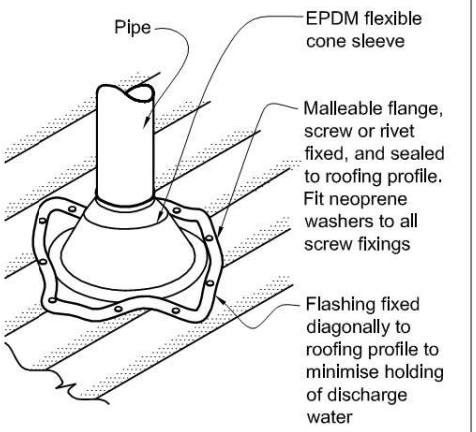
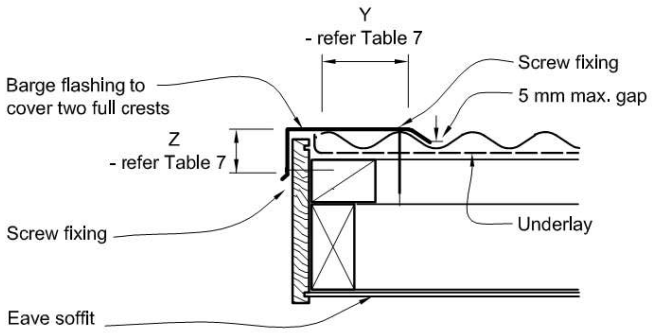
## Figure 53: Flashing for small pipes
Paragraphs 8.3.10, 8.4.17, 9.6.8.5 and 9.6.9.6




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

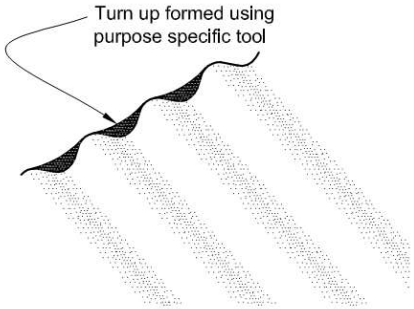
## Figure 47: Barge flashings for profiled metal
Paragraphs 8.4.11, 8.4.12, Table 7




(a) CORRUGATED PROFILE

| FLASHING COVER | |
|---|---|
| DIMENSION LABEL | DIMENSION |
| X | 130 |
| Y | TWO CRESTS |
| Z | 70 |

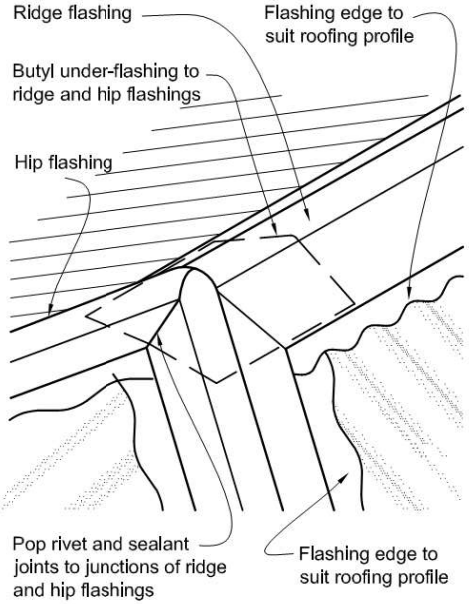
## Figure 49: Profiled metal stopends
Paragraph 8.4.13, Figure 92




(a) CORRUGATED PROFILE

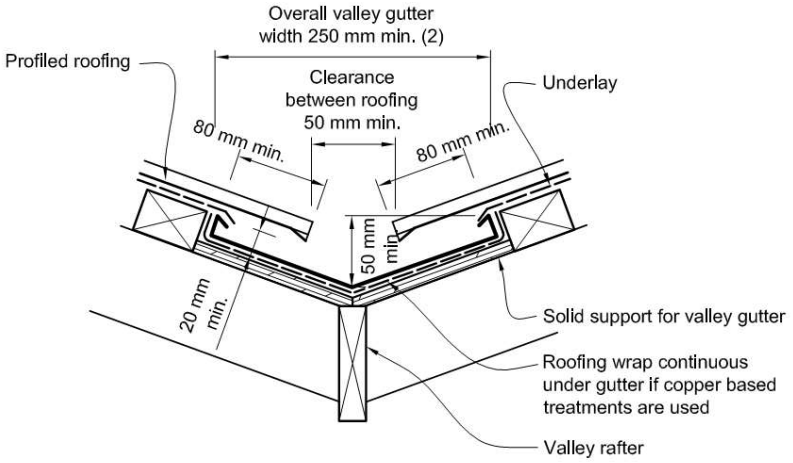
## Figure 43: Ridge to hip flashings
Paragraphs 8.4.11 and 8.4.12

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

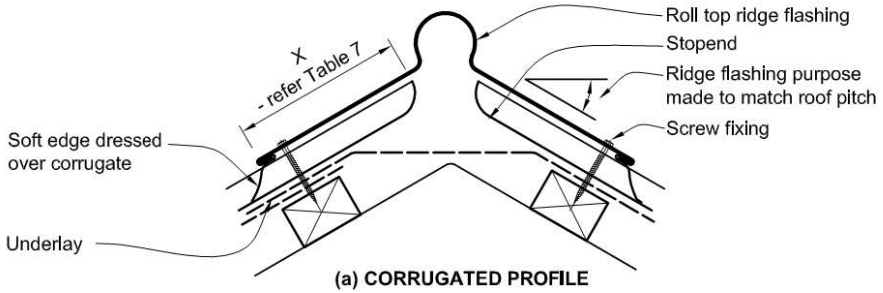



## Figure 51: Valley gutters for profiled metal
Paragraphs 4.3, 4.5, 8.1.6.2 and 8.4.16

NOTE: (1) Refer to Table 8 for maximum roof catchment areas for *valley gutters*.
(2) Minimum width of *valley gutter* may reduce to 160 mm, providing roof catchment area is in accordance with Table 8. In this case, cover of roof cladding over gutter shall be reduced to 60 mm to provide a clearance gap of 40 mm.




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




(a) CORRUGATED PROFILE

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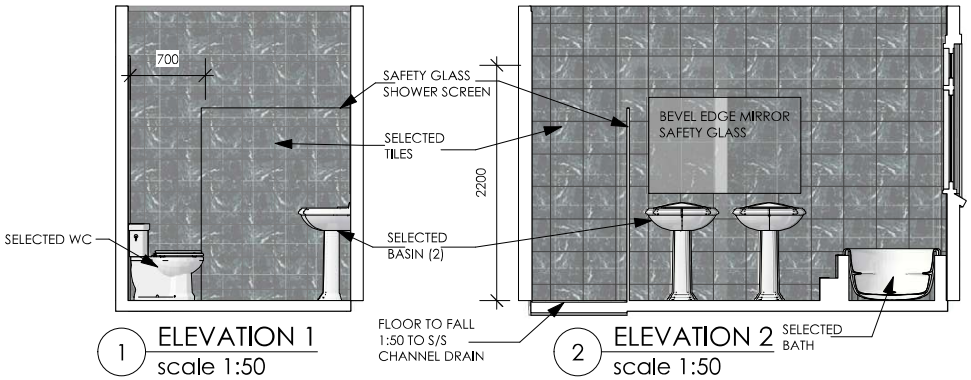
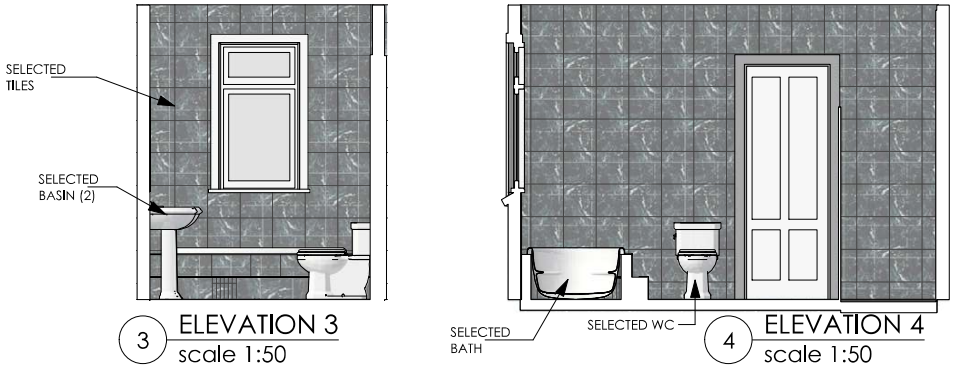



1 ELEVATION 1
scale 1:50

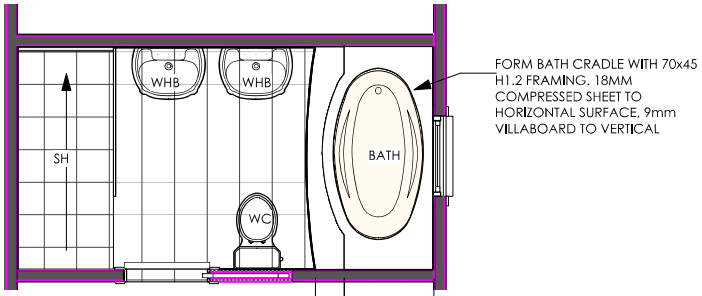
2 ELEVATION 2
scale 1:50




3 ELEVATION 3
scale 1:50

4 ELEVATION 4
scale 1:50

ELEVATION KEY




ENSUITE PLAN
scale 1:50

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| ISSUE | DATE | REVISION |
|---|---|---|

PROJECT: KOUBARIDIS HOME HOME — PROJECT # 17033

CLIENT: BLUESKIN RD WANGANUI — SCALE: 1:50 — DWG #: 19

DWG: ENSUITE — DATE: 14/2/18 — REVISION:

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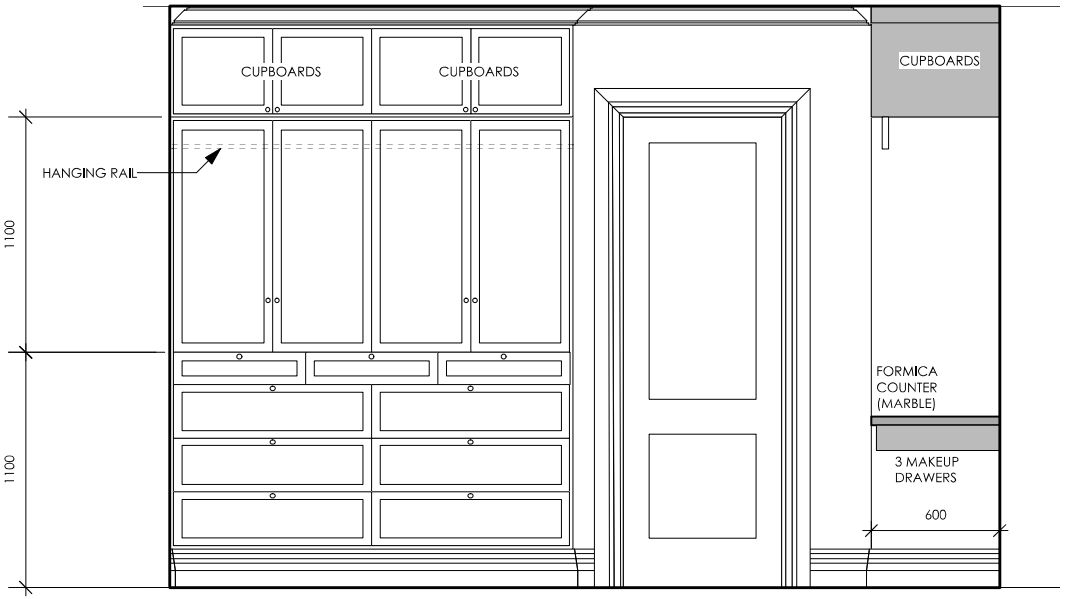


1/20 UNIT 1
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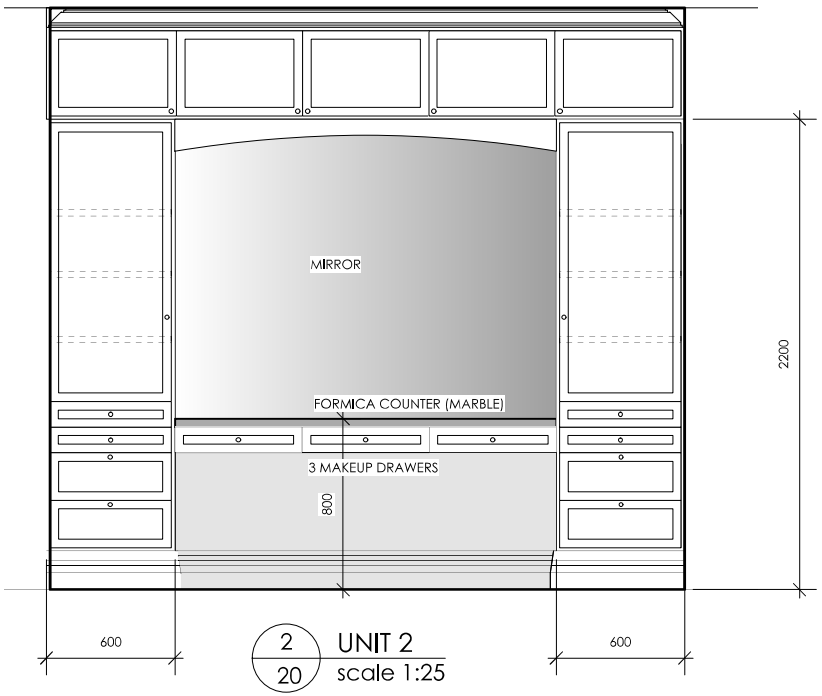
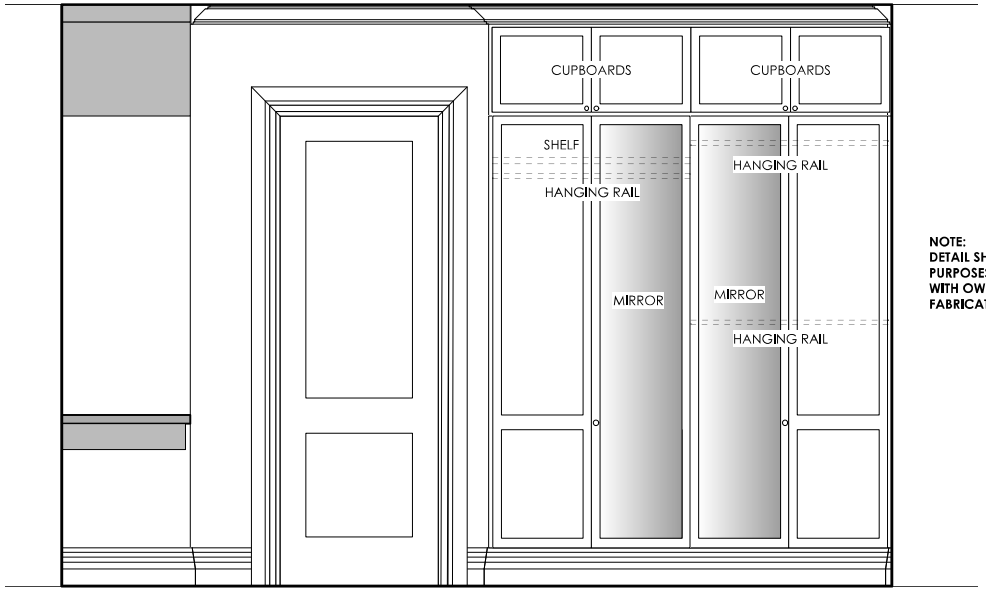
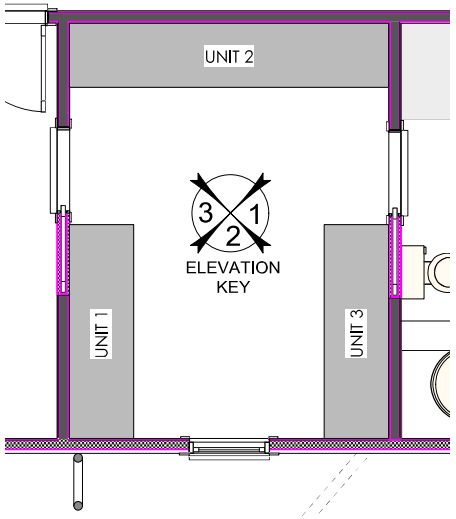



2/20 UNIT 2
scale 1:25




3/20 UNIT 3
scale 1:25

**NOTE:**
**DETAIL SHOWN IS FOR PRICING PURPOSES. PLEASE CONFIRM LAYOUT WITH OWNER PRIOR TO FABRICATION**

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| ISSUE | DATE | REVISION |
|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE 1:100 |
| DWG | DRESSING ROOM UNITS | DATE 14/2/18 |
| | | DWG # 20 |
| | | REVISION |

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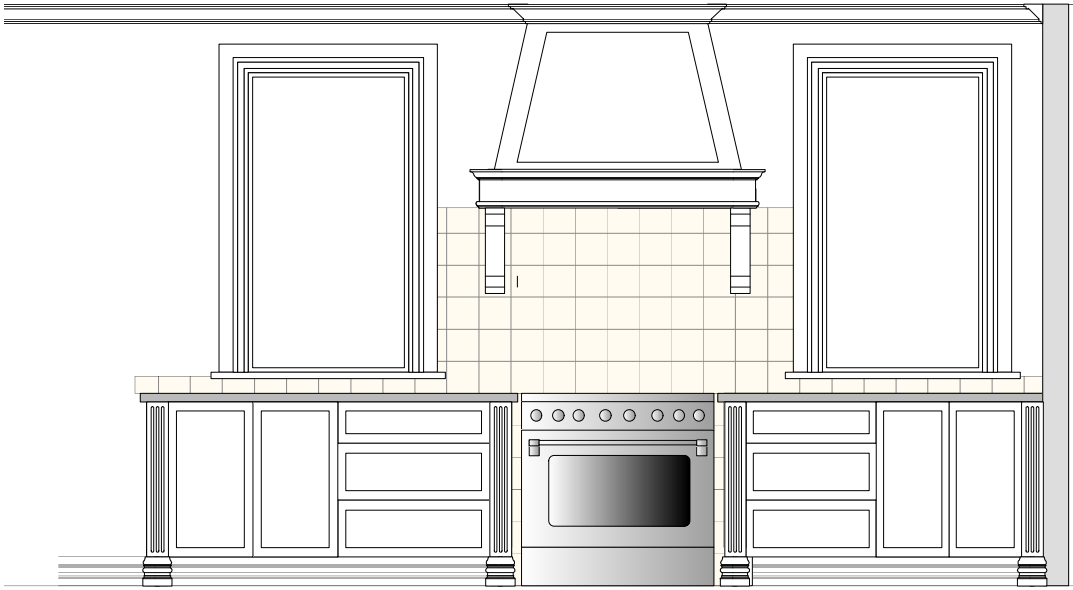

1 BASE UNITS
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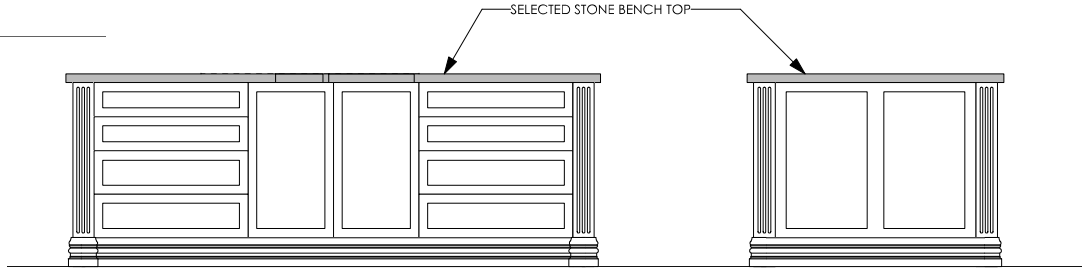
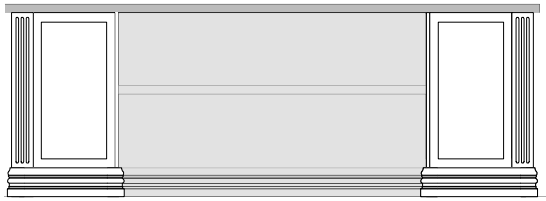
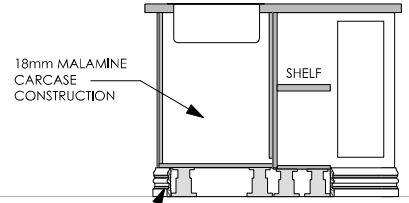



3 ISLAND FRONT
scale 1:25

4 ISLAND SIDES
scale 1:25



5 ISLAND- BREAKFAST BAR
scale 1:25




6 ISLAND SECTION
scale 1:25

**NOTE:**
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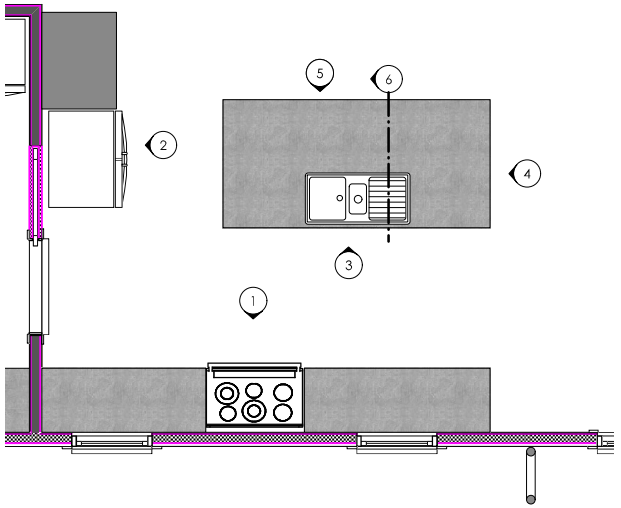
2 TALL UNITS
scale 1:25

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| ISSUE | DATE | REVISION |
|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE 1:100 |
| DWG | KITCHEN | DATE 14/2/18 |
| | | DWG # 21 |
| | | REVISION |

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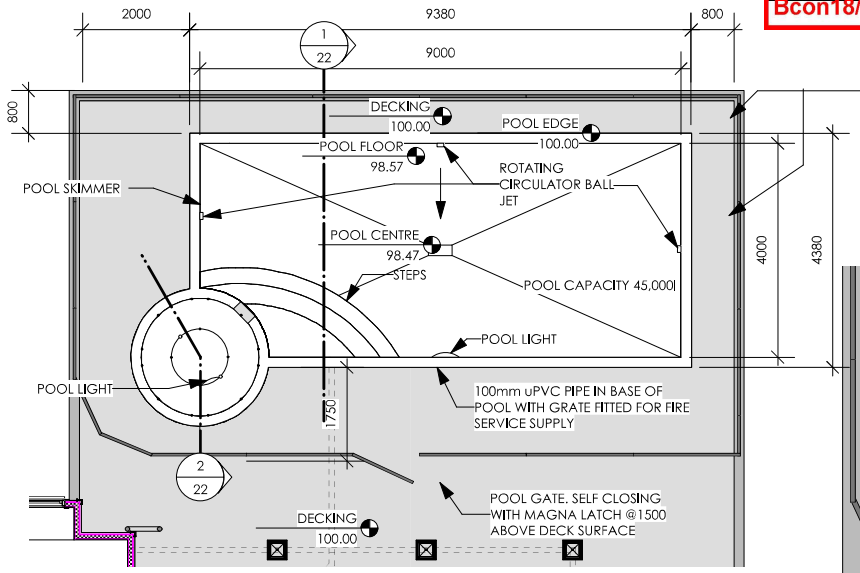
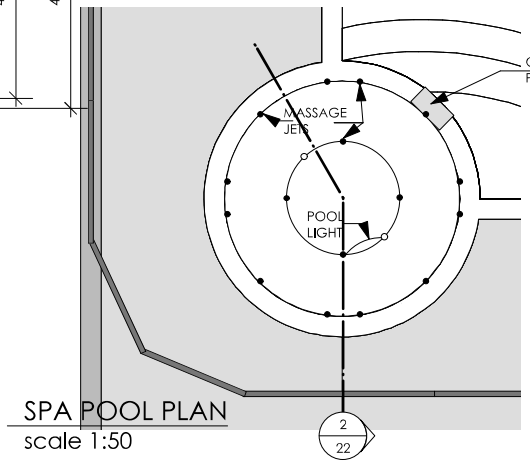
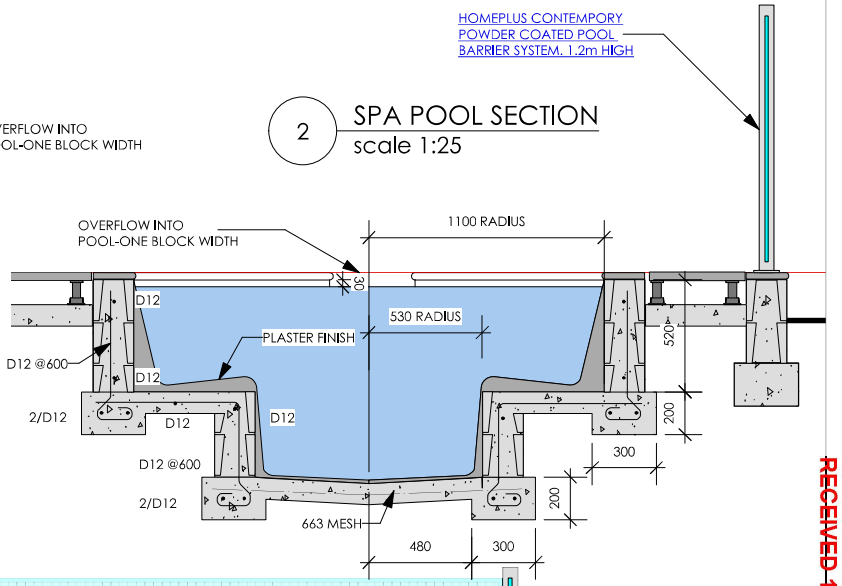


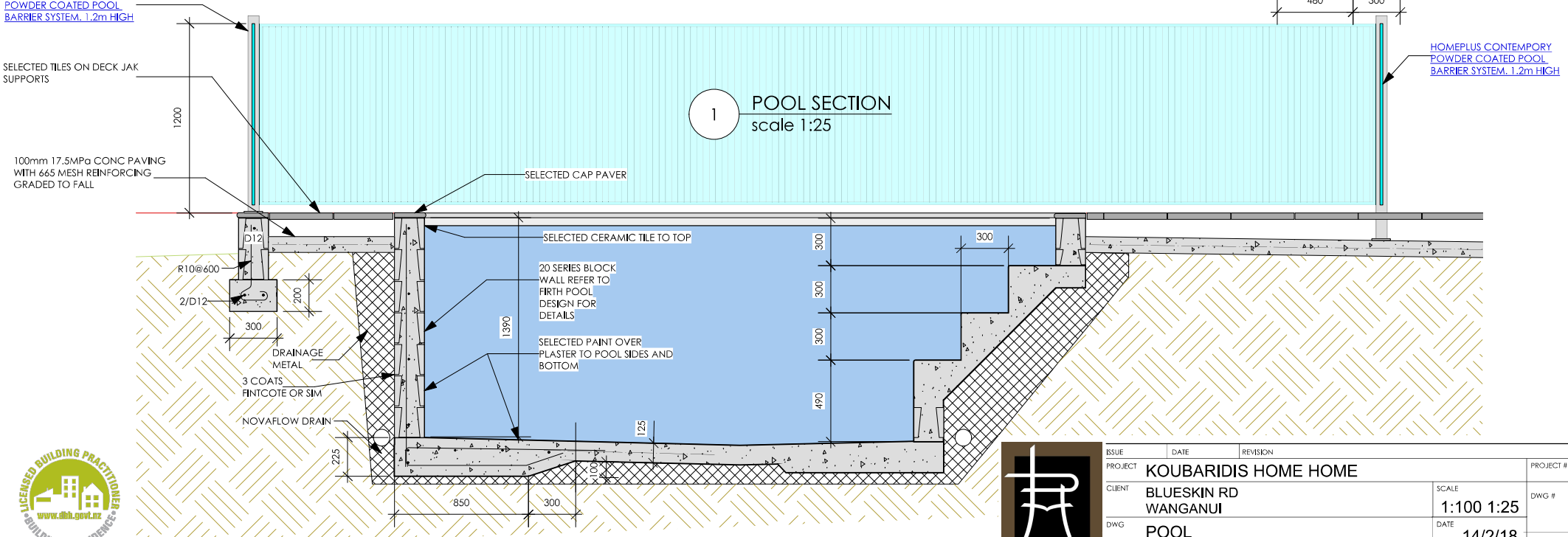

POOL PLAN
scale 1:100




SPA POOL PLAN
scale 1:50




2 SPA POOL SECTION
scale 1:25




1 POOL SECTION
scale 1:25

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| ISSUE | DATE | REVISION |
|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE 1:100 1:25 |
| DWG | POOL | DATE 14/2/18 |
| | | DWG # 22 |
| | | REVISION |

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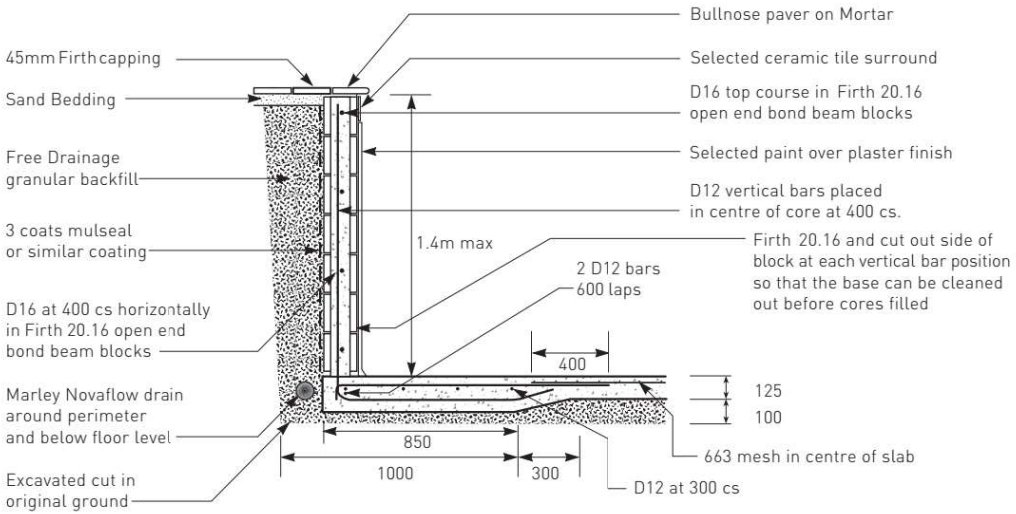
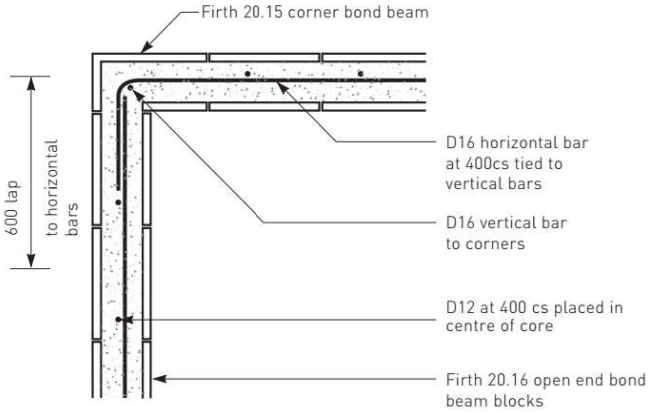
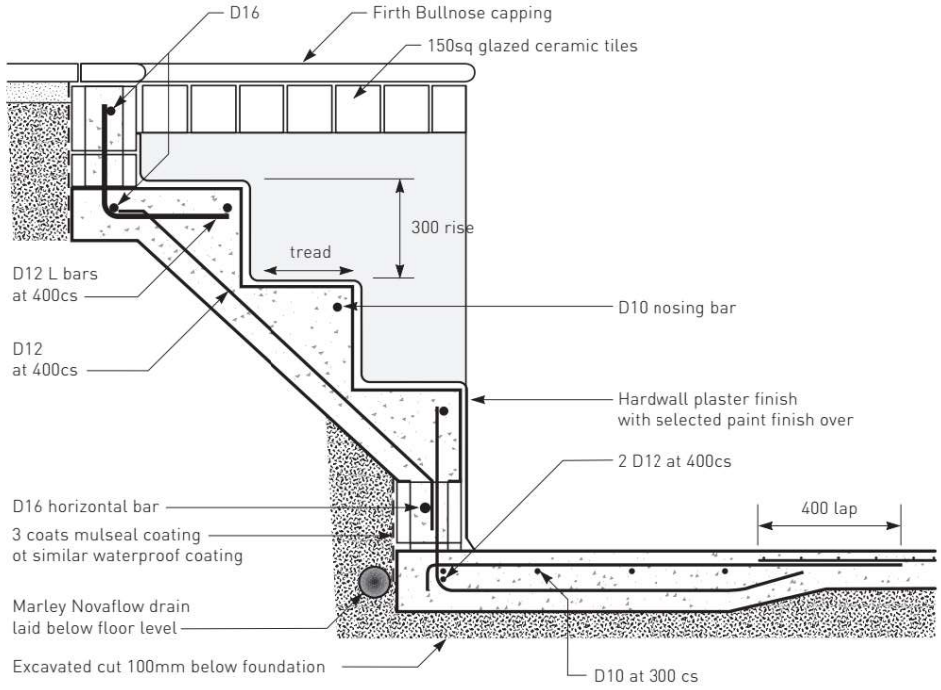
## WALL TO FLOOR DETAIL




## CORNER DETAIL OF STEEL REINFORCING




## TYPICAL STEP DETAIL

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| ISSUE | DATE | REVISION |
|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE N/A |
| DWG | POOL DETAILS | DATE 14/2/18 |
| | | DWG # 23 |
| | | REVISION |

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| Room | Floor | Skirting | Walls | Cornice | Ceiling | Architrave | Comments |
|---|---|---|---|---|---|---|---|
| Entry | Selected Tile | CS135x18 MUF 3i 2.2 | 10mm Gib level 4, 15i-1.3-L4 | 85x18 MUF 3i2.2 | HARDIGROOVE 1i 1.3 | CS135x18 MUF 3i 2.2 | MUF BEAMS TO CEILING |
| WC | Selected Tile | CS135x18 MUF 3i 2.2 | 10mm Gib level 4, 15i-1.3-L4 | 85x18 MUF 3i2.2 | HARDIGROOVE 1i 1.3 | CS135x18 MUF 3i 2.2 | |
| Kitchen Family | Selected Tile & Carpet | CS135x18 RAD 3i 2.2 | 10mm Gib level 4, 15i-1.3-L4 | 85x18 MUF 3i2.2 | HARDIGROOVE 1i 1.3 | CS135x18 MUF 3i 2.2 | MUF BEAMS TO CEILING |
| Scullery | Selected Tile | CS135x18 MUF 3i 2.2 | 10mm Gib level 4, 15i-1.3-L4 | 85x18 MUF 3i2.2 | HARDIGROOVE 1i 1.3 | CS135x18 MUF 3i 2.2 | |
| Lounge | Selected Carpet- tile around perimeter | CS135x18 MUF 3i 2.2 | 10mm Gib level 4, 15i-1.3-L4 | 85x18 MUF 3i2.2 | HARDIGROOVE 1i 1.3 | CS135x18 MUF 3i 2.2 | MUF BEAMS TO CEILING |
| Hall | Selected Carpet | CS135x18 MUF 3i 2.2 | 10mm Gib level 4, 15i-1.3-L4 | Gib Cove Basso 15i 1.3 L4 | 10mm Gib Ultraline (L4) 15i 1.3 L4 | CS135x18 MUF 3i 2.2 | |
| Master Bed | Selected Carpet | CS135x18 MUF 3i 2.2 | 10mm Gib level 4, 15i-1.3-L4 | Gib Cove Basso 15i 1.3 L4 | 10mm Gib Ultraline Tray ceiling (L 5) 15i 1.3 L5 | CS135x18 MUF 3i 2.2 | |
| Dressing | Selected Carpet | CS135x18 MUF 3i 2.2 | 10mm Gib level 4, 15i-1.3-L4 | Gib Cove Basso 15i 1.3 L4 | 10mm Gib Ultraline (L 4) 15i 1.3 L4 | CS135x18 MUF 3i 2.2 | |
| Ensuite | Selected Tile | CS135x18 MUF 3i 2.2 | Villaboard (L4) tiles in shower to 2.2m tile elswhere to window height, 1i-1.3 | Gib Cove Basso 15i 1.3 L4 | 10mm Gib Aqualine (L 4) 15i 1.3 L5 | CS135x18 MUF 3i 2.2 | |
| Store | Selected Carpet | CS135x18 MUF 3i 2.2 | 10mm Gib level 4, 15i-1.3-L4 | Gib Cove Basso 15i 1.3 L4 | 10mm Gib Ultraline (L4) 15i 1.3 L4 | CS135x18 MUF 3i 2.2 | |
| Bath | Selected Tile | CS135x18 MUF 3i 2.2 | Villaboard (L4) tiles in shower to 2.2m tile elswhere to window height, 1i-1.3 | Gib Cove Basso 15i 1.3 L4 | 10mm Gib Aqualine (L 4) 15i 1.3 L5 | CS135x18 MUF 3i 2.2 | |
| Laundry | Selected Tile | CS135x18 MUF 3i 2.2 | 10mm Gib level 4, 15i-1.3-L4 | Gib Cove Basso 15i 1.3 L4 | 10mm Gib Ultraline (L4) 15i 1.3 L4 | CS135x18 MUF 3i 2.2 | |
| Bed 2 | Selected Carpet | CS135x18 MUF 3i 2.2 | 10mm Gib level 4, 15i-1.3-L4 | Gib Cove Basso 15i 1.3 L4 | 10mm Gib Ultraline (L4) 15i 1.3 L4 | CS135x18 MUF 3i 2.2 | |
| Bed 3 | Selected Carpet | CS135x18 MUF 3i 2.2 | 10mm Gib level 4, 15i-1.3-L4 | Gib Cove Basso 15i 1.3 L4 | 10mm Gib Ultraline (L4) 15i 1.3 L4 | CS135x18 MUF 3i 2.2 | |
| Bed 4 | Selected Carpet | CS135x18 MUF 3i 2.2 | 10mm Gib level 4, 15i-1.3-L4 | Gib Cove Basso 15i 1.3 L4 | 10mm Gib Ultraline (L4) 15i 1.3 L4 | CS135x18 MUF 3i 2.2 | |
| Bed 5 | Selected Carpet | CS135x18 MUF 3i 2.2 | 10mm Gib level 4, 15i-1.3-L4 | Gib Cove Basso 15i 1.3 L4 | 10mm Gib Ultraline (L4) 15i 1.3 L4 | CS135x18 MUF 3i 2.2 | |
| NOTES: PAINT FINISHES (3i 2.2 ETC) REFER TO RESENE ONE LINE SPECIFICATION | | | | | | | |
| Garage | Concrete sealer | 3i 2.2 | 15i-1.3-L4 | Gib Cove Basso 15i 1.3 L4 | 10mm Gib Ultraline (L4) 15i 1.3 L4 | CS135x18 MUF 3i 2.2 | |

ALLOW PC SUM OF $180.00 inc GST PER BROADLOAM METRE FOR SUPPLY OF CARPET
ALLO PC SUM OF $70.00 inc GST FOR SUPPLY OF TILES
WARDROBES TO BE FINISHED AS PER THE ROOM THEY ARE LOCATED IN

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ISSUE | DATE | REVISION

PROJECT: KOUBARIDIS HOME HOME — PROJECT #: 17033
CLIENT: BLUESKIN RD WANGANUI — SCALE: N/A — DWG #: 24
DWG: INTERIOR FINISHES — DATE: 14/2/18 — REVISION

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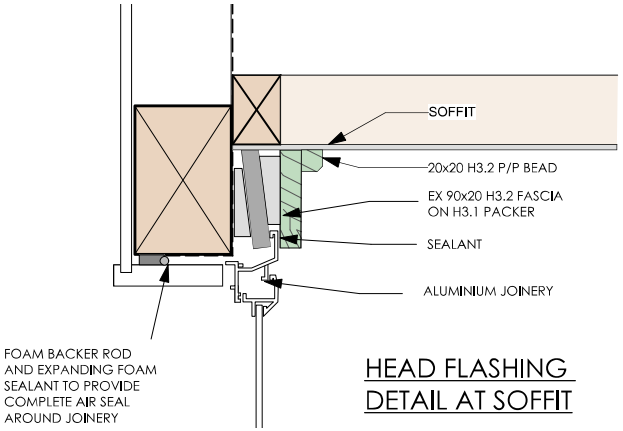
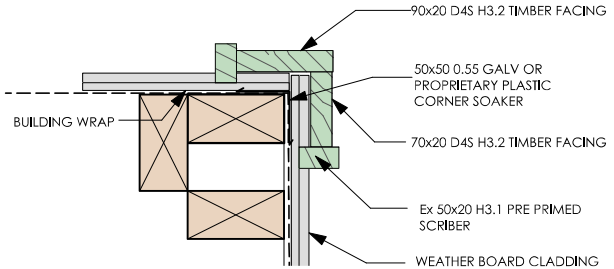


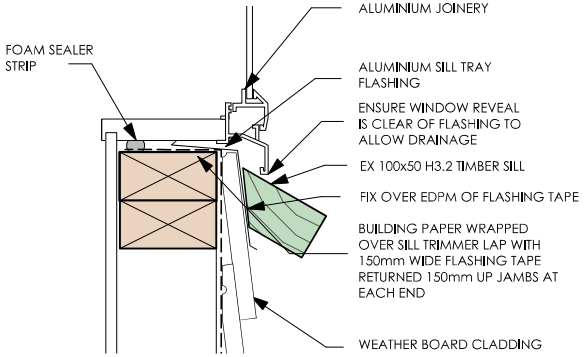

## HEAD FLASHING DETAIL AT SOFFIT

SCALE 1:5



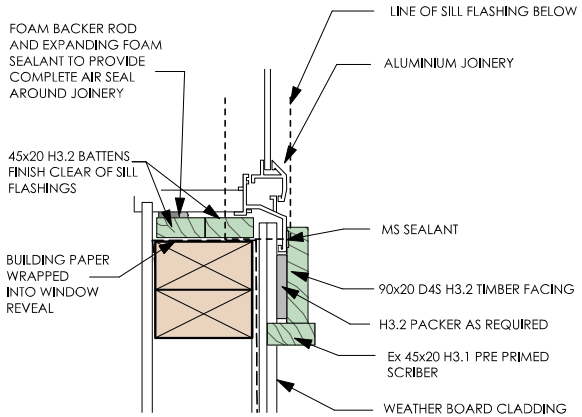

## BOX CORNER DETAIL

SCALE 1:5



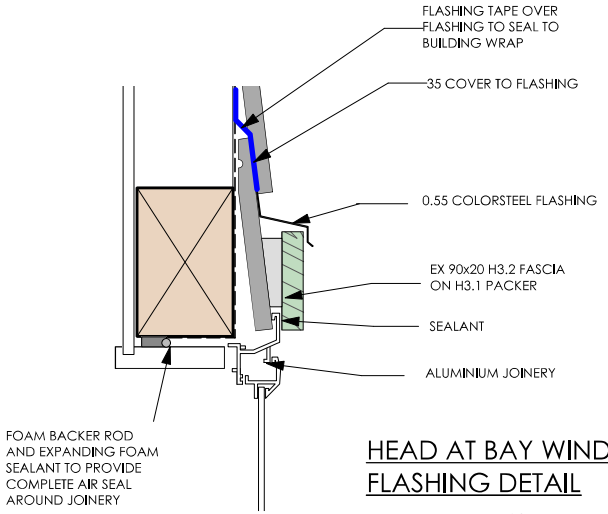

## SILL FLASHING DETAIL

SCALE 1:5




## JAMB FLASHING DETAIL

SCALE 1:5




## HEAD AT BAY WINDOW FLASHING DETAIL

SCALE 1:5

NOTE: BUILDING WRAP IS TO BE FOLDED INTO FRAMED OPENING AND FIXED (STAPLED) TO THE INSIDE OF THE FRAME. COVER ENTIRE SILL WITH THERMACRAFT ALUBAND (OR SIMILAR) FLASHING TAPE AND CONTINUE IT 150mm UP JAMBS ON EACH SIDE. APPLY FLASHING TAPE TO BOTH TOP CORNERS AS WELL, EXTENDING IT AT LEAST 150mm FROM THE CORNER.. CONTINUE WINDOW INSTALLATION AS PER DETAILS ABOVE.

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| ISSUE | DATE | REVISION |
|---|---|---|
| PROJECT | KOUBARIDIS HOME HOME | PROJECT # 17033 |
| CLIENT | BLUESKIN RD WANGANUI | SCALE 1:5 |
| DWG | WINDOW & CLADDING DETAILS | DATE 14/2/18 |
| | | DWG # 25 |
| | | REVISION |

Paul McKenna Architecture
3 BUXTON RD, WANGANUI, NEW ZEALAND
T: (06)3444 729 F: (06) 344 7269
E: paulmck@ihug.co.nz

Bcon18/0095 - WDC Approved Plans - 30/04/2018

# GIB EzyBrace® Bracing Software

## *Demand Calculation Sheet*

**Job Details**

| | |
|---|---|
| Name: | KOUBARIDIS WING A |
| Street and Number: | BLUESKIN RD |
| Lot and DP Number | |
| City/Town/District | |
| Designer | PAUL M |
| Company | PM ARCHITECTURE |
| Date | Monday, 11 December 2017 |

**Building Specification**

| | |
|---|---|
| Number of Storeys | 1 |
| Floor Loading | 2 kPa |
| Foundation Type | Slab |
| | **Single** |
| Cladding Weight | Medium |
| Roof Weight | Light |
| Room in Roof Space | No |
| Roof Pitch (degrees) | 30 |
| Roof Height above Eaves (m) | 3.1 |
| Building Height to Apex (m) | 5.7 |
| Ground to Lower Floor (m) | 0.2 |
| Average Stud Height (m) | 2.7 |
| Building Length (m) | 14.5 |
| Building Width (m) | 15.7 |
| Building Plan Area (m²) | 155 |

**Building Location**

| | | | |
|---|---|---|---|
| **Wind Zone = High** | | **Earthquake Zone 2** | |
| Wind Region | A | Soil Type | D & E (Deep to Very Soft) |
| Lee Zone | No | Annual Prob. of Exceedance: | 1 in 500 (NZS3604:2011 Default) |
| Ground Roughness | Open | | |
| Site Exposure | Exposed | | |
| Topography Class | T1 | | |

**Bracing Units required for Wind**

| | Along | Across |
|---|---|---|
| **Single Level** | **1037** | **1094** |

**Bracing Units required for Earthquake**

| | Along & Across |
|---|---|
| **Single Level** | **713** |

Bcon18/0095 - WDC Approved Plans - 30/04/2018

# GIB EzyBrace® Bracing Software

## *Single Level Along Resistance Sheet*

***Job Name: KOUBARIDIS WING A***

| Line | Element | Length (m) | Angle (degrees) | Stud Ht. (m) | Type | Supplier | Wind BUs | EQ BUs | Wind | EQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Demand | |
| | | | | | | | | | 1037 | 713 |
| | | | | | | | | | Achieved | |
| B | 1 | 1.40 | | 2.7 | GS1-N | GIB® | 86 | 75 | | |
| | 2 | 1.80 | | 2.7 | GS1-N | GIB® | 110 | 96 | | |
| | 3 | 1.50 | | 2.7 | GS1-N | GIB® | 92 | 80 | | |
| | 4 | 1.10 | | 2.7 | GS1-N | GIB® | 66 | 58 | | |
| | External Length = 13.7 | | | | | | | | 1200 116% | 1055 148% |
| | | | | | | | | | 354 OK | 309 OK |
| C | 1 | 1.70 | | 2.7 | GS2-N | GIB® | 148 | 130 | | |
| | | | | | | | | | 148 OK | 130 OK |
| D | 1 | 5.00 | | 2.7 | GS2-N | GIB® | 436 | 382 | | |
| | | | | | | | | | 436 OK | 382 OK |
| E | 1 | 2.40 | | 2.7 | GS1-N | GIB® | 147 | 128 | | |
| | External Length = 8.5 | | | | | | | | 147 OK | 128 OK |
| F | 1 | 1.00 | | 2.7 | GS1-N | GIB® | 58 | 53 | | |
| | 2 | 1.00 | | 2.7 | GS1-N | GIB® | 58 | 53 | | |
| | External Length = 6 | | | | | | | | 116 OK | 106 OK |

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# GIB EzyBrace® Bracing Software

## *Single Level Across Resistance Sheet*

***Job Name: KOUBARIDIS WING A***

| Line | Element | Length (m) | Angle (degrees) | Stud Ht. (m) | Type | Supplier | Wind BUs | EQ BUs | Wind | EQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Demand | |
| | | | | | | | | | 1094 | 713 |
| | | | | | | | | | Achieved | |
| m | 1 | 0.40 | | 2.7 | BLP-H | GIB® | 43 | 48 | | |
| | 2 | 1.20 | | 2.7 | BLP-H | GIB® | 160 | 160 | | |
| | External Length = 9.4 | | | | | | | | 1226<br>112% | 1117<br>157% |
| | | | | | | | | | 203 OK | 208 OK |
| n | 1 | 1.10 | | 2.7 | BLG-H | GIB® | 147 | 139 | | |
| | 2 | 1.00 | | 2.7 | BLG-H | GIB® | 133 | 123 | | |
| | 3 | 1.10 | | 2.7 | GS2-N | GIB® | 93 | 82 | | |
| | | | | | | | | | 373 OK | 343 OK |
| o | 1 | 3.30 | | 2.7 | GS1-N | GIB® | 202 | 176 | | |
| | | | | | | | | | 202 OK | 176 OK |
| p | 1 | 2.30 | | 2.7 | GS1-N | GIB® | 141 | 123 | | |
| | | | | | | | | | 141 OK | 123 OK |
| q | 1 | 2.50 | | 2.7 | GS1-N | GIB® | 153 | 133 | | |
| | 2 | 2.50 | | 2.7 | GS1-N | GIB® | 153 | 133 | | |
| | | | | | | | | | 307 OK | 267 OK |

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## *Custom Wall Elements*

| Supplier | System | Min. Length m | Wind BUs/m | EQ BUs/m |
|---|---|---|---|---|
| Ecoply | EP1 0.4 | 0.4 | 80 | 85 |
| Ecoply | EP1 0.6 | 0.6 | 95 | 105 |
| Ecoply | EP1 1.2 | 1.2 | 120 | 135 |
| EcoPly & EP Barrier | EP1/EPB1-0.4 | 0.4 | 80 | 95 |
| EcoPly & EP Barrier | EP1/EPB1-0.6 | 0.6 | 95 | 105 |
| EcoPly & EP Barrier | EP1/EPB1-1.2 | 1.2 | 120 | 135 |
| EP Barrier | EPBS-0.4 | 0.4 | 60 | 60 |
| EP Barrier | EPBS-0.6 | 0.6 | 60 | 65 |
| EP Barrier | EPBS-1.2 | 1.2 | 65 | 70 |
| EP Barrier | EPBS-2.4 | 2.4 | 80 | 90 |
| EcoPly & EP Barrier | EPG/EPBG-0.4 | 0.4 | 100 | 115 |
| EcoPly & EP Barrier | EPG/EPBG-1.2 | 1.2 | 150 | 150 |
| EcoPly & EP Barrier | EP2/EPB2-0.6 | 0.6 | 105 | 115 |
| | | | | |
| | | | | |

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# GIB EzyBrace® Bracing Software

## *Demand Calculation Sheet*

**Job Details**

| | |
|---|---|
| Name: | KOUBARIDIS WING B |
| Street and Number: | BLUESKIN RD |
| Lot and DP Number | |
| City/Town/District | |
| Designer | PAUL M |
| Company | PM ARCHITECTURE |
| Date | Monday, 11 December 2017 |

**Building Specification**

| | |
|---|---|
| Number of Storeys | 1 |
| Floor Loading | 2 kPa |
| Foundation Type | Slab |
| | **Single** |
| Cladding Weight | Light |
| Roof Weight | Light |
| Room in Roof Space | No |
| Roof Pitch (degrees) | 30 |
| Roof Height above Eaves (m) | 2.5 |
| Building Height to Apex (m) | 5.2 |
| Ground to Lower Floor (m) | 0.2 |
| Average Stud Height (m) | 2.7 |
| Building Length (m) | 21.3 |
| Building Width (m) | 6.7 |
| Building Plan Area (m²) | 125 |

**Building Location**

| | | | |
|---|---|---|---|
| **Wind Zone = High** | | **Earthquake Zone 2** | |
| Wind Region | A | Soil Type | D & E (Deep to Very Soft) |
| Lee Zone | No | Annual Prob. of Exceedance: | 1 in 500 (NZS3604:2011 Default) |
| Ground Roughness | Open | | |
| Site Exposure | Exposed | | |
| Topography Class | T1 | | |

**Bracing Units required for Wind**

| | Along | Across |
|---|---|---|
| **Single Level** | **441** | **1256** |

**Bracing Units required for Earthquake**

| | Along & Across |
|---|---|
| **Single Level** | **498** |

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# GIB EzyBrace® Bracing Software

## *Single Level Along Resistance Sheet*

***Job Name: KOUBARIDIS WING B***

| | | | | | | | | | Wind | EQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Demand | |
| | | | | | | | | | 441 | 498 |
| | | | | | | | | | Achieved | |
| Line | Element | Length (m) | Angle (degrees) | Stud Ht. (m) | Type | Supplier | Wind BUs | EQ BUs | 934 212% | 834 167% |
| a | 1 | 0.50 | | 2.7 | EP1 0.4 | Ecoply | 36 | 38 | | |
| | 2 | 0.60 | | 2.7 | BLG-H | GIB® | 66 | 65 | | |
| | 3 | 0.50 | | 2.7 | EP1 0.4 | Ecoply | 36 | 38 | | |
| | External Length = 7.2 | | | | | | | | 137 OK | 141 OK |
| b | 5 | 1.70 | | 2.7 | GS1-N | GIB® | 104 | 91 | | |
| | 6 | 2.40 | | 2.7 | GS1-N | GIB® | 147 | 128 | | |
| | External Length = 14.2 | | | | | | | | 251 OK | 219 OK |
| c | 1 | 5.30 | | 2.7 | GS1-N | GIB® | 325 | 283 | | |
| | | | | | | | | | 325 OK | 283 OK |
| d | 3 | 1.80 | | 2.7 | GS1-N | GIB® | 110 | 96 | | |
| | 4 | 1.80 | | 2.7 | GS1-N | GIB® | 110 | 96 | | |
| | External Length = 12.8 | | | | | | | | 221 OK | 192 OK |

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# GIB EzyBrace® Bracing Software

## *Single Level Across Resistance Sheet*

***Job Name: KOUBARIDIS WING B***

| Line | Element | Length (m) | Angle (degrees) | Stud Ht. (m) | Type | Supplier | Wind BUs | EQ BUs | Wind | EQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Demand | |
| | | | | | | | | | 1256 | 498 |
| | | | | | | | | | Achieved | |
| | | | | | | | | | 1405 112% | 1252 251% |
| Q | 3 | 3.80 | | 2.7 | GS1-N | GIB® | 233 | 203 | | |
| | | | | | | | | | 233 OK | 203 OK |
| R | 1 | 1.30 | | 2.7 | GS1-N | GIB® | 80 | 69 | | |
| | 2 | 0.90 | | 2.7 | GS1-N | GIB® | 50 | 47 | | |
| | | | | | | | | | 130 OK | 117 OK |
| S | 1 | 1.30 | | 2.7 | GS1-N | GIB® | 80 | 69 | | |
| | 2 | 0.90 | | 2.7 | GS1-N | GIB® | 50 | 47 | | |
| | | | | | | | | | 130 OK | 117 OK |
| T | 1 | 3.80 | | 2.7 | GS2-N | GIB® | 331 | 290 | | |
| | | | | | | | | | 331 OK | 290 OK |
| U | 1 | 3.80 | | 2.7 | GS2-N | GIB® | 331 | 290 | | |
| | | | | | | | | | 331 OK | 290 OK |
| V | 1 | 1.00 | | 2.7 | BLP-H | GIB® | 133 | 133 | | |
| | | | | External Length = | | 1.2 | | | 133 OK | 133 OK |
| W | 1 | 1.90 | | 2.7 | GS1-N | GIB® | 117 | 101 | | |
| | | | | External Length = | | 5.4 | | | 117 OK | 101 OK |

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## *Custom Wall Elements*

| Supplier | System | Min. Length m | Wind BUs/m | EQ BUs/m |
|---|---|---|---|---|
| Ecoply | EP1 0.4 | 0.4 | 80 | 85 |
| Ecoply | EP1 0.6 | 0.6 | 95 | 105 |
| Ecoply | EP1 1.2 | 1.2 | 120 | 135 |
| EcoPly & EP Barrier | EP1/EPB1-0.4 | 0.4 | 80 | 95 |
| EcoPly & EP Barrier | EP1/EPB1-0.6 | 0.6 | 95 | 105 |
| EcoPly & EP Barrier | EP1/EPB1-1.2 | 1.2 | 120 | 135 |
| EP Barrier | EPBS-0.4 | 0.4 | 60 | 60 |
| EP Barrier | EPBS-0.6 | 0.6 | 60 | 65 |
| EP Barrier | EPBS-1.2 | 1.2 | 65 | 70 |
| EP Barrier | EPBS-2.4 | 2.4 | 80 | 90 |
| EcoPly & EP Barrier | EPG/EPBG-0.4 | 0.4 | 100 | 115 |
| EcoPly & EP Barrier | EPG/EPBG-1.2 | 1.2 | 150 | 150 |
| EcoPly & EP Barrier | EP2/EPB2-0.6 | 0.6 | 105 | 115 |
| | | | | |
| | | | | |

Bcon18/0095 - WDC Approved Plans - 30/04/2018

# GIB EzyBrace® Bracing Software

## *Demand Calculation Sheet*

**Job Details**

| | |
|---|---|
| Name: | KOUBARIDIS WING C |
| Street and Number: | BLUESKING RD |
| Lot and DP Number | |
| City/Town/District | WANGANUI |
| Designer | PAUL M |
| Company | PM ARCHITECTURE |
| Date | Monday, 11 December 2017 |

**Building Specification**

| | |
|---|---|
| Number of Storeys | 1 |
| Floor Loading | 2 kPa |
| Foundation Type | Slab |
| | **Single** |
| Cladding Weight | Light |
| Roof Weight | Light |
| Room in Roof Space | No |
| Roof Pitch (degrees) | 30 |
| Roof Height above Eaves (m) | 3 |
| Building Height to Apex (m) | 5.6 |
| Ground to Lower Floor (m) | 0.2 |
| Average Stud Height (m) | 2.7 |
| Building Length (m) | 8.7 |
| Building Width (m) | 10.1 |
| Building Plan Area (m²) | 88 |

**Building Location**

| | | | |
|---|---|---|---|
| **Wind Zone = High** | | **Earthquake Zone 2** | |
| Wind Region | A | Soil Type | D & E (Deep to Very Soft) |
| Lee Zone | No | Annual Prob. of Exceedance: | 1 in 500 (NZS3604:2011 Default) |
| Ground Roughness | Open | | |
| Site Exposure | Exposed | | |
| Topography Class | T1 | | |

**Bracing Units required for Wind**

| | Along | Across |
|---|---|---|
| **Single Level** | **681** | **663** |

**Bracing Units required for Earthquake**

| | Along & Across |
|---|---|
| **Single Level** | **349** |

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# GIB EzyBrace® Bracing Software

## *Single Level Along Resistance Sheet*

***Job Name: KOUBARIDIS WING C***

| | | | | | | | | | Wind | EQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Demand | |
| | | | | | | | | | 681 | 349 |
| | | | | | | | | | Achieved | |
| Line | Element | Length (m) | Angle (degrees) | Stud Ht. (m) | Type | Supplier | Wind BUs | EQ BUs | 767 113% | 667 191% |
| D | 2 | 3.80 | | 2.7 | GS1-N | GIB® | 233 | 203 | | |
| | | | | | | | | | 233 OK | 203 OK |
| E | 3 | 2.80 | | 2.7 | GS1-N | GIB® | 172 | 149 | | |
| | | | | | | | | | 172 OK | 149 OK |
| F | 3 | 3.40 | | 2.7 | GS1-N | GIB® | 209 | 181 | | |
| | | | | | | | | | 209 OK | 181 OK |
| G | 1 | 2.50 | | 2.7 | GS1-N | GIB® | 153 | 133 | | |
| | External Length = 8.8 | | | | | | | | 153 OK | 133 OK |

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# GIB EzyBrace® Bracing Software

## *Single Level Across Resistance Sheet*

***Job Name: KOUBARIDIS WING C***

| | | | | | | | | | Wind | EQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Demand | |
| | | | | | | | | | 663 | 349 |
| | | | | | | | | | Achieved | |
| Line | Element | Length (m) | Angle (degrees) | Stud Ht. (m) | Type | Supplier | Wind BUs | EQ BUs | 687 104% | 599 172% |
| S | 1 | 3.90 | | 2.7 | GS1-N | GIB® | 239 | 208 | | |
| | External Length = 10.1 | | | | | | | | 239 OK | 208 OK |
| T | 1 | 2.40 | | 2.7 | GS2-N | GIB® | 209 | 183 | | |
| | | | | | | | | | 209 OK | 183 OK |
| U | 1 | 3.90 | | 2.7 | GS1-N | GIB® | 239 | 208 | | |
| | | | | | | | | | 239 OK | 208 OK |

Bcon18/0095 - WDC Approved Plans - 30/04/2018



## *Custom Wall Elements*

| Supplier | System | Min. Length m | Wind BUs/m | EQ BUs/m |
|---|---|---|---|---|
| Ecoply | EP1 0.4 | 0.4 | 80 | 85 |
| Ecoply | EP1 0.6 | 0.6 | 95 | 105 |
| Ecoply | EP1 1.2 | 1.2 | 120 | 135 |
| EcoPly & EP Barrier | EP1/EPB1-0.4 | 0.4 | 80 | 95 |
| EcoPly & EP Barrier | EP1/EPB1-0.6 | 0.6 | 95 | 105 |
| EcoPly & EP Barrier | EP1/EPB1-1.2 | 1.2 | 120 | 135 |
| EP Barrier | EPBS-0.4 | 0.4 | 60 | 60 |
| EP Barrier | EPBS-0.6 | 0.6 | 60 | 65 |
| EP Barrier | EPBS-1.2 | 1.2 | 65 | 70 |
| EP Barrier | EPBS-2.4 | 2.4 | 80 | 90 |
| EcoPly & EP Barrier | EPG/EPBG-0.4 | 0.4 | 100 | 115 |
| EcoPly & EP Barrier | EPG/EPBG-1.2 | 1.2 | 150 | 150 |
| EcoPly & EP Barrier | EP2/EPB2-0.6 | 0.6 | 105 | 115 |
| | | | | |
| | | | | |

Bcon18/0095 - WDC Approved Plans - 30/04/2018

MiTek New Zealand Limited

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**Fax: 03 348 0314**

www.miteknz.co.nz



# PRODUCER STATEMENT for MiTek 20/20® TRUSS DESIGN - Version 4.7

ISSUED BY: **MiTek New Zealand Limited**

TO: **Capital Precut Solutions**

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 **172969** 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 Clauses B1 and B2 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
vi) Timber is graded to the requirements of NZS 3603:1993
vii) Minimum timber treatment for these MiTek® trusses shall be in accordance with B2/AS1 Table 1A and the relevant sections of NZS 3602:2003

**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: Thursday, 14 December 2017**

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

Capital Precut Solutions
Bcon18/0095 - WDC Approved Plans - 30/04/2018

Job: 172969

Description: 172969

Building Consent No.:

Client: Burtons Wanganui
Phone:

Site: Grape Stone & Kontadis
Blueskin Road
Wanganui

Phone:



# MITEK FABRICATOR DESIGN STATEMENT

This statement is issued by MiTek accredited fabricator **Capital Precut Solutions**, being licensed to use the MiTek 20/20® software, to the client listed above and may be used by the Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

## MiTek 20/20® TRUSS DESIGN DATA

The MiTek 20/20® computer design for this job is based on the following design parameters entered into the program. The Fabricator shall ensure that these job details are current and relevant to the project for the design of the MiTek ® trusses.

