



WHANGANUI
DISTRICT COUNCIL
Te Kaunihera a Rohe o Whanganui

IMPORTANT NOTE

These documents are required to be onsite for all inspections and must be a complete and full copy of the WDC stamped “Approved” documents.

Failure to have a full and legible set of documents may result in a terminated inspection. A terminated inspection will incur additional charges.



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	BCon19/0766
9 Golf Vue Pl WHANGANUI	ON 349 0001 AND QUOTE THE FOLLOWING APPLICATION NUMBER:	
Description of Work	Construct a new detached dwelling with attached garage.	
Applicant	Mr DJ Coker 144 Westmere Station Road, RD 1, Whanganui 4571	

SUMMARY OF CONDITIONS

Building Consent Number BCon19/0766

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. 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	Existing sewer and stormwater connections to WDC manhole in rear left hand corner. Owner should connect to existing 40mm water main on right hand side the vehicle crossing in right of way.
PimLqftn	This property has been assessed as "Medium liquefaction".
pimSeaSpr	This Property falls within the 'Sea Spray' zone as defined in NZS 3604. There are special requirements for this building to achieve compliance with Clause B2 of the NZ Building Code. Please refer to Section 4 of NZS 3604 for further guidance.

Building Consent Information

Code	Information
BCPropBdy	[Informative note: The property boundary must be defined before any construction commences.]

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



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 BCon19/0766								
<i>Inspection</i>	<i>When to Request</i>	<i>Date</i>	<i>Inspector</i>	<i>Complies with Code</i>	<i>Reinspect</i>	<i>Notes</i>		
CONCRETE SLAB INSPECTION	Prior to placing Concrete							
FRAMING INSPECTION	When all framing is complete.							
BRICK MASONRY INSPECTION	When bricks have been laid to sill height.							
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							
PLUMBING SUBFLOOR INSPECTION	Before covering up							



PLUMBING PRELINE INSPECTION	Before covering up							
SANITARY DRAINS INSPECTION	Before backfilling drains							
STORMWATER DISPOSAL INSPECTION	Before backfilling drains							
CONSTRUCTION REVIEWS (NO INSPECTION)	On Completion					Before requesting a final inspection please supply the following information: Application for Code Compliance Certificate (This can be applied for on line through the WDC website), Memorandum of Restricted Building Work (RBW) for all required trades, As-built Drainage plan, Energy certificate/s. \ltrpar		



BUILDING CONSENT NUMBER BCon19/0766

Section 51, Building Act 2004

The building:

Street address of building:	Legal description of land where building is located:
9 Golf Vue Pl WHANGANUI	LOT 42 DP 392850 0.1094 ha
Building name:	Location of building within site/block number:
Level/unit number:	

The owner:

Name of Owner:	
Mrs JL Hansen, Mr DI Lightfoot	
Mailing address:	Street Address/registered Office:
17A McGregor Street Milson Palmerston North 4414	17A McGregor Street Milson Palmerston North 4414

Phone numbers:

Landline:	063569796	Mobile:	0212656247
Daytime:		After hours:	
Facsimile number:			
Email address:		Website:	

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

Contact Person:	
Mr DJ Coker	
Mailing address:	Street Address/registered Office:
144 Westmere Station Road, RD 1, Whanganui 4571	144 Westmere Station Road, RD 1, Whanganui 4571

Phone number:

Landline:		Mobile:	
Daytime:	063454757	After hours:	
Facsimile number:			
Email address:		Website:	

Building Work

The following building work is authorised by this consent

Project
Construct a new detached dwelling with attached garage.

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**
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<i>Intended Use</i>	<i>Intended Life</i>
Single Detached Residential	50+ Years
<i>Estimated Value (\$)</i>	
\$450000.00	

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.



CONDITIONS OF BUILDING CONSENT NUMBER BCon19/0766

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

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 BCon19/0766
- ‡Inspection record
- ‡Informative notes

Signed for and on behalf of the Whanganui District Council

GJ Hoobin
Building Control Manager

Date: 16 March, 2020

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
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BUILDING CONSENT NUMBER BCon19/0766

Informative notes:

- The Building Consent, conditions, inspection sheet, and approved plans must be kept on site at all times until completion of the project.
- Failure to request inspections will risk the non-issuing of a code compliance certificate and the structure may be deemed non-complying.
- Any inspection time required over and above that allowed may incur a further charge.
- 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.
- 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).



PROJECT INFORMATION MEMORANDUM NUMBER BCon19/0766

Section 35, Building Act 2004

Mr DJ Coker
144 Westmere Station Road
RD 1
Whanganui 4571

<i>Project Location</i>	<i>Assessment Number/Legal Description</i>
9 Golf Vue Pl WHANGANUI	LOT 42 DP 392850 0.1094 ha
<i>Category</i>	<i>Description of Work</i>
New Residential Dwellings - \$200001 & over	Construct a new detached dwelling with attached garage.
<i>Intended Life</i>	<i>Estimated Value (\$)</i>
50+ Years	450000.00

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 BCon19/0766), which has been granted.

This Project Information Memorandum is subject to the following conditions:

- Existing sewer and stormwater connections to WDC manhole in rear left hand corner.
- Owner should connect to existing 40mm water main on right hand side the vehicle crossing in right of way.
- This property has been assessed as "Medium liquefaction".
- This Property falls within the 'Sea Spray' zone as defined in NZS 3604. There are special requirements for this building to achieve compliance with Clause B2 of the NZ Building Code. Please refer to Section 4 of NZS 3604 for further guidance.
- 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 Manager

Date: 13 March 2020



144 Westmere Station Road
R.D1
Wanganui
Ph(06) 3480422
M 0279362169
Email coker.d.l.e@xtra.co.nz

26/02/2020

1st Request for further information on Application.

Project Number: **BCon 19/0766**
Project Location: **9 Golf Vue Place Wanganui**
Construct new detached dwelling with attached Garage

Att : (Chris Keenan BCO)

- 1 Please see sheet 13 lintels amended**
- 2 Please see sheet 16 & amended bracing calcs**
- 3 Please see sheet 5,6,11 Conc strength amended**
- 4 Gas flue thru wall not roof**
- 5 Please see sheet 19 Brick ties amended**

Att : (Andrew Morris BCO)

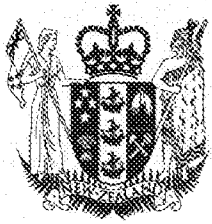
- 6 Please see attached GoGet Processing Summary report**
The floor level of the propose dwelling is set at the same height as the dwelling in the report so believe that should not be no problem with flooding
- 7 Please see sheet 2 & 3 ground & Invert levels**
- 8 Please see sheet 3 amended**
- 9 Please see sheet 2 & 3 Ground levelas & invert levels**

Regards
David Coker



BP114150

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**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy**



Identifier **845787**
Land Registration District **Wellington**
Date Issued 10 July 2018

Prior References

830970

Estate Fee Simple
Area 1094 square metres more or less
Legal Description Lot 42 Deposited Plan 392850

Registered Owners

Daniel Isaac Lightfoot and Julia Lee Hansen

Interests

Subject to stormwater and sewage drainage rights (in gross) over park marked A and B on DP 392850 in favour of Wanganui District Council created by Easement Instrument 6285964.4 - 25.1.2005 at 9:00 am

The easements created by Easement Instrument 6285964.4 are subject to Section 243 (a) Resource Management Act 1991

Appurtenant hereto is a right of way (pedestrian only) created by Easement Instrument 6624279.3 - 27.10.2005 at 9:00 am

The easements created by Easement Instrument 6624279.3 are subject to Section 243 (a) Resource Management Act 1991

Appurtenant hereto is a right of way, water, electricity and gas supply and telecommunications rights created by Easement Instrument 7055828.2 - 4.10.2006 at 9:00 am

The easements created by Easement Instrument 7055828.2 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right of way, water, electricity and gas supply and telecommunications rights over part marked A on DP 392850 created by Easement Instrument 7055828.2 - 4.10.2006 at 9:00 am

Subject to a right of way, water, electricity, and gas supply, and telecommunications rights over part marked A on DP 392850 created by Easement Instrument 7250764.3 - 27.2.2007 at 9:00 am

Appurtenant hereto is a right of way, water, electricity and gas supply and telecommunications rights created by Easement Instrument 7250764.3 - 27.2.2007 at 9:00 am

The easements created by Easement Instrument 7250764.3 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right of way, water, electricity and gas supply and telecommunications over part marked A on DP 392850 created by Easement Instrument 7549202.2 - 21.9.2007 at 9:00 am

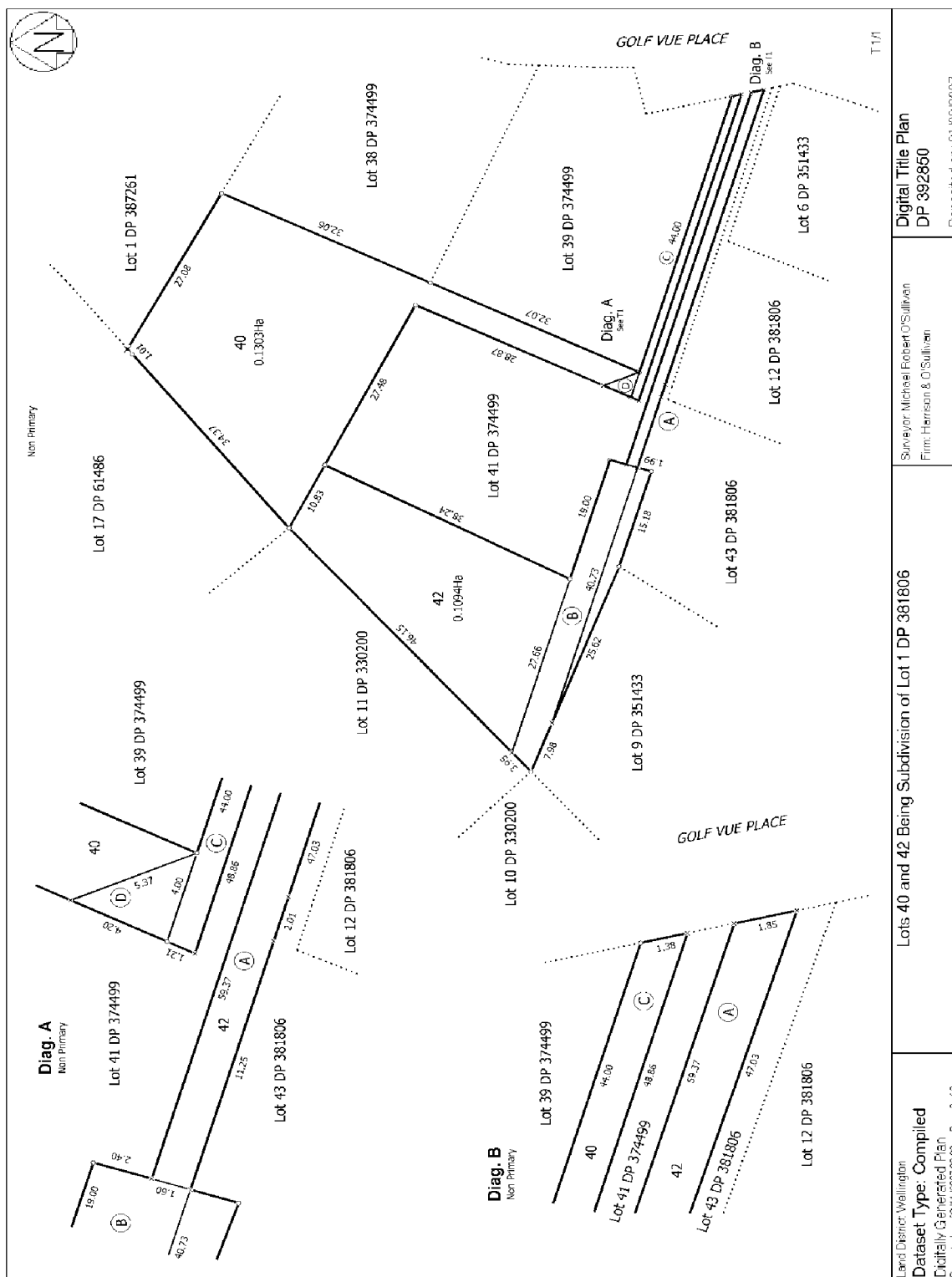
Appurtenant hereto is a right of way, water, electricity and gas supply and telecommunications created by Easement Instrument 7549202.2 - 21.9.2007 at 9:00 am

The easements created by Easement Instrument 7549202.2 are subject to Section 243 (a) Resource Management Act 1991

11189237.3 Mortgage to Westpac New Zealand Limited - 3.8.2018 at 3:34 pm

Identifier

845787



Land District: Wellington	Lots 40 and 42 Being Subdivision of Lot 1 DP 381806	Surveyor: Michael Robert O'Sullivan Firm: Harrison & O'Sullivan	Digital Title Plan DP 392860 Deposited on: 21/06/2007
Dataset Type: Compiled Digitally Generated Plan Generated on: 20/11/2007 06:08am Page 3 of 3			

julia hansen★<julialeehansen@hotmail.com>
To coker.d.l.e@xtra.co.nz

13/10/2019 16:44 

Hi Dave,

How Is Every thing
Can you please submit our plans to Wanganui district
council please

Cheers

Julia and Daniel

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 9 Golf Vue

Suburb: Castle Cliff

Town/City Wanganui

Postcode:

THE OWNER

Name(s): J Hansen & D Lightfoot

Mailing address:

Suburb:

PO Box/Private Bag:

Town/City:

Postcode:

Phone number:

Email address: Julialeehansen@hotmail.com

BASIS FOR PROVIDING THIS MEMORANDUM

I am providing this memorandum in my role as the: Please tick the option that applies (✓)	
()	sole designer of all of the RBW design outlined in this memorandum – I carried out all of the RBW design myself – no other person will be providing any additional memoranda for the project
(✓)	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 memoranda 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 David Coker carried out / supervised the following design work that is restricted building work

PRIMARY STRUCTURE: B1

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

Primary structure

All RBW Design work relating to B1	(✓)	(✓) Carried out	
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			() Supervised	
Foundations and subfloor framing	(✓)	100mm thick concrete slab, SE62 500E reinforcing mesh, min 225 mm lap on 0.25 polythene Concrete strength to be 20 Mpa after 28 days 75mm 20mm round stone to cover hardfill to ensure the vapour barrier is protected from any granular protrusions Malthoid DPC underlay under all bottom plates, overlapping timber by min 6mm	() Carried out (✓) Supervised	Sheet 5,6 & 11
Walls	(✓)	Exterior walls 90x45 SG8 H1.2 framing @ 400mm ctrs , double top plate & 2 rows of dwangs Internal walls 90x45 SG8 H1.2 @ 600mm ctrs double top plate & 2 rows of dwangs	() Carried out (✓) Supervised	Sheet 11
Roof	(✓)	Trussed Roof	() Carried out (✓) Supervised	Sheet 11 & Truss design cert
Columns and beams	()		() Carried out () Supervised	
Bracing	(✓)	<i>Gib Ezi Brace</i>	(✓) Carried out () Supervised	Sheet 16,17 & bracing calcs
Other	()		() Carried out () Supervised	

EXTERNAL MOISTURE MANAGEMENT SYSTEMS: E2

All RBW design work relating to E2	(✓)		() Carried out (✓) Supervised	
Damp proofing	(✓)	<i>Under concrete slab & DPC to bottom of bottom plates</i>	(✓) Carried out () Supervised	Sheet 11
Roof cladding or roof cladding system	(✓)	<i>Corrugated colour steel</i>	(✓) Carried out () Supervised	Sheet 11 & 22
Ventilation system (for example, subfloor or cavity)	(✓)	<i>70 Series Brick</i>	(✓) Carried out () Supervised	Sheet 11,18,19,20,
Wall cladding or wall cladding system	(✓)	<i>70 Series brick</i>	(✓) Carried out () Supervised	Sheet 11,18,19,20,

Waterproofing	()		() Carried out () Supervised	
Other	()		() Carried out () Supervised	

FIRE SAFETY SYSTEMS: C1 – C6

Emergency warning systems, evacuation and fire service operation systems, suppression or control systems, or other	(×)		() Carried out () 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.

Note: continue on another page if necessary.

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
<i>[List relevant clause numbers of building code]</i>	<i>[Specify nature of waiver or modification of building code]</i>

Note: continue on another page if necessary.

ISSUED BY

Name: David Coker	LBP or Registration number: BP114150
The practitioner is a: (✓) Design LBP () Registered architect () Chartered professional engineer	
Design Entity or Company (optional): D C Design	
Mailing address (if different from below):	
Street address / Registered office: 144 Westmere Station Road RD1	
Suburb: Brunswick	Town/City: Wanganui
PO Box/Private Bag:	Postcode: 4571
Phone number: 06 348 0422	Mobile: 027 936 2169
After Hours:	Fax: 06 348 0422
Email address: coker.d.l.e@xtea.co.nz	Website:

DECLARATION

I David Coker *[name of practitioner]*, LBP,

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

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

Signature:

D J Coker

Date: 13/12/2019

Demand Calculation Sheet

Job Details

Name: J Hanson & D Lightfoot
 Street and Number: 9 Golf Vue,
 Lot and DP Number:
 City/Town/District: Wangnau
 Designer: D Coker
 Company: D C Design
 Date:

Building Specification

Number of Storeys: 1
 Floor Loading: 2 kPa
 Foundation Type: Slab

 Cladding Weight: **Single** Heavy
 Roof Weight: Light
 Room in Roof Space: No
 Roof Pitch (degrees): 17.5
 Roof Height above Eaves (m): 2.0
 Building Height to Apex (m): 4.8
 Ground to Lower Floor (m): 0.2

 Average Stud Height (m): 2.55
 Building Length (m): 22.14
 Building Width (m): 10.36
 Building Plan Area (m²): 216.4

Building Location

Wind Zone = High

Earthquake Zone 2

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

Bracing Units required for Wind

	Along	Across
Single Level	532	1038

Bracing Units required for Earthquake

	Along & Across
Single Level	1399

Single Level Along Resistance Sheet

Job Name: J Hanson & D Lightfoot

									Wind	EQ
									Demand	
									532	1399
									Achieved	
Line	Element	Length (m)	Angle (degrees)	Stud Ht. (m)	Type	Supplier	Wind (BUs)	EQ (BUs)	1753 330%	1552 111%
a	1	2.40		2.55	GS1-N	GIB®	156	136		
	2	3.60		2.55	GS1-N	GIB®	234	203		
	3	1.10		2.55	GS1-N	GIB®	69	62		
	4	0.60		2.55	EP1/EPB1-0.6	CHH	54	59		
									513 OK	460 OK
b	1	2.70		2.55	GS1-N	GIB®	175	152		
	2	3.40		2.55	GS2-N	GIB®	314	275		
									489 OK	428 OK
c	1	2.50		2.55	GS2-N	GIB®	231	202		
	2	1.20		2.55	EP1/EPB1-1.2	CHH	136	119		
									366 OK	321 OK
d	1	1.00		2.55	GS1-N	GIB®	61	56		
	2	0.90		2.55	GS1-N	GIB®	53	50		
	3	2.40		2.55	EP1/EPB1-1.2	CHH	271	237		
External Length = 22.380									386 OK	343 OK

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Single Level Across Resistance Sheet

Job Name: J Hanson & D Lightfoot

									Wind	EQ
									Demand	
									1038	1399
									Achieved	
Line	Element	Length (m)	Angle (degrees)	Stud Ht. (m)	Type	Supplier	Wind (BUs)	EQ (BUs)	1715 165%	1507 108%
m	1	0.70		2.55	GS1-N	GIB®	39	39		
	2	1.20		2.55	GS1-N	GIB®	78	68		
	3	1.20		2.55	GS1-N	GIB®	78	68		
									195 OK	174 OK
n	1	3.10		2.55	GS2-N	GIB®	286	251		
									286 OK	251 OK
o	1	3.50		2.55	GS2-N	GIB®	323	283		
									323 OK	283 OK
p	1	4.00		2.55	GS2-N	GIB®	369	324		
									369 OK	324 OK
q	1	2.40		2.55	EP1/EPB1-1.2	CHH	271	237		
									271 OK	237 OK
r	1	1.20		2.55	EP1/EPB1-1.2	CHH	136	119		
	2	1.20		2.55	EP1/EPB1-1.2	CHH	136	119		
									271 OK	237 OK

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Custom Wall Elements

Supplier	System	Min. Length m	Wind BUs/m	EQ BUs/m
CHH	EP1/EPB1-0.6	0.6	95	105
CHH	EP1/EPB1-1.2	1.2	120	105

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DESIGN CERTIFICATE

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

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

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

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

Futurebuild LVL and SG8 components, when used and treated to the required treatment levels prescribed in NZS 3602 and NZS 3604, as modified by Acceptable Solution B2/AS1, will comply with the requirements of the NZBC (Acceptable Solution B2/AS1, 3.2).

References:

1. NZS 3603:1993 Timber Structures Standard.
2. NZS 3604:2011 Timber-framed buildings.
3. AS/NZS 1170:2002 Structural design actions, Parts 0 and 1.
4. AS/NZS 1170:2011 Structural design actions, Part 2: Wind actions.
5. AS/NZS 1170:2003 Structural design actions, Part 3: Snow and ice actions.
6. AS 1720.1:2010 Timber structures. Part 1: Design methods.
7. AS 1720.3:2016 Timber structures. Part 3: Design criteria for timber-framed residential buildings.

This Design Certificate, and any associated warranty/certification, is void where there has been substitution of alternate products not detailed within the Member Specification.

Version date: 14 October 2019

For further information or advice contact:

Carter Holt Harvey LVL Limited,
173 Captain Springs Road, Onehunga. Auckland
Telephone: 0800 808 131
Email: designit@futurebuild.co.nz
Web: <https://futurebuild.co.nz/>

Specifier details:

Specifier:	David Coker
Business name:	D C Design
Address:	144 Westmere Station Road RD1 Wanganui 4571
Email:	coker.d.l.e@xtra.co.nz

Project & site details:

Project:	9 Golf Vue
Site address:	9 Golf Vue Wanganui
For (owner/s):	J Hansen & D Lightfoot
Design wind zone	High
Snow loading	Design snow zone: N0

MEMBER DESIGN DETAILS

Member 1

- 1) **Member code and description** L1 - Lintels - In single or upper storey load bearing walls
- 2) **Date prepared** 18 December 2019

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	2.8 m
Roof load width 'RLW'	6.0 m
Roof type and mass	Light roof and ceiling - 40 kg/m ²
Nominal wall thickness	90 mm

5) Member specification

Size, stress grade/product	Use 2/290 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)
Assumed design density	< 480 kg/m ³

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G + $\Psi_L Q^*$	9.3 mm	3.9 mm (long term)	2.4
Live load - $\Psi_S Q$	11.2 mm	1.2 mm	9.6
Wind load - W_s	14.0 mm	3.5 mm	4.0

*Critical serviceability load case

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

7) Reactions

Load case	k_1^1	Limit States Design Reaction ^{2,3} End kN ⁴
1.35G	0.60	-5.1
1.2G + 1.5Q	0.80	-8.0
1.2G + W_u + $\Psi_c Q$	1.00	-11.2
0.9G + W_u	1.00	7.1

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 2

1) Member code and description L2 - Lintels - In single or upper storey load bearing walls

2) Date prepared 18 December 2019

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	1.0 m
Roof load width 'RLW'	2.0 m
Roof type and mass	Light roof and ceiling - 40 kg/m ²
Nominal wall thickness	90 mm

5) Member specification

Size, stress grade/product	Use 2/90 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)
Assumed design density	< 480 kg/m ³

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - $G + \Psi_L Q^*$	3.3 mm	0.9 mm (long term)	3.7
Live load - $\Psi_S Q$	4.0 mm	0.3 mm	14.5
Wind load - W_S	5.0 mm	0.8 mm	6.0

*Critical serviceability load case

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

7) Reactions

Load case	k_1^1	Limit States Design Reaction ^{2,3}
		End kN ⁴
1.35G	0.60	-1.1
1.2G + 1.5Q	0.80	-1.8
1.2G + W_u + $\Psi_c Q$	1.00	-2.5
0.9G + W_u	1.00	1.6

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 3**1) Member code and description** L3 - Lintels - In single or upper storey load bearing walls**2) Date prepared** 18 December 2019**3) Serviceability criteria** AS 1720.1: 2010 and AS 1720.3: 2016**4) Design inputs**

Span	1.2 m
Roof load width 'RLW'	2.0 m
Roof type and mass	Light roof and ceiling - 40 kg/m ²
Nominal wall thickness	90 mm

5) Member specification

Size, stress grade/product	Use 2/90 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)
Assumed design density	< 480 kg/m ³

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - $G + \Psi_L Q^*$	4.0 mm	1.6 mm (long term)	2.6
Live load - $\Psi_S Q$	4.8 mm	0.5 mm	10.1
Wind load - W_S	6.0 mm	1.4 mm	4.2

*Critical serviceability load case

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

7) Reactions

Load case	k_1^1	Limit States Design Reaction ^{2,3}
		End kN ⁴

1.35G	0.60	-1.2
1.2G + 1.5Q	0.80	-1.8
1.2G + W _u + $\Psi_c Q$	1.00	-2.6
0.9G + W _u	1.00	1.7

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 4

1) Member code and description L4 - Lintels - In single or upper storey load bearing walls

2) Date prepared 18 December 2019

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	1.0 m
Roof load width 'RLW'	2.0 m
Roof type and mass	Light roof and ceiling - 40 kg/m ²
Nominal wall thickness	90 mm

5) Member specification

Size, stress grade/product	Use 2/90 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)
Assumed design density	< 480 kg/m ³

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G + $\Psi_L Q^*$	3.3 mm	0.9 mm (long term)	3.7
Live load - $\Psi_s Q$	4.0 mm	0.3 mm	14.5
Wind load - W _s	5.0 mm	0.8 mm	6.0

*Critical serviceability load case

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

7) Reactions

Load case	k ₁ ¹	Limit States Design Reaction ^{2,3} End kN ⁴
1.35G	0.60	-1.1
1.2G + 1.5Q	0.80	-1.8
1.2G + W _u + $\Psi_c Q$	1.00	-2.5
0.9G + W _u	1.00	1.6

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 5

1) Member code and description L5 - Lintels - In single or upper storey load bearing walls

- 2) Date prepared 18 December 2019
- 3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	1.2 m
Roof load width 'RLW'	2.0 m
Roof type and mass	Light roof and ceiling - 40 kg/m ²
Nominal wall thickness	90 mm

5) Member specification

Size, stress grade/product	Use 2/90 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)
Assumed design density	< 480 kg/m ³

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - $G + \Psi_L Q^*$	4.0 mm	1.6 mm (long term)	2.6
Live load - $\Psi_S Q$	4.8 mm	0.5 mm	10.1
Wind load - W_s	6.0 mm	1.4 mm	4.2

*Critical serviceability load case

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

7) Reactions

Load case	k_1^1	Limit States Design Reaction ^{2,3}
		End kN ⁴
1.35G	0.60	-1.2
1.2G + 1.5Q	0.80	-1.8
1.2G + W_u + $\Psi_c Q$	1.00	-2.6
0.9G + W_u	1.00	1.7

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 6

- 1) Member code and description L6 - Lintels - In single or upper storey load bearing walls

- 2) Date prepared 18 December 2019

- 3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	0.6 m
Roof load width 'RLW'	6.0 m
Roof type and mass	Light roof and ceiling - 40 kg/m ²
Nominal wall thickness	90 mm

5) Member specification

Size, stress grade/product	Use 2/90 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)

Assumed design density < 480 kg/m²

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G + $\Psi_L Q^*$	2.0 mm	0.6 mm (long term)	3.5
Live load - $\Psi_S Q$	2.4 mm	0.2 mm	13.5
Wind load - W_s	3.0 mm	0.5 mm	5.6

*Critical serviceability load case

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

7) Reactions

Load case	k_1^1	Limit States Design Reaction ^{2,3} End kN ⁴
1.35G	0.60	-3.0
1.2G + 1.5Q	0.80	-4.8
1.2G + W_u + $\Psi_c Q$	1.00	-6.8
0.9G + W_u	1.00	4.5

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 7

1) Member code and description L7 - Lintels - In single or upper storey load bearing walls

2) Date prepared 18 December 2019

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span 1.6 m
 Roof load width 'RLW' 6.0 m
 Roof type and mass Light roof and ceiling - 40 kg/m²
 Nominal wall thickness 90 mm

5) Member specification

Size, stress grade/product Use 2/190 x 45 SG8
 Material type Dry softwood, machine stress graded and verified (NZS 3622)
 Assumed design density < 480 kg/m²

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G + $\Psi_L Q^*$	5.3 mm	1.7 mm (long term)	3.1
Live load - $\Psi_S Q$	6.4 mm	0.5 mm	12.2
Wind load - W_s	8.0 mm	1.6 mm	5.1

*Critical serviceability load case

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

7) Reactions

Limit States Design Reaction ^{2,3}

Load case	k_1^1	End kN^4
1.35G	0.60	-3.6
1.2G + 1.5Q	0.80	-5.6
1.2G + W_u + $\Psi_c Q$	1.00	-7.9
0.9G + W_u	1.00	5.1

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 8

1) Member code and description L8 - Lintels - In single or upper storey load bearing walls

2) Date prepared 18 December 2019

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	2.0 m
Roof load width 'RLW'	6.0 m
Roof type and mass	Light roof and ceiling - 40 kg/m ²
Nominal wall thickness	90 mm

5) Member specification

Size, stress grade/product	Use 2/240 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)
Assumed design density	< 480 kg/m ³

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G + $\Psi_L Q^*$	6.7 mm	1.7 mm (long term)	3.8
Live load - $\Psi_s Q$	8.0 mm	0.5 mm	15.4
Wind load - W_s	10.0 mm	1.6 mm	6.4

*Critical serviceability load case

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

7) Reactions

Load case	k_1^1	Limit States Design Reaction ^{2,3}
		End kN^4
1.35G	0.60	-4.2
1.2G + 1.5Q	0.80	-6.5
1.2G + W_u + $\Psi_c Q$	1.00	-9.2
0.9G + W_u	1.00	5.9

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 9

1) Member code and description L9 - Lintels - In single or upper storey load bearing walls

- 2) Date prepared 18 December 2019
- 3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	1.2 m
Roof load width 'RLW'	6.0 m
Roof type and mass	Light roof and ceiling - 40 kg/m ²
Nominal wall thickness	90 mm

5) Member specification

Size, stress grade/product	Use 2/190 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)
Assumed design density	< 480 kg/m ³

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G + Ψ LQ [*]	4.0 mm	0.7 mm (long term)	5.5
Live load - Ψ sQ	4.8 mm	0.2 mm	21.8
Wind load - W _s	6.0 mm	0.7 mm	9.0

*Critical serviceability load case

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

7) Reactions

Load case	k ₁ ¹	Limit States Design Reaction ^{2,3}
		End kN ⁴
1.35G	0.60	-3.0
1.2G + 1.5Q	0.80	-4.8
1.2G + W _u + Ψ cQ	1.00	-6.7
0.9G + W _u	1.00	4.4

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 10

- 1) Member code and description L10 - Lintels - In single or upper storey load bearing walls
- 2) Date prepared 18 December 2019
- 3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	1.6 m
Roof load width 'RLW'	2.0 m
Roof type and mass	Light roof and ceiling - 40 kg/m ²
Nominal wall thickness	90 mm

5) Member specification

Size, stress grade/product	Use 2/140 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)

Assumed design density < 480 kg/m²

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G + $\Psi_L Q^*$	5.3 mm	1.4 mm (long term)	3.9
Live load - $\Psi_S Q$	6.4 mm	0.4 mm	15.9
Wind load - W_s	8.0 mm	1.2 mm	6.6

*Critical serviceability load case

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

7) Reactions

Load case	k_1 ¹	Limit States Design Reaction ^{2,3} End kN ⁴
1.35G	0.60	-1.3
1.2G + 1.5Q	0.80	-2.1
1.2G + W_u + $\Psi_c Q$	1.00	-2.9
0.9G + W_u	1.00	1.9

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 11

1) Member code and description L11 - Lintels - In single or upper storey load bearing walls

2) Date prepared 18 December 2019

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span 1.2 m
 Roof load width 'RLW' 2.0 m
 Roof type and mass Light roof and ceiling - 40 kg/m²
 Nominal wall thickness 90 mm

5) Member specification

Size, stress grade/product Use 2/90 x 45 SG8
 Material type Dry softwood, machine stress graded and verified (NZS 3622)
 Assumed design density < 480 kg/m²

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G + $\Psi_L Q^*$	4.0 mm	1.6 mm (long term)	2.6
Live load - $\Psi_S Q$	4.8 mm	0.5 mm	10.1
Wind load - W_s	6.0 mm	1.4 mm	4.2

*Critical serviceability load case

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

7) Reactions

Limit States Design Reaction ^{2,3}

Load case	k_1^1	End kN^4
1.35G	0.60	-1.2
1.2G + 1.5Q	0.80	-1.8
1.2G + W_u + $\Psi_c Q$	1.00	-2.6
0.9G + W_u	1.00	1.7

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 12

1) Member code and description L12 - Lintels - In single or upper storey load bearing walls

2) Date prepared 18 December 2019

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	1.6 m
Roof load width 'RLW'	2.0 m
Roof type and mass	Light roof and ceiling - 40 kg/m ²
Nominal wall thickness	90 mm

5) Member specification

Size, stress grade/product	Use 2/140 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)
Assumed design density	< 480 kg/m ³

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G + $\Psi_L Q^*$	5.3 mm	1.4 mm (long term)	3.9
Live load - $\Psi_s Q$	6.4 mm	0.4 mm	15.9
Wind load - W_s	8.0 mm	1.2 mm	6.6

*Critical serviceability load case

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

7) Reactions

Load case	k_1^1	Limit States Design Reaction ^{2,3}
		End kN^4
1.35G	0.60	-1.3
1.2G + 1.5Q	0.80	-2.1
1.2G + W_u + $\Psi_c Q$	1.00	-2.9
0.9G + W_u	1.00	1.9

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 13

1) Member code and description L13 - Lintels - In single or upper storey load bearing walls

- 2) Date prepared 18 December 2019
- 3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	2.0 m
Roof load width 'RLW'	6.0 m
Roof type and mass	Light roof and ceiling - 40 kg/m ²
Nominal wall thickness	90 mm

5) Member specification

Size, stress grade/product	Use 2/240 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)
Assumed design density	< 480 kg/m ³

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G + Ψ LQ [*]	6.7 mm	1.7 mm (long term)	3.8
Live load - Ψ sQ	8.0 mm	0.5 mm	15.4
Wind load - W _s	10.0 mm	1.6 mm	6.4