**Job Details**

Importance Level : 2

Design Working Life : 50 years

**Roof Truss**

| | | | | | |
|---|---|---|---|---|---|
| Timber Group: | TRUSS | Pitch: | 30.000 deg | Nominal Overhang: | 450 mm |
| **Roof** | | **Ceiling** | | **Wind** | |
| Material: | Light | Material: | Gib Board 13mm | Area: | High (44.0 m/s ) |
| Dead Load: | 0.250 kPa | Dead Load: | 0.260 kPa | Pressure Coeff: | Cpe = varies; Cpi = -0.30, 0.20 |
| Restraints: | 900 mm centres | Restraints: | 600 mm centres | | |
| Live Load: | Qur = 0.250 kPa<br>Qc = 1.100 kN | Live Load: | Qc = 1.400 kN | | |

The minimum timber treatment for these MiTek® trusses shall be in accordance with B2/AS1 Table 1A and the relevant sections of NZS 3602:2003. The timber for these MiTek® trusses shall be graded to the requirements of NZS 3603:1993. Proprietary fixings and timber connectors shall be selected in accordance with NZS3604:2011 Section 4 - Durability.

## MiTek® Truss List

Legend: * = detail only, ? = input only, ~~Txx~~ = failed design, Ø = non certified, Unmarked trusses = designed successfully, LB = lateral bracing required
GB = gable brace required

| Truss | Qty | Span (mm) | Pitch (deg) | Spacing (mm) | Truss | Qty | Span (mm) | Pitch (deg) | Spacing (mm) | Truss | Qty | Span (mm) | Pitch (deg) | Spacing (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ET01 | 1 | 7207 | 30.000 | 578 GB | J01D | 1 | 2527 | 30.000 | 900 | T21 | 1 | 4628 | 30.000 | 707 |
| J06A | 1 | 2827 | 30.000 | 900 | J01E | 1 | 2527 | 30.000 | 900 | T24 | 2 | 5560 | 30.000 | 578 |
| PS01 | 1 | 2827 | 30.000 | 900 | J01F | 2 | 3427 | 30.000 | 900 | V01 | 2 | 1532 | 30.000 | 900 |
| S01 | 1 | 9300 | 30.000 | 900 | J02 | 2 | 1627 | 30.000 | 900 | V02 | 2 | 2068 | 30.000 | 900 |
| S02 | 1 | 9300 | 30.000 | 900 | J02A | 2 | 1627 | 30.000 | 900 | V03 | 1 | 1310 | 30.000 | 900 |
| S03 | 4 | 9300 | 30.000 | 797 | J03 | 1 | 3578 | 30.000 | 900 | V04 | 1 | 1918 | 30.000 | 900 |
| SG01 | 1D | 9300 | 30.000 | 900 | J03A | 1 | 2677 | 30.000 | 900 | V05 | 1 | 1483 | 30.000 | 900 |
| T01 | 1 | 8700 | 30.000 | 900 | J03B | 1 | 2677 | 30.000 | 900 | V06 | 1 | 2091 | 30.000 | 900 |
| T03 | 1 | 5400 | 30.000 | 900 | J03C | 1 | 2677 | 30.000 | 900 | V07 | 1 | 1654 | 30.000 | 900 |
| T03B | 1 | 5400 | 30.000 | 900 | J04 | 2 | 1777 | 30.000 | 900 | V08 | 1 | 1413 | 30.000 | 900 |
| T04 | 1 | 7200 | 30.000 | 578 | J04A | 2 | 1777 | 30.000 | 900 | *HB01 | 2 | 6756 | 22.208 | 900 |
| T07 | 1 | 5400 | 30.000 | 725 | J05 | 1 | 1927 | 30.000 | 900 | *HB02 | 1 | 1244 | 22.208 | 900 |
| T10 | 2 | 8700 | 30.000 | 818 | J05A | 1 | 1927 | 30.000 | 900 | *HB03 | 1 | 1489 | 22.208 | 900 |
| T10A | 1 | 8700 | 30.000 | 818 | J06 | 1 | 2827 | 30.000 | 900 | *HB04 | 2 | 4423 | 22.208 | 900 |
| T10B | 3 | 8700 | 30.000 | 818 | J07 | 1 | 2827 | 30.000 | 900 | *HB05 | 2 | 2437 | 22.207 | 900 |
| T11 | 1 | 8700 | 30.000 | 900 | J07A | 1 | 2827 | 30.000 | 900 | *HB06 | 1 | 7181 | 22.208 | 900 |
| T14 | 1 | 5400 | 30.000 | 868 | PS01A | 1 | 2827 | 30.000 | 900 | *HB07 | 1 | 3482 | 22.208 | 900 |
| T14A | 1 | 5400 | 30.000 | 868 | PS01B | 1 | 2827 | 30.000 | 900 | *HB08 | 1 | 3228 | 22.208 | 900 |
| T17 | 1 | 6955 | 30.000 | 900 LB | PS01C | 1 | 2827 | 30.000 | 900 | *HB09 | 1 | 3498 | 22.208 | 900 |
| T18 | 1 | 9200 | 30.000 | 797 | S04 | 2 | 4628 | 30.000 | 707 | *R01 | 2 | 1168 | 30.000 | 900 |
| T22 | 1 | 662 | -30.000 | 900 | S05 | 2 | 5424 | 30.000 | 733 | *R02 | 10 | 741 | 30.000 | 900 |
| T23 | 1 | 5560 | 30.000 | 578 | S06 | 3 | 5560 | 30.000 | 811 | *R03 | 2 | 1318 | 30.000 | 900 |
| T25 | 1 | 5424 | 30.000 | 733 | T02 | 1 | 1977 | 30.000 | 900 | *R04 | 10 | 1133 | 0.000 | 851 |
| T26 | 1 | 8700 | 30.000 | 818 | T03A | 1 | 5400 | 30.000 | 900 | *R05 | 1 | 1468 | 30.000 | 900 |
| TG01 | 1 | 8700 | 30.000 | 900 | T05 | 1 | 7200 | 30.000 | 578 | *R06 | 1 | 6460 | 30.000 | 900 |
| TG02 | 1 | 6955 | 30.000 | 900 | T06 | 3 | 5400 | 30.000 | 725 | *R07 | 8 | 1321 | 0.000 | 862 |
| TG03 | 1 | 3492 | 30.000 | 900 | T08 | 1 | 3492 | 30.000 | 900 | *R08 | 1 | 4900 | 30.000 | 900 |
| TR01 | 1 | 8700 | 30.000 | 900 | T09 | 2 | 1977 | 30.000 | 608 | *R09 | 8 | 1283 | 0.000 | 602 |
| TR03 | 1 | 6955 | 30.000 | 900 | T12 | 1 | 5400 | 30.000 | 761 | *R10 | 1 | 6023 | 30.000 | 900 |
| ET02 | 1 | 5560 | 30.000 | 851 | T12A | 1 | 5400 | 30.000 | 761 | *R11 | 3 | 1412 | 0.000 | 828 |
| ET03 | 1 | 3560 | 30.000 | 900 | T13 | 5 | 5400 | 30.000 | 761 | *R12 | 2 | 1412 | 0.000 | 850 |
| ET04 | 1 | 4007 | 30.000 | 728 | T15 | 2 | 5400 | 30.000 | 868 | *R13 | 1 | 705 | 0.000 | 850 |
| ET05 | 1 | 4631 | 30.000 | 707 | T15A | 2 | 5400 | 30.000 | 868 | *R14 | 2 | 1412 | 0.000 | 900 |
| J01 | 1 | 2527 | 30.000 | 900 | T16 | 1 | 3492 | 30.000 | 536 | *R15 | 1 | 914 | 30.000 | 900 |
| J01A | 2 | 2527 | 30.000 | 900 | T19 | 2 | 3727 | 30.000 | 718 | *R16 | 1 | 8100 | 30.000 | 900 |
| J01B | 2 | 2527 | 30.000 | 900 | T19A | 1 | 3727 | 30.000 | 718 | | | | | |
| J01C | 1 | 2527 | 30.000 | 900 | T20 | 2 | 4000 | 30.000 | 728 | | | | | |

**Total quantity : 181**

**The computer design input has been carried out by:**

Signed: .....

Date: ...Thursday, 14 December 2017....

Name of Detailer: Chris Pocock

Qualifications and Title:

On behalf of: Capital Precut Solutions

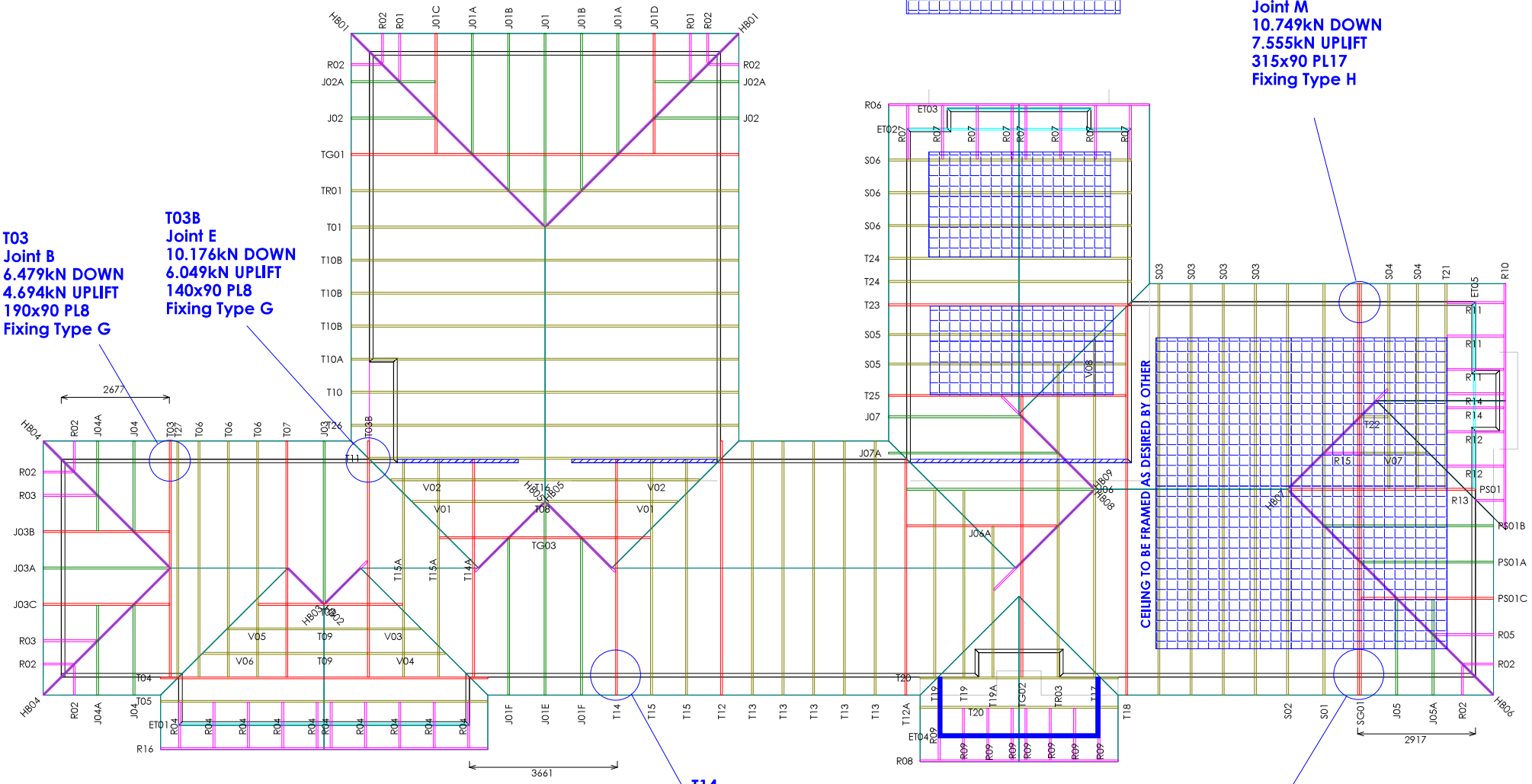
INTERNAL LOAD BEARING WALL UNDER 10kN

CEILING RAISED BY 100mm

SG01
Joint M
10.749kN DOWN
7.555kN UPLIFT
315x90 PL17
Fixing Type H

T03
Joint B
6.479kN DOWN
4.694kN UPLIFT
190x90 PL8
Fixing Type G

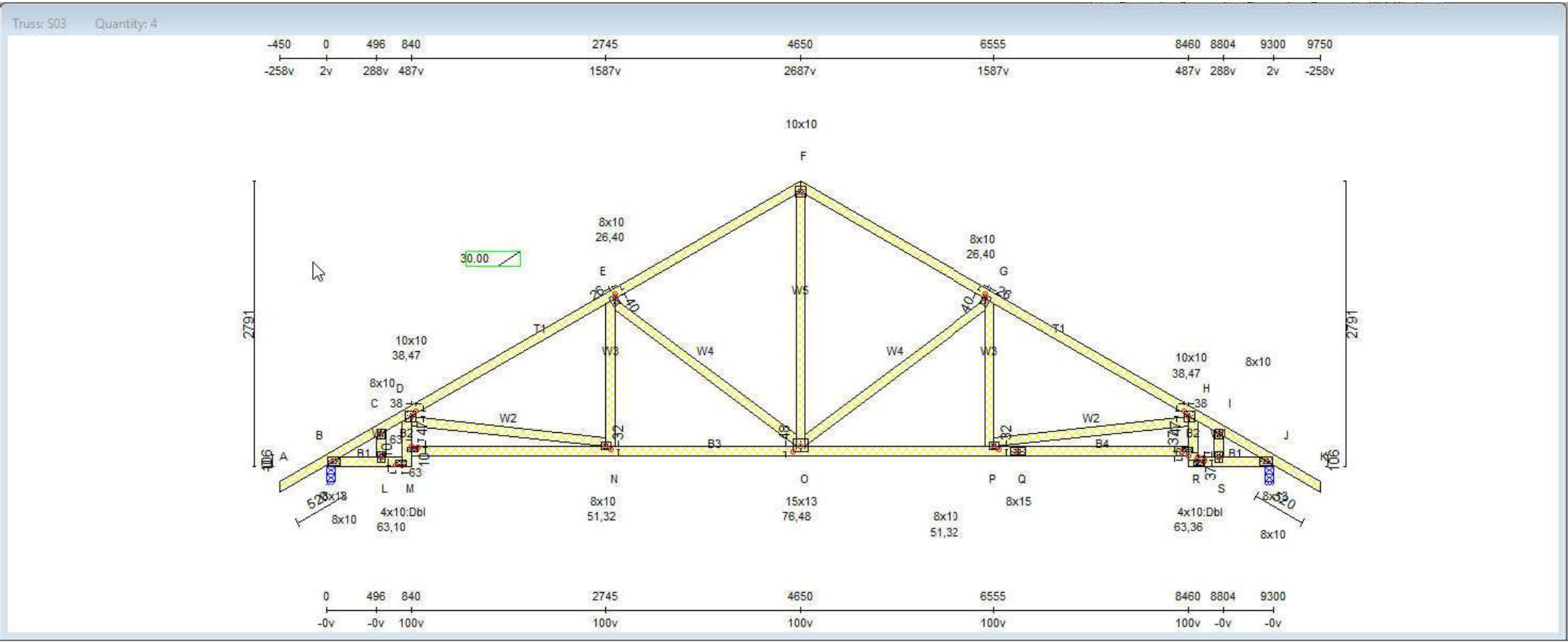
T03B
Joint E
10.176kN DOWN
6.049kN UPLIFT
140x90 PL8
Fixing Type G




T14
Joint B
3.448kN DOWN
2.026kN UPLIFT
240x90 PL8
Fixing Type G

SG01 ( A )
Joint B
12.922kN DOWN
9.661kN UPLIFT
240x90 PL8
Fixing Type H

| | | | |
|---|---|---|---|
| Capital Precut Solutions Ltd.<br>12 Papawai Place,<br>Masterton<br>(06) 370 1390 | Site Address :<br>Shane Stone - Koubardis<br>Blueskin Road<br>Wanganui | Sheet Title :<br>For Building Consent<br>Buildable Truss Layout<br>Date : 14 Dec 2017 Drawn : Chris Pocock<br>Scale : NTS System : MiTek 20/20 | Job Details:<br>Roof Pitch : 30.00deg<br>Roof Material : Light<br>Ceiling Material : Gib Board 13mm<br>Wind Zone : High<br>Roof Snow Load : 0.000kPa<br>Truss Centres : 900mm<br>Roof Live Load : 0.250kPa<br>Floor Live Load :<br>Wind Speed : 44m/s<br>Overhang : 450mm | PrimeCad v4.7.105<br>Job Title : 172969<br>Sheet : 1<br>Revision Number : |


Truss: S03
Quantity: 4
-450 0 496 840 2745 4650 6555 8460 8804 9300 9750
-258v 2v 288v 487v 1587v 2687v 1587v 487v 288v 2v -258v
10x10
F
8x10
26,40
8x10
26,40
30.00
E
G
W5
T1
T1
W3
W4
W4
W3
10x10
38,47
10x10
38,47
8x10
8x10
D
H
C
I
W2
W2
B
J
B3
B4
A
R1
R1
K
2791
2791
106
106
L
M
N
O
P
Q
R
S
8x10
4x10:Dbl
8x10
15x13
8x15
8x10
4x10:Dbl
8x10
63,10
51,32
76,48
51,32
63,36
0 496 840 2745 4650 6555 8460 8804 9300
-0v -0v 100v 100v 100v 100v 100v -0v -0v

Capital Precut Solutions
Bcon18/0095 - WDC Approved Plans - 30/04/2018

Job: 172969

Description: 172969

Building Consent No.:

Client: Burnards Wanganui
Phone:

Site: Graham Stone & Konstadis
Blueskin Road
Wanganui

Phone:



# TRUSS FIXING SELECTION REPORT - Characteristic Loads

Fixings are selected from the LUMBERLOK Brochure 08/2014 (Timber Connectors Characteristic Loadings Data)

**MiTek® Truss List**

Legend: * = detail only, ? = input only, ~~Txx~~ = failed design, Ø = non certified, Unmarked trusses = designed successfully

| Truss | Qty | Span (mm) | Joint | Down (kN) | Uplift (kN) | Bearing | Fixing Qty | Fixing Selected |
|---|---|---|---|---|---|---|---|---|
| ET01 | 1 | 7207 | A | | | Wide | | No fixing selected |
| J06A | 1 | 2827 | A | 4.614 | 2.122 | Butt | 1 | JH 47x90 |
| | | | D | 0.396 | 0.405 | Cross | 1 | Pair of Wire Dog Staples |
| | | | C | 4.860 | 4.314 | Cross | 1 | CT200 pair |
| PS01 | 1 | 2827 | E | 5.643 | 4.463 | Cross | 1 | CT200 pair |
| | | | A | 4.782 | 1.892 | Cross | 1 | Pair of Wire Dog Staples |
| | | | G | 0.266 | 0.410 | Butt | 1 | Pair of 3.15d Nails |
| | | | F | 0.958 | 1.349 | Cross | 1 | Pair of Wire Dog Staples |
| S01 | 1 | 9300 | B | 6.693 | 4.154 | Cross | 1 | CT200 pair |
| | | | L | 6.693 | 4.154 | Cross | 1 | CT200 pair |
| S02 | 1 | 9300 | B | 6.793 | 4.114 | Cross | 1 | CT200 pair |
| | | | J | 6.793 | 4.114 | Cross | 1 | CT200 pair |
| S03 | 4 | 9300 | B | 6.011 | 3.643 | Cross | 4 | CT200 pair |
| | | | J | 6.011 | 3.643 | Cross | 4 | CT200 pair |
| SG01 | 1D | 9300 | B | 12.922 | 9.661 | Cross | 1 | CT200 pair |
| | | | M | 10.749 | 7.555 | Cross | 1 | CT200 pair |
| T01 | 1 | 8700 | B | 6.370 | 3.852 | Cross | 1 | CT200 pair |
| | | | H | 6.370 | 3.852 | Cross | 1 | CT200 pair |
| T03 | 1 | 5400 | B | 6.479 | 4.694 | Cross | 1 | CT200 pair |
| | | | F | 6.123 | 4.673 | Cross | 1 | CT200 pair |
| T03B | 1 | 5400 | A | 7.617 | 2.858 | Butt | 1 | Pair of MultiGrips |
| | | | E | 10.176 | 6.049 | Cross | 1 | CT200 pair |
| T04 | 1 | 7200 | B | 17.179 | 10.896 | Cross | 1 | 16kN Truss to Top Plate |
| | | | H | 16.944 | 9.789 | Cross | 1 | CT200 pair |
| T07 | 1 | 5400 | B | 4.333 | 3.064 | Cross | 1 | Pair of Wire Dog Staples |
| | | | F | 5.703 | 5.031 | Butt | 1 | Pair of MultiGrips |
| T10 | 2 | 8700 | J | 6.243 | 3.119 | Cross | 2 | Pair of Wire Dog Staples |
| | | | H | 5.349 | 3.259 | Cross | 2 | CT200 pair |
| T10A | 1 | 8700 | B | 4.991 | 3.294 | Cross | 1 | CT200 pair |
| | | | H | 5.727 | 3.485 | Cross | 1 | CT200 pair |
| | | | J | 0.864 | 0.224 | Cross | 1 | Pair of Wire Dog Staples |
| T10B | 3 | 8700 | B | 5.791 | 3.502 | Cross | 3 | CT200 pair |
| | | | H | 5.791 | 3.502 | Cross | 3 | CT200 pair |
| T11 | 1 | 8700 | A | 5.158 | 3.607 | Butt | 1 | JH 47x90 |
| | | | G | 5.971 | 3.818 | Cross | 1 | CT200 pair |
| | | | H | 0.954 | 0.248 | Cross | 1 | Pair of Wire Dog Staples |
| T14 | 1 | 5400 | B | 6.453 | 3.420 | Cross | 1 | CT200 pair |
| | | | F | 10.576 | 4.585 | Cross | 1 | CT200 pair |
| T14A | 1 | 5400 | A | 5.538 | 3.814 | Cross | 1 | CT200 pair |
| | | | E | 8.694 | 6.355 | Cross | 1 | CT200 pair |
| T17 | 1 | 6955 | G | 3.041 | 2.173 | Butt | 1 | JH 47x90 |
| | | | F | 4.237 | 2.596 | Cross | 1 | Pair of Wire Dog Staples |
| | | | I | 2.575 | 1.365 | Cross | 1 | Pair of Wire Dog Staples |
| T18 | 1 | 9200 | A | 8.719 | 5.632 | Butt | 1 | Pair of MultiGrips |
| | | | G | 2.984 | 1.212 | Cross | 1 | Pair of Wire Dog Staples |
| | | | K | 15.550 | 10.788 | Cross | 1 | 16kN Truss to Top Plate |
| T22 | 1 | 662 | C | 4.034 | 3.253 | Butt | 1 | JH 47x90 |
| | | | D | 4.096 | 2.414 | Butt | 1 | JH 47x90 |
| T23 | 1 | 5560 | B | 3.012 | 1.695 | Cross | 1 | Pair of Wire Dog Staples |
| | | | F | 10.687 | 6.858 | Cross | 1 | CT200 pair |
| T25 | 1 | 5424 | B | 7.391 | 5.277 | Cross | 1 | CT200 pair |
| | | | F | 10.195 | 7.461 | Butt | 1 | Pair of MultiGrips |
| T26 | 1 | 8700 | J | 6.243 | 3.119 | Cross | 1 | Pair of Wire Dog Staples |
| | | | H | 5.349 | 3.259 | Cross | 1 | CT200 pair |
| TG01 | 1 | 8700 | B | 11.210 | 8.759 | Cross | 1 | CT200 pair |
| | | | G | 11.210 | 8.759 | Cross | 1 | CT200 pair |
| TG02 | 1 | 6955 | I | 5.994 | 5.331 | Butt | 1 | Pair of MultiGrips |
| | | | R | 7.182 | 4.337 | Cross | 1 | CT200 pair |
| | | | L | 5.391 | 4.114 | Cross | 1 | CT200 pair |
| TG03 | 1 | 3492 | H | 4.583 | 3.541 | Butt | 1 | JH 47x90 |
| | | | L | 5.536 | 2.469 | Butt | 1 | JH 47x90 |
| | | | A | 0.285 | 0.451 | Cross | 1 | Pair of Wire Dog Staples |
| | | | F | 0.288 | 0.446 | Cross | 1 | Pair of Wire Dog Staples |
| TR01 | 1 | 8700 | B | 6.369 | 3.852 | Cross | 1 | CT200 pair |
| | | | G | 6.369 | 3.852 | Cross | 1 | CT200 pair |
| TR03 | 1 | 6955 | H | 3.989 | 2.341 | Butt | 1 | JH 47x90 |
| | | | O | 4.822 | 2.298 | Cross | 1 | Pair of Wire Dog Staples |
| | | | J | 1.441 | 0.923 | Cross | 1 | Pair of Wire Dog Staples |
| ET02 | 1 | 5560 | F | 1.966 | 1.226 | Cross | 1 | Pair of Wire Dog Staples |
| | | | L | 1.966 | 1.226 | Cross | 1 | Pair of Wire Dog Staples |
| | | | G | 1.543 | 0.326 | Cross | 1 | Pair of Wire Dog Staples |
| | | | K | 1.543 | 0.326 | Cross | 1 | Pair of Wire Dog Staples |
| ET03 | 1 | 3560 | H | | | Wide | | No fixing selected |
| ET04 | 1 | 4007 | A | | | Wide | | No fixing selected |
| ET05 | 1 | 4631 | A | | | Wide | | No fixing selected |

Capital Precut Solutions

Bcon18/0095 - WDC Approved Plans - 30/04/2018

Job: 172969

Client: Burnards Wanganui
Phone:

Site: Grape Grove & Kowhai
Blueskin Road
Wanganui

Description: 172969
Building Consent No.:

Phone:



| Truss | Qty | Span (mm) | Joint | Down (kN) | Uplift (kN) | Bearing | Fixing Qty | Fixing Selected |
|---|---|---|---|---|---|---|---|---|
| J01 | 1 | 2527 | B | 2.605 | 0.000 | Cross | 1 | Pair of Wire Dog Staples |
| | | | F | 0.262 | 0.407 | Butt | 1 | Pair of 3.15d Nails |
| | | | D | 2.075 | 2.231 | Cross | 1 | Pair of Wire Dog Staples |
| | | | E | 0.958 | 1.362 | Cross | 1 | Pair of Wire Dog Staples |
| J01A | 2 | 2527 | B | 2.656 | 0.640 | Cross | 2 | Pair of Wire Dog Staples |
| | | | F | 1.788 | 1.054 | Butt | 2 | JH 47x90 |
| | | | D | 0.369 | 0.549 | Butt | 2 | Pair of 3.15d Nails |
| J01B | 2 | 2527 | B | 2.633 | 0.252 | Cross | 2 | Pair of Wire Dog Staples |
| | | | E | 0.357 | 0.415 | Butt | 2 | Pair of 3.15d Nails |
| | | | D | 2.247 | 2.345 | Cross | 2 | Pair of Wire Dog Staples |
| J01C | 1 | 2527 | B | 2.899 | 1.426 | Cross | 1 | Pair of Wire Dog Staples |
| | | | F | 1.816 | 1.432 | Butt | 1 | JH 47x90 |
| J01D | 1 | 2527 | B | 2.899 | 1.426 | Cross | 1 | Pair of Wire Dog Staples |
| | | | F | 1.816 | 1.432 | Butt | 1 | JH 47x90 |
| J01E | 1 | 2527 | B | 2.605 | 0.000 | Cross | 1 | Pair of Wire Dog Staples |
| | | | H | 2.068 | 2.222 | Butt | 1 | JH 47x90 |
| | | | F | 0.260 | 0.404 | Butt | 1 | Pair of 3.15d Nails |
| | | | E | 0.959 | 1.372 | Cross | 1 | Pair of Wire Dog Staples |
| J01F | 2 | 3427 | B | 2.963 | 0.859 | Cross | 2 | Pair of Wire Dog Staples |
| | | | H | 2.165 | 1.602 | Butt | 2 | JH 47x90 |
| | | | E | 0.372 | 0.576 | Butt | 2 | Pair of 3.15d Nails |
| J02 | 2 | 1627 | B | 2.379 | 0.423 | Cross | 2 | Pair of Wire Dog Staples |
| | | | E | 1.110 | 0.464 | Butt | 2 | Pair of 3.15d Nails |
| | | | D | 0.370 | 0.564 | Butt | 2 | Pair of 3.15d Nails |
| J02A | 2 | 1627 | B | 2.399 | 0.664 | Cross | 2 | Pair of Wire Dog Staples |
| | | | D | 0.889 | 0.388 | Butt | 2 | Pair of 3.15d Nails |
| J03 | 1 | 3578 | B | 3.016 | 0.896 | Cross | 1 | Pair of Wire Dog Staples |
| | | | H | 2.259 | 1.673 | Butt | 1 | JH 47x90 |
| | | | E | 0.388 | 0.602 | Butt | 1 | Pair of 3.15d Nails |
| J03A | 1 | 2677 | B | 2.706 | 0.677 | Cross | 1 | Pair of Wire Dog Staples |
| | | | F | 1.832 | 1.115 | Butt | 1 | JH 47x90 |
| | | | D | 0.390 | 0.585 | Butt | 1 | Pair of 3.15d Nails |
| J03B | 1 | 2677 | B | 2.994 | 1.538 | Cross | 1 | Pair of Wire Dog Staples |
| | | | F | 2.058 | 1.651 | Butt | 1 | JH 47x90 |
| J03C | 1 | 2677 | B | 2.994 | 1.538 | Cross | 1 | Pair of Wire Dog Staples |
| | | | F | 2.058 | 1.651 | Butt | 1 | JH 47x90 |
| J04 | 2 | 1777 | B | 2.421 | 0.459 | Cross | 2 | Pair of Wire Dog Staples |
| | | | E | 1.265 | 0.570 | Butt | 2 | JH 47x90 |
| | | | D | 0.367 | 0.554 | Butt | 2 | Pair of 3.15d Nails |
| J04A | 2 | 1777 | B | 2.439 | 0.694 | Cross | 2 | Pair of Wire Dog Staples |
| | | | D | 1.029 | 0.491 | Butt | 2 | Pair of 3.15d Nails |
| J05 | 1 | 1927 | H | 1.267 | 0.616 | Butt | 1 | JH 47x90 |
| | | | E | 0.387 | 0.598 | Butt | 1 | Pair of 3.15d Nails |
| | | | B | 2.464 | 0.491 | Cross | 1 | Pair of Wire Dog Staples |
| J05A | 1 | 1927 | B | 2.652 | 0.892 | Cross | 1 | Pair of Wire Dog Staples |
| | | | F | 2.421 | 1.344 | Butt | 1 | JH 47x90 |
| J06 | 1 | 2827 | A | 2.141 | 0.000 | Butt | 1 | JH 47x90 |
| | | | E | 0.264 | 0.412 | Butt | 1 | Pair of 3.15d Nails |
| | | | C | 2.316 | 2.446 | Cross | 1 | Pair of Wire Dog Staples |
| | | | D | 0.973 | 1.339 | Cross | 1 | Pair of Wire Dog Staples |
| J07 | 1 | 2827 | B | 2.757 | 0.713 | Cross | 1 | Pair of Wire Dog Staples |
| | | | F | 1.875 | 1.175 | Butt | 1 | JH 47x90 |
| | | | D | 0.412 | 0.621 | Butt | 1 | Pair of 3.15d Nails |
| J07A | 1 | 2827 | B | 2.733 | 0.323 | Cross | 1 | Pair of Wire Dog Staples |
| | | | E | 0.374 | 0.393 | Butt | 1 | Pair of 3.15d Nails |
| | | | D | 2.394 | 2.560 | Cross | 1 | Pair of Wire Dog Staples |
| PS01A | 1 | 2827 | J | 2.109 | 1.343 | Butt | 1 | JH 47x90 |
| | | | F | 0.286 | 0.447 | Butt | 1 | Pair of 3.15d Nails |
| | | | B | 2.755 | 0.709 | Cross | 1 | Pair of Wire Dog Staples |
| PS01B | 1 | 2827 | F | 2.527 | 2.512 | Cross | 1 | Pair of Wire Dog Staples |
| | | | G | 0.334 | 0.429 | Butt | 1 | Pair of 3.15d Nails |
| | | | B | 2.746 | 0.333 | Cross | 1 | Pair of Wire Dog Staples |
| PS01C | 1 | 2827 | J | 2.535 | 2.152 | Butt | 1 | JH 47x90 |
| | | | B | 3.323 | 2.111 | Cross | 1 | Pair of Wire Dog Staples |
| S04 | 2 | 4628 | A | 2.526 | 1.591 | Butt | 2 | JH 47x90 |
| | | | G | 2.983 | 1.617 | Cross | 2 | Pair of Wire Dog Staples |
| S05 | 2 | 5424 | J | 3.086 | 1.936 | Butt | 2 | JH 47x90 |
| | | | B | 3.352 | 1.962 | Cross | 2 | Pair of Wire Dog Staples |
| S06 | 3 | 5560 | J | 3.472 | 2.206 | Cross | 3 | Pair of Wire Dog Staples |
| | | | B | 3.792 | 2.225 | Cross | 3 | Pair of Wire Dog Staples |
| T02 | 1 | 1977 | F | 3.342 | 2.902 | Butt | 1 | JH 47x90 |
| | | | H | 3.519 | 0.747 | Butt | 1 | JH 47x90 |
| | | | E | 0.235 | 0.365 | Cross | 1 | Pair of Wire Dog Staples |
| T03A | 1 | 5400 | B | 4.092 | 2.399 | Cross | 1 | Pair of Wire Dog Staples |
| | | | F | 3.736 | 2.379 | Cross | 1 | Pair of Wire Dog Staples |
| T05 | 1 | 7200 | B | 3.419 | 2.047 | Cross | 1 | Pair of Wire Dog Staples |
| | | | F | 3.419 | 2.047 | Cross | 1 | Pair of Wire Dog Staples |
| T06 | 3 | 5400 | B | 3.294 | 1.932 | Cross | 3 | Pair of Wire Dog Staples |
| | | | F | 3.008 | 1.915 | Butt | 3 | JH 47x90 |
| T08 | 1 | 3492 | F | 2.425 | 1.925 | Butt | 1 | JH 47x90 |
| | | | I | 3.382 | 0.772 | Butt | 1 | JH 47x90 |
| T09 | 2 | 1977 | D | 1.279 | 1.066 | Butt | 2 | JH 47x90 |
| | | | E | 1.543 | 0.000 | Butt | 2 | JH 47x90 |
| T12 | 1 | 5400 | B | 3.448 | 2.026 | Cross | 1 | Pair of Wire Dog Staples |
| | | | F | 3.448 | 2.026 | Cross | 1 | Pair of Wire Dog Staples |

Capital Precut Solutions

Bcon18/0095 - WDC Approved Plans - 30/04/2018

Job: 172969
Client: Burnards Wanganui
Site: Grape Grove & Kowhai dis
Blueskin Road
Wanganui
Phone:

Description: 172969
Building Consent No.:
Phone:



| Truss | Qty | Span (mm) | Joint | Down (kN) | Uplift (kN) | Bearing | Fixing Qty | Fixing Selected |
|---|---|---|---|---|---|---|---|---|
| T12A | 1 | 5400 | B | 4.805 | 2.551 | Cross | 1 | Pair of Wire Dog Staples |
| | | | F | 6.837 | 3.119 | Cross | 1 | Pair of Wire Dog Staples |
| T13 | 5 | 5400 | B | 3.448 | 2.026 | Cross | 5 | Pair of Wire Dog Staples |
| | | | F | 3.448 | 2.026 | Cross | 5 | Pair of Wire Dog Staples |
| T15 | 2 | 5400 | B | 3.947 | 2.314 | Cross | 2 | Pair of Wire Dog Staples |
| | | | F | 3.603 | 2.294 | Cross | 2 | Pair of Wire Dog Staples |
| T15A | 2 | 5400 | A | 3.617 | 2.297 | Butt | 2 | JH 47x90 |
| | | | E | 3.617 | 2.297 | Cross | 2 | Pair of Wire Dog Staples |
| T16 | 1 | 3492 | F | 1.493 | 1.147 | Butt | 1 | JH 47x90 |
| | | | I | 2.015 | 0.460 | Butt | 1 | JH 47x90 |
| T19 | 2 | 3727 | A | 2.046 | 1.283 | Cross | 2 | Pair of Wire Dog Staples |
| | | | H | 2.416 | 1.646 | Butt | 2 | JH 47x90 |
| | | | E | 0.194 | 0.302 | Cross | 2 | Pair of Wire Dog Staples |
| T19A | 1 | 3727 | H | 1.850 | 1.249 | Butt | 1 | JH 47x90 |
| | | | E | 2.475 | 0.827 | Cross | 1 | Pair of Wire Dog Staples |
| T20 | 2 | 4000 | B | 2.837 | 1.438 | Cross | 2 | Pair of Wire Dog Staples |
| | | | F | 2.837 | 1.438 | Cross | 2 | Pair of Wire Dog Staples |
| T21 | 1 | 4628 | H | 2.511 | 1.603 | Butt | 1 | JH 47x90 |
| | | | F | 2.981 | 1.614 | Cross | 1 | Pair of Wire Dog Staples |
| T24 | 2 | 5560 | B | 2.921 | 1.585 | Cross | 2 | Pair of Wire Dog Staples |
| | | | F | 2.469 | 1.572 | Cross | 2 | Pair of Wire Dog Staples |
| V01 | 2 | 1532 | A | | | Wide | | No fixing selected |
| V02 | 2 | 2068 | A | | | Wide | | No fixing selected |
| V03 | 1 | 1310 | A | | | Wide | | No fixing selected |
| V04 | 1 | 1918 | A | | | Wide | | No fixing selected |
| V05 | 1 | 1483 | A | | | Wide | | No fixing selected |
| V06 | 1 | 2091 | A | | | Wide | | No fixing selected |
| V07 | 1 | 1654 | A | | | Wide | | No fixing selected |
| V08 | 1 | 1413 | A | | | Wide | | No fixing selected |
| *HB01 | 2 | 6756 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *HB02 | 1 | 1244 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *HB03 | 1 | 1489 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *HB04 | 2 | 4423 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *HB05 | 2 | 2437 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *HB06 | 1 | 7181 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *HB07 | 1 | 3482 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *HB08 | 1 | 3228 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *HB09 | 1 | 3498 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *R01 | 2 | 1168 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *R02 | 10 | 741 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *R03 | 2 | 1318 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *R04 | 10 | 1133 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *R05 | 1 | 1468 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *R06 | 1 | 6460 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *R07 | 8 | 1321 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *R08 | 1 | 4900 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *R09 | 8 | 1283 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *R10 | 1 | 6023 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *R11 | 3 | 1412 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *R12 | 2 | 1412 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *R13 | 1 | 705 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *R14 | 2 | 1412 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *R15 | 1 | 914 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |
| *R16 | 1 | 8100 | | | | | | Refer NZS3604:2011 Tables 10.1 & 10.14 |

## Fixing List

| Qty | Selected Fixing |
|---|---|
| 50 | JH 47x90 |
| 111 | Pair of Wire Dog Staples |
| 46 | CT200 pair |
| 27 | Pair of 3.15d Nails |
| 5 | Pair of MultiGrips |
| 2 | 16kN Truss to Top Plate |
| 14 | No fixing selected |

**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 08/2014 (Timber Connectors Characteristic Loadings Data) with down and uplift characteristic loads of at least the values shown for each joint.

Capital Precut Solutions

Bcon18/0095 - WDC Approved Plans - 30/04/2018

Job: 172969

Client: Burnards Wanganui
Phone:

Site: Grape Stone & Konstandis
Blueskin Road
Wanganui

Description: 172969
Building Consent No.:

Phone:



# TRUSS BEARINGS EXCEEDING 10KN REPORT - Ultimate Limit State Loads

**MiTek® Truss List**

Legend: ? = input only, ~~Txx~~ = failed design, Ø = non certified, Unmarked trusses = designed successfully

| Critical Trusses | Qty | Span (mm) | Joint | Bearing Reactions (kN) Down | Uplift |
|---|---|---|---|---|---|
| T04 | 1 | 7200 | B | 11.430 | 8.717 |
| | | | H | 11.151 | 7.832 |
| T18 | 1 | 9200 | K | 10.446 | 8.631 |

**Note:**

1) Select appropriate Slab Thickening Detail from the MiTek 'Internal Load Bearing On Concrete Floor Slabs' brochure.

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172969

14 December 2017

SN-R10086098

# PROLAM SUMMARY

Customer/Project: 172969
Physical Address: Blueskin Road Wanganui

Designer: Chris Pocock, Capital Precut Solutions
12 Papawai Place Masterton, Masterton 5810
E: chris@truss.co.nz P: 06 370 1390

## T03

### Prolam Lintels Supporting Girder/Setback Trusses

| | | | |
|---|---|---|---|
| Building Type | House | Roof Weight | Light with Ceiling |
| Timber | Pine, Machined | Roof Load | 0.40 kPa |
| Treatment | H1.2 | Live Load | 0.25 kPa uniform |
| Visual | No | | 1.10 kN concentrated |
| Exposed | No | Wind Zone | High (44.0 m/s) |
| Roof Pitch | 30 ° | Snow Region | No Snow |
| Eaves | 450 mm | | |

Position of Girder Truss on Lintel 2.08 m

| | |
|---|---|
| Setback | 2.68 m |
| Supported Truss Span | 5.40 m |
| Lintel Span | 2.70 m |

## Use Prolam PL8H1-200100 190 x 90mm PL8

| | |
|---|---|
| Capacity Ratio | 1.6 |
| Long Term Deflection | 1.4 mm |
| Max. Bearing Reaction | 8.1 kN |
| Load Combination | 1.2G + W_down |
| Minimum Bearing Length | 35 mm |
| Uplift Fixing Requirements | 5.75 kN Characteristic Load |

## PRODUCER STATEMENT

*Tasman Consulting Engineers Limited has been engaged by Prowood to provide design services for the development of the Prolam Online calculator.*

*The design has been carried out using sound and widely accepted engineering principles to the requirements of AS/NZS1170:2002, NZS3603:1993 and NZS3604:2011 using the timber properties for GL8, GL12 and GL17 glulam and LVL15.*

*I believe on reasonable grounds that the above design will meet the requirements of clauses B1/VM1 of the Building Code Documents.*

David King

**David King**

ME (civil, MIPENZ CPEng (no 145511) IntPE

For Tasman Consulting Engineers, PO Box 3631, Richmond, NELSON 7050

14 December 2017

Bcon18/0095 - WDC Approved Plans - 30/04/2018

172969

14 December 2017

SN-R10086101

# PROLAM SUMMARY

Customer/Project: 172969
Physical Address: Blueskin Road Wanganui

Designer: Chris Pocock, Capital Precut Solutions
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E: chris@truss.co.nz P: 06 370 1390

## T03B

### Prolam Lintels Supporting Girder/Setback Trusses

| | | | |
|---|---|---|---|
| Building Type | House | Roof Weight | Light with Ceiling |
| Timber | Pine, Machined | Roof Load | 0.40 kPa |
| Treatment | H1.2 | Live Load | 0.25 kPa uniform |
| Visual | No | | 1.10 kN concentrated |
| Exposed | No | Wind Zone | High (44.0 m/s) |
| Roof Pitch | 30 ° | Snow Region | No Snow |
| Eaves | 450 mm | | |

Position of Girder Truss on Lintel 0.40 m

| | |
|---|---|
| Setback | 2.07 m |
| Supported Truss Span | 5.40 m |
| Lintel Span | 0.90 m |

## Use Prolam PL8H1-150100 140 x 90mm PL8

| | |
|---|---|
| Capacity Ratio | 3.3 |
| Long Term Deflection | < 1.0 mm |
| Max. Bearing Reaction | 3.6 kN |
| Load Combination | 1.2G + W_down |
| Minimum Bearing Length | 35 mm |
| Uplift Fixing Requirements | 2.625 kN Characteristic Load |

## PRODUCER STATEMENT

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*I believe on reasonable grounds that the above design will meet the requirements of clauses B1/VM1 of the Building Code Documents.*

David King

**David King**

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14 December 2017

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prolam
Engineered Timber Innovations

172969

14 December 2017

SN-R10086104

# PROLAM SUMMARY

Customer/Project: 172969
Physical Address: Blueskin Road Wanganui

Designer: Chris Pocock, Capital Precut Solutions
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E: chris@truss.co.nz P: 06 370 1390

## T13

### Prolam Lintels Supporting Girder/Setback Trusses

| | | | |
|---|---|---|---|
| Building Type | House | Roof Weight | Light with Ceiling |
| Timber | Pine, Machined | Roof Load | 0.40 kPa |
| Treatment | H1.2 | Live Load | 0.25 kPa uniform |
| Visual | No | | 1.10 kN concentrated |
| Exposed | No | Wind Zone | High (44.0 m/s) |
| Roof Pitch | 30 ° | Snow Region | No Snow |
| Eaves | 450 mm | | |
| Position of Girder Truss on Lintel | 1.16 m | | |
| Setback | 3.66 m | | |
| Supported Truss Span | 5.40 m | | |
| Lintel Span | 2.70 m | | |

## Use Prolam PL8H1-250100 240 x 90mm PL8

| | |
|---|---|
| Capacity Ratio | 1.8 |
| Long Term Deflection | < 1.0 mm |
| Max. Bearing Reaction | 8.3 kN |
| Load Combination | 1.2G + W_down |
| Minimum Bearing Length | 35 mm |
| Uplift Fixing Requirements | 5.75 kN Characteristic Load |

## PRODUCER STATEMENT

TC E Ltd TASMAN CONSULTING ENGINEERS CIVIL & STRUCTURAL

*Tasman Consulting Engineers Limited has been engaged by Prowood to provide design services for the development of the Prolam Online calculator.*

*The design has been carried out using sound and widely accepted engineering principles to the requirements of AS/NZS1170:2002, NZS3603:1993 and NZS3604:2011 using the timber properties for GL8, GL12 and GL17 glulam and LVL15.*

*I believe on reasonable grounds that the above design will meet the requirements of clauses B1/VM1 of the Building Code Documents.*

David King

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14 December 2017

Bcon18/0095 - WDC Approved Plans - 30/04/2018

172969

14 December 2017

SN-R10086112

# PROLAM SUMMARY

Customer/Project: 172969
Physical Address: Blueskin Road Wanganui

Designer: Chris Pocock, Capital Precut Solutions
12 Papawai Place Masterton, Masterton 5810
E: chris@truss.co.nz P: 06 370 1390

## SG01 ( A )

### Prolam Lintels Supporting Girder/Setback Trusses

| | | | |
|---|---|---|---|
| Building Type | House | Roof Weight | Light with Ceiling |
| Timber | Pine, Machined | Roof Load | 0.40 kPa |
| Treatment | H1.2 | Live Load | 0.25 kPa uniform |
| Visual | No | | 1.10 kN concentrated |
| Exposed | No | Wind Zone | High (44.0 m/s) |
| Roof Pitch | 30 ° | Snow Region | No Snow |
| Eaves | 450 mm | | |

Position of Girder Truss on Lintel 1.00 m
Setback 2.92 m
Supported Truss Span 9.30 m
Lintel Span 2.40 m

## Use Prolam PL8H1-250100 240 x 90mm PL8

| | |
|---|---|
| Capacity Ratio | 1.5 |
| Long Term Deflection | < 1.0 mm |
| Max. Bearing Reaction | 11.7 kN |
| Load Combination | 1.2G + W_down |
| Minimum Bearing Length | 35 mm |
| Uplift Fixing Requirements | 8.375 kN Characteristic Load |

## PRODUCER STATEMENT

TASMAN CONSULTING ENGINEERS CIVIL & STRUCTURAL

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*The design has been carried out using sound and widely accepted engineering principles to the requirements of AS/NZS1170:2002, NZS3603:1993 and NZS3604:2011 using the timber properties for GL8, GL12 and GL17 glulam and LVL15.*

*I believe on reasonable grounds that the above design will meet the requirements of clauses B1/VM1 of the Building Code Documents.*

David King

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14 December 2017

Bcon18/0095 - WDC Approved Plans - 30/04/2018

172969

14 December 2017

SN-R10086115

# PROLAM SUMMARY

Customer/Project: 172969
Physical Address: Blueskin Road Wanganui

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E: chris@truss.co.nz P: 06 370 1390

## SG01

### Prolam Lintels Supporting Girder/Setback Trusses

| | | | |
|---|---|---|---|
| Building Type | House | Roof Weight | Light with Ceiling |
| Timber | Pine, Machined | Roof Load | 0.40 kPa |
| Treatment | H1.2 | Live Load | 0.25 kPa uniform |
| Visual | No | | 1.10 kN concentrated |
| Exposed | No | Wind Zone | High (44.0 m/s) |
| Roof Pitch | 30 ° | Snow Region | No Snow |
| Eaves | 450 mm | | |
| Position of Girder Truss on Lintel | 2.60 m | | |
| Setback | 2.92 m | | |
| Supported Truss Span | 9.30 m | | |
| Lintel Span | 4.50 m | | |

## Use Prolam PL17H1-350100 315 x 90mm PL17

| | |
|---|---|
| Capacity Ratio | 2.1 |
| Long Term Deflection | < 1.0 mm |
| Max. Bearing Reaction | 18.0 kN |
| Load Combination | 1.2G + W_down |
| Minimum Bearing Length | 40 mm |
| Uplift Fixing Requirements | 12.125 kN Characteristic Load |

## PRODUCER STATEMENT

TASMAN CONSULTING ENGINEERS CIVIL & STRUCTURAL

*Tasman Consulting Engineers Limited has been engaged by Prowood to provide design services for the development of the Prolam Online calculator.*

*The design has been carried out using sound and widely accepted engineering principles to the requirements of AS/NZS1170:2002, NZS3603:1993 and NZS3604:2011 using the timber properties for GL8, GL12 and GL17 glulam and LVL15.*

*I believe on reasonable grounds that the above design will meet the requirements of clauses B1/VM1 of the Building Code Documents.*

David King

**David King**

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For Tasman Consulting Engineers, PO Box 3631, Richmond, NELSON 7050

14 December 2017

Bcon18/0095 - WDC Approved Plans - 30/04/2018



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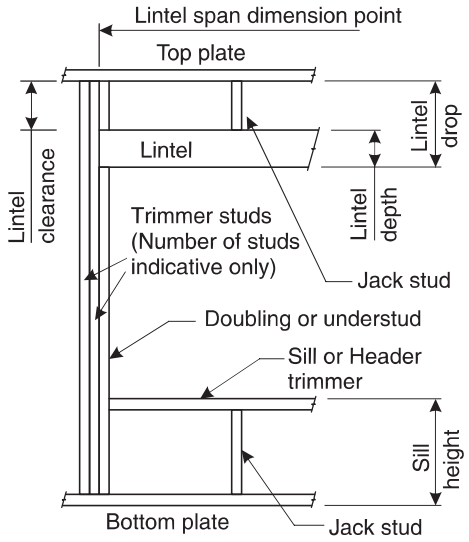
# LINTEL FIXING SCHEDULE

## 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 | | |
|---|---|---|---|---|---|---|
| | Wind Zone | | | Wind Zone | | |
| | L, M, H | VH | EH | L, M, H | VH | EH |
| 8.6 m² | G | G | H | G | G | H |
| 11.6 m² | G | H | H | G | G | H |
| 12.1 m² | G | H | H | G | H | H |
| 15.3 m² | H | H | - | G | H | H |
| 19.1 m² | H | - | - | G | H | - |
| 20.9 m² | H | - | - | H | H | - |
| 21.8 m² | H | - | - | H | - | - |
| 34.3 m² | - | - | - | H | - | - |

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

## SELECTION CHART FOR LINTEL FIXING

| Lintel Span | Loaded Dimension (See Fig. 1.3 NZS 3604:2011) | Light Roof Wind Zone | | | | | Heavy Roof 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 | E | 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 | G | E | E | F | F | F |
| | 5.0 | E | F | F | G | G | E | E | F | F | G |
| | 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 | E | F | F | F | E | E | F | F | F |
| | 4.0 | E | F | F | G | G | E | E | F | F | G |
| | 5.0 | E | F | F | G | 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 | G | E | E | F | F | F |
| | 4.0 | E | F | F | G | G | E | E | F | F | G |
| | 5.0 | F | F | G | G | H | E | E | F | G | G |
| | 6.0 | F | F | G | H | H | E | E | F | G | H |
| 2.0 | 2.0 | E | F | F | F | G | E | E | F | F | F |
| | 3.0 | E | F | F | G | 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 | F | G | H | H |
| 2.4 | 2.0 | E | F | F | G | 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 | F | G | H | H |
| | 6.0 | F | G | H | H | - | E | F | G | H | H |
| 3.0 | 2.0 | E | F | F | G | 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 | F | G | H | H |
| | 5.0 | F | G | H | H | - | E | F | G | H | 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 | F | G | G | H |
| | 4.0 | F | G | H | H | - | E | F | G | H | H |
| | 5.0 | F | G | H | - | - | E | F | G | H | - |
| | 6.0 | G | H | 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 | 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 | - |
| | 4.0 | F | G | H | - | - | E | F | G | H | - |
| | 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 | - | F | F | G | H | - |
| | 4.0 | F | G | H | - | - | E | F | H | H | - |
| | 5.0 | G | H | - | - | - | E | F | H | - | - |
| | 6.0 | G | H | - | - | - | E | F | H | - | - |

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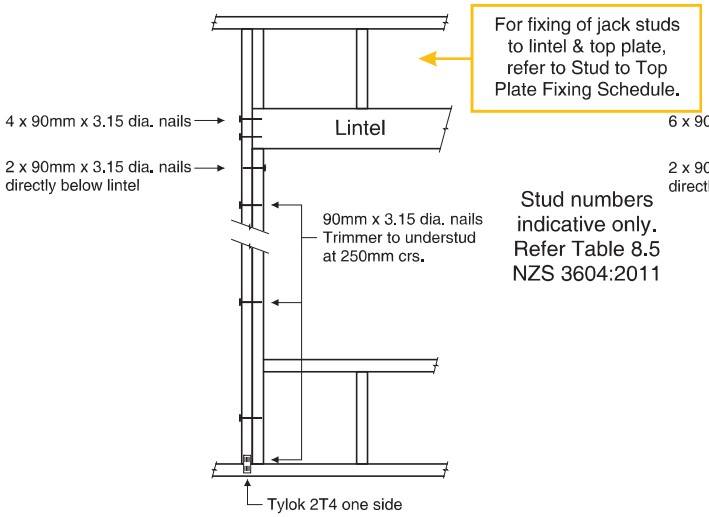
# LINTEL FIXING OPTIONS

## TYPE E
1.4 kN

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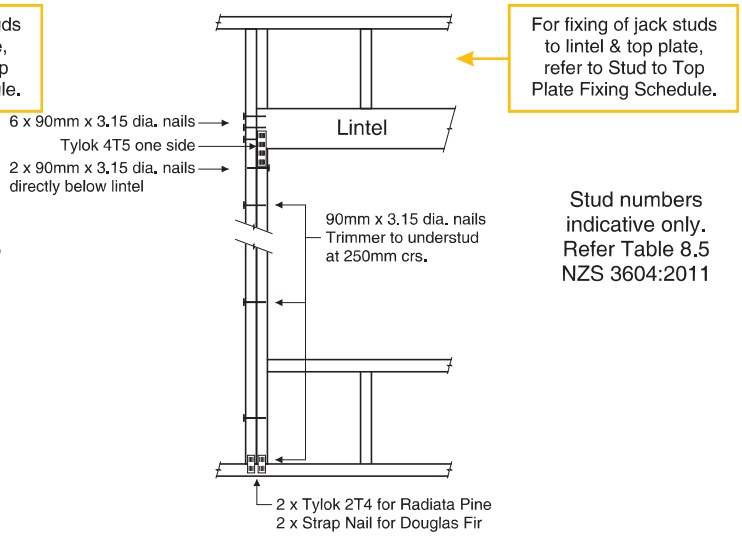
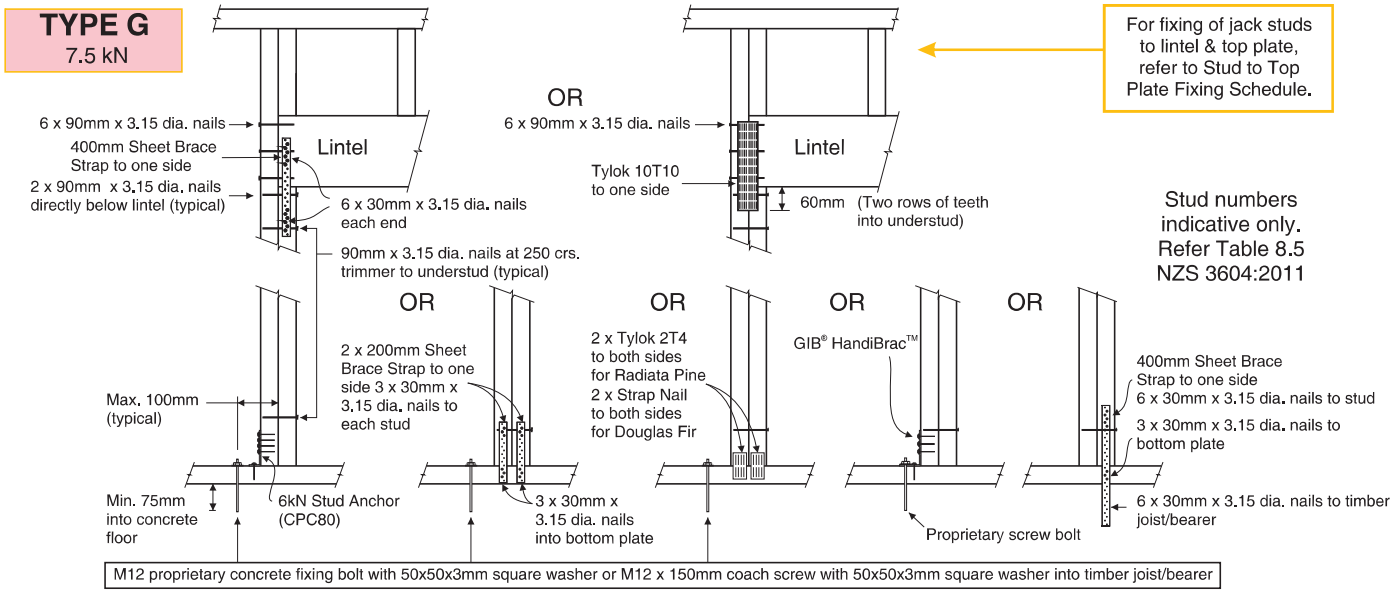
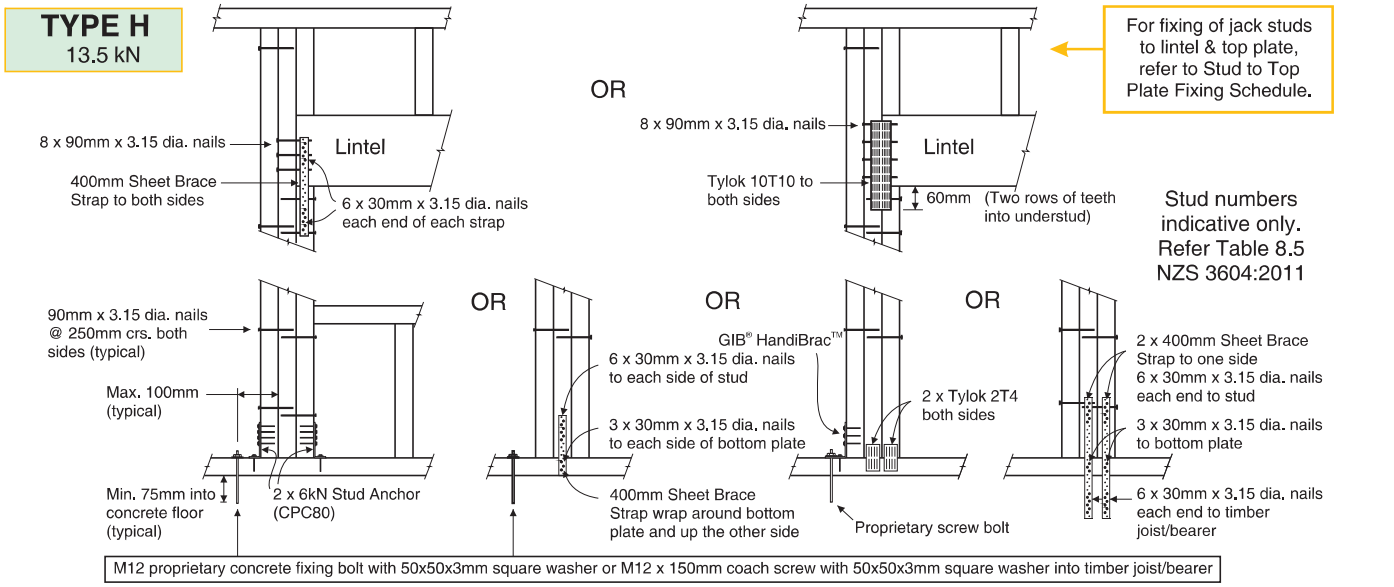
4.0 kN




## TYPE G
7.5 kN




## TYPE H
13.5 kN

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MiTek® GANG-NAIL® LUMBERLOK® BOWMAC®

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Bcon18/0095 - WDC Approved Plans - 30/04/2018

**PROLAM®** products are manufactured to the requirements of AS/NZS 1328.1:1998 Glue Laminated Structural Timber, and AS/NZS 1491:1996 Finger Jointed Structural Timber under an approved quality system based on the 1S0 9000 series of standards. As such if the product is used in accordance with **PROLAM®** product literature, it will meet the durability clauses of the New Zealand Building Code B2.

Subfloor Applications:

- **PROLAM®** may be used where approved practices for clearance and ventilation are used.

External Use:

- **PROLAM®** is recommended for weather exposed applications if sealed and maintained in accordance with **PROLAM®** literature.

Preservative Treatment:

- **PROLAM®** Beams are CCA H3.2 treated as defined by NZS 3640:2003, for weather exposed applications, such as verandah beams, deck bearers, and subfloor applications.
- **PROLAM®** Posts are CCA H5 treated as defined by NZS 3640:2003 for in-ground and weather exposed applications, such as deck piles, verandah posts and similar applications.

Storage of **PROLAM®:**

- To ensure **PROLAM®** remains straight and true at the time of installation, follow the below recommendations:

1. Store under cover so that it remains dry until installation.
2. Stack clear of the ground for good ventilation.
3. Stack on bearers to keep flat and straight.

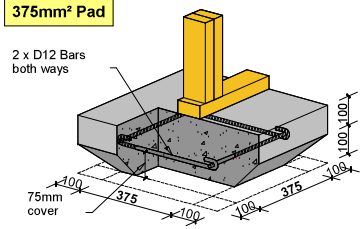
Branded **PROLAM®:**

- **PROLAM®** is branded for your protection. Look-alike materials may not perform to the standard of **PROLAM®**. For your protection do not accept unauthorized substitution

# SLAB THICKENING & STUD REQUIREMENTS

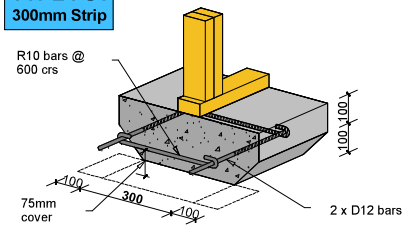
**TYPE FP1**
**375mm² Pad**

2 3



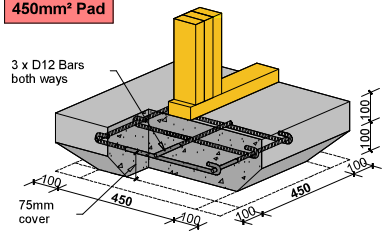

**TYPE FS1**
**300mm Strip**

2 3



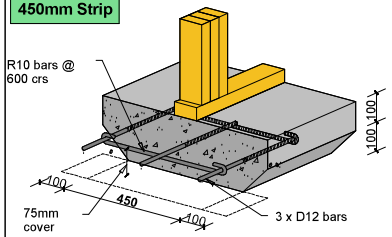

**TYPE FP2**
**450mm² Pad**

3 4




**TYPE FS2**
**450mm Strip**

3 4




**Notes:**
- The numbers found in the hatched areas are the numbers of studs required below each truss
- Standard 100mm reinforcing concrete slab, as per NZS3604:2011

**Refer to:**
MiTek Internal Load Bearing on Concrete Floor Slabs 10/2011
MiTek Structural Fixings **On-Site Guide** for Building Code Compliance

**Concrete Slab Thickening Guide**

## NO SLAB THICKENING REQUIRED

PrimeCad v4.7.105

Capital Precut Solutions Ltd.
12 Papawai Place,
Masterton
(06) 370 1390

Site Address :
Shane Stone - Koubardis
Blueskin Road
Wanganui

Sheet Title :
For Building Consent
Slab Thickening

Date : 14 Dec,2017 | Drawn : Chris Pocock
Scale : NTS | System : MiTek 20/20

Job Details:

| | | | |
|---|---|---|---|
| Roof Pitch | : 30.00deg | Truss Centres | : 900mm |
| Roof Material | : Light | Roof Live Load | : 0.250kPa |
| Ceiling Material | : Gib Board 13mm | Floor Live Load | : |
| Wind Zone | : High | Wind Speed | : 44m/s |
| Roof Snow Load | : 0.000kPa | Overhang | : 450mm |

MiTek™

Job Title : 172969
Sheet : 1
Revision Number :

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27 March, 2018

**Our Ref#:** eco1089-02 wdc

Whanganui District Council
PO Box 637
WHANGANUI 4500

Re: **Application for a Building Consent for a new On-site Wastewater system**
**240C Blueskin Road, Whanganui (Lot 3, DP 510218, CT 801480)**

Ecogent have been engaged by the owner of the above property (and Clark Plumbing & Gas now Laser Plumbing, Whanganui) to prepare a report on wastewater treatment and disposal, to assist with a Building Consent application to install a new wastewater system on the property. We have reviewed both the Horizons Regional Council OnePlan (2014), and Manual for On-site Wastewater Systems Design and Management (2010), plus Whanganui District Council's Local Government Geographical Information System (IntraMaps) in preparing this report on the wastewater treatment and disposal.

The author (Peter Gearing) is an approved on-site wastewater PS1 / PS4 author and certifier with various Councils around the North Island as required, and specific to this report is approved by Whanganui District Council (in relation to the Horizons One Plan Rules).

We also note the Horizons Manual for On-site Wastewater Systems Design and Management (2010) is based upon Auckland Regional Council Technical Publication 58 Fourth Edition (TP58) and being more familiar with the contents of this latter document, will largely refer to the Tables etc of this through the report.

***Ecogent will not provide any post installation documentation if an alternative wastewater system has been installed or an installer other than Laser Plumbing (Whanganui) has undertaken the works.***

The property has a total area of 11,320m$^2$ (1.1Ha) i.e. less than 4Ha in terms of OnePlan Rule 14-14, hence it is assumed Rule 14-14(e) applies. A new five (5) bedroom dwelling is proposed, which also has an open office contained within the lounge. However, in terms of occupancy and an assessment of potential wastewater flows, it is noted that office is not separable and the lounge is to be open to the living room and to provide a thoroughfare to the varandah / pool etc, hence is discounted in terms of future potential occupancy as a temporary bedroom. Accordingly, this report is prepared on the basis of a five (5) bedroom residence and as per ARC TP58 Table 6.1, an occupancy of eight (8) people has been assessed for the dwelling. Both the new dwelling and the new on-site wastewater system components are shown on the attached site plan Eco1089-01.

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PO Box 55-144, Mission Bay Auckland
525 Great South Road, Penrose
Phone: (09) 579-1080
Fax: (09) 579-1090

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The water supply is to be from roof captured rain water, stored in a new 25,000L tank. All water used at the property needs to be disposed of on the property and efforts to conserve water are essential to ensure satisfactory long term operation of the treatment plant and land disposal system.

The proposed new dwelling(s) will incorporate standard water savings features and plumbing fixtures installed which complies with the 'Standard Fixtures' of TP58, but to be regionally consistent with Whanganui District Council's requirements and their interpretation of OnePlan at 180L/day per person, unnecessary restrictions may be inappropriate, hence this proposal is assessed as Category B of TP58 Table 6.2 i.e. to include:

- Dual flush toilets
- Water efficient washing machine and dishwasher (if any)

The design wastewater flow from the dwellings is therefore estimated at 8 x 180 = 1,440 litres per day with the land area of the property being 11,320m$^2$. Accordingly:

- Wastewater volume has been assessed at 180L/PE/day.
- A secondary wastewater treatment system (Biolytix) is proposed.
- Land area (11,320m$^2$) / Wastewater flow (1,440 litres per day) > 1.5.
- Daily wastewater flow (1,440 litres per day) < 2,000 litres per day
- A land application rate of less than 5mm/day will be applied.

As the above key requirements are met, on-site wastewater treatment and disposal should be considered a 'Permitted Activity' on this property under the Permitted Activity Rule No. 14-14 (Horizon Regional Council OnePlan, 2014) and a Discharge Consent from the Whanganui District Council should not be required.

The design flow is key to the long term success of on-site wastewater at the property. The onus will be on the property owner to ensure that all water savings fixtures are maintained and that water conservation practices are adhered to by all occupiers. Any flows in excess of 1,440 litres per day (see below) may jeopardise the satisfactory operation of the land dispersal system.

Based upon the Laser Plumbing site soil assessment of 12 March 2018 (ref attached) involving bore hole BH1 as located on Plan Eco1089-01, the site soils could be considered as a relatively thick layer of topsoil (i.e. 250mm) overlying 900+mm of silt clay, therefore for effluent disposal purposes, the soil is catagorised as Category 6 (Table 5.1 TP58). The site appears to overall have reasonable drainage characteristics, with a reasonable aspect.

The Table 9.2 TP 58 has a soil loading rate for this category of 3mm per day, which with a daily volume of 1,440 litres per day could require a 480m$^2$ primary disposal area. However, each standard Biolytix BF6 Irrigation Kit is supplied with 300m of Wasteflow dripline, and accordingly we recommend two (2) extra 100m

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rolls of Wasteflow dripline be supplied to be installed at this site. At 1,440 Litres per day with a 480m$^2$ primary disposal area, the system will have an **application rate of just 3mm per day,** which we feel sufficiently conservative and optimises disposal for the site. This is also complaint with the maximum 3mm/day areal loading rate requirement of OnePlan Rule 14-14(e)(iv).

**Plans & Appendices**

The following plans and appendices are attached:

Eco1089-01: Site Plan

Eco1089-03: HRC On-site Wastewater Disposal Site Evaluation Investigation Checklist (TP58 Appendix E)

Appendix 1: Biolytix Bio-Pod Wastewater System Information (i.e. Specification & OSET Certificate), the Laser Plumbing 12 March 2018 site soil assessment, and the Title

**Wastewater Treatment**

Regional Plan regulations for a property and dwelling of this size require secondary (aerobic) treated effluent or better for the on-site disposal of the treated effluent.

At this stage the owners have elected to purchase a Biolytix Bio-Pod wastewater treatment system which are installed in the Whanganui District by Laser Plumbing Whanganui. Information on the Biolytix system is included in the appendix. The Biolytix BF6 has Auckland Council approval as capable of providing secondary wastewater treatment. The Biolytix system has partaken in the OSET trial of package treatment plants at the Rotorua Wastewater Treatment Plant and has comfortably met the standards prescribed in ARC TP58 for secondary quality effluent which is a Biochemical Oxygen Demand (BOD) of <20mg/L and a Total Suspended Solids (TSS) of < 30mg/L. The system also had low power consumption relative to other package treatment plants trialled. As stated, the Biolytix system was included in the (2013/2014) OSET NTP Trial #9 with results published in February 2015 (Refer appendix) confirming the Biolytix produced an effluent standard of $BOD_5$ <10mg/L and TSS <20mg/L with 100% performance for both parameters for the full 37 test results, and accordingly also meets the secondary effluent quality requirement of AS/NZS 1547:2012. Furthermore, recent field effluent sampling and testing of five installed Biolytix units in the Auckland area revealed average TSS of 10mg/L and an average BOD of 6mg/L which is well within the secondary effluent standard. The maximum capacity of the Biolytix system is 1,600 litres per day therefore the design flow rate of 1,440 litres per day is within the capacity of the system. Therefore the Biolytix as proposed is compliant with OnePlan Rule 14-14(e)(ii).

This report and consent application has not detailed any alternative wastewater system however provided the standard of treatment proposed was secondary or better than an alternative wastewater system could

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be appropriate for the site. If an alternative system is to be installed then additional information would be provided to Whanganui District Council to amend the Building Consent and changes would be recorded in the as-built drawing.

The Biolytix Bio-Pod, provided it is installed, operated and maintained in accordance manufacturer's guidelines, is capable of treating effluent to a minimum standard of 30mg/L total suspended solids (TSS) and 20mg/L biological oxygen demand (BOD). Effluent of this standard is able to be disposed to land via pressure compensating dripline.

The recommended location of the wastewater treatment plant is as shown on the attached plan. The tank should ideally be located more than 3m from the nearest building wall and more than 1.5m from property boundaries. Any alternative location to that shown would need to be approved by Ecogent and recorded in the 'as-built' drainage drawing.

**Wastewater Disposal**

Secondary treated wastewater will be discharged from the Biolytix treatment plant to land via pressure compensating dripline. Controlled and even dispersal through multiple emitters will ensure that the wastewater is applied to the soil in small doses and is well distributed. Regular small applications will allow the topsoil to provide a high level of additional treatment to the effluent. This effluent disposal proposal is also compliant with OnePlan Rule 14-14(e)(iii) & (iv).

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Based on the application rate recommended above in the site assessment and the estimated maximum design flow of 1,440L/day this equates to a land disposal area requirement of a minimum 480m$^2$.

The proposed disposal area would ideally be located within the area as shown on the attached plan. Dripline should ideally be installed subsurface, or surface pinned to the ground and covered with a layer of bark mulch or topsoil.

The following table list the approximate pressure drops between the dispersal (irrigation) pump and the dispersal area.

| Component | Head Loss (m) | Comments |
|---|---|---|
| Emitter | 18.0 | Minimum pressure required at the inlet end of PC dripline (typical) |
| Header | 2.5 | Assumed 50m of 32mm MDPE - ATWS to dispersal area |
| Misc fittings | 1.0 | Water meter, elbows, NRV's, dripline connections etc |
| Tank depth | 2.0 | Difference in elevation between ground level and pump level |
| Safety factor | 1.5 | Safety factor |
| **Total** | **25.0** | **Total kinetic head loss at pressurised flow rate** |

The Wasteflow dripline will have 2.2L/hr pressure compensating (PC) drip emitters spaced at every 0.6m along the tube. With 480m of Wasteflow the pressurised flow rate will be 29.3 litres per minute, at which

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point the standard Pedrollo NK 2/2-N dispersal pump in the Biolytix BioPod has an available head of 30m. Therefore, a static head loss (elevation) of up to 5m is possible between the top of the dispersal field and the top of the BioPod. Elevations in excess of this may require a high head pump, or other measures. However, in this case the high point of the primary disposal (and reserve area) field layout is at RL 146.5m (or lower) and the top of the Biolytix at approximately RL 146m (i.e. a net static loss of just 0.5m), therefore sufficient irrigation head will be provided by the standard Biolytix pressure pump.

The dispersal system must be set up to enable regular manual flushing of laterals on at least a six monthly basis. This should be undertaken under a maintenance contract between the property owner and the wastewater system installer or other suitably qualified contractor. The dispersal system should ideally be configured with a common (32mm MDPE) supply header pumping to five (5) dripline laterals (each approximately 96m long), with each dripline run out and looped back so to best fit the area, but where the driplines are laid across the contour as per the attached plan. Each discharge lateral loop shall be 1m apart with the distal end from the supply header connected to a (normally closed) flush valve. The total disposal area will be 480m$^2$. A vacuum relief valve shall be placed at the high point on each mainline.

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**Reserve Area**

TP58 recommends that an area on the property is identified for future use as potential disposal area in the event that the operation of the primary disposal area becomes unsatisfactory. For land disposal areas using pressure compensating dripline disposal and secondary treatment standard effluent OnePlan Rule 14-14(h) requires a reserve area of at least 50% of the primary disposal area be allocated. Accordingly, a reserve disposal area of 50% of the size of the primary disposal area is proposed (i.e. 240m$^2$), as described on the Plan Eco1089-01 highlighted in the red shaded area. Given the high level of treatment and the restrictions on water use it is our opinion that this provides sufficient reserve area for the proposal.

**Separation Distances**

All separation distances would comply with TP58 or OnePlan Rules 14-13(e) & 14-14(f) as follows:

| | **Disposal Fields** | **TP58 or Rule 14-13(e)** |
|---|---|---|
| Property boundaries | >1.5 m | 0.5-1.5m |
| Dwelling | >3.0m | 1.5 – 3.0m |
| Groundwater | >0.6m | 0.6m |
| Surface water | >20m | 20m |
| Drinking water bores | >20m | >20m |

As shown on the site plan stormwater collected from the water tank overflow is to be piped and disposed of to an area that will not affect the land disposal system. The treatment plant and disposal system are both

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protected from surface water and stormwater ingress with a cut-off drain being provided besides the road between the dwellings and the disposal area.

**Maintenance**

Maintenance of all on-site wastewater treatment plants and land disposal systems must be undertaken on a regular basis (1-2 times per year recommended for the proposed Biolytix wastewater system). The treatment plant supplier will have a maintenance checklist available and should have a maintenance contract to enter into with the property owner. Key maintenance items for the Biolytix will include:

- Checking operation of control panel, alarms, float switches, pumps, blowers, control panels etc
- Checking the worm activity and condition of the filter bed
- Visually checking quality of treated effluent
- Checking and flushing the disposal system

The owner must enter into a maintenance agreement with the installing drainlayer, the system manufacturer or other suitably qualified contractor.

**Assessment of Environmental Effects:**

This proposal is for the on-site treatment and disposal of the wastewater produced at this site. A Biolytix wastewater treatment system will apply secondary treated effluent (or better) to a pressure compensating dripline shallow land disposal system. Given the proposed level of treatment and recommended disposal method and the separation distances maintained it is considered that the proposed discharge from the system will not have any significant adverse effect on the receiving environment.

The Biolytix package wastewater treatment plant will be able to treat domestic wastewater to a high standard (better than 20ppm BOD and 30ppm SS (for at least 90% of samples)).

The controlled disposal of secondary treated wastewater at a peak loading rate of up to 3mm per day has been selected to ensure that the disposal of treated effluent is sustainable and that soils will not become saturated or plugged. Percolation through the soils in the disposal area will allow further reductions in BOD and Total Coliforms.

The reserve disposal area that is 50% of the size of the primary disposal area is available. The on-site wastewater system is wholly contained within the property, this means that the owner can control access to the areas where the system is located and ensure that activities in these areas are appropriate. The recommended treatment system includes a visual and audible alarm system to alert the owner of the property of high levels or other faults within the system.

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**Noise**

Potential sources of noise include pumps and other motors located inside the treatment plant and pump station. The pumps are submerged in the water which dampens noise and there should be negligible noise from this type of system. With the proposed wastewater system the maximum noise is less than 40dB at 1m. Based on the 3m separation distance to the nearest dwelling and the type of equipment that is being used it is considered that the system will not have a significant effect on noise levels.

**Odour**

Whilst there is potential for any wastewater system to generate odours, provided the package treatment plant is operated and maintained appropriately it is considered unlikely that there will be any significant adverse effects related to odour. We understand that a well maintained Biolytix system has very low odour levels.

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**Visual**

The wastewater treatment plant & land disposal are located underground. The only visible items are the top cover and access lids of the treatment plant and the control panel. There will be no significant adverse effect on the visual environment.

**Neighbouring Properties**

Potential impacts on neighbouring properties include odour and outbreaks in the effluent disposal field. Neighbouring property boundaries are a minimum of 1.5m from the disposal area. By using controlled subsurface disposal of secondary treated effluent at a low daily application rates the risk of effluent outbreaks and odour are significantly reduced. Regular maintenance of the treatment and disposal system should ensure that there is no discernible impact on neighbouring properties.

**Groundwater**

Effluent is treated to secondary levels and a separation in excess of the OnePlan recommendation of 0.6m (between disposal and groundwater) can be achieved year round

**Surface water**

There is no surface water within 20m of the proposed disposal areas. There is very minimal potential for surface water contamination through run off.

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**Peak Loads**

The installed wastewater system will include more than 24 hours (at peak loads) of emergency storage after the high level alarm is activated. Should an emergency or problem continue beyond the capacity of the emergency storage then a tanker could empty the system and dispose of the wastewater at an appropriate location off site if necessary.

**Monitoring & Maintenance**

It is considered essential that the system be regularly maintained by appropriately qualified personnel to ensure the appropriate level of treatment is achieved on an ongoing basis.

**Alternative Treatment and Disposal Options**

No reticulated wastewater disposal is available in this area and is unlikely to be available in the near future. There are a number of On-Site package treatment and disposal systems capable of providing secondary treatment that are available. Provided the recommendations in this report are followed, then a wastewater treatment system with a secondary treatment level and with subsurface disposal to land through pressure compensating dripline is appropriate for the site.

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**Consultation**

Consultation has not been undertaken as it is considered that no party will be adversely affected by the granting of this proposal.

Under the Horizon OnePlan Rule 14-14 the proposed activity should meet the criteria for a 'permitted activity' and it is considered that there are no special circumstances that would require the application to be notified and therefore it is expected that this application will be processed on a non-notified basis.

**Producer Statement**

Provided the recommended Biolytix wastewater system including a Wasteflow land disposal system is installed by Laser Plumbing Whanganui, then if the correct documentation and photographs of the installation are provided to Ecogent, Ecogent will upon commissioning provide a Producer Statement (PS4) to enable Council to issue a Code of Compliance.

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Ecogent will not provide any post installation documentation if an alternative system has been installed or an installer other than Laser Plumbing Whanganui has undertaken the works.

We trust we have provided sufficient information in these documents for the processing of the Building Consent. Please contact us if additional information is required or if we can be of further assistance.

Yours sincerely

Peter Gearing
ECOGENT LTD
Environmental Scientist
(Auckland Council Producer Statement Author # 3143)

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# Biolytix BioPod (BF6) Wastewater Treatment System

## Specifications

The Biolytix BioPod (BF6) is an onsite treatment system designed to treat wastewater from domestic sources. It uses a single tank configuration based on an enhanced trickling filter process which mimics a natural soil habitat. The BF6 is certified to comply with AS/NZS 1546.3:2008 and must be operated in accordance with this standard.

### Effluent Quality

The BF6 wastewater treatment system generates secondary treated effluent of the following quality:

- 5-day Biochemical Oxygen Demand ($BOD_5$) <20 mg/L
- Suspended solids <30 mg/L

The effluent must be disposed of as stipulated by the local Territorial Authority. AS/NZS 1547:2012 describes discharge options for secondary-treated effluent. However, the Territorial Authority regulations applying to a specific site may be different and more stringent and should be consulted before making a decision.

### Maximum Loading

- Flow rate: 1600 L per day
- Organic loading as $BOD_5$: 700 g per day
- Suspended solids loading: 700 g per day

Important: The actual maximum loading of an installed BF6 is limited by the capacity of the dispersal system it discharges to. For example, if the BF6 is connected to a land dispersal system with a capacity of 800 L/day, then the BF6 must not be loaded at more than 800 L/day.

### Operation

- Emergency storage capacity: 1650 L
- Temperature and humidity: Operates under normal temperature and humidity conditions experienced in New Zealand and the Pacific Islands.
- Noise < 40 dB $L_{Aeq}$ at a distance of 1 m
- Electricity consumption (per year): Treatment process 44 kWh; effluent pump typically 165 kWh (per year). Effluent pump power use can vary significantly depending on the size and location of the dispersal system and the actual household water usage.
- Maintenance: Requires at least an annual service (Note: Some Regional Authorities require at least two services per year regardless of the type of on-site wastewater system)
- Minimum serviceable life: 15 years

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## Treatment Process

The BF6 filter bed (Figure 1) is contained in an injection moulded high grade polypropylene tank and consists of six layers of drainage elements and peat/drainage elements. All layers contain plastic trickling filter media contained in open-mesh bags. In the filter bed there is in excess of 2m$^3$ of plastic filter media with a high porosity and a high specific surface area. The peat layers additionally contain coco peat, the fibrous structure of which significantly increases the available treatment surface area and the ability to retain moisture. The layers are separated by coarse HDPE mesh fabric.

The resulting filter bed mimics a natural soil habitat, containing a diverse ecosystem of micro and macro-organisms. These organisms aerobically treat the wastewater as it percolates through the bed, prevent the accumulation of sludge, and keep the filter aerated. On commissioning, the filter is inoculated with a kilogram of tiger worms *(Eisenia Fetida)*. These worms propagate and burrow through the filter bed, thereby keeping its structure open and porous. A Schego M2K3 air pump is used to provide additional air to the bed at the rate of 350 L per hour.

A geotextile filter layer with a nominal pore size of 80 micron separates the filter bed from the effluent storage sump. Its purpose is to remove fine solids from the treated effluent. To support the bed, the sump is filled to a depth of 400 mm with a matrix of plastic media. It drains into the central pump well, from where the effluent is pumped using a submersible pump to a land dispersal system (e.g. subsurface drip irrigation). The pump is controlled by a factory set float switch. The total bed depth including sump is 1050 mm.

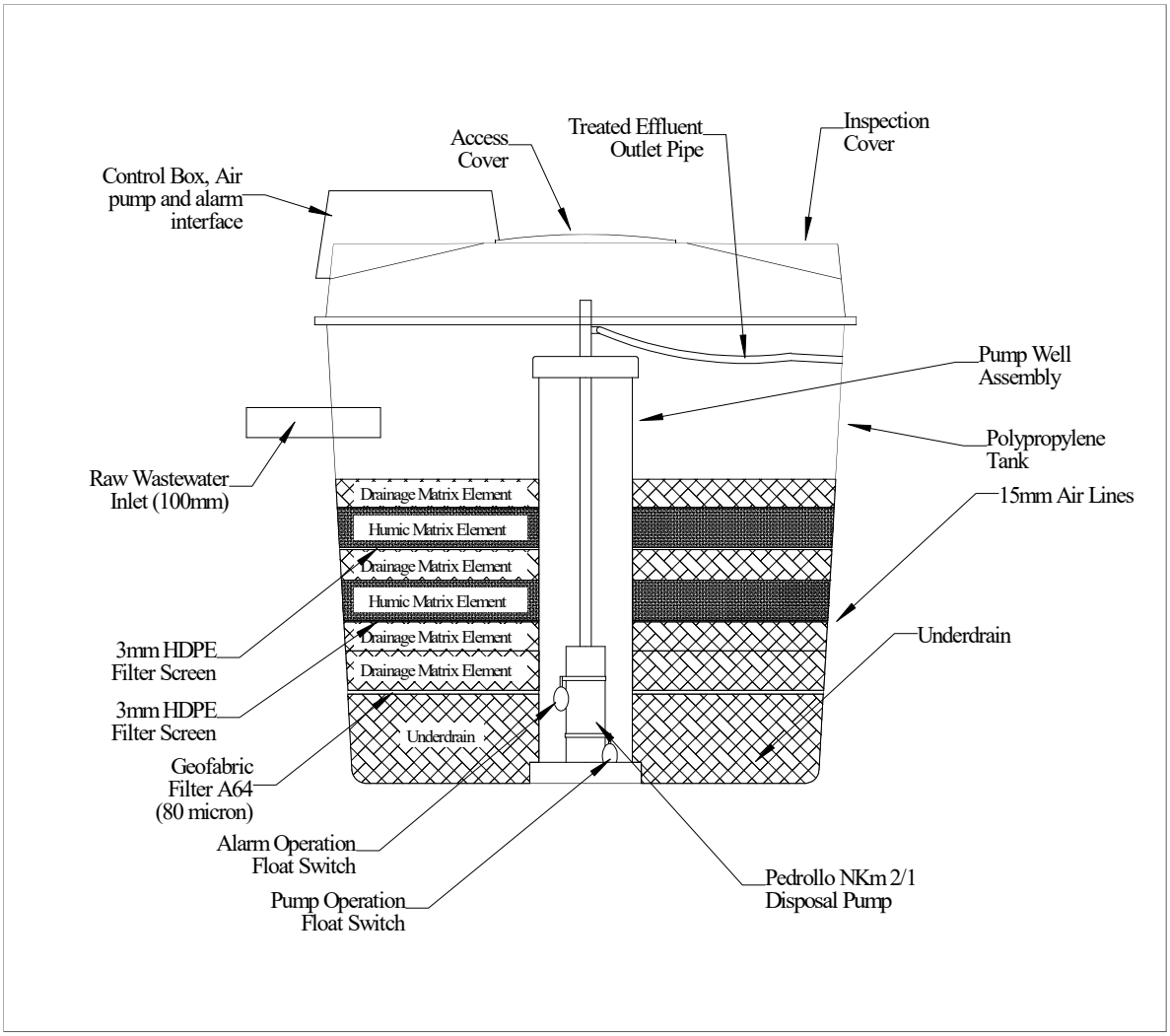


**Figure 1** Biolytix BF6 wastewater treatment system

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## Configuration Options

The BF6 can be installed in-ground or above ground. Local Council restrictions may apply to above-ground installations (Land Use/Building Consent conditions etc). Available tank sizes are 3000 L and 4000 L. Both tanks have the same bed configuration and provide the same treatment capacity and performance, but use different inlet invert depths as follows:

- BF6-3000 tank: 650 mm
- BF6-4000 tank: 1100 mm

The BF6 effluent is either gravity drained or pumped to a dispersal system. The pumpout (dose) volume is 220 L per cycle. The standard pump is a high-quality Pedrollo NKm 2/1 submersible pump, the characteristics of which are shown in Figure 2 below. Other Pedrollo pumps may be used instead to suit specific sites. Contact Biolytix to discuss your requirements and for information on the types of pumps available.

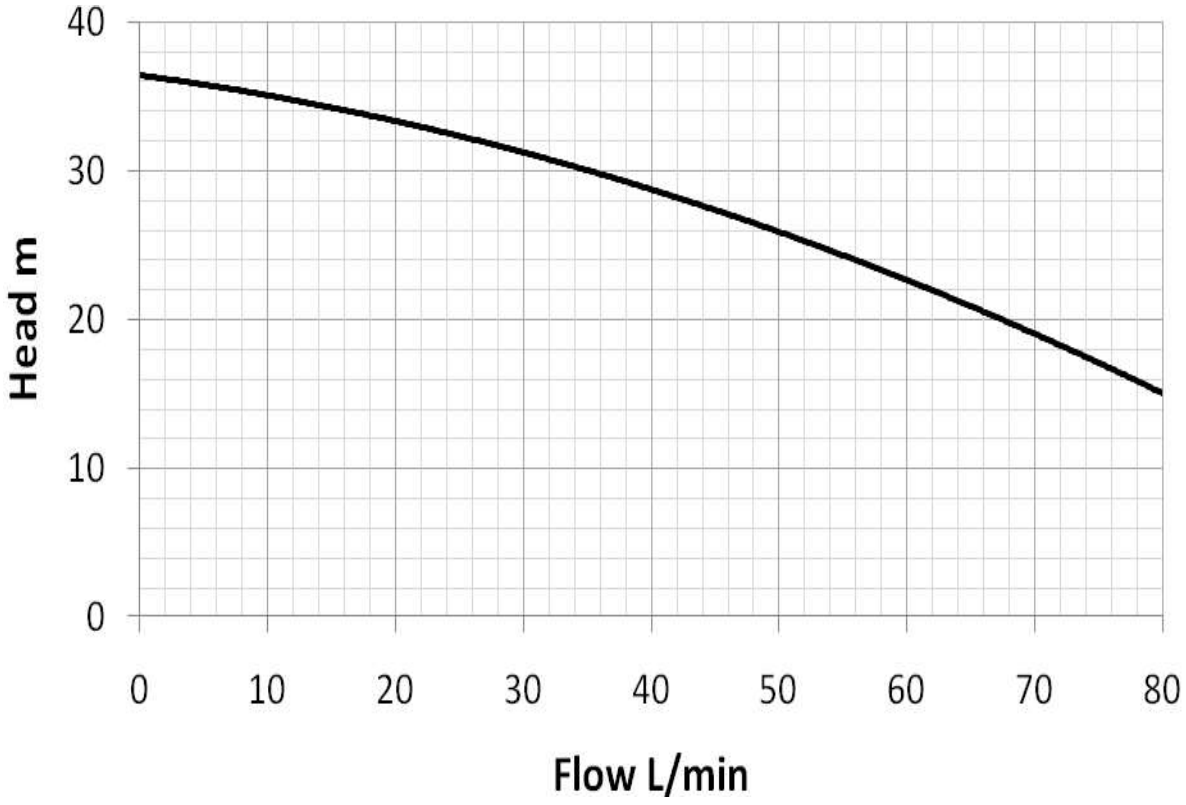


**Figure 2** Pedrollo NKm 2/1 characteristic curve (power 0.45 kW)

### Alarm System

The BF6 is equipped with an AS/NZS 1546.3 compliant audible and visual alarm with a mutable audible alarm signal and an alarm light. The alarm must be mounted in a location that is readily visible from within the dwelling.

Alarms are triggered by either a high-level float switch in the pump well or an air pressure switch on the air supply line.

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# ON-SITE WASTEWATER DISPOSAL SITE EVALUATION INVESTIGATION CHECKLIST

(Based on Auckland Regional Council TP58 (2004) Appendix E).

## PART A: Contact Details

### 1. Applicant Details:

| | | |
|---|---|---|
| Applicant Name: | Mark & Sarah Koubaridis | |
| | | |
| Company Name | | |
| | First Name(s) | Surname |
| Property Owner Name(s) | Mark Norman | Koubaridis |
| | Sarah Marie | Koubaridis |
| | | |
| | | |
| Nature of Applicant* | **Owner** | |

(*i.e. owner, lessee, prospective purchaser, developer)

### 2. Consultant/Site Evaluator Details:

| | | | | |
|---|---|---|---|---|
| Consultant/Agent Name | Ecogent Limited | | | |
| Postal Address | PO Box 12 499 | | | |
| | Penrose, Auckland | | | |
| Phone Number | Business | 09 579 1080 | Private | |
| | Mobile | 027 483 7136 | Fax | |
| Name of Contact Person | Peter Gearing | | | |
| E-mail Address | peter.gearing@ecogent.co.nz | | | |

### 3. Are there any previous existing discharge consents relating to this proposal or other waste discharge/disposal on the site?

| Yes | | No | ✓ | (Please tick) |
|---|---|---|---|---|

If yes, give Reference Number(s) and Description

| |
|---|
| |
| |

### 4. List any other consents in relation to this proposal and indicate whether or not they have been applied for:
### If so, specify Application Details and Consent No.):
### (e.g. water permit, land use consent, subdivision consent)

| |
|---|
| |
| |
| |

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## PART B: Property Details

### 1. Property for which this application relates:

| | |
|---|---|
| Physical Address of Property | 240C Blueskin Road, Whanganui |
| | |
| | |
| Territorial Local Authority | Whanganui District Council |
| Regional Council Area | Horizons Regional Council |
| Legal Status of Activity | **Permitted:** ✓ **Controlled:** **Discretionary:** |
| | |
| Relevant Regional Rule(s) | Horizons OnePlan (2014) Rule 14-14 |
| | |
| Total Property Area ($m^2$) | 11,320 |
| Map Grid Reference of Property (NZMS 260) | 2683232mE 6145777mN |

### 2. Legal description of land (as shown on Certificate of Title):

| | | | | | |
|---|---|---|---|---|---|
| Lot No. | **3** | DP No. | **510218** | CT No. | **801480** |
| | | | | | |
| | | | | | |
| Other (specify) | | | | | |

Please attach copy of Certificate of Title.

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## PART C: Site Assessment: Surface Evaluation

Note: Underlined terms defined in section 2 of this manual

### 1. Has a desk study been undertaken for this property?

| | | | | |
|---|---|---|---|---|
| Yes | ✓ | No | | (Please tick) |

If yes, please specify the findings of the desk study and if not please specify why this was not considered necessary.

| |
|---|
| See attached report |
| |
| |

### 2. Has a slope stability assessment been carried out on the property?

| | | | | |
|---|---|---|---|---|
| Yes | ✓ | No | | (Please tick) |

If No, why not?

| |
|---|
| Effectively flat across disposal area |
| |
| |

**If Yes, please give details of report:**

| | |
|---|---|
| Author | Kaden Clark |

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| | |
|---|---|
| Company/Agency | Laser Plumbing (Clark Plumbing & Gas) |
| Date of Report | 12 March 2018 |
| Brief Description of Report Findings | |
| Site flat with very gentle slope across disposal area / Cat 6 soil / no overland flow | |
| likely, no groundwater found at EoB 0.9m deep | |
| | |
| | |

**3. Site Characteristics**

Provide descriptive details below:

| |
|---|
| **Performance of Adjacent Systems:** |
| To our knowledge local wastewater systems of the same type that have been designed & installed correctly are performing well |
| |
| **Estimated Rainfall and Seasonal Variation:** |
| 900mm PA |
| |
| **Vegetation Cover:** |
| Pasture / grass |
| |
| **Slope Shape:** |
| Flat to linear planer |
| |
| **Slope Angle:** |
| <5° |
| |
| **Surface Water Drainage Characteristics:** |
| No overland flow expected as disposal area at high point of site |
| |
| **Flooding Potential: YES/NO** |
| No |
| |
| If yes, specify relevant flood levels on appended site plan, i.e. one in 5 year and/or 20 year and/or 100 year return period flood level, relative to disposal area. |
| **Surface Water Separation:** |
| >20m |
| |
| **Site Clearances (Provide general description here and specific dimensions in Part 6 below and on Site Plan:** |
| Ref site plan |
| |
| **Site Characteristics:** |
| No issues of slope instability or cracking within the soils in the irrigation area |
| |

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**4. Site geology of the subject property**

| |
|---|
| |
| |
| |

| | |
|---|---|
| Geological Map Reference Number | |

**5. What aspect(s) does the proposed disposal system face (please tick)?**

| | | | |
|---|---|---|---|
| **North** | ✓ | **West** | |
| **North-West** | | **South-West** | |
| **North-East** | | **South-East** | |
| **East** | | **South** | |

**6. Site clearances, which should be also shown on the site plan:**

| Separation distance from | Treatment Plant Separation Distance (m) | Disposal Field Separation Distance (m) |
|---|---|---|
| Boundaries | **>1.5m** | **>1.5m** |
| Surface Water | **>20m** | **>20m** |
| Stands of Trees/Shrubs | **>1m** | **>1m** |
| Wells, water bores | **>20m** | **>20m** |
| Embankments/retaining walls | **N/A** | **N/A** |
| Buildings | **>3m** | **>3m** |
| Other (specify): | | |

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**PART D: Site Assessment: Subsoil Investigation**
**Note: Underlined terms defined in Table 2.**

**1. Please identify the soil profile determination method:**

| | | | | | |
|---|---|---|---|---|---|
| Test Pit | | (Depth_____m) | No. of Test Pits | | |
| Bore Hole | ✓ | (Depth___0.9m) | No. of Bore Holes | | 1 |
| Other (specify) | | | | | |
| Soil Report Attached? | Yes | ✓ | No | | (Please Tick) |

**2. Was fill material intercepted during the subsoil investigation?**

| | | | | |
|---|---|---|---|---|
| Yes | | No | ✓ | (Please tick) |

If yes, please specify the effect of the fill on wastewater disposal

| |
|---|
| |
| |
| |
| |

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**3. Has percolation testing been carried out?**

| Yes | | No | ✓ | (Please tick) |
|---|---|---|---|---|

If yes, please specify the method

| |
|---|
| |
| |
| |

| Test Report Attached? (Please tick) | | Yes | | No | |
|---|---|---|---|---|---|

**4. Are surface water interception drains required?**

| Yes | | No | ✓ | (Please tick) |
|---|---|---|---|---|

If Yes, please show on site plan

**5. Please state the depth of the seasonal water table:**

| | | | | |
|---|---|---|---|---|
| Winter | >0.9 (m) | | | |
| Summer | >0.9 (m) | | | |
| Please indicate whether measured | ✓ | or estimated | | (please tick) |

**6. Are there any potential <u>short circuit paths</u>?**

| Yes | | No | ✓ | (Please tick) |
|---|---|---|---|---|

If yes, please explain how these have been addressed

| |
|---|
| |
| |

**7. Based on results of subsoil investigation above please indicate the disposal field soil category**

| Is Topsoil Present? | ✓ | If so, Topsoil Depth? | 0.25 (m) |
|---|---|---|---|

| Soil Category | Description | Drainage | Tick One |
|---|---|---|---|
| 1 | Gravel, coarse sand | Rapid draining | |
| 2 | Coarse to medium sand | Free draining | |
| 3 | Medium-fine and loamy sand | Good drainage | |
| 4 | Sandy loam, loam and silt loam | Moderate drainage | |
| 5 | Sandy clay-loam, clay loam and silty clay-loam | Moderate to slow drainage | |
| 6 | Sandy clay, non-swelling clay and silty clay | Slow draining | ✓ |
| 7 | Swelling clay, grey clay, hardpan | Poorly or non-draining | |

Reasons for placing in stated category

| |
|---|
| Kaden Clark site soil assessment and local knowledge |
| Based upon soil descriptions of TP58 (3rd Edition) |

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## PART E: Discharge Details

**1. Water supply source for the property (please tick):**

| | |
|---|---|
| Bore/well | |
| Rainwater (roof collection) | ✓ |
| Public supply | |

**2. Calculate the maximum daily volume of wastewater to be discharged, unless accurate water meter readings are available**

| | | |
|---|---|---|
| Number of bedrooms | 5 | |
| Design Occupancy | 8 | (number of people) |
| Per capita Wastewater Production | 180 | (Litres per person per day) |
| Other - Specify | | |
| | | |
| | | |
| Total Daily Wastewater Production | 1,440 | (Litres per day) |

**3. Do you propose to install:**

| | | | | | |
|---|---|---|---|---|---|
| a) Water Conservation Devices? | Yes | | No | ✓ | (Please tick) |
| b) Water Recycling – what %? | % | | No | ✓ | (Please tick) |

**If you have answered Yes, please provide additional information including the estimated reduction in water usage:**

| |
|---|
| |
| |
| |

**4. Is Daily Wastewater Discharge Volume more than 2000 litres:**

| | | | | |
|---|---|---|---|---|
| Yes | | No | ✓ | (Please tick) |

Note if the answer to the above is yes an HRC wastewater discharge permit will be required

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**5. Is a Horizons Regional Council Discharge Consent Required?**

| Yes | | No | ✓ | (Please tick) |
|---|---|---|---|---|

~~**PART F: Primary Treatment**~~

~~**1. Please indicate below the number and capacity (litres) of all septic tanks including type (single/dual/grease traps) to be installed or currently existing:**~~

| ~~Number of Tanks~~ | ~~Type of Tank~~ | ~~Capacity of Tank (Litres)~~ |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | ~~Total Capacity~~ | |

~~**2. Is a Septic Tank Effluent Outlet Filter to be installed?**~~

| ~~Yes~~ | | ~~No~~ | | ~~(Please tick)~~ |
|---|---|---|---|---|

~~**If Yes, please state the type**~~

| |
|---|
| |

**PART G: Secondary and Tertiary Treatment**

**1. Please indicate the type of additional treatment, if any, proposed to be installed in the system (please tick):**

| **Secondary Treatment** | | | |
|---|---|---|---|
| Home aeration plant | | | |
| Commercial aeration plant | | | |
| Intermittent sand filter | | | |
| Recirculating sand filter | | | |
| Recirculating textile filter | | | |
| Clarification tank | | | |
| **Tertiary Treatment** | | | |
| Ultraviolet disinfection | | | |
| Chlorination | | | |
| Other | ✓ | **Specify** | Biolytix BF6 BIO-POD |

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## PART H: Disposal Method

**1. Please indicate the proposed loading method (please tick):**

| | |
|---|---|
| Gravity | |
| Pump | ✓ |
| Dosing Siphon | |

**2. Is a high water level alarm being installed in all pump chambers?**

| | | | |
|---|---|---|---|
| Yes | ✓ | No | (Please tick) |

**3. If a pump is being used, please provide the following information:**

| | | |
|---|---|---|
| Total Design Head | 30 | (m) |
| Pump Chamber Volume | 230 | (Litres) |
| Emergency Storage Volume | 1,450 | (Litres) |

**4. Please identify the type(s) of disposal method proposed for this site (please tick):**

| | |
|---|---|
| Surface Dripper Irrigation | |
| Sub-surface Dripper Irrigation | ✓ |
| Standard Trench | |
| LPED shallow trench | |
| Mound | |
| Evapo-transpiration Beds | |
| Other (Please Specify) | |

**5. Please identify the loading rate you propose for the option selected in Part H, Section 4 above stating the reasons for selecting this loading rate**

| | | | |
|---|---|---|---|
| Loading Rate | 3 | | (Litres/$m^2$/day) |
| Disposal Area | Basal | | ($m^2$) |
| | Areal | 480 | ($m^2$) |

**Explanation**

| |
|---|
| Daily flow / loading rate i.e. 1,440 / 3 = 480$m^2$ |
| |
| |
| |
| |
| |

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**6. What is the proposed reserve wastewater disposal area:**

| | |
|---|---|
| Reserve Disposal Area ($m^2$) | 240 |
| Percentage of Primary Disposal Area (%) | 50 |

**7. Please provide a detailed description of the design and dimensions of the disposal field including a detailed plan of the field relative to the property site:**

**Description and Dimensions of Disposal Field**

| |
|---|
| (See attached plan) 480 lineal meters of Wasteflow PC dripline with laterals 1m apart i.e. 5 X 96m individual driplines – each dripline to have an isolation valve at the distal end from the 32mm mainline – so each line can be flushed individually – and a vacuum relief valve at the high point of the 32mm mainline |
| |
| |
| |
| |

| Plan Attached | Yes | ✓ | | No | | (Please tick) |
|---|---|---|---|---|---|---|

**If not explain why not**

| |
|---|
| |
| |

**PART I: Maintenance and Management**

**1. Has a maintenance agreement been made with the treatment and disposal system suppliers?**

| Yes | ✓ | | No | | (Please tick) |
|---|---|---|---|---|---|

**PART J: Assessment of Environmental Effects**

**1. Is an assessment of environmental effects (AEE) included with the application?**

| Yes | ✓ | | No | | (Please tick) |
|---|---|---|---|---|---|

**2. Are there any specific environmental constraints?**

| Yes | | | No | ✓ | (Please tick) |
|---|---|---|---|---|---|

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**If Yes, please explain**

| |
|---|
| |

**PART K: Is your application complete?**

**1. In order to provide a complete application have you remembered to:**

| | |
|---|---|
| Fully Complete this Assessment Form | ✓ |
| Include a Location Plan and Site Plan (with Scale Bars) | ✓ |
| Enclose a Property Title (Certificate of Title) | ✓ |
| Attach an Assessment of Environmental Effects (AEE) | ✓ |

**2. Declaration**

**I hereby certify that, to the best of my knowledge and belief, the information given in this application is true and complete.**

| | | | |
|---|---|---|---|
| **Name** | Peter Gearing | **Signature** | |
| **Position** | Environmental Scientist | **Date** | 27 Mar 2018 |

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horizons
regional council

11-15 Victoria Avenue
Private Bag 11 025
Manawatu Mail Centre
Palmerston North 4442

T 0508 800 800
F 06 952 2929
help@horizons.govt.nz
www.horizons.govt.nz

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# On-site Effluent Treatment National Testing Programme (OSET NTP)

## PERFORMANCE CERTIFICATE
## Biolytix BioPod On-site Domestic Wastewater Treatment System, OSET NTP Trial 9, 2013/2014

**System Tested**
The **Biolytix BioPod system** is an aerated biological trickling filter with a vermicomposting wastewater treatment unit using tiger worms within 3 layers of aerated drainage and humus matrix elements. Effluent gravitates through the matrix elements and discharges into the pump well below.

The manufacturer's rated design capacity is 1,600 litres/day. Total liquid volume is 1,351 litres within a 3,000 litre tank: (aerobic treatment 893 litres; pump chamber 458 litres). Emergency storage is 1,649 litres. No tertiary treatment (such as UV disinfection) is incorporated. The manufacturer's stated service requirement is annual.

**Test Flow Rate**
The **Biolytix BioPod system** was tested at 1,000 litres/day (equivalent to servicing a 3-bedroom 5 to 6 person household) over an 8 month (35 week) period November 2013 to July 2014 followed by a 1 month (4 week) high load effects test involving 5 days at 2,000 litres per day then 1,000 litres/day over the following 3 weeks.

**Testing and Evaluation Procedures**
A total of 37 treated effluent samples of organic matter ($BOD_5$) and suspended solids (TSS) at generally six day intervals during weeks 9 to 35 were tested and evaluated against the secondary effluent quality requirements of the joint Australia/NZ standard AS/NZS 1547:2012.

A total of 16 treated effluent samples of organic matter ($BOD_5$), total suspended solids (TSS), total nitrogen (TN), ammonia nitrogen ($NH_4$-N), total phosphorus (TP) and faecal coliforms (FC) at generally six day intervals during weeks 23 through 35 were tested and the results benchmarked and rated on their median values. In addition, the energy used by the treatment system was assessed on the mean of consumption levels over the benchmark period.

**AS/NZS 1547:2012 Secondary Effluent Quality Requirements**
These requirements are that 90% of all test samples must achieve a $BOD_5$ of $\leq$ 20 g/m$^3$ and TSS of $\leq$ 30 g/m$^3$ with no one result for $BOD_5$ being >30 g/m$^3$ and no one result for TSS being >45 g/m$^3$. The **Biolytix BioPod system achieved** a performance level of **100%** for $BOD_5$ and **100%** for TSS based on the full set of 37 test results in weeks 9 to 35, with no results exceeding the maximums. The **Biolytix BioPod system** thus **meets** the secondary effluent quality requirements of AS/NZS 1547:2012.

**Benchmark Ratings**
The **Biolytix BioPod system achieved** the following effluent quality ratings for the sixteen benchmarking results in weeks 20 to 35.

| Indicator Parameters | Median | Std Dev | Rating | Rating System | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | *A+* | *A* | *B* | *C* | *D* |
| *BOD (mg/L)* | *5.5* | *2.6* | A | *<5* | *<10* | *<20* | *<30* | *≥30* |
| *TSS (mg/L)* | *10* | *2.5* | B | *<5* | *<10* | *<20* | *<30* | *≥30* |
| *Total Nitrogen (mg/L)* | *37.8* | *4.2* | D | *<5* | *<15* | *<25* | *<30* | *≥30* |
| *$NH_4$- Nitrogen (mg/L)* | *13.8* | *3.7* | C | *<1* | *<5* | *<10* | *<20* | *≥20* |
| *Total phosphorus (mg/L)* | *4.3* | *0.6* | B | *<1* | *<2* | *<5* | *<7* | *≥7* |
| *Faecal Coliforms (cfu/100mL)* | *1,200,000* | *895,000* | D | *<10* | *<200* | *<10,000* | *<100,000* | *≥100,000* |
| Energy (kWh/d) (mean) | *0.4* | *0.04* | A | *0* | *<1* | *<2* | *<5* | *≥5* |

This Performance Certificate is specific to the **Biolytix BioPod** model as specified above when operated at a flow rate of 1,000 litres/day, and is valid for 5 years from the date below. For the full OSET NTP report on the performance of the **Airtech 9000 system** contact **Biolytix Ltd**, Penrose, Auckland, Ph: +64 9 579 1080 or 0800 700 818, Email: karl@biolytix.com.