*Critical serviceability load case

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

7) Reactions

Load case	k ₁ ¹	Limit States Design Reaction ^{2,3}
		End kN ⁴
1.35G	0.60	-4.2
1.2G + 1.5Q	0.80	-6.5
1.2G + W _u + Ψ cQ	1.00	-9.2
0.9G + W _u	1.00	5.9

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 14

- 1) Member code and description L14 - Lintels - In single or upper storey load bearing walls

- 2) Date prepared 18 December 2019

- 3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	2.0 m
Roof load width 'RLW'	6.0 m
Roof type and mass	Light roof and ceiling - 40 kg/m ²
Nominal wall thickness	90 mm

5) Member specification

Size, stress grade/product	Use 2/240 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)

Assumed design density < 480 kg/m²

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G + $\Psi_L Q^*$	6.7 mm	1.7 mm (long term)	3.8
Live load - $\Psi_S Q$	8.0 mm	0.5 mm	15.4
Wind load - W_s	10.0 mm	1.6 mm	6.4

*Critical serviceability load case

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

7) Reactions

Load case	k_1^1	Limit States Design Reaction ^{2,3} End kN ⁴
1.35G	0.60	-4.2
1.2G + 1.5Q	0.80	-6.5
1.2G + W_u + $\Psi_c Q$	1.00	-9.2
0.9G + W_u	1.00	5.9

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 15

1) Member code and description L15 - Lintels - In single or upper storey load bearing walls

2) Date prepared 18 December 2019

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span 4.0 m
 Roof load width 'RLW' 6.0 m
 Roof type and mass Light roof and ceiling - 40 kg/m²
 Nominal wall thickness 90 mm

5) Member specification

Size, stress grade/product Use 300 x 90 hyONE
 Material type Structural Laminated Veneer Lumber to AS/NZS 4357

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G + $\Psi_L Q^*$	10.0 mm	5.5 mm (long term)	1.8
Live load - $\Psi_S Q$	15.0 mm	1.6 mm	9.3
Wind load - W_s	20.0 mm	4.9 mm	4.1

*Critical serviceability load case

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

7) Reactions

Limit States Design Reaction ^{2,3}

Load case	k_1^1	End kN^4
1.35G	0.60	-7.3
1.2G + 1.5Q	0.80	-11.2
1.2G + W_u + $\Psi_c Q$	1.00	-15.8
0.9G + W_u	1.00	9.9

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 16

1) Member code and description L16 - Lintels - In single or upper storey load bearing walls

2) Date prepared 18 December 2019

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	0.9 m
Roof load width 'RLW'	6.0 m
Roof type and mass	Light roof and ceiling - 40 kg/m ²
Nominal wall thickness	90 mm

5) Member specification

Size, stress grade/product	Use 2/90 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)
Assumed design density	< 480 kg/m ³

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G + $\Psi_L Q^*$	3.0 mm	1.9 mm (long term)	1.5
Live load - $\Psi_s Q$	3.6 mm	0.6 mm	6.0
Wind load - W_s	4.5 mm	1.8 mm	2.5

*Critical serviceability load case

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

7) Reactions

Load case	k_1^1	Limit States Design Reaction ^{2,3}
		End kN^4
1.35G	0.60	-3.3
1.2G + 1.5Q	0.80	-5.3
1.2G + W_u + $\Psi_c Q$	1.00	-7.4
0.9G + W_u	1.00	4.9

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 17

1) Member code and description L17 - Lintels - In single or upper storey load bearing walls

- 2) Date prepared 18 December 2019
- 3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	1.2 m
Roof load width 'RLW'	6.0 m
Roof type and mass	Light roof and ceiling - 40 kg/m ²
Nominal wall thickness	90 mm

5) Member specification

Size, stress grade/product	Use 2/190 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)
Assumed design density	< 480 kg/m ³

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G + Ψ LQ [*]	4.0 mm	0.7 mm (long term)	5.5
Live load - Ψ sQ	4.8 mm	0.2 mm	21.8
Wind load - W _s	6.0 mm	0.7 mm	9.0

^{*}Critical serviceability load case

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

7) Reactions

Load case	k ₁ ¹	Limit States Design Reaction ^{2,3}
		End kN ⁴
1.35G	0.60	-3.0
1.2G + 1.5Q	0.80	-4.8
1.2G + W _u + Ψ cQ	1.00	-6.7
0.9G + W _u	1.00	4.4

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 18

- 1) Member code and description L18 - Lintels - In single or upper storey load bearing walls

- 2) Date prepared 18 December 2019

- 3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span	0.9 m
Roof load width 'RLW'	2.0 m
Roof type and mass	Light roof and ceiling - 40 kg/m ²
Nominal wall thickness	90 mm

5) Member specification

Size, stress grade/product	Use 2/90 x 45 SG8
Material type	Dry softwood, machine stress graded and verified (NZS 3622)

Assumed design density < 480 kg/m²

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G + $\Psi_L Q^*$	3.0 mm	0.7 mm (long term)	4.6
Live load - $\Psi_S Q$	3.6 mm	0.2 mm	17.9
Wind load - W_s	4.5 mm	0.6 mm	7.4

*Critical serviceability load case

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

7) Reactions

Load case	k_1 ¹	Limit States Design Reaction ^{2,3} End kN ⁴
1.35G	0.60	-1.1
1.2G + 1.5Q	0.80	-1.8
1.2G + W_u + $\Psi_c Q$	1.00	-2.5
0.9G + W_u	1.00	1.6

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Member 19

1) Member code and description L19 - Lintels - In single or upper storey load bearing walls

2) Date prepared 18 December 2019

3) Serviceability criteria AS 1720.1: 2010 and AS 1720.3: 2016

4) Design inputs

Span 3.6 m
 Roof load width 'RLW' 6.0 m
 Roof type and mass Light roof and ceiling - 40 kg/m²
 Nominal wall thickness 90 mm

5) Member specification

Size, stress grade/product Use 300 x 90 hyONE
 Material type Structural Laminated Veneer Lumber to AS/NZS 4357

6) Serviceability

Load case	Limit ³ on average deflection ²	Estimated average deflection ²	Rigidity ratio ⁴
Long term load - G + $\Psi_L Q^*$	10.0 mm	3.7 mm (long term)	2.7
Live load - $\Psi_S Q$	14.4 mm	1.1 mm	13.3
Wind load - W_s	18.0 mm	3.3 mm	5.5

*Critical serviceability load case

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

7) Reactions

Limit States Design Reaction ^{2,3}

Load case	k_1^1	End kN^4
1.35G	0.60	-6.7
1.2G + 1.5Q	0.80	-10.4
1.2G + W_u + $\Psi_c Q$	1.00	-14.5
0.9G + W_u	1.00	9.1

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Notes for interpretation of serviceability data

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

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

As can be seen, comparison of the 'average deflection' for different materials, even if calculated on the same basis, does not give the whole picture!

- The limits referred are those specified in AS 1720.3 for the stated load case.
- 'Rigidity ratio' expresses the rigidity of the specified beam relative to the rigidity of a notional beam just meeting the serviceability requirements detailed.

Notes for interpretation of reaction data

- Duration of load factor ' k_1 ' for strength as per NZS 3603:1993
- Negative (-) reactions relate to the 'gravity' or 'downwards' force on the support
- Positive reactions relate to the 'upwards' forces or 'tie-down' requirement on the support
- End reaction includes allowance for overhang/cantilever where one has been designed

GoGet Processing Summary Report

Consent No: 160015.1

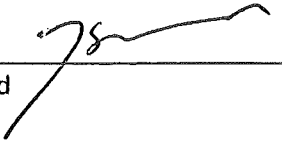
Site Address: 11 Golf Vue Pl, WHANGANUI

Description: Alteration.1 Alteration of Floor Height

(Build 212m2 House with Attached Garage ***RESTRICTED BUILDING WORK***)

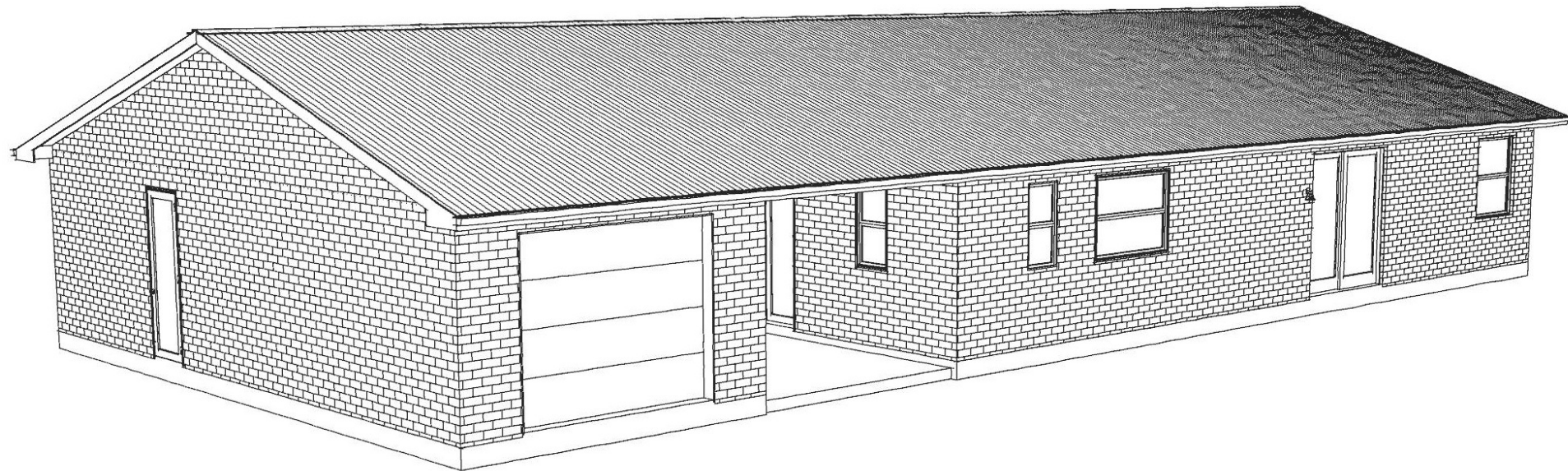
Checklist/Elements	Status	Notes	Processed By
Quick Consent	Pass		Chris Gould
Consent type	Pass		CG
Other	Pass	This consent was an application to reduce the height of the finished floor level by 200mm, from 100.425 to 100.225.	CG
Checklist	Pass		CG
E1 - E3: Moisture	Pass	The original floor height had been approved after it was identified that the house was positioned within an area of potential ponding. This information came from a hypothetical overlay on WDC's mapping system. The mapping does not take into account councils stormwater infrastructure. After discussion with Chris Carter from Infrastructure it is believed that there is little likelihood of ponding to the degree indicated on mapping. The stormwater system is sized to accept more than a rain event having a 2% APR. There is also no history of ponding in this area and none was reported during the 1 in 85 year storm event of June 2015. There is an adjacent house which is considerably lower than this property and again there is no known history of flooding on this property. Therefore as the floor level is above the minimum 150mm required by NZ Building Code that this reduced level is acceptable.	CG

I am satisfied on reasonable grounds that the provisions of the Building Code will be met if the building work in relation to the attached application is properly completed in accordance with the attached plans and specifications.

Signed:  Date: 7 March 2016 3:59 pm
Chris Gould

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PROPOSED NEW RESIDENTIAL DWELLING FOR J HANSEN & D LIGHTFOOT 9 GOLF VUE WANGANUI



1.1 SITE FENCES & HOARDINGS

1.1.1 FENCES & HOARDINGS SHALL EXTEND AT LEAST 2.0M IN HEIGHT FROM GROUND LEVEL ON THE SIDE ACCESSIBLE TO THE PUBLIC.

1.1.2 AN ACCEPTABLE FENCE MAY BE CONSTRUCTED WITH GALVANISED CHAINLINK NETTING HAVING A MAXIMUM SIZE GRID OF 50MM X 50MM. POST SPACING SHALL BE A MAXIMUM OF 2.5M & THE GAP BETWEEN THE BOTTOM OF THE FENCE & GROUND NO GREATER THAN 100MM

NZBC F5: CONSTRUCTION & DEMOLITION HAZARDS ACCEPTABLE SOLUTIONS F5/AS1

1.0 WORK-SITE BARRIERS

1.0.1 THE NECESSITY FOR BARRIERS WILL DEPEND MAINLY ON THE SITE LOCATION.THE NEED WILL BE GREATER IN AREAS WITH HIGH LEVELS OF PEDESTRIAN TRAFFIC (I.E. IN CENTRAL BUSINESS DISTRICTS), THAN IN INDUSTRIAL OR RURAL AREAS.BARRIERS ARE NOT NECESSARY FOR DOMESTIC DWELLINGS UP TO 2 STOREYS ABOVE GROUND LEVEL UNLESS SPECIFIC HAZARDS EXIST.

AT ALL WORK-SITES HAZARDS EVALUATION WILL TAKE ACCOUNT OF:

1. PEDESTRIAN COUNTS ADJACENT TO THE SITE.
2. CAR PARKING ADJACENT TO THE SITE.
3. LOCATION OF NEIGHBOURING BUILDINGS.
4. PRESENCE OF NEIGHBOURING WORK-SITES OR RECREATION AREAS.
5. PROXIMITY TO SCHOOLS OR EARLY CHILDHOOD CENTRES.
6. PROXIMITY TO HOUSING.
- 7.THE DEPTH OF WATER HAZARDS.
8. THE PERIOD OF TIME FOR WHICH PONDED WATER WILL BE PRESENT.
9. THE ACCESSIBILITY & 'VISIBILITY' OF THE SITE

1.0.2 IF A WORK-SITE IS NOT COMPLETELY ENCLOSED, & UNAUTHORISED ENTRY BY CHILDREN IS LIKELY, IT IS ACCEPTABLE FOR SPECIFIC HAZARDS TO BE FENCED ONLY WHEN WORKERS ARE ABSENT FROM THE IMMEDIATE VICINITY.

CAUTIONARY NOTES:

BUILDING CONTRACTOR TO ASSESS SITE TO ENSURE DAY-LIGHTING & BUILDING RESTRICTIONS ARE COMPLIED WITH. NO LIABILITY FOR ENCROACHMENT SHALL BE HELD BY DESIGNER IF SITE IS NOT SURVEYED BY A REGISTERED SURVEYOR PRIOR TO COMMENCEMENT OF FOUNDATION.

CONSTRUCTION NOTES:

BEFORE BUILDING IS ERECTED ON SITE, ALL RUBBISH, NOXIOUS MATTER & ORGANIC MATTER SHALL BE REMOVED FROM THE AREA TO BE COVERED BY THE BUILDING. ENSURE FINAL BUILDING PLATFORM & FINISHED GROUND HAVE AN EVEN FALL AWAY FROM BUILDING TO ENSURE WATER IS NOT ALLOWED TO ACCUMULATE AROUND FOUNDATION. ANY FILL TO BE DRY & APPROVED & COMPACTED DOWN IN ACCORDANCE WITH NZS.3604.2011

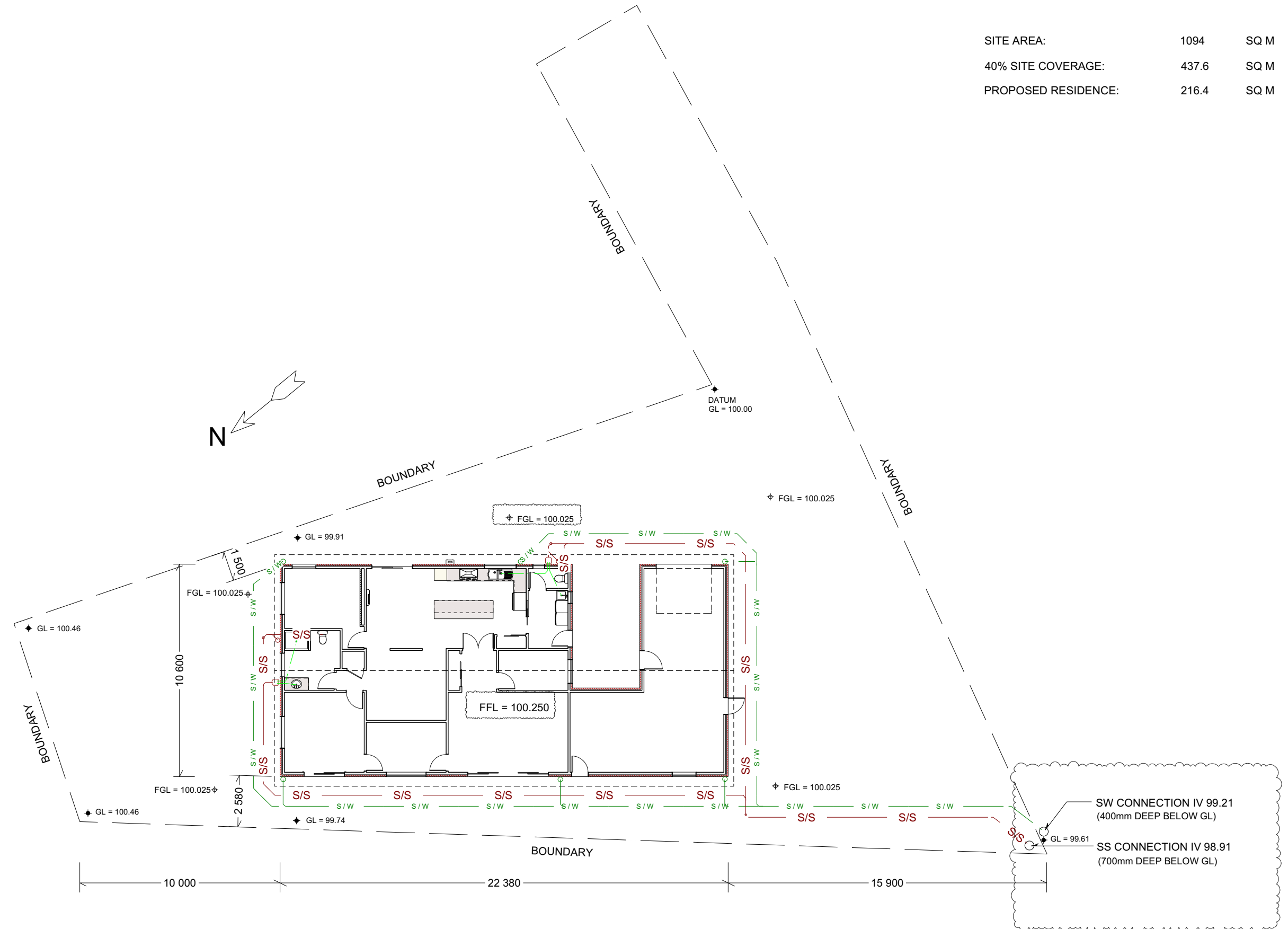
CONTRACTOR TO

- * CONFIRM GROUND HAS ADEQUATE BEARING TO COMPLY WITH NZS 3604:2011
- * LOCATE ALL SERVICE CONNECTION POINTS ON SITE PRIOR TO COMMENCEMENT OF WORKS, CHECK INVERT LEVELS OR PIPES & MANHOLES.
- *CONFIRM PLUMBING ROUTE & FIXTURES POSITIONS ON SITE PRIOR TO COMMENCEMENT OF WORK.
- *LOCATE ALL ELECTRICAL & WATER SERVICES ON SITE.
- *CONFIRM ON SITE ALL BOUNDARY BEARINGS, LENGTHS & PEG LOCATIONS ON SITE PRIOR TO COMMENCEMENT OF WORKS, TO ENSURE HOUSE POSITION IS CORRECT.

SHEET

- 1 - COVER PAGE
- 2 - SITE PLAN
- 3 - DRAINAGE PLAN
- 4 - BEDDING & BACK FILLING
- 5 - FOUNDATION PLAN
- 6 - FOUNDATION DETAILS
- 7 - LAYOUT PLAN
- 8 - DIMENSIONED FLOOR PLAN
- 9 - ELEVATIONS
- 10- ROOF ELEVATION
- 11- CROSS SECTION
- 12- PURLIN FIXING
- 13- LINTEL - DOOR SIZES
- 14- LINTEL FIXING DETAILS
- 15- TOP PLATE JOINTING & STUD TO TOP PLATE FIXING
- 16- BRACING PLAN
- 17- BRACING DETAILS
- 18- BRICK DETAILS
- 19- BRICK DETAILS
- 20- BRICK DETAILS
- 21- GARAGE DOOR DETAILS
- 22- ROOF FLASHING DETAILS
- 23- WET AREA DETAILS
- 24- GAS INFINITY DETAILS
- 25- SMOKE DETECTORS & EXTRACTOR FANS
- 26- DURABILITY

SITE AREA:	1094	SQ M
40% SITE COVERAGE:	437.6	SQ M
PROPOSED RESIDENCE:	216.4	SQ M



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 DRAWINGS PROVIDED BY:	Client Details : J HANSON & D LIGHTFOOT Address: 9 GOLF VUE PLACE, WANGANUI	Drawing Title: SITE PLAN						Sheet # 2	
		Drawn: David Coker	Date:	26/02/2020	Wind Region	A	Wind Zone	HIGH	Scale: 1:200
		Checked: David Coker	Variation #	RFI 1	Earthquake Zone	2	Exposure Zone	D	
			COPYRIGHT: This plan remains the property of D C Design and is provided for the use as described above and may not be used or reproduced in whole or in part without written permission			D C Design 144 Westmere Station Road RD1 Wanganui		P: 06 348 0422 M: 027 936 2169 E: coker.d.l.e@xtra.co.nz	


BP114150

Denotes 40mm Waste Pipe Min Fall 1:40

Denotes 100mm uPVC Sanitary Sewer Line Min Fall 1:80

Denotes 90mm uPVC Storm Water Line Min Fall 1:90

Denotes 25mm BlueLine Water Pipe

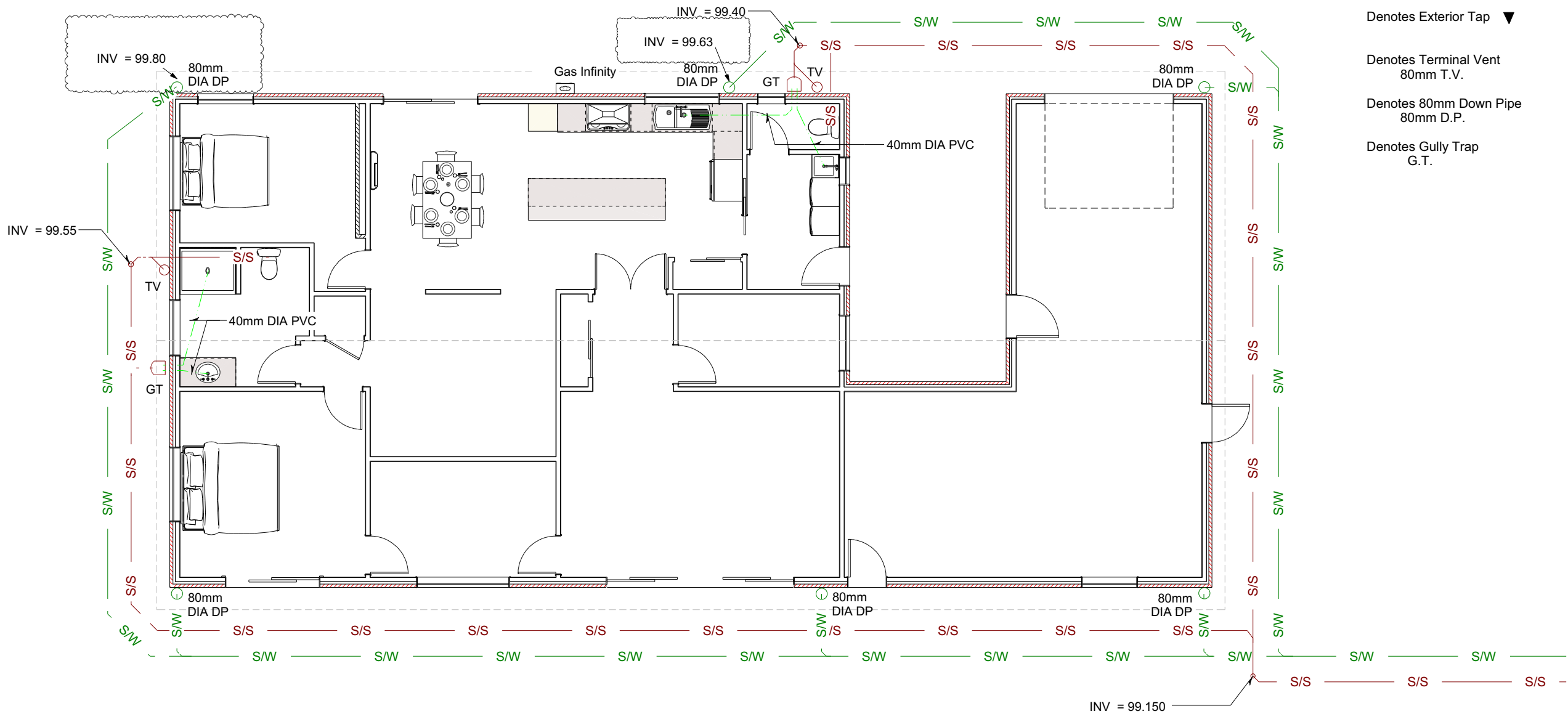
Denotes 25mm Copper Pipe

Denotes Exterior Tap ▼

Denotes Terminal Vent
80mm T.V.

Denotes 80mm Down Pipe
80mm D.P.

Denotes Gully Trap
G.T.



CONSTRUCTION NOTES:
All Plumbing & Drainage to Comply with NZ Building code compliance document E1,G12 & G13 AS/1 & A/2

Contractor to locate & or apply for all services connection & cabling on site prior to earthworks confirm all boundary setbacks & restrictions comply with current regulations prior to commencement of foundation. Final connection points for waste water & storm water to be confirmed on site once local authority has installed service connections

WATER SUPPLY
Water connection from water toby to house to be 25mm BLUELINE WATER PIPE
internal water pipe to be Polybutylene sizes to sized to achieve flow rates as given in table 3, or using the sizes given in table 4 Acceptable Solutions G12/AS1.

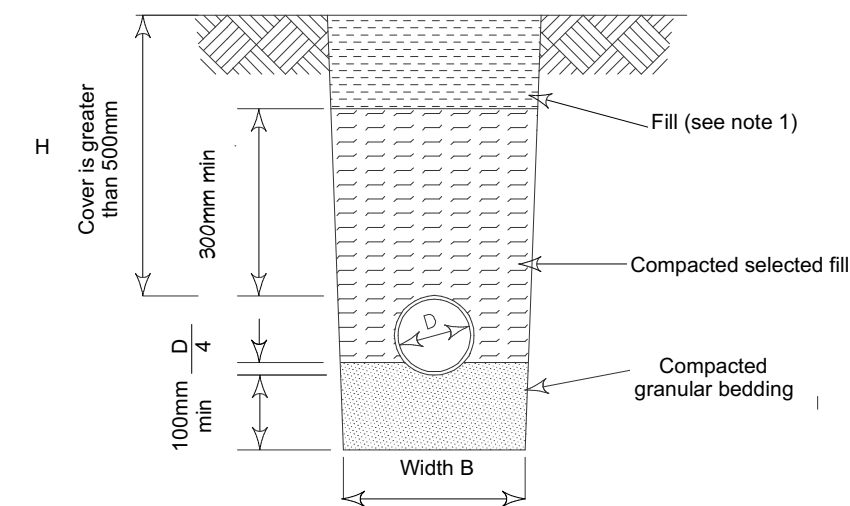
FIXTURE UNIT RATING

=28

bath	= 4	x 1 = 4
basin	= 1	x 2 = 2
shower	= 1	x 2 = 2
toilet	= 6	x 2 = 12
laundry tube	= 5	x1 =5
kitchen sink	= 3	x 1 = 3

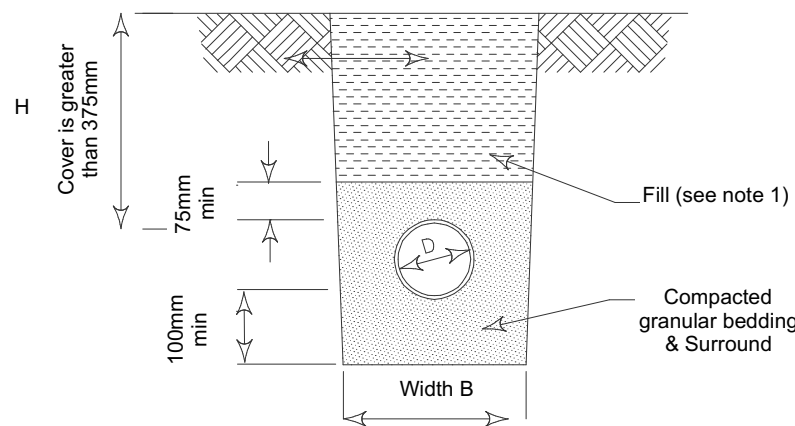
DRAWINGS PROVIDED BY:  	Client Details : J HANSON & D LIGHTFOOT Address: 9 GOLF VUE PLACE, WANGANUI	Drawing Title: DRAINAGE PLAN							Sheet # 3	 BP114150	
		Drawn: David Coker		Date:	26/02/2020	Wind Region	A	Wind Zone	HIGH		Scale: 1:100
		Checked: David Coker		Variation #	RFI 1	Earthquake Zone	2	Exposure Zone	D		
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Figure 7: Bedding and backfilling
Paragraphs 5.2.1, 5.3.1 and 5.4.1



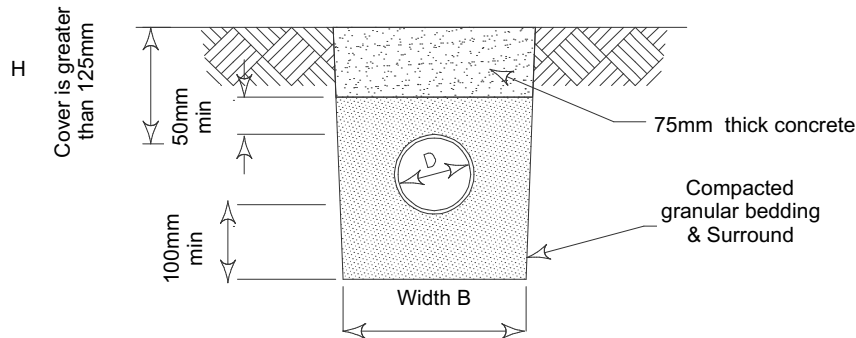
(A) BEDDING TYPE "B" OF NZS7643

Cover greater than 500mm



(B) BEDDING TYPE "D" OF NZS7643

Cover greater than 375mm



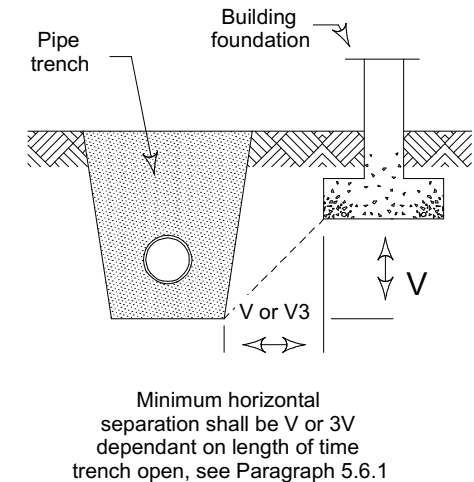
(C) COVER BETWEEN 125MM & 375MM

NOTE:

1. Fill Shall be:

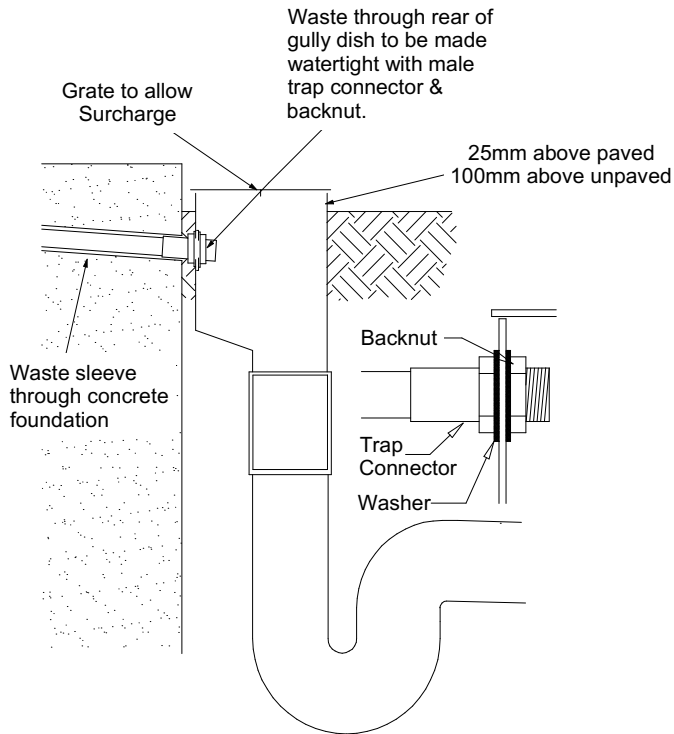
- Ordinary fill where drains are located below gardens & open country
- Compacted selected fill where the drains are located below residential driveways & similar areas subject to light traffic

Figure 8: Relationship of pipe trench to building foundation
Paragraph 5.6.1



PROXIMITY OF TRENCH TO BUILDING

5.6.1
For light timber framed & concrete masonry buildings founded on good ground & constructed in accordance with NZS 3604 or NZS 4229, pipe trenches which are open for no longer than 48 hours shall be located no closer than V to the underside of any building foundation, as shown in fig 8. Where the trench is to remain open for periods longer than 48 hours the minimum shall increase to 3V in ground except rock.



(A) WASTE DISCHARGE TO REAR OF GULLY DISH

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DRAWINGS PROVIDED BY:  	Client Details : J HANSON & D LIGHTFOOT Address: 9 GOLF VUE PLACE, WANGANUI	Drawing Title:							BEDDING & BACKFILLING		Sheet # 4	
		Drawn: David Coker	Date:	26/02/2020	Wind Region	A	Wind Zone	HIGH	Scale:		N.T.S	
		Checked: David Coker	Variation #	RFI 1	Earthquake Zone	2	Exposure Zone	D				
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												 BP114150

CONSTRUCTION NOTES:

The site requirements of this NZS 3604: 2011 are concerned with soil site conditions under or adjacent to the building.

If a site does not comply with the definition of good ground, the foundations shall be the subject of specific design (SED) & investigation as appropriate.

All foundations shall bear upon solid bottom in undisturbed good ground material or upon firm fill for which a certificate of suitability has been issued under NZS 44321.

Where good ground is at a depth greater than 0.6., the excavation between the good & foundation base may be filled with mass concrete having a minimum strength of 10Mpa at 28 days.