**Authorised By:**
Ray Hedgland, Technical Manager, OSET NTP
20 February 2015

**On-site Effluent Treatment National Testing Programme, c/- Technical Manager, 2/12 Mt Blanc Pl, Northpark, Howick, AUCKLAND 2013 Mob: 021 626 772 E-mail: ray@hedgland.co.nz**

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Plumbing Laser

# Laser Plumbing Wanganui
# Effluent Disposal Site Soil Assessment

| | |
|---|---|
| **Site Address** | 240c Blueskin Rd, Wanganui |
| **Legal Description** | Lot 3, DP 510218, CT 801480 |
| **Date of assessment** | 12/3/2018 |
| **Assessor** | Kaden Clark |
| **Proposed water supply** | Rain / Tank water |
| **No of test auger bore holes** | 1 |
| **Diameter of test bores** | 150mm |
| **Depth of test bores** | 900mm |
| **Location of test bores** | See attached site plan |
| **Depth of top soil** | 250mm |
| **A Horizon Depth** | 250mm – 900mm |
| **A Horizon Category (TP58 cat)** | Cat 6 |
| **B Horizon Depth** | |
| **B Horizon Category (TP58 cat)** | |
| **Depth to groundwater** | No ground water at EoB |
| **TP58 soil cat for disposal** | Cat 6 |
| **Recommended disposal method** | Subsurface drip |
| **Site slope (direction)** | See attached site plan |
| **Elevation difference WWTP/disposal** | Disposal slightly above WWTP |
| **Site slope (angle)** | <5° |
| **Site slope (type)** | Linear Planar |
| **Surface runoff potential** | No |
| **Any local surface water body** | No |
| **Any local wells or bores** | Not known |
| **Groundcover** | Pasture / Grass |
| **Groundwater >0.6m below disposal** | Yes - Compliant with OnePlan 14-14(a) |
| **Surface water >20m from disposal** | Yes - Compliant with OnePlan 14-14(a) |
| **Water supply bore >20m** | Yes - Compliant with OnePlan 14-14(a) |

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***PROPOSED DRIPLINE DISPOSAL SYSTEM:***

*480 LINEAL METRES OF WASTEFLOW PRESSURE COMPENSATING DRIPLINE (MINIMUM).*
*TO BE INSTALLED SUBSURFACE IN PASTURE (OR SURFACE PINNED UNDER BARK)*

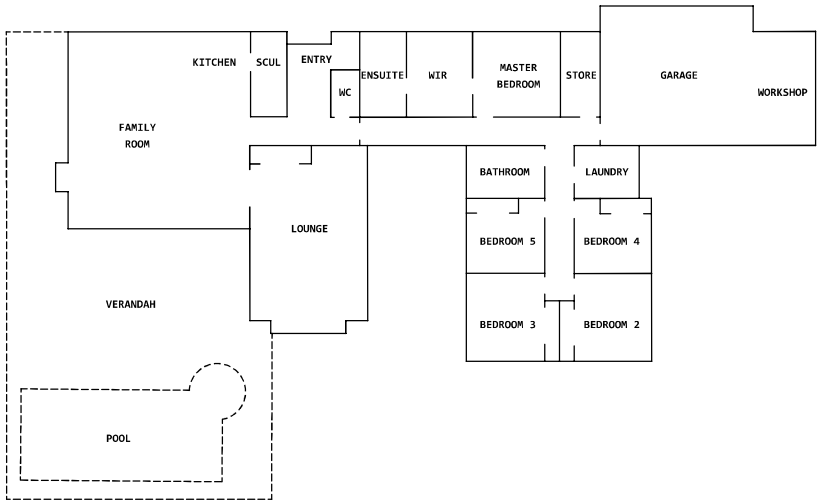
*DRIPLINE TO BE INSTALLED AT AN AVERAGE*
*1.0m ROW SPACING. 32mm PE SUPPLY MANIFOLD*

*MINIMUM DISPOSAL AREA = 480m$^2$.*

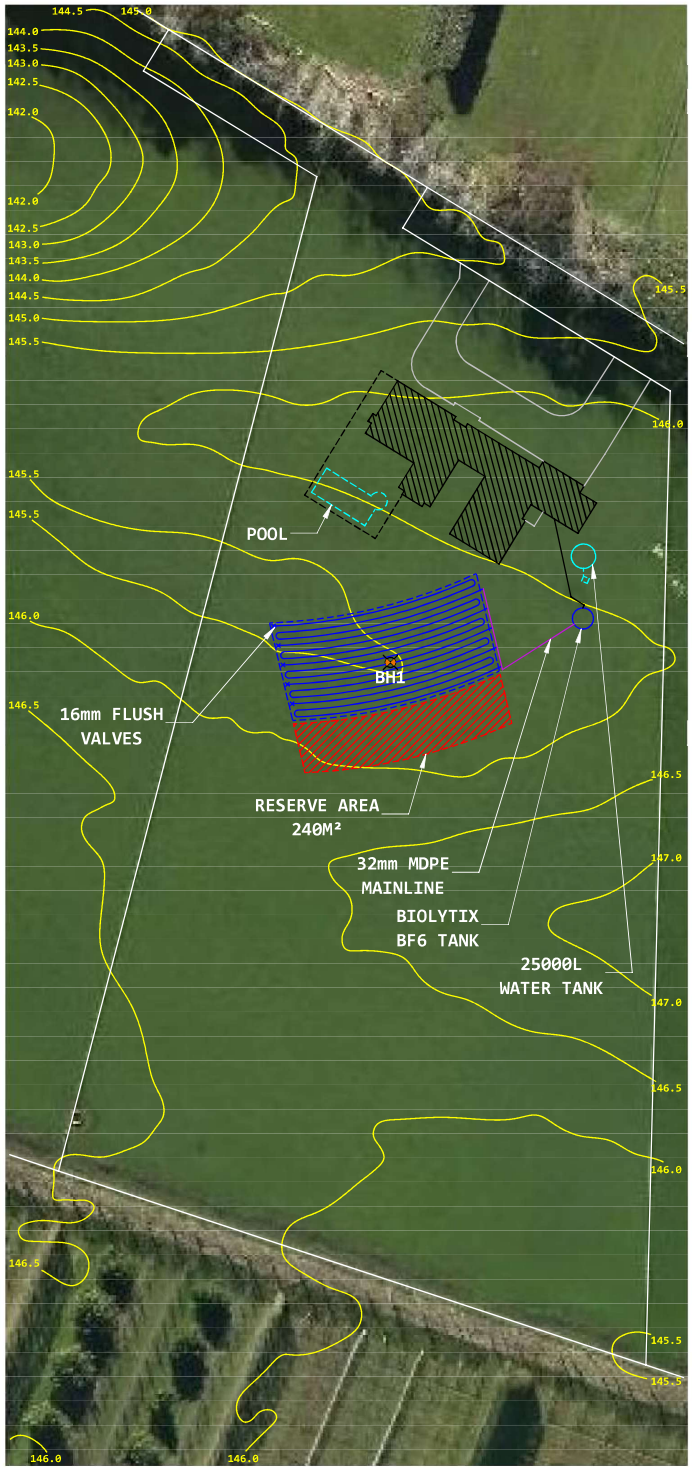
*MINIMUM RESERVE AREA = 240m$^2$ OR 50%*

*MINIMUM 1.5m FROM PROPERTY BOUNDARIES*
*MINIMUM 3.0m FROM HABITABLE BUILDINGS*

*FINAL LOCATIONS MAY BE ALTERED BY INSTALLING*
*DRAINLAYER TO SUIT SITE/INSTALLATION CONDITIONS.*
*ANY CHANGES TO BE RECORDED ON THE 'AS-BUILT' PLAN.*




**HOUSE FLOOR PLAN**




BORE HOLE

SLOPE LINES

e-cogent
P O BOX 55-144,
MISSION BAY,
AUCKLAND.
PH: (09) 579 1080
FAX: (09) 579 1090

CLIENT
LASER PLUMBING
WHANGANUI (KOUBARIDIS)

PROJECT
240C BLUESKIN ROAD,
WHANGANUI

TITLE
ONSITE WASTEWATER
TREATMENT & DISPOSAL
(PROPOSED LAYOUT)

| | | |
|---|---|---|
| DATE | 24.03.18 | |
| DRAWN | AG | |
| DESIGN | PG | |
| CHECKED | MR | |
| JOB NO. | ECO1089 | SCALE 1:800@A3 |
| DWG NO. | ECO1089-01 | REV. 2 |

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# SUBMERSIBLE JX-180

Storm water and drainage water pump

## APPLICATION

Suitable for storm water, treated filtered effluent or drainage water, de-watering cellars, garages, pools, ditches and pits. NOT SUITABLE for sewage & waste water with solids.

## DESIGN FEATURES

- Built-in overload protection
- Heat treated shaft for durability
- Internal and external seals
- Stainless steel and cast iron construction
- Potted leads sealed with epoxy resin
- Automatic level control

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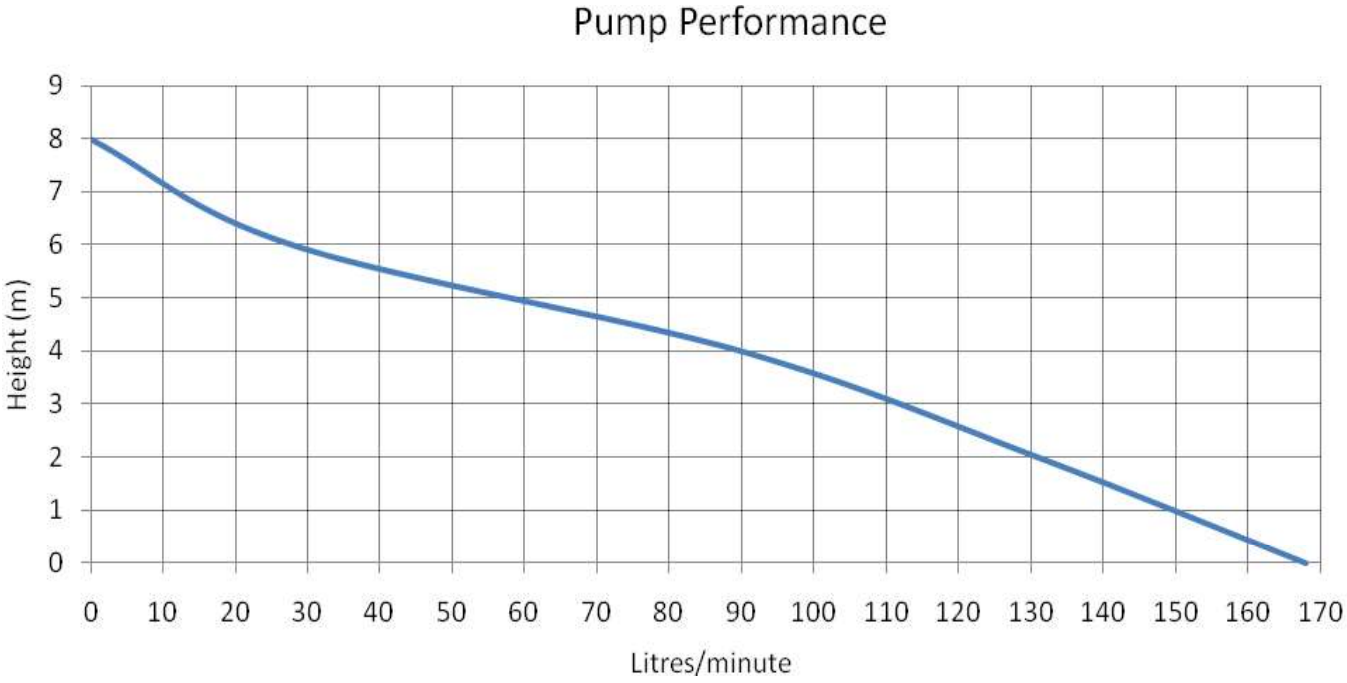
## TECHNICAL DATA

| | | | |
|---|---|---|---|
| Part Number | JX-180 | Weight (kg) | 9.1 |
| Motor (kW / HP) | 0.18 / 0.3 | Outlet (mm) | 25, 32, 40 |
| Power (Volts / phase) | 230 - 240 / 1 | Full Load Current (A) | 1.5amps |
| Pump Dimensions (mm) | 360(H) x 170(W) | Min Sump Dimension | 500x500x450mm |



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Paul McKenna architecture

# KOUBARIDIS HOME

## Blueskin Rd
## Wanganui.

ADDRESS
3 Buxton Road
Wanganui 4501

PHONE
(06) 3444 729

FAX
(06) 3447 269

MOBILE
021 126 1333

EMAIL
paulmck@ihug.co.nz

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EMAIL
paulmck@ihug.co.nz

# SPECIFICATION

**For the Construction of**
**New Home**
**Mike & Sarah Koubaridis**
**Blueskin Rd**
**Wanganui**

## MATERIAL & CONSTRUCTION SUMMARY

| *ELEMENT* | *DESCRIPTION* |
|---|---|
| **Floor** | 100mm 20mpa concrete floor, reinforced with 2.27kg/m2 500E mesh (SE62 OR SIMILAR), on expol 50mm polystyrene insulation under living areas, on 0.25mm polythene dpm, on 100mm compacted granular fill. |
| **Walls** | Timber framed: 140x45 & 90x45 H1.2 studs at 600 centres for external walls and 600cnrs for internal as noted on drawings, dwangs @ 800cnrs for external walls. All structural timber to be MSG/VSG 8 unless otherwise noted on plans. |
| **Roof framing** | Trussed roof in accordance with fabricators design. |
| **Roof Cladding** | 0.55 longrun Corrugated colorsteel Roofing |
| **Wall Cladding** | BGC Nuline fibre cement weatherboard. |
| **Insulation** | R3.2 Pink Batts insulation to ceiling, R2.2 Pink Batts to walls. 50mm Expol underfloor. |
| **Ceiling Linings** | 10mm Gib Ultraline on rondo battens @ 450cnrs. |
| **Wall Linings** | 10mm Gib board. Note positions of bracing and use Gib 'Braceline' where required. Use 9mm Hardies Villa Board to wet areas. Stop to a level 4 finish. Walls to be paint finished with sealer and 2 coats of selected colour acrylic paint. |
| **Exterior Joinery** | Powder coated aluminium as indicated on drawings. Double glaze with metro sealed units (or sim) |
| **Internal doors** | Hume craft Hayman hollow core doors- Confirm with owner |
| **Door Hardware** | As selected by owner. |


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| *ELEMENT* | *DESCRIPTION* |
|---|---|
| | |
| **Finishing lines** | Plastercraft #35 cornice in Entry, Family/Kitchen, lounge & Master Suite<br>Gibcove 'Basso' cornice elsewhere<br>CS135x18 Colonial skirting (Southern Pine Product profile code) Typically MUF but use Rad in wet areas.<br>CS135x18 Colonial skirting for Architraves |
| **Water Heating** | Rinnai Infinity EFi250 water heater as indicated. |
| **Floor finishes** | Tile, and carpet as indicated on plan |
| **Spouting** | 'Classic' profile coloursteel on Linea fascias. |
| **Heating** | Rinnai Symetry gas fire. 3 Heat Pump Units as shown |

**PC SUM SUMMARY.**

| *ITEM* | *PC SUM VALUE (inc GST)* |
|---|---|
| **Kitchens, Laundry, Office, Lounge and Scullery joiney** | $55,500.00 |
| **Tap ware (Price for "Greens" brand fittings with ceramic inserts)** | N/A |
| **Floor coverings- Carpet** | $180.00/lm |
| **- Tiles** | $70.00/m2 |
| **Bathroom Fixtures (excl. tapware)** | $7,500.00 |
| **Towel Rails** | $500.00 |
| **Front Door** | $1300.00 |
| **Door Hardware** | $100.00 per internal door. $300.00 for entry door. Aluminium doors to be quoted by joinery |

A contingency sum of 10% of the contract price is to be allowed, and specified, to cover any unforeseen additional expenses. Any claim for payment must be fully justified.


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# GENERAL SPECIFICATION

## 1. 1. PRELIMINARY AND GENERAL. (ALL SUBCONTRACTORS TO READ)

- If the designer has not been engaged for direct construction observation the designer can not take responsibility for issues which may arise during construction. The builder is to ensure that he, or the owner, has arranged an alternative method of resolving design issues during construction.
- This specification and all construction documentation has been supplied in electronic form to enable all documents to be shared with all sub contractors. The contractor shall ensure all subcontractors/tenderers are issued with a full set of the most current documents. Subcontractors are to request all document from the contractor before preparing a tender.
- All work is to be carried out in accordance with the requirements of the NZ Building Code (NZBC) and related documents. Compliance is to be achieved by adherence to NZS 3604: 2011and the Compliance Document of the NZBC unless otherwise detailed as an alternative solution.
- Building Consent, Resource Consent and other related fees are Owners responsibility.
- The words "provide" and fix" shall be construed to mean "provide" and 'fix" where mentioned separately unless otherwise mentioned.
- The contractor is to take out a ***Public Liability insurance*** policy with an insured sum of no less than $1,000,000.00. The Contractor is to have all of his employees covered against accident by an ***Employers' Liability Policy*** and to take out ***insurance against fire and theft of materials*** on-site for a sum sufficient to cover the full amount of the Contract Sum, Both policies are to remain in force until the building is taken over by the Owner; the fire insurance to be in the joint names of the Owner and Contractor.
- ***Work or materials*** shown on the drawings or specified and not shown, must be supplied as though both shown and specified. Materials shown but not specified shall 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 his lack of checking or faulty workmanship.
- The Contractor shall **carefully brace and support** all parts of his work against damage by wind and protect work from the elements as necessary during construction.
- The Contractor shall make good at his own expense any **damage done to footpaths, kerbs, drainage, etc**. Each trade shall take care to prevent damage or disfigurement of the work of other trades and will be responsible for cost of restoring same.
- No ***substitution of materials*** are to be made, in any circumstance, without permission of owner, designer, or the Territorial Authority.
- Tenderers shall ***visit the site*** and ascertain the extent of the work any other matter that may influence the making up of a tender or the carrying out of the Contract.
- ***The levels shown on the drawings*** are approximately correct but tenderers shall verify these as no claims for extra will be allowed on the basis of incorrect levels shown.
- **The contractor and all subcontractors are expected to be competant** in the work for which they are tendering. This means they are expected to be capable of working to good trade practice and be fully conversant with the NZBC and other


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relevant legislation and NZ standards that apply to the work for which they are tendering. They are responsible for bringing to the attention of the designer for clarification, any issues which may effect the execution of the contract works in a proficient, tradesmanlike, and compliant manner.

- Submittal of a **tender for work** including **subcontract work**, will be deemed to include all materials and labour neccesary to complete the work in full compliance with the NZBC and applicable NZ standards, other applicable legislation, and manufacturers instructions, and in a manner that represents best trade practice. ***No claim for a variation will be considered for materials or labour normally associated with completing the work in accordance with the NZBC and applicable NZ standards and legislation*** unless it can be demonstrated that the situation was not one that a competant trade professional could reasonably be expected to forsee.
- ***Workmanship*** shall be in accordance with the best trade practice, in strict conformity with the documentation, the NZBC and applicable NZ standards, other applicable legislation, and manufacturers instructions, and to the satisfaction of the Owner. All defective or damaged work shall be removed and made good to the satisfaction of the Owner.

**All Materials shall be used/fixed in strict accordance with the manufacturers instructions.**

## 2. EXCAVATION AND SITEWORK.

- Excavate area of building platform as indicated on plan. Areas of fill are to have top soil removed to solid bearing and fill compacted over this. Replace topsoil when done. Under slab is to be excavated to solid bearing and built up to within 50mm of underside of slab with clean fill sand compacted in 100mm layers. If more than 500mm of fill is required, compaction is to be verified by a registered structural engineer.
- Allow for foundation depths as shown on drawings. Foundations are to be founded in solid bearing (300kPa)
- ***Set out*** the work as shown or implied on the drawings. Check accuracy in terms of position, levels and square.
- ***Remove vegetation***, trees, roots and 150mm top soil within area to be covered by the driveway, paths, and steps. Do not remove any other trees without Owner's consent. Retain topsoil for re-use as required.
- ***Excavate*** for all site leveling, foundation walls and/or piles, underground services and subsoil drains etc. to correct levels and/or firm bearing.
- ***Backfill*** and well consolidate in 100mm layers to the foundation walls, pile footings and service trenches. Spread previously excavated top soil as directed.

## 3. CONCRETE AND REINFORCING.

- Concrete shall be ***20MPa at 28 days or as stated*** and comply with requirements of NZS 3109. Max aggregate size 19mm. Nominal slump 100mm. Concrete may be placed by pump.
- Reinforcing shall be as stated on plans. Typically, slabs are to be reinforced with 2.27kg/m2 500e mesh (SE62 or similar). Footings with D12 longitudinal rods with R10 starters/stirrups @ 600cnrs. 'D' (plain deformed bars) and 'R' (round smooth bars) are to be grade 300E steel and where HD steel is noted it shall be Grade 500E. Avoid re-bending misplaced starters. Never re-bend Grade 500E without engineering advice.
- Slabs: Cover to steel shall be 30mm to top of slab. Finish to be U.3. Slab to be cut to 25mm within 24hrs in the summer or 48hrs in the winter where noted on plans. Slabs shall be cured for a minimum of 7 full days after day of pouring. Either flood


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slab or use sprinklers to keep surface constantly wet

- ***Form work*** shall be so constructed to achieve exactly the form required. Times of removal of form work, methods of construction, and pouring and curing of concrete, shall comply with NZS 3109.
- ***Water shall not be added* on site to improve workability of a mix.**

**4. MASONRY BLOCKWORK (POOL)**

- Refer to Firth swimming Pool Guide
- Read and note all clauses under Preliminary and General of this specification where they apply to this trade. Please read fully the Firth Masonry Swimming Pools publication.
- ONLY A ***REGISTERED MASON*** IS TO CARRY OUT WORK SPECIFICALLY DESIGNED BY AN ENGINEER.
- Build in as the work proceeds all reinforcing steel, bolts and all other lugs, conduits, sleeves and openings for vents etc., required for the work of other trades. Keep surface clean and free from mortar, perpends true and faces true to line and vertical.
- ***Blocks*** are to be kept dry before laying. Reject all blocks not complying with NZS 3102.
- ***Blocks*** shall be laid in stretcher bond. All joints shall be full and struck to provide a fair faced finish to both faces. Complete bond shall be secured between the blocks and mortar. Ensure that bond is not broken by making adjustments to blocks after mortar has taken a set.
- The ***mortar*** for all block work shall be composed and mixed according to the relevant NZS clauses, water shall be of drinking quality; sand shall comply to NZS 3109 for grout filling of masonry cavities and NZS 3103 "Sands for Mortar Plaster & External Renderings" for mortars. All cement shall comply with NZS 3122 and shall be properly stored at the site and adequately protected from dampness.
- Minimum ***reinforcing steel*** requirements shall be in accordance with NZS 4229 and engineer's specific design; and the work shall only be erected by a Registered Mason.
- All block work ***joints*** where walls are not to be plastered shall be neatly tooled flush ready for plastering.
- Allow for plastering as required & liaise with tiler to coordinate finishing of pool

**5. CARPENTER**

- Carpenter is to attend on other trades as required.
- All framing timber is to be MSG/VSG 8 grade H1.2 treated minimum, and kiln dried in accordance with NZS 3604 except where other grade or greater treatment is stated on drawings. Check moisture content of framing on arrival and reject if to wet.
- Top and bottom plates to be same size as studs in long lengths, halved or nail plated at wall junctions and jointed over doubled studs. All studs at 400cnrs for load bearing walls and 600 cnrs elsewhere unless otherwise stated on the drawings. Provide rows of dwangs @ 800cnrs unless otherwise stated on drawings.
- Frame roof as shown on plans.
- Construct, ***soffits, eaves, and fascias*** as shown on plans. Fascias and barges to be Hardies Linea.
- ***Dampcourse,*** where required (under plates etc) is to be 3-ply bituminous felt or Thermakraft 'Supercourse'
- **Bolts & coach screws** (unless otherwise noted on plan) shall be 12mm complete with 50x50 square washers.


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- ***Prime Fascias etc*** before fixing and spot prime nail holes etc. after.
- ***Insulation*** is to be Pink Batts R2.2 to walls and R3.2 to ceilings. I Insulation shall be fitted snugly between framing members without gaps, folding, laps, or crushing
- Provide all ***wall bracing*** as shown on drawings and bracing calculation sheets. Gib bracing is to be fixed in accordance with Gib Bracing Systems Guide
- ***External cladding*** shall be ***BGC Nuline Fibre Cement Weatherboard*** installed in accordance with attached manufacturers instructions.
- ***Internal Wall lining*** shall be of 10mm Gib Board and shall be fixed to external walls only after placement of thermal insulation when framing has a moisture level of no higher than 16%. Use 9mm Hardies Villa board in wet areas.
- ***Ceilings*** are to be 10mm Gib Ultraline.
- See setout drawings on sheet 13.
- ***Skirting*** is to be CS135x18 colonial Skirting. Use Radiata in wet areas, otherwise, may be MUF
- ***Scotia/cornices*** shall be Plastercraft #35 in Living areas, Entry and Master suite. Elsewhere shall be Gibcove 'Basso'
- **Architrave**s CS135x18 colonial Skirting
- Arrange the supply of the ***kitchen, scullery, laundry, Dressing room,Entertainment centre and Office units to owners requirements.*** Allow to attend on the joiner for installation.

## 6. JOINERY

- Joinery & Glazing shall comply with the following Standards;
  - NZS 4211(Specification for performance of windows);
  - NZS3504 (Specification for Aluminium Windows);
  - NZS4203 (General Structural Design)
  - NZS 4223 Pt 1(Selection and Installation), Pt 3 (human Impact Safety), & Pt 4 (Loadings);
  - AS/NZS 4666 (Insulating glass units);
  - AS/NZS 4667 (quality requirements and tolerances);
  - AS/NZS 2208 (Safety Glazing materials)
- Obtain joinery from reputable aluminium joinery manufacturer using adequately trained staff. Supply complete with glazing, frictional restraints, and catches. Fix plumb both ways and in correct alignment and flash all in accord with manufacturer's instructions.
- Glazing shall be double glazed using Metro Glass 'Glass Tech' sealed units.
- ***Internal doors*** shall be ***Humecraft Hayman*** doors fixed on 1 ½ pairs of selected hinges on standard finger jointed jambs.

## 7. ROOFING.

- Temporary braces as might be necessary, and shall be provided in walls below to sustain such loading until roof cladding is complete and wall lining subsequently fixed.
- Underlay shall be breather type building paper to NZS 2295 with upper sheets lapped 75mm over lower sheets and with bottom edges turned over fascia into gutters. Such underlay shall be provided under all metal roofs and be adequately supported by 100mm wire mesh.
- Provide all gutters, valleys and underflashings, compatible with roof material, before cladding commences.
- For profiled metal roofing set out purlins to give reduced span at eaves and between top purlin and ridge as recommended.


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- Ensure all edges of roof cladding are adequately supported around projections such as pipes, ducting and roof lights.
- ***Roof cladding*** shall be long run 0.55 colorsteel corrugated roofing
- Adequately and neatly secure all ridges, caps and over flashings wherever needed to make and keep roof watertight.
- Do not leave swarf, broken rivets, screws,nails or waste metal on roof, or spouting.

**8. PLUMBING .**

- Wherever possible use ***flashings*** that are readily available but purpose-made for a given situation. Otherwise provide flashings as required and adequately secure. Flash wherever needed to make and keep the building envelope watertight. Ensure compatibility with other materials. Flashings to each window head and door shall be provided in one piece.
- ***Spouting*** shall be longrun colorsteel in Rainaway classic 150 profile . Connect outlets to 80mm diameter down pipes. Provide sufficient number of downpipes to service roof areas. Discharge stormwater through 90mm uPVC pipes to Water tanks as shown on plan
- Provide 12 mm ***POLYBUTYLENE pipe*** to all fittings. All branches to be as short, straight and at as even gradient as possible. Use only approved connections throughout. All pipes are to be adequately supported, well secured and concealed.
- Discuss and provide means of ***ELECTRICAL EARTHING*** with electrician.
- Install **Rinnai Infinity EFi250** water heater in roof space as indicated.
- Hot water supply pipes shall be insulated to comply with NZS4305 & H1/AS1.
- ***Sanitary fittings*** are to be chosen by owner.
- 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. Allow to supply 'Greens' brand fittings with ceramic inserts.
- Provide all necessary ***waste pipes, soil stacks, back vents, terminal vents,*** and all necessary overflow pipes. Provide cleaning eyes to all waste pipes at junctions.
- Under no circumstance should ***holes or notches*** etc be cut except in accordance with the restrictions imposed by NZS 3604. The plumber is to make good, at his own expense, any failings in this regard.
- Supply and install ***vents*** for the 150mm fan fixtures in the bathrooms, the clothes dryer, and the range hood. Ducts are to be laid straight **with the minimum number of bends and be terminated to the soffit.**
- Supply and install **White esybox electronic pump system** in Promax pump cover (large). Fix firmly to concrete pad
- Fit 2x Larsons **25,000l underground Water tanks** as shown on Plan.
- Supply and install **2x 40kg gas bottles** in Promax gas bottle cover

**9. DRAINAGE.**

- No c***onnections to sanitary drains*** or mains shall be made except by a Registered Drainlayer who shall arrange all permits, connection and testing fees.
- All ***materials*** shall be the best of their respective kinds. Typically pipes shall be uPVC in the sizes stated on the plans.
- All ***drains*** are to be laid to straight lines and even grades with socket against fall in all cases. Minimum cover of 500mm is to be maintained. The whole of the soil and stormwater drains are to be laid to a regular and even fall.
- The plan shows the ***layout*** of the system. Additional fittings that may be required but are not specifically shown must be allowed for by the Drain layer to comply with normal practice to comply with G13 of the NZBC.
- The pipes are to be jointed in a proper manner according to material used.


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- Supply all gully traps and securely bed and build up with 5:1 concrete surround. Rim level is to be 25mm above paved and 100mm above unpaved finished ground levels.
- Properly ***backfill all trenches***, consolidate as filling proceeds, and leave area in a tidy state.

**10.GIBSTOPPER**

- Use only ***materials*** approved by Winstone Wallboards for the jointing of sheets and follow closely jointing instructions supplied by them.
- Tape all ***joints.*** All external corners shall be reinforced with Gib slim angle.
- ***Finish*** to be Gib level 4 and 5 refer to finishes schedule
- Vacuum site and remove rubbish to leave interior ready for painting.

**11.ELECTRICAL.**

- Pay all ***fees*** and charges and obtain all necessary ***permits*** for this trade.
- Carry out the whole of the electrical installations in strict accordance with the latest Electrical ***Wiring Regulations*** and meter wiring diagrams.
- All ***work shall be carried out by a Registered Electrician*** in accordance with regulations and best trade practice and in a manner which will cause minimum inconvenience to other workmen and the work as a whole.
- Allow to fit battery operated ***photoelectric type smoke alarms*** within 3m of all bedroom doors. Smoke alarms are to be equipped with a hushing device.
- Allow for ***power points, switches. Light fittings*** etc. in accordance with the electrical plan but final position shall be determined by the owner on the job.
- Generally install plugs 300mm above floor or 225mm above bench top. Points to washer, dryer and refrigerators (where required) and light switches shall be 1200mm from floor. Allow for ***HPM Vivo range***. Power points to bathrooms are to be fitted with RCD devices
- Lights not otherwise specified shall be standard white plastic batten holder type.
- Allow for 150mm HPM extract fan through walls or ceiling in bathrooms as shown in plan together with all required grilles and flashings.
- Leave work complete, pay all charges and arrange for all inspections and tests and for the connection of power to the works. Supply owner with electrical certificate on completion.
- Under no circumstance should holes or notches etc. be cut except in accordance with the restrictions imposed by NZS 3604. The Electrician is to make good, at his own expense, any failings in this regard.

**12.PAINTING**

- Generally all ***materials*** shall be of approved brands and premium quality (ie:Dulux or Resene). Respective coats shall be of the same brand.
- ***Surfaces*** shall be clean and properly prepared before applying coats and all work shall be in accordance with Code of Practice NZS 7703 'Painting of Buildings'
- Owner is to select ***colour scheme***. Allow for a 2 way colour scheme to allow ceilings, finishing items and features to be picked out in different colours.
- Stop all holes in finishing timber as required.
- ***Inspect*** finish of Gybsum wall boards and ceilings after successive coats in glancing light, and arrange for rectification work by the Gib stopper to be carried out as required (at his expense).
- ***Bare surfaces*** are to be primed and sealed in accordance with topcoat manufacturers instructions.
- Apply at least 2 top coats to all surfaces. Additional coats may be required to achieve a totally opaque finish, but are not to be claimed as an extra variation


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(Paint must allow however many coats as are required). Apply paint finishes in accordance with Resene One-Line specification.

- **PVC Downpipes** shall be lightly sanded and primed with a suitable etch primer prior to finishing with at least 2 coats of selected paint finish.
- See sheet 24 for finishes schedule

**13.CLEANING & COMPLETION**

- The Contractor, at the conclusion of the Contract, shall have all ceilings, walls and woodwork carefully dusted and wiped down, windows washed and glass free from scratches, floors brushed and wiped down and the entire building left in a perfectly clean condition for occupation. All subcontractors shall remove all their rubbish and leave the site tidy for other trades.


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Paul McKenna architecture

# E2 / AS1 – WEATHERTIGHTNESS RISK FACTORS

Client: Koubaridis Address:Blueskin Rd, Wanganui

Designer: PAUL MCKENNA ARCHITECTURE PH (06) 3444 729

| | **Wall Elevation – worst (at bay window)** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Risk Factor** | Low | Score | Medium | Score | High | Score | Very High | Score | Subtotals for each risk Factor |
| **Wind zone (per NZS3604)** | 0 | | 0 | | 1 | **1** | 2 | | 1 |
| **Number of storeys** | 0 | **0** | 1 | | 2 | | 4 | | 0 |
| **Rood/wall intersection design** | 0 | **0** | 1 | | 3 | | 5 | | 0 |
| **Eaves width** | 0 | | 1 | | 2 | **2** | 5 | | 2 |
| **Envelope Complexity** | 0 | | 1 | **1** | 3 | | 6 | | 1 |
| **Deck design** | 0 | **0** | 2 | | 4 | | 6 | | 0 |
| **CLADDING -BGC NULINE direct fixed OK- cavity required for chimney** | | | | | | TOTAL RISK SCORE | | | 4 |

| **Risk Factor** | **Risk** | **Detail** |
|---|---|---|
| A: Wind zone | Low | Low wind zone as described by NZS 3604 |
| | Medium | Medium wind zone as described by NZS 3604 |
| | High | High wind zone as described by NZS 3604 |
| | Very High | Very high & EH wind zone as described by NZS 3604 |
| B: Number of Storeys | Low | One story |
| | Medium | Two storeys in part |
| | High | Two storeys |
| | Very High | More than two storeys |
| C: Roof/Wall intersection design | Low | Roof-to-wall intersection fully protected (eg. Hip and gable rood with eaves) |
| | Medium | Roof-to-wall intersection partially exposed (eg. Hip and gable roof with no eaves) |
| | High | Roof-to-wall intersection fully exposed (eg. Parapets or eaves at greater than 90˚ to vertical with soffit lining) |
| | Very High | Roof elements finishing within the boundaries formed by the exterior walls (eg. Lower ends of aprons, chimneys etc) |
| D: Eaves width [1] | Low | Greater than 600 mm at first floor level |
| | Medium | 450 – 600 mm at first floor, or over 600 mm at second floor level |
| | High | 100 – 450 mm at first floor level, or 450 – 600 mm at second floor level |
| | Very High | 0 – 100 mm at first floor, or 100 – 450 mm at second floor level, or 450 – 600 mm at third floor level [2] |
| E: Envelope Complexity | Low | Simple rectangular, L, T or boomerang shape, with single cladding type |
| | Medium | More complex, angular or curved shapes (eg. Y or arrowhead) with single cladding type |
| | High | Complex, angular or curved shapes (eg. Y or arrowhead) shapes with multiple cladding types |
| | Very High | As for high risk, but with junctions not covered by C or F of this table (eg. Box windows, pergolas, multi storey re-entrant shapes etc) |
| F: Deck design | Low | None, timber slat deck or porch at ground level |
| | Medium | Fully covered in plan by roof, or timber slat deck attached at first or second floor level |
| | High | Enclosed deck exposed in plan or cantilevered at first floor level |
| | Very High | Enclosed deck exposed in plan or cantilevered at second floor level or above |

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## Scope of use

This document is a guide to wall bracing of light timber frame (LTF) buildings constructed in accordance with NZS3604:2011 Timber Framed Buildings and presents a simple and efficient method for calculating and incorporating bracing resistance. This information draws on recent experiences from seismic activity in New Zealand and seeks to minimise earthquake damage to plasterboard linings in LTF buildings.

This document outlines the main principles of bracing design and construction using GIB® plasterboard products and systems. Further detailed information can be found in the GIB® Bracing Supplement by visiting gib.co.nz/library. This 'live' on-line document is updated continuously in response to market feedback and Winstone Wallboards' development initiatives.

## Finish quality — framing and substrates

Home owners are increasingly demanding a high quality of interior finish. Finish quality is heavily influenced by the substrate to which linings are fixed. Detailed information on 'Levels of Finish' is given in AS/NZS 2589 and the latest version of the GIB® Site Guide.

## New GIBFix® Framing System

With increased NZ Building Code requirements and growing customer demand for thermal efficiency and high quality interior finishes, traditional framing practices present problems such as multiple framing members at wall intersections creating thermal 'bridges' and cavities where insulation cannot be installed effectively.

Figure 1 shows a traditional wall framing layout. Figure 2 shows the alternative GIBFix® Framing System layout.

Multiple timber framing members also take longer to dry resulting in an increased risk of fastener pops and blemishes resulting from timber frame movement.

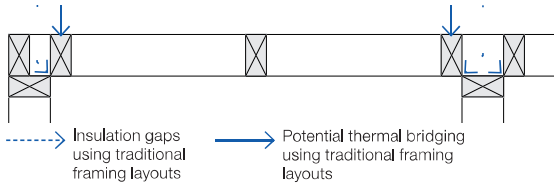
The GIBFix® Framing System offers better thermal efficiencies and minimises potential joint imperfections resulting from interior linings being fixed to multiple timber framing members.

The GIBFix® Framing System can be used in conjunction with GIB EzyBrace® Systems.

Bracing resistance is not affected by the GIBFix® Framing System if the use of this alternative timber framing layout is preferred. Refer to the GIBFix® Framing System literature for more information.

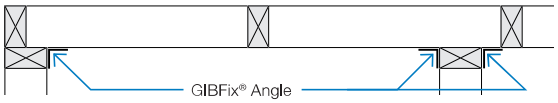
Bracing ratings apply whether fixing is directly into timber or into the metal components, provided correct construction details, fastener types and centres are applied.

FIGURE 1: TRADITIONAL WALL FRAMING LAYOUT




GFS004

FIGURE 2: GIBFIX® FRAMING SYSTEM (ALTERNATIVE LAYOUT)




GFS005

## NEW GS2-NOM Bracing Element

The new GS2-NOM bracing element allows most homes to be braced with a single lining type and less fixings so that a high quality finish is maintained throughout.

GS2-NOM permits the contribution of 'nominally fixed' internal walls. Higher performance elements are commonly specified on external walls and where limited wall area is available or adjacent to significant openings.

Winstone Wallboards recommends the use of the GIBFix® Framing System in conjunction with GS2-NOM elements. Key benefits of this approach include:

- Reduced potential for fastener pop and joint cracking of plasterboard linings.
- Enhanced thermal performance.
- Allows internal walls lined with GIB® plasterboard on both sides and fastened off as per the standard fixing requirements of the current GIB® Site Guide to contribute bracing resistance.
- Potentially reduces the amount of fasteners[1].
- Encourages more even bracing distribution throughout the building.

*1. Actual savings dependent on building and bracing design.*

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# Compliance with the NZ Building Code

### NZBC CLAUSE B1 — STRUCTURE

The design and material specification for steel and timber framing used in conjunction with this literature must be in accordance with the performance requirements of NZBC Clause B1. GIB EzyBrace® Systems comply with the requirements of NZS 3604:2011, when designed and installed in accordance with this publication and relevant technical literature. NZS 3604:2011 is an acceptable solution to NZBC Clause B1.

### NZBC CLAUSE B2 — DURABILITY

Under normal conditions of dry internal use GIB EzyBrace® Systems have a service life in excess of 50 years and satisfy the requirements of NZBC Clause B2. When in conditions of dry internal use, the components specified in this literature satisfy the requirements of NZBC Clause B2.

GIB® EzyBrace® Systems must not be specified in areas where 15 year durability applies and where linings are subject to direct water pressure, e.g. shower cubicle or shower over bath situations.

### NZBC CLAUSE F2 — HAZARDOUS BUILDING MATERIALS

Under normal conditions of use, during handling, installation or serviceable life, the products detailed in GIB EzyBrace® Systems do not constitute a health hazard and meet the provisions of the NZBC Clause F2.

### NZBC CLAUSE H1 — ENERGY EFFICIENCY

Buildings must be constructed to achieve an adequate degree of energy efficiency and the building envelope must provide adequate thermal resistance. The required thermal resistance (R-value) of timber framed external walls depends on climate zone but is commonly in the range from R 1.9 to R 2.0.

# CAD design details

Where applicable drawings related to GIB EzyBrace® Systems have been produced for CAD design. These are identified by a unique number in the bottom corner of each detail box. CAD design details can be found at gib.co.nz/library.

# Appraisal

GIB EzyBrace® Systems 2016 have been appraised by the Building Research Association of New Zealand (BRANZ), Appraisal No. 928 (2016) GIB EzyBrace® Systems, 2016.

It is of prime importance to comply with the details of design, construction and workmanship in this document.

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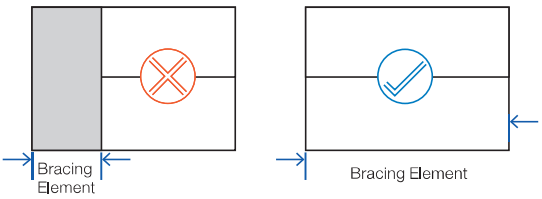
# Bracing resistance

## WALL BRACING LAYOUT

When designing the bracing layout, carefully consider the final finished appearance and utilise full wall lengths where possible, avoiding unnecessary fastenings in the centre of a clear wall. Using the available wall length provides additional bracing and achieves improved aesthetics.

FIGURE 3: WALL BRACING LAYOUT




## BRACING DISTRIBUTION

Distribute bracing by drawing a grid pattern of bracing lines along and across the building. Bracing lines must coincide as much as possible with the wall bracing elements. Pairs of elements may be counted on a single line provided they are no more than 2 metres apart and parallel. See figure 4.

Locate bracing evenly throughout the building and as close as practical to corners of external walls.

Space bracing lines no more than:

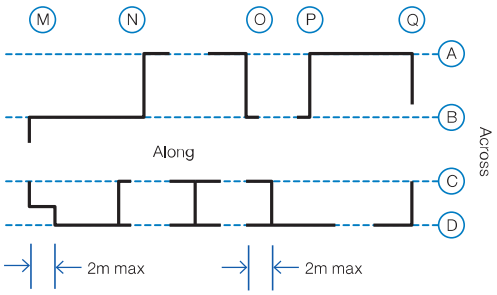
- 6 metres for standard construction with any GIB® plasterboard ceiling, or
- 7.5 metres where dragon ties in accordance with NZS3604:2011 have been installed, or
- 12 metres with a GIB® plasterboard ceiling diaphragm.

The construction of ceiling diaphragms is described in detail on p.18–20.

NZS3604:2011 requires that no bracing line shall have a capacity less than the greater of:

- 100 Bracing Units (BUs), or
- 15 x the external wall length (BUs) for bracing lines coinciding with external walls, or
- 50% of the total demand (D) divided by the number of lines (n) in the direction being considered (BUs).

FIGURE 4: BRACING GRID LAYOUT




The NZS3604 'rules' are merely minimum guidelines and compliance with them does not in itself ensure even distribution. The designer is responsible for checking distribution. Poor distribution can cause torsional effects and localised or more significant damage in an earthquake event.

## GIB EZYBRACE® SYSTEMS

The GIB EzyBrace® Specification Numbering System (and sub-components thereof) is protected by copyright and makes specification and identification of GIB EzyBrace® Systems transparent.

- 'GS' stands for GIB® Standard.
- 'BL' for GIB Braceline®
- 'P' for plywood.
- '1' and '2' for linings one or both sides.
- 'N' stands for 'no specific panel hold-down fixings'.
- 'H' stands for 'specific panel hold-down fixing' required.
- 'NOM' stands for 'nominal plasterboard fixing'. This refers to the standard fixing method used to install plasterboard as shown in the current GIB® Site Guide.

Where specific hold-down fixings are specified, refer to p.15-16. GIB HandiBrac® is fully contained within the framing cavity and does not interfere with lining installation and quality of finish.

Where no specific hold-down fixings are required, the minimum NZS3604:2011 bottom plate fixings apply.

Full bracing element construction details are provided in this technical literature.

Further general design and construction information can also be found in our GIB® Bracing Supplement by visiting gib.co.nz/library.

**Specifying GIB EzyBrace® elements (minimum wall length 400mm)**

| | |
|---|---|
| Inside lining external walls. | Nominate available lengths of wall as GS1-N elements.<br>Use BL1-H if higher ratings are required.<br>If the other side of the frame is lined with plywood consider GSP-H or BLP-H elements or use alternative proprietary bracing systems. |
| Internal walls (only one side available for bracing). | Nominate available lengths of wall as GS1-N elements.<br>Use BL1-H if higher ratings are required. |
| Internal walls (both sides available for bracing). | Nominate available length of wall as GS2-NOM elements.<br>Change to GS1-N if higher ratings are required.<br>Change to GS2-N if higher ratings are required.<br>Change to BLG-H for even higher ratings.<br>Consider GSP-H or BLP-H if the opposite side is lined with plywood. |

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# GIB® plasterboard linings

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

When a GIB® Bracing element has been designated for a section of wall, BU ratings cannot be increased by incorporating additional proprietary bracing elements within that same section of wall.

### LIMITATIONS

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

# GIB EzyBrace® Systems in water-splash areas

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

For futher design details refer to the current GIB Aqualine® Wet Area Systems literature.

# Renovation

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

# Openings in bracing elements

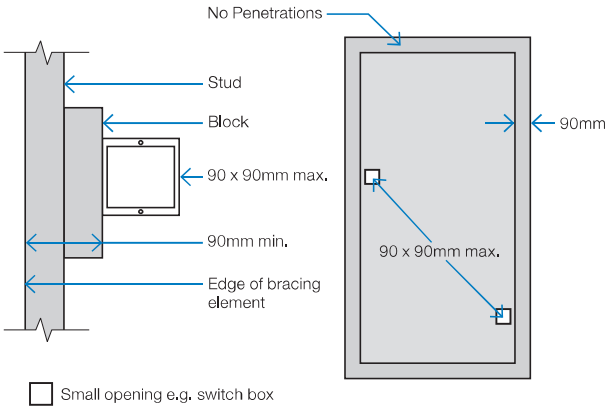
### SMALL OPENINGS

Small openings (e.g. power outlets) of 90 x 90mm or less may be placed no closer than 90mm to the edge of the braced element. A block may need to be provided alongside the perimeter stud as shown below.

### LARGE OPENINGS

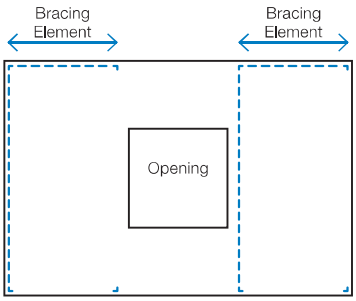
Openings above 90 x 90mm such as switch boards, recessed cabinets and TV's etc. should be placed outside of the bracing element or locate bracing on the other side of the wall framing.

FIGURE 10: SMALL OPENINGS IN BRACING ELEMENTS




GEB001

FIGURE 11: LARGE OPENINGS AND BRACING ELEMENTS



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# Timber framing

General framing requirements such as grade, spacings and installation shall comply with the provisions of NZS 3604:2011. To achieve the published bracing performance the minimum actual framing dimensions are 90 x 45mm for external walls and 70 x 45mm for internal walls.

As a minimum the use of Kiln Dried Stress Graded timber for all wall, roof and mid-floor framing members is recommended.

# GIBFix® Framing System (alternative layout)

Practices recommended as part of the GIBFix® Framing System aim to increase timber framing efficiencies, reduce reliance on unnecessary framing at wall junctions and minimise surface imperfections that commonly arise from constructing plasterboard junctions over multiple timber members. GIBFix® Angles fixed to a single timber framing member are introduced to tie together plasterboard junctions, improving seismic resilience and decrease the risk of future defects due to timber movement. The GIBFix® Framing System can be used in conjunction with the GIB EzyBrace® System.

Note: GIBFix® Angles and 32mm x 7g GIB® Grabber® Dual Thread Screws may also be used in traditional wall framing layouts and in GIB EzyBrace® Systems.

When the GIBFix® Framing System is used a minimum of 2 equally spaced nogs for walls between 2.4m and 3m in height are required at corners and wall junctions.

When used in GIB EzyBrace® systems GIBFix® Angles must run from top to bottom on all applicable studs. If 2 GIBFix® Angles are required on a stud they must be overlapped by a minimum of 300mm with 2/32mm 7g GIB® Grabber® Dual Thread Screws penetrating through both GIBFix® Angles.

For full specification details refer to GIBFix® Framing System literature available at gib.co.nz/gibfix.

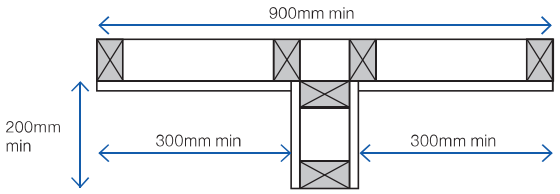
# Guidelines for intersection walls

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

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

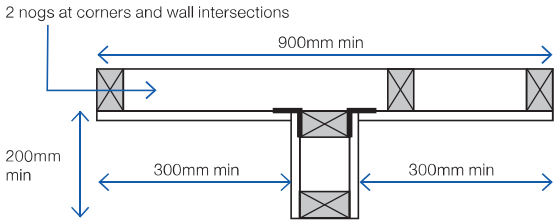
When fixing part sheets of GIB® plasterboard to the side of a T-junction, a minimum width of 300mm applies for bracing elements. See figures 12 and 13.

FIGURE 12: WALL INTERSECTION (TRADITIONAL WALL FRAMING)



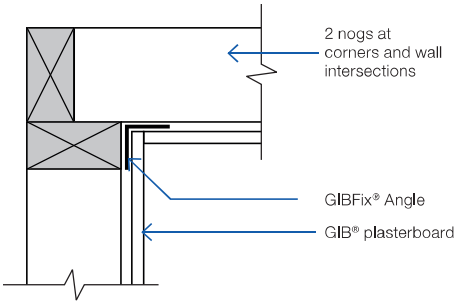

GEB002

FIGURE 13: WALL INTERSECTION (GIBFIX® FRAMING SYSTEM)



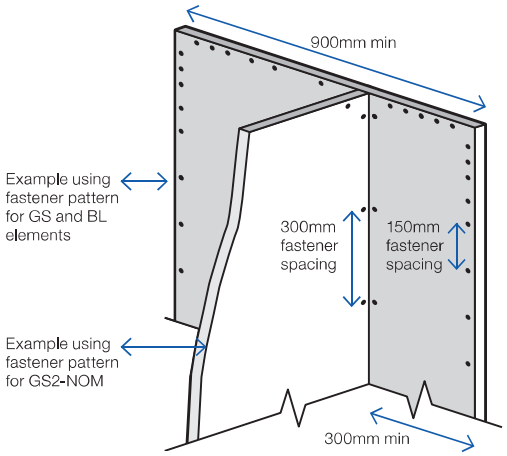

GEB003

FIGURE 14: CORNER INTERSECTION (GIBFIX® FRAMING SYSTEM)




GFS001

FIGURE 15: WALL INTERSECTION FASTENER PLACEMENT




Junction

Min 32mm x 6g GIB® Grabber® High Thread or 32mm x 7g GIB® Grabber® Dual Thread Screws @ 300mm ctrs each side.

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# Top plate connections

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

# Parapets and gable end walls

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

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

**or**

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

# Bottom plate fixing

### TIMBER FLOOR

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

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

### CONCRETE FLOOR — EXTERNAL WALL BRACING ELEMENTS

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

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

### CONCRETE FLOOR — INTERNAL WALL BRACING ELEMENTS

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

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

FIGURE 16: PARAPETS AND GABLE ENDS WITH RIBBON PLATE

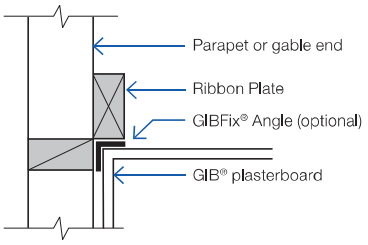
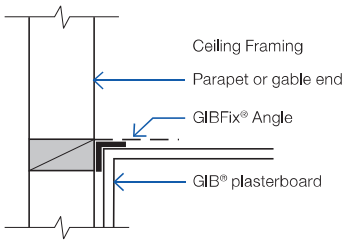



FIGURE 17: PARAPETS AND GABLE ENDS WITH GIBFIX® ANGLE




GFS003

### BOTTOM PLATE FIXINGS FOR GIB® BRACING ELEMENTS

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

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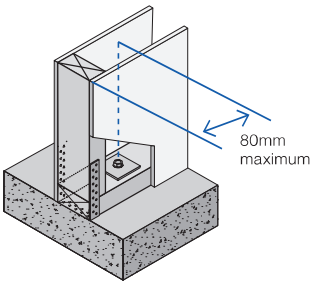
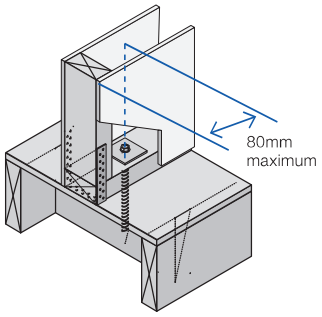
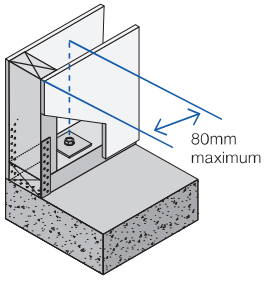
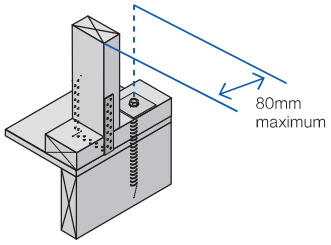
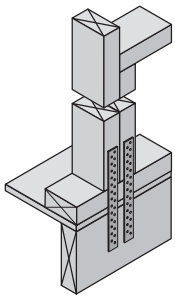
# Bracing strap installation

Care needs to be taken with the installation of the bracing strap. It should be checked in to be flush with the face of the stud providing a flat substrate for the plasterboard and positioned in such a way that the corner fastenings of the bracing element are not affected by it. Keeping the strap to the edge of the end stud as shown will allow the corner fastenings to be installed without having to penetrate the bracing strap.

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

| Hold-down fastener requirements | |
|---|---|
| Concrete floor | Timber floor |
| A mechanical fastening with a minimum characteristic uplift capacity of 15kN fitted with a 50 x 50 x 3mm square washer within 80mm of the ends of the bracing element. | 12 x 150mm galvanised coach screw fitted with a 50 x 50 x 3mm square washer within 80mm of the ends of the bracing element |

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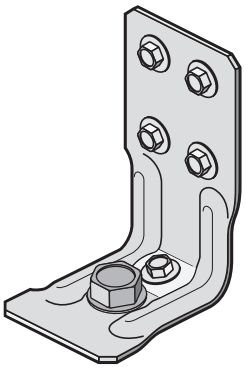
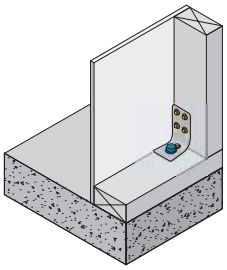
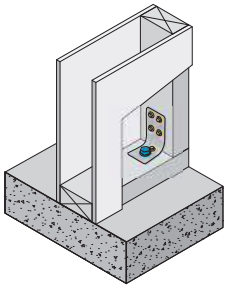
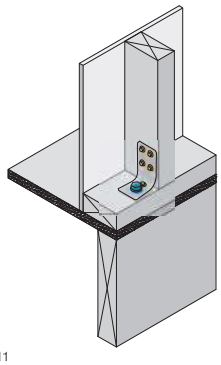
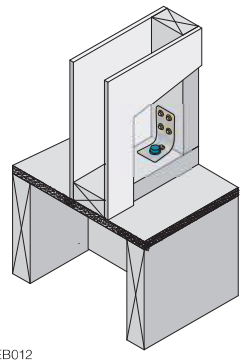
# GIB HandiBrac® installation



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

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

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

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

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

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

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

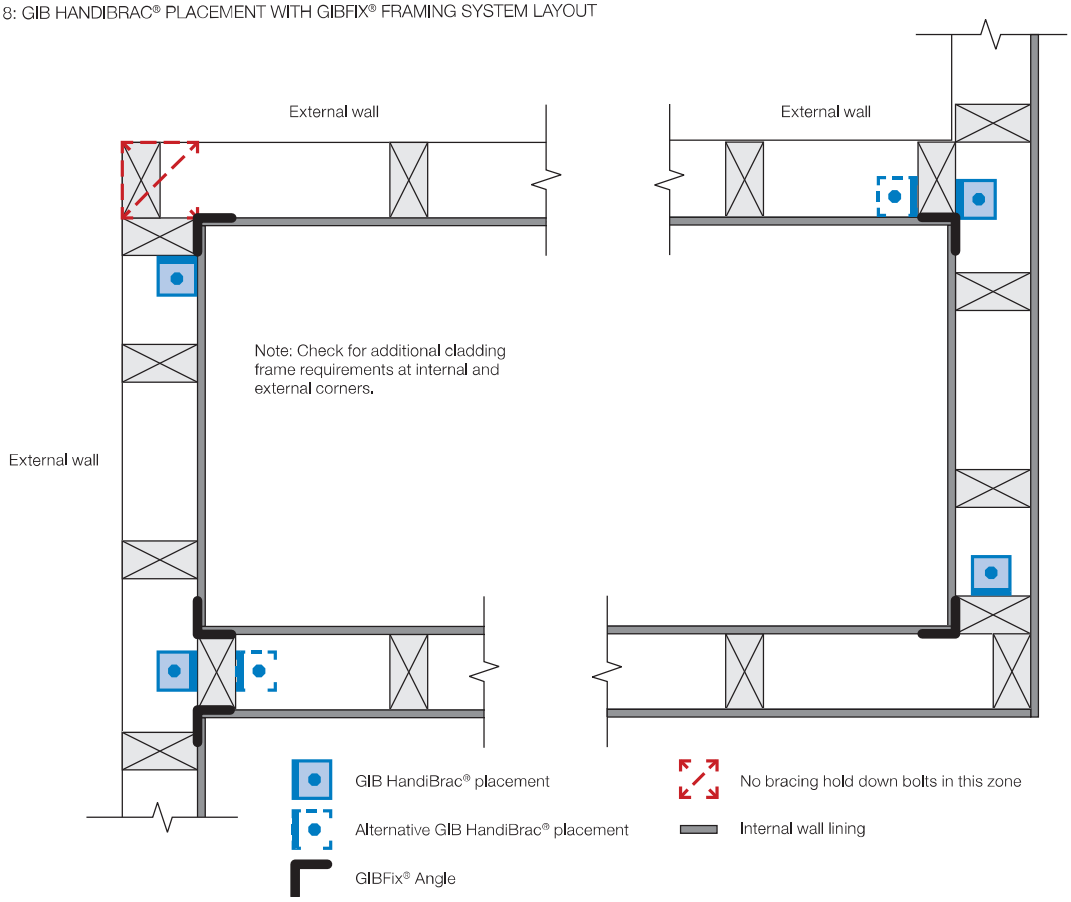
The GIB HandiBrac® is fixed to the stud which has the GIBFix® Angle.

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

## TIMBER FLOORS

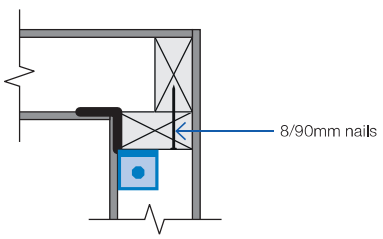
For timber floors bolt fixing in to solid joist or block is required, as shown on p 15.

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




GEB013

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




GEB014

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# Ceiling diaphragms

GIB® plasterboard ceiling diaphragms are stiff and strong horizontal elements which effectively transfer loads to bracing walls. They themselves do not have a bracing unit rating but are used when bracing lines exceed 6m separation. The basic shape of a ceiling diaphragm is square or rectangular. Protrusions are permitted but cut-outs are not. The length of a ceiling diaphragm shall not exceed twice its width. Dimensions are measured between supporting bracing lines. Supporting bracing lines shall have a bracing capacity no less than the greater of 100 bracing units or 15 bracing units per metre of diaphragm dimension, measured at right angles to the line being considered, see figure 21.

# Limitations for GIB® plasterboard ceiling diaphragms

Ceiling diaphragms may be constructed using any GIB® plasterboard provided perimeter fixing is at;

150mm centres for: Diaphragms up to 7.5m in length, no steeper than 15°.

100mm centres for: Diaphragms up to 7.5m in length, no steeper than 45°. Diaphragms up to 12m in length, no steeper than 25°.

Diaphragms outside these parameters must be specifically designed.

**General fixing requirements for GIB® Ceiling Diaphragms:**

- Linings must be installed over the entire area of the diaphragm.
- Fastening must be no less than 12mm from sheet edges and not less than 18mm from sheet ends.
- Sheets must be supported by framing members (e.g., ceiling battens) spaced at no more than 500mm centres for 10mm GIB® plasterboard and at no more than 600mm centres for 13mm GIB® plasterboard.
- Sheets within the diaphragm area may be fastened and finished conventionally in accordance with the publication entitled, "GIB® Site Guide". All joints shall be GIB® Joint Tape reinforced and stopped. It is recommended that sheet butt joints are formed off framing and back-blocked (see "GIB® Site Guide").
- Use full width sheets where possible. At least 900mm wide sheets with a length not less than 1800mm shall be used. Sheets less than 900mm wide but no less than 600mm may be used provided all joints with adjacent sheets are back-blocked (see "GIB® Site Guide" and figure 22).
- Fasteners are placed at the specified centres around the ceiling diaphragm with the corners fastened using the GIB EzyBrace® fastener pattern.

FIGURE 20: PROTRUSIONS AND CUTOUTS

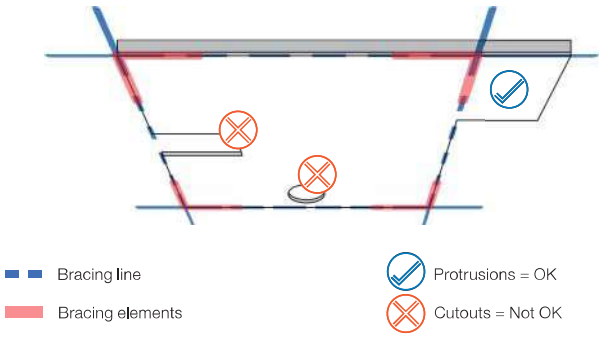



FIGURE 21: DIAPHRAGM BRACING LINING SPACINGS

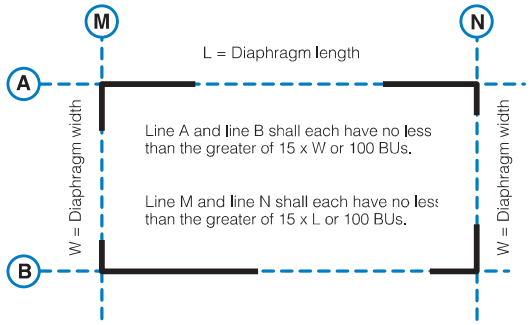
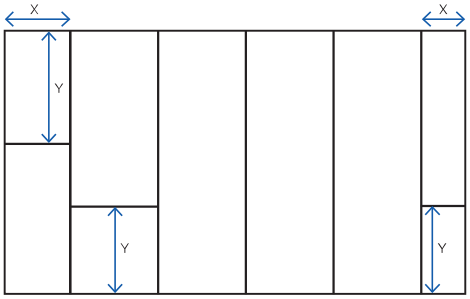
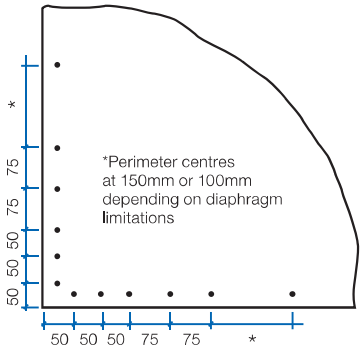



FIGURE 22: GIB® CEILING DIAPHRAGM SHEET WIDTHS AND LENGTHS




X = 900mm min or 600–900mm min provided all adjacent joints are back-blocked.
Y = 1800mm min sheet lengths at ends of ceiling diaphragms.