Granular fill material complying with 7.5.3.2 shall be placed & compacted in layers of 150mm max thickness, over the area beneath the proposed ground slab, so that the total thickness of granular base is not less than 75mm nor more than 600mm.

compact each layer until the material is bound together & does not visibly deform under the weight of a pressed adult heel. SED is required if filling is in excess of 600mm.

7.5.3.2
Granular fill material shall be composed of round gravel, crushed rock, scoria or approved material.

a) Not more than 5% shall pass through a 2.2mm sieve with the exception of conditions in 4.5.3.3:

b) 100% shall pass either.

i) A 19mm sieve for any fill thickness; or

i) A 37.5mm sieve for a fill thickness exceeding 100mm.

Where it can be demonstrated that site conditions ensure that capillary water is unlikely to reach the underside of the slab, then the requirements of 7.5.3.2 (a) can be waived.

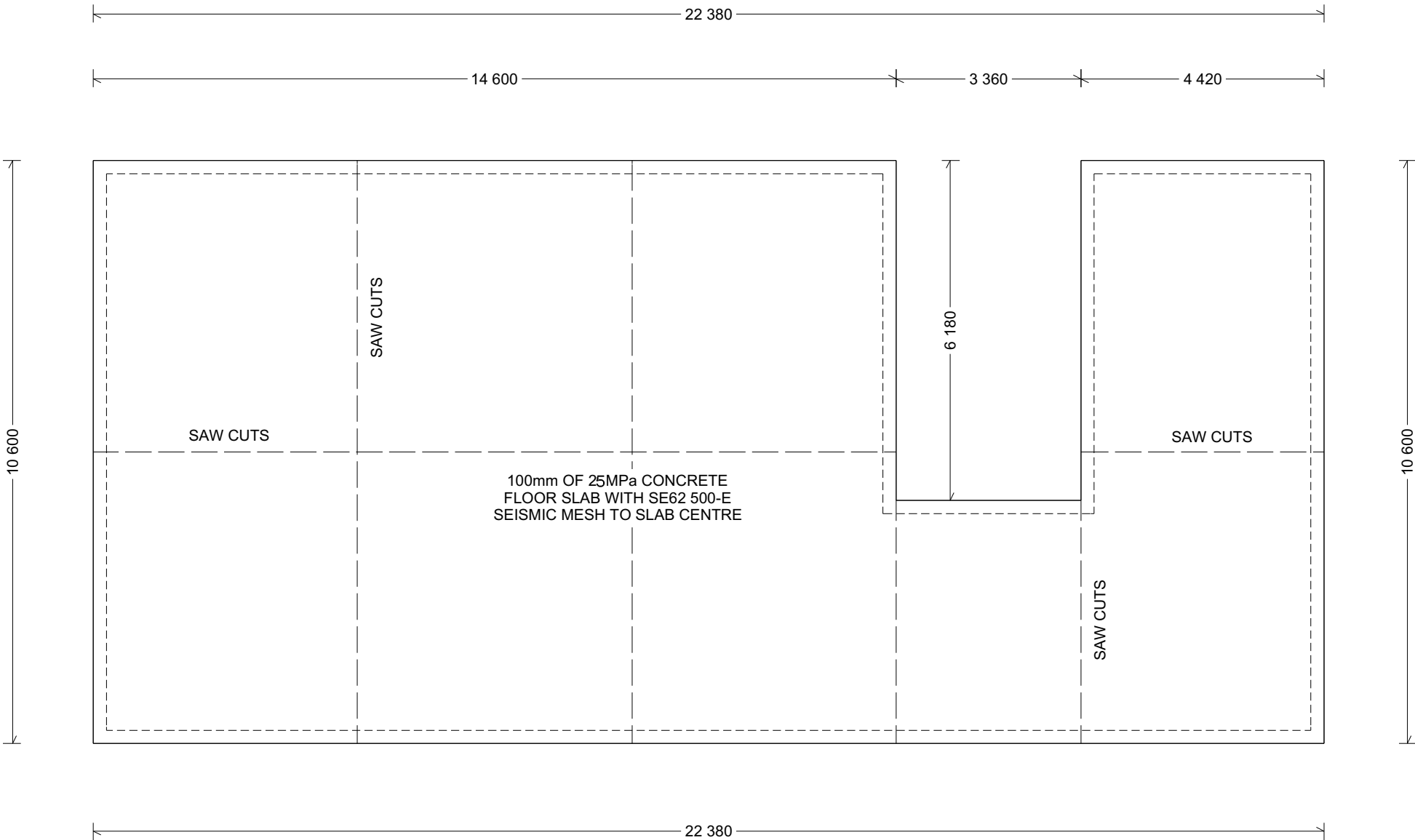
100mm -20mm round stone max to cover hardfill to ensure the vapour barrier is protected from granular protrusions. Conc. floor to comply with NZS 3109,surface tolerance, & NZS 3114, maximum deviations of 3mm.

Shrinkage control joints -3mm wide x 25mm deep saw cuts to form bays NZS3604:2011 - section 7 Floors 7.5.8.6.4
The bay dimensions formed by either construction or shrinkage control joints shall be limited to a maximum length ; width ratio of 2:1. Maximum bay dimensions in exposed concrete, vinyl or tiled areas to be 6mx6m.

Steel reinforcing within concrete floors & walls of rooms that contain a Bath or Shower must be bonded to the earth system as per AS/NZS 3000:2007 Electrical installations. See clause 5.6.2.5

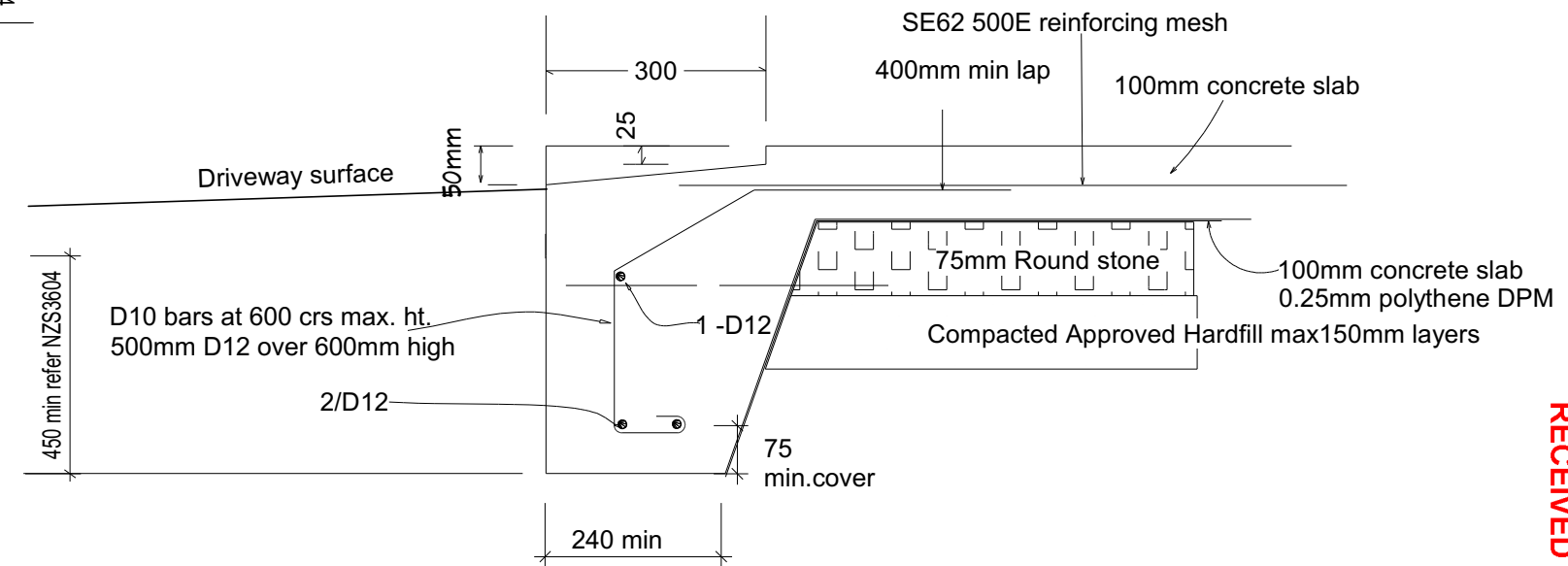
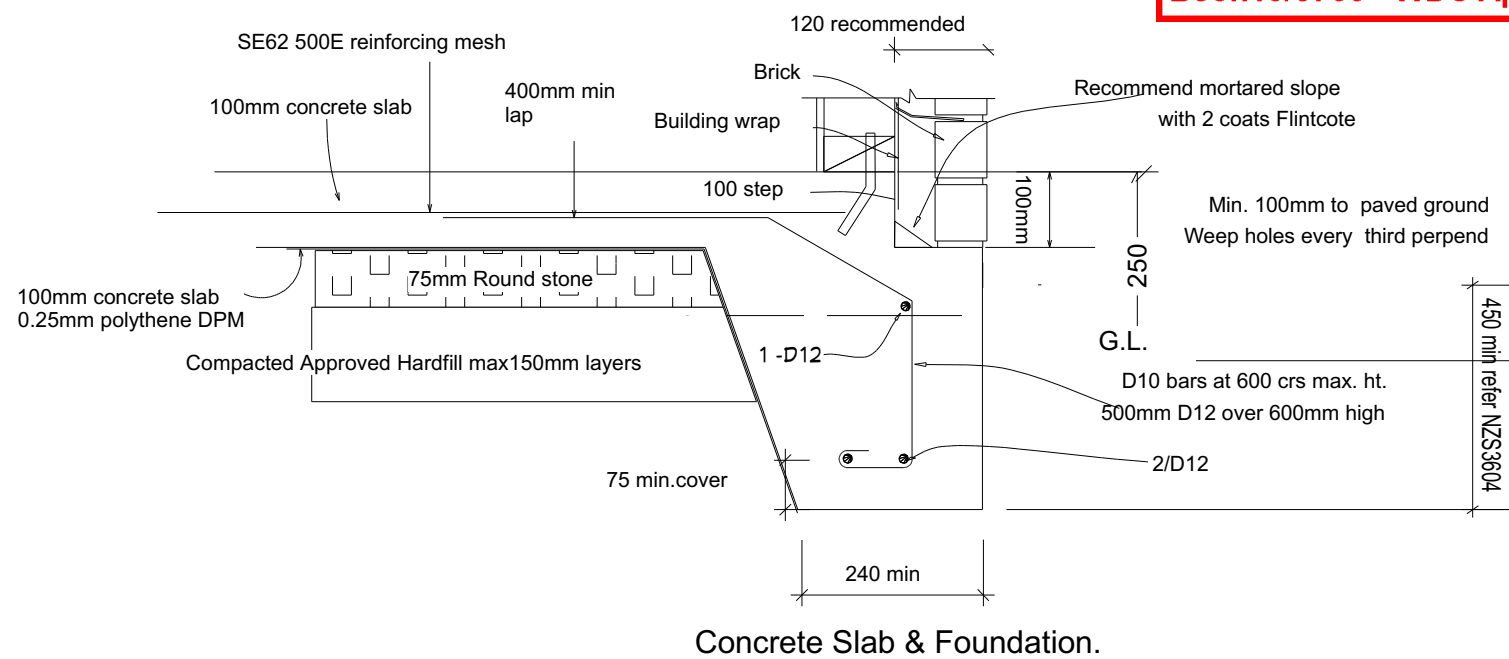
Confirm layout & fittings of kitchen & bathroom etc before foundation commences

FOUNDATION & SLAB
100mm thick concrete slab, SE62 500E reinforcing mesh, min 225 mm lap on 0.25 polythene
Concrete strength to be 20 Mpa after 28 days
100mm - 20mm round stone Max, to cover hardfill to ensure the vapour barrier is protected from any granular protrusions
Malthoid DPC underlay under all bottom plates, overlapping timber by min 6mm.

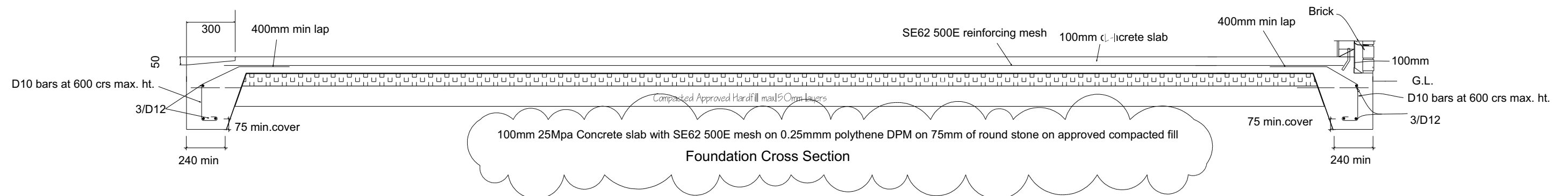


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DRAWINGS PROVIDED BY:  	Client Details : J HANSON & D LIGHTFOOT Address: 9 GOLF VUE PLACE, WANGANUI	Drawing Title:				FOUNDATION PLAN				Sheet # 5	 LICENSED BUILDING PRACTITIONER HOLDING COMP licence BP114150	
		Drawn: David Coker		Date:	26/02/2020	Wind Region	A	Wind Zone	HIGH	Scale: 1:100		
		Checked: David Coker		Variation #	RFI 1	Earthquake Zone	2	Exposure Zone	D			
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Garage Door Concrete Slab & Foundation



G3/AS1
1.1.3 Food preparation surfaces shall be easily maintained in a hygienic condition. Stainless steel, decorative high pressure laminates, & tiles are examples of suitable materials for these surfaces.

1.6 Wall linings adjacent to appliances & facilities shall have surfaces that can be easily maintained in a hygienic condition. Stainless steel, decorative high pressure laminate, tiles wallboards with painted or applied impervious coatings or films, are example of suitable materials for these surfaces.

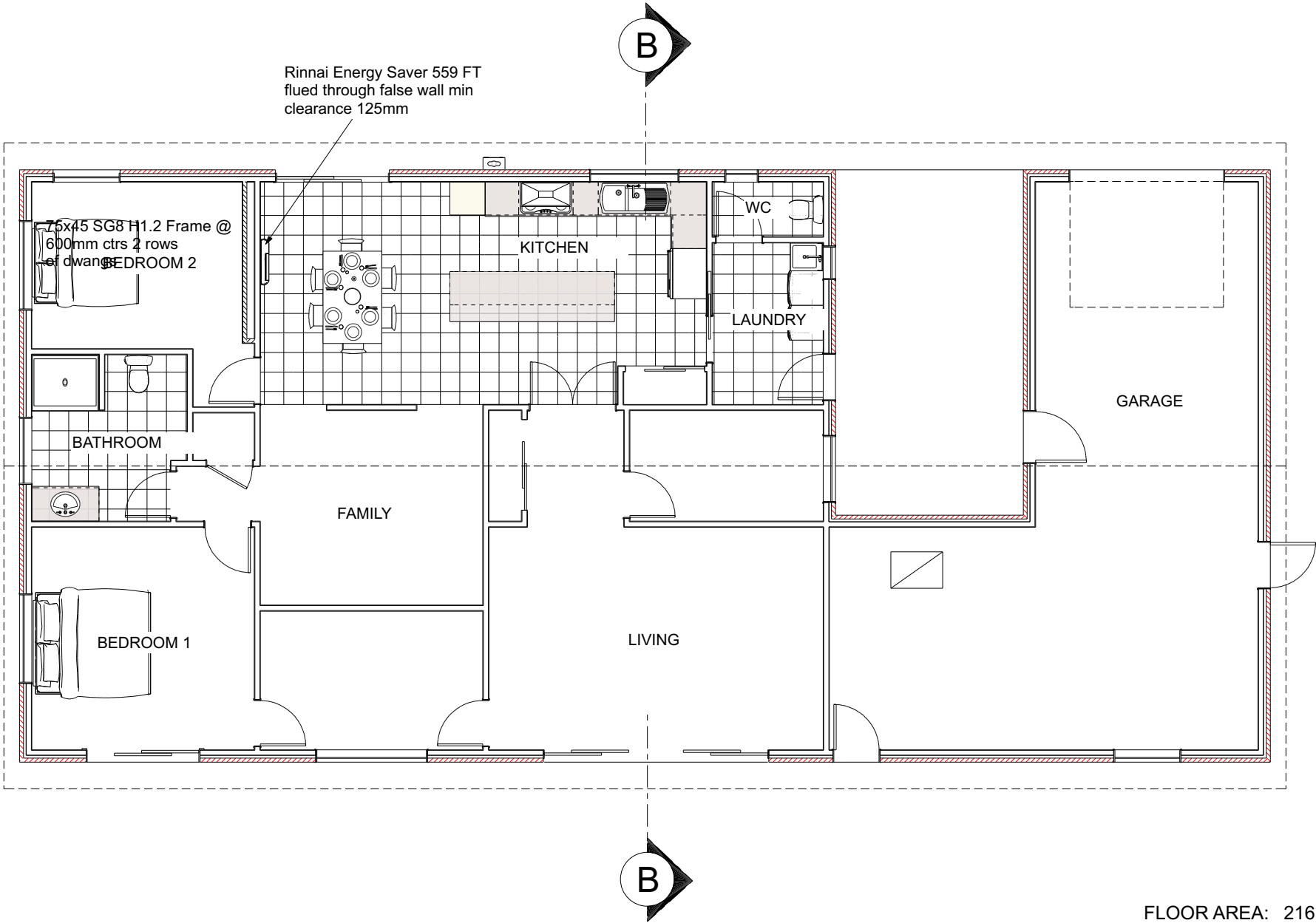
CONSTRUCTION NOTES:

Gas hot water to be infinity type. Ensure gas appliance installation complies to NZS 5261:2003. Gas appliances to be connected to main pressure gas.

Hot water pipes shall be thermally insulated to comply with H1/AS1 5.0
The delivered hot water temperature at any sanitary fixture used for personal hygiene shall not exceed 55 degrees C

Gas infinity water heater. 300mm from any opening door or window, 75mm from down pipes, 500mm from fuse or electric box, 300mm from wall or corner, 1500mm from ground.
(GAS FITTER TO CONFIRM)

Please confirm layout & fitting of kitchen, bathrooms & laundry etc before foundation commences



FLOOR FINISHES	
Bedrooms Living family dining hall Study	Carpet
Entry Kitchen Dining Laundry WC Bathroom Ensuite	No Slip Tiles

DRAWINGS PROVIDED BY:



Client Details :

J HANSON & D LIGHTFOOT

Address:

9 GOLF VUE PLACE, WANGANUI

Drawing Title:

LAYOUT PLAN

Drawn: David Coker

Date: 26/02/2020

Checked: David Coker

Variation # RFI 1

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Wind Region	A	Wind Zone	HIGH
Earthquake Zone	2	Exposure Zone	D

D C Design

144 Westmere Station Road

RD1 Wanganui

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E : coker.d.l.e@xtra.co.nz

Sheet # 7

Scale: 1:100



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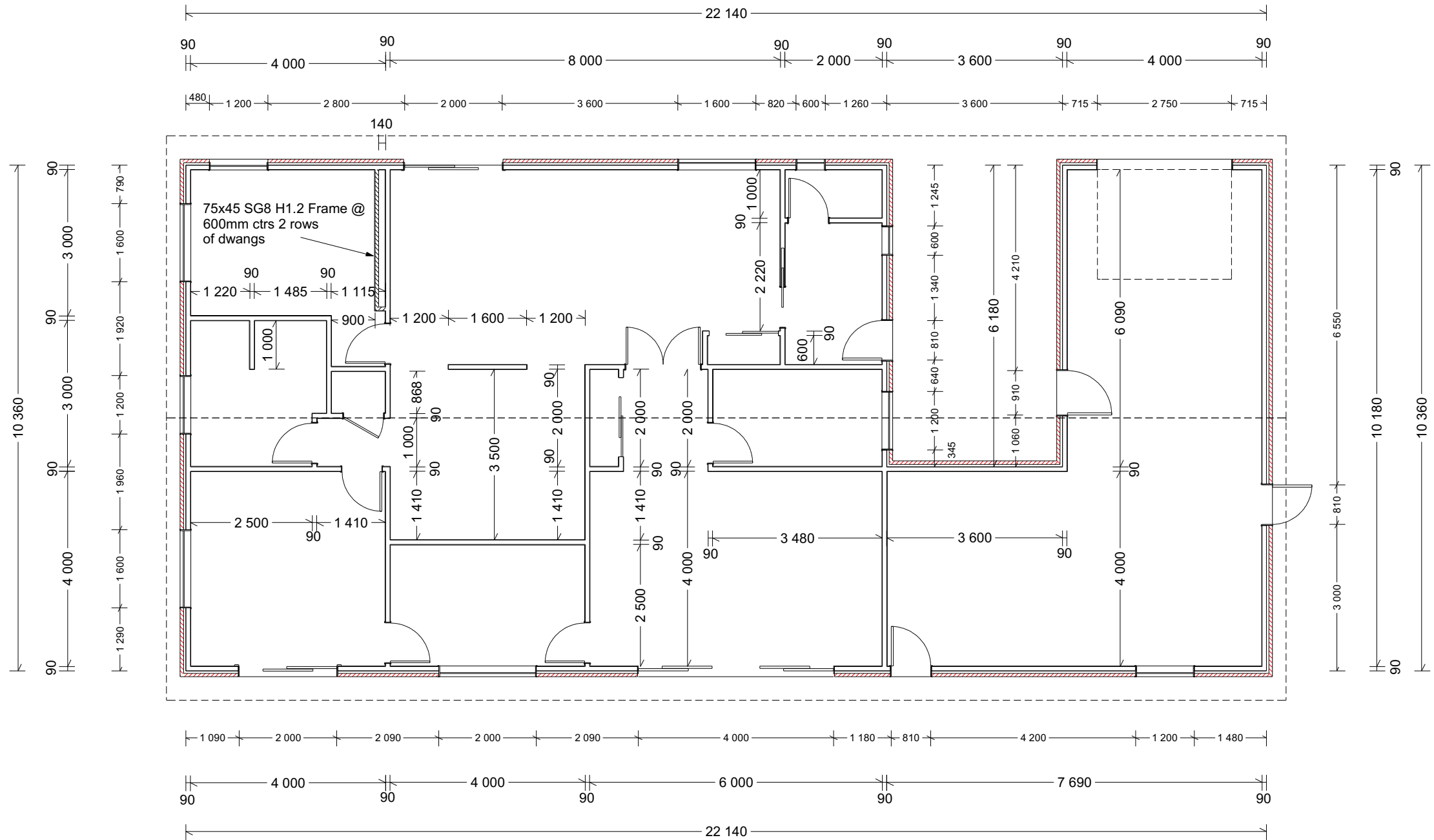
CONSTRUCTION NOTES:

Always cross reference the foundation plan with the floor plan prior to setting out.

Exterior Joinery Head height to be 2.200 from FFL all sizes to be confirmed on site by manufactory (SITE MEASURE) liner to suit architrave finish

No liability shall be held by designer for incorrect supply of Joinery.

Interior doors shall be of std height 2200mm on 19mm thick jambs to suit architraves.



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DRAWINGS PROVIDED BY: 	Client Details :		Drawing Title: DIMENSIONED FLOOR PLAN							Sheet # 8
	J HANSON & D LIGHTFOOT		Drawn: David Coker	Date:	26/02/2020	Wind Region	A	Wind Zone	HIGH	Scale: 1:100
	Address:		Checked: David Coker	Variation #	RFI 1	Earthquake Zone	2	Exposure Zone	D	
	9 GOLF VUE PLACE, WANGANUI		COPYRIGHT: This plan remains the property of D C Design and is provided for the use as described above and may not be used or reproduced in whole or in part without written permission			D C Design 144 Westmere Station Road RD1 Wanganui			P: 06 348 0422 M: 027 936 2169 E: coker.d.l.e@xtra.co.nz	BP114150

BUILDING ENVELOPE RISK MATRIX

All Elevations		
Risk Factor	Risk Severity	Risk Score
Wind zone (per NZS 3604)	HIGH	1
Number of storeys	LOW	0
Roof/wall intersection	LOW	0
Eaves width	MEDIUM	1
Envelope complexity	MEDIUM	1
Deck & balconies	LOW	0
TOTAL Risk Score:		3

CONSTRUCTION NOTES

Glazing in accordance with NZS 4223 .3 2016 plus amendments
All glazing clear float except for obscure glass to bathrooms
WC & garage. Double glazing to all windows & doors.

Aluminium joinery head heights to be 2.200m Refer to floor plan
for exterior door & window sizes. Joinery schedule & sizes to
be confirmed by pre-cut manufacturer & joinery fabricator
prior to manufacture via e-mail phone or other.

SAFETY RESTRICTOR STAYS:

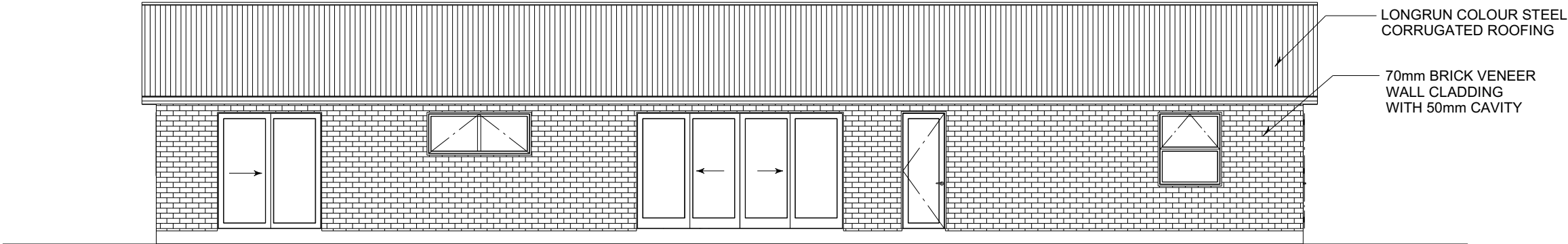
Windows restrictors are required to outward opening windows
that may protrude into walk paths.

NZBC D1/AS1 Access Routes:

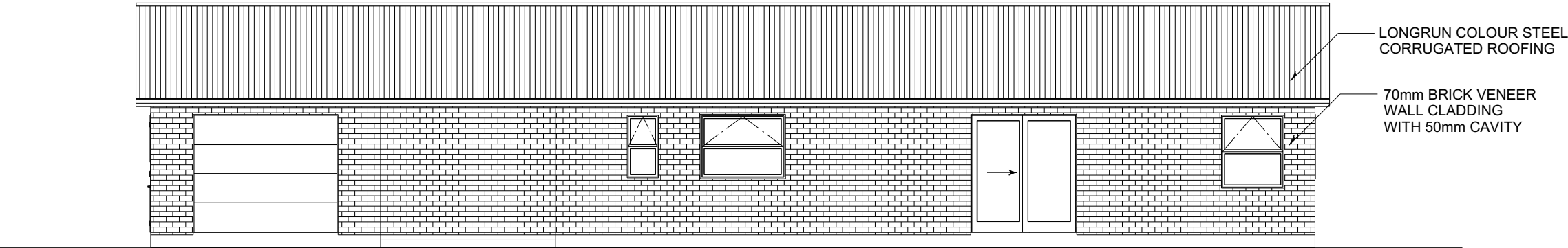
Concrete or H5 timber steps to all access points 150mm below FFL
Acceptable Slip Resistance for Walking Surfaces:

- * Portland cement concrete
 - Broomed (Class5 or 6) or wood float finish (Class U2)
- Concrete surface finishes comply with NZS 3144.
- Coated & sand/grit impregnated
- The sand/grit which is sprinkled over the complete surface of the
final
paint coating should be hard angular material such as silica sand
or
calcined bauxite. The particle size should not be less than 0.2mm
so that
it is not submerged by the coating & not greater than about 2-3mm
so
that it remains tightly bound to the surface.
- Exposed aggregate finish
 - * Asphaltic concrete
 - * Concrete pavers
 - Dry press concrete
 - Interlocking concrete block pavers to NZS 3116
- * Anti-slip tapes
 - Will normally require regular replacement to remain effective. To
ensure
foot contact, tapes should be placed at right angles to the line of
travel
& be spaced at no more than 150mm centres.

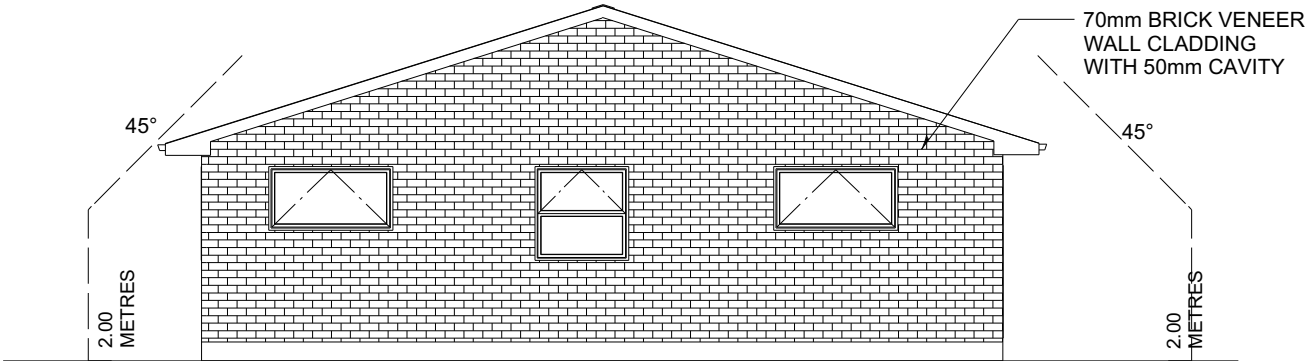
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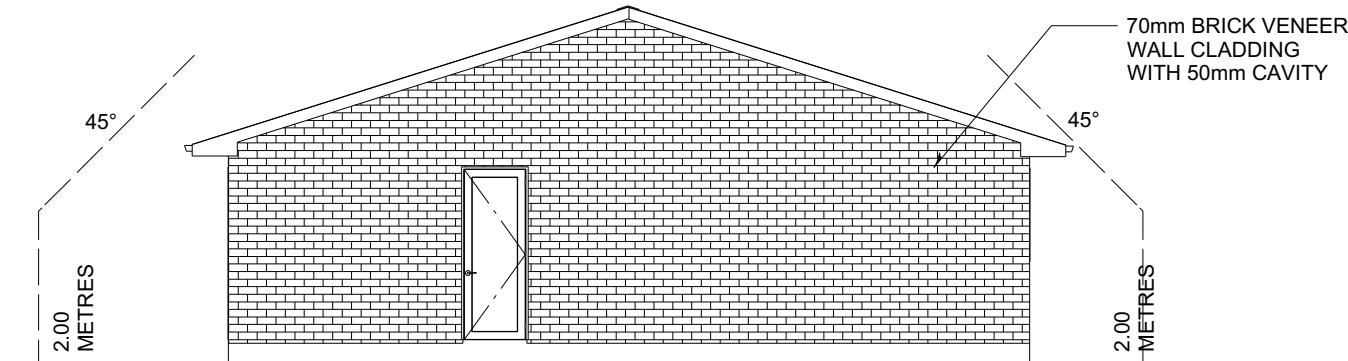
WEST ELEVATION



EAST ELEVATION

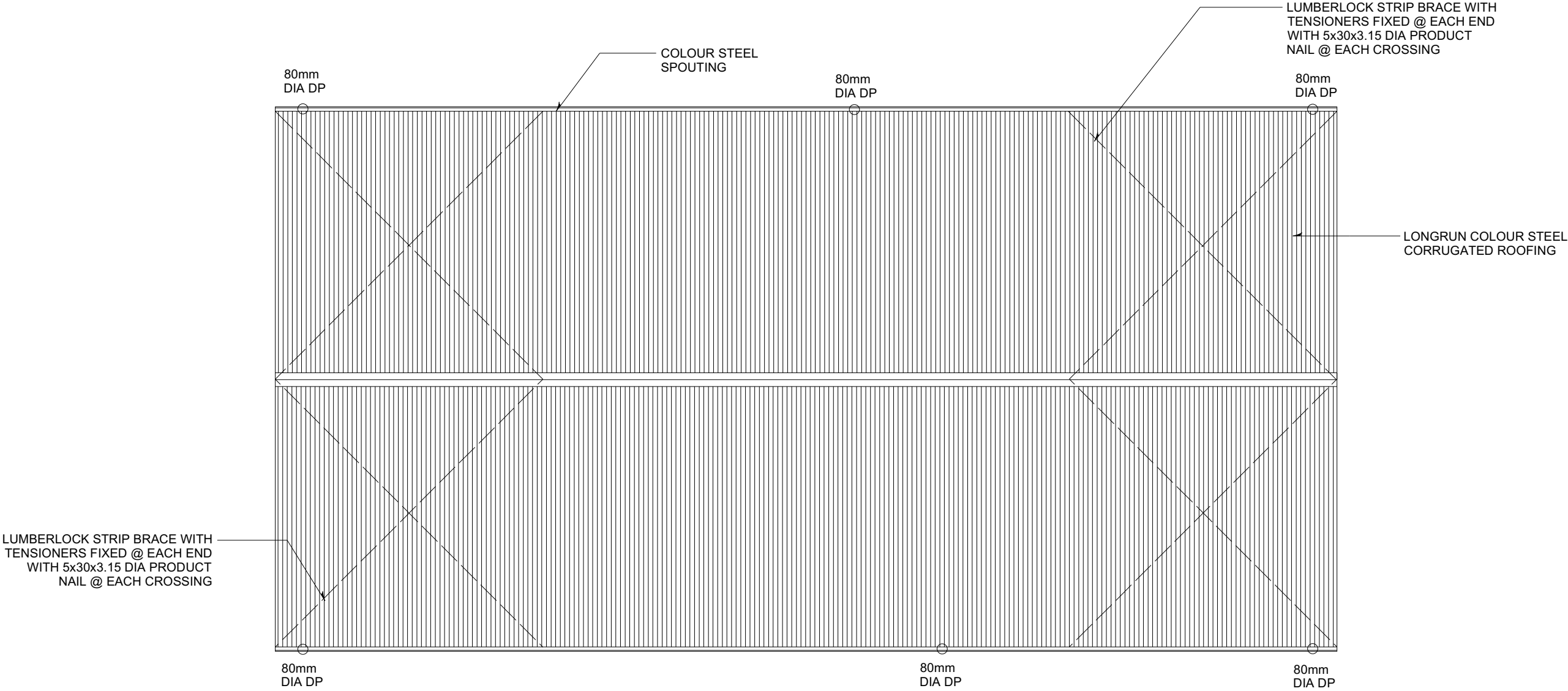


NORTH ELEVATION



SOUTH ELEVATION

DRAWINGS PROVIDED BY:  	Client Details : J HANSON & D LIGHTFOOT Address: 9 GOLF VUE PLACE, WANGANUI	Drawing Title: ELEVATIONS							Sheet # 9	 BP114150
		Drawn: David Coker	Date:	26/02/2020	Wind Region	A	Wind Zone	HIGH	Scale: 1:100	
		Checked: David Coker	Variation #	RFI 1	Earthquake Zone	2	Exposure Zone	D		
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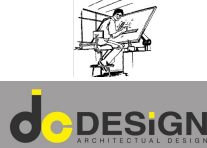
Roof: Pre-Fabricated trusses @ 17 degree pitch H1.2 @ 900mm ctrs
& Thermakraft 215 self supporting underlay laid horizontally with min 150mm lap.
with 50x40 H1.2 Roof Tile battens fixed to manufacturers instructions.

Metal Colour Tile roofing fixed with compatible roofing nails & sealed washers,
by qualified persons with flashings as required to all junctions- flashings fixed
with compatible roofing Nails & sealing washers.
E2/AS1 8.3.7 Fixing Pressed metal tiles

Fixing shall :
a) Be 50x2.8mm hot-dipped galvanized painted flat-head annular-grooved
nails. For fixings through the top of the tiles, use neoprene washers containing
no more than 15% by weight carbon black content, with

b) Four fixings per sheet through:
1) the turn-down of the tiles for the body of the roof, and
2) the top of the profile slope for sheets at the eaves, avoiding the
weather channel of the tiles.

Flashings
The roof shall be flashed at all boundaries except at the discharge to gutter

DRAWINGS PROVIDED BY: 	Client Details : J HANSON & D LIGHTFOOT Address: 9 GOLF VUE PLACE, WANGANUI	Drawing Title: ROOF ELEVATION						Sheet # 10
		Drawn: David Coker	Date: 26/02/2020	Wind Region	A	Wind Zone	HIGH	Scale: 1:100
		Checked: David Coker	Variation # RFI 1	Earthquake Zone	2	Exposure Zone	D	
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BP114150

FOUNDATION & SLAB
100mm thick concrete slab, SE62 500E reinforcing mesh, min 225 mm lap on 0.25 polythene
Concrete strength to be 25 Mpa after 28 days
75mm 20mm round stone to cover hardfill to ensure the vapour barrier is protected from any granular protrusions
Malthoid DPC underlay under all bottom plates, overlapping timber by min 6mm.

External walls (SG8 H1.2)
90x45 H1.2 SG8 frame @ 400mm ctrs & 2 rows of dwangs +140x35 H1.2 top plate packer to frames that have trusses set on top.
& 2 rows of Dwang .

MARSHALL WATERPROOFING: Tekton building wrap to all exterior frames, including gable ends.
Standard 10mm gib to all walls Fixed to comply with the latest Winstone Gib Manual - level 4 finish.

BOTTOM PLATE FIXING: External walls to comply with NZS 3604; 2011
M12x 135mm Galv Thru Bolts @ no more than 900mm ctrs & no more than 150mm from any opening,

70 SERIES BRICK.colour to be owners choice:
Brick cavity to be 50mm a clean cavity free of mortar bridging the gap is essential to preventing moisture transference.
VENT & WEEP HOLES: the requirement for weep holes along the bottom coarse of bricks is 1/75x10mm weep hole every 800mm. The weep hole requirement also applies across the head of doors, windows & openings. Ventilation at the top of the veneer is required to ensure good circulation, vent size & spacing to be the same as the bottom.
BRICK TIES: Ties to be fixed to framing with 35mmx12g screws, The tie must be at least half way across the width of the brick but also a min cover of 15mm over the end of the tie. Tie must be in stalled with a 5 degree slop down from frame.
Bottom brick tie are to be within 300mm of the base of the veneer or 2 courses whichever is the smaller. Tie to be fixed to studs only @ no more than 600mm ctrs horizontally , 400mm ctrs vertically & no more than 200mm from openings.
Brick rebate to be 120mm wide & 90mm deep.
Brick sills are to have a min slope of 15 degrees:
LINTEL BARS: Lintel bar seating into adjacent veneer of: 100mm for spans up to & including 2 mtrs, 200mm for spans over 2 mtrs. REFER to table 18D corrosion protection to lintel E2/AS1. Lintel bars size refer to Table 18E E2/AS1.

EXTERNAL JOINERY: Aluminium joinery to comply with NZBC: E2/AS1:
20mm primed jambs suitable for architraves. Approved window seal tape to all openings.
Glazing to comply with NZS:4223. 3: 2016 & amendments.

INTERNAL WALL: (SG8 H1.2) 90x45 H1.2 frames with 140x35 top plate packer studs @ 600mm ctrs 2 rows of dwangs. Standard 10mm gib throughout except for wet areas to be Aqua line gib. Bottom plate fixing: Ramset HD875 driven pin + washer (or equivalent) @ 600mm ctrs.

Wet Areas: Floor finish Bathroom -WC- Laundry- Kitchen
Non-Slip Vinyl over sealed floor. Min slip resistance Co-efficient for level surface between 0.25-0.50 acceptable with NZBC: D1/1 AS1 Access.
Waterproof seal Tiles to edge of painted skirting, contractor to comply with NZBC: E3/AS1.

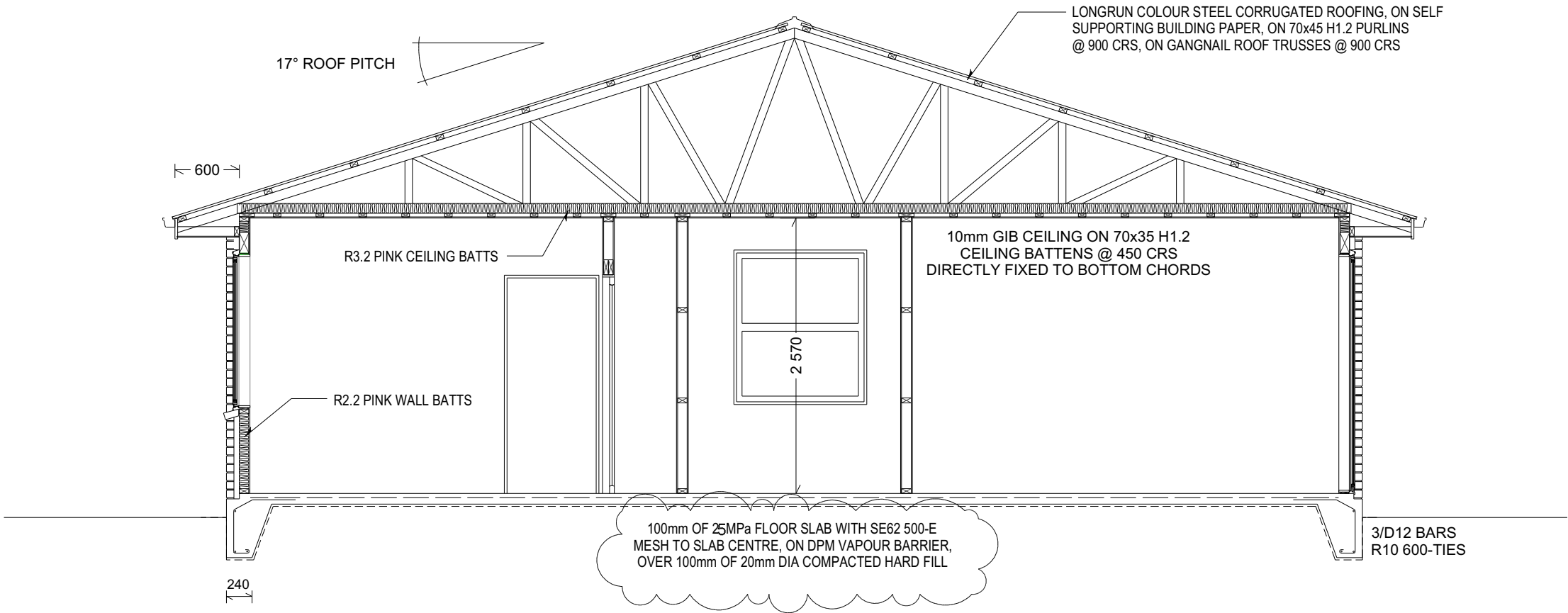
Ceiling: 70x35 H1.2 ceiling battens nailed to trusses @ 450mm ctrs. Ensure battens are straight prior to lining. Fix 10mm std Gib linings with 32mmx6g gib grabber screws @ 600mm ctrs. Glue daubs to be min of 200mm from centre screw. Do not screw where you glue. 32mm x6g Gib grabber screws @ 200mm ctrs around the perimeter. Gib stopping level 4 paint finish. 1/850mm sq ceiling access to roof space.

Insulation: R3.6 insulation to all ceilings Maintain 25mm air gap clearance between the insulation & roof underlay.
R2.4 insulation to all exterior wall cavities friction fitted.

Soffits: 4.5mm Hardiflex soffit lining fixed to underside of truss top cord & rafter extensions. Refer roof plan for eaves widths.
Colour Steel Fascia with continuous colour steel spouting & PVC down pipes 80mm

Roof: Pre-Fabricated trusses @ 17 degree pitch H1.2 @ 900mm ctrs with 70x45 SG8 H1.2 Purlins @ 900mm ctrs fixed to trusses with 1/80mm 10 gauge lumberlok blue Purlin screws, & Thermakraft 215 self supporting underlay laid horizontally with min 150mm lap. Lumberlok strip brace with tensioners tightened firmly across roof plane.

Longrun colour steel MAXX corrugated roofing fixed with compatible roofing nails or screws & sealed washers, by qualified persons with flashings as required to all junctions- flashings fixed with compatible roofing screws & sealing washers.
E2/AS1 8.4.8 Fixing Corrugated
Fixing shall be as shown in table 11& 12, & shall be a minimum 12-gauge screw, as shown in fig 39, which compiles with Class 4 of AS 3566: Part 2.
8.4.8.1 Fixing requirements
Fixing shall :
a) Be fixed through crests
b) Penetrate Purlins by a min of 40mm for nail fixing & 30mm for screw fixings
c) Include sealing washers of:
i) Neoprene)having a carbon black content of 15% or less by weight)
ii) Profiled washer & EPDM washer where required to allow for expansion of the profiled metal roof cladding.



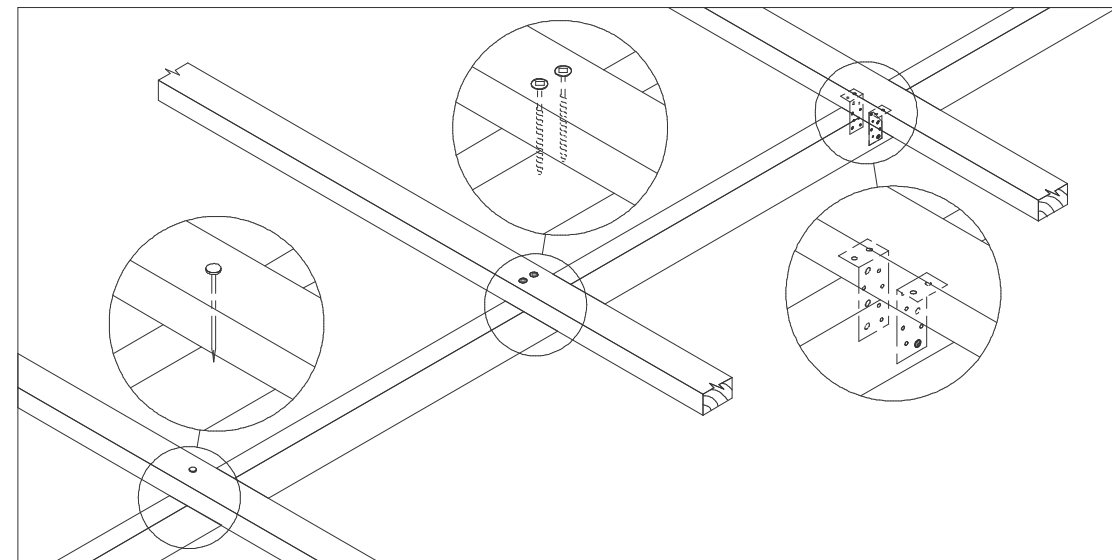
DRAWINGS PROVIDED BY:	Client Details : J HANSON & D LIGHTFOOT Address: 9 GOLF VUE PLACE, WANGANUI	Drawing Title: CROSS SECTION						Sheet # 11
		Drawn: David Coker	Date: 26/02/2020	Wind Region	A	Wind Zone	HIGH	Scale: 1:50
		Checked: David Coker	Variation # RFI 1	Earthquake Zone	2	Exposure Zone	D	
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PURLIN & BATTEN FIXING CHART

ALTERNATIVE SOLUTION TO
NZS 3604:2011 TABLES 10.10 & 10.12
NOTE:

All purlin and batten sizes are as per NZS 3604:2011.
All fixings assume that the purlin and battens are installed on their flat over the top of the rafter or truss.
The minimum fixing requirements apply to all purlin locations within the roof area.
The LUMBERLOK BLUE SCREW where specified requires a minimum of 30mm penetration into rafter or truss i.e. it is suitable for rough sawn timber up to 50mm thick at 18% moisture content.



SELECTION CHART FIXING OPTIONS

(minimum fixing requirements)

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

Wind Zone:
As per NZS 3604:2011

L = Low Wind
M = Medium Wind
H = High Wind
VH = Very High Wind
EH = Extra High Wind

STANDARD FIXING OPTIONS

FIXING TYPE A
0.55kN

1 NAIL

Note: Two nails maybe preferred to prevent batten rolling over with high roof pitches.

FIXING TYPE B
0.8kN

2 NAILS

FIXING TYPE C
2.4kN

1 BLUE SCREW

FIXING TYPE D
3.45kN

2 BLUE SCREWS
OR
2 SKEW NAILS plus 2 WIRE DOGS (for purlin on edge)

FIXING TYPE E
5.5kN

2 NAILS plus 1 CT200
OR
1 PAIR of CPC40

FIXING DEFINITIONS

NAIL = Either 90mm x 3.15 dia. power-driven nail or 100mm x 3.75 dia. hand-driven nail

BLUE SCREW = 80mm x 10 gauge LUMBERLOK BLUE SCREW

WIRE DOG = LUMBERLOK WIRE DOG either LH or RH

CT200 = LUMBERLOK Ceiling Tie CT200 bend over purlin, 4 x LUMBERLOK Product Nails 30mm x 3.15 dia. each end

CPC40 = 2 x Type 17- 14g x 35mmHex Head Screws per flange

FIXING TOLERANCES
LUMBERLOK BLUE SCREW

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

PURLIN / BATTEN SPLICE
FIXING OPTIONS

FIXING TYPE A & B OVER PURLIN SPLICE

NOTE:
Skew nail when fixing to 35mm rafter or truss

FIXING TYPE C, D or E OVER PURLIN SPLICE

90 x 35mm block fixed to chord or rafter with 4 x 75mm nails

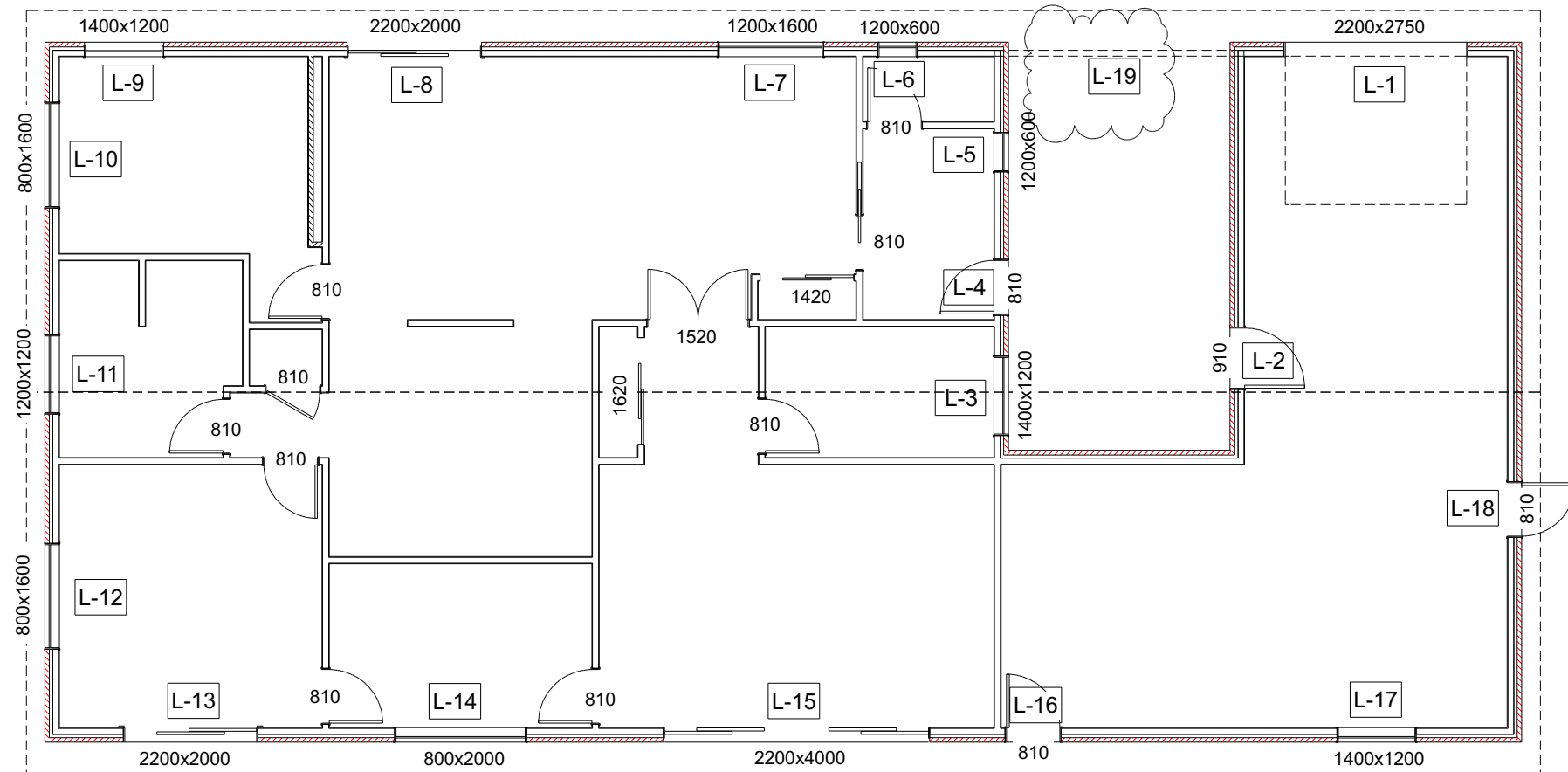
TYPE C
1 SCREW to each purlin

TYPE D & E
1 NAIL plus 1 SCREW to each purlin

NOTE

- 1) TRUSS DESIGN TAKES PRECEDENCE OF LINTEL SIZES SHOWN IF DIFFERENT
2) WINDOW MANUFACTURER IS TO SITE MEASURE BEFORE MANUFACTURE

LINTEL	SIZE	SIZE
	TIMBER	ANGLE BAR AT MASONRY
L1	290 x 90 SG8	80 x 80 x 6 L
L2	90 x 90 SG8	60 x 60 x 6 L
L3	90 x 90 SG8	60 x 60 x 6 L
L4	90 x 90 SG8	60 x 60 x 6 L
L5	90 x 90 SG8	60 x 60 x 6 L
L6	90 x 90 SG8	60 x 60 x 6 L
L7	190 x 90 SG8	60 x 60 x 6 L
L8	240 x 90 SG8	60 x 60 x 6 L
L9	190 x 90 SG8	60 x 60 x 6 L
L10	140 x 90 SG8	60 x 60 x 6 L
L11	90 x 90 SG8	60 x 60 x 6 L
L12	140 x 90 SG8	60 x 60 x 6 L
L13	240 x 90 SG8	60 x 60 x 6 L
L14	240 x 90 SG8	60 x 60 x 6 L
L15	300x90 Hyone	125 x 75 x 6 L
L16	90 x 90 SG8	60 x 60 x 6 L
L17	190 x 90 SG8	60 x 60 x 6 L
L18	90 x 90 SG8	60 x 60 x 6 L
L19	300x90 Hyone	



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DRAWINGS PROVIDED BY:  	Client Details : J HANSON & D LIGHTFOOT Address: 9 GOLF VUE PLACE, WANGANUI	Drawing Title: LINTEL & DOOR SIZES							Sheet # 13	 BP1141510
		Drawn: David Coker	Date: 26/02/2020	Wind Region A	Wind Zone HIGH	Scale: 1:100				
		Checked: David Coker	Variation # RFI 1	Earthquake Zone 2	Exposure Zone D					
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LINTEL FIXING SCHEDULE

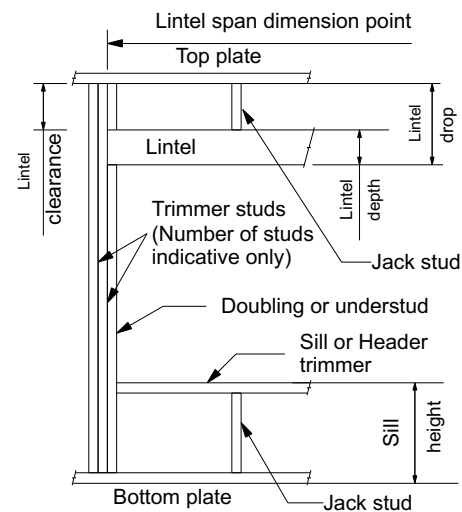
ALTERNATIVE TO TABLE 8.14 & FIGURE 8.12

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 Wind Zone				Heavy Roof Wind Zone			
	L	M	H	VH	L	M	H	VH
8.6 m ²	G	G	H	H	G	G	H	H
11.6 m ²	G	H	H	H	G	G	H	H
12.1 m ²	G	H	H	H	G	G	H	H
15.3 m ²	H	H	-	-	G	H	H	H
19.1 m ²	H	-	-	-	G	H	-	-
20.9 m ²	H	-	-	-	H	H	-	-
21.8 m ²	H	-	-	-	H	-	-	-
34.3 m ²	-	-	-	-	H	-	-	-

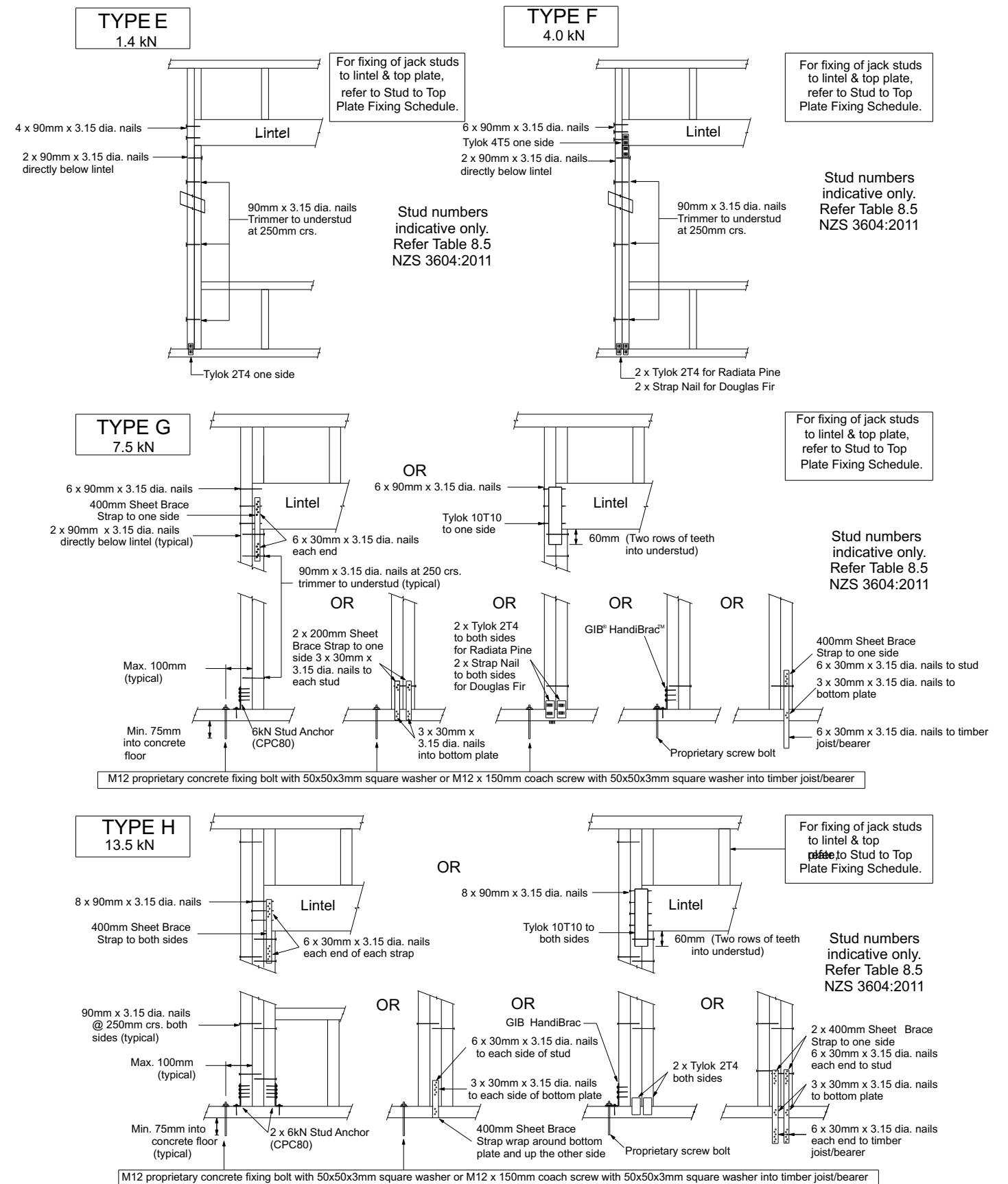
Notes:

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

SELECTION CHART FOR LINTEL FIXING

Lintel Span	Loaded Dimension (See Fig. 1.3 NZS 3604:2011)	Light Roof 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	F	F	F	F
	6.0	E	F	F	G	G	E	F	F	F	G
0.9	2.0	E	E	E	F	F	E	E	E	E	F
	3.0	E	E	F	F	F	E	E	E	F	F
	4.0	E	E	F	F	F	E	E	F	F	F
	5.0	E	F	F	F	G	E	F	F	F	F
	6.0	E	F	F	G	G	E	F	F	F	G
1.0	2.0	E	E	E	F	F	E	E	E	E	F
	3.0	E	E	F	F	F	E	E	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	F	G	H	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	-	-
4.8	2.0	F	F	G	H	H	E	E	F	G	H
	3.0	F	G	H	H	-	E	F	G	H	H
	3.2	F	G	H	H	-	E	F	G	H	-
	4.0	F	G	H	-	-	E	F	H	H	-
	5.0	G	H	-	-	-	E	F	H	-	-
	6.0	G	H	-	-	-	E	F	H	-	-

LINTEL FIXING OPTIONS



DRAWINGS PROVIDED BY:


d c DESIGN
ARCHITECTURAL

Client Details :

J HANSON & D LIGHTFOOT

Address:

9 GOLF VUE PLACE, WANGANUI

Drawing Title:

LINTEL & FIXING DETAILS

Drawn: David Coker

Date:

26/02/2020

Checked: David Coker

Variation #

RFI 1

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Wind Region

A

Earthquake Zone

2

D C Design
144 Westmere Station Road
RD1 Wanganui

Sheet # 14

Scale: N.T.S

P: 06 348 0422
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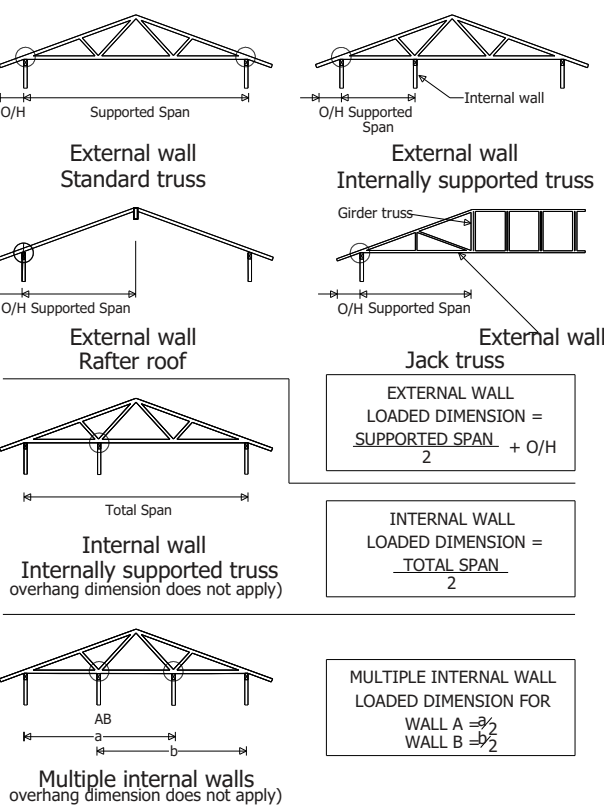
STUD TO TOP PLATE FIXING SCHEDULE

ALTERNATIVE TO TABLE 8.18 NZS 3604:2011

NOTE:

- ☆ All fixings are designed to resist 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 lateral loads.
- ☆ These fixings assume the correct choice of rafter/truss to top plate connections have been made.
- ☆ Gable end wall top plate/stud connections where the adjacent rafter/truss is located within 1200mm of gable end wall with a maximum verge overhang of 750mm, requires fixing type A as shown below.
- ☆ All fixings assume top plate thickness of 45mm maximum.
- ☆ Wall framing arrangements under girder trusses are not covered in this schedule.
- ☆ All timber selections are as per NZS 3604:2011.

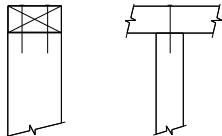
LOADED DIMENSION DEFINITION



FIXING OPTIONS

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

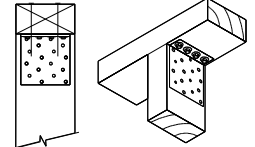
FIXING TYPE
A 0.7 kN



FIXING TYPE
B 4.7 kN

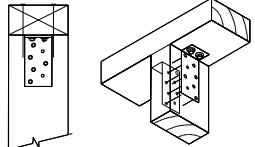
CHOOSE ANY OF THE 3 OPTIONS BELOW

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



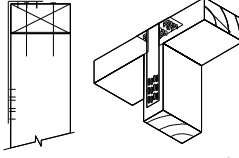
Plus LUMBERLOK 6kN Stud Anchor (CPC80)

Recommended for internal wall options to avoid lining issues



Plus 2 x LUMBERLOK CPC40

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



Plus LUMBERLOK Stud Strap one face only)

8. WALLS

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

TOP PLATE JOINTING

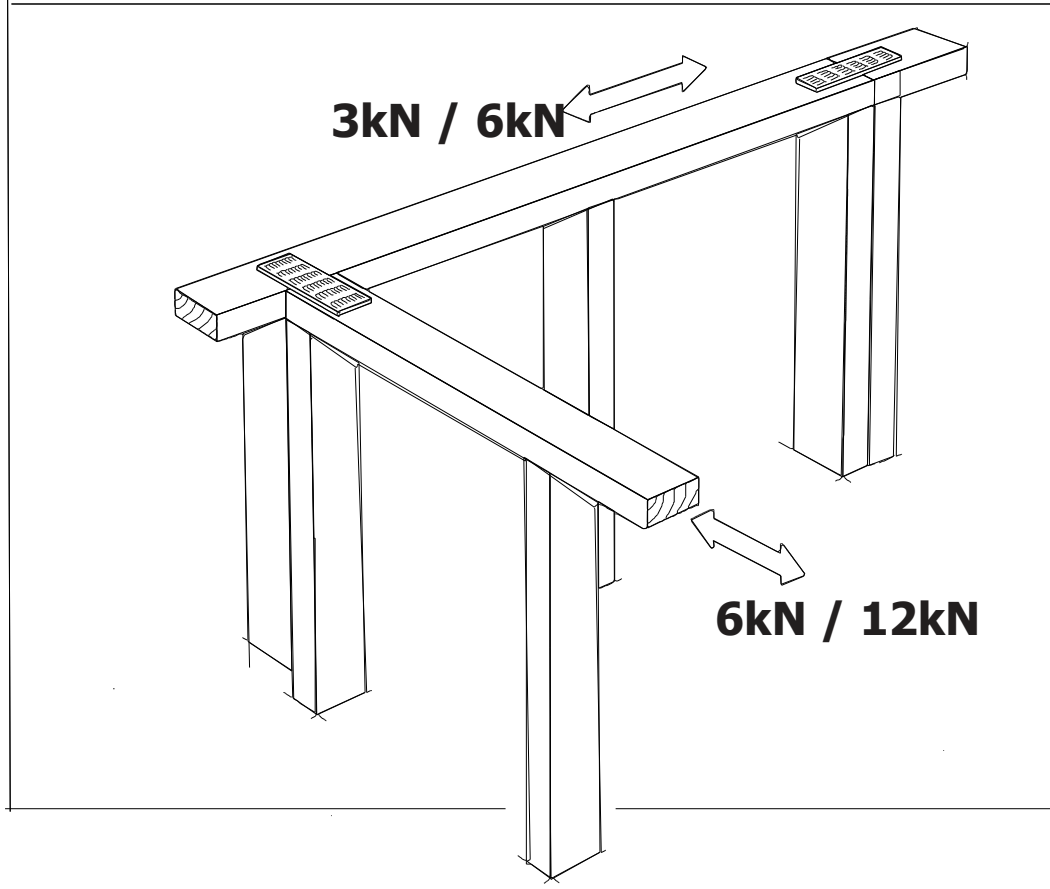
AS PER CLAUSE 8.7.3 NZS 3604:2011

Top Plates at Right Angles

Connection capacity	LUMBERLOK Connector
6 kN	Tylok 6T10 OR 2 x Strap Nails
12 kN	2 x Sheet Brace Straps fixed with 6 x LUMBERLOK Product Nails 30mm x 3.15 dia. per end per strap (4 nails total)

Top Plates in Line

Connection capacity	LUMBERLOK Connector
3 kN	Tylok 6T5 OR Strap Nail
6 kN	Tylok 6T10 OR 2 x Strap Nails



FIXING SELECTION CHART

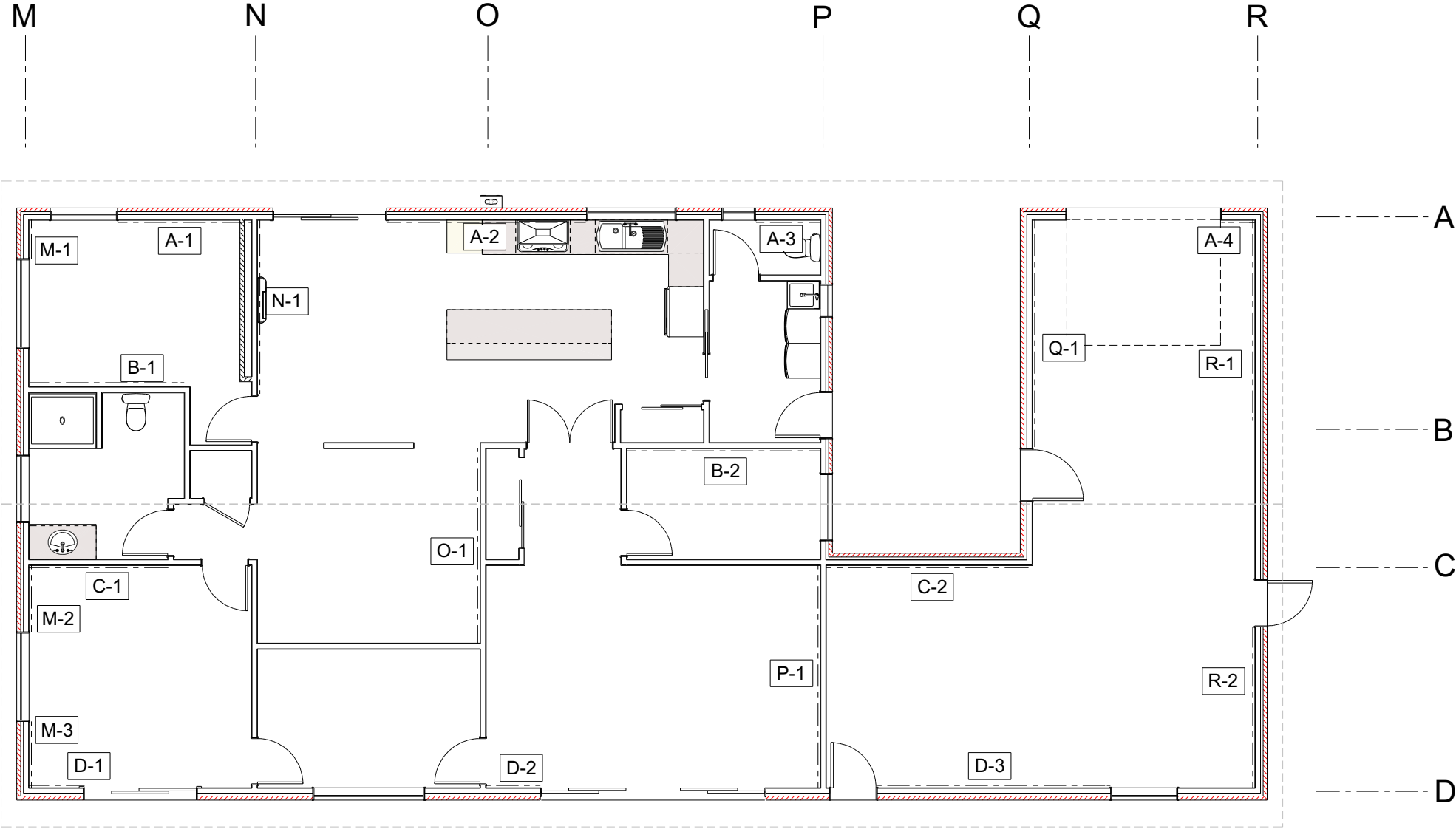
Suitable for walls supporting roof members at 600, 900 or 1200mm crs.)