FIGURE 23: GIB EZYBRACE® FASTENER PATTERN




Unless stated all fastener spacings are maximums.

GEB015

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# Ceiling battens in ceiling diaphragms

Ceiling diaphragms may be constructed using steel or timber ceiling battens.

Battens shall be spaced at a maximum of:
- 500mm for 10mm GIB® plasterboard.
- 600mm for 13mm GIB® plasterboard.

Timber battens shall be fixed in accordance with the requirements of NZS 3604:2011.

Metal battens shall be GIB® Rondo® battens with two external flanges of 8mm to allow direct screw fixing to roof framing.

GIB® Rondo® metal battens shall be fixed with 2/32mm x 8g GIB® Grabber® Wafer Head Self Tapping screws to supporting framing.

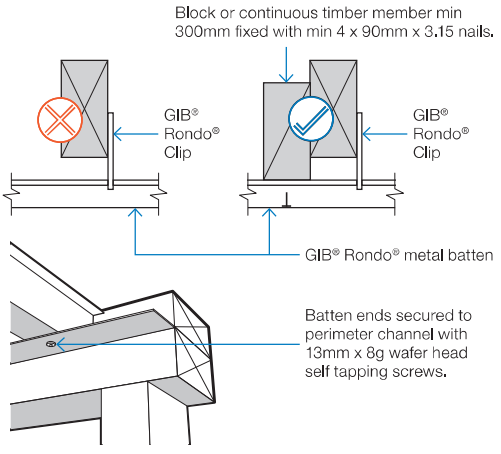
GIB® Rondo® metal battens must be fixed directly to the roof framing. If a clip system has been used, a timber block (min 300mm) or a continuous timber member can be fixed alongside the bottom chord to permit a direct connection to the batten, see figure 26.

For GIB® Rondo® metal battens, a GIB® Rondo® metal channel or metal angle is required at the perimeter of the diaphragm. The perimeter channel shall be fastened to the top plate with 32mm x 8g GIB® Grabber® Wafer Head Self Tapping screws or 32mm x 7g GIB® Grabber® Dual Thread screw at 300mm centres maximum.

Linings are fastened to metal using 25mm x 6g GIB® Grabber® Self Tapping screws and to timber framing using 32mm x 6g GIB® Grabber® High Thread screws. Alternatively 32mm x 7g GIB® Grabber® Dual Thread screws can be used in both cases. Fastener centres are specified on p.18.

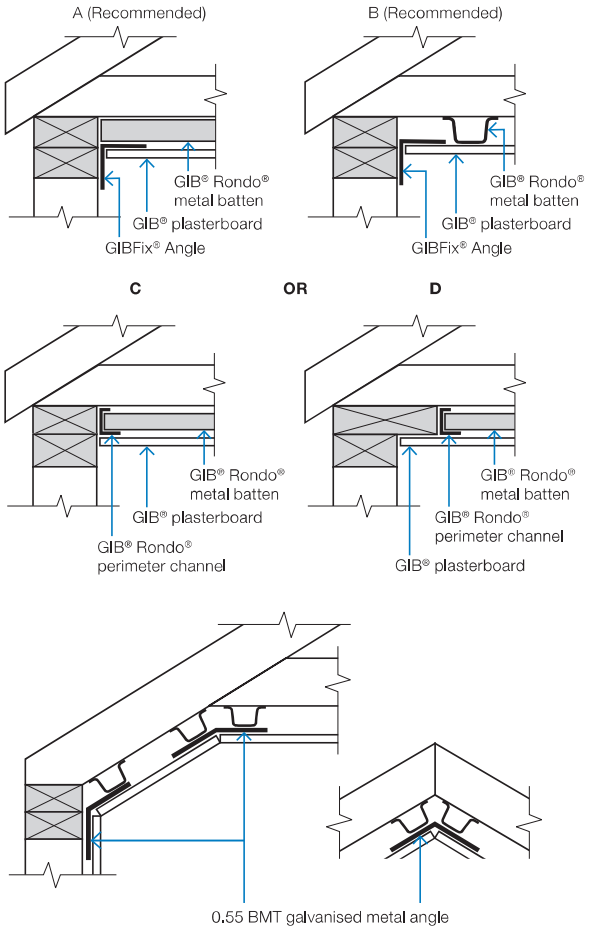
Coved ceiling diaphragms can be achieved by using nominally 32 x 32 x 0.55mm proprietary galvanised metal angles ("back-flashing") at the changes in direction. These angles shall be:
- Fastened at 300mm on each edge to metal battens using 32mm x 8g GIB® Grabber® Wafer Head Self Tapping screws or 32mm x 7g GIB® Grabber® Dual Thread screws.
- Fastened to timber framing using 32mm x 7g GIB® Grabber® Dual Thread screws when linings are installed.

FIGURE 26: GIB® RONDO® METAL CEILING BATTEN INSTALLATION



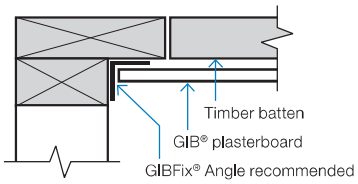

GEB016

FIGURE 27: GIB® RONDO® METAL CEILING BATTENS WITH CORNER ANGLES




GEB017

FIGURE 28: TIMBER CEILING BATTENS*




GEB018

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# Openings in ceiling diaphragms

## SMALL OPENINGS

Small opening (e.g. down lights) of 90 x 90mm or less may be placed no closer than 90mm to the edge of the ceiling diaphragm.

## LARGE OPENINGS

Openings are allowed withing the middle third of the diaphragms length and width. Fixing of sheet material to opening trimmers shall be at 150mm centres. Neither opening dimension shall exceed a third of the diaphragm width. Larger openings or openings in other locations require specific engineering design.

Where fireplace flue or range hood openings are required in a ceiling diaphragm use a galvansed metal backing plate as shown in figure 25, with a maximum hole diameter of 350mm.

Figure 25 can also be used for range hood openings in walls.

For information on openings in ceiling diaphragms contact the GIB® Helpline on 0800 100 442.

FIGURE 24: LARGE OPENINGS IN CEILING DIAPHRAGMS

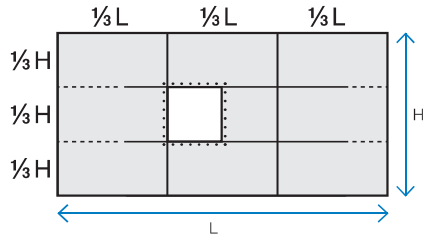
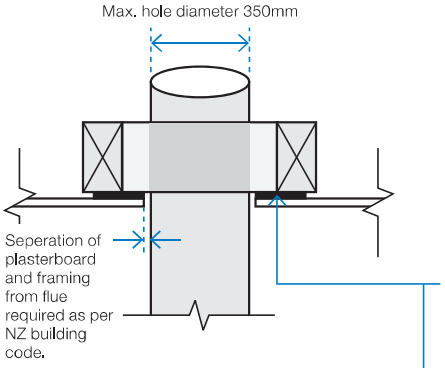
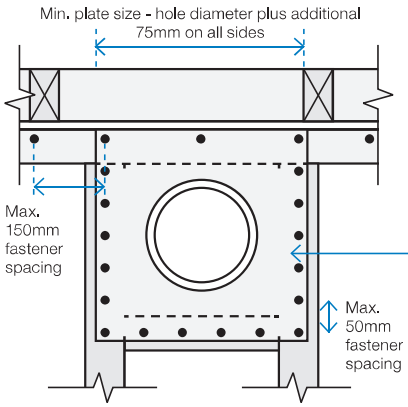



FIGURE 25: FIREPLACE FLUES AND RANGE HOOD OPENINGS

**Section view**




**Plan view**




**Steel plate**
0.55 BMT Galvanised sheet Max. opening 350mm diameter. Installed prior to GIB® plasterboard.

**Framing**
90 x 45mm framing trimmed to provide extra fixing.

**GIB® plasterboard ceiling**
Installed over the steel plate and into framing using a minimum of 32mm x 6g GIB® Grabber High Thread or 32mm x 7g GIB® Grabber Dual Thread screws at 50mm max centre spacing.

Plasterboard ceiling not shown in plan view

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# Length of GIB EzyBrace® elements ('N' Type)

The length of GIB EzyBrace® elements with an 'N' extension (requiring standard NZS3604:2011 plate connections) can be taken as the full frame length measured from the outside of the end-stud to the opening face as illustrated in figures 29-32.

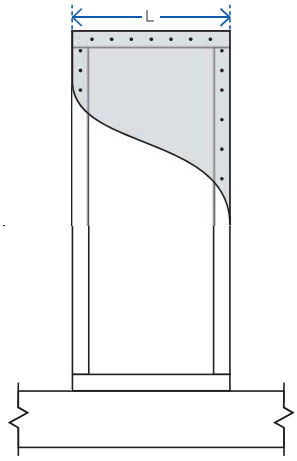
'N' type GIB EzyBrace® elements are identified by GIB® specification numbers GS1-N, GS2-N and GS2-NOM

The dimension 'L' shall not be less than 400mm.

Perimeter bracing fixing for linings of both 'H' and 'N' type elements is along the top and bottom plates, end stud, and doubling stud immediately adjacent to the opening.

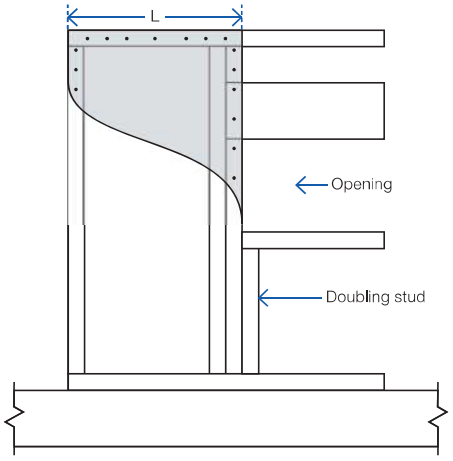
Fastener spacings and diagram scales shown in Figures 29–32 are indicative only. Refer to p.23–30 for construction details.

FIGURE 29: GS BRACING ELEMENTS (OPTION A)



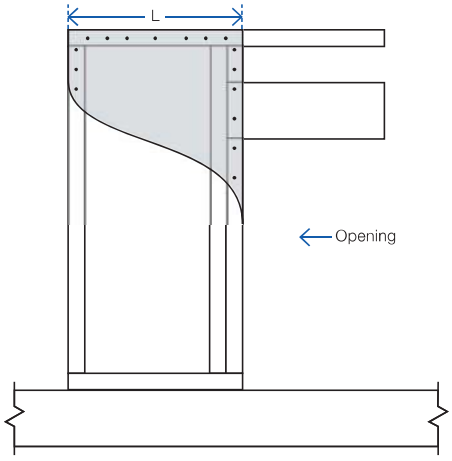

GS1-N, GS2-N elements
'L' indicates the length of the bracing element

FIGURE 30: GS BRACING ELEMENTS (OPTION B)



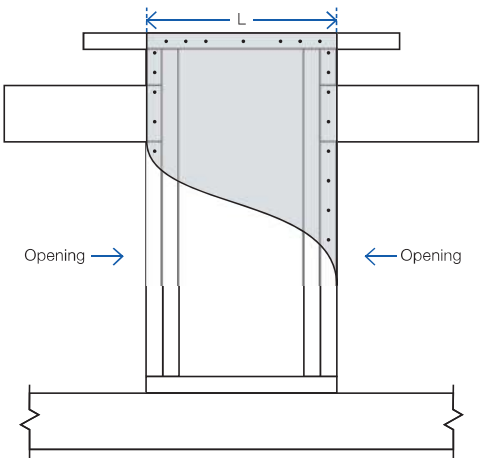

GS1-N, GS2-N elements
'L' indicates the length of the bracing element

FIGURE 31: GS BRACING ELEMENTS (OPTION C)




GS1-N, GS2-N elements
'L' indicates the length of the bracing element

FIGURE 32: GS BRACING ELEMENTS (OPTION D)




GS1-N, GS2-N elements
'L' indicates the length of the bracing element

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# Length of GIB EzyBrace® elements ('H' Type)

GIB EzyBrace® elements with an 'H' extension (requiring special panel hold-down fixings) can be used when the dimension 'L' as illustrated in figures 33–36 is 400mm or more.

'H' type GIB EzyBrace® elements are identified by GIB® specification numbers GSP-H, BL1-H, BLG-H and BLP-H.

The length of an 'H' type element is not only determined by the sheet material, but also by the placement of the hold-down fixings.

Hold-down fixings cannot be placed closer together than what is shown for the standard panel in figure 33.

Hold-down fixings can be placed under windows provided sill trimming studs beneath the opening are connected to the bracing element using 8/90mm gun nails, as illustrated in figure 34.

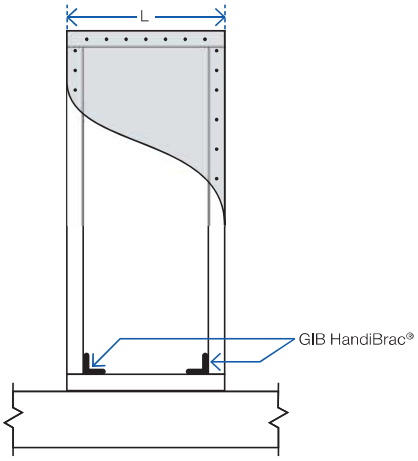
Spike doubling stud to trimming stud using a minimum of 2/90mm gun nails at 600mm centres. Lintel straps (where required for wind uplift) should be checked in and be located away from the bracing element fasteners.

Perimeter bracing fixing for linings of both 'H' and 'N' type elements is along the top and bottom plates, end stud, and doubling stud immediately adjacent to the opening as indicated in figures 34-36.

When using bracing straps, installed in accordance with p.17, fix the strap to the same framing member as shown for the GIB Handibrac® below, and install the adjacent anchor bolt in the same position as the GIB HandiBrac® bolt.

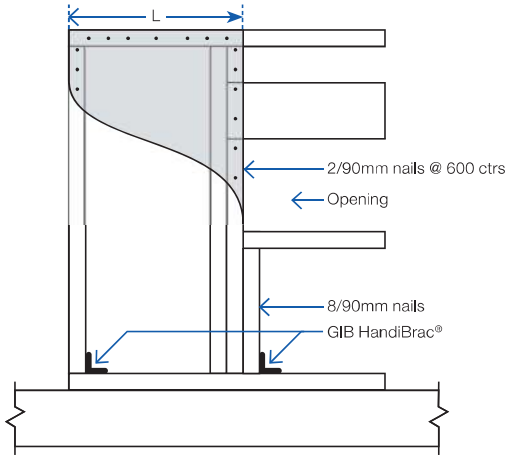
Fastener spacings and diagram scales shown in figures 33–36 are indicative only. Refer to p.23–30 for construction details.

FIGURE 33: BL BRACING ELEMENTS (OPTION A)



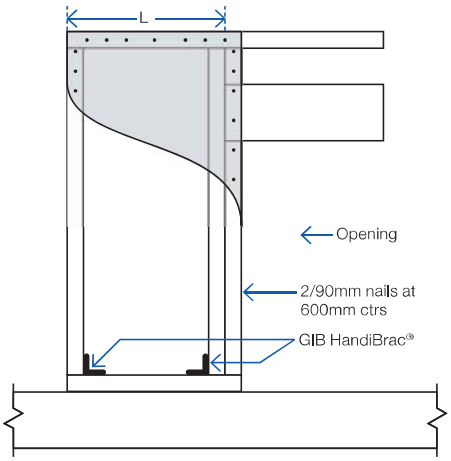

'H' type elements with specific hold downs
'L' indicates the length of the bracing element

FIGURE 34: BL BRACING ELEMENTS (OPTION B)



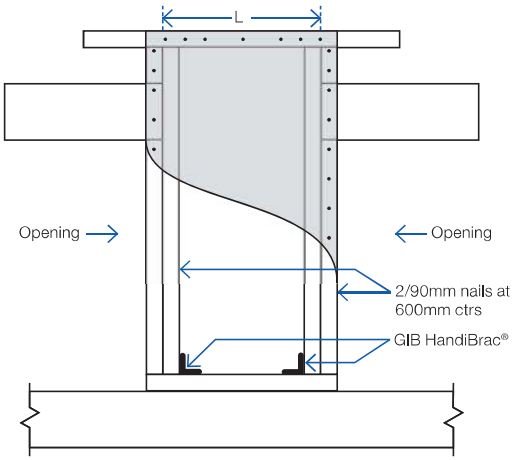

'H' type elements with specific hold downs
'L' indicates the length of the bracing element

FIGURE 35: BL BRACING ELEMENTS (OPTION C)




'H' type elements with specific hold downs
'L' indicates the length of the bracing element

FIGURE 36: BL BRACING ELEMENTS (OPTION D)




'H' type elements with specific hold downs
'L' indicates the length of the bracing element

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# GIB EzyBrace® Systems specification GS1-N

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

## WALL FRAMING

Wall framing to comply with;

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

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

## BOTTOM PLATE FIXING

**Timber floor**

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

**Concrete floor**

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

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

## WALL LINING

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

## PERMITTED ALTERNATIVES

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

## FASTENING THE LINING

**Fasteners**

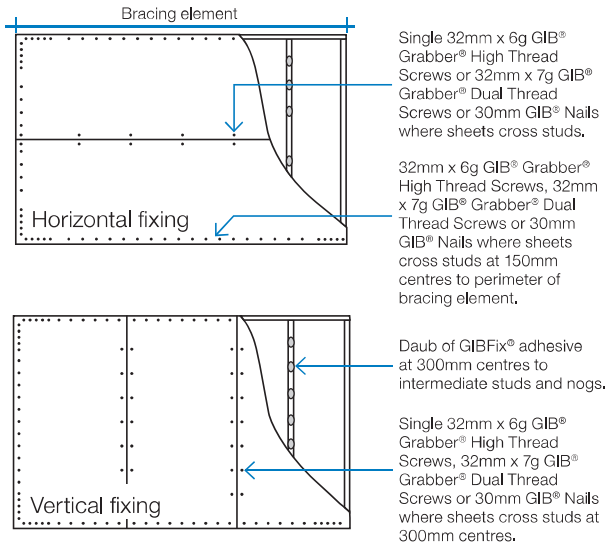
32mm x 6g GIB® Grabber® High Thread Screws, 32mm x 7g GIB® Grabber® Dual Thread Screws or 30mm GIB® Nails. If using the GIBFix® Angle use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

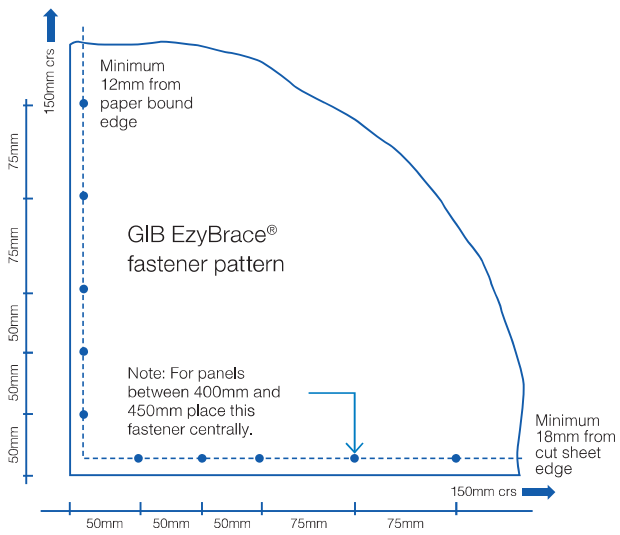
**Fastener centres**

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

## JOINTING

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




Unless stated all fastener spacings are maximums.

*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*

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# GIB EzyBrace® Systems specification GS2-NOM

| Specification code | Minimum length (m) | Lining requirement |
|---|---|---|
| GS2-NOM | 0.4 | Any 10mm or 13mm GIB® Standard plasterboard fixed to each side of the wall framing |

## WALL FRAMING

Wall framing to comply with;

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

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

## BOTTOM PLATE FIXING

**Timber floor**

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

**Concrete floor**

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

## WALL LINING

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

## PERMITTED ALTERNATIVES

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

## FASTENING THE LINING

**Fasteners**

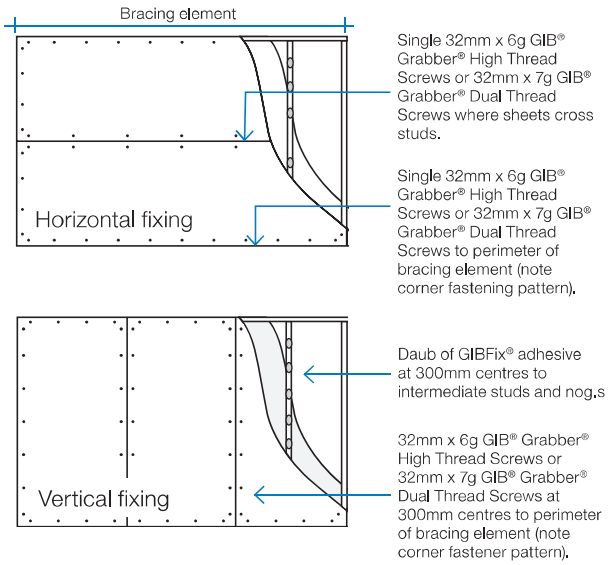
32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. If using the GIBFix® Angle use 32mm x 7g GIB® Grabber® Dual Thread Screws.

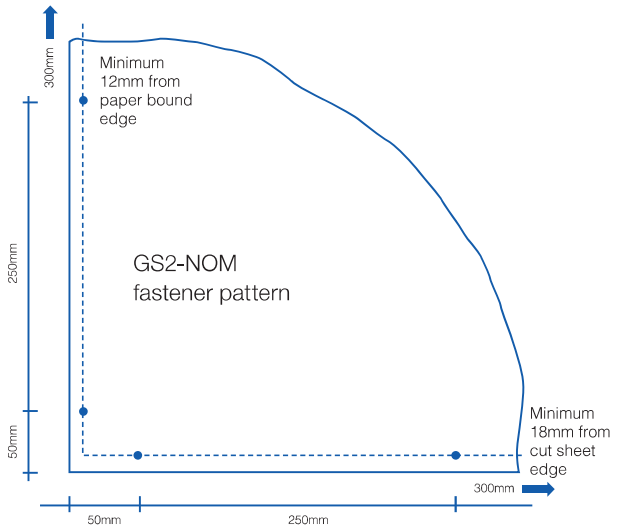
**Fastener centres**

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

## JOINTING

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




Unless stated all fastener spacings are maximums.

*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*

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## GS2-NOM ADHESIVE FIXING OPTION AT DOOR JAMBS

As an alternative to using screw fixings, a continuous 6-10mm bead of solvent based GIBFix® All-Bond can be applied along the full height studs immediately adjacent to an internal door opening and at the door lintel or head trimmer. The lining is then bedded into the adhesive and installed into the rebated jamb, as shown in figure 38.

This solvent based adhesive option may only be used with GS2-NOM specification and is designed to reduce popping of fasteners around door openings on internal walls.

FIGURE 37: SCREW FIX FOR OPENINGS

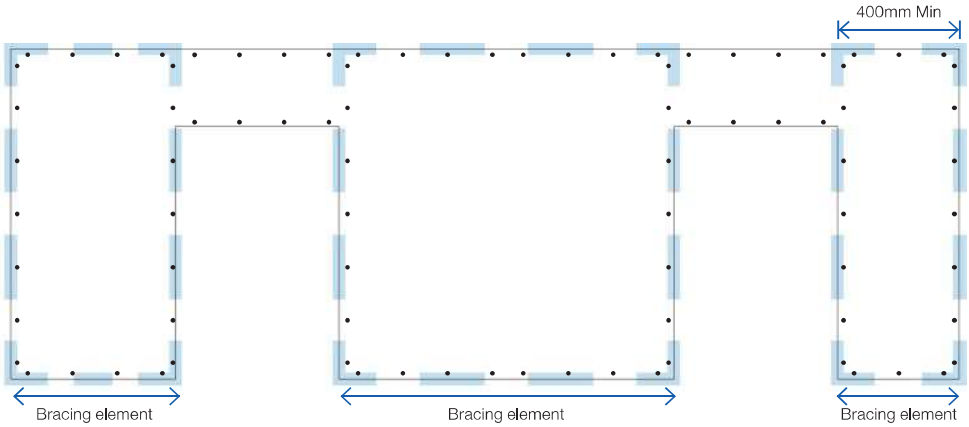
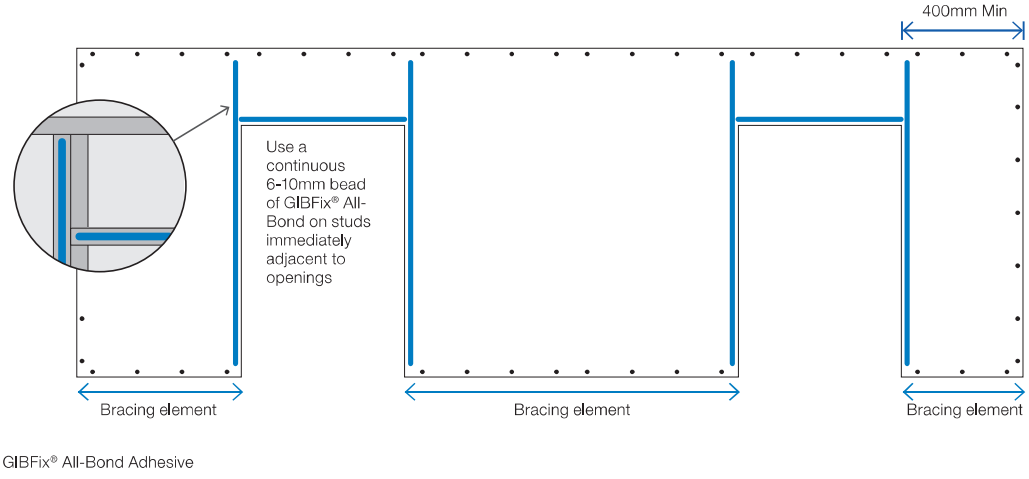
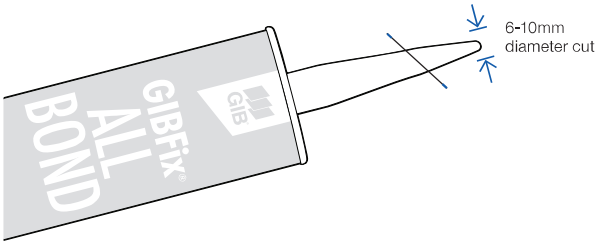



FIGURE 38: SCREW AND ADHESIVE FIX FOR OPENINGS




ADHESIVE NOZZLE APERTURE



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# GIB EzyBrace® Systems specification GS2-N

| Specification code | Minimum length (m) | Lining requirement |
|---|---|---|
| GS2-N | 0.4 | Any 10mm or 13mm GIB® Standard plasterboard fixed to each side of the wall framing |

## WALL FRAMING

Wall framing to comply with;

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

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

## BOTTOM PLATE FIXING

**Timber Floor**

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

**Concrete floor**

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

## WALL LINING

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

## PERMITTED ALTERNATIVES

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

## FASTENING THE LINING

**Fasteners**

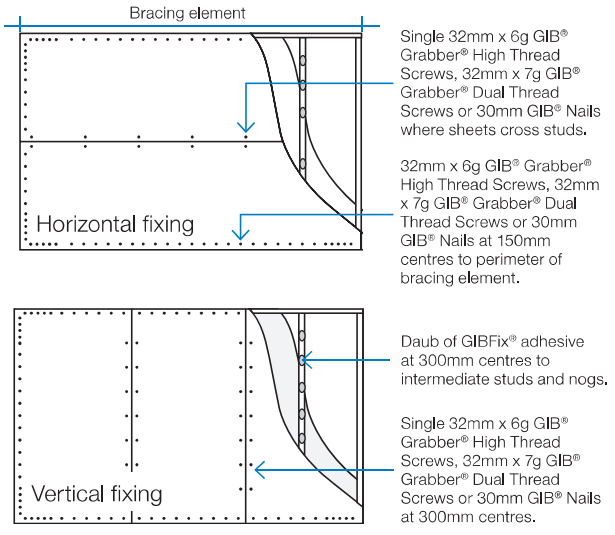
32mm x 6g GIB® Grabber® High Thread Screws,32mm x 7g GIB® Grabber® Dual Thread Screws or 30mm GIB® Nails. If using the GIBFix® Angle use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

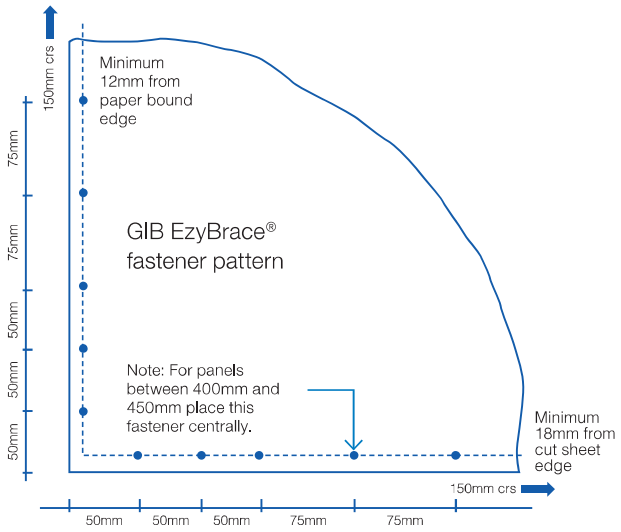
**Fastener centres**

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

## JOINTING

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




Unless stated all fastener spacings are maximums.

*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*

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# GIB EzyBrace® Systems specification GSP-H

| Specification Code | Minimum length (m) | Lining requirement | Other requirements |
|---|---|---|---|
| GSP-H | 0.4 | Any 10mm or 13mm GIB® plasterboard lining to one side of framing and minimum 7mm structural plywood manufactured to AS/NZ 2269.0 :2012 to the other side | Hold downs |

## WALL FRAMING

Wall framing to comply with;

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

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

## BOTTOM PLATE FIXING

**Timber floor**

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

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

**Concrete floor**

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

## WALL LINING

- A layer of 10mm or 13mm GIB® plasterboard to one side of the wall plus minimum 7mm structural plywood manufactured to AS/NZ 2269.0 :2012 to the other side.
- Sheets can be fixed vertically or horizontally, with edges supported.
- Sheet joints shall be touch fitted.
- Use full length sheets where possible.

## PERMITTED ALTERNATIVES

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

## FASTENING THE LINING

**Fasteners**

32mm x 6g GIB® Grabber® High Thread Screws, 32mm x 7g GIB® Grabber® Dual Thread Screws or 30mm GIB® Nails.

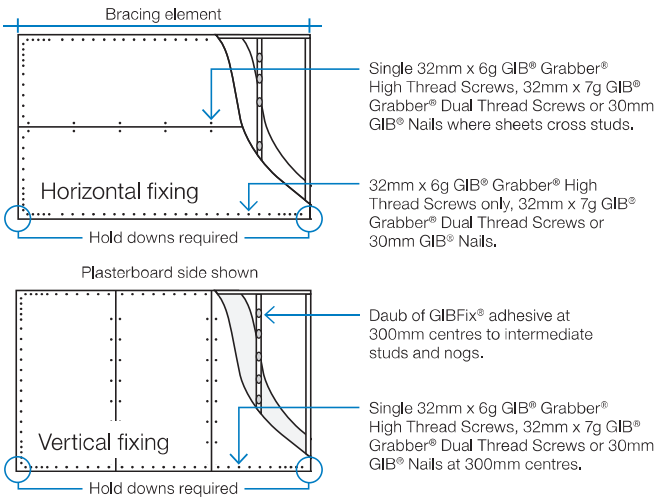
If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws. Plywood: 50 x 2.8mm Galv or Stainless steel annular grooved FH nails.

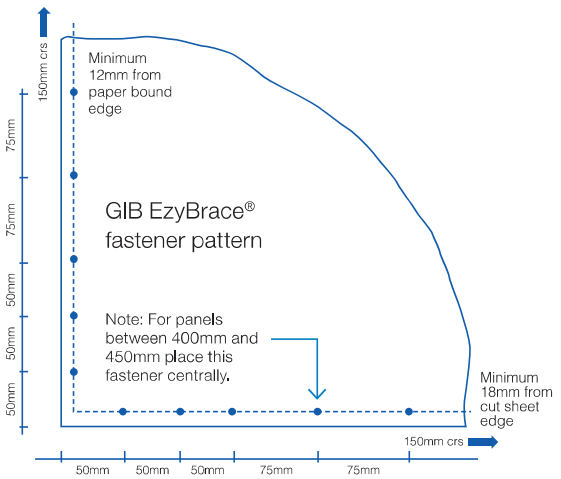
**Fastener centres**

GIB® plasterboard side: 50,100,150, 225, 300mm maximum from each corner and 150mm thereafter around the perimeter of the bracing element. For vertically fixed sheets place fasteners at 300mm maximum centres to the intermediate sheet joints. For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud. Use daubs of GIBFix® adhesive at 300mm maximum centres to intermediate studs. Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge. Plywood side: 150mm centres to the perimeter of each sheet. GIB® corner fastener pattern does not apply to the plywood side. 300mm centres to intermediate studs.

## JOINTING

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




Unless stated all fastener spacings are maximums.

*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*

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# GIB EzyBrace® Systems specification BL1-H

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

## WALL FRAMING

Wall framing to comply with;

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

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

## BOTTOM PLATE FIXING

**Timber floor**

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

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

**Concrete floor**

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

## WALL LINING

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

## PERMITTED ALTERNATIVES

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

## FASTENING THE LINING

**Fasteners**

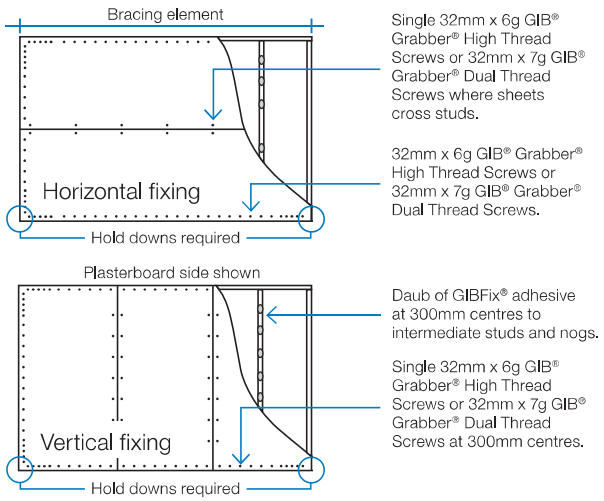
32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

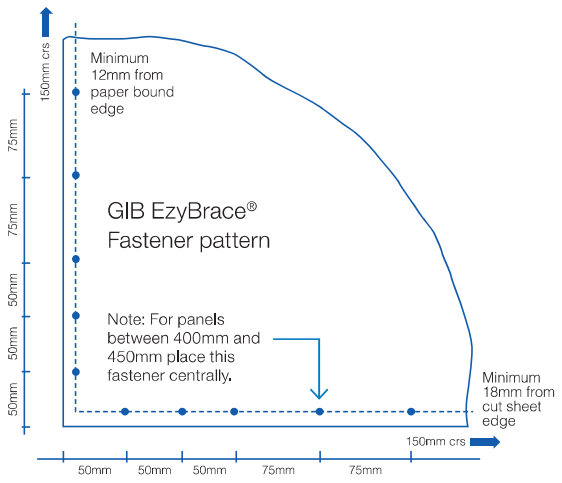
**Fastener centres**

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

## JOINTING

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




Unless stated all fastener spacings are maximums.

*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*

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# GIB EzyBrace® Systems specification BLG-H

| Specification code | Minimum length (m) | Lining requirement | Other requirements |
|---|---|---|---|
| BLG-H | 0.4 | 10mm or 13mm GIB Braceline® to one side of the frame plus any 10mm or 13mm GIB® plasterboard to the other side | Hold downs |

## WALL FRAMING

Wall framing to comply with;

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

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

## BOTTOM PLATE FIXING

**Timber floor**

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB EzyBrace® Systems or GIB® Site Guide. Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or Three power driven 90 x 3.15mm nails at 600mm centres.

**Concrete floor**

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB EzyBrace® Systems 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 3604:2011.

## WALL LINING

- A layer of 10mm or 13mm GIB Braceline® to one side of the wall plus any 10mm or 13mm GIB® plasterboard lining to the other side.
- Sheets can be fixed vertically or horizontally.
- Sheet joints shall be touch fitted.
- Use full length sheets where possible.

## PERMITTED ALTERNATIVES

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

## FASTENING THE LINING

**Fasteners**

GIB Braceline® side: 32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws.Other side: 32mm x 6g GIB® Grabber® High Thread Screws, 30mm GIB Nails or 32mm x 7g GIB® Grabber® Dual Thread Screws.

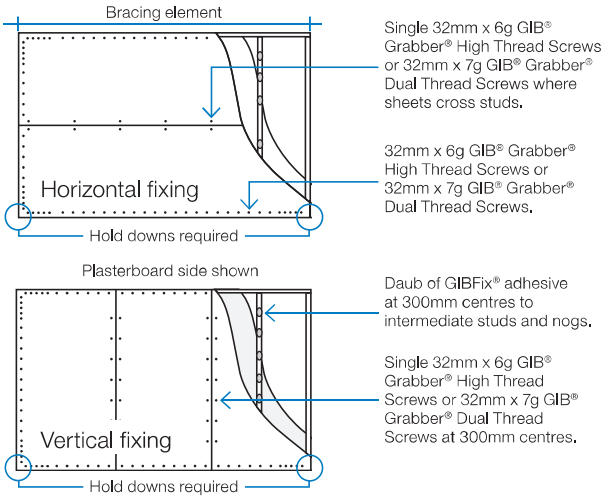
If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

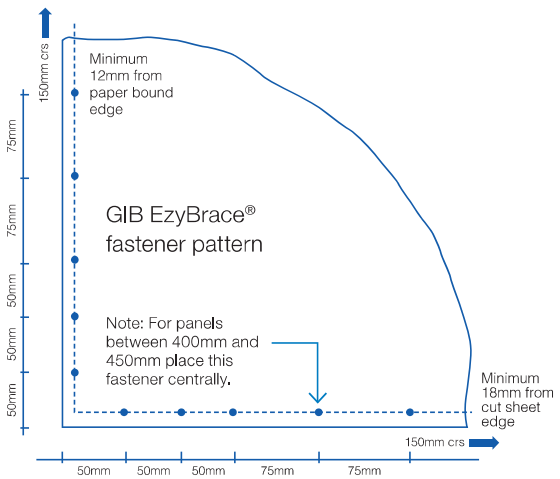
**Fastener centres**

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

## JOINTING

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




Unless stated all fastener spacings are maximums.

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# GIB EzyBrace® Systems specification BLP-H

| Specification code | Minimum length (m) | Lining requirement | Other requirements |
|---|---|---|---|
| BLP-H | 0.4 | 10mm or 13mm GIB Braceline® to one side of the frame plus minimum 7mm structural plywood manufactured to AS/NZ 2269.0 :2012 to the other side | Hold downs |

## WALL FRAMING

Wall framing to comply with;

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

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

## BOTTOM PLATE FIXING

**Timber floor**

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

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

**Concrete floor**

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB EzyBrace® Systems or GIB® Site Guide. Within the length of the bracing element bottom plates are to be fixed in accordance with the requirements of AS/NZ 2269/0 :2012.

## WALL LINING

- A layer of 10mm or 13mm GIB Braceline® to one side of the wall plus minimum 7mm structural plywood manufactured to AS/NZS 2269.0 :2012 to the other side.
- Sheets can be fixed vertically or horizontally.
- Plywood is to be fixed vertically with edges supported.
- Sheet joints shall be touch fitted.
- Use full length sheets where possible.

## PERMITTED ALTERNATIVES

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

## FASTENING THE LINING

**Fasteners**

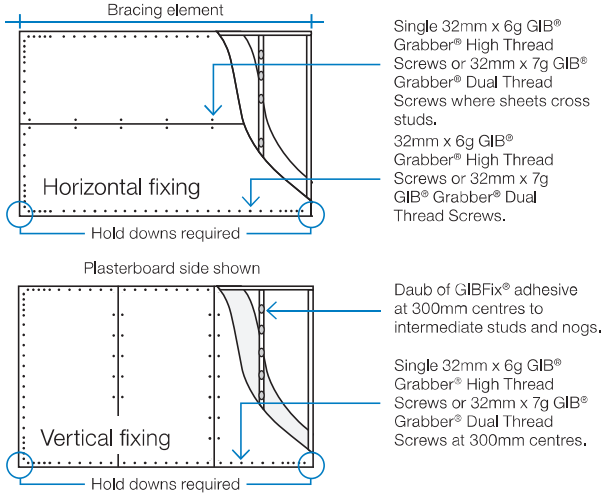
GIB Braceline® side: 32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. Plywood: 50 x 2.8mm Galv or Stainless steel annular grooved FH nails. If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

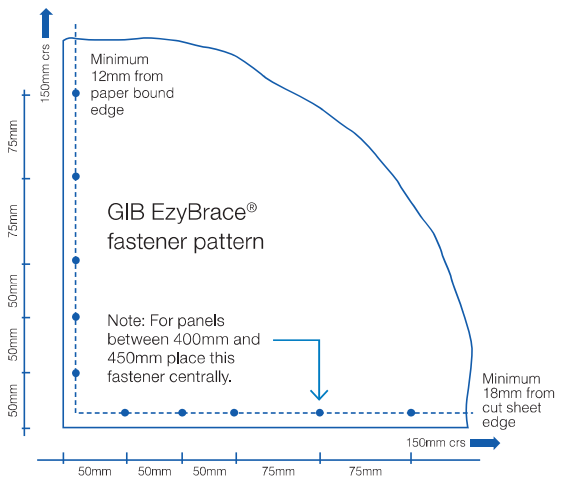
**Fastener centres**

GIB® Plasterboard side: 50,100,150, 225, 300mm from each corner and then 150mm thereafter around the perimeter of the bracing element. For vertically fixed sheets place fasteners at 300mm centres to the intermediate sheet joints. For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud. Use daubs of GIBFix® adhesive at 300mm centres to intermediate studs. Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge. Plywood side: 150mm centres to the perimeter of each sheet. GIB® corner fastener pattern does not apply to the plywood side. 300mm centres to intermediate studs.

## JOINTING

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

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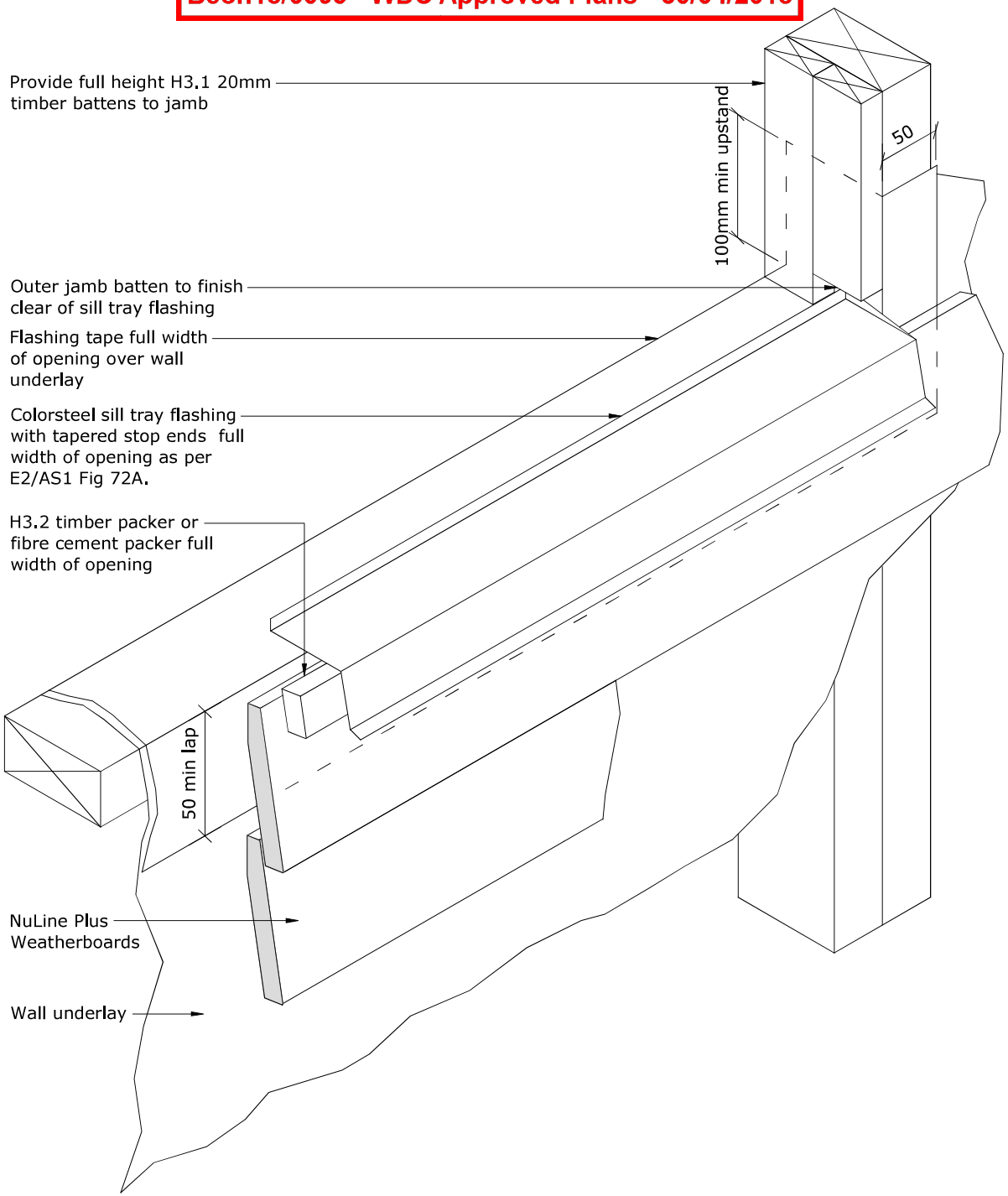

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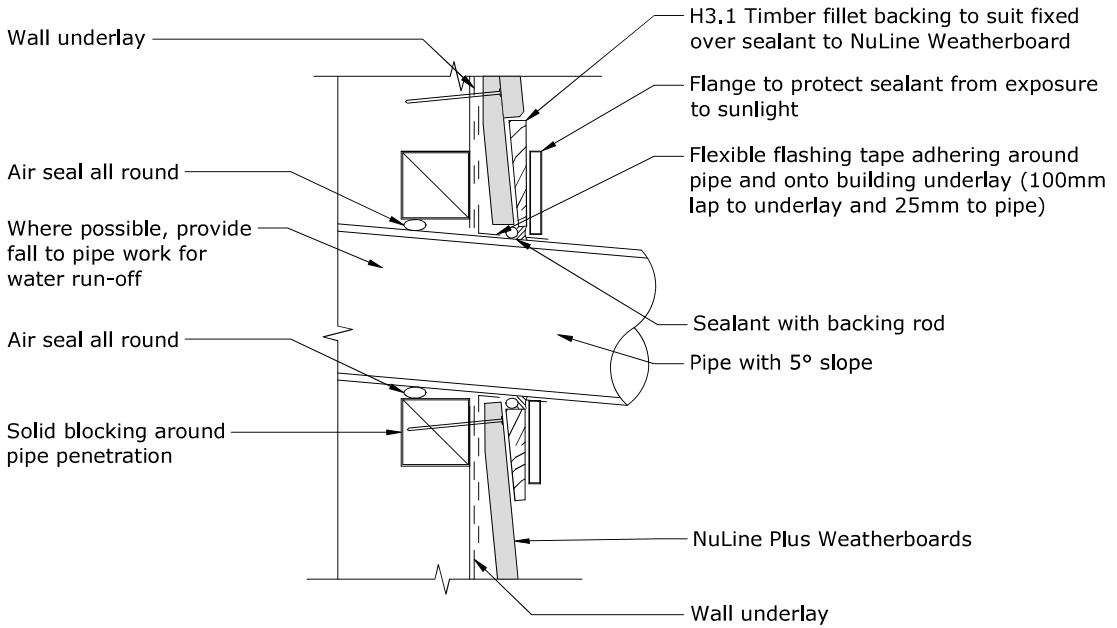

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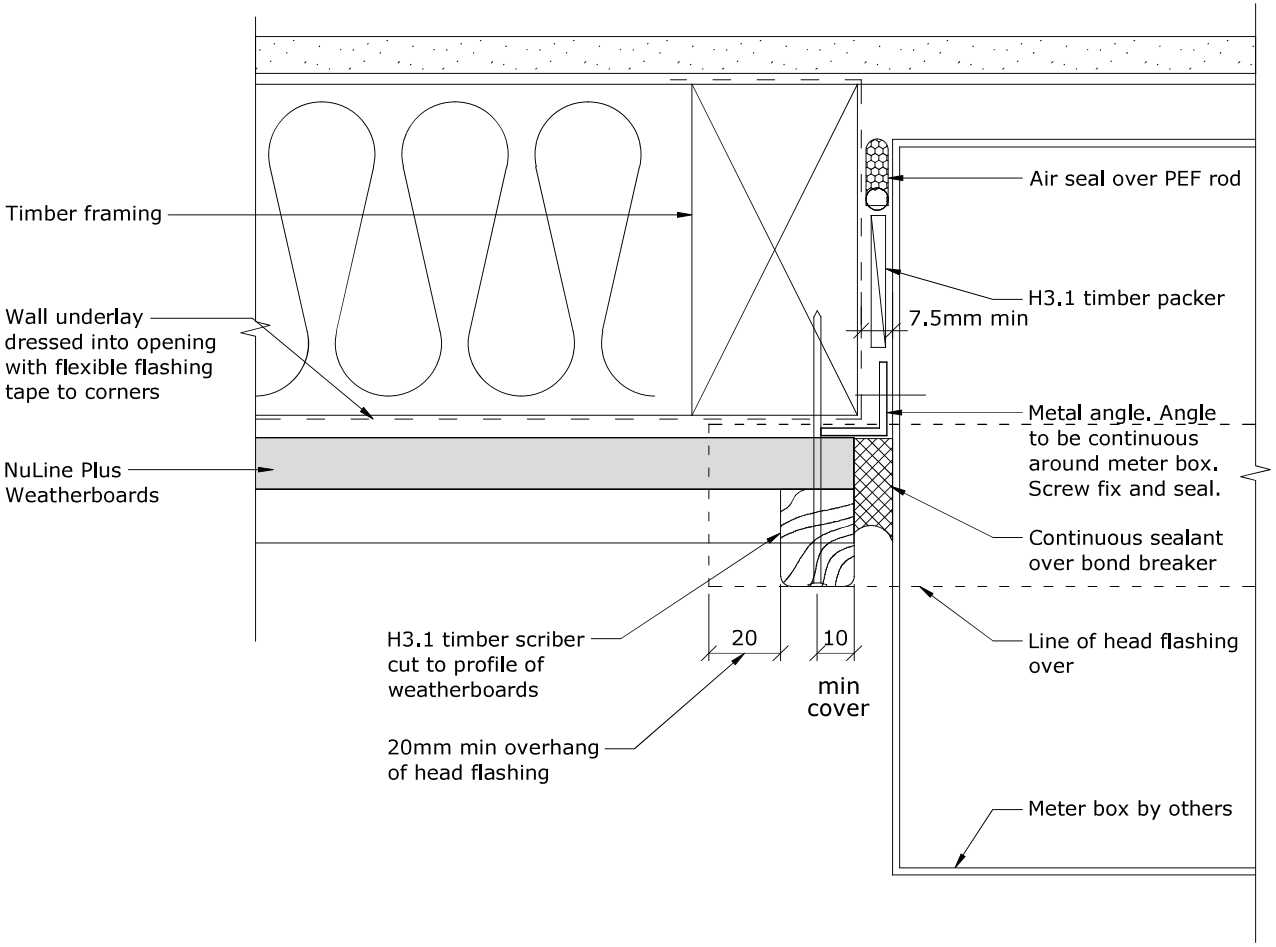

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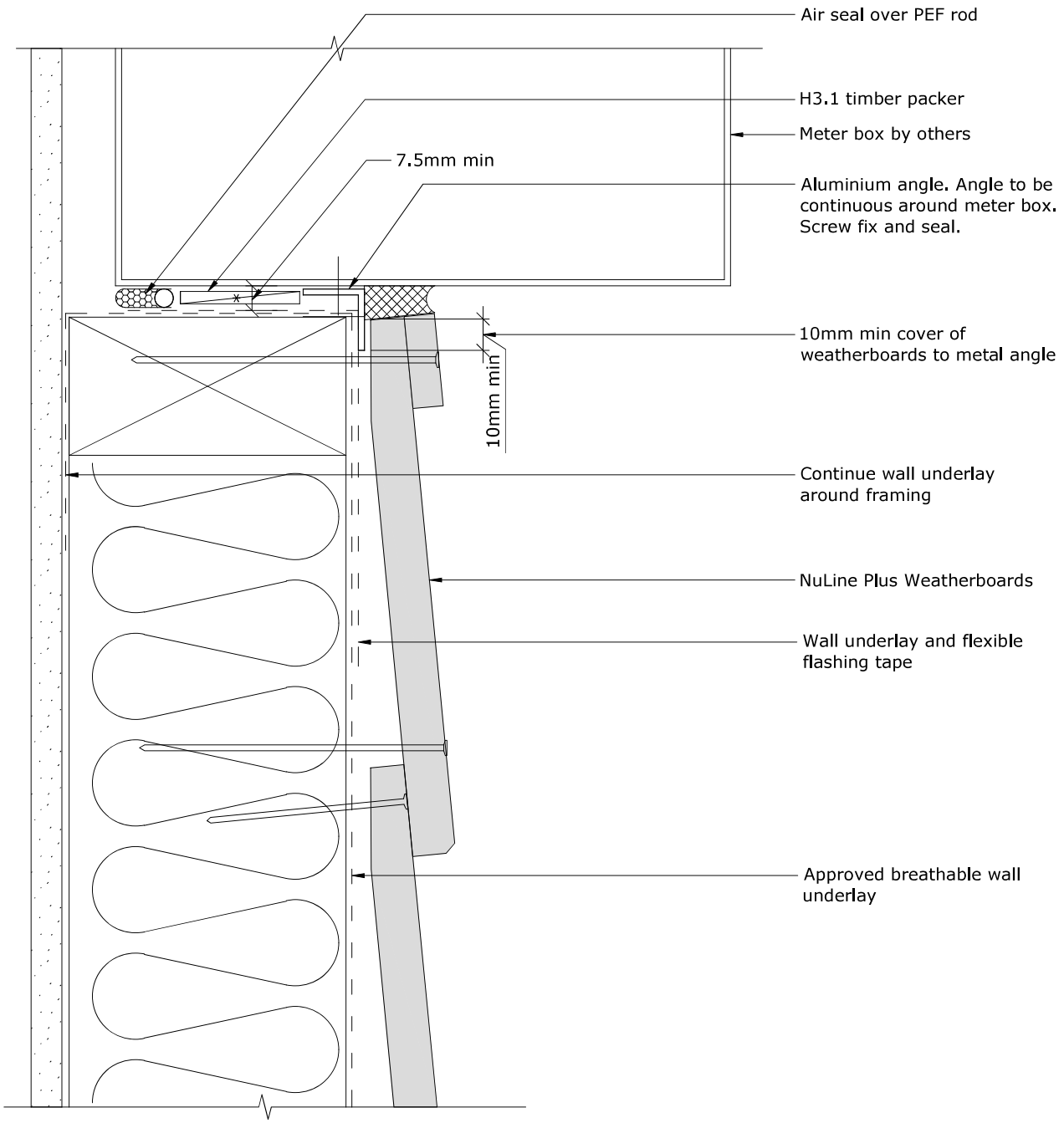

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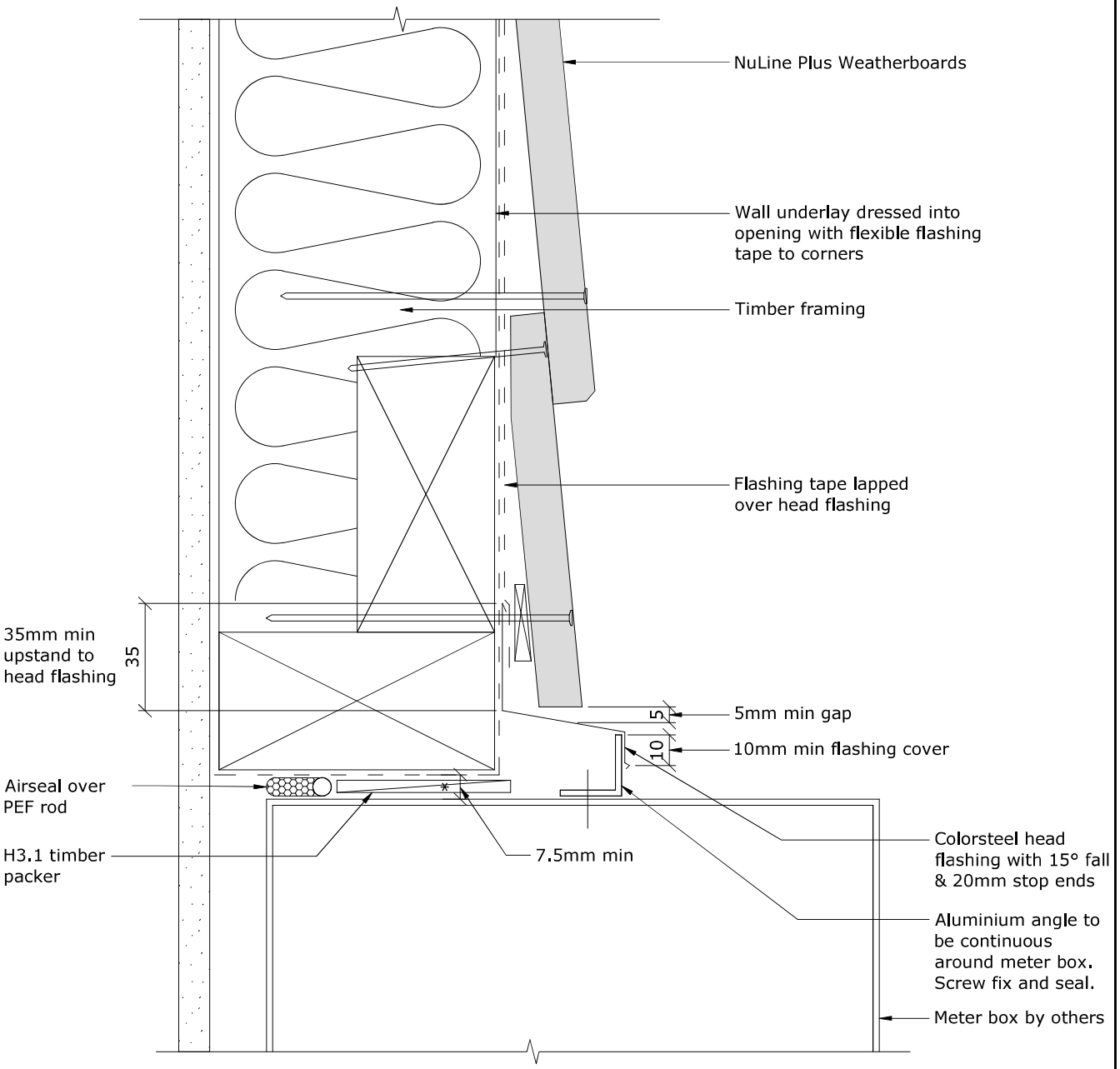

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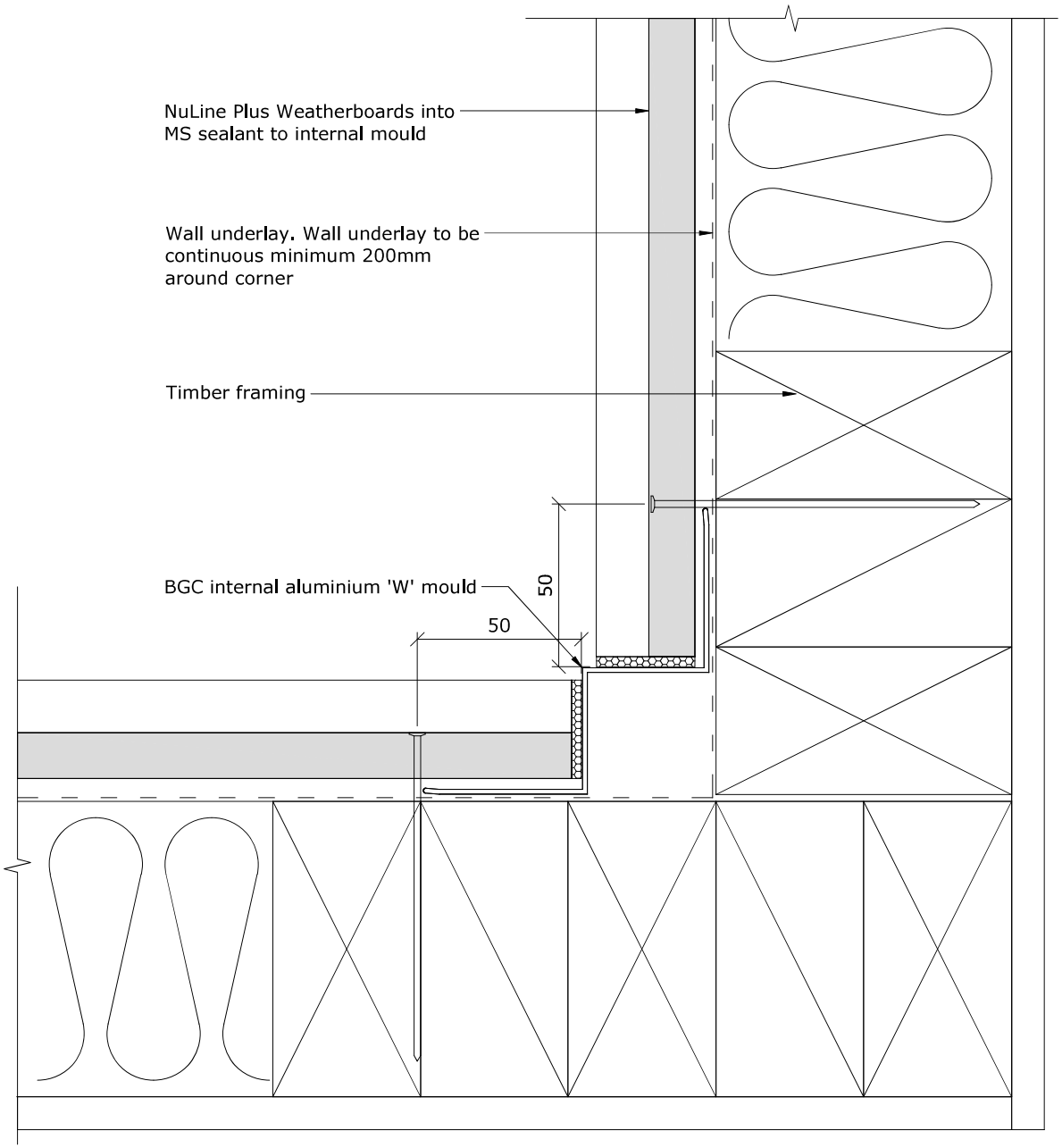

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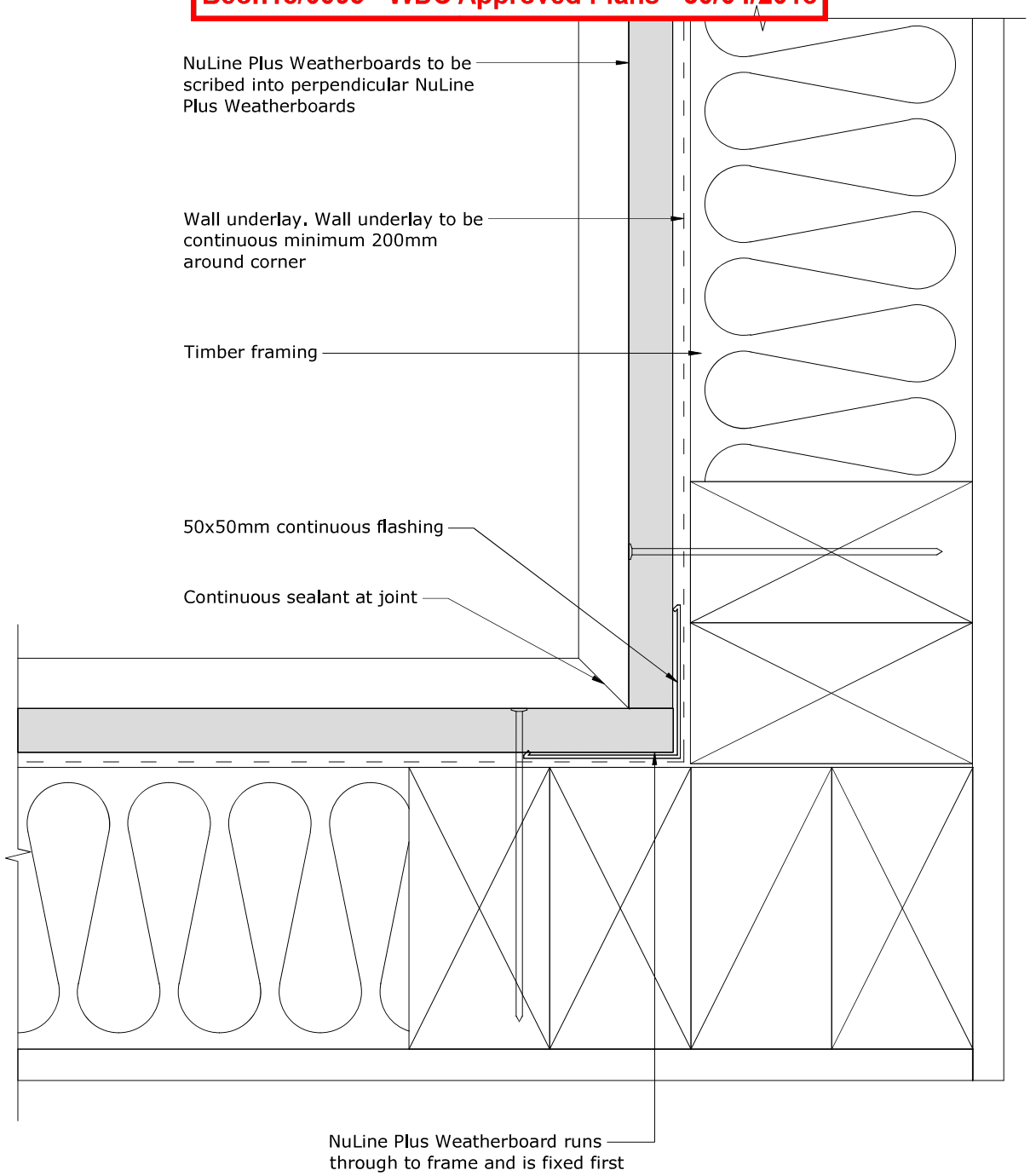

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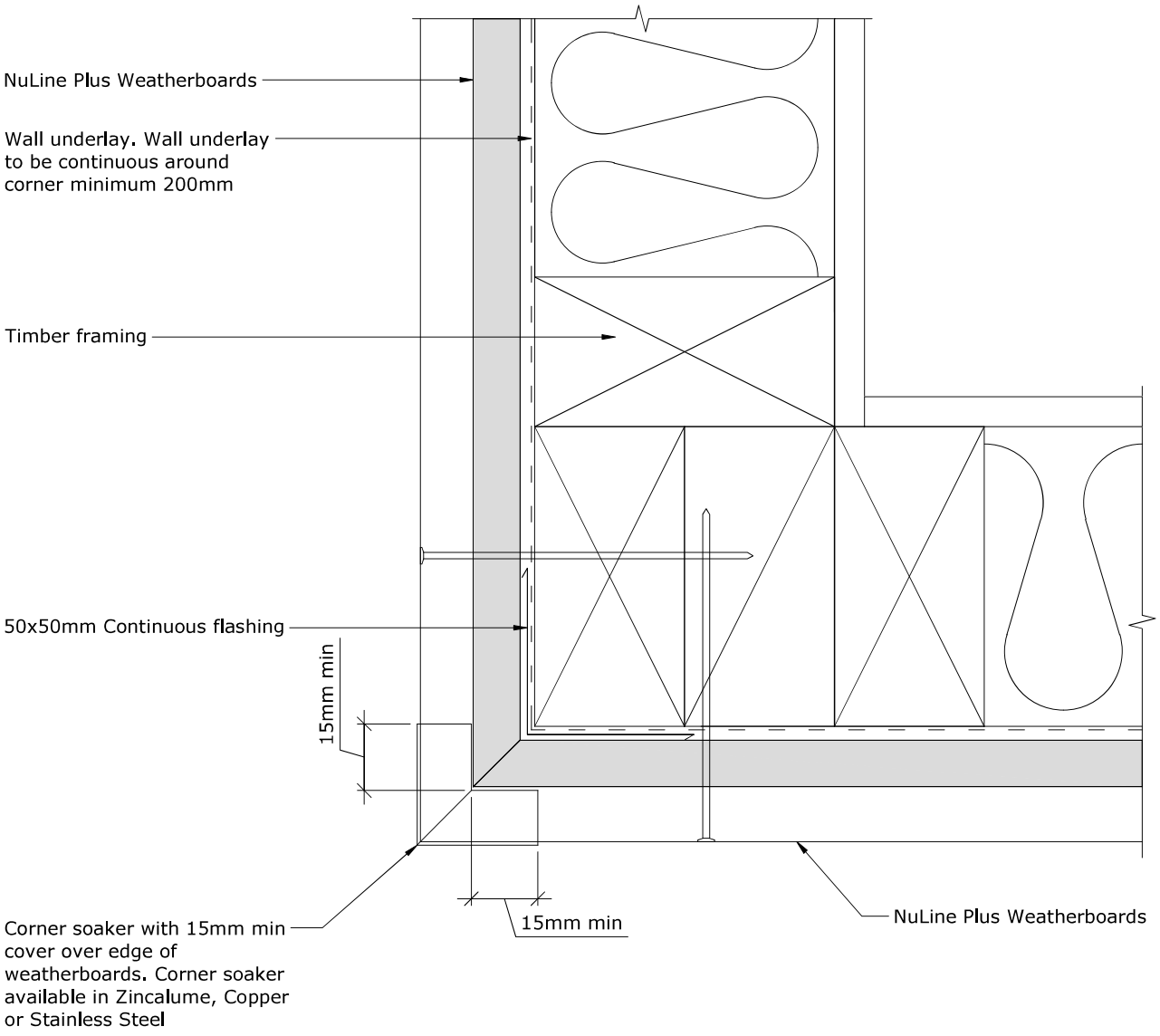

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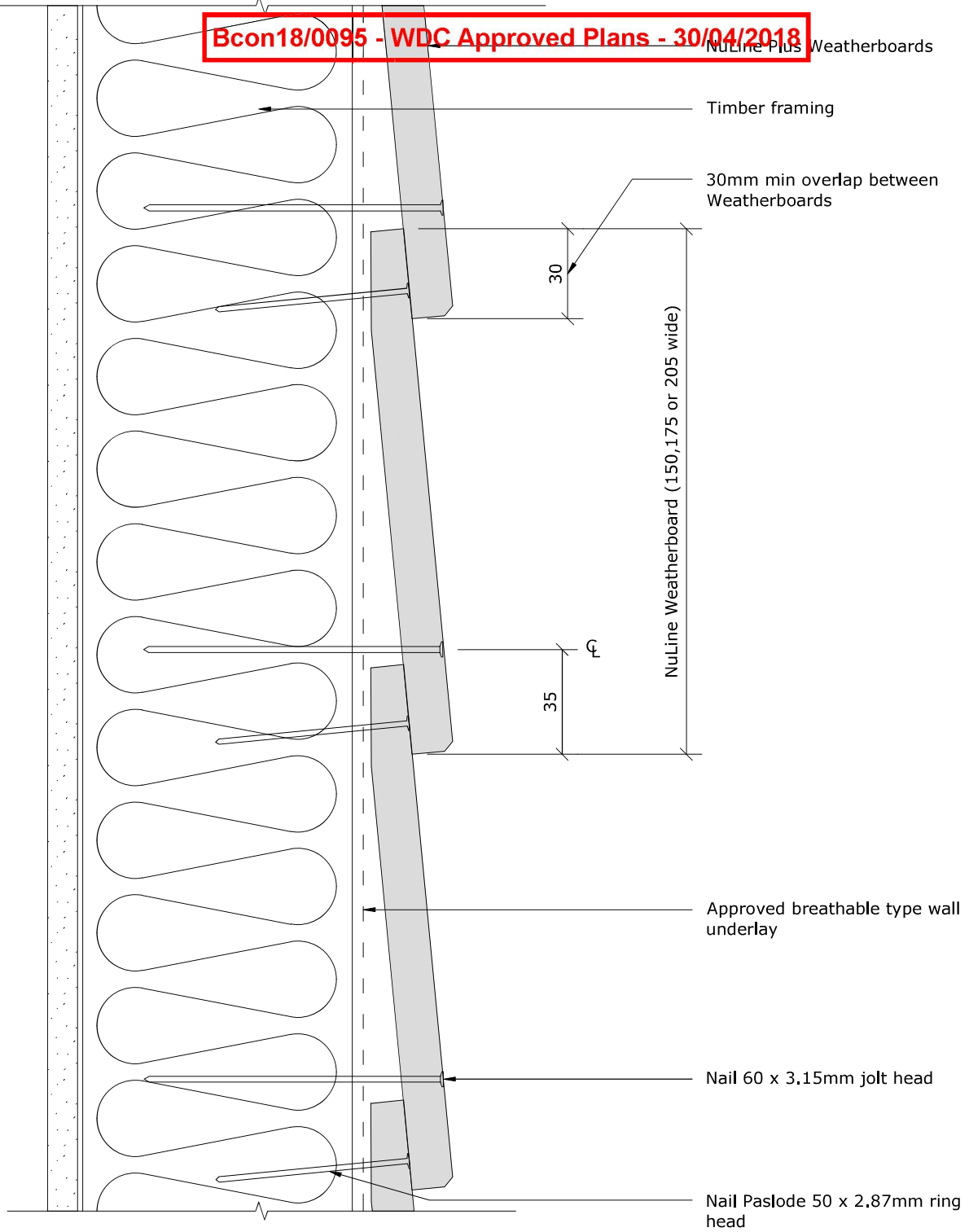

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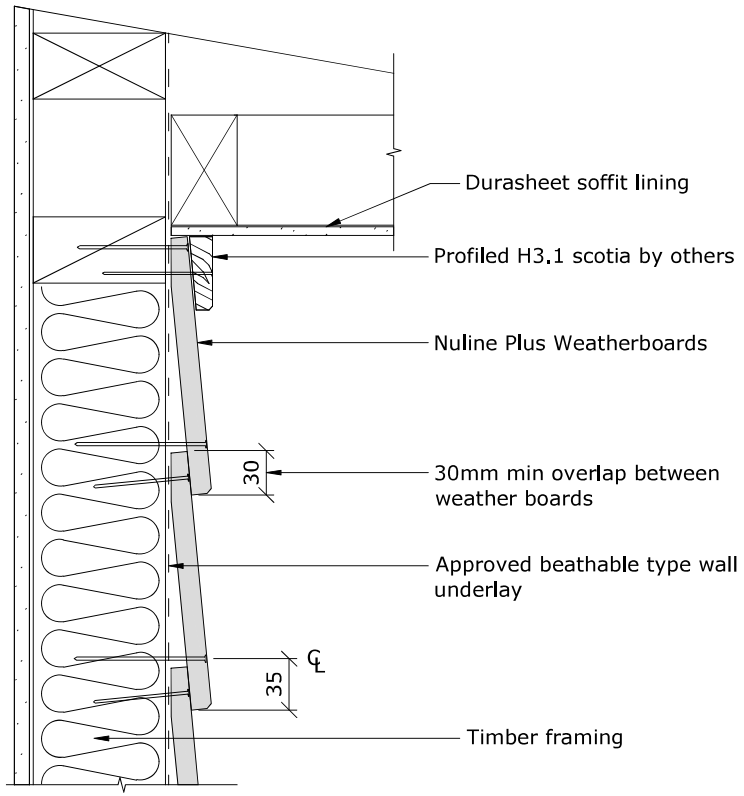

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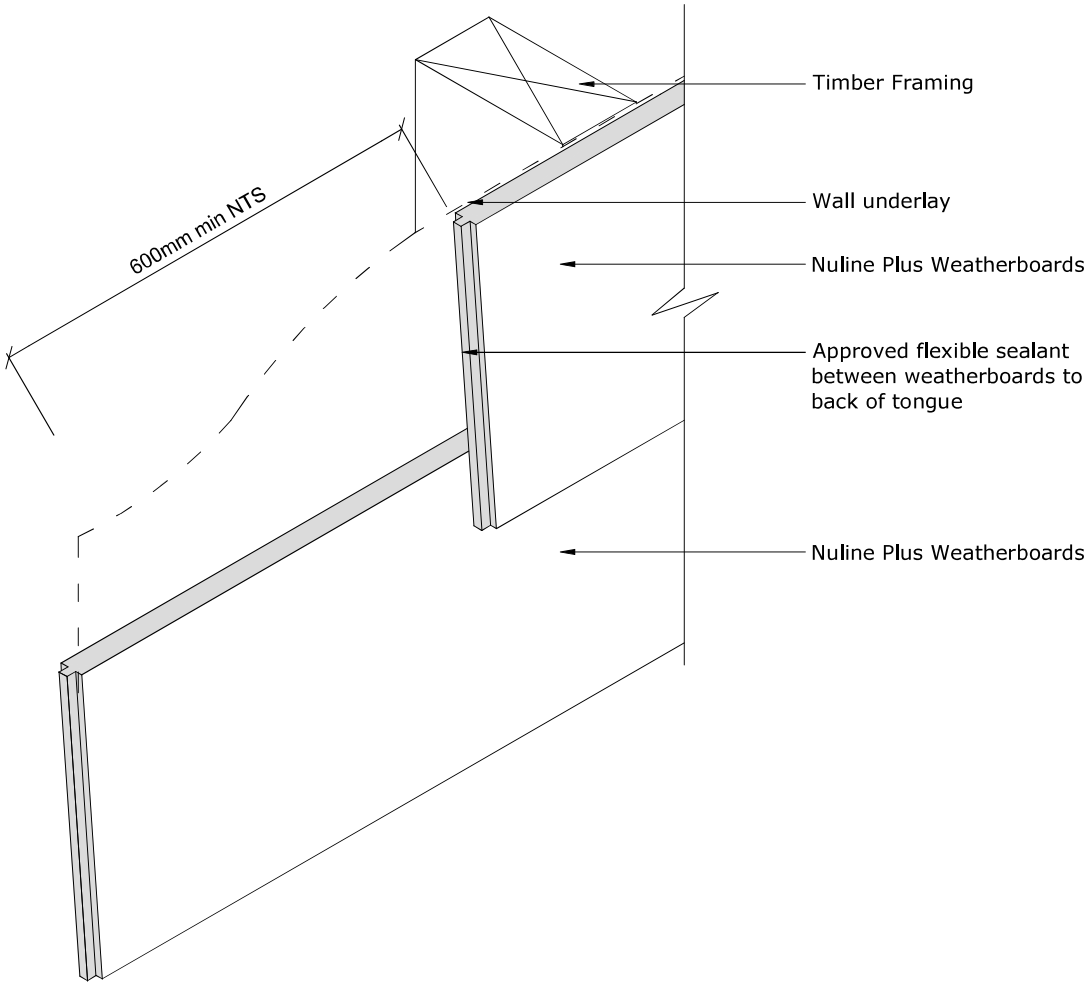

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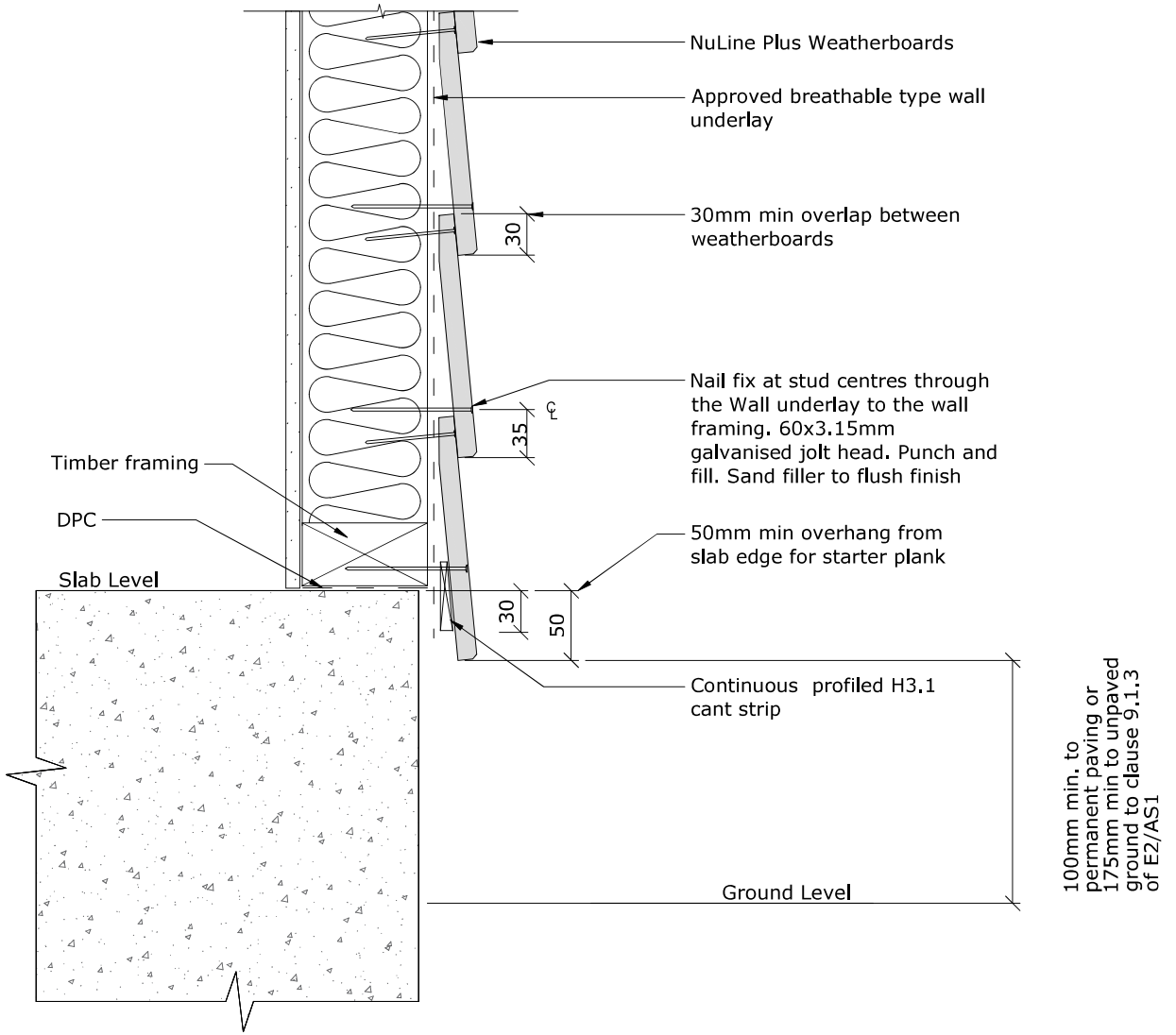

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innova™
INNOVATIVE BUILDING SYSTEMS

# NULINE+PLUS
## WEATHERBOARD

BRANZ Appraised
Appraisal No.640 (2015)

BRANZ Appraised
Appraisal No.641 (2015)

BGC Fibre Cement

AUSTRALIAN OWNED & MANUFACTURED
WWW.BGCINNOVADESIGN.CO.NZ

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## PRODUCT DESCRIPTION

Nuline™ Plus is an evolution on the original Nuline™ product which has been on the market for many years. Nuline™ Plus has enhanced features which ensure that your project is completed with as much ease and perfection as possible.

Nuline™ Plus features a tongue and groove joining system. The tongue and groove method of joining ensures that a more consistent joint is achieved and gives enhanced weather proofing.

Another new feature on Nuline™ Plus is the bevel on the top edge on the back of each plank. This new bevel allows the weatherboard to have a 25mm bearing face on the stud giving superior fixing and nailing.

Nuline™ Plus is not subject to timber rot or decay and will not support combustion. The result is a safer, more durable cladding that requires minimum maintenance.

## ADVANTAGES

- Tongue and groove joining gives consistent joints
- Superior fixing and nailing due to bevel on back of weatherboard
- Quick and easy to cut, handle and install
- Acrylic sealed and primed, ready for painting
- Durable and low maintenance
- Nuline™ Plus has been Appraised by BRANZ for both Direct fixed and Cavity construction – Appraisal 640 and 641 (2015). For copies of the BRANZ Appraisals please contact BGC Fibre Cement (NZ), www.bgcinnovadesign.co.nz or www.branz.co.nz.

## ENERGY EFFICIENCY CONSIDERATIONS

Energy Efficiency requirements for both residential and commercial buildings are a requirement under clause H1 of the New Zealand Building Code (NZBC). Thermal heat transfer into and out of the building envelope will affect the running cost of the building and careful consideration of thermal heat transfer needs to be addressed by the architects, engineers and building designers. Thermal bridging through steel framing will diminish the total R-Value; thermal conductance, of the wall. Thermal breaks are required for steel framed buildings. Guidance on insulation requirements can be found in the latest edition of BRANZ publication –'House Insulation Guide'.

## PRODUCT INFORMATION

Nuline™ Plus is manufactured from Portland cement, finely ground silica, cellulose fibres and water. Planks are cured in a high-pressure steam autoclave to create a durable, dimensionally stable product.

Nuline™ Plus is manufactured to conform to the requirements of AS2908.2 Cellulose-Cement Products and are classified as Type A Category 3 for external use.

## CONTROL OF EXTERNAL FIRE SPREAD

Nuline™ Plus weatherboard has a peak heat release rate of less than 100kW/m$^2$ and a total heat released of less than 25MJ/m$^2$. In accordance with NZBC Acceptable Solution C/AS1 Table 5.1 the system is suitable for use on buildings with a SH Risk Group classification, at any distance to the relevant boundary. Refer to NZBC Acceptable Solutions C/AS2 – C/AS6 Paragraph 5.8.1 for the specific exterior surface finishes requirements for other building Risk Groups.

## PREVENTION OF FIRE OCCURRING

Separation or protection must be provided to the Nuline™ Plus weatherboard cladding system from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of the NZBA Acceptable Solutions C/AS1 – C/AS6 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible material from heat sources.

## FIRE RESISTANCE RATING

30 Minute FRR is achieved when Nuline™ Plus is installed a s per the below for either direct fixed or cavity construction. Fixed as per details contained within this brochure.

**Timber Framing:** Minimum 90mm x 45mm framing in accordance with NZS3604. Studs at maximum 600mm centres. Noggins at maximum 800mm centres. Double or staggered studs may be used.

**Interior lining:** 10mm or 13mm GIB® Fyreline fixed as per Winstone Wallboards Ltd specification GBTL 30 system from GIB® Fire Rated Systems October 2012.

**Insulation:** Any R2.2 nominal 95mm thickness fibre glass insulation.

## PLANK SIZES AND MASS

Nuline™ Plus is available in the following.

| THICKNESS mm | MASS kg/m | WIDTH mm | LENGTH mm |
|---|---|---|---|
| 14 | 3.54 | 150 Smooth | 4200 |
| | 4.13 | 175 Smooth | 4200 |
| | 4.83 | 205 Smooth | 4200 |

## PLANK TOLERANCES

- Width +0/-1 mm
- Length +0/-2 mm
- Thickness +10%/-0%
- Diagonals difference (max) 2 mm
- Edge straightness deviation (max) 1 mm

## PROFILE

SQUARE



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## ARCHITECTURAL DETAILS

Full architectural details are available from BGC Fibre Cement, www.bgc.com.au/fibrecement or on Productspec and full specification is available on Smartspec.

## DESIGN CONSIDERATIONS

The designer should determine the wind pressures for the project and design accordingly.

Nuline™ Plus can be situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 2.5kPa when used over a drained cavity.

## HEALTH AND SAFETY

Nuline™ Plus is manufactured from cellulose fibre, finely ground sand, Portland cement and additives. As manufactured, the product will not release airborne dust, but during drilling, cutting and sanding operations cellulose fibres, silica and calcium silicate dust may be released.

Breathing in fine silica dust is hazardous and prolonged exposure (usually over several years) may cause bronchitis, silicosis or cancer.

## AVOID DUST INHALATION

When cutting planks, work in a well ventilated area and use the methods recommended in this literature to minimise dust generation. If using power tools wear an approved (P1 or P2) dust mask and safety glasses.

These precautions are not necessary when stacking, unloading or handling fibre cement products.

For further information or a Material Safety Data Sheet contact the nearest BGC Sales Office or go to **www.bgc.com.au/fibrecement**

## HANDLING AND STORAGE

Nuline™ Plus must be stacked flat, up off the ground and supported on equally spaced (max 300mm) level gluts.

Planks must be kept dry. When stored outdoors it must be protected from the weather. Care should be taken to avoid damage to the ends, edges and surfaces. Planks must be dry prior to fixing, jointing or finishing.

## COASTAL AREAS

As per the requirements of NZS3604 Stainless Steel (min 304) fixings and corner soakers must be used in the Seaspray Zone.

## CUTTING AND DRILLING

Nuline™ Plus may be cut to size on site. If using power tools for cutting, drilling or sanding they must be fitted with appropriate dust collection devices or alternatively an approved (P1 or P2) dust mask and safety glasses shall be worn. It is recommended that work always be carried out in a well ventilated location.

The most suitable cutting methods are:

/ DURABLADE
180mm Diameter.
This unique cutting blade is ideal for cutting fibre cement. Can be fitted to a 185mm circular saw, ie Makita or similar. Please ensure safe working practices when using. Also available in 250mm and 300mm.

/ NOTCHING
Notches can be made by cutting the two sides of the notch. Score along the back edge then snap upwards to remove the notch.

/ DRILLING
Use normal high-speed masonry drill bits. Do not use the drill's hammer function. For small round holes, the use of a hole-saw is recommended. For small rectangular or circular penetrations, drill a series of small holes around the perimeter of the cut out. Tap out the waste piece from the sheet face while supporting the underside of the opening to avoid damage. Clean rough edges with a rasp.

Large rectangular openings are formed by deeply scoring the perimeter of the opening. Next, form a hole in the centre of the opening (refer method above) then saw cut from the hole to the corners of the opening. Snap out the four triangular segments. Clean rough edges with a rasp. (see method above) then saw cut from the hole to the corners of the opening. Snap out the four triangular segments. Clean rough edges with a rasp.



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## ACCESSORIES AVAILABLE FROM BGC

| | | |
|---|---|---|
| INTERNAL ALUMINIUM CORNER (ALSO AVAILABLE IN 135º) | 3000mm | |
| EXTERNAL ALUMINIUM CORNER | 3000mm | |
| VENT STRIP | 2700mm | |
| EXTERNAL CORNER SOAKERS (ALSO AVAILABLE IN 135º) | /150mm/175mm/205mm | |
| BGC EDGE SEALER | | |
| PRECUT SCRIBERS | /150mm/175mm/205mm<br>40 x 18 x 5400mm | |

## ACCESSORIES SUPPLIED BY BUILDING MERCHANT

| | | |
|---|---|---|
| CAVITY TIMBER BATTEN H3.1 | 20 x 50mm | |
| CAVIBAT CAVITY BATTEN | 20 x 45mm | |
| ADHESIVE SEALANT | Bostik Seal 'n' Flex FC or similar BRANZ Appraised adhesive sealant | |
| SEALANT | Bostik Safetech Safe Seal or any BRANZ Appraised paintable sealant | |
| TIMBER BOX CORNERS, FACING AND SILLS | | |



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## FASTENERS

We recommend that Nuline™ Plus is installed with the face nailing method ie nailed either 20mm (through both planks) or 35mm (though top plank only) from the bottom of the plank. The face nail will need to be predrilled with a 3mm hole prior to nailing.

Nuline™ Plus can be tacked in place with a concealed nail and the exposed nail installed when wall or area is fully installed.

Fasteners must not be placed closer than 20mm from the plank edge or 50mm from the plank ends (this can be reduced to 20mm with predrilling).

Nuline™ Plus can be installed either Direct Fixed or on a cavity - refer to Direct Fixed or Cavity Construction section.

When installed on a cavity, Nuline™ Plus can be fixed 2 ways - either on non-structural cavity battens or on structurally cavity battens - see table below for the correct fixing types.

Nuline™ Plus must be fixed at max. 800mm centres to the studs or cavity battens.

## TABLE 1: FIXING OPTIONS – NULINE™ PLUS CAVITY CLADDING SYSTEM*

| BATTEN TYPE | BATTEN FIXINGS | CONCEALED BOARD FIXING (TOP) | FACE NAIL FIXING (BOTTOM) |
|---|---|---|---|
| STRUCTURAL CAVITY BATTENS | 65 x 2.87 mm Paslode RounDrive ring-shank galvanised nails or 60 x 2.8 mm hot-dip galvanised jolt-head nails | 50 x 2.87 mm Paslode hot-dip galvanised ring-shank D-head gun nails or 50 x 2.8 mm hot-dip galvanised or stainless steel ring-shank, flat-head nails | 60 x 3.15 mm hot-dip galvanised or stainless steel ring-shank, jolt-head nails |
| NON - STRUCTURAL CAVITY BATTENS | **40 x 2.8 mm hot-dip galvanised flat-head nails | 65 x 2.87 mm Paslode hot-dip galvanised ring-shank D-head gun nails or 60 x 2.8 mm hot-dip galvanised or stainless steel ring-shank, flat-head nails | 75 x 3.15 mm hot-dip galvanised or stainless steel ring-shank, jolt-head nails |

* Suitable for differential wind pressures up to 2.5kPa
** There is no specific nail size specified in E2/AS1 for fixing non-structural cavity battens to the framing. This nail size is suggested to temporarily fix the batten in position until the cladding is fixed.

## TABLE 2: FIXING OPTIONS – NULINE™ PLUS DIRECT FIXED CLADDING SYSTEM*

| CONCEALED BOARD FIXING (TOP) | FACE NAIL FIXING (BOTTOM) |
|---|---|
| 50 x 2.87 mm Paslode hot-dip galvanised ring-shank D-head gun nails or 50 x 2.8 mm hot-dip galvanised or stainless steel ring-shank, flat-head nails | 60 x 3.15 mm hot-dip galvanised or stainless steel ring-shank, jolt-head nails |

* Note: Direct fixed cladding limited to Very High Wind Zone



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# CONSTRUCTION DETAILS

## FRAMING

Timber wall framing behind the Nuline™ Plus cavity system must be treated as required by NZBC Acceptable Solution B2/AS1. Timber Framing must comply with NZS3604 for buildings within the scope of NZS3604. Building outside the scope of NZS3604 must be a specific design in accordance with NZS3603 and AS/NZS 1170

## TIMBER FRAMING SET OUT

In all cases studs must be at maximum 600mm centres. Dwangs/Nogs must be fitted flush between the studs at maximum 800mm centres.

Timber wall framing and cavity battens must have maximum moisture content of 24% before Nuline™ Plus is installed and 18% before painting.

## DIRECT FIXED OR CAVITY CONSTRUCTION

For Buildings with a risk score of 12 or less (as per NZBC Acceptable Solution E2/AS1 – Tables 2 and 3) Nuline™ Plus can be direct fixed.

For Buildings with a risk score of greater than 12 (as per NZBC Acceptable Solution E2/AS1 – Tables 2 and 3) Nuline™ Plus will need to be constructed on a 20mm drained cavity.

## WALL UNDERLAY

A BRANZ appraised Flexible wall underlay must be installed as per manufacturer's installation instructions and E2/AS1. Refer to E2/AS1 for the correct type of wall underlay to suit the application.

For construction in the Extra High wind zone and specifically designed buildings up to a 2.5kPa design differential ULS wind pressure a Rigid Sheathing/Air Barrier must be installed – ie BGC Durabarrier™.

Unlined gables and walls must incorporate a rigid sheathing/ air barrier ie BGC Durabarrier™ – refer to the BGC Durabarrier™ brochure for installation instruction.

## FLASHINGS

Flashings for all openings, corners, windows, meter boxes etc must be installed prior to the fixing of Nuline™ Plus. Refer to the Architectural details for recommended flashings. Also refer to E2/AS1 Tables 20-22 for flashing material selection and compatibility.

BGC will not be responsible for the incorrect selection and installation of flashing.

## VENT STRIP

For Cavity Construction, a BGC Vent Strip or a Weather Board Starter/Cavity Closer (30 or 35mm) manufactured by Redway Developments is required to be installed. The Weather Board Starter/Cavity Closer eliminates the need for a cant strip to be installed at the base of the wall. The BGC Vent Strips or Weather Board Starter/Cavity Closer is available from your building merchants.

## CAVITY BATTENS

As per E2/AS1 Cavity Battens must:

- Be nominal 20mm (between limits of 18mm and 25mm in thickness)
- Be at least the same width as the stud
- Be fixed by, the cladding fixings, through the building underlay in to the framing. Battens can be temporarily fixed to the studs until the Nuline™ Plus is installed
- Comply with the durability requirements of B2/AS1 and if timber comply with NZS3602.
- Cavity Battens must be minimum of H3.1
- Cavibat system can also be used

## FLEXIBLE WALL UNDERLAY SUPPORT

When stud spacings are greater than 450mm and a flexible wall underlay is used then support must be used to secure the flexible wall underlay in place and prevent bulging of the bulk insulation in the drained cavity.

This can be achieved with:

- An additional vertical batten
- Polypropylene Strap at 300mm centres horizontally
- Galvanised Wire at 300mm centres horizontally
- 75mm Galvanised Mesh

## JOINING

Nuline™ Plus has a tongue and groove end joining system and is designed for off stud joining – refer to Figure 3.

It is recommended that the joins be staggered and centrally located between studs but should not be closer than 100mm from the studs.

A bead of BRANZ Appraised Adhesive/Sealant should be applied to the back of the joint as per Figure 6.

## PLANK OVERLAP

Planks must overlap the previous course by a minimum of 30mm. Higher overlaps may be used to line courses up with windows and/or doors or due to overall height of wall.

## PAINTING AND PREPARATION

Painting of Nuline™ Plus is required to meet the durability and external moisture requirements of the NZBC. Nuline™ Plus must be painted within 3 months of installation. There is no restriction on the colour Nuline™ Plus can be painted.

All face nails must be punched 2mm below the surface and filled with appropriate exterior grade filler.

Once cured, it needs to be sanded smooth.

The filled nail holes will need to be spot primed if not fully priming Nuline™ Plus.

Nuline™ Plus must be finished with a latex exterior paint system complying with any of part 7, 8, 9 or 10 of AS3730. All cut edges must be sealed with BGC Edge Sealer or similar prior to fixing.

Nuline™ Plus is supplied pre-primed, for the best finish BGC recommends following paint manufacturer's recommendations on application and maintenance of the paint system.

Follow the manufacturer's instructions regarding the installation of the sealant.



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## MAINTENANCE

Building owners are responsible for the maintenance of Nuline™ Plus. Annual inspections must be made to ensure that all aspects of the cladding systems, including flashings remain in a weatherproof condition. Any damaged areas or areas showing signs of deterioration which would allow water ingress, must be repaired immediately. Sealant, paint coatings, flashings or the Nuline™ Plus must be repaired in accordance with the relevant manufacturer's instructions.

Regular cleaning (at least annually) of the paint finish with water and a mild detergent is recommended to remove grime, dirt and organic growth, to maximise the life and appearance of the cladding.

Recoating of the paint finish will be necessary throughout the life of the cladding system. Re-painting must be carried out every 5-10 years in accordance with the paint manufacturer's instructions. When re-painting, care must be taken to ensure bottom edges are well covered with the paint. Flashing and sealants must continue to perform their design function.

Damaged planks should be replaced as originally installed. Paintwork should be maintained in accordance with the manufacturer's instructions.

## FREEZE THAW

Nuline™ Plus should not be used in situations where it will be in direct contact with snow or ice for prolonged periods.

## WARRANTY

BGC Fibre Cement (NZ) warrants its products to be free from defects caused by defective materials or workmanship (manufacturer) for a period of 25 years from the date of purchase, subject to the conditions set out below. Further, BGC Fibre Cement (NZ) warrants its products to be resistant from rotting, fire and cracking so long as the installation is carried out in accordance with BGC Fibre Cement literature available at the time of purchase.

### CONDITIONS

i) This warranty is non transferable

ii) The product must be installed and maintained in accordance with the relevant BGC Fibre Cement (NZ) literature current and available at the time of purchase. All additional products including accessories, jointing systems and coatings used in conjunction with the BGC Fibre Cement product(s) must be applied or installed according to the appropriate manufacturer's instructions.

iii) BGC Fibre Cement (NZ) is not liable for any breach of warranty unless the claimant provides proof of purchase and a claim is submitted in writing within 30 days of the defect becoming evident. If the defect is detected prior to installation, the claim must be submitted before installation occurs.
iv) If BGC Fibre Cement (NZ) products are found to be defective, BGC Fibre Cement will at its option, repair or replace the product, supply equivalent replacement products or reimburse the purchase price of the product.

## WARRANTY CONT.

v) BGC Fibre Cement (NZ) shall not be liable for any damage or losses (direct or indirect) including property damage or personal injury, economic loss or loss of profits, consequential loss arising in contract or negligence or howsoever arising. BGC Fibre Cement (NZ) shall not be liable for any claims, damages or defects arising from or attributed to poor workmanship, poor design or detailing, settlement or structural movement or movement of materials to which the product is attached, incorrect design of the structure, acts of God, including but not limited to floods, cyclones, earthquakes or severe weather or unusual climate conditions, performance of coatings or paints applied to the product, normal wear and tear, growth of mould, mildew, fungi, bacteria or any other organism on the products surface (exposed or unexposed).

vi) The project must be designed and constructed in accordance with all relevant requirements of the current New Zealand Building Code regulations and standards.

vii) If satisfying a claim under this warranty which involves recoating or painting of BGC Fibre Cement (NZ) products, there may be slight colour differences between the replacement product and the original products due to the effect weathering and variations in materials over time.

viii) All warranties, conditions, liabilities and obligations other than those specified in this warranty are excluded to the fullest extend allowed by the law.

### DISCLAIMER

The successful performance of the relevant product depends on a number of factors outside the control of BGC Fibre Cement (NZ). As such, BGC Fibre Cement (NZ) shall not be liable for the recommendations made in its literature and the performance of the products/systems including its suitability for any purpose or ability to comply with the relevant conditions set out in the New Zealand Building Code. It is the responsibility of the building designer to ensure that the details and recommendations provided in the relevant BGC Fibre Cement (NZ) installation guide are suitable for the intended project and that specific design is conducted where appropriate.

The instructions and recommendations in BGC Fibre Cement (NZ) literature are based on good building practice, but are in no way an exhaustive statement of all relevant information and are subject to conditions above. BGC Fibre Cement has tested the performance of its products when installed in accordance with the products technical specification, in accordance with the standards required by the New Zealand Building Code. Those test results demonstrate the products compliance with the performance criteria set out by the New Zealand Building Code.

## INSTALLATION

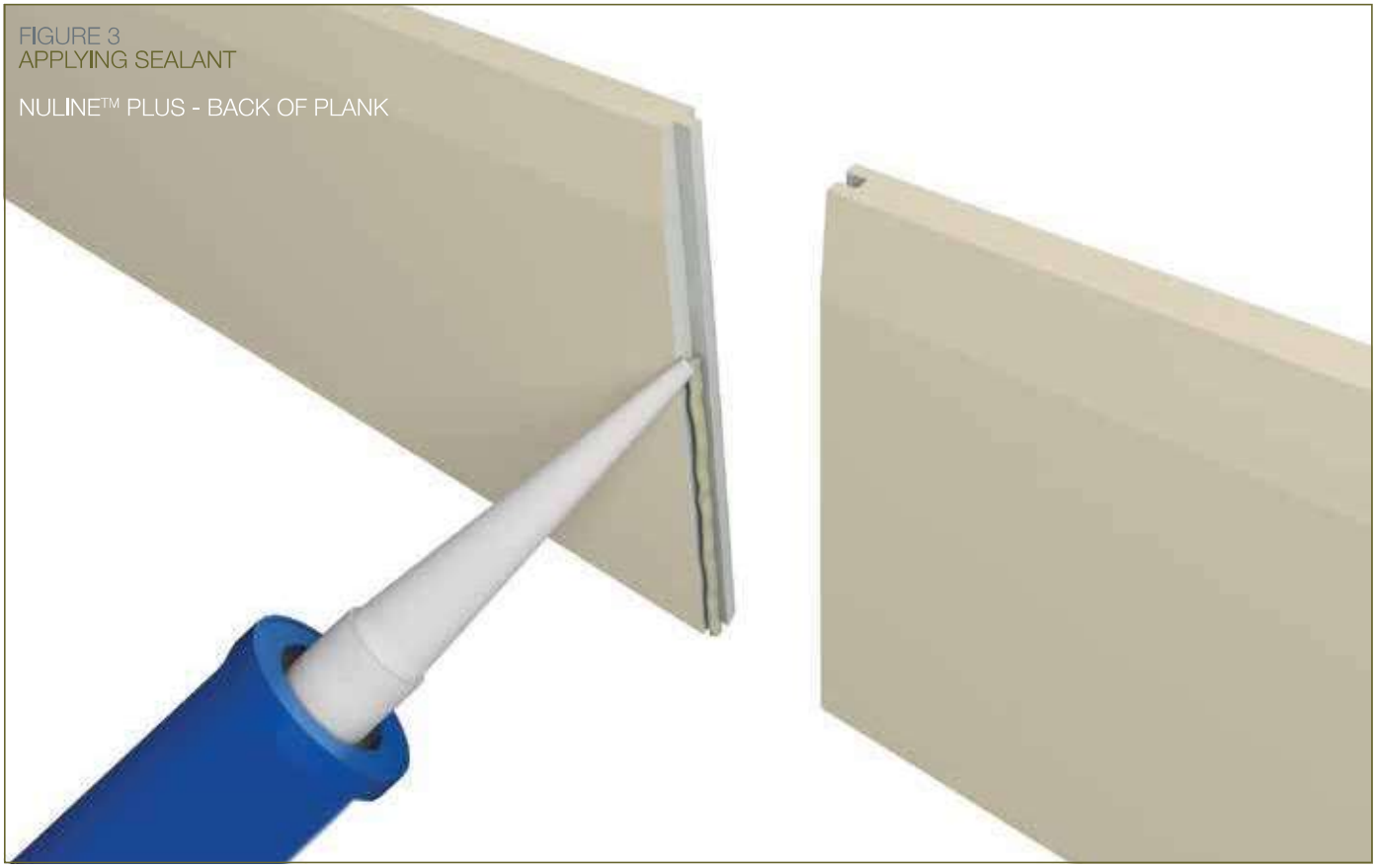

FIGURE 3
APPLYING SEALANT

NULINE™ PLUS - BACK OF PLANK

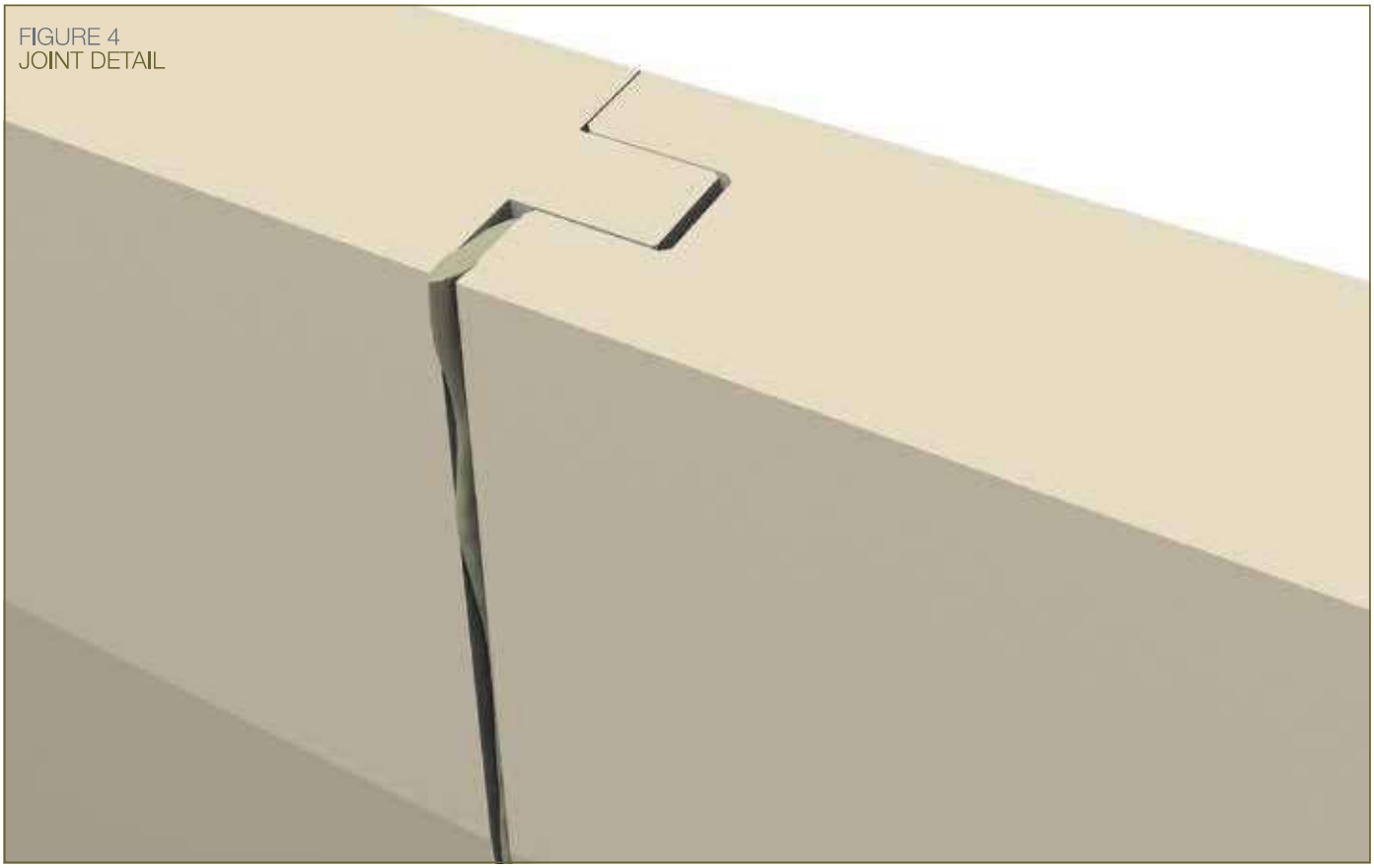

FIGURE 4
JOINT DETAIL



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Firth

CBI 3125, 3321, 8412
September 2009

# MASONRY SWIMMING POOLS

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# MASONRY SWIMMING POOLS

## 1. Planning

NZS 4441:2008 Swimming Pool Design Standard and NZS 5826:2000 Pool Water Quality govern the safe operation of swimming pools and need to be consulted during the planning, design and construction of the pool.

This information describes the construction of a Swimming pool specially designed for "Firth Masonry" and includes full details of wall and floor construction, reinforcing and drainage details.

Should it be desired to alter depth, structure or shape outside the scope of this pamphlet or where adverse site conditions exist, the services of a Structural Engineer should be sought, as each deviation will present its own special requirements.

Before constructing your pool, make a survey on the following factors:

- Paved areas and Pool Fencing (need to comply with the Fencing of Swimming Pools Act)
- Access to house
- Access to toilet and dressing facilities
- View of pool from house
- View/privacy of pool from neighbours
- Shelter from wind
- Orientation to sun
- Shade from house, neighbours
- Relationship with garden, trees
- Location of pump/filter unit (consider the noise made by the pump/filter)
- Connection to storm water drains
- Access to water supply
- Location of underground services

## 2. Design

Consider:

- Use
- Size and shape
- Depth
- Finishes and details
- Accommodation of lights, ladders, skimmer boxes
- Water circulation
- Filtration
- Safety – owner controlled access to pool enclosure

The size of the pool is naturally determined by individual requirement but where cost or available space are the limiting factors then a 6m x 3.6m pool is the smallest size recommended. With a recommended water depth of 1.3m and 28,100 litres capacity, this pool is for swimmers only and is not large or deep enough to take a springboard. Diving boards are not recommended in pools less than 9m long and 2.4m deep.

The rectangular shape remains the most practical pool shape and is of course best suited to concrete block construction. However other shapes are possible.

## 3. Regulations

Determine the planning requirements by consulting the local territorial authority.

Swimming pools require a building consent. Some authorities may require design calculations or a producer statement from a Structural Engineer. Submit two copies of the building plans, showing size of pool, details of construction, drainage and plumbing, site plan showing position of existing building, swimming pool and distances to boundaries.

The basis for the structural design of this swimming pool is AS/NZS 1170 - Structural Design Actions, NZS 4230:2004 Design of Reinforced Concrete Masonry Structures and NZS 4229:1999 Concrete Masonry Buildings not requiring Specific Design.

## 4. Land

Consider the effects of the water table on pool depth and under pool drainage. Consider access and manoeuvring space for excavator and methods of soil disposal.

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## 5. Construction

All work shall comply with the compliance documents for the NZ Building Code, NZS 4210:2001 Masonry Construction and NZS 4441:2008 Swimming Pool Design Standard.

## 6. Setting Out

Mark out pool area using timber profiles and string lines.

Set tops of profiles level using dumpy level or water filled hose system. String lines marking outside of pool walls should be accurately placed and checked for squareness.

Peg out area to the excavated. Sides of excavation should be cut approximately 300mm larger all round than the outside wall dimension to allow for back filling and drainage. Indicate depths and where spoil is to be spread if not to be removed from site.

## 7. Excavation

Allow access of at least 2.4m wide plus manoeuvring room for digger and readymix concrete trucks. Inform excavator of location of underground services, and their respective depths, before work commences. Hand trim bottom of excavation to desired level.

## 8. Drainage

### a) Subgrade Drainage

To prevent the possibility of ground water pressure lifting the pool out of the ground when empty, lay a 100mm perforated plastic pipe or equivalent system round the perimeter of pool footing and one cross line under the deepest part of the pool linking the perimeter drain.

Discharge the subgrade drainage system to an outfall or elsewhere but never the pool outlet drain. Ensure adequate falls. Total underslab area should be covered with a 100mm layer of free draining hardfill. If it is not possible to discharge the subgrade drainage system by gravity, fit a hydrostatic pressure release valve to floor. However, even where outfall is available a recommended safety measure would be to still fit a hydrostatic release valve.

### b) Pool Drainage

After completion of excavation, set main 38mm copper or PVC outlet drain in position. Levels should be checked at this point to ensure the finished floor will have a slight fall from all directions towards the outlet. Standard copper or PVC fittings are available with manufacturer's installation instructions.

## 9. Floor Construction

Screed and compact levels and falls as required. 100mm of free draining hardfill topped with 25mm of 6.5mm down stabilised hardfill rolled with a vibratory roller to produce a hard unyielding base for the slab.

Lay 125mm thick reinforced concrete slab and integral reinforced wall footings. The floor and footings are to be 20MPa Firth Readymix Concrete containing Xypex additives.

Floor reinforcement consists of 663 HRC mesh sheets, cut, placed and lapped. Set reinforcing 50mm above hardfill. Support on 50mm plastic stools.

Wall footing consists of a thickening round the perimeter of the floor slab with additional reinforcing and wall starter bars as detailed. Tie starter bars to HRC mesh with black iron tie-wires accurately located to ensure that they match the hollow cores of the concrete block walls.

Cut reinforcing bars to lengths required using bolt cutters and form bends to minimum radius of six diameters. Lay concrete slab in one continuous operation without any construction joints. Compact concrete into position and screed with falls to main outlet. Finish surface with steel trowel. Main outlet fitting must be properly bonded into concrete for water tightness. Flood slab with water as soon as it has hardened. Keep slab wet for seven days for full curing.

## 10. Blockwork

Blockwork is laid by building the corners first and working towards the centre of the wall with each block levelled lengthwise and crosswise and aligned along a string. The first course of the blocks on the footing are threaded around starter bars and laid in a full mortar bed, with only the face shell bedding for the upper courses.

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The vertical rods are tied with black iron tie-wire to starters. Place horizontal reinforcing as the work proceeds. Clean mortar from cores at each course. It is essential that walls are kept true and plumb.

### 11. Grouting Cores

Fill cores of each block in accordance with NZS 4210:2001. The grout shall be 17.5 MPa Firth Blockfill.

Note: It is especially important to ensure that the blockwork cores are free of mortar prior to grouting.

### 12. Fittings

Box for or leave openings for fittings previously selected. Lay electrical cords prior to grouting.

### 13. Curing

Cure block walls for seven days under wet sacking kept damp, before placing and compacting backfill.

### 14. Backfill

Backfill over subgrade drainage with free draining granular material or Pea metal. Do not overstress the walls by operating heavy equipment on the fill, or by impacting against them with large masses of moving earth.

### 15. Coping

The coping (top edge of wall) should provide:

- A visual edge to the pool
- A non-skid walking surface
- A handhold for swimmers
- A barrier to prevent surface water on surrounding surfaces from draining back into the pool adding dirt and discoloration.

## INTERIOR FINISH

### 16. Plastering

If a plaster finish is desired allow for one bond coat followed by a flanking coat of plaster and a finish coat to give a total thickness of 15mm.

A neat easy to clean detail involves tiling the top 150mm of pool walls between coping and plaster finish.

For best results apply paint finish over plastered blockwork.

### 17. Painting

The masonry blockwork can be painted with chlorinated rubber or 100% acrylic paint. Painting applied in accordance with the manufacturer's specification. Particular attention to the surface preparation of the blockwork or plaster finish is important because defects such as blistering or peeling could occur.

### 18. Plumbing

All pipe work and installation of plumbing systems to be in accordance with the NZ Building Code.

### 19. Paving

**All variety of materials for pool area paving is available, such as:**

Firth Concrete Paving Slabs

Firth Bricks (Focus, Pioneer)

Firth Interlocking Paving

Treated Timber

**The essential features are:**

Non slip

Adequate drainage from paved areas

Adequate fall away from pool edge 1:50 is recommended.

### 20. Filtering

An efficient filter is essential for proper pool maintenance.

**Types available are:**

- Sand Filter
- D E Type Filter
- Cartridge Filter
- Ozone Water Purification

Filteration and water recirculation equipment shall be of approved type and installed in accordance with manufacturer's instructions.

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## 21. Electrical

All work shall be done by a registered electrician to comply with the Electrical Regulations.