Wind Zones L, M, H, VH, EH, as per NZS 3604:2011

Loaded Dimension (m)			Light Roof Wind Zone					Heavy Roof Wind Zone				
300mm	400mm	600mm	L	M	H	VH	EH	L	M	H	VH	EH
3.0	2.3	1.5	A	A	B	B	B	A	A	B	B	
4.0	3.0	2.0	A	A	B	B	B	A	A	B	B	
5.0	3.8	2.5	A	B	B	B	B	A	A	B	B	
6.0	4.5	3.0	A	B	B	B	B	A	A	B	B	
7.0	5.3	3.5	A	B	B	B	B	A	A	B	B	
8.0	6.0	4.0	A	B	B	B	B	A	A	B	B	
9.0	6.8	4.5	B	B	B	B	B	A	A	B	B	
10.0	7.5	5.0	B	B	B	B	B	A	A	B	B	
11.0	8.3	5.5	B	B	B	B	B	A	A	B	B	
12.0	9.0	6.0	B	B	B	B	B	A	A	B	B	

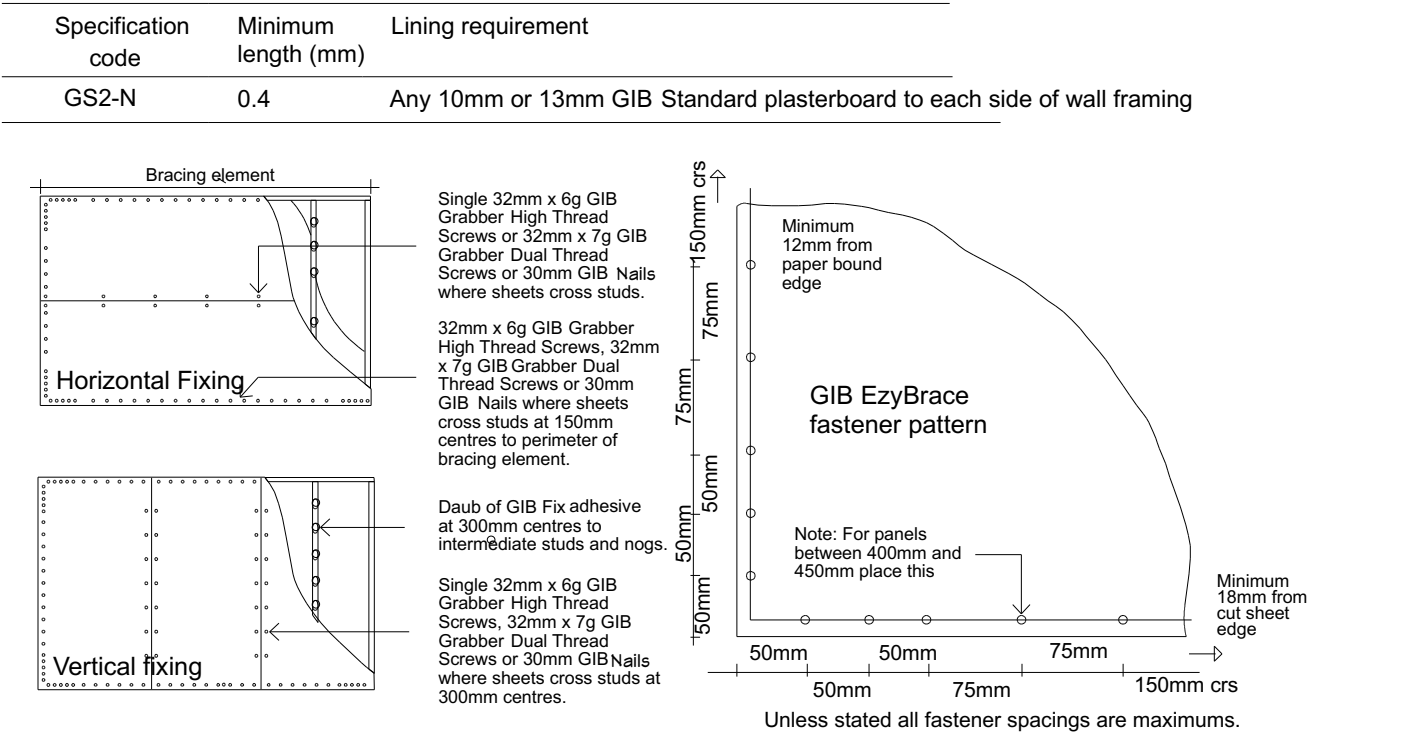
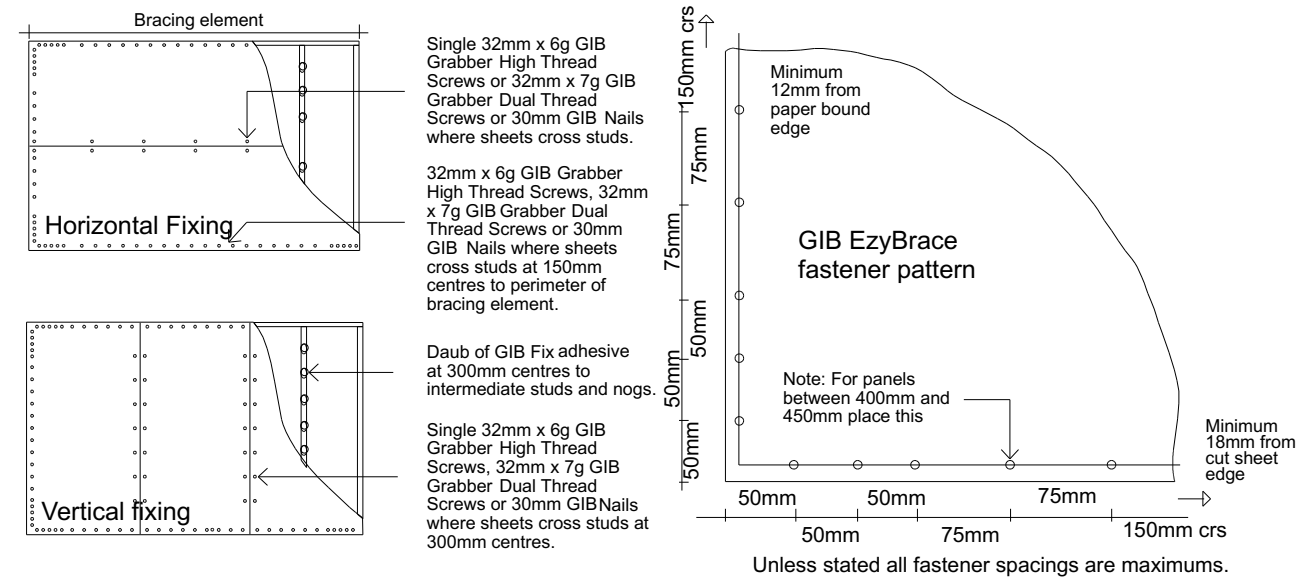
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Bracing Element	Stud Height (mm)	Length (mm)	Type
Along			
	2550		
A1		2400	GS1-N
A2		3600	GS1-N
A3		1100	GS1-N
A4		600	EP1
B1		2700	GS1-N
B2		3400	GS2-N
C1		2500	GS2-N
C2		1200	EP1
D1		1000	GS1-N
D2		900	GS1-N
D3		2400	EP1
Bracing Element	Stud Height (mm)	Length (mm)	Type
Across			
	2550		
M1		700	GS1-N
M2		1200	GS1-N
M3		1200	GS1-N
N1		3100	GS2-N
O1		3500	GS2-N
P1		4000	GS1-N
Q1		2400	EP1
R1		1200	EP1
R2		21200	EP1



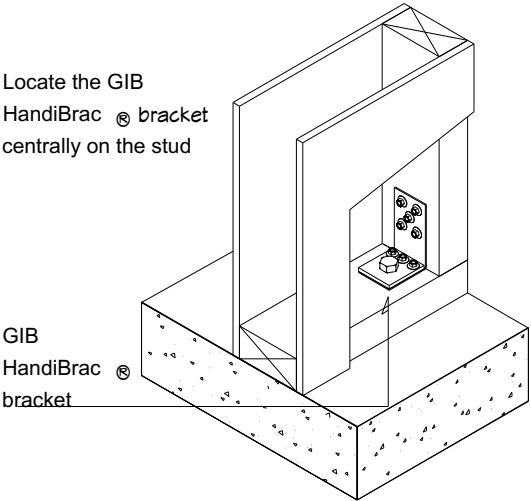
RECEIVED 13/03/2020

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

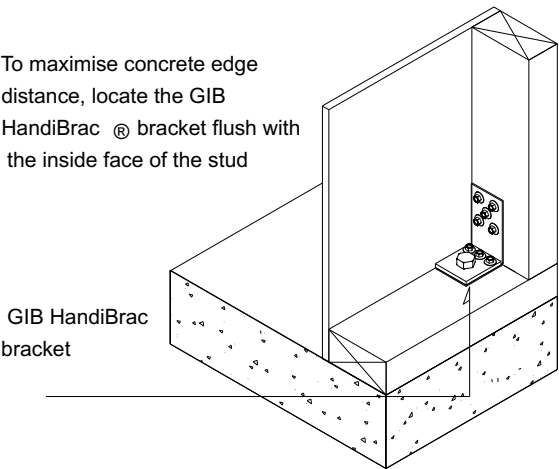


Panel Hold-down Details

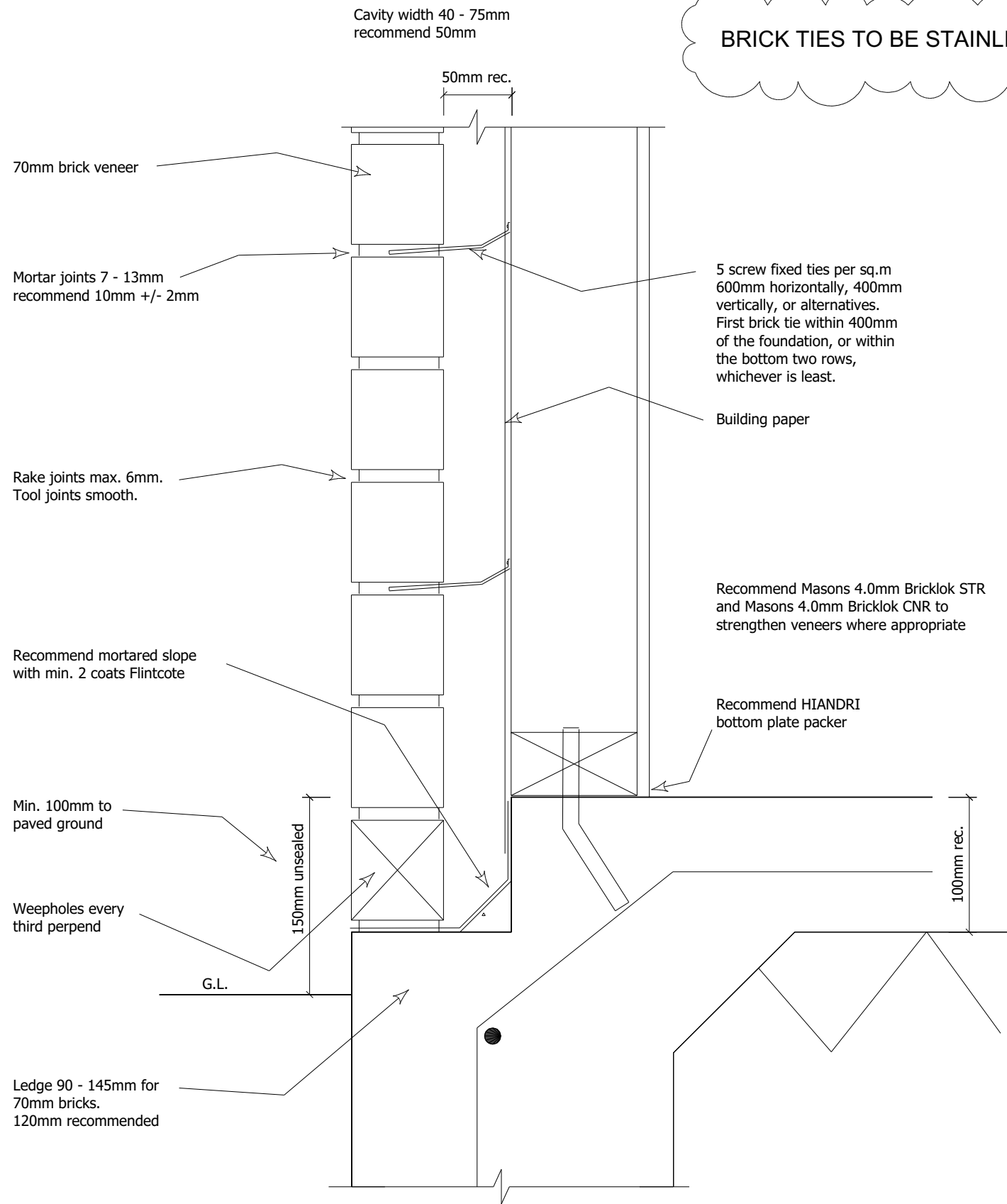
Concrete Floor - Internal Wall
The bottom plate at both ends of the bracing element is fixed using a fastener with a proprietary fixing with a minimum characteristic uplift strength of 15 kN. If included in pack see overleaf instruction to install BOWMAC screw bolt.



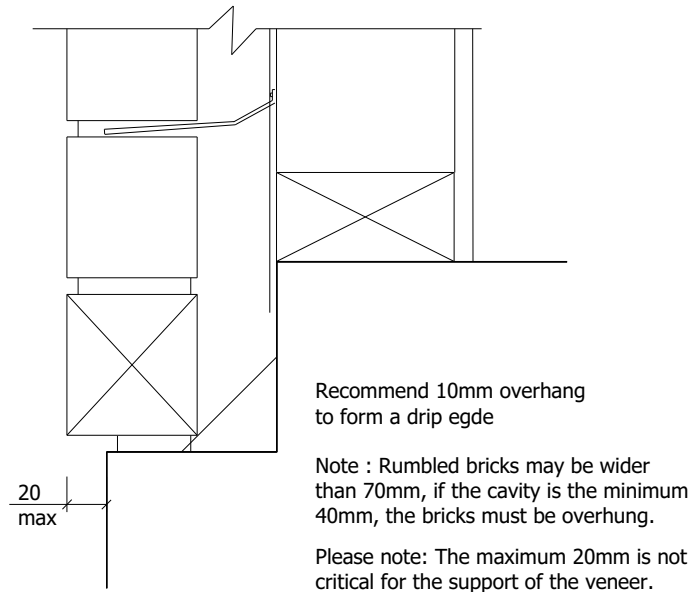
Concrete Floor - External Wall
The bottom plate at both ends of the bracing element is fixed using a fastener with a proprietary fixing with a minimum characteristic uplift strength of 15 kN. If included in pack see overleaf instruction to install BOWMAC screw bolt.



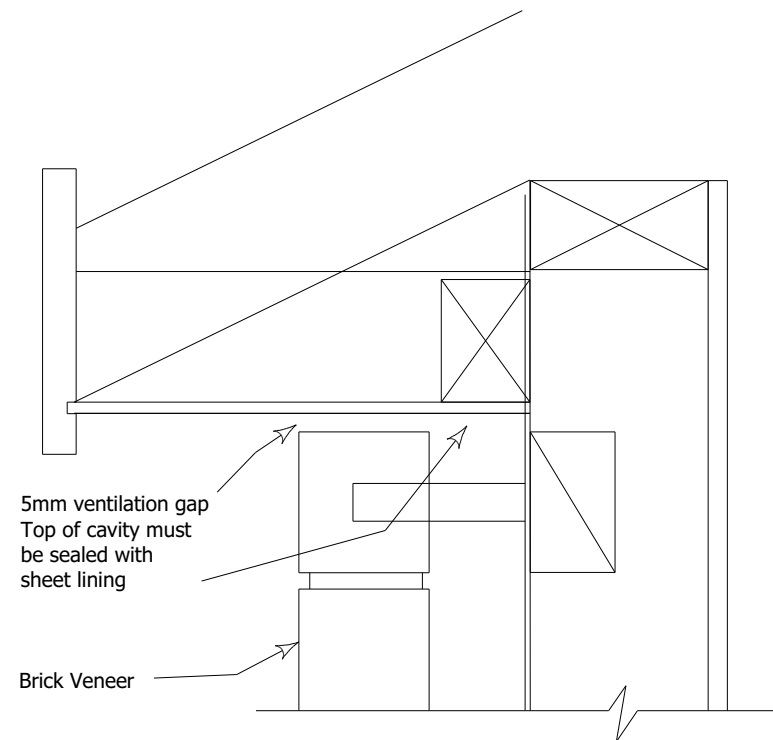
BRICK TIES TO BE STAINLESS STEEL & THERE FIXINGS



STANDARD BRICK VENEER



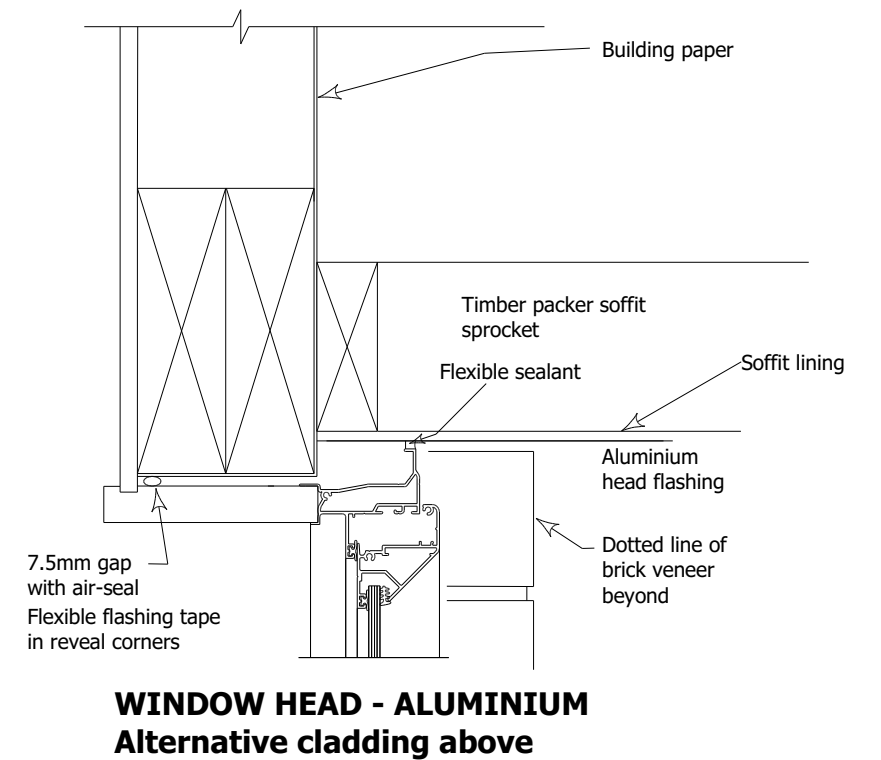
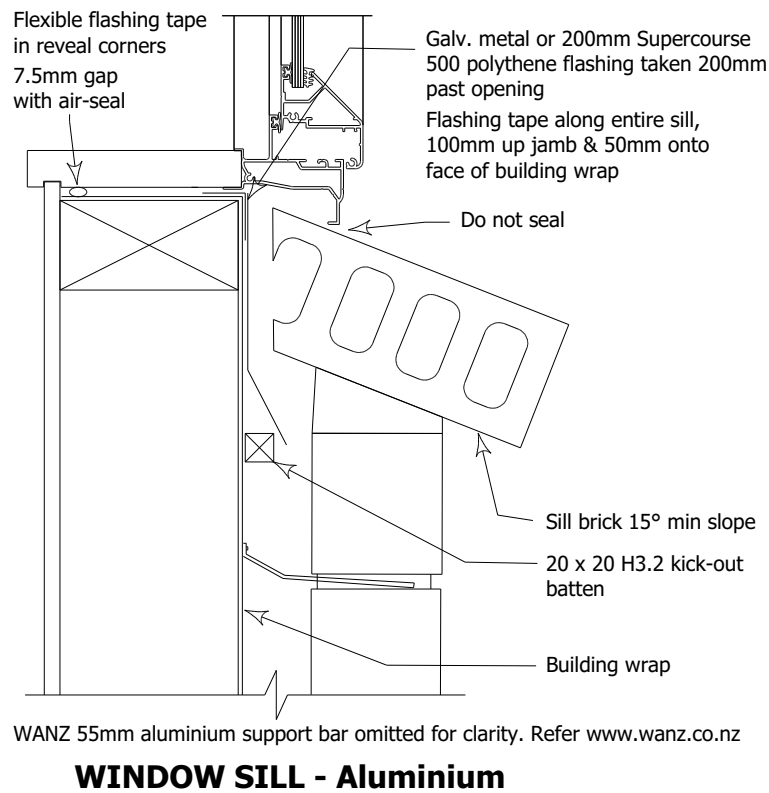
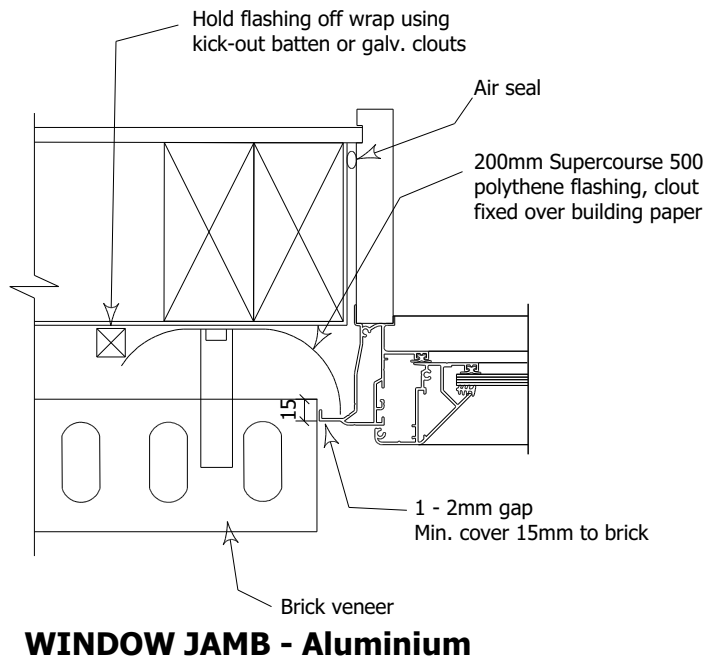
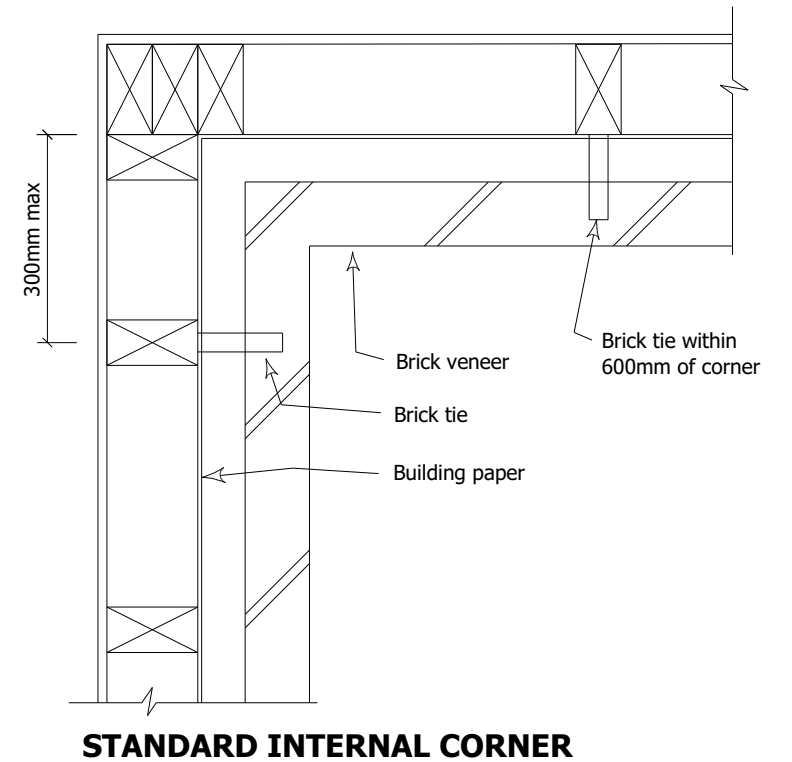
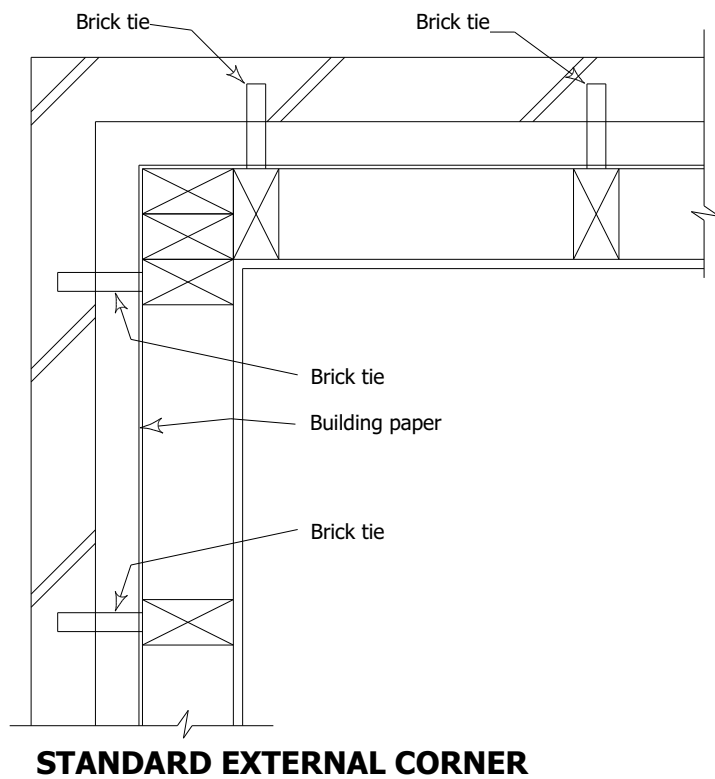
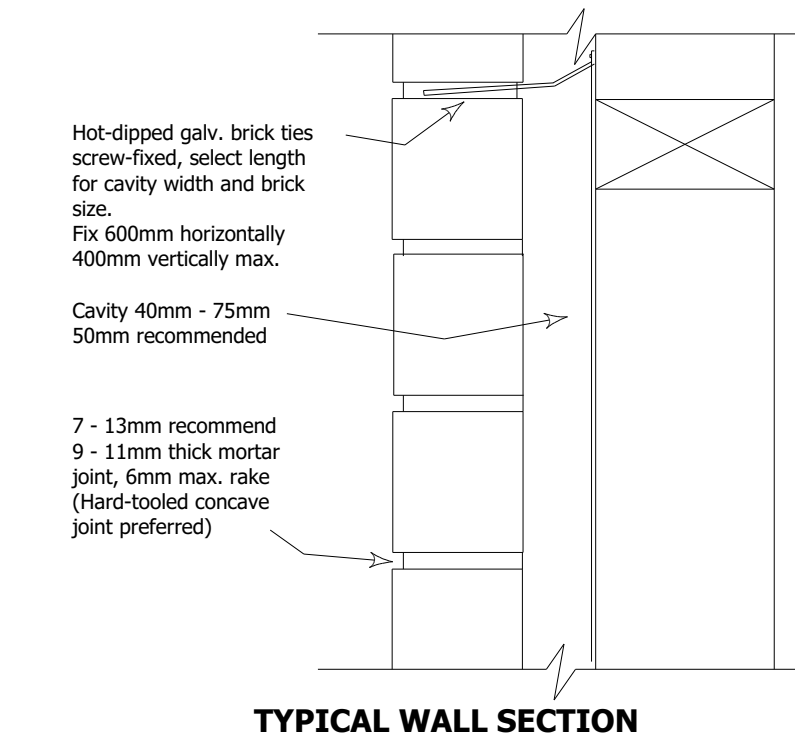
OVERHANGING BRICK VENEER



FLAT SOFFIT

DRAWINGS PROVIDED BY: 	Client Details : J HANSON & D LIGHTFOOT Address: 9 GOLF VUE PLACE, WANGANUI	Drawing Title: BRICK DETAIL								Sheet # 18
		Drawn: David Coker		Date:	26/02/2020	Wind Region	A	Wind Zone	HIGH	Scale: N.T.S
		Checked: David Coker		Variation #	RFI 1	Earthquake Zone	2	Exposure Zone	D	
		COPYRIGHT: This plan remains the property of D C Design and is provided for the use as described above and may not be used or reproduced in whole or in part without written permission				D C Design 144 Westmere Station Road RD1 Wanganui			P: 06 348 0422 M: 027 936 2169 E: coker.d.l.e@xtra.co.nz	

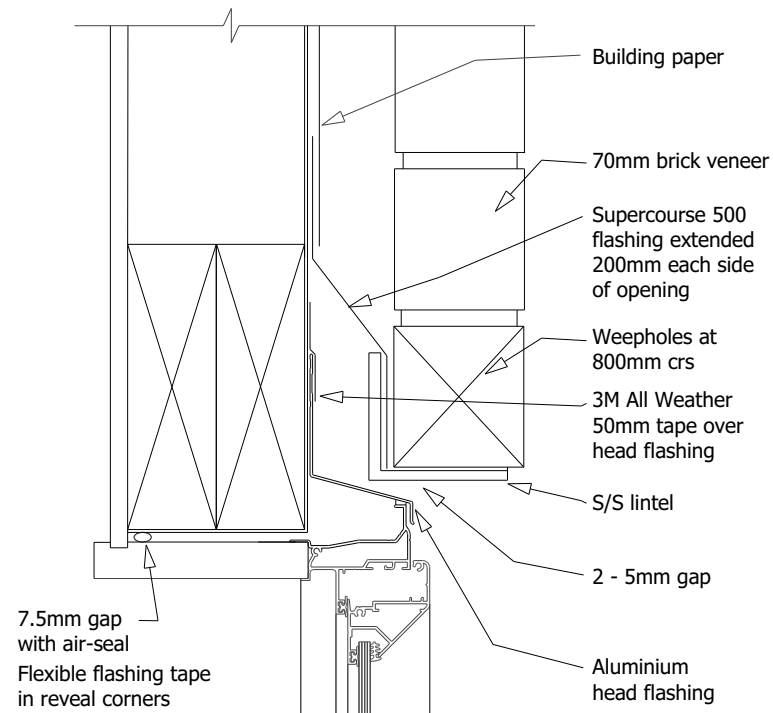

BP114150



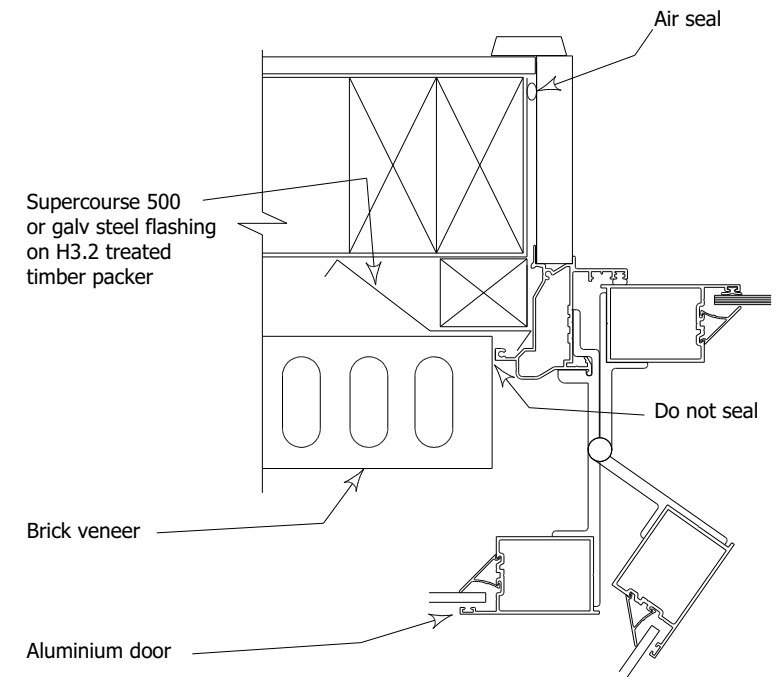
DRAWINGS PROVIDED BY: 	Client Details : J HANSON & D LIGHTFOOT Address: 9 GOLF VUE PLACE, WANGANUI	Drawing Title: BRICK DETAIL								Sheet # 19
			Drawn: David Coker	Date: 26/02/2020	Wind Region	A	Wind Zone	HIGH	Scale: N.T.S	
			Checked: David Coker	Variation # RFI 1	Earthquake Zone	2	Exposure Zone	D		
			COPYRIGHT: This plan remains the property of D C Design and is provided for the use as described above and may not be used or reproduced in whole or in part without written permission			D C Design 144 Westmere Station Road RD1 Wanganui			P: 06 348 0422 M: 027 936 2169 E: coker.d.l.e@xtra.co.nz	



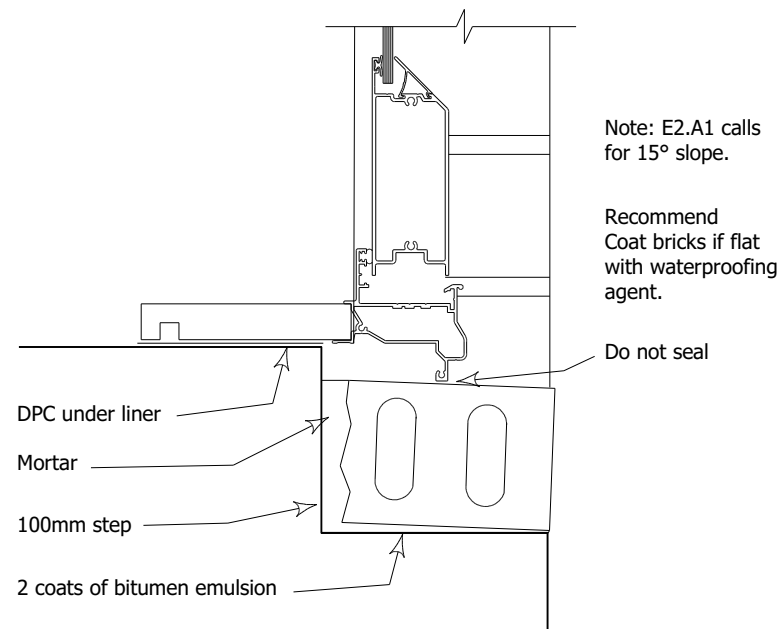
BP114150



WINDOW HEAD - Aluminium



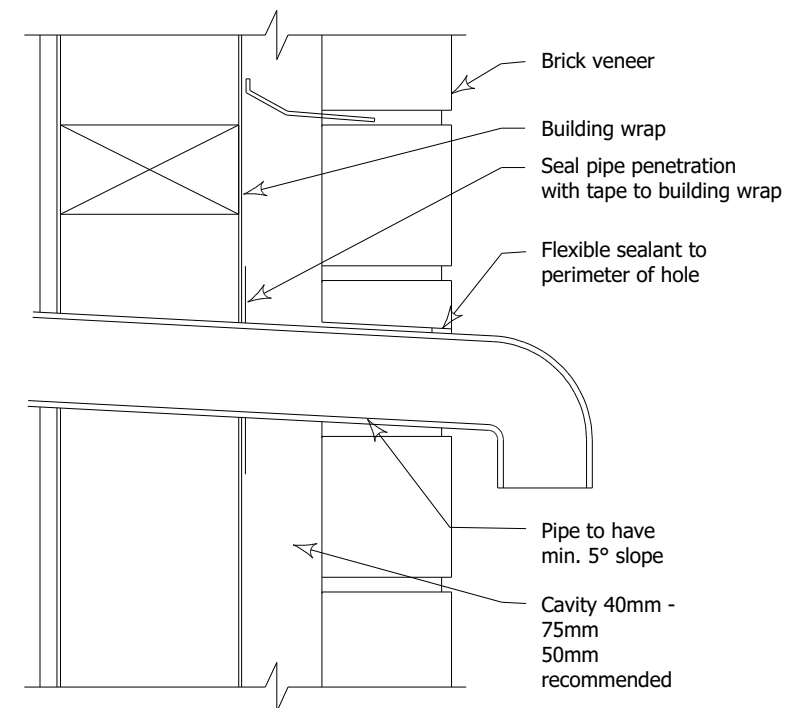
DOOR JAMB - Aluminium



Note: If brick is to be sloped further either increase the depth of the step or reduce the thickness of brick.