## 22. Fencing

Fencing around the pool is required by the Territorial Authority and has to comply with the Fencing of Swimming Pools Act. For full information contact your Territorial Authority. In brief, the fence must enclose the pool area. The fence must be at least 1.2m high measured from the ground level outside of the fence. The distance between ground level and the bottom of the fence must not exceed 100mm.

Fences shall be built so to prevent climbing from the outside. All horizontal fence members must be on the inside of the fence and spaced 900mm or more apart. Space between vertical paneling, boards, bars or other such material must not exceed 100mm at any point.

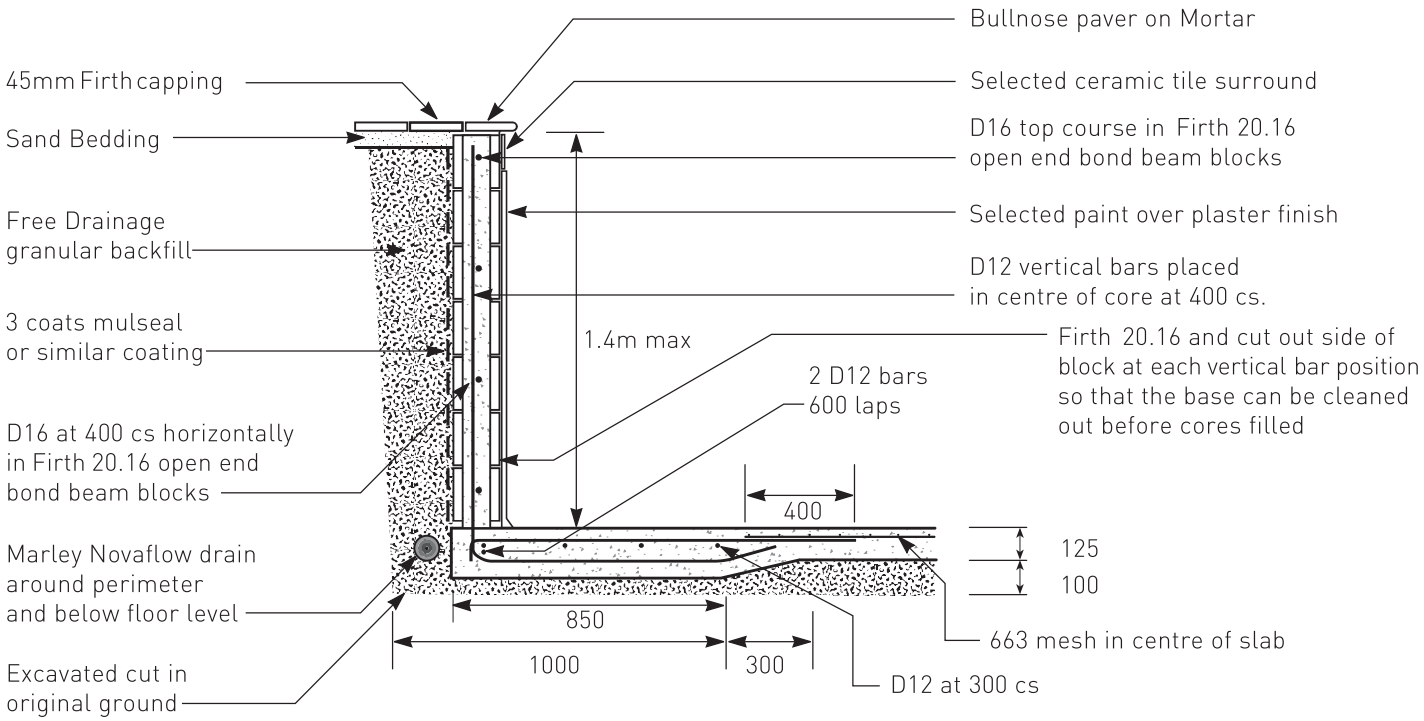
The gate must open outwards and have a latching device not less than 1.2m above finished ground level. The gate must automatically shut with the latch operating from a stationary start at a position of 150mm from the closed position.

## Details

The drawings in this document have been developed assuming the following limitations. Where the operating conditions are outside these limitations seek professional engineering advice.

- No surcharge exists around the pool edge
- Maximum depth of the pool is 1.4m
- The pool is below ground
- The pool will be predominantly full with water. If left for long periods empty, there is a possibility that drying shrinkage could cause cracking.
- The maximum length or width is 6.4m

## WALL TO FLOOR DETAIL



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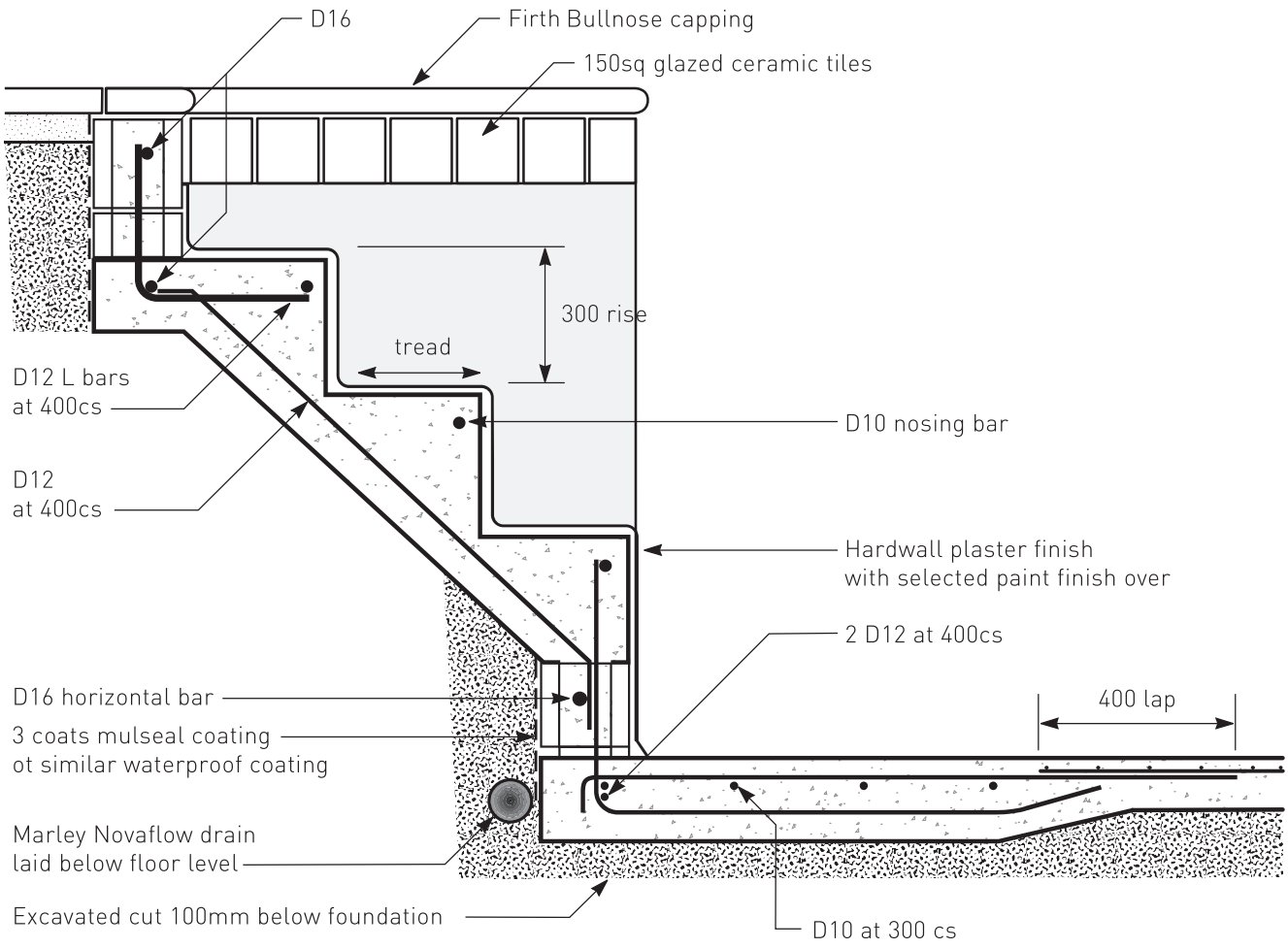
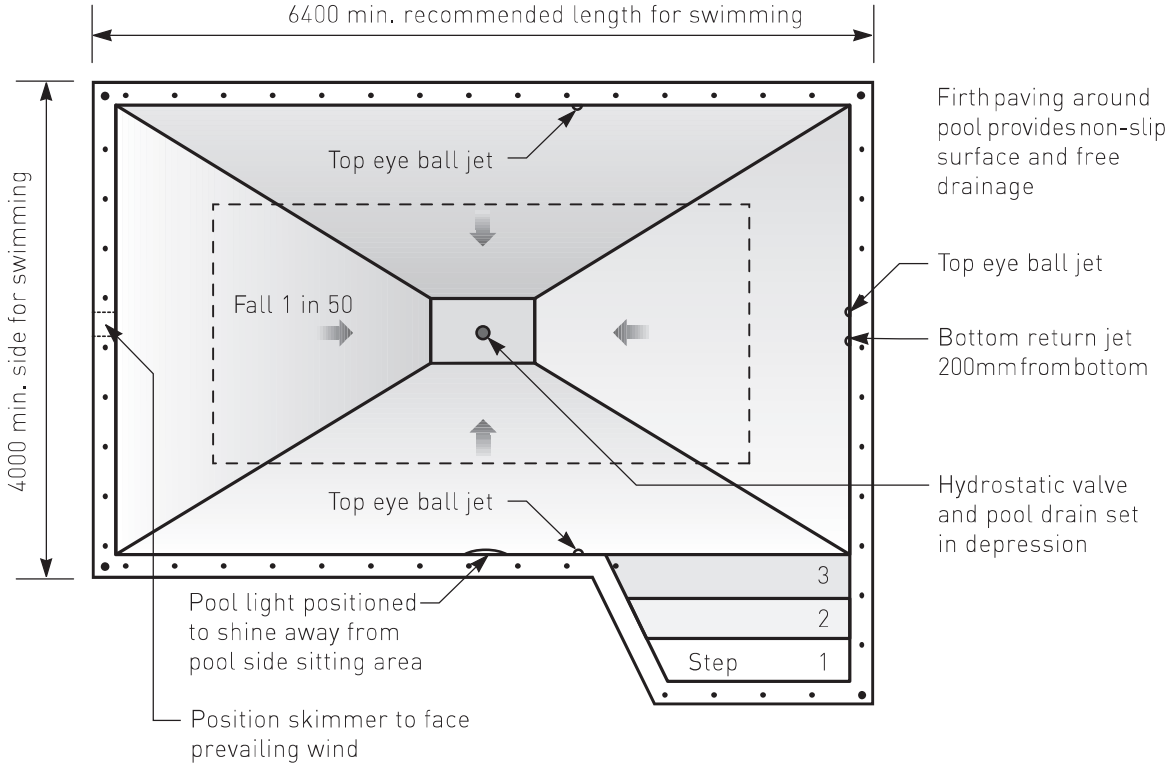
## TYPICAL STEP DETAIL




## TYPICAL PLAN LAYOUT



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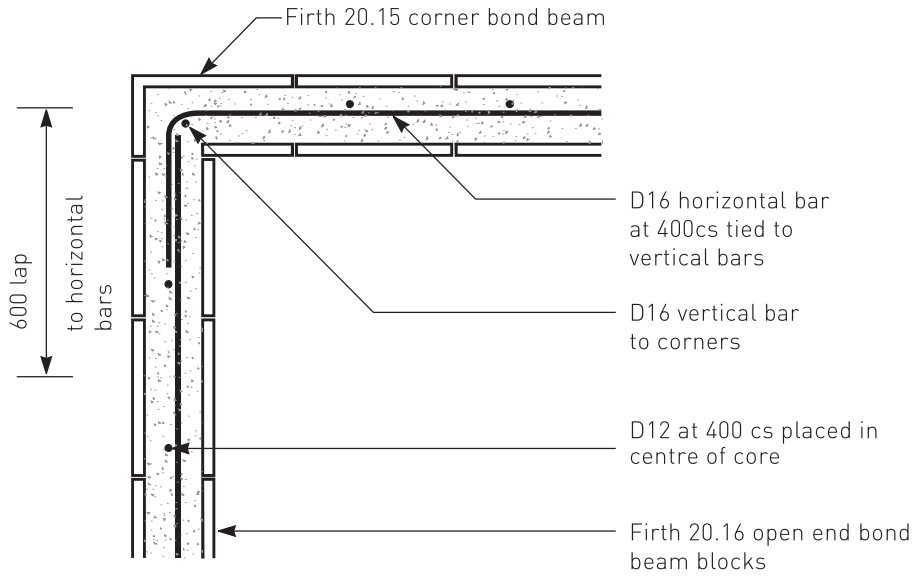
# CORNER DETAIL OF STEEL REINFORCING



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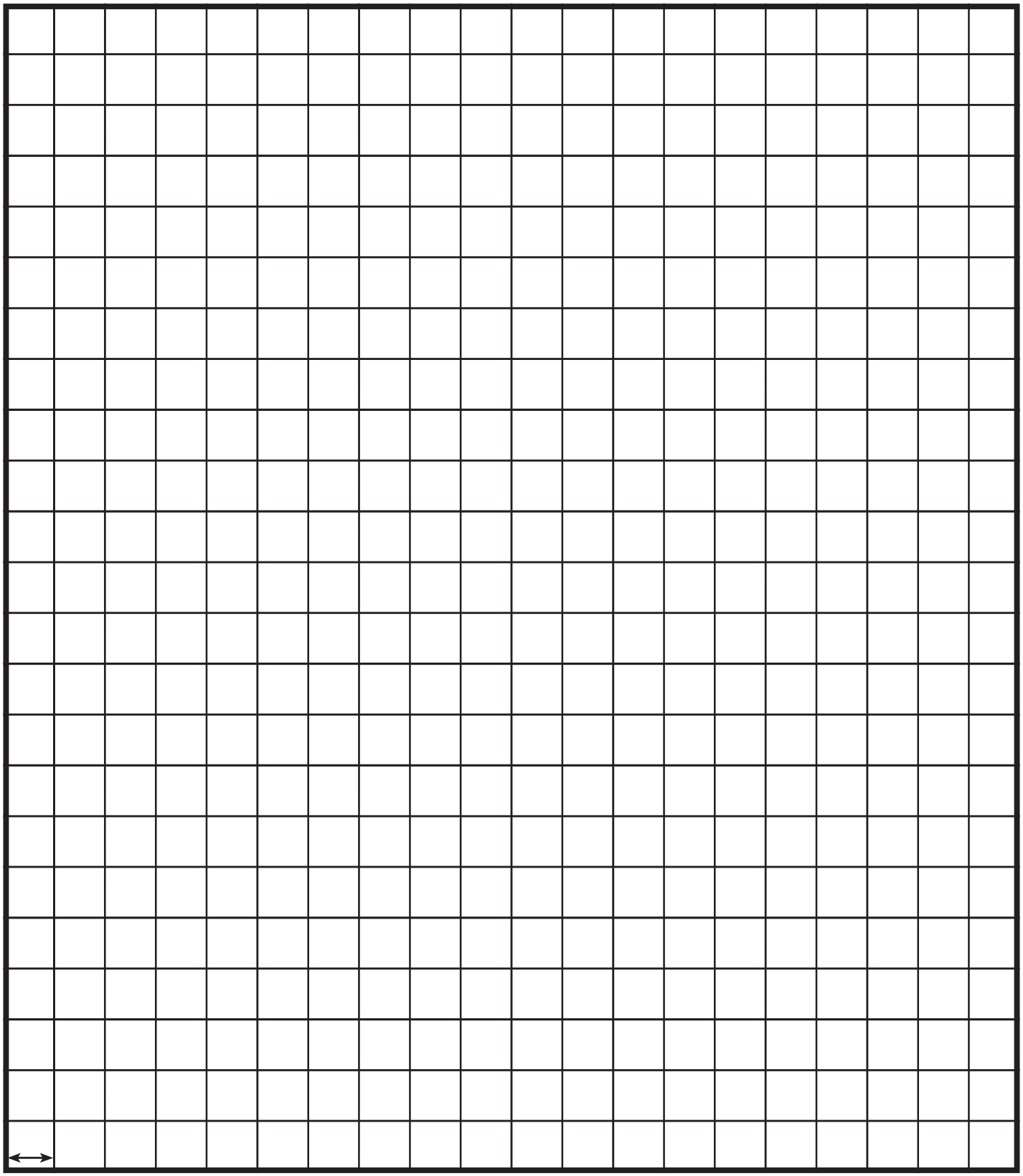
## SWIMMING POOL PLANNING MODULE

Using block module draw outline of swimming pool showing position of steps, skimmer, lights, filter, jets

NAME

ADDRESS



400 block size

Scale 1:50

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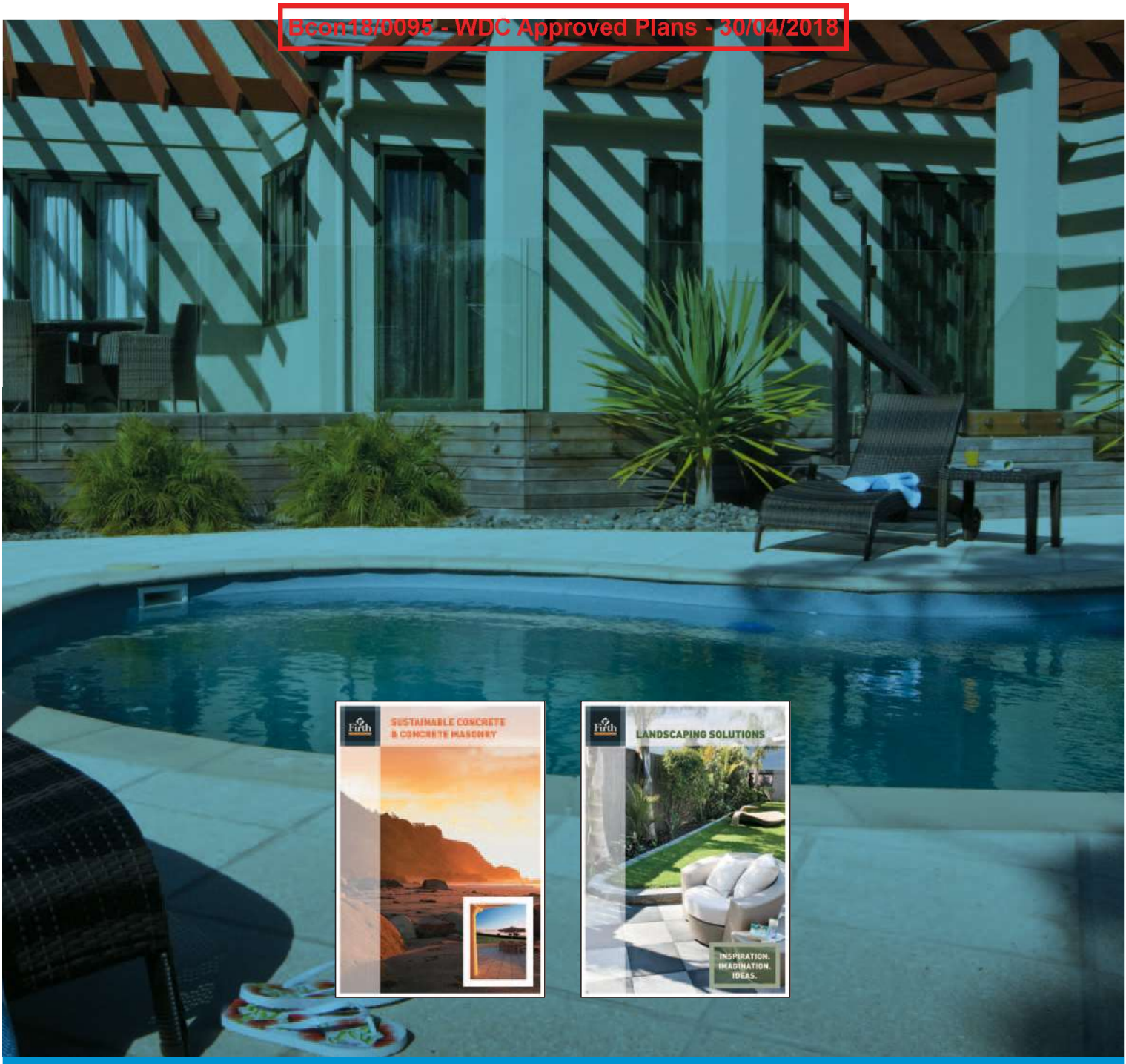


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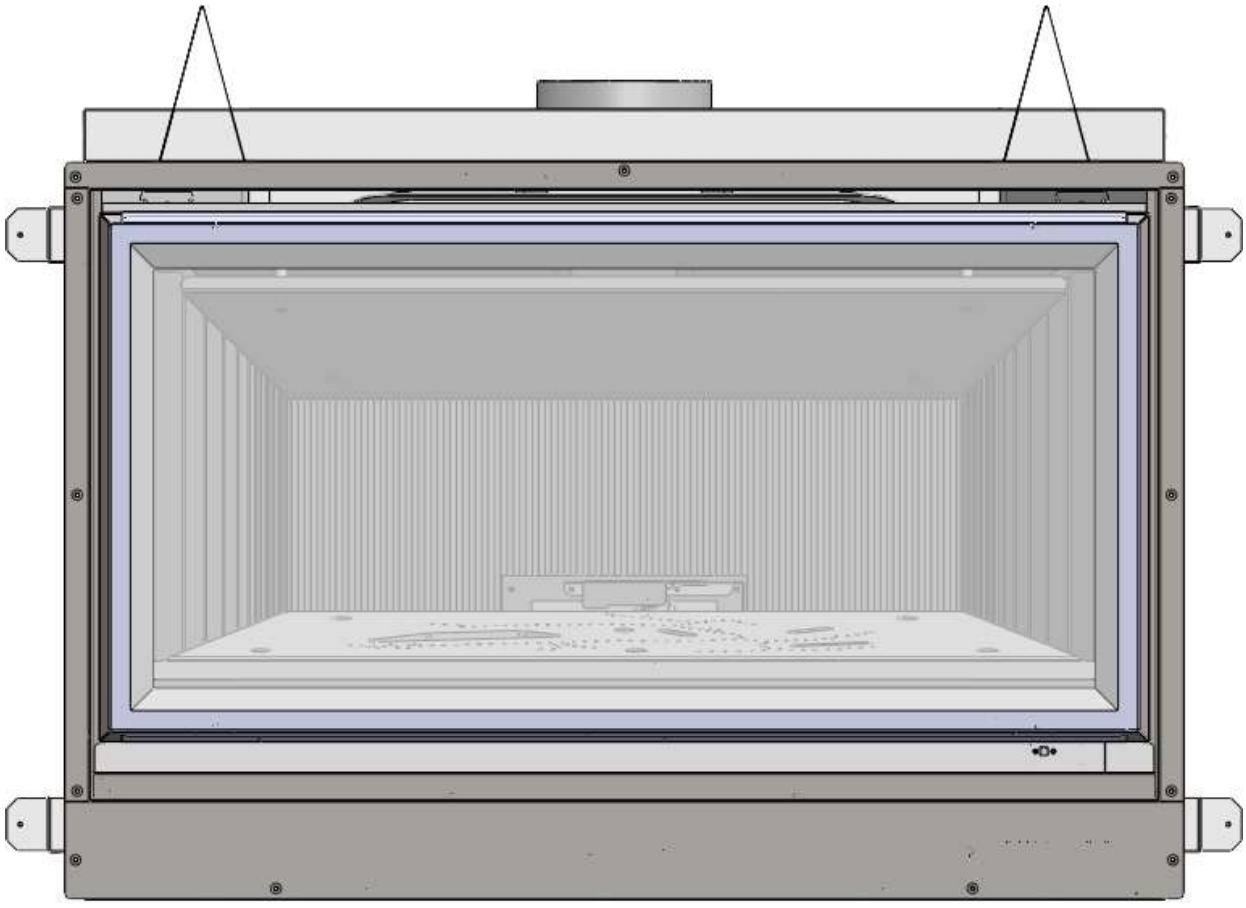
Rinnai

# Installation guide

# Symmetry

Models: RDV3611ETRN / RDV3611ETRL



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# Important:

The Symmetry RDV3611 is recommended for a new build installation into a false (mock) chimney. It is not suitable for retrofitting into an existing masonry fireplace.

Appliance, including flue, is installed after framing and before cladding. Rinnai strongly recommend the appliance is fully tested BEFORE any material is applied, as installation problems may result in the fire needing to be pulled out—difficult if the cladding has been applied.

Appliance must be installed with a Rinnai approved flue system.

This appliance shall be installed in accordance with:
- Manufacturer's installation instructions
- AS/NZS 5601 Gas Installations
-

Installation, servicing and repair shall be carried out only by authorised personnel.

**WARNING**
Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life.

---

For more information about buying, using, and servicing of Rinnai appliances call: 0800 RINNAI (0800 746 624).

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# Specification

**Specification summary**

| | |
|---|---|
| Input: | 19-33 MJ/h |
| Output: | 3.8-7.5 kW* |
| Efficiency: | 80% |
| Heating area: | up to 116 m²** |
| Gas type: | NG or ULPG |

A direct vent (natural draft) inbuilt gas fireplace with a glass front and convection fan (top discharge). Operated with a remote control (7-day programmable timer).

* Will vary according to gas type and flue configuration

** Will vary depending on geographical location in NZ

**Data plate**
Centre front of base panel, behind the service panels.

**Gas connection**
½ " BSP male flare. This connects straight into the gas control on the lower left hand side of the unit.

**Ignition**
Integrated sparker to pilot.

**Noise level**: 37-45 dB(A)

**Flue**
Inner 100 mm, outer 170 mm.

Appliance must be installed with a Rinnai flue system.

**Power consumption and electrical supply**

| | |
|---|---|
| High | 50 W |
| Standby | <1 W |

Comes with a 1.5 m power cord and 3-pin plug. The standard electrical connection is to the right hand side of the appliance.

**Safety devices**
Light to pilot, delayed ignition, overheat switch, electronic flame failure supervision, and combustion chamber relief.

**Temperature control**
Thermostatic, temperature control range 7-32 °C.

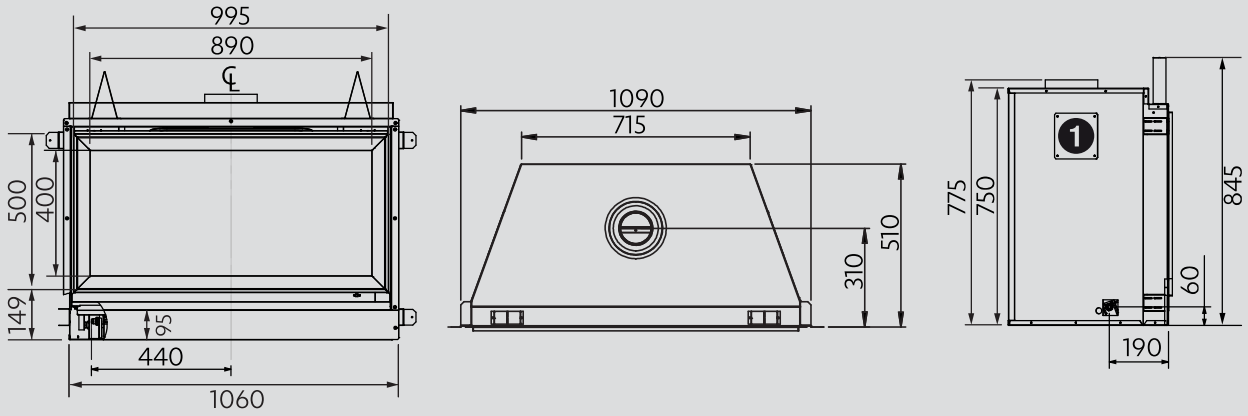
**Weight**: 60 kg

**Installation considerations**
Maximum flue height is 5.4 m.

Smaller rooms will heat up quickly, and due to the efficiency of the appliance, the fire will turn off once the set temperature has been reached.

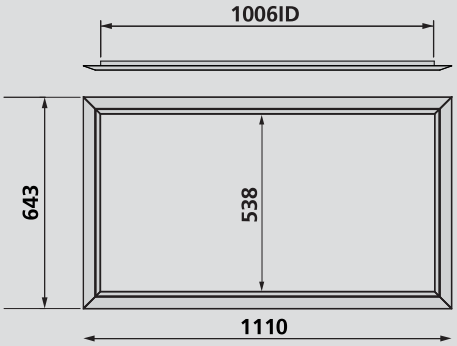
The Symmetry looks and performs best when installed close to the floor. If the unit is installed higher up the wall the movement of air from the convection fan, depending on the room configuration, could create draughts.

## Dimensions (mm)

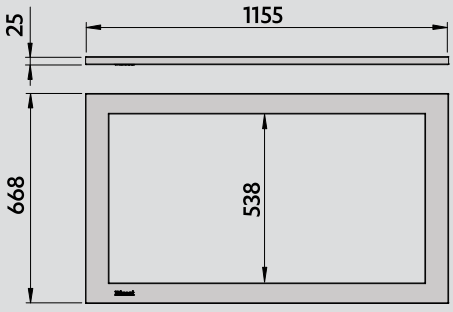



1 **Cover panel**: 150 mm opening on both sides of the heater. Covers are removed only when a Symmetry Heat Transfer Kit is installed.

### Standard metal outer frame




### Premium flat metal outer frame



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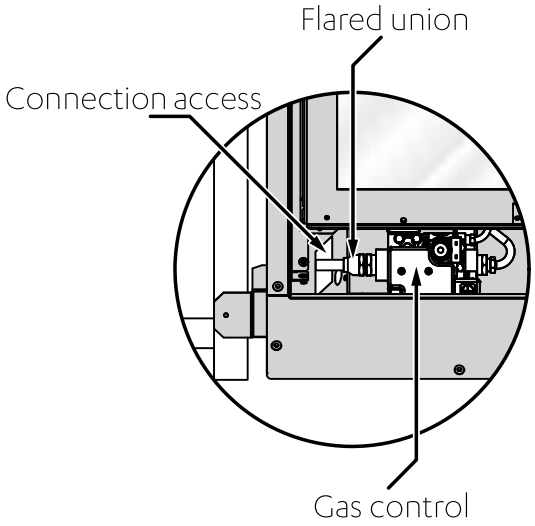
# Gas supply

Gas pipe sizing must consider gas input to this appliance as well as other gas appliances in the premises.

The gas connection from the control valve is a ½ " BSP male flare fitting. This connects straight into the gas control on the lower left hand side of the appliance.

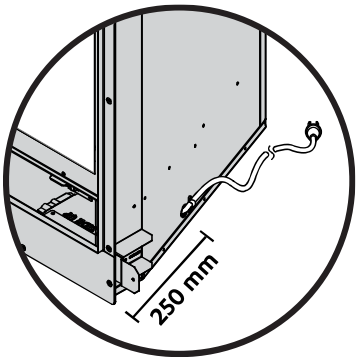



Refer to the dimension diagram for the gas connection dimensions from the back and centreline of the unit.

To access the gas connection, remove the upper and lower bracket (also called the service access panels). The brackets can be removed by undoing the screws as shown below at each end of the unit.

# Electrical supply

The Symmetry is fitted with a 1.5 m power cord and a 3-pin plug. The standard electrical connection is to the right side of the front of the appliance. If necessary this can be changed by an electrician to terminate on the left.




The connection is either direct wired* or connected to a power point within the cavity. This must be connected to a dedicated 230 V, 10 A earthed power point. The electric isolation switch must be accessible after the appliance has been installed.

The unit must not be located below a power socket outlet (potential fire hazard).

If the supply cord is damaged, it must be replaced by a licensed tradesperson. This must be a genuine replacement part available from Rinnai.

* Consult a qualified electrician if direct wiring is required as it must comply with AS/NZS 5601.1 and AS/NZS 3000 and other relevant local regulations.

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# Framing dimensions

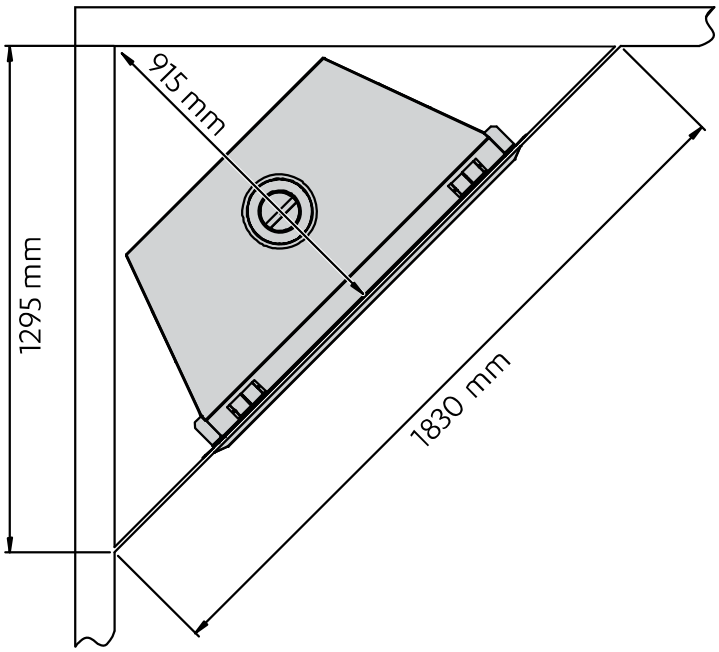
| Enclosure dimensions | |
|---|---|
| **W-width** | 1100-1125 mm* |
| **H-height** | 850 mm min. |
| **D-depth** | 540 mm min. |

**S - side clearance**

* If installing a Symmetry heat transfer kit allow for an additional 250 mm side clearance per kit. For example if one kit is being installed the width would need to be 1350-1375 mm. This additional clearance is required to ensure the ducting does not come into contact with the fire.

The main points governing location are flueing and warm air distribution. The Symmetry has an integrated zero clearance box that isolates the appliance from combustible materials. This means it can be installed directly into a decorative fireplace constructed from materials such as wood or plaster.

### Corner installations



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# Clearances from combustibles

The clearances listed below, measured from the **edge of the inner glass**, are minimum clearances unless otherwise stated.

### While the heater is operating

The appliance must not be installed where curtains or other combustible materials could come into contact with the heater. The 400 mm side clearance includes side walls.

### Floor protection

Heat emanating from this fire may over time affect the appearance of some materials used for flooring, such as, carpet, vinyl, cork or timber. This may be amplified if the air contains cooking vapours or cigarette smoke. To avoid this occurring, it is recommended that a mat be placed in front of this appliance.

### Mantels and surrounds

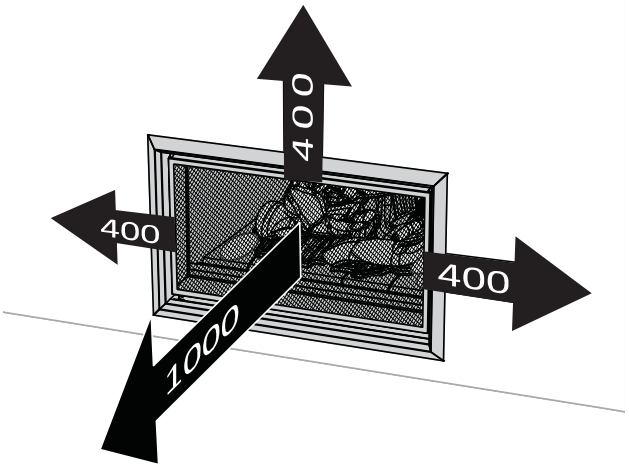
Combustible mantels and surrounds require clearance from the unit to minimise the risk of fire. Mantels and surrounds, made of combustible materials such as wood, are allowed providing they are outside the minimum clearances shown.

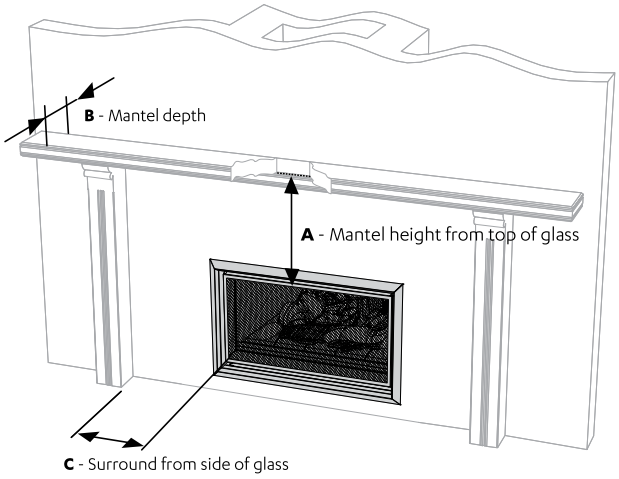
### Hearths

A hearth is not necessary but can be used for decorative purposes or protection of sensitive flooring if required. A hearth must not obscure the front of the fire.

### Wall surface above the fire

The temperature of the wall surface directly above the fire may get warm and distort paint finishes, or distort vinyl wall coverings. For durability of surfaces, please contact the manufacturer for their specification.




| | |
|---|---|
| **A** | Mantel needs to be a min. of 400 mm away from the edge of the inner glass. |
| **B** | Max. mantel depth at 400 mm (A) is 250 mm max. |
| **C** | Surround needs to be a minimum of 400 mm away from the edge of the inner glass. |

For every 50 mm of added mantel depth there must be an additional 100 mm of clearance from the edge of the inner glass. For example:

| Mantel depth | **A**: clearance required |
|---|---|
| 300 mm | 500 mm |
| 350 mm | 600 mm |
| 400 mm | 700 mm |

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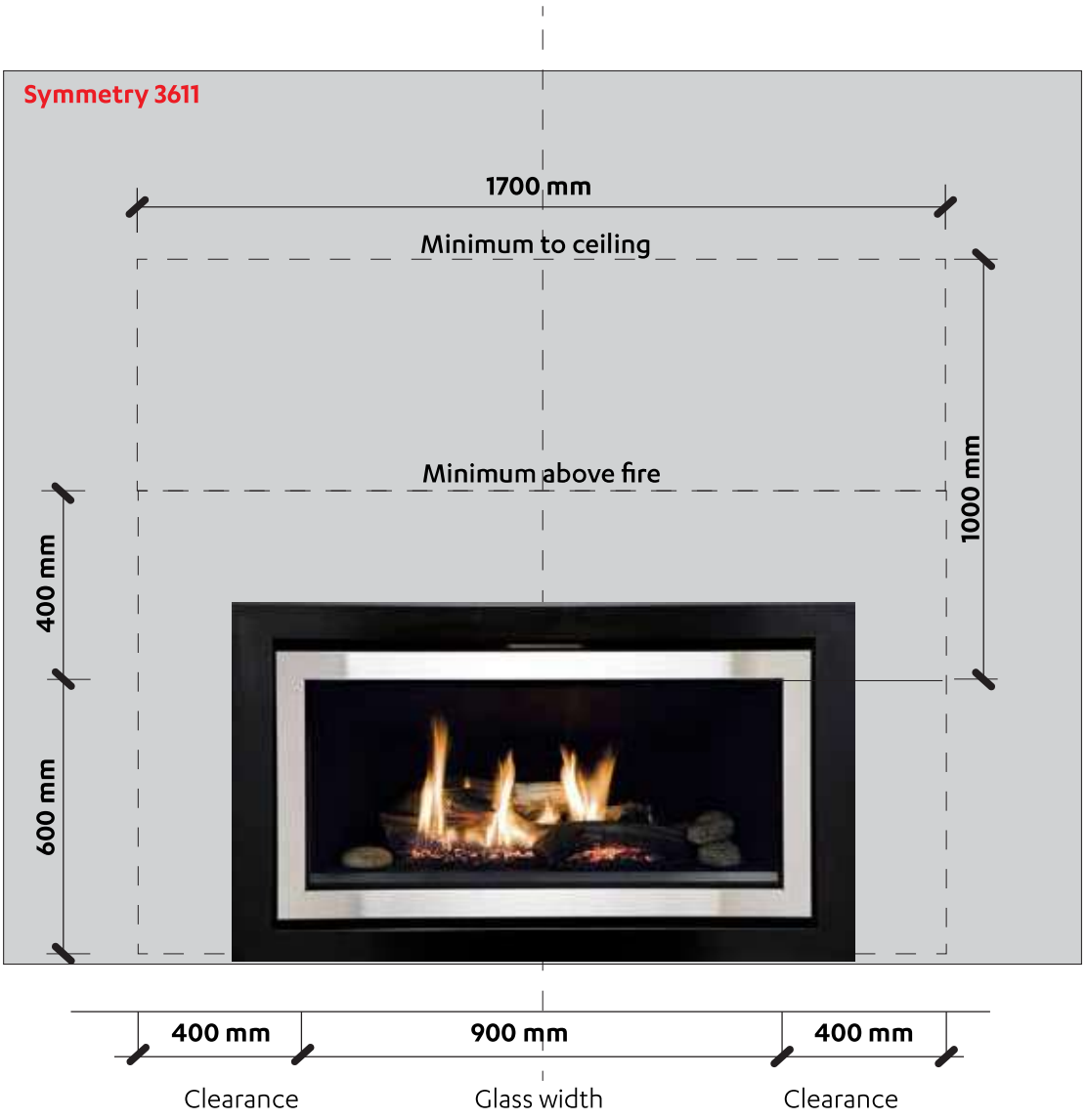
The below diagram is to assist people who are determining the clearance area around the Symmetry without having the unit on site.



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# TV installation

The Symmetry has a fan that distributes warm air from the top of the appliance out into the room. As warm air is dispersed outwards, as opposed to directly upwards, installation of a TV may be an option.

The diagram shows recommended clearances when installing a TV directly above the Symmetry, or into a recess. All dimensions are in millimetres.

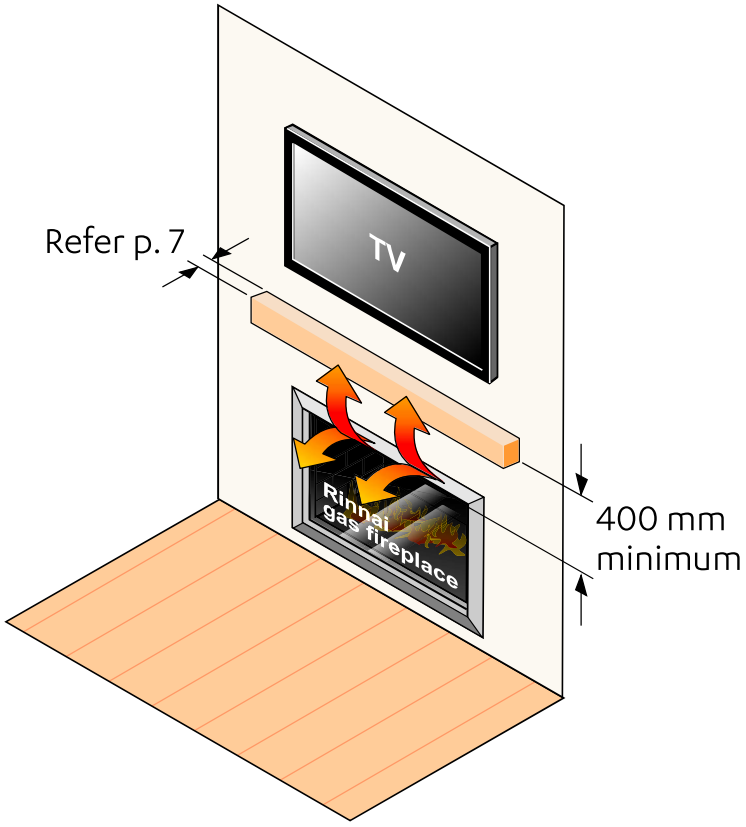
### 400 mm dimension

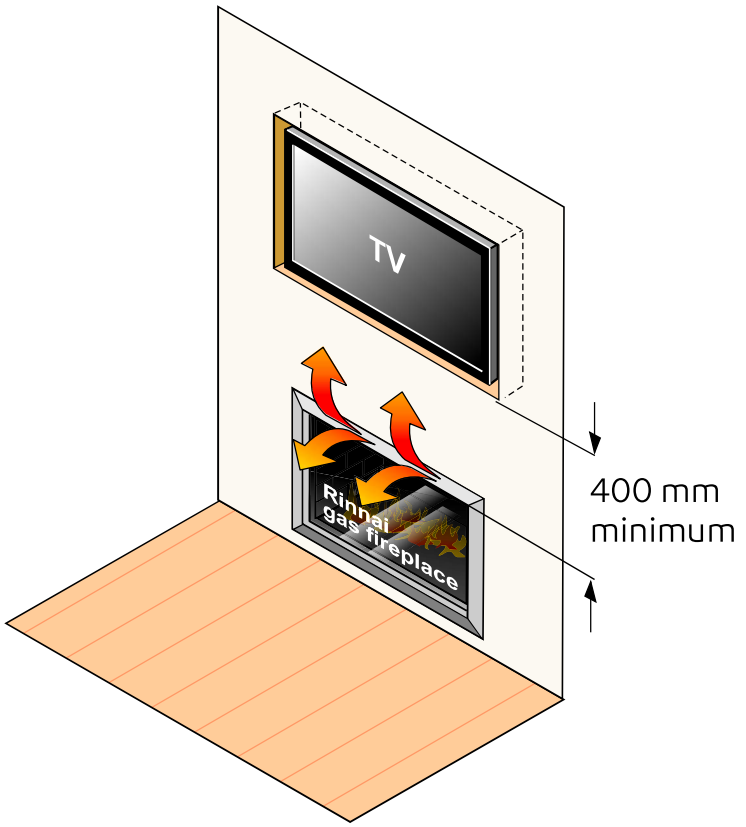
The 400 mm dimension is the minimum clearance required to to a mantel. The image adjacent shows the dimension from the edge of the frame, in the case of the Symmetry the 400 mm dimension is to be taken from the edge of the inner glass.

### Always check with the TV manufacturer

It is up to the owner to check the TV installation with the TV manufacturer—some have warranty conditions that state a TV is not to be installed above a fireplace.

Rinnai does not accept any responsibility for damage to a TV resulting from the use of this information.



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# Installation overview

Read these instructions to get an overview of the steps required before starting the installation. Failure to follow these instructions could cause a malfunction of the appliance. This could result in serious injury and/or property damage.

Unpack the appliance and components, and check for damage. Do not install any damaged parts. Check all components have been supplied and that you have the correct gas type.

Adapt steps as necessary to suit the installation, for example new build or renovation—order of steps may vary.

1. Build the frame and complete the electrical connection.

2. Install mounting brackets, the Symmetry unit, and fix the unit to the frame.

3. Install the flue and complete the gas connection.

4. Install ducting kit, if purchased—separate instruction.

5. Install cladding*, refer important note on p. 13.

6. Install flue restrictor (if req.) and log set.

7. Commission unit and uprate if an LPG unit with a vertical termination.

8. Install frames, refer separate instruction with each frame kit.

9. Complete installation checklist (in Operation guide) and complete customer handover.

* In some instances (renovation), if there is gas supply to the unit, it would be better to commission before cladding, as removing the unit, should installation problems occur, becomes difficult if the cladding has already been applied.

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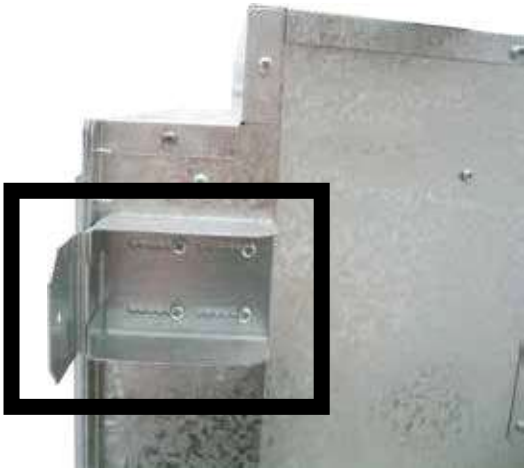
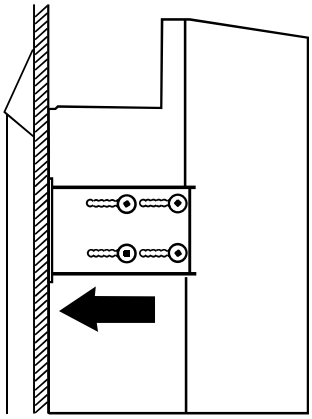
# Mounting bracket installation

Install the four mounting brackets supplied onto the unit. The position of the thickness will depend on the cladding thickness and the type of installation (framed or frameless).

The Symmetry can be installed with granite and metal frames, and also as a frameless installation. The frameless installation can have brick, rock veneer, or tiles—these will sit tight up against the framing plate of the fire.

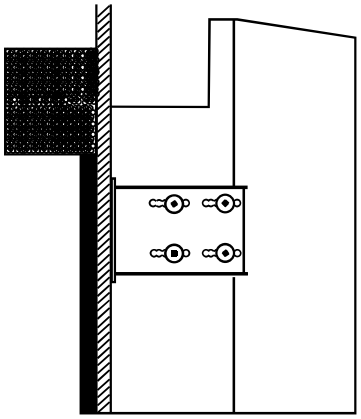
The metal mounting brackets can be adjusted (20 mm) to allow for the different cladding thicknesses.





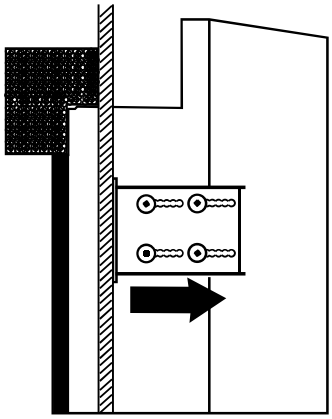
### Granite or metal frame

Bracket is in the forward position and the backing board is around the framing plate.



### Brick or tile installation

Note the depth of the brick recess. The bracket is in the middle position and the front face of the backing board is level with the back face of the framing plate.



### Frameless brick or tile installation

Note the cutaway in the brick for a shallower recess. The bracket is in the back position with the front face of the backing board sitting behind the framing plate.

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# Installing the Symmetry and fixing to the frame

The Symmetry comes pre-assembled with the burner already in position. For all installations the unit MUST BE positioned on a level surface

1. Position the unit inside the cavity.

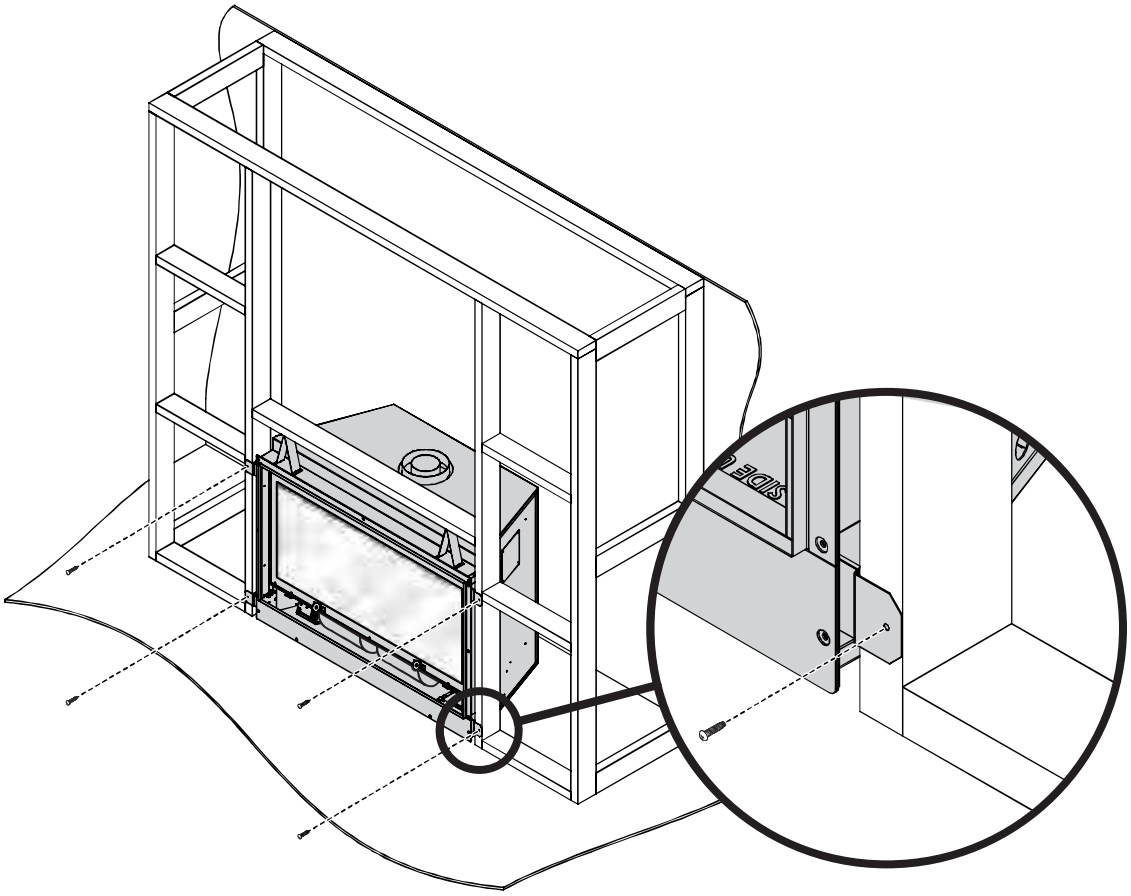
2. Bend and secure the two metal standoffs supplied with the unit into position on top of the unit. These provide the 150 mm vertical clearance to the upper lintel.

3. Fix the unit to the frame with the four mounting brackets. These act as seismic constraints as well as providing horizontal clearance to the frame.

4. Install the glass front, this will help protect the unit while the remaining installation work is completed.

**Step 2:** Bend and secure the metal standoffs

The carton in which the Symmetry is packaged has a cardboard cutout that is the same size as the glass frame. This can be used to protect the unit during installation.




**Step 3:** Fix the unit to the frame with the mounting brackets

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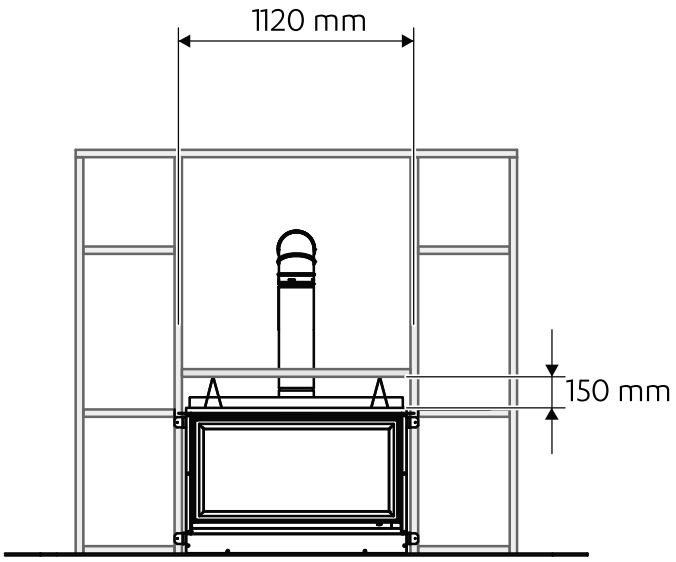
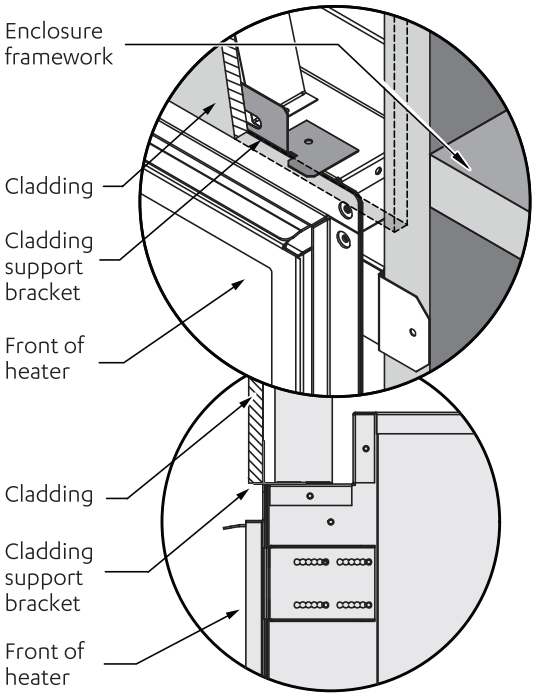
# Cladding

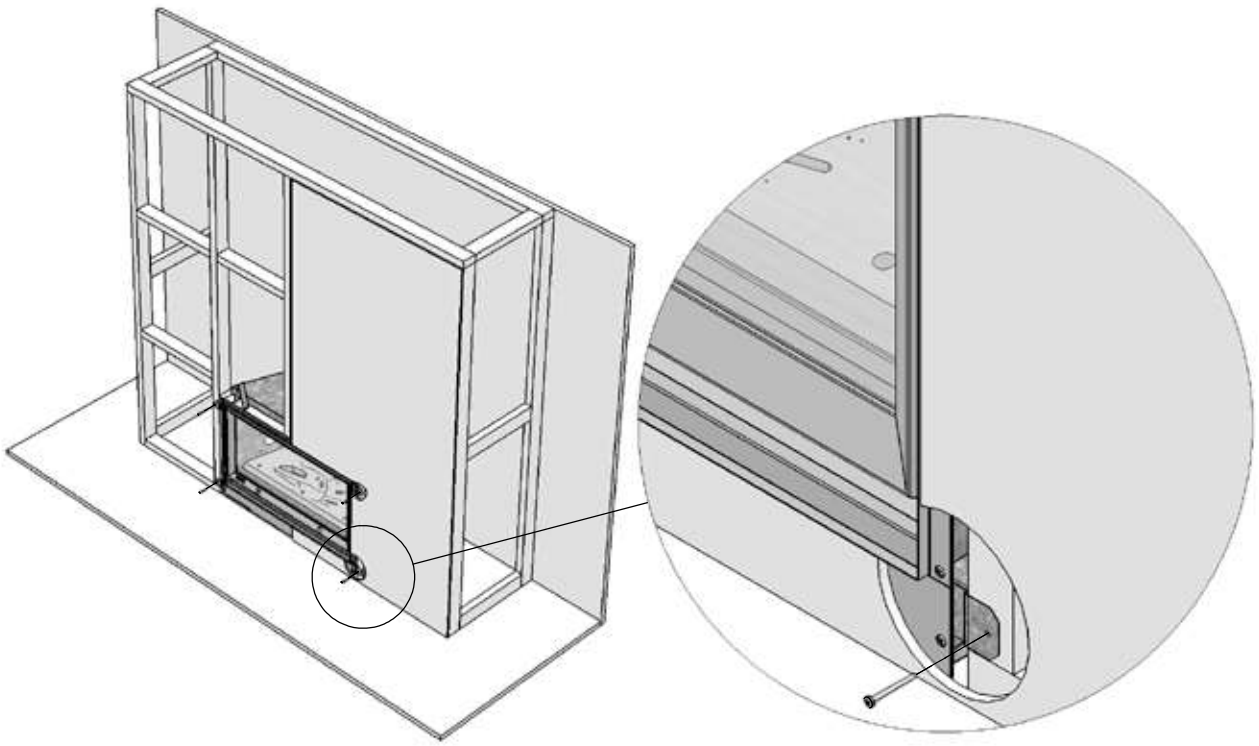
When installing the cladding* ensure it is installed up to the flange and not over it. Any overhang will affect performance of the appliance and cause an unsafe situation.

IMPORTANT

Cladding MUST NOT extend lower than the cladding support bracket.



**Detailed view showing cladding installed up to the flange and not over it**

* In some instances (renovation), if there is gas supply to the unit, it would be better to commission before cladding, as removing the unit, should installation problems occur, becomes difficult if the cladding has already been applied.