WANZ 55mm aluminium support bar omitted for clarity. Refer www.wanz.co.nz

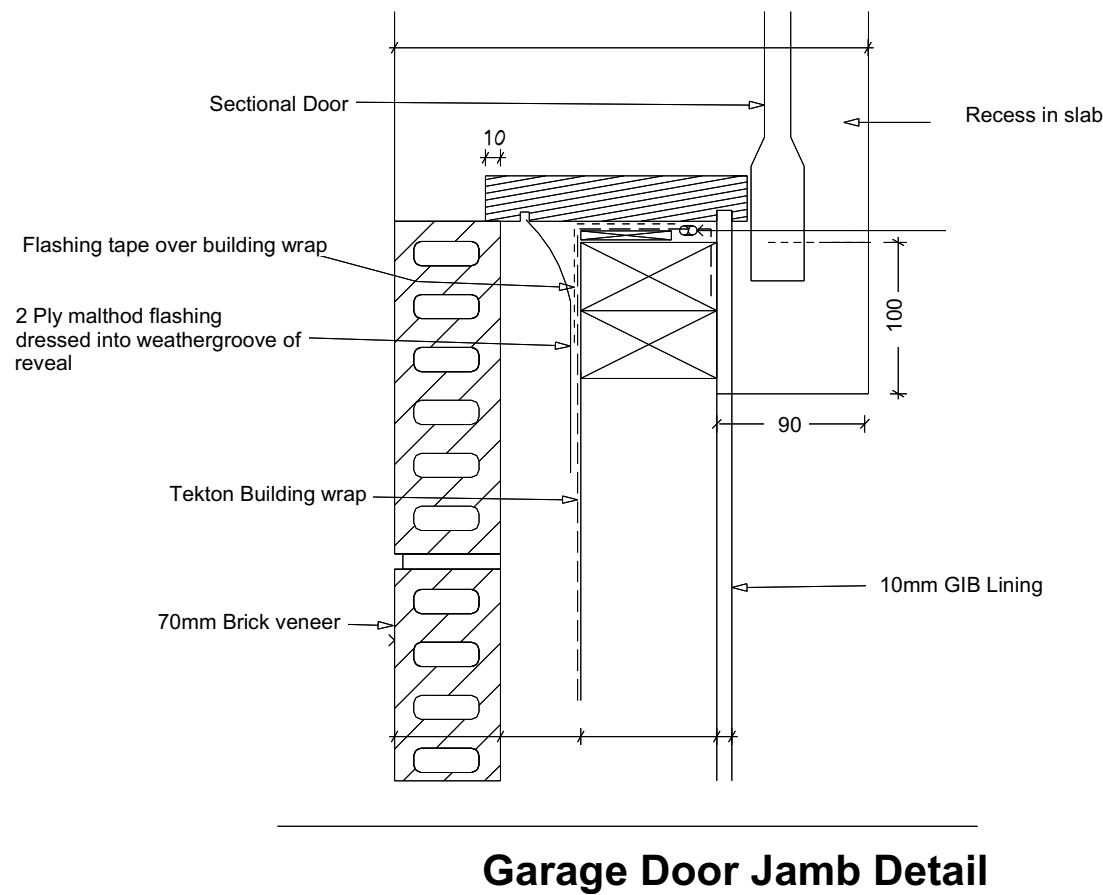
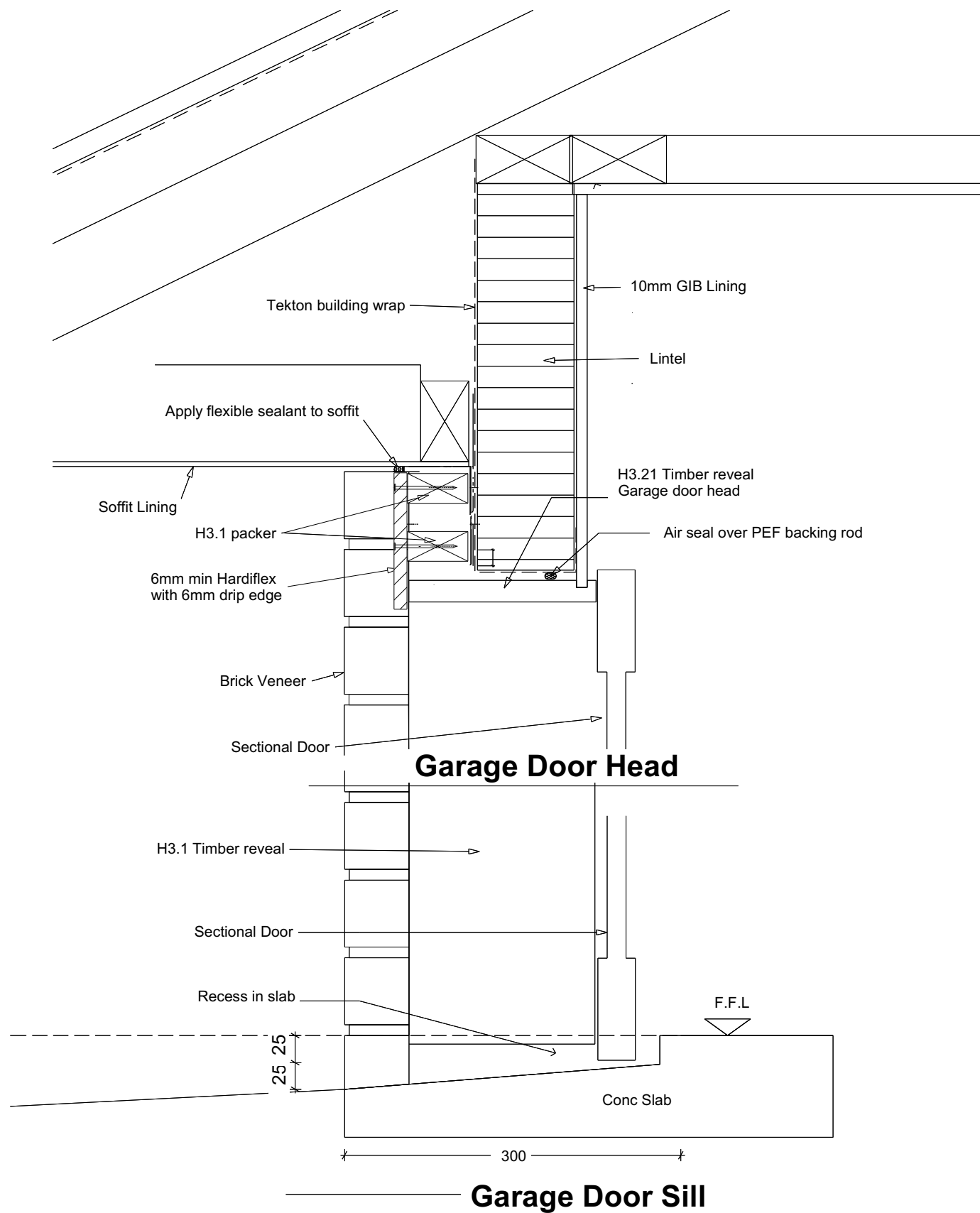
BRICK DOOR SILL



TYPICAL PIPE PENETRATION

DRAWINGS PROVIDED BY: 	Client Details : J HANSON & D LIGHTFOOT Address: 9 GOLF VUE PLACE, WANGANUI	Drawing Title: BRICK DETAILS							Sheet # 20
		Drawn: David Coker	Date:	26/02/2020	Wind Region	A	Wind Zone	HIGH	Scale: N.T.S
		Checked: David Coker	Variation #	RFI 1	Earthquake Zone	2	Exposure Zone	D	
		COPYRIGHT: This plan remains the property of D C Design and is provided for the use as described above and may not be used or reproduced in whole or in part without written permission			D C Design 144 Westmere Station Road RD1 Wanganui			P: 06 348 0422 M: 027 936 2169 E: coker.d.l.e@xtra.co.nz	

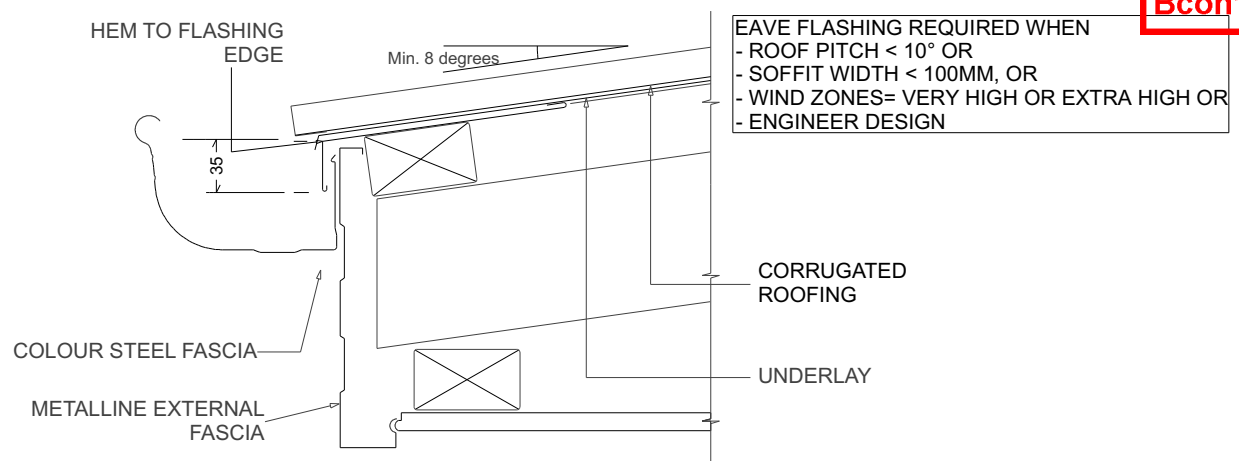

BP114150



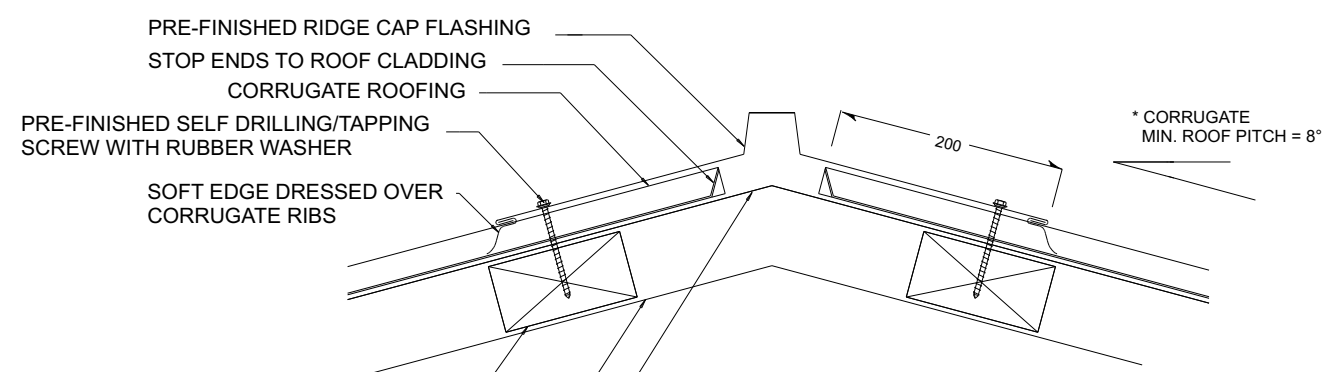
RECEIVED 12/03/2020

DRAWINGS PROVIDED BY: 	Client Details : J HANSON & D LIGHTFOOT Address: 9 GOLF VUE PLACE, WANGANUI		Drawing Title: GARAGE DOOR DETAIL						Sheet # 21
			Drawn: David Coker	Date: 26/02/2020	Wind Region	A	Wind Zone	HIGH	Scale: N.T.S
			Checked: David Coker	Variation # RFI 1	Earthquake Zone	2	Exposure Zone	D	
			COPYRIGHT: This plan remains the property of D C Design and is provided for the use as described above and may not be used or reproduced in whole or in part without written permission			D C Design 144 Westmere Station Road RD1 Wanganui			P: 06 348 0422 M: 027 936 2169 E: coker.d.l.e@xtra.co.nz


BP114150

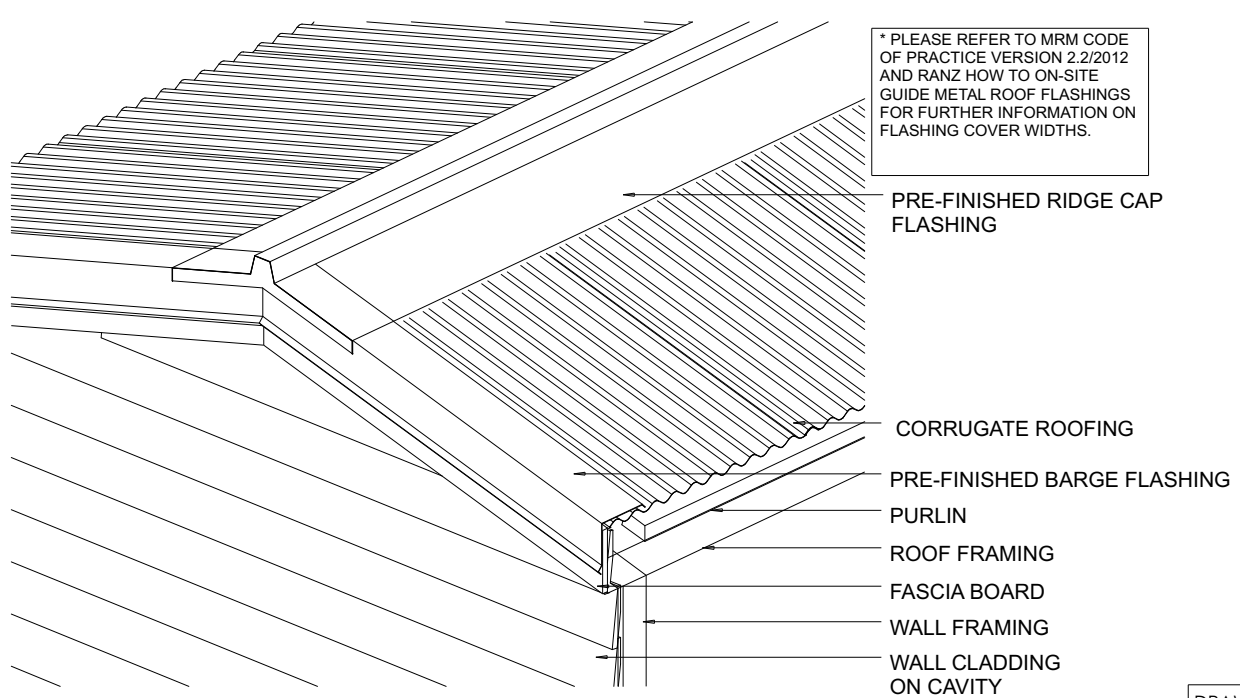


GUTTER- FASCIA DETAIL

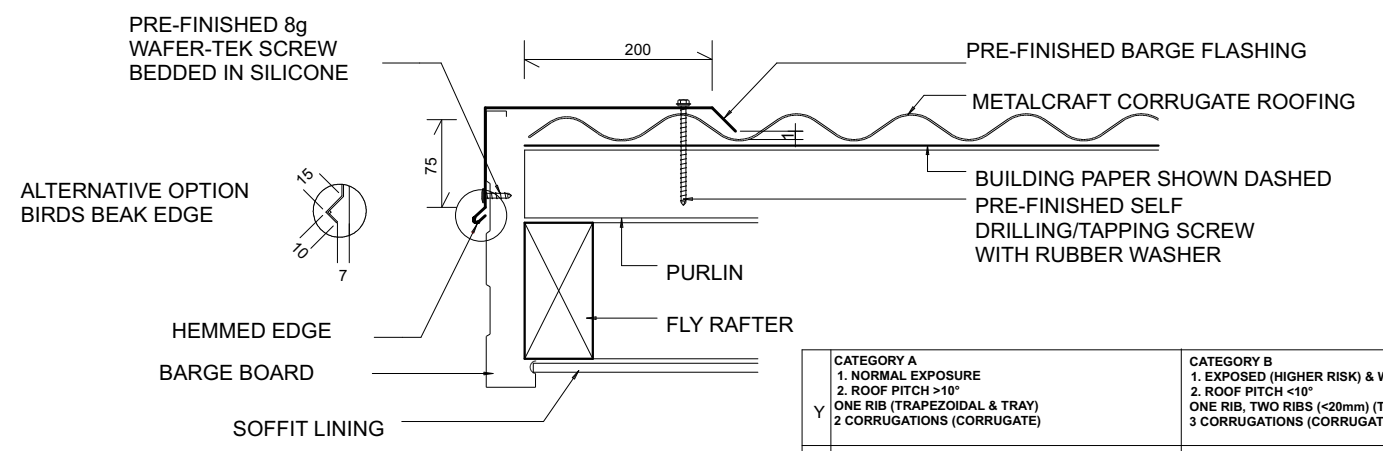


X	CATEGORY A 1. NORMAL EXPOSURE 2. ROOF PITCH >10° MIN. 130mm	CATEGORY B 1. EXPOSED (HIGHER RISK) & WIND LOAD EXCEEDS 1.5 kPa. 2. ROOF PITCH <10° MIN. 200mm
	PLEASE REFER TO MRM CODE OF PRACTICE VERSION 2.2/2012 FOR FURTHER INFORMATION ON FLASHING COVER WIDTHS.	
X	SITUATION 1 1. LOW, MEDIUM, HIGH WIND ZONES 2. ROOF PITCH ≥ 10° MIN. 130mm	SITUATION 2 1. VERY HIGH WIND ZONE 2. ALL ROOF PITCHES MIN. 200mm
	PLEASE REFER TO E2 FOR FURTHER INFORMATION ON FLASHING COVER WIDTHS.	

RIDGE DETAIL



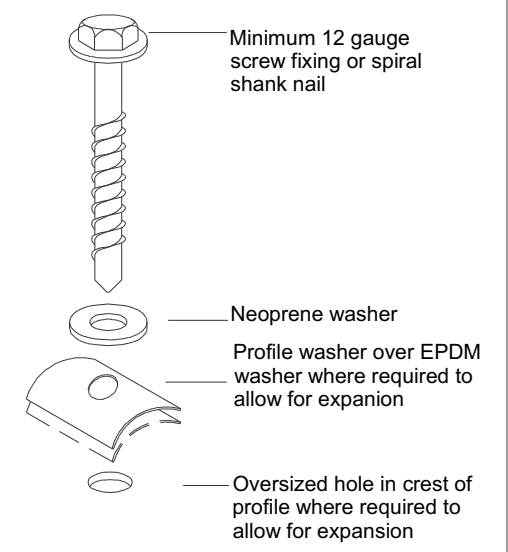
HIP TO BARGE DETAIL



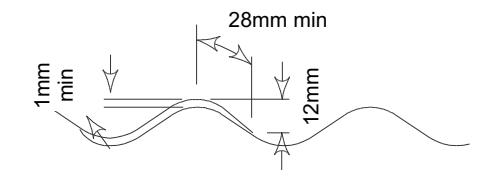
BARGE DETAIL

Y	CATEGORY A 1. NORMAL EXPOSURE 2. ROOF PITCH >10° ONE RIB (TRAPEZOIDAL & TRAY) 2 CORRUGATIONS (CORRUGATE)	CATEGORY B 1. EXPOSED (HIGHER RISK) & WIND LOAD EXCEEDS 1.5 kPa. 2. ROOF PITCH <10° ONE RIB, TWO RIBS (<20mm) (TRAPEZOIDAL & TRAY) 3 CORRUGATIONS (CORRUGATE)
	Z MIN. 50mm (VERTICALLY DOWN FACE - SMOOTH) MIN. 75mm (VERTICALLY DOWN FACE - PROFILED)	Z MIN. 75mm (VERTICALLY DOWN FACE - SMOOTH) MIN. 100mm (VERTICALLY DOWN FACE - PROFILED)
PLEASE REFER TO MRM CODE OF PRACTICE VERSION 2.2/2012 FOR FURTHER INFORMATION ON FLASHING COVER WIDTHS.		
SITUATION 1		
SITUATION 2		
SITUATION 3		
Y	1. LOW, MEDIUM, HIGH WIND ZONES 2. ROOF PITCH ≥ 10° AT LEAST TWO CRESTS	1. VERY HIGH WIND ZONE 2. ALL ROOF PITCHES AT LEAST TWO CRESTS
	Z MIN. 50mm	Z MIN. 70mm
PLEASE REFER TO E2 FOR FURTHER INFORMATION ON FLASHING COVER WIDTHS.		

Corrugated & Trapezoidal Fixing & Sheet Lap

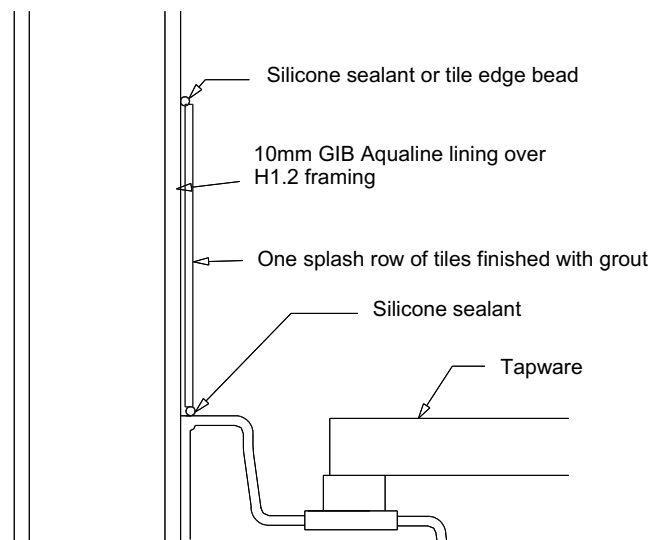


TYPE OF FIXING FOR PROFILED ROOFING

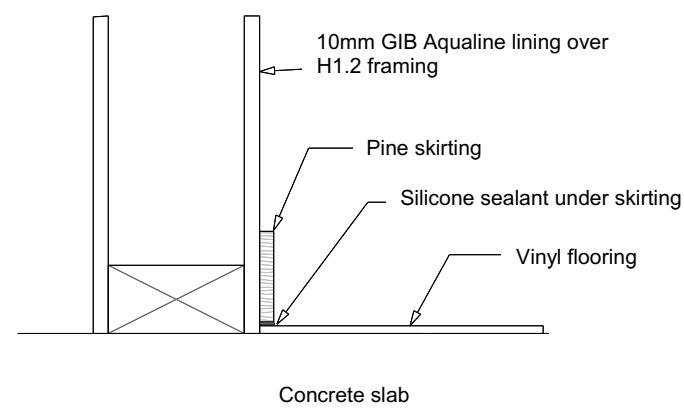


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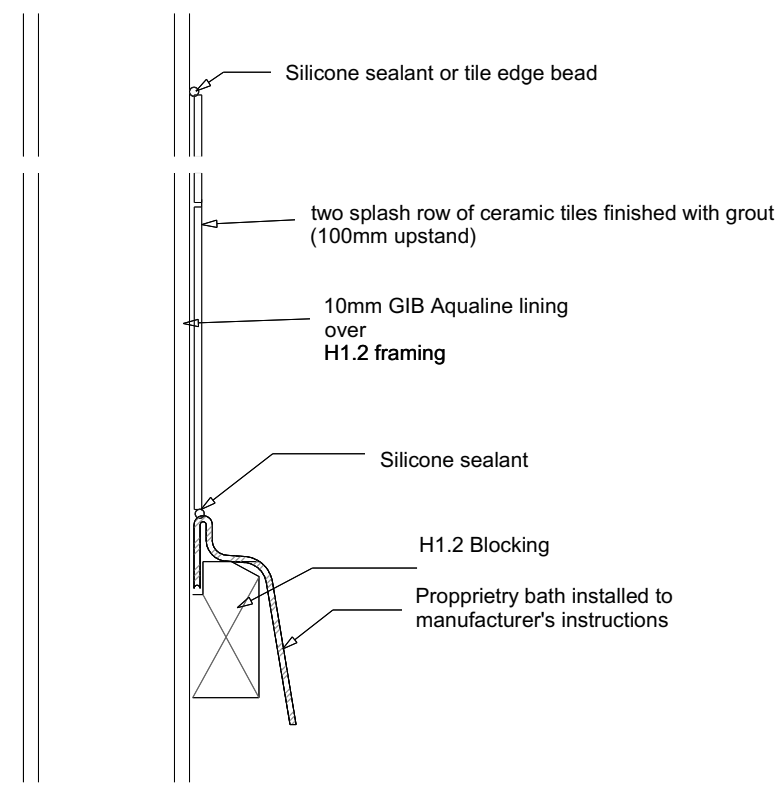
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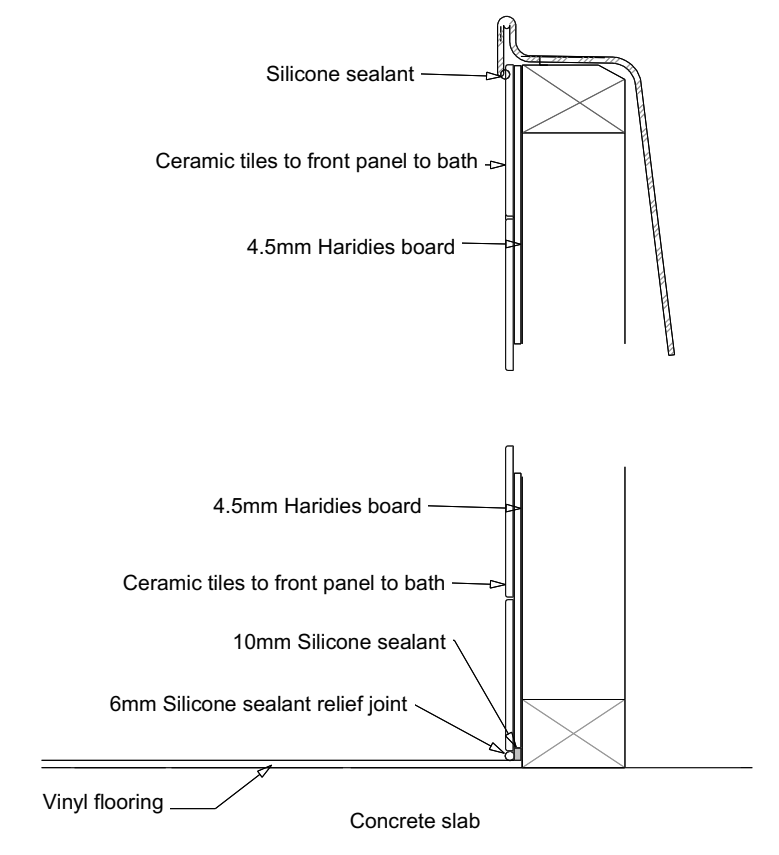
Basin Water Splash Back



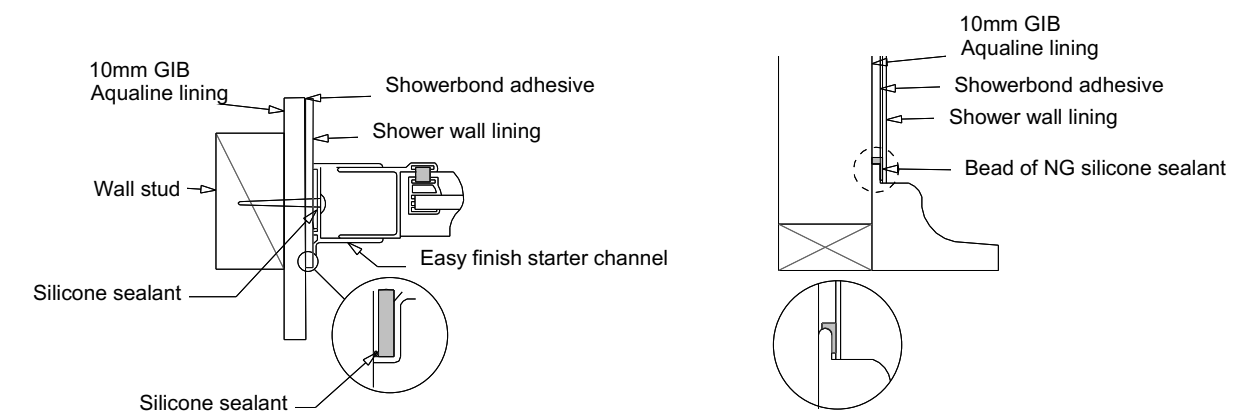
Vinyl Floor Over Timber flooring



Bath Water Splash Back



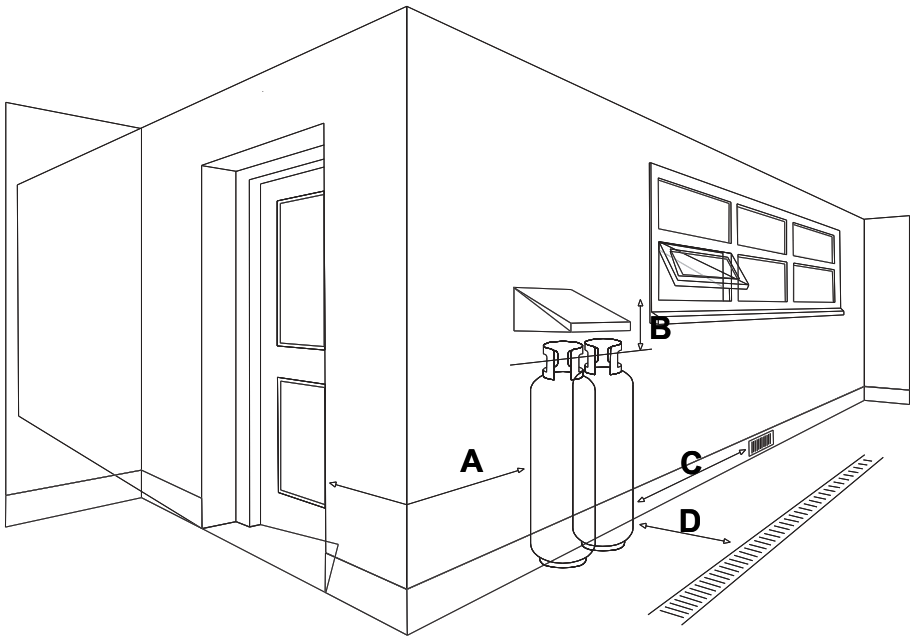
Bath & Plinth



Actylic Shower Detail

OVERVIEW OF LPG CYLINDER CLEARANCE

The diagram below is a modified version of a drawing originally produced by ongas (www.ongas.co.nz). It is intended to provide an overview of the general clearances required for LPG cylinders.