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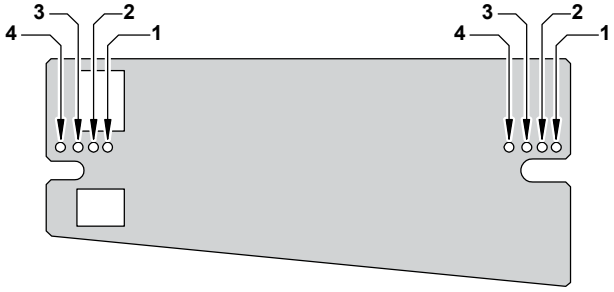
# Flue restrictor installation

The flue restrictor works by limiting the amount of air required for combustion. The higher the flue, the more the air is circulated. This can affect the performance of the fire. Different flue configurations require different positioning of the flue restrictor—refer to p. 24-25 to determine what setting is required.

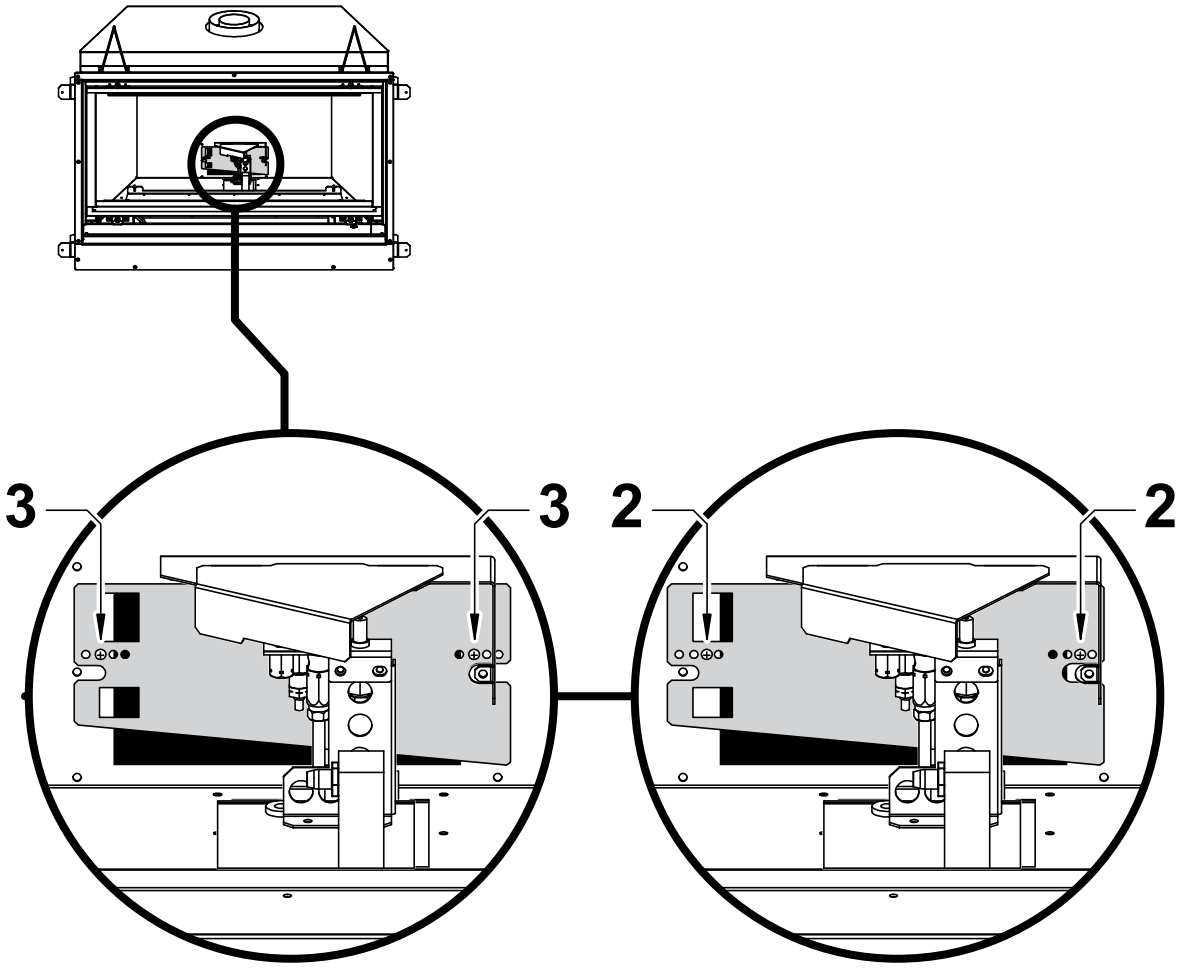
The different hole positions are shown in the diagram. These are stamped on the flue restrictor.




**Before installing the flue restrictor**

Before the flue restrictor can be installed you need to remove the pilot shield and carefully lift the burner bed out of the unit.

Attach the flue restrictor as shown by securing with the screws provided.



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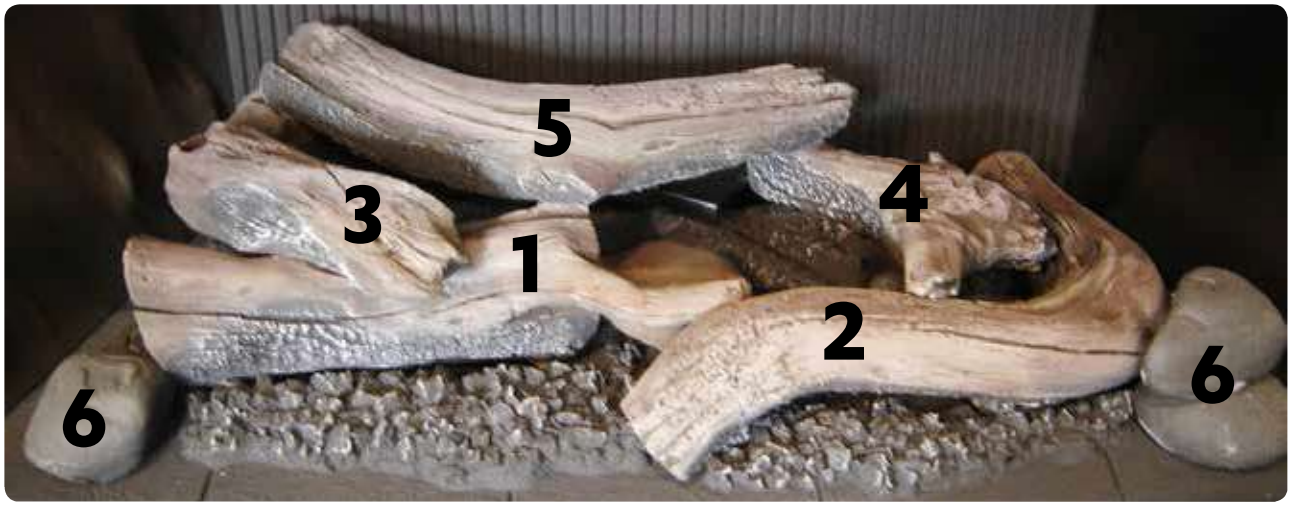
# Log set installation

The log set is packaged separately and consists of five log pieces and three moulded rocks. Use extreme care when handling the log pieces, they are made from fragile material and will damage easily.

IMPORTANT

Use these instructions in conjunction with the log location guide, which is attached to the engine. Experience has shown that the majority of performance problems have been caused by the log set being installed incorrectly.




It is important to place the pieces in the correct position. Incorrect placement can create carbon build-up and affect performance. Malfunctioning due to incorrect log/rock placement is not covered by warranty. The unit MUST NEVER be used with broken logs or rocks or other burn media.

1. Carefully remove the log set from the packaging and fit the front base left log (with moulded rock). There is a cutout in the back of the log and in the burner—it should only fit one way, sitting flat with no movement.

2. Fit the snake shaped log into the curve on the far right of the burner base. It should sit hard up against the burner and once positioned not rock or wobble.

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3. Fit the front middle left log (whale tail in the front) into the back flat section of the burner, and swing over so that it slots on top of the front base left log.

4. Place the y-shaped log securely in the back recess of the burner (there is a cutout in the log and in the back of the burner)—it will almost touch the back burner cover.

5. Place the top bent log over the u-shaped log and the whale tail log—there are pockets underneath to help position it properly. For correct positioning ensure that the top bent log is located on the three points shown.

6. Place the round flat rock and front left rock over the burner screw holes. Keep them as far away as possible from the glass, while making sure they still cover the holes.

   Place the remaining triangular shaped rock on top of the round flat rock as shown.

After all pieces are in position double check everything is sitting flat with little or no movement—they should be stable and not wobble.

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# Commissioning

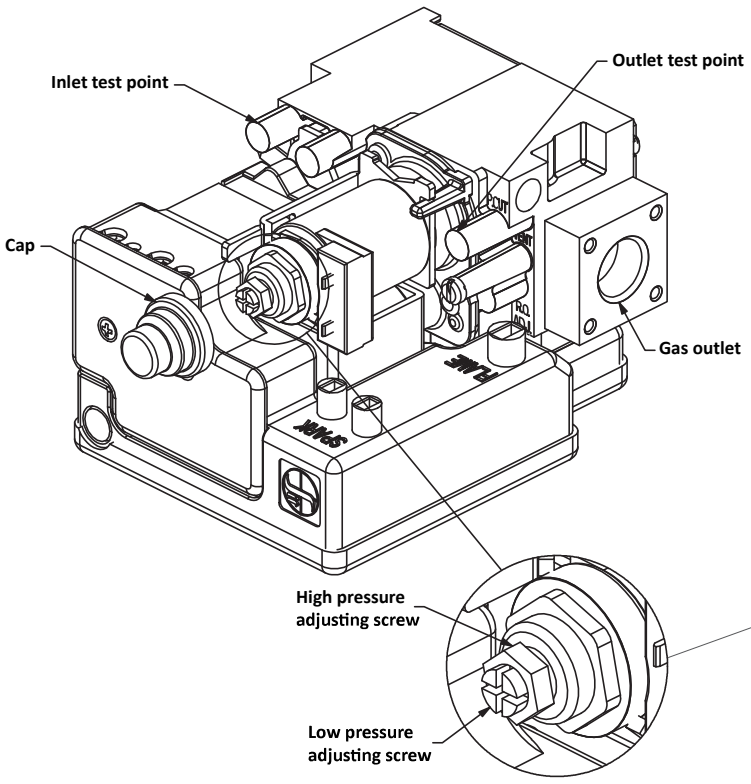
The gas pressures of the appliance are factory set and will normally not require adjustment. When checking the operating pressures the combustion chamber glass must be on.

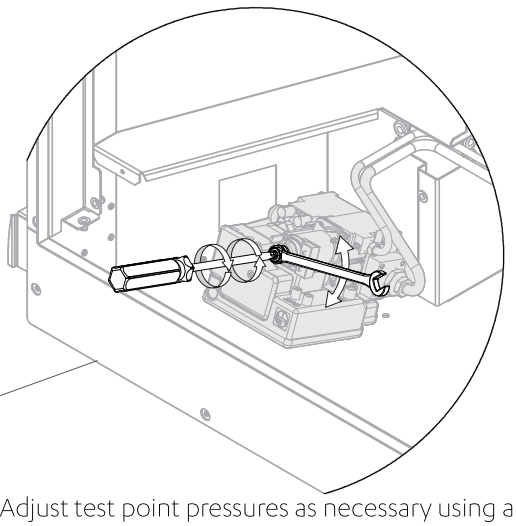
IMPORTANT

If installing an LPG unit with a vertical flue termination, the appliance must be uprated to 33 MJ/h using the uprating kit and instructions supplied with the unit.

**To check and set the burner pressures**

1. Turn on the gas and power supply to the unit.
2. Refer to the data plate for applicable test point pressures.
3. The test point is on the gas control valve. Using a suitable screw driver loosen the captivated test point screw and attach a manometer.
4. Using the manual control switch (on the appliance), turn the unit on and switch to the HIGH setting, and adjust the pressure as necessary.
5. Disconnect the solenoid (yellow wire), this will ensure the unit is on the lowest setting, and set the appliance to the LOW setting. Adjust the pressure as necessary. Reconnect the solenoid.
6. After checking the pressures, turn the unit off, remove the manometer, and replace the test point screw.
7. Turn the heater on and off a few times to check ignition.
8. When you are satisfied that the heater is working correctly reassemble and start the appliance to check the flame pattern.



Adjust test point pressures as necessary using a screwdriver and spanner as shown above.

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# Test operation and lighting sequence

It may take approximately two hours of operation for the logs to achieve their full flame pattern and glow. During this burning in period some smoke and smell may be experienced. The appliance should run on the high setting in a well ventilated room until these dissipate. It is important to check the flame pattern during this time.

### Abnormal flame pattern

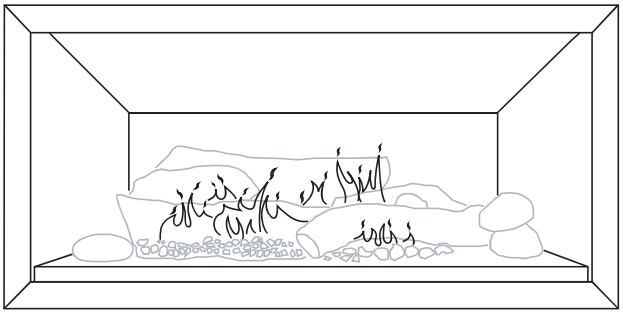
Abnormal flame performance and/or flame pattern can indicate a problem with the fire such as blocked gas injectors or log set that may have shifted. There are some warning signs that could indicate a problem.

- Unusual smell from the appliance
- Continued difficulty or delay in establishing a flame
- Flame appears either very short or very long
- Flame only burns part way across the burner
- Severe soot building up on the inside of the glass door

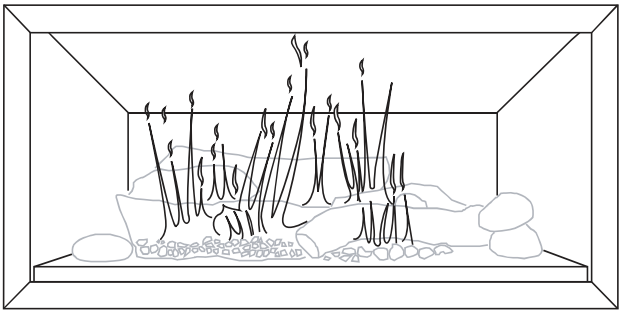
### Important

It is the responsibility of the installer to check that under normal conditions of the appliance, all flue gases are exhausted to the outside atmosphere and that there is no spillage of combustion gases into the room.

If the appliance cannot be made to perform correctly please contact Rinnai.



**Normal flame pattern**



**Abnormal flame pattern**

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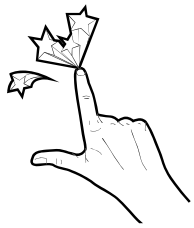
# Fitting the frames and optional dress guard

The installation steps vary depending on the type of frame selected, bevelled, premium flat, granite, or inner frame only for frameless installations. For steps on how to install the frame refer to the separate installation instruction provided with each frame kit.

# Installation checklist and customer handover

Complete the installation and commissioning checklist in the customer operation guide, and make sure you leave the guide with the customer.



Add a touch of magic by taking the time to explain about the use and care of the fire, and that they understand the instructions.

If operating without a dress guard, advise the customer of the safety instructions to prevent the risk of injury.

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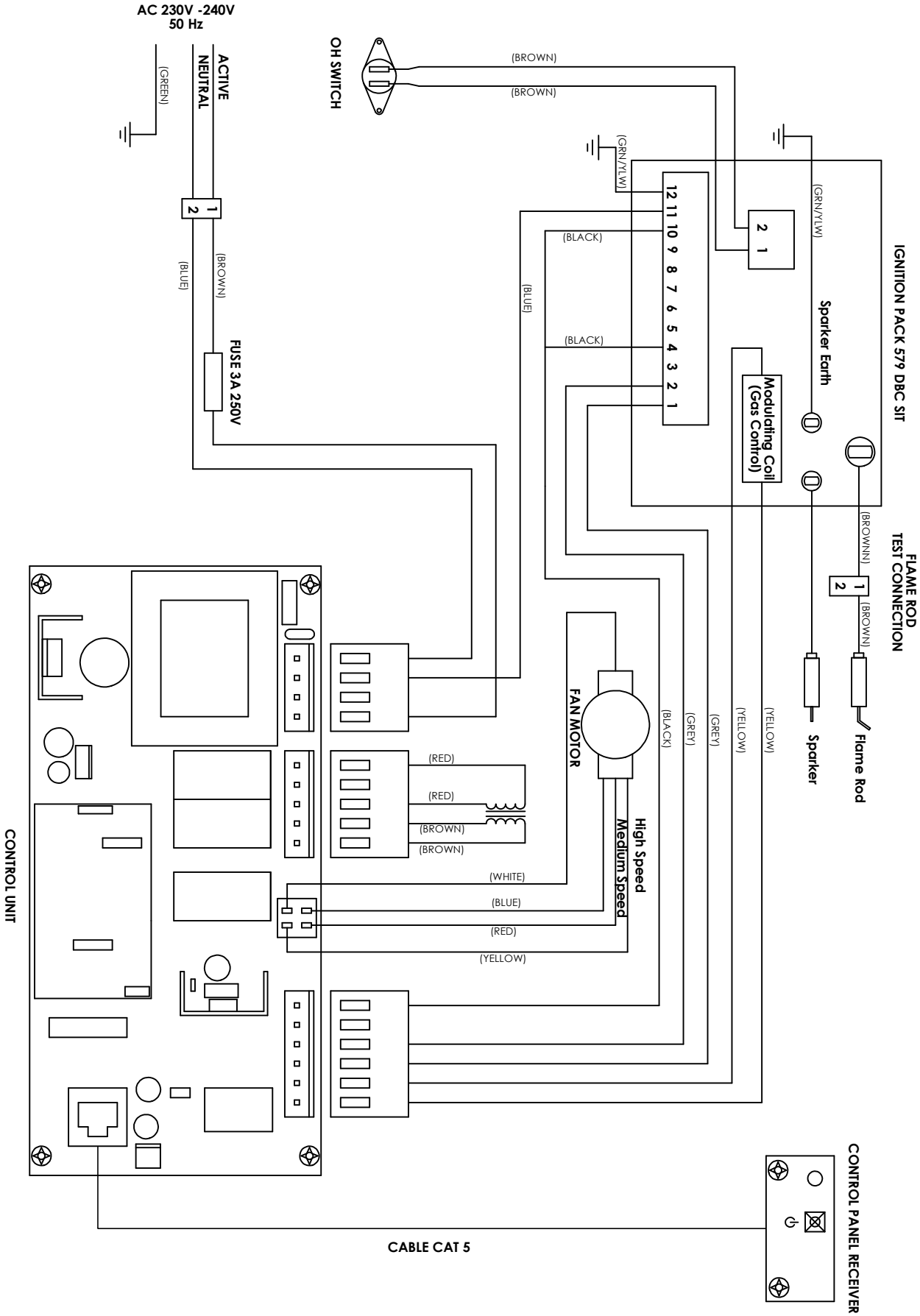
# Wiring diagram (11652-A)



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# Symmetry flueing

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# General flueing guidelines

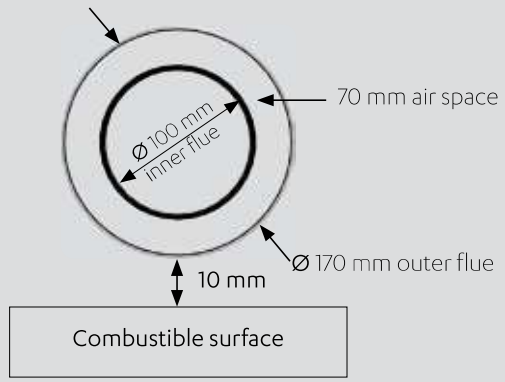
Every gas fire requires a flue system that will draw effectively and clear flue products safely under all potential wind and climatic conditions. It is the responsibility of the installer to ensure that the appliance is provided with an effective flue.

Some guidelines to assist with flue design are detailed below. These must be read and modified as necessary depending on the installation. The Symmetry RDV3611 must be installed with an approved flue system, approved components are shown in this guide.

**Flue clearance to combustibles**
The Rinnai Symmetry RDV3611 flue is made up of an inner flue with a protective outer flue (heat shield). It is the inner flue that gets hot, requiring clearance to a combustible surface.

AS/NZS 5601.1 6.8.12 (c) states there must be an air space around the flue of at least 25 mm. As the Ø 170 mm outer flue maintains a 70 mm air space around the hot section of the inner flue, protection of a combustible surface is automatically maintained.

The only additional clearance required is 10 mm from the outer flue to a combustible surface to allow for expansion and contraction of the outer flue component.



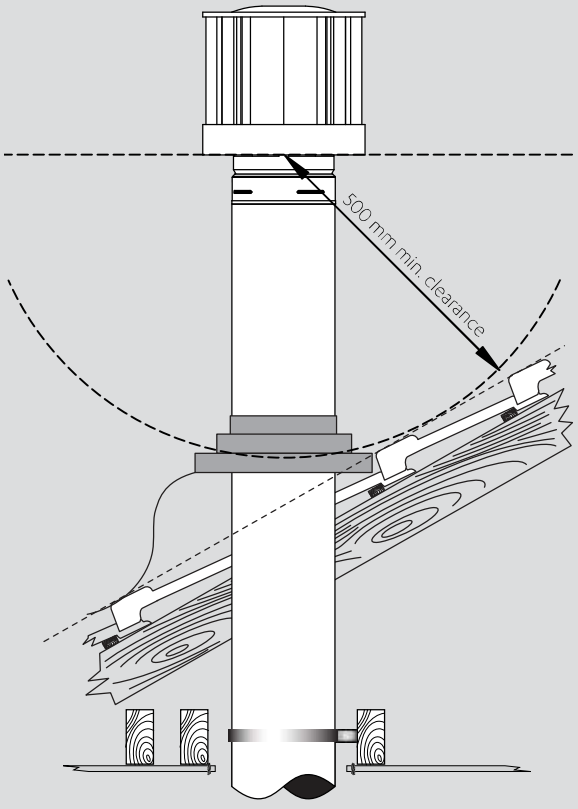

**Flue clearance to a combustible surface**

**Flashings**
Flashings are not included with the Symmetry flue kits, these must be specified. The only exception is the flashing kit provided in the horizontal flue kits.

**Flue cowl clearance**
To ensure products of combustion are cleared adequate clearance from the building is required.

The flue cowl should have a 500 mm clearance from any part of the building. This also applies to steeped and pitched roofs where the flue cowl should be 500 mm clear of the ridge line. Adequate fresh air flow must exist around the flue cowl following installation.

Minimum clearances are shown in AS/NZS 5601.1.




**Minimum clearance 500 mm to the nearest part of the roof**

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## Flue terminal locations

Flue terminals must be compliant with the flue terminal locations shown in AS/NZS 5601.1.

The flue cannot terminate under a floor or in a roof space.

## Self-supporting flue

The weight of the flue system should not be supported by the appliance—it should be self-supporting.

Supporting the flue is usually completed during the framing stage with flue supports or straps within the cavity. Wall straps have been included in the Rinnai Vertical Flue Kits. Elbow straps are also available as a separate component to prevent excess weight on the flue elbow.

## Horizontal runs of flue pipe

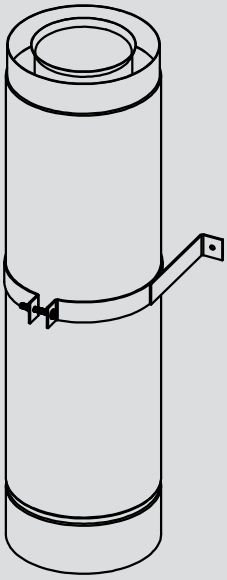
Horizontal runs of flue pipe must be supported to prevent any downward sags. Horizontal pipe sections should be supported every 1.2 m. Wall straps can be used for this purpose.

**WARNING**

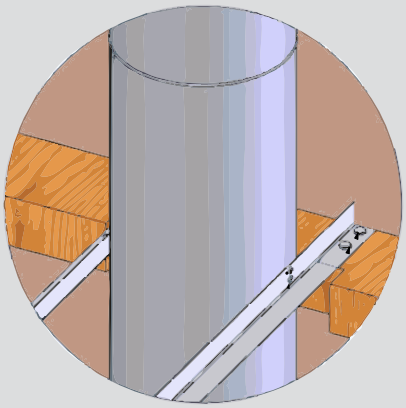
The horizontal run of flue pipe must have a 20 mm rise for every 1 m of run towards the flue termination. Never allow the flue pipe to run downwards towards the horizontal flue terminal. A downward slope can trap heat and become a fire hazard.

## Shared flues

Gas appliances must not be connected to a chimney or flue serving a separate fuel burning appliance.



Self-supporting flue using a wall strap



Self-supporting flue using straps within the cavity

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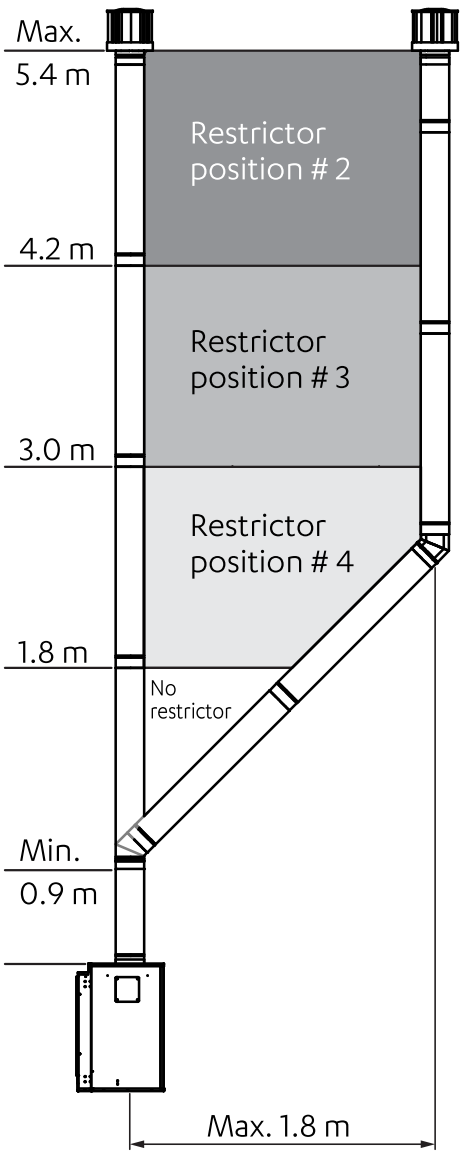
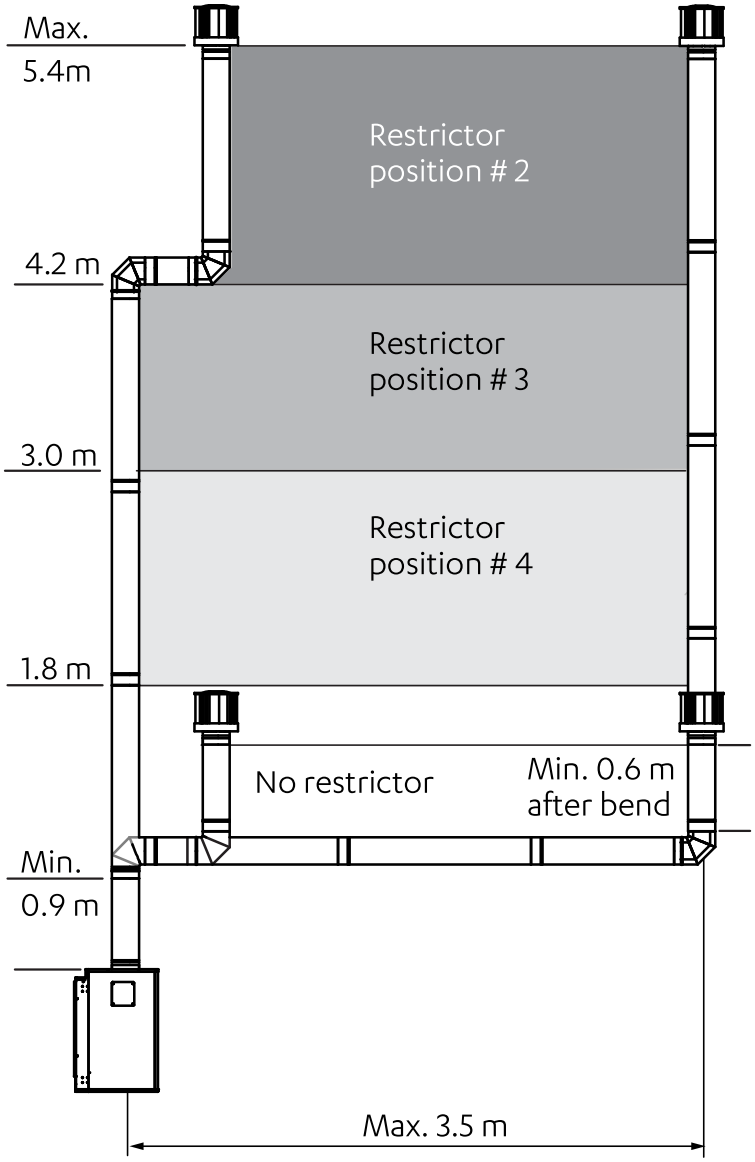
# Flueing options
## vertical termination




Maximum number of 45° bends = 2

Maximum number of 90° bends = 2

The shaded regions determine the position of the flue restrictor—refer p. 13.

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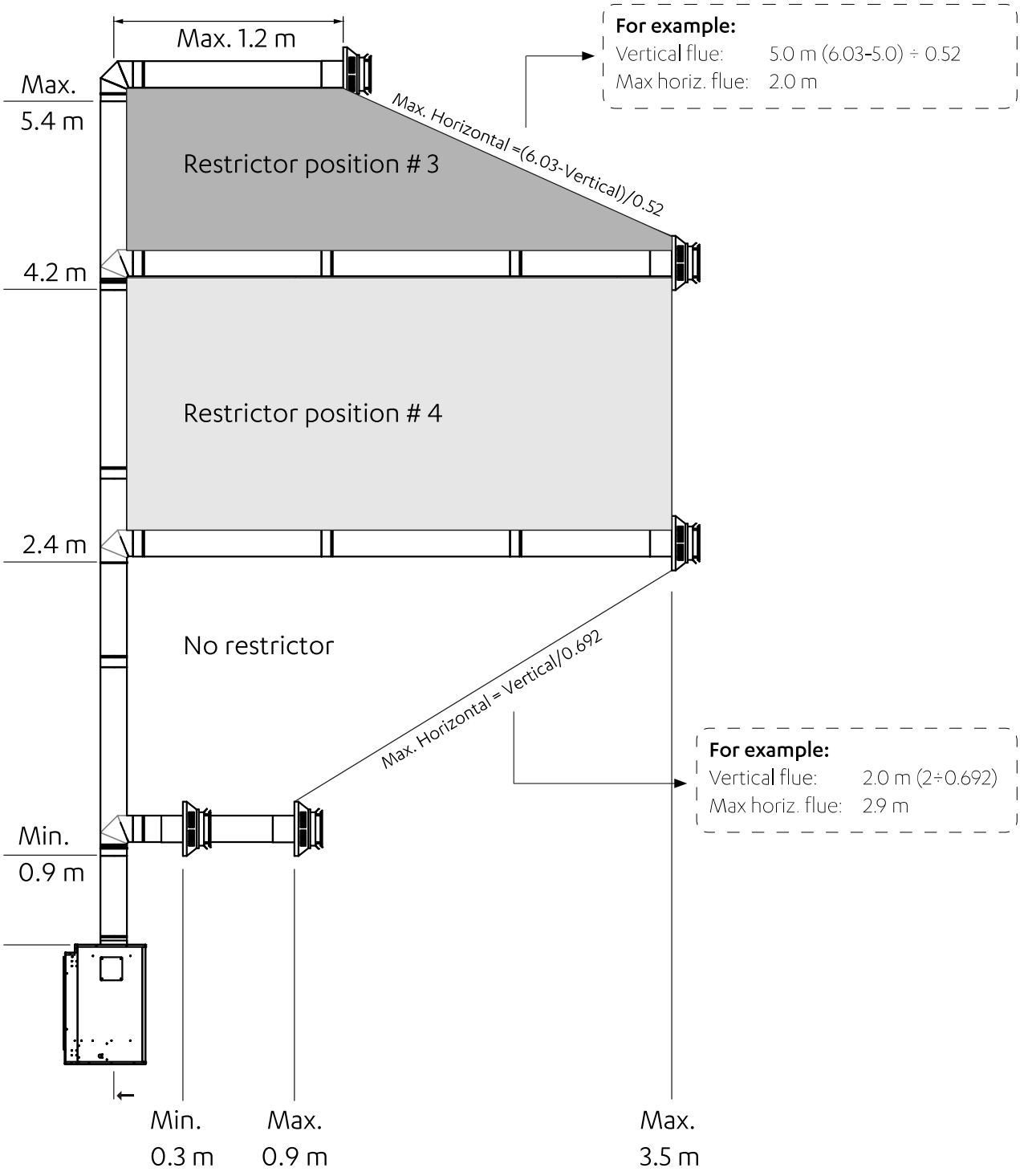
# Flueing options
## horizontal termination




Maximum number of 90° bends = 1

The shaded regions determine the position of the flue restrictor—refer p. 13

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# Symmetry RDV3611 flue kits

Symmetry RDV3611 flue kits have been based on the flue configurations shown. If you have a combined vertical and horizontal flue configuration you can order separate components to suit.

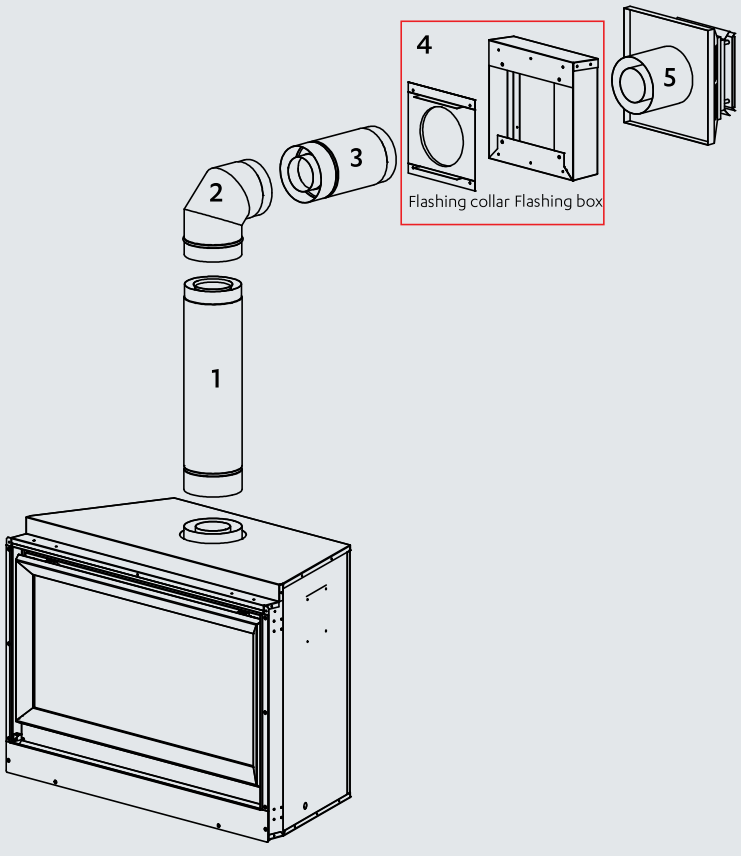
**RDV3611 Flue Kit Horizontal (short, R3660)**

1. Flue pipe 900 mm x 1
2. Elbow 90° x 1
3. Flue pipe 300 mm x 1
4. Horizontal flashing kit x 1
5. Wall terminal x 1

**RDV3611 Flue Kit Horizontal B (long, R3661)**

1. Flue pipe 900 mm x 1
2. Elbow 90° x 1
3. Flue pipe 230 mm x 2
4. Horizontal flashing kit x 1
5. Wall terminal x 1

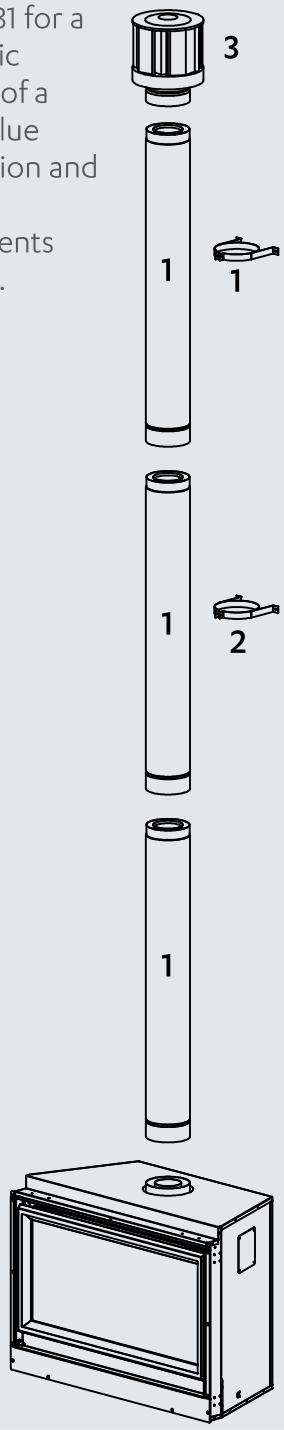
Refer p. 30 for a schematic diagram of a horizontal flue termination and the flue components required.




**RDV3611 Flue Kit Vertical 3.6 m (R3665)**

1. Flue pipe 1.2 m x 3
2. Wall strap x 2
3. Roof cowl x 1

Refer p. 31 for a schematic diagram of a vertical flue termination and the flue components required.



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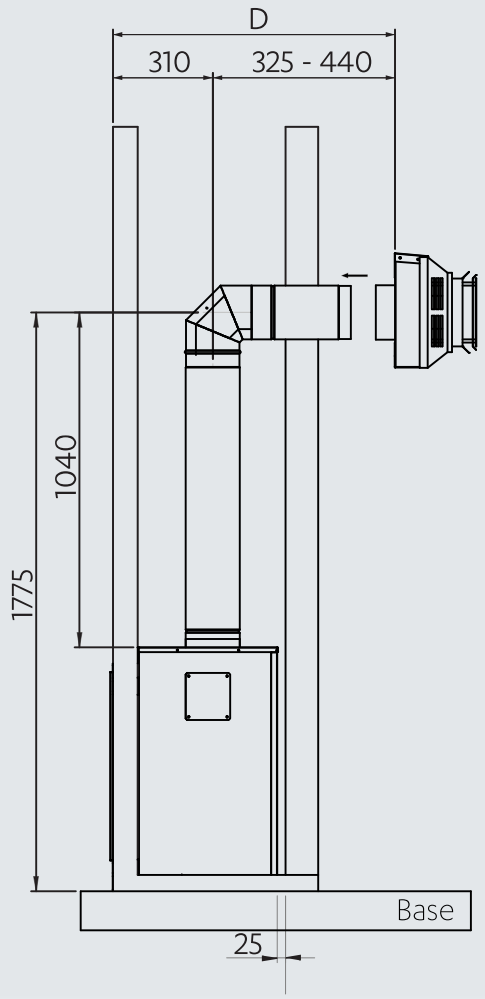
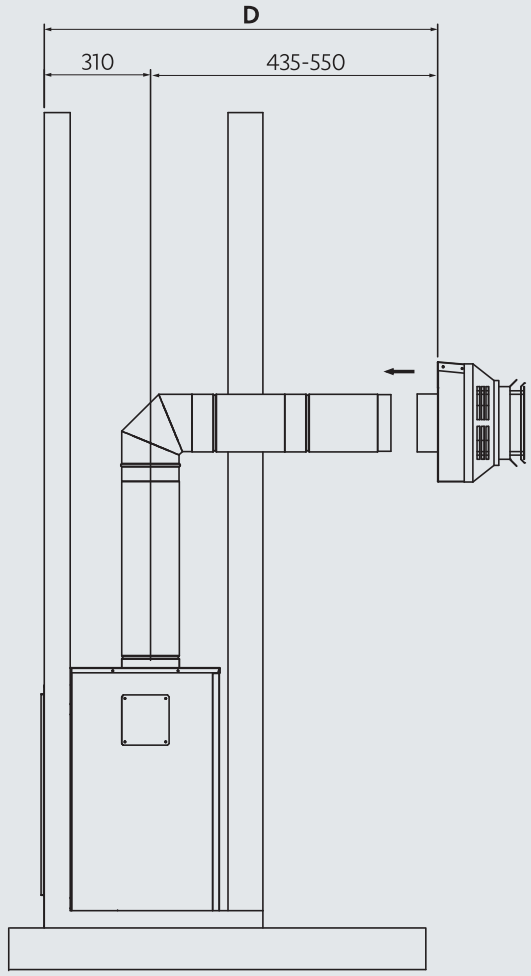
# Symmetry RDV3611 horizontal flue kits

The following diagram explains the components, dimensions (mm), and appropriate flue kits available for differing horizontal flue installations. Refer to the table below to calculate what flue pipe length and/or kit you may need.

**RDV3611 Short Horiz. Flue Kit A (R3660)**




**RDV3611 Long Horiz. Flue Kit B (R3661)**




## Distance from the appliance to the cowl

| Flue Kit | Horizontal flue | D |
|---|---|---|
| | 230 mm pipe | 560-675 mm |
| Short A | 300 mm pipe | 635-750 mm |
| Long B | 230 mm pipe x 2 | 745-860 mm |
| | 300 mm + 230 mm pipe | 825-940 mm |
| | 300 mm pipe x 2 | 895-1010 mm |

- Adjust the distance by sliding the cowl on the pipe
- At its maximum position the cowl should still keep a 45 mm overlap.

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# Symmetry RDV3611 flue components

## RDV3611 flue pipes

| | |
|---|---|
| 150 mm: | R3630 |
| 230 mm: | R3631 |
| 300 mm: | R3632 |
| 450 mm: | R3633 |
| 600 mm: | R3634 |
| 900 mm: | R3635 |
| 1200mm: | R3636 |

Pipe used to construct horizontal and vertical flueing. Cannot be cut to size. Once joined nominal length reduces approximately 35 mm.

Inner: Aluminium
Outer: Galvanised steel

## Flue extension

| | |
|---|---|
| 75-175 mm: | R3638 |
| 75-360 mm: | R3639 |

Used for extended straight lengths of flue. Available in two lengths—extending to 175 mm or 360 mm.

Inner: Aluminium
Outer: Galvanised steel

## Roof cowl

Code: R3651

Aluminium flue terminal required for all vertical flue installations.

## Horizontal wall terminal

Code: R3650

Aluminium flue terminal required for all horizontal installations.

Depth with horizontal flashing kit installed - 252 mm

## RDV3611 flue elbow 90 °

Code: R3643

Used to facilitate between vertical and horizontal flueing. Elbow swivels 360 ° at base. Angle not adjustable.

Once joined effective length reduces 35 mm to approx. 130 mm.

Inner: Aluminium
Outer: Galvanised steel

## Thru-wall plate interior

Code: R3645

Interior through-wall plate for internal wall passes. Centres and ensures suitable clearances from combustibles.

## Flue restrictor

Code: 11516

Supplied with the unit. Maintains efficiency by restricting air flow through the unit as flue length and flue pull increases.

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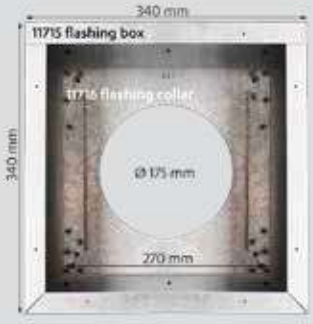
## Horizontal flashing kit

Code: R3646

Flashing components used to join the internal flue to the outside flue—to provide a weathertight seal in horizontal flue installations. Refer horizontal wall terminal for installed dimensions. Box depth 100 mm.




## Wall strap

Code: R3647

Adjustable strap used in interior/ exterior installations to add lateral support to the flue.

Provides a 50-200 mm clearance to combustible walls.

## Elbow strap

Code: R3644

Flue support for elbow and offsets.

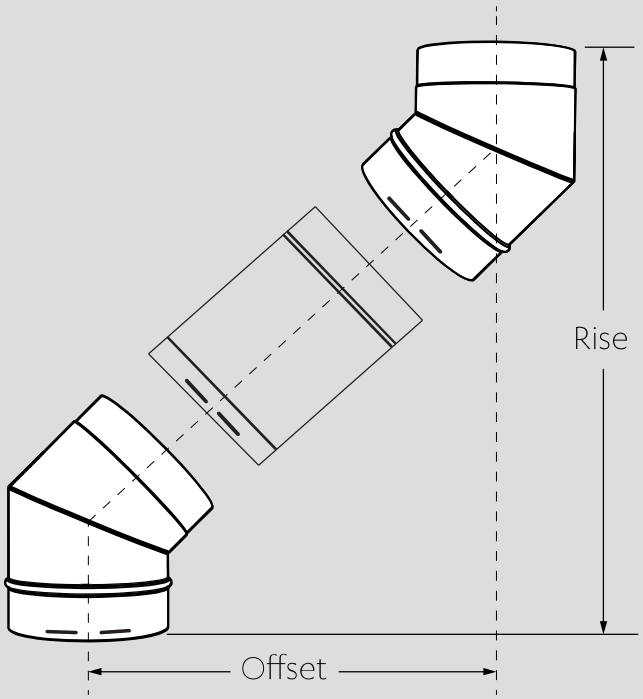
## RDV3611 flue elbow 45 ° (x2)

Code: R3642

Offsets obstructions. Elbow swivels 360 ° at base. Angle not adjustable. Kit contains two 45 ° bends.

Once joined effective length reduces 35 mm to approx. 73 mm.

Inner: Aluminium
Outer: Galvanised steel




| Flue pipe (length and code) | | Offset | Rise |
|---|---|---|---|
| None (bend to bend) | N/A | 124 mm | 340 mm |
| 150 mm | R3630 | 203 mm | 419 mm |
| 230 mm | R3631 | 257 mm | 473 mm |
| 300 mm | R3632 | 311 mm | 527 mm |
| 450 mm | R3633 | 417 mm | 633 mm |
| 600 mm | R3634 | 524 mm | 740 mm |
| 900 mm | R3635 | 737 mm | 953 mm |
| 1200 mm | R3636 | 949 mm | 1165 mm |

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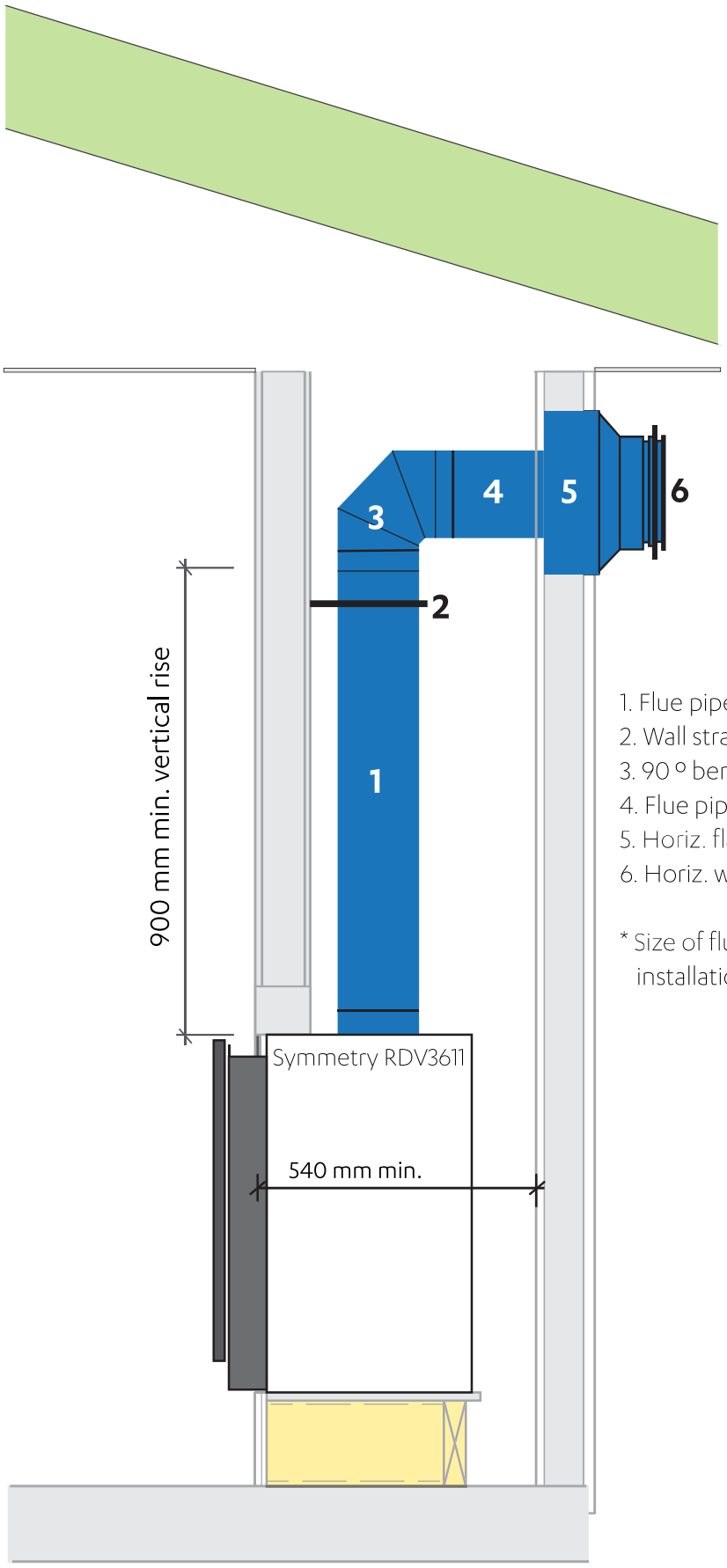
# Horizontal termination example
## flue components required




1. Flue pipe 900 mm (R3635)
2. Wall strap (R3647)
3. 90 º bend (R3643)
4. Flue pipe*
5. Horiz. flashing kit (R3646)
6. Horiz. wall terminal (R3650)

* Size of flue pipe will depend on the installation.

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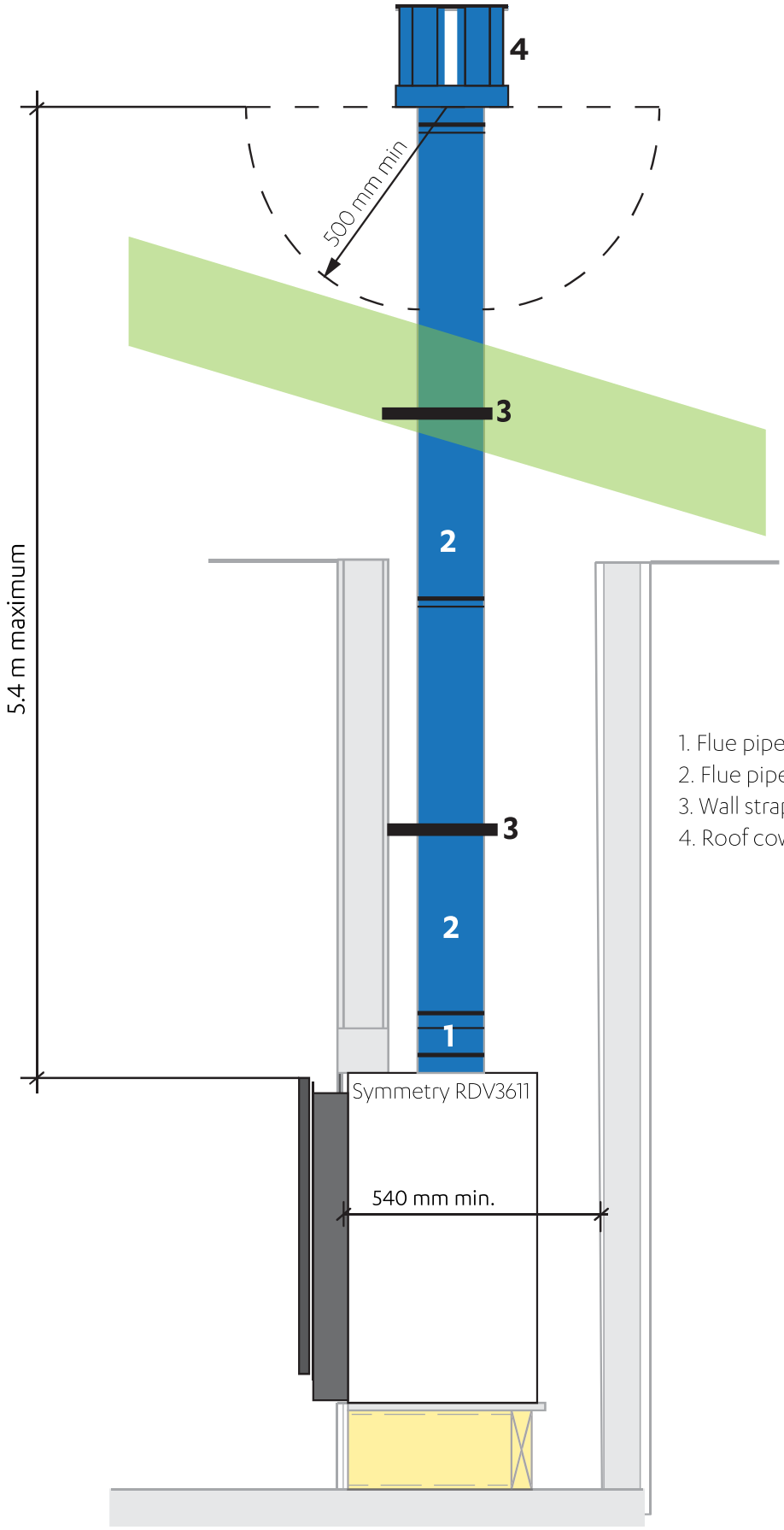
# Vertical termination example
## flue components required




1. Flue pipe 150 mm (R3630)
2. Flue pipe 1200 mm (R3636)
3. Wall strap (R3647)
4. Roof cowl (R3651)

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# APPLICATION FOR CODE COMPLIANCE CERTIFICATE (Form 6)

Section 92. Building Act 2004.

## 1. What is the Building Consent? *Complete this field*

| | |
|---|---|
| Building consent number: | |
| Issued by:(name of building consent authority) | |

## 2. Who owns the building? *Complete all fields, using N/A if a field is not applicable*

| | | | | | |
|---|---|---|---|---|---|
| Owner name: | | | | Title: e.g. Mr, Mrs, Ms, Dr | |
| Contact person: | | | | | |
| Owner mailing address: | | | | | |
| Street address / registered office: | | | | | |
| Owner email address: | | | | | |
| Owner contact numbers: | Ph: | | | Cell: | |
| Are you using an Agent? | ☐ | Yes | ☐ | No | *If Yes, please also complete the following* |
| Who is the first point of contact for further correspondence? | ☐ | Agent | ☐ | Owner | |
| Agent name: | | | | | |
| Agent email: | | | | | |
| Agent contact numbers: | Ph: | | | Cell: | |
| Agent mailing address: | | | | | |
| Relationship to owner: | | | | | |

## 3. When was the building work completed? *Complete this field*

| | |
|---|---|
| All building work to be carried out under the building consent specified on this form was completed on: | *dd /mm / yyyy* |

## 4. Who completed the building work? *Complete all fields on each line. You will need to complete one line for each building practitioner. Use a separate sheet if necessary.*

| The licensed building practitioner(s) who carried out/supervised the restricted building work is/are: | | | |
|---|---|---|---|
| Name: | Licensing class: | LBP or registration number: | Work carried out / supervised: |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Name: | Licensing class: | LBP or registration number: | Work carried out / supervised: |
|---|---|---|---|
| | | | |
| | | | |
| Tradespeople who carried out building work other than restricted building work are as follows: | | | |
| Name: | Address: | Contact number: | Registration number: |
| | | | |
| | | | |
| | | | |
| The following specified systems are contained on the compliance schedule for the building and, in the opinion of the personnel who installed them, are capable of performing to the performance standards set out in the building consent: | | | |
| | | | |
| | | | |
| | | | |
| | | | |

## 5. Declaration

☐ I understand that this application may *only* be made with the owner's approval. *Please tick to indicate your agreement.*

| I request that you issue a code compliance certificate for this work under section 95 of the Building Act 2004. The code compliance certificate should be sent to: | | | |
|---|---|---|---|
| ☐ Owner | ☐ Agent | ☐ Owner address as per Section 2 | ☐ Agent address as per Section 2 |

| | |
|---|---|
| Name: | |
| Signature: | |
| Date: | |

You can add a digital signature to this document, either using Adobe or your existing digital signature.

Once you have filled out the form, including signatures, please save the application to your computer. You can then submit the application with supporting documentation to your local Council.

If you are unsure about what information to include in your application, a guidance document is available (**click here**).

## 6. Have you attached all required documents?

*You are required to provide all the necessary documents to support your application. This includes (but is not limited to) the following sections:*

- *Memorandum of Licensed Building Practitioners – Record of Work (for each type of building work completed)*
- *Certificates relating to energy work*
- *Evidence that specified systems are capable of performing to the performance standards set out in the building consent (if changed from the building consent)*
- *Other documents from personnel who carried out the work.*

*Refer to your building consent approval letter for a full list of documents required to support your Code Compliance Certificate application.*

101 Guyton Street
P O Box 637, Whanganui
Phone: (06) 349 0001
Fax: (06) 349 0000
Email: wdc@whanganui.govt.nz
Web: www.whanganui.govt.nz

WHANGANUI DISTRICT COUNCIL
Te Kaunihera a Rohe o Whanganui

# CODE COMPLIANCE CERTIFICATE NUMBER BCon18/0095

Section 95(3), Building Act 2004

Mrs SM Koubaridis, Mr MN Koubaridis
240A Blueskin Road
RD 1
Whanganui 4571

***Building Consent No:*** BCon18/0095

***Issue Date:*** 05/06/2019

## *The building:*

| ***Street address of building:*** | ***Legal description of land where building is located:*** |
|---|---|
| 240A Blueskin Rd<br>WHANGANUI | Lot 3 DP 510218 1.1320 Ha |
| ***Building name:*** | ***Location of building within site/block number:*** |
| | |
| ***Level/unit number:*** | ***Current, lawfully established, use:*** *[include number of occupants per level and per use if more than 1]* |
| | Single Detached Residential |
| ***Year first constructed:*** | |
| 2018 | |

## *The owner:*

| ***Name of Owner:*** | |
|---|---|
| Mrs SM Koubaridis, Mr MN Koubaridis | |
| ***Mailing address:*** | ***Street Address/registered Office:*** |
| 240A Blueskin Road RD 1 Whanganui 4571 | 240A Blueskin Road RD 1 Whanganui 4571 |

## *Phone numbers:*

| | | | |
|---|---|---|---|
| ***Landline:*** | | ***Mobile:*** | 0274166494 |
| ***Daytime:*** | | ***After hours:*** | |
| ***Facsimile number:*** | | | |
| ***Email address:*** | sarah.koubaridis@milestone.co.nz | ***Website:*** | |

## *First point of contact for communications with the building consent authority:*

| ***Contact Person:*** | |
|---|---|
| Mr PT McKenna | |
| ***Mailing address:*** | ***Street Address/registered Office:*** |
| 3 Buxton Road, Westmere, Whanganui 4501 | 3 Buxton Road, Westmere, Whanganui 4501 |

***Phone number:***

| | | | |
|---|---|---|---|
| ***Landline:*** | 3444729 | ***Mobile:*** | 0211261333 |
| ***Daytime:*** | | ***After hours:*** | |
| ***Facsimile number:*** | 3447269 | | |
| ***Email address:*** | | ***Website:*** | |

***Building Work***

| ***Building consent number:*** | ***Issued by:*** |
|---|---|
| BCon18/0095 | Whanganui District Council |
| ***Type of Work*** | |
| Single Detached Residential | |
| ***Description of Work*** | |
| Construct a new detached dwelling 280m2 Construct an in ground swimming pool 43m2 | |
| ***Intended Life*** | ***Estimated Value*** |
| Indefinite but not less than 50 years. | $600000.00 |

| ***Code compliance:*** |
|---|

The building consent authority named below is satisfied, on reasonable grounds that the building work complies with the building consent.

*Compliance schedule
There are no specified systems in this building.

This is a final Code Compliance Certificate issued in respect of all of the building work under the above Building Consent.

Signed for and on behalf of the Whanganui District Council:

GJ Hoobin
**Building Control Team Leader**