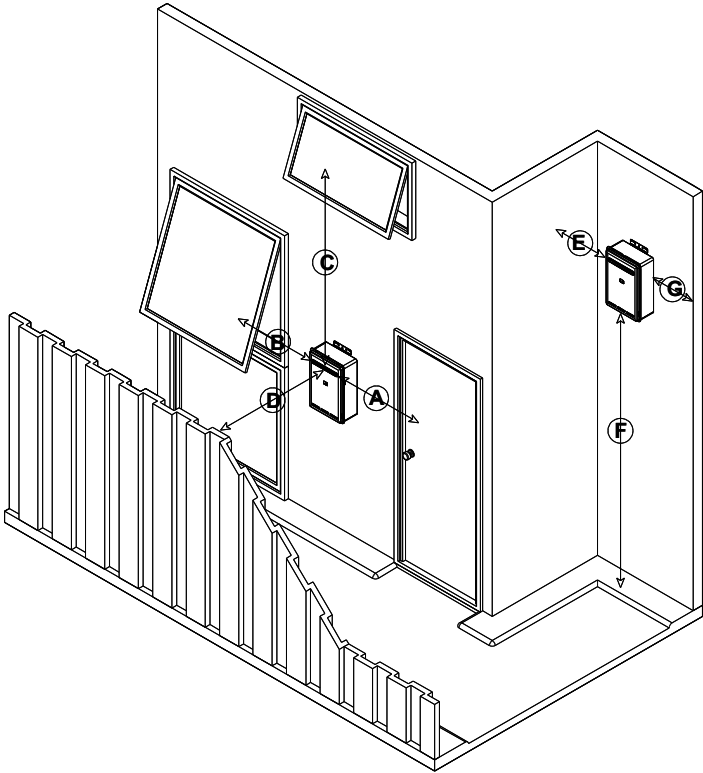
A	Min. clearance to door	1m
B	Min. clearance to an openable window	150mm
C	Min. clearance to an air vent or opening	1m
D	Min. clearance to a drain	1m

For detailed information relating to LPG cylinder placement it is advisable to consult a licensed gas fitter, your nearest LPG cylinder supplier, or consult AS/NZS 56011.1 Gas Installations.

GENERAL CLEARANCE

The following diagrams have been provided to assist determining where, and if a continuous flow water heater can be installed. If in doubt, consult a licensed gasfitter who will have access to the Gas Installation standards.

External models: General flue clearance



Dim	INFINITY A- SERIES, HD200, EF MODELS	INFINITY HD 250 MODEL
A	Min, 300 mm	Min, 500 mm
B	Min, 300 mm	Min, 500 mm
C	Min, 1.5 m	Min, 1.5 m
D	Min, 500 mm	Min, 500 mm
E	Min, 300 mm	Min, 300 mm
F	Min, 300 mm*	Min, 300 mm*
G	Min, 300 mm	Min, 300 mm

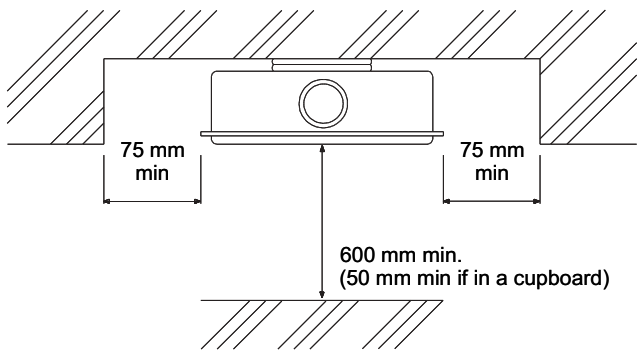
OTHER clearances
Below eaves, balconies, and others projections, minimum 300 mm.

From a gas meter, minimum 1000 mm.

From an electricity meter or fuse box, minimum 500 mm.

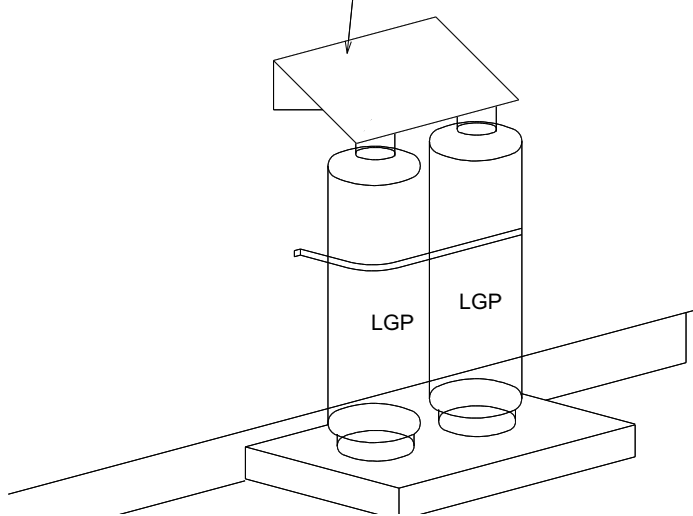
* Rinnai recommend 1.65 m to give enough clearance for the pipe-work, and to safely expel flue gases.

Internal models: General flue clearance



For internal units we recommend a 600 mm clearance for servicing access. This can be reduced to 50 mm if installed in a cupboard

Hood to be fixed to wall to protect valves from the weather hood to be on at the ends. Fixings points to have EPDM were screw penetrate cladding

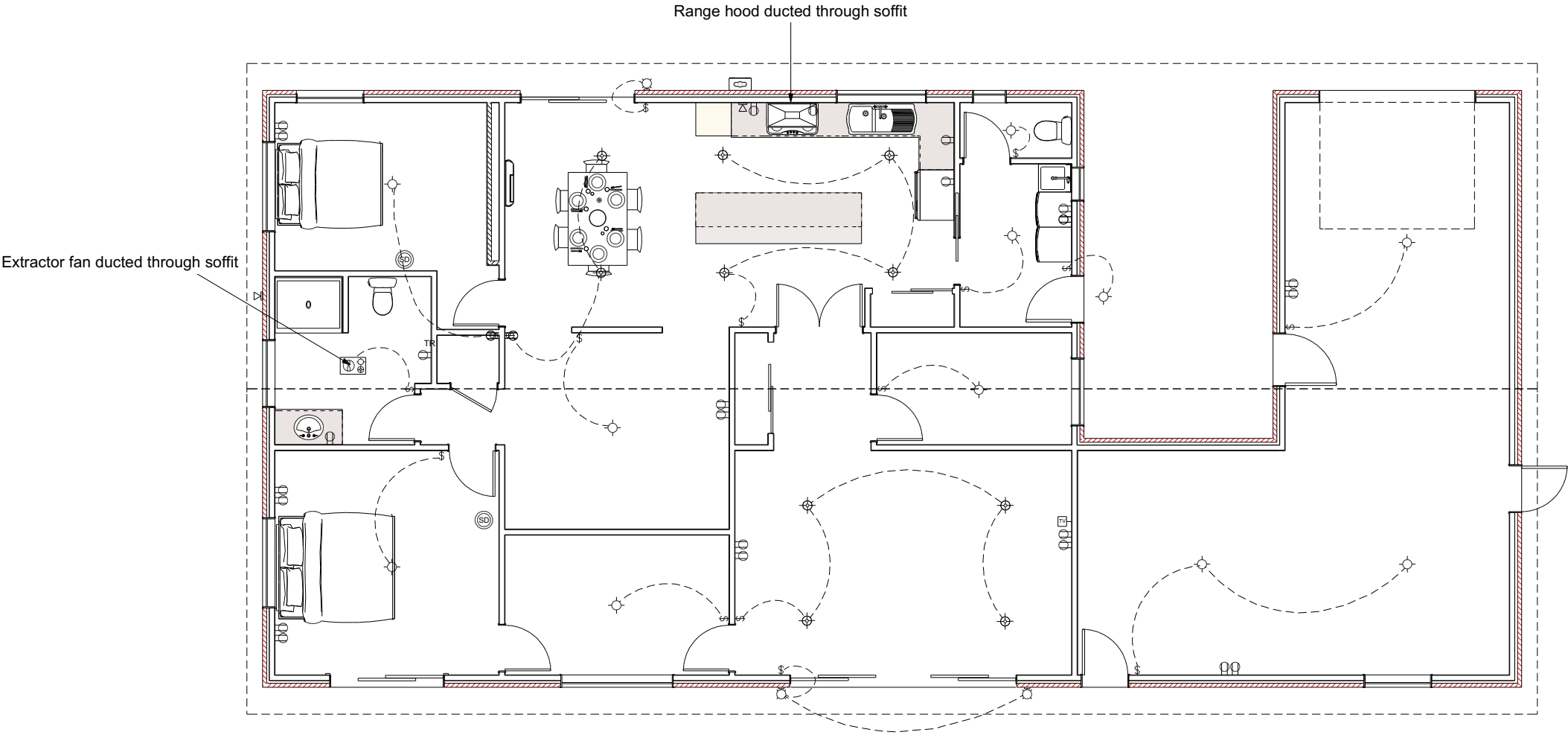


RESTRAINT
All cylinders larger than 25 litres (9kg) shall be secured against seismic activity using chains & brackets or similar. The brackets shall be fastened to a wall or similar robust anchorage

DRAWINGS PROVIDED BY: 	Client Details : J HANSON & D LIGHTFOOT Address: 9 GOLF VUE PLACE, WANGANUI	Drawing Title: GAS INFINITY LOCATION				Sheet # 24
		Drawn: David Coker Checked: David Coker	Date: 26/02/2020 Variation # RFI 1	Wind Region A Earthquake Zone 2	Wind Zone HIGH Exposure Zone D	Scale: N.T.S
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			BP114150			

SMOKE ALARMS TO BE SITUATED IN EACH SLEEPING SPACE OR WITHIN 3 MTRS OF A SLEEPING SPACE SMOKE ALARM MUST BE AUDIBLE TO SLEEPING OCCUPANTS ON THE OTHER SIDE OF THE CLOSED DOOR

EXTRACTOR FAN TO BE DUCTED TO OUTSIDE



	BATTENS HOLDER
	DOWN LIGHTS
	TELEPHONE
	TELEVISION
	POWER POINT
	SMOKE DETECTOR
	LIGHT SWITCH
	ELECTRICAL CONNECTION
	HEAT LIGHT FAN
	HEATED TOWEL RAIL
	WALL LIGHT

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DURABILITY - PRODUCT SELECTION

ALTERNATIVE SOLUTION FOR TABLE 4.1 NZS 3604:2011

Zones	Fixings	Environment	Product Option
All Zones	Nail plates and timber connectors All other structural fixings	Closed	GANG-NAIL and LUMBERLOK Standard Zinc Coated Product (1) BOWMAC Hot Dip Galvanised (3)
Zone D	Structural fixings	Sheltered and Exposed	LUMBERLOK Stainless Steel 304 (2) BOWMAC Stainless Steel 304 (2)
Zones B and C	Timber pile fixings MORE than 600mm from ground	Sheltered Subfloors vented 7000 mm ² /m ² or less	LUMBERLOK Hot Dip Galvanised (4) BOWMAC Hot Dip Galvanised (3)
		Exposed Subfloors vented 7000 mm ² /m ² or more	LUMBERLOK Stainless Steel 304 (2) BOWMAC Hot Dip Galvanised (3)
	Timber pile fixings LESS than 600mm from ground	Sheltered and Exposed	LUMBERLOK Stainless Steel 304 (2)
	All other structural fixings	Sheltered	LUMBERLOK Hot Dip Galvanised (4) BOWMAC Hot Dip Galvanised (3)
		Exposed	LUMBERLOK Stainless Steel 304 (2) BOWMAC Hot Dip Galvanised (3)

1. All GANG-NAIL, LUMBERLOK and BOWMAC product complies with Table 4.2 NZS 3604:2011.
2. LUMBERLOK and BOWMAC Stainless Steel product is 304 grade. Regular washing and maintenance will positively affect long term appearance of these items.
3. BOWMAC Hot Dip Galvanised product is to AS/NZS 4680 to 600g/m²
4. LUMBERLOK Hot Dip Galvanised product is to AS/NZS 4680 to 390g/m²

NOTES

Items above refer to GANG-NAIL, LUMBERLOK and BOWMAC product marketed for specific applications with a requirement to last 50 years as an alternative solution to Table 4.1 NZS 3604:2011.

The MiTek New Zealand Limited Durability Flow Chart for product selection is derived from this alternative solution to Table 4.1 NZS 3604:2011. Definitions of zones and environments are derived from NZS 3604:2011.

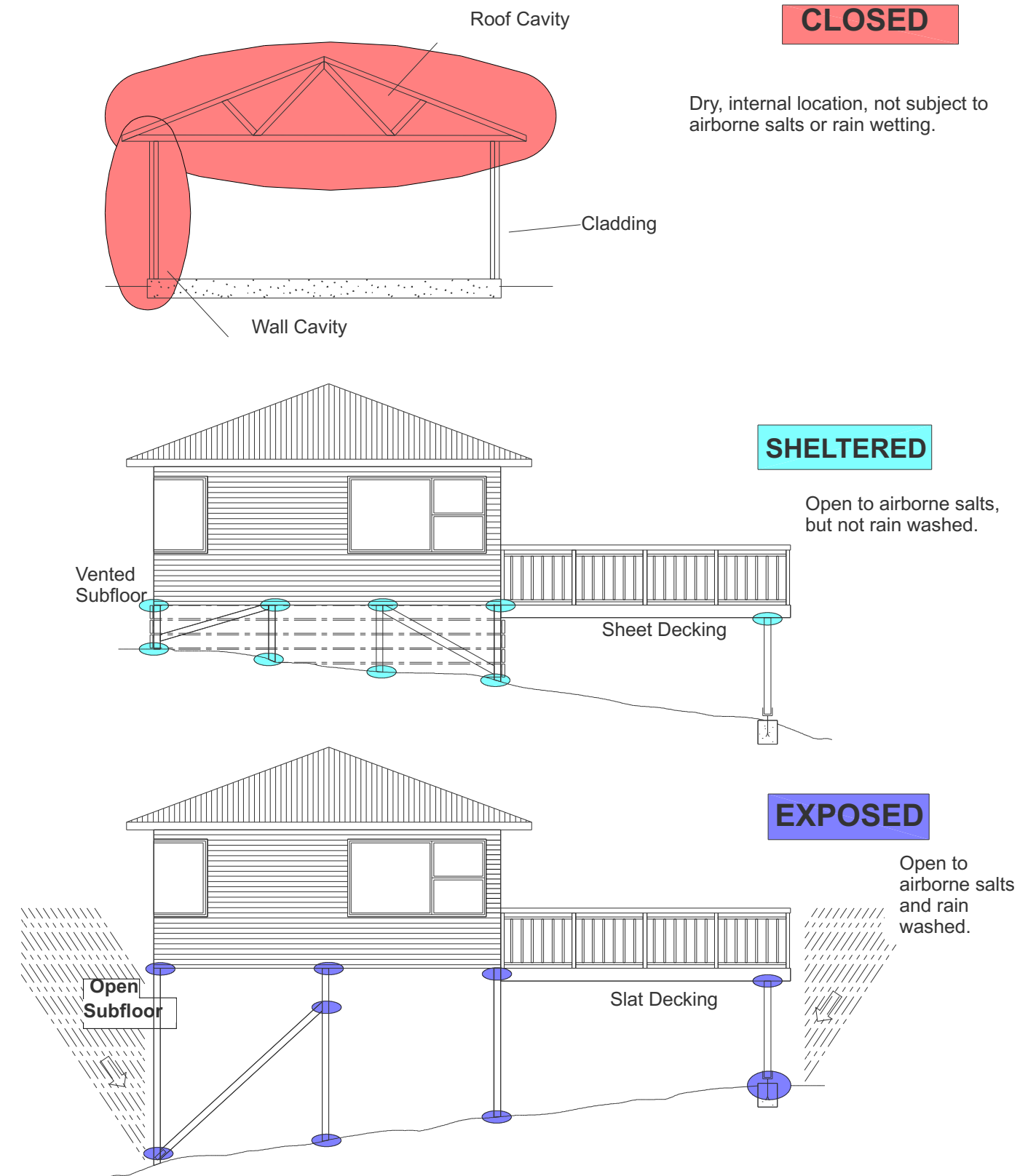
Supporting documents available for this alternative solution:-
Les Boulton and Associates. Materials and Corrosion Consultants Report 00330: Evaluation of Bracket Durability; NZS 3604:2011 and Report 01372: Corrosion of BOWMAC Fixings in Treated Timber.

Optimech Services Metallurgical Consultancy Test Certificate Reports No: 00-134 BOWMAC and No: 01-023 LUMBERLOK Determination of Galvanising Coating thickness.

Product statements January 2012 for LUMBERLOK and BOWMAC products.

Content from NZS 3604:2011 Table 4.1 adapted by MiTek New Zealand Limited with permission from Standards New Zealand under Copyright Licence 000907.
Please see Standard for full details, available from www.standards.co.nz.

DURABILITY FLOW CHART



DRAWINGS PROVIDED BY:



Client Details :

J HANSON & D LIGHTFOOT

Address:

9 GOLF VUE PLACE, WANGANUI

Drawing Title:

DURABILITY CHART

Sheet # 26

Drawn: David Coker

Date:

26/02/2020

Wind Region

A

Wind Zone

HIGH

Checked: David Coker

Variation #

RFI 1

Earthquake Zone

2

Exposure Zone

D

Scale:

N.T.S

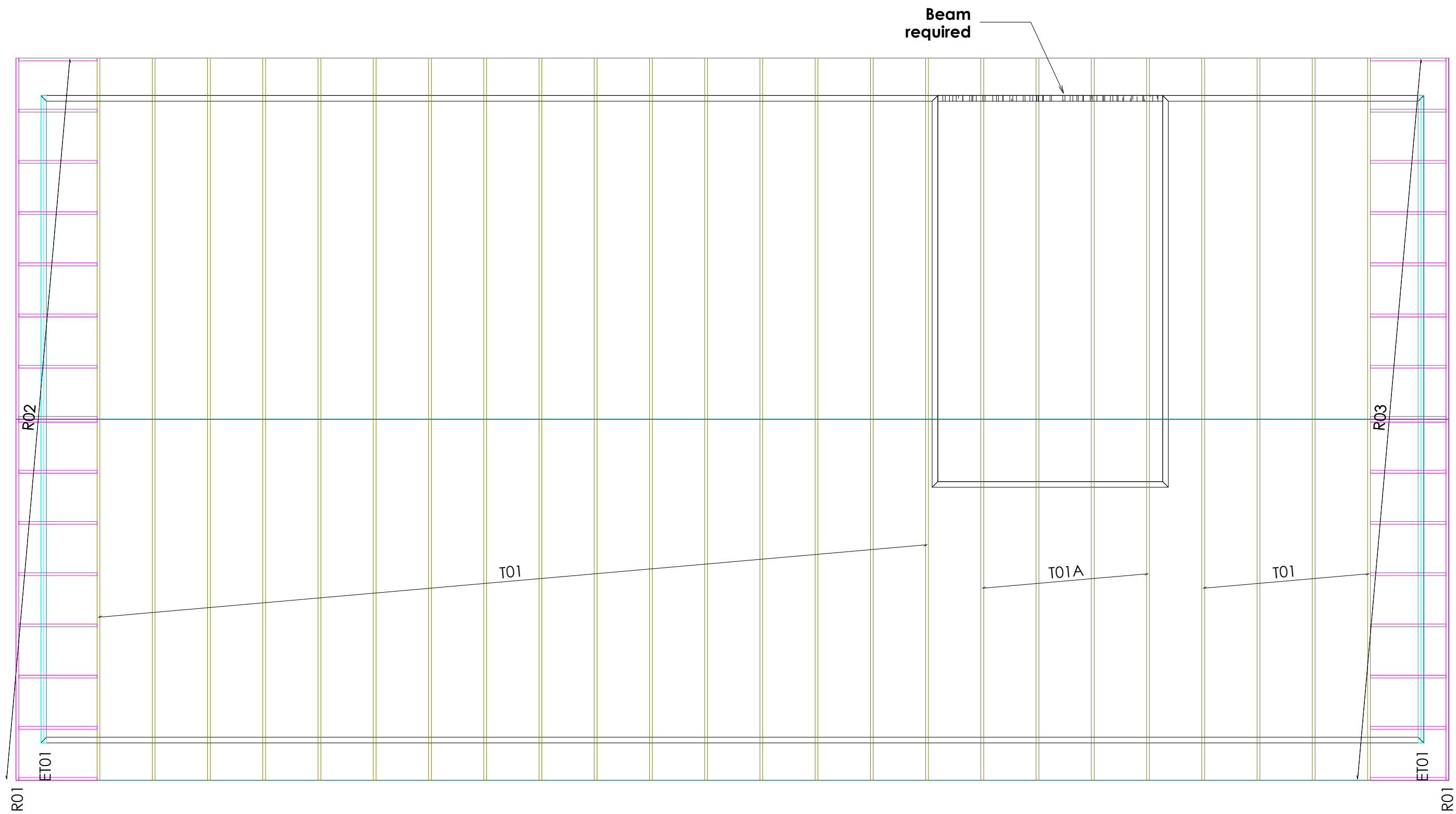
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D C Design
144 Westmere Station Road
RD1 Wanganui

P: 06 348 0422
M: 027 936 2169
E: coker.d.l.e@xtra.co.nz



BP114150



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

Site Address :
Hanson & Lightfoot
9 Gold Vue Place,
Wanganui

Sheet Title :
**For Building Consent
Buildable Truss Layout**
Date : 18 Dec,2019
Scale : NTS
Drawn : G O
System : MiTek 20/20

Job Details:
Roof Pitch : 17.00deg
Roof Material : Longrun Iron
Ceiling Material : Standard
Wind Zone : High
Roof Snow Load : 0.000kPa

Truss Centres : 900mm
Roof Live Load : 0.250kPa
Floor Live Load :
Wind Speed : 44m/s
Overhang : 600/400



Job Title :
192662
Sheet :
1
Revision Number :



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

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

www.mitek.nz.co.nz

Printed: 08:58:01 18 Dec 2019

MiTek 20/20 Engineering 4.7.301.0

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 **192662** and may be used by a Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

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

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

- i) All proprietary products meeting their performance specification requirements
- ii) The provision of adequate roof bracing and overall building stability
- iii) Correct selection and placement of GANG-NAIL connector plates
- iv) Correct input of Truss Design Data as shown in the Fabricator Design Statement for this job
- v) The design being undertaken by the accredited fabricator under the terms of the software licence
- 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: Wednesday, 18 December 2019

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

Job: 192662

Description:
Building Consent No.:
MiTek 20/20 Engineering 4.7.301.0Client: Synnott's Wanganui
Phone:Site: 641 South 26th Ave
9 Gold View Place
Wanganui

Phone:

Printed: 08:58:01 18 Dec 2019

MiTek New Zealand Limited

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**Roof Truss**

Timber Group:	TRUSS	Pitch:	17.000 deg	Nominal Overhang:	600 mm / 400 mm
Roof		Ceiling		Wind	
Material:	Longrun Iron	Material:	Standard	Area:	High (44.0 m/s)
Dead Load:	0.210 kPa	Dead Load:	0.200 kPa	Pressure Coeff:	Cpe = varies; Cpi = -0.30, 0.20
Restraints:	900 mm centres	Restraints:	450 mm centres		
Live Load:	Q _{ur} = 0.250 kPa	Live Load:	Q _c = 1.400 kN		
	Q _c = 1.100 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, ~~xxx~~ = failed design, Ø = non certified, Unmarked trusses = designed successfully, LB = lateral bracing required
GB = gable brace required, CF = Chemical Free Treatment

Roof Truss

Treatment: Top Chords - H1.2			Bottom Chords - H1.2	Webs - H1.2
Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
ET01	2D	10360	17.000	400
*R01	2	11560	17.000	400
*R02	16	1255	0.000	819
*R03	16	1210	0.000	819
T01	20	10360	17.000	884
T01A	4	10360	17.000	884

Roof Truss quantity : 60

Total quantity : 60

The computer design input has been carried out by:

Signed: 

Date: ...Wednesday, 18 December 2019...

Name of Detailer: Michael McKenna

Qualifications and Title:

On behalf of: Capital Precut Solutions

Job: 192662

Description:
Building Consent No.:
MiTek 20/20 Engineering 4.7.301.0

Client: Synnott's Wanganui
Phone:

Site: 645 South Rd, 1200
9 Gold Vue Place,
Wanganui

MiTek New Zealand Limited

Phone:

Printed: 08:58:12 18 Dec 2019

**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, ~~xxx~~ = failed design, Ø = non certified, Unmarked trusses = designed successfully

Truss	Qty	Span (mm)	Joint	Down (kN)	Uplift (kN)	Bearing	----- Fixing -----	
							Qty	Selected
T01	20	10360	B	5.733	5.215	Cross	20	CT200 pair
			L	5.733	5.215	Cross	20	CT200 pair
T01A	4	10360	B	2.293	0.968	Cross	4	Pair of Wire Dog Staples
			M	7.436	7.121	Cross	4	CT200 pair
			J	3.008	2.342	Cross	4	Pair of Wire Dog Staples
ET01	2D	10360	A			Wide		No fixing selected
*R01	2	11560						Refer NZS3604:2011 Tables 10.1 & 10.14
*R02	16	1255						Refer NZS3604:2011 Tables 10.1 & 10.14
*R03	16	1210						Refer NZS3604:2011 Tables 10.1 & 10.14

Fixing List

Qty	Selected Fixing
44	CT200 pair
8	Pair of Wire Dog Staples
2	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.



Proposed New Residential Dwelling For
J Hanson & D Lightfoot
9 Gulf Vue
Wanganui



Dave Coker Design
144 Westmere Station Road
RD1
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BP114150



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- 7 Carpentry/Joinery & Roofing
- 8 Plumbing / Drainage,
- 9 Gib Stopper & Electrical
- 10 Painting & Cleaning & Completion

MATERIAL & CONSTRUCTION SUMMARY

ELEMENT	DESCRIPTION
Floor	FOUNDATION & SLAB 100mm thick concrete slab, SE62 500E reinforcing mesh, min 225 mm lap on 0.25 polythene Concrete strength to be 20 Mpa after 28 days 75mm 20mm round stone to cover hardfill to ensure the vapour barrier is protected from any granular protrusions Malthoid DPC underlay under all bottom plates, overlapping timber by min 6mm
Walls	EXTERNAL WALLS Timber framed External walls to be 90x45 H1.2 SG8 @ 400mm ctrs with double top plate that have trusses set on top & 2 rows of dwangs. DPC underlay under all bottom plates. Overlapping timber by min 6mm INTERNAL WALL: (SG8 H1.2) 90x45 H1.2 frames with 140x35 top plate packer studs @ 600mm ctrs 2 rows of dwangs. 10mm Gib wall linings throughout except for wet areas to be 10mm Aqua line Gib. Bottom plate fixing: Ramset HD875 driven pin + washer (or equivalent) @ 600mm ctrs.
Roof Framing	Trusses Manufactured by approved manufacturer @ 900mm ctrs
Roof Cladding	Corrugated long run colour steel (colour owner choice)
Ext Wall Cladding	70 Series brick installed to manufacturers instructions
Ext Joinery	Powder coated aluminum double glazed, size & location indicated on plans.(colour owners choice)
Insulation	R3.2 insulation to ceilings, R 2.2 insulation to walls.
Wall Int linings	10mm std Gib wet areas to be 100mm Aqua Line Gib
Ceiling Linings	10mm std Gib to ceilings 10mm Aqua line ceiling to wet areas
Internal Doors	Owner Choice
Door Hardware	Owner choice.
Finishing lines	55mm Gib cove 60x12 MDF single bevel skirting & 60x10 F/J single bevel skirting to wet areas. 40x12 single bevel MDF architraves & 40x10 F/J single bevel architraves to wet areas (Non slip Tiles entry, Kitchen, dining WC, Laundry, & Bathroom owner to select size & colour
Floor Finishes	Carpet to balance of house (owner to select colour and type)
Spouting	Continuous colour steel spouting owner to select style & colour on colour steel fascia
Water Heating	Gas Infinity
Fashion Plumbing	Owner to select tape ware & sanitary fittings

PRELIMINARY AND GENERAL

- * **Scope:** This specification conforming to the attached Agreement conditions of contract describes The work to be done and the materials to be used in the construction of the house shown on the Attached drawings
- * **Building consent/s:** The owner or Owners agent shall apply to the Territorial Authority (TA) for BUILDING CONSENT, for inspections by the TA during the construction and pay all Bonds and fees Incurred.
- * **Acceptable solutions:** All work shall be EQUAL (OR BETTER THAN) 'Acceptable Solutions' given in NZBC Approved Document; complying with the Building Act 1991 and Building Regulations. All as COMPLETED and SHOWN in TABLE 1.
- * **Health & safety:** As directed by the Owner, the Contractor shall be responsible in complying with the Health and safety in Employment Act 1992 effectively operating a safety Management Programme for The duration of the contract.
- * **Insurance:** The Contractor shall take out Builders All Risk Policy.
- * **Interpretation:** Work or material shown on the drawings but not specified (or specified & not shown Shall be supplied as though both shown & specified. Materials shown but not specified must be of the Kinds commonly employed for the services they are intended to perform. All figured dimensions shall Be taken in preference to scale. The contractor shall be held responsible for setting out of work & he Shall make good at his own expense any errors that occur though his lack of checking or faulty Workmanship. Unless written as provide only or fix only, the words 'provide' & 'fix' Shall mean Provide fix. `This document is a general specification & is to be read in conjunction with the plans & the Building Contract. Where there is any contradiction between the Building contracts the plans & specification The Building Contract shall take first precedence, the plans second precedence, the Specification Schedule third precedence & General Specification Forth precedence
- * **Stability of construction:** The contractor shall carefully brace & support all of his work against Damage by wind and protect work from the elements as necessary during construction.
- * **Protection of property:** The Contractor shall protect adjoining properties during the contract and Shall make good all damage at his own expense.
- * **Damage:** The Contractor shall make good at his own expense & to the satisfaction of the controlling Authorities, any damage done to footpaths. Kerbs, drainage, etc. or other property under control of Such authorities. Each trade shall take care to prevent damage or disfigurement of the work of other Trades & will be responsible for cost of restoring same.
- * **Materials:** Any materials specified that are not procurable when required, thus slowing progress of The Contract, may be substituted with other similar materials, providing that the substitute material Conform to the NZBC & permission is given by the Owner. The Contractor is first to notify the Owner Of any change proposed & at the completion of the Contract adjust any difference in cost.
- * **Workmanship:** All work shall be carried out in accordance with the best trade practice, in strict Conformity with the drawings & specification to the satisfaction of the Owner. All defective or damaged Work shall be removed & made good to the satisfaction of the Owner.
- * **Cleaning:** The Contractor, at the conclusion of the Contract, shall have all ceiling, wall & woodwork Carefully dusted & wiped down, windows washed & glass free from scratches, floor brushed & wiped Down & the entire building left in a perfect clean condition.

SET OUT

- * **Setting out:** Set out the work as shown or implied on the drawings. Check accuracy in terms of Position, levels and Square.

EXCAVATION

- * **General:** Accord with Preliminary and General Clauses applying to this section AND:-
 - * Means of compliance to the relevant NZBC requirements.
 - * Excavation code of Practice, Occupational Health & Safety Department.
 - * Regional/Territorial Authority requirements for silt control from excavations
- * **Setting out:** Set out the work as shown or implied on the drawings. Check accuracy in terms of Position, levels and Square.
- * **Hard fill:** Use only approved fill well compacted under concrete ground floors & as otherwise specified.
- * **Drainage trenches:** Take out seepage land drainage trenches where indicated to adequate depth & fall to prevent dampness under the building. Provide Nova Drain or similar bedding on scoria.

CONCRETE & REINFORCING

- * **General:** Accord with Preliminary & General clauses apply to this section & means on compliance to NZBC requirements.
- * **Extent of work:** Comprises the setting out, boxing & placing of concrete in foundations, floor slabs, Walls, beams & bands & any other concrete work shown in drawings.
- * **Materials:** Ordinary grade concrete shall comply with NZS3104 & NZBC 3109. Concrete from an approved Batching plant only shall be used. Minimum concrete strength at 28 days shall be:
 - A) 10MPa for un-reinforced concrete used in mass foundation.
 - B) 17.5 Mpa for un-reinforced concrete application for reinforced concrete either not exposed to Weather or exposed to the Weather in zone B as shown in figure 4.12 NZS 3604:2011.
 - C) 20MPa for reinforced concrete exposed to the weather at least 500m from mean high tide mark in Zone C as shown in Figure 4.2 NZS 3604:2011.
 - D) 25 MPa for reinforced concrete exposed to weather in zone D as shown in figure 4.2 NZS 3604:2011
- * **Formwork:** Formwork shall be so constructed that the concrete thickness & shapes required are obtained as detailed without removal causing damage. Methods of construction & pouring & curing of Concrete & times of removal of formwork shall be as set down in NZS: 3109.
- * **Concrete foundation walls:** Foundation footings & reinforcing shall be the sizes shown on drawings in Accordance with relevant clauses of NZS: 3604:2011, supporting single story, 2 or 3 story as Appropriate. Such walls shall finish not less than 225mm above finished ground level but not more than 2m above the bottom of the footings.
- * **Completion:** Make good any defective work. Leave all clean & stain free.

CARPENTRY

- * **General** Accord with Preliminary & General clauses applying to this section & means of compliance to Relevant NZBC requirements.
- * **Extent of Work:** The work of this section shall include all labour, materials, equipment necessary to Carry out & complete the carpentry as shown, or as further required by this specification. Any work That is intended or implied but not specifically shown but necessary for the proper completion of the Building shall be included.
- * **Attendance & Protection;** Arrange & attend upon all works by other trades in a Logical sequence e.g. As in this section to allow early closing-in. provide all blocking, fixing, trims. Nogging as necessary for The full completion or their respective works & make good after all trades. Provide for temporary Protection from adverse weather & damage & ensure closing in of the building as soon as possible.
- * **Materials & Workmanship:** All timber & wood based products shall conform to NZS: 3604:2011 Requirements, "Code of practice for specifying timber & wood-based products for use in building" Timber shown in the schedule of timbers to be treated with an approved preservation process in Plants licensed by the Timber Preservation Council. Any materials which in the opinion of the Owner, Loan Body or Territorial Authority is not up to standard, to be removed immediately from the site. All work shall be carried out in accordance with best trade practice.
- * **Compliance with this Specification;**
 - A) Do any works under specific design in accord with details provided. The Contractor & Carpenter Shall do all other work in accord with NZS: 3604 2011. In particular complying with the whole of SECTION 2- GENERAL of NZS: 3604. The requirement here shall be to meet NZBC Approved Documents B 1 - Structure & B 2 - Durability. The treatment requirements are:
 - * Roof framing rafters and ceiling joists: H1.2 treated kiln dried radiata pine SG8
 - * All wall framing: H1.2 SG8
 - * Enclosed framing with flat roofs: H1.2 SG8
 - * Exposed timber to the weather: H3.2
 - * Close to contact with ground: H4
 - * Timber subject to ground contact: H5
 - B) All fixings of materials to be in accordance with NZS; 3604:2011, Section 4.
- * **General Framing:** All framing to be 90x45 SG8 H1.2 @ 400mm ctrs for external walls & 90x45 SG8 H1.2 @ 600mm ctrs, for internal walls studs with 45mm wide studs to all openings not exceeding 3m span where supporting only one story. Top and bottom plates to be same size as Studs in long lengths, halved or nail plated at wall junctions & jointed over studs, all studs to comply with section 8 table 8.2 NZS 3604:2011. Provide dwangs @ no more than 900mm ctrs to full height each wall unless otherwise stated on drawings. Alternative kiln-dried (dry-frame).
- * **Wall Bracing:** Provide all wall bracing as shown on drawings & wall bracing calculation sheets as is Intended to satisfy the Territorial Building Authority. Keep strictly to the "Type", Lengths & locations Shown on plan & elevations.
- * **Damp Proofing:** All timber to be protected from dampness with 3-ply bituminous felt or other Approved damp proofing material when in contact with concrete or brickwork, or as in clause 2.1 of NZS: 3604:2011
- * **Roof Construction:** (See Drawings & Schedule of Timber for types.) TRUSSED: Drawings Showing clearly the type, pitch, span, spacing & overhangs of trusses & details of roof cladding, Shall be provided to Truss Manufacturer to allow them to comply with clause 10.22 NZS: 3604:2011. Thereafter, the Contractor shall match construction with the drawings & details provided by the manufacturer throughout all stages of fixing & bracing. The contractor shall especially accord with the

manufacturer's instructions for tying down where overhangs exceed 750mm. In all cases anchorage of all trusses to plates shall be with not less than 2/100mm skew nail plus 2/4.9 mm wire dogs

- * **Purlins. Eaves, Gables:** size framing, spacing, overhangs & sheathing type as shown on plan.
- * **Fascia Boards ECT:** fix fascia, barge frieze etc. to suit roofing selected.
- * **Thermal Insulation:** All roofs, wall & floors are to be insulated in accordance with NZS: 4214 & NZS: 4218P. No insulation material shall be used that does not comply with NZS: 4222. All insulation Materials are to be installed in accordance with manufactures recommendations.
 - * Wall to be insulated with R 2.2
 - * Ceilings to be insulated with R 3.2
- * **Moisture Control:** Where a vapor barrier is required in the form of foil or polythene film this Barrier shall be fixed according to manufacturer's instructions. Foil or polythene film shall not be used As a substitute for building paper. Building paper shall be properly fixed to bottom plates, especially in Veneer construction, to prevent entry of sub-floor air into stud cavities. Linings shall not be fixed Until moisture content of framing has been tested and approved.
- * **External Cladding 70 Series brick installed to manufacturers instructions**
- * **Ceilings:** Ceiling linings "10mm std Gib" 10 mm Aqua line to wet areas Gib Board Fix to manufacturer's instructions. "Fixer & Stopper to be approved". All nails, screws, fixing & joints to be a true smooth surface. In particular fix all ceiling servicing as structural ceiling diaphragms under terms of NZS: 3604:2011. (See Winstone Wallboard Ltd Taped joint system). Check that each wall under or connected to has adequate bracing for diaphragm.
- * **Internal Wall Linings:** 10mm gib board & 10mm aqua line gib to wet areas after Placement of thermal insulation when framing has moisture of no more than 16%.
- * **Skirting's, Architraves & Scotia:** 40mm F/J Scotia 60x10 F/J single bevel skirting, & 40x12 F/J single bevel architraves.

JOINERY

- * **Joinery:** Joinery & Glazing shall comply with the following standards;
 - * NZS 4211 (Specification for performance of windows)
 - * NZS 3504 (Specification for Aluminum windows)
 - * NZS 4203 (General structural design)
 - * NZS 4223 .1 (Selection & installation) . 3 (Human impact safety) & . 4 (loadings)
 - * AS/NZS 4666 (Insulation glass units)
 - * AS/NZS 4667 (Quality requirements & tolerances)
 - * AS/NZS 2208 (Safety glazing materials)
- * Obtain joinery from reputable aluminum joinery manufacturer. Supply complete with glazing, friction restraints, & catches. Fix plumb both ways & in correct alignment & flash all in accord with manufacturer's instructions.

ROOFING

- * **Temporary** bracing as might be necessary, & shall be provided in walls below to sustain such loading until Roof cladding is complete & wall lining subsequently fixed.
- * **Underlay** shall be breather type building paper to NZS: 2295 run horizontally with upper sheets

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lapped 150mm over lower sheets & with bottom edges turned over fascia into gutters. Such underlay shall be Provided under all metal roofs & be adequately supported by 100mm wire mesh unless self-supporting.

- * Provide all gutters, valleys & under flashings, compatible with roof material, before cladding Commences. Valleys shall be 0.6mm to match colour of roof at least 400mm wide with folded edges & With lower end finishing well into spouting.
- * **For** profiled metal roofing set out purlins as shown on plans 900mm ctrs & to suite ridge fixing.
- * **Ensure** all edges of roof cladding are adequately supported around projections such as pipes, ducting & Roof lights.
- * Roof cladding shall be **Corrugated Long Run Colour Steel MAXX (owner to select colour).**
- * Adequately & neatly secure all ridges, caps & over flashings wherever needed to make & keep roof Watertight.
- * Do not leave swarf, broken rivets, screws, nails or waste metal on roof

PLUMBING

- * Wherever possible use flashing that are readily available but purpose-made for a given situation. Otherwise provide flashings as required & adequately secure. Flash wherever needed to make & keep The building envelope watertight. Ensure compatibility with other materials. Flashings to each window Head & door shall be provided in one piece.
- * **Spouting** shall be Continuous colour steel (owner to select colour). Connect outlets to 80mm diameter downpipes. Provide sufficient Number of downpipes to service roof areas. Discharge storm water though 90mm uPVC pipes to Lateral as shown on site plan.
- * **Provide** 12mm POLYBUTLENE pipe to all fittings. All branched to be as short, straight & at even gradient as possible. Use only approved connections throughout. All pipes are to be adequately supported, well secured & concealed.
- * **Water** heater to be **180 Litre electric Hot Water Cylinder** location indicated on plans
- * **SANITARY Fittings** to be chosen by owner.
- * Consult with owner on choice of brands & fixing of all **taps, faucets & mixing valves**. Provide & fix all other water supply fittings as necessary.
- * Provide all necessary waste pipes, soil stacks, back vents, terminal vents, & necessary overflow pipes. Provide cleaning eyes to all pipes at junctions.
- * Under no circumstances 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.

DRAINAGE

- * No connection to sanitary drains or mains shall be made except by a registered plumber. Plumber shall Arrange all permits, connection and testing fees.
- * All materials shall be the best of their respective kinds. Typically pipes shall be uPVC in sizes stated

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On the plans.

- * All drains are to be laid to straight lines & even grades with sockets against fall in all cases. Minimum Cover of 375mm is to be maintained. The whole of the soil and storm water drains are to be laid to a Regular & even fall.
- * The plan shows the layout of the system. Additional fittings that may be required but 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 materials used.
- * **Supply** all gully traps & securely bed & build up with 5:1 concrete surround, 150mm above finished Ground level.

GIB STOPPER

- * Use only materials approved by winstone wall boards for the jointing of sheets & follow closely Jointing instructions supplied by them.
- * Tape all joints. All external corners shall be reinforced with Gib slim angle.
- * Finish being level 4 throughout.
- * Sweep site & remove all rubbish to leave interior ready for painting.

ELECTRICAL

- * Pay all fees & charges & obtain all necessary permits for this trade.
- * Carry out the whole of the electrical installation in accordance with the latest Electrical Wiring Regulations & meter wiring diagrams.
- * All work shall be carried out by Registered Electrician in accordance with regulation& best trade Practice & in a manner which will cause minimum inconvenience to other workmen& the work as a whole.
- * Allow for power points, switches, Light fitting etc. in accordance with the electrical plan final position Shall be determined by the owner on the job.
- * Generally install plugs 300mm above floor 225mm above bench top. Point to washer, dryer & Refrigerators (where required) & light switches shall be 1200mm from floor. Style & make of points Shall be the owner choice.
- * Lights not otherwise specified shall be standard white plastic batten holder type.
- * Leave work complete, pay all charges & arrange for all inspections & tests & for connection of power to Works. Supply owner with electrical certificate on completion.
- * Under no circumstances should holes or notches ECT, be cut except in accordance with restrictions Imposed by NZS: 3604. The Electrician is to make good at his own expense, any failings in this regard.

PAINTING

- * Generally all materials shall be of approved brands & premium quality (i.e. Dulux Resene ECT). Respective coats shall be of the same brand.
- * Surface shall be clean & properly prepared before applying coats & 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 & Features to be picked out in different colours.
- * Stop all holes in finishing timber as required.
- * Inspect finish of Gypsum wall boards & ceilings after successive coats in glancing light, & arrange for Rectification work by the Gib stopper to be carried out as required (at his expense).
- * Bare surfaces are to be primed & sealed in accordance with topcoat manufacturer's instructions.
- * Apply at least 2 top coats to all surfaces. Additional coats may be required to achieve a totally opaque Finish.
- * PVC Downpipes shall be lightly sanded & primed with a suitable etch primer prior to finishing with at Least 2 coats of selected paint finish.

CLEANING & COMPLETION

- * The Contractor. At the conclusion of the contract, shall have all ceilings, walls & woodwork carefully Dusted & wiped down, windows washed down, & glass free from scratches, floors brushed & wiped down & the entire building left in a perfectly clean condition. All subcontractors shall remove all their Rubbish & leave the site tidy for other trades.

Rinnai

Energysaver

power flued gas heaters

PTS

A Product Technical Statement (PTS) is a way to show how a product or system is fit for purpose for use in New Zealand and to demonstrate compliance with the New Zealand Building Code (Building Code Amendment Act 2013).

Rinnai has a partnership with MasterSpec and miproducts, where complete work sections for design specifications are available, including product performance statements for our heating range. If you do not have access to this specification system, we have replicated our product performance statement in this PTS document.

Product description

Energysavers are externally flued appliances, designed to be installed against a wall. They are intended for installation in living spaces, bedrooms, and open plan areas.

Energysavers are available for connection to natural gas or LPG, this must be specified at the time of purchase.

Scope of use

Ideal for living rooms, bedrooms and open plan areas as space heaters. Versatile power flue system makes for easy installation in almost any living space.

Energysavers must not be built in, for example into bookcases or walls.

Design guidelines

Specification and installation must be in accordance with Rinnai installation requirements and with the Building Code.

Rinnai specify that installation must be in compliance with AS/NZS 5601.1:2013 and AS/NZS 3000:2007.

When installing the flue it is recommended that the flashing details comply with those specified in E2/AS1. All Rinnai Energysavers must be installed with an approved Rinnai flue system. Choice of flue must be suitable for the specific environmental conditions.

Company details

Rinnai NZ Ltd
105 Pavilion Drive
Mangere
Auckland 2022

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0800 746 624

www.rinnai.co.nz
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Energysaver 309FT product
information link



Energysaver 559FT product
information link



Energysaver 561FT product
information link



Energysaver 1005FT product
information link

Rinnai**Energysaver**
power flued gas heaters**PTS****Environmental**

Rinnai power flued gas fireplaces have the energy star mark, which identifies New Zealand's most efficient products and appliances.



New Zealand's
Most Energy Efficient
Products

Quality assurance

- ISO 9001 Certified System
- ISO 14001 Certified System
- New Zealand Made



Medium level of assurance required to meet performance requirements of the NZ Building Code (NZBC)

New Zealand Building Code (NZBC)

Rinnai power flued gas heaters and associated flue components comply with the following building code clauses:

- B1.3.1, B1.3.2 (taking into account all physical conditions and allowances provided for in B1.3.3 and B1.3.4)
- C2.2, C2.3
- B2.3.1 (c)

The installation of the heater and flue must comply with the following building code clauses:

- B1.3.1, B1.3.2 (taking into account all physical conditions and allowances provided for in B1.3.3 and B1.3.4)
- B2.3.1(b), B2.3.2
- C2.2
- E2.3.2
- G4.3.3 (f,i)
- G9.3.1 (a,b,c,d,f), G9.3.3
- G10.3.1 (a,b,c,d), G10.3.2, G10.3.3, G10.3.4, G10.3.5, G10.3.6
- G11.3.2, G11.3.3, G11.3.4

Notes

Performance B2.3.1 (b) - 15 years

Evidence

The product meets the requirements set out in the following documents, or relevant parts of cited standards within the documents:

AGA certified

- AS/NZS 4553: Gas space heating appliances
- NZS 5435: Specification for LPG
- NZS 5442: Specification for Natural Gas

Rinnai**Energysaver**
power flued gas heaters**PTS****Evidence continued**

In respect of the clauses in relation to the gas heater and flue kit: Compliance of the gas appliance and flue kit is achieved as the heaters are certified to comply with AS/NZS 4553 and compliance with the Gas (safety and measurement) Regulations 2013.

In respect to the installation: In order to ensure compliance with B1.3.1 and B1.3.2 the structure framing and flue enclosure must comply with B1/AS1 (NZ3604:2011 for timber framing), or B1/VM1 (the NASH Standard for steel framing). Where the proposed use falls outside the scope of either of these documents then structural work must comply with AS1170_B1/AS1.

Compliance with C2.2 is achieved through the certification of the gas heaters to AS/NZS4553.

Compliance with E2.3.2 can be achieved by following E2/AS1.

Compliance with G4.3.3 (f,i) is achieved as long as the building complies with G4/AS1.

Compliance with clauses related to G9 is achieved through G9/AS1 (AS3000) as required by Rinnai installation guidance.

Compliance with clauses related to G10 & G11 is achieved through compliance with G10/AS1 and G11/AS1 (AS/NZS 5601.1) as required by Rinnai installation guidance.

Supporting evidence

The product has and can make available the following additional evidence to support the above statements:

Energy Safety Supplier Declaration of Compliance:

- Energysaver 309FT: Declaration number - 1408020132
- Energysaver 559FT: Declaration number - 1408020132
- Energysaver 561FT: Declaration number - 1408020132
- Energysaver 1005FT: Declaration number - 1516320137

Energysaver flue test report - May 2016. This report details the Rinnai in-house testing to determine the effect of connecting a Rinnai mushroom flue to a specific cladding penetration seal.

Special conditions - installation requirements

Full installation and flue kit information may be found at www.rinnai.co.nz.

Limitations: To be installed in accordance with all Rinnai installation requirements and to be installed by a licensed gasfitter or gasfitter/plumber, and electrician. Upon completion of the installation, a final inspection and test to demonstrate that the gas appliance has been installed in accordance with Rinnai's instructions and in accordance with Gas (safety and measurement) Regulations 2013 is required by the installer. The gasfitter is to issue a certificate of compliance.

Special conditions - maintenance requirements

Maintenance requirements may be found within the operation guide, located on www.rinnai.co.nz. Installation, servicing and repair shall be carried out only by authorised personnel.

Warranty

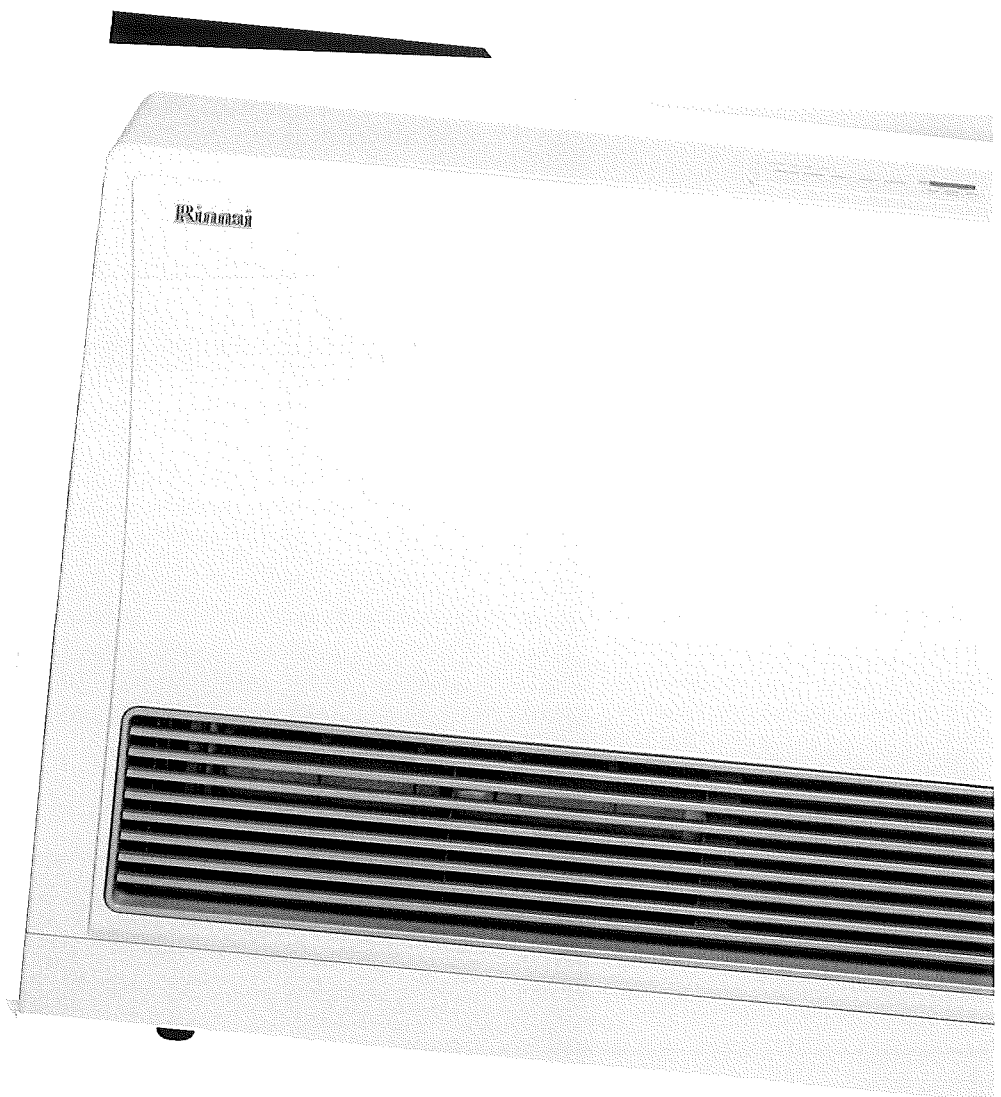
Rinnai 2 year Limited Warranty subject to Rinnai's terms and conditions.

Rinnai

Operation and installation guide

Energysavers

RHFE-309FT, RHFE-559FT, RHFE-561FT, RHFE-1005FT



Important:

Appliance must be installed with a Rinnai approved flue system.

This appliance shall be installed in accordance with:

- Manufacturer's installation instructions
- AS/NZS 5601.1:2013 Gas Installations
- Local regulations and municipal building codes

Not intended for a fireplace insert. DO NOT build into bookcases or walls etc.

Installation, servicing and repair shall be carried out only by authorised personnel.

Please retain this manual for future reference.

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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www.facebook.com/rinnainz

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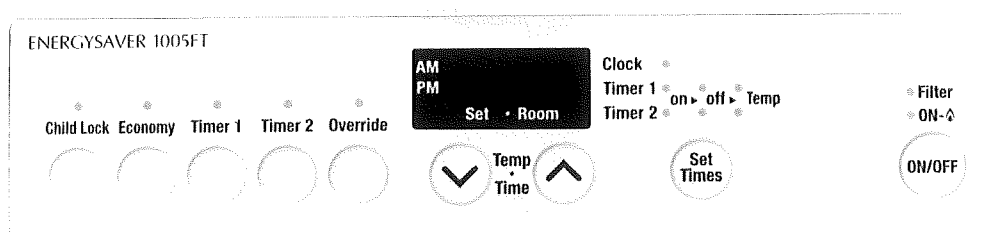
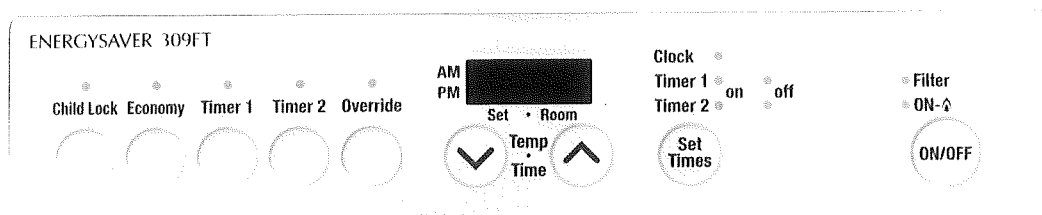
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About your Energysaver

Congratulations on the purchase of your Rinnai Energysaver. Our high efficiency Energysaver range not only ensures a warm home, but a healthy home.

We hope you love this product as much as we do, and on the off chance that something does go wrong, or if you need help, we're only a phone call away.



Features

Push button ignition	Only one-touch is required to turn the heater on and off
Child lock function	Prevents children from altering settings when the heater is in use or activating the heater when turned off
Preheat	Automatically functions in conjunction with the timers. When a timer is selected, the heater may operate anywhere within an hour prior to the programmed on time. The preheat function ensures the room reaches the desired temperature by the programmed start time.
Economy mode	Energy saving feature designed to control the room temperature and prevent the room from overheating
Override	Temporarily changes the heater operation from on to off, or off to on, until the next programmed setting is reached
Timer 1/Timer 2	Allows you to program the appliance to come on for two separate periods each day, one in the morning and one in the evening
Filter indicator	When the air (fan) filter becomes covered with dust the filter indicator will flash indicating that cleaning is necessary
Humidifier tray	Raise humidity in the room for extra comfort with the humidifier tray—can be filled with water as required

On/Off button

Main switch for turning the heater on and off. To turn on, press the ON/OFF button, the indicator will glow green, the spark generator will be heard before the burner ignites and the indicator will then glow red. When the heater warms up the fan will automatically start.

To turn the heater off, press the ON/OFF button, the indicator light will go out. The fan will continue to operate to cool the appliance and then stop.

Set times

Selects clock, timers, or temperatures (1005FT model only) for adjustment or programming.

Temp and time

Increases or decreases the temperature as well as changing the hours or minutes when in programming mode.

Override

Temporarily changes operation from ON to OFF or OFF to ON until the next programmed setting is reached.

Timer 1 and Timer 2

Displays which timer is operating.

Child lock

Locks all controls when pressed except OFF. Hold for two seconds to deactivate. If the child lock is pressed while the heater is off all functions will be locked, including turning the heater on, until it is deactivated.

Filter

Indicates the filter needs cleaning. If you do not clean the filter at regular intervals and the filter indicator is allowed to remain flashing, the appliance will stop and the display will show error code 14. The filter will need cleaning before the appliance can be turned back on (refer p. 11).

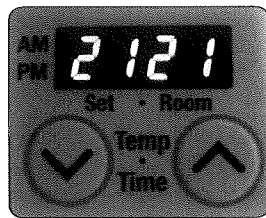
Clock and timer indicators

When programming, the indicators will glow to indicate what is being programmed.

The 1005FT model also has a 'Temp' indicator that indicates the set temperature for the timer that is being set.

Display window

Shows either the time of day, temperatures or coded error message.



Adjusting the room temperature

Pressing the up and down arrows will change the preset temperature by 1 °C. The temperature will be shown in the display window. The room temperature sensor is located behind the Energysaver so the temperature on the display may vary slightly from the actual room temperature.

The temperature can be preset to:

- **L (low)**
Unit operates on the lowest burner setting.
- **16-26 °C**
Unit will modulate, and in some instances turn off and on, to maintain the selected temperature.
- **H (high)**
Unit operates on the highest burner setting.

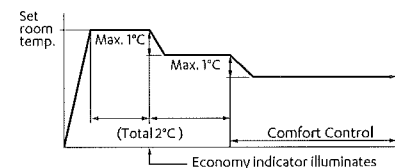
The 'L' and 'H' settings are not normally used as it means the heater operates without a set temperature.

Economy

Prevents the room overheating, reduces gas consumption, and ultimately saves energy. Once the room has reached the desired temperature, the unit automatically begins gradually reducing the set temperature (set temperature on digital display will stay the same). This reduction is normally not noticeable.

How it works

After the room reaches the set temperature, the set temperature will automatically start decreasing, dropping by a maximum of 1 °C in 30 minute blocks, until comfort control is reached. When in comfort control the unit alters combustion and fan speed to keep the room at a comfortable temperature.



The 'Economy' function will not operate when the set temperature is less than 16 °C or above 26 °C.

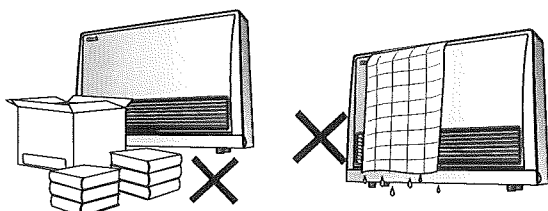
Safety

- Not to be connected to an LPG gas cylinder located indoors
- Do not place articles on or against this appliance
- Do not use or store flammable materials near this appliance
- Do not modify this appliance
- Do not spray aerosols in the vicinity of this appliance while it is operating

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instructions concerning the use of this appliance by a person responsible for their safety.

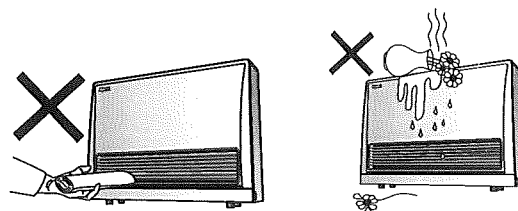
The power point must be to the side of the heater. It must not be above the unit as this is a potential fire hazard.

Do not restrict the warm air discharge by placing articles in front of the heater. This appliance must not be used for any purpose other than heating.



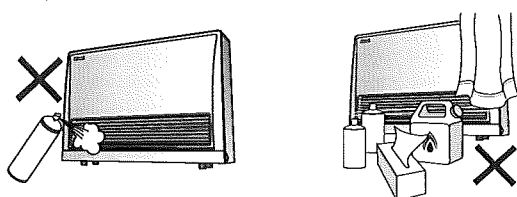
Do not allow anyone to post articles through the louvres, or let flammable and combustible materials to come into contact with the heater.

Do not place articles on or against the heater.

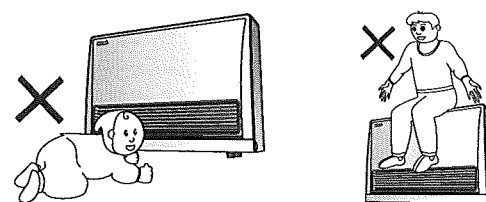


Do not spray aerosols while the appliance is operating. Most contain butane gas which can be a fire hazard if used near the appliance.

Do not use or store flammable materials near this appliance. Combustible materials must not be placed where the heater could ignite them.

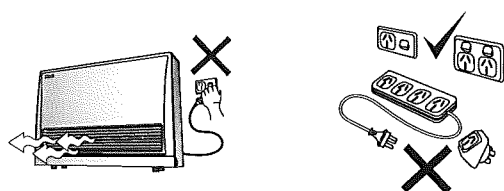


Children should be supervised at all times to ensure they do not play with the heater. Hand or body contact with the heater must be avoided, especially with the louvres, which can become very hot. Do not allow anyone to sit, lean or sleep directly in front of the heater.

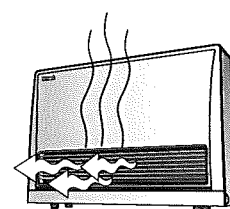


A dedicated 230 V 10 A power point must be used with this heater. Do not use double adaptors to operate this appliance.

Do not unplug the heater while it is still in use or while the fan is on.



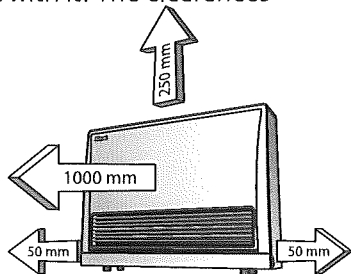
When the heater is used for the first time or after long periods of not being used, a slight odour may be emitted—this is normal. If odours persist turn the appliance off and contact Rinnai.



Important

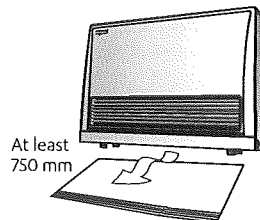
Clearances while the heater is operating

This appliance must not be installed where curtains or other combustible materials could come into contact with it. The clearances shown must be maintained.



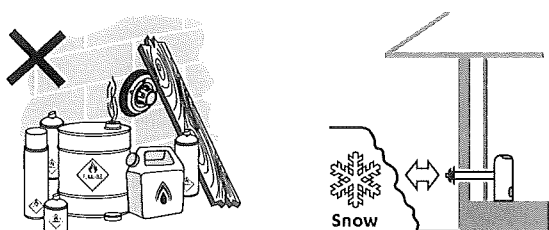
Floor protection

Energysavers discharge a large volume of warm air at a low level. Heat over time may affect the appearance of some flooring materials, 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 the appliance.



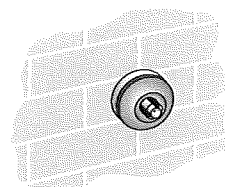
Outside flue terminal

Keep flammable materials, trees, shrubs, etc. away from the flue terminal. In areas subject to heavy snowfall, keep snow clear of the flue terminal at all times.



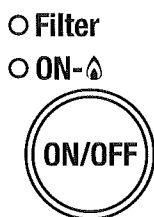
Outside flue terminal

On cold days steam may be discharged from the flue terminal. This is normal with high efficiency gas appliances like the Energysaver range and does not indicate a fault.



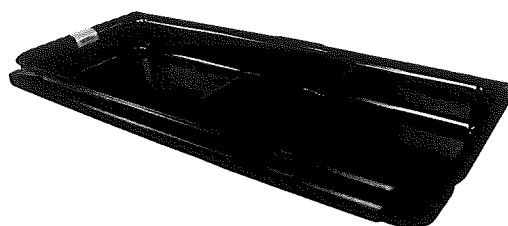
Filters

During peak operating periods the filters should be cleaned weekly. If the 'Filter' warning indicator flashes on the control panel display, immediately turn off the appliance and clean filters before starting again.



Humidifier tray

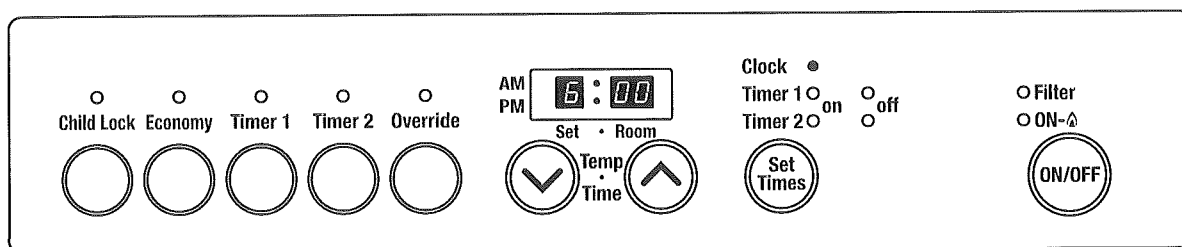
Do not overfill—there is a maximum water level indicator in the tray, also do not fill while the heater is operating (more information on p. 10).



The Energysavers must not be built into bookcases or walls etc.

Energysavers are not recommended for installations in unusually dusty environments such as hair salons or where there are a large number of pets—this will cause continual blockage of the filter(s).

Setting the clock



When the appliance is first plugged in or after a power failure the digital display will show --:--.

Setting the clock (example: setting the clock to 10:35 am)

1. Press the Set Times button once, the clock indicator will flash.
2. Press and hold the button, the minutes will change first followed by the hours.
3. Release the button when the AM 10:00 shows in the digital display. Confirm that you have selected AM, a small indicator on the left hand side of the digital display indicates the AM setting.
4. Press and hold the button again and release when the display shows AM 10:35. If you go past the time you can use the button to change the time setting in reverse.
5. Press the Set Times button five times (seven times for the 1005FT) to lock in the set time. The Clock and Timer indicators will go out and a small indicator on the display will flash to show the clock is operating. The display will dim approximately 10 seconds after the last button is pressed.

Digital display

The digital display is turned off when the appliance is turned OFF.

Daylight saving

Follow steps 1-5 to adjust for daylight saving and anytime the clock needs to be adjusted.

Setting and operating the timers

Before operating the timers the clock must be set and a timer start and finish time must be entered. The timers can be programmed to operate for any two time periods in 24 hours. The programmed time must be selected and locked-in within one minute of the timer indicators flashing otherwise the programmed times will not be retained in the the system memory.

The 1005FT model when setting the timers also requires a temperature to be set.

Don't worry if you make a mistake during programming. By pressing the Set Times button you can cycle through the different programming options (clocks and timers) and change if required.

^ = up button v = down button

Setting the timers RHFE-309FT, 559FT, 561FT

Example, program Timer 1 to heat the room by 7:10 am and finish at 9:00 am.

1. Press the Set Times button twice. The digital display will show AM 6:00 and the Timer 1 indicator will flash. Press the up or down button until AM 7:00 appears, release, then press the up or down button again until AM 7:10 appears.
2. Press the Set Times button again, the Timer 1 OFF indicator will flash. Press the up or down button until AM 9:00 appears.
3. Press the Set Button three times to lock in the programmed time. The digital display will show the current time.

Timer 2 is programmed in the same way—remember to ensure that the Timer 2 indicator is flashing before you start programming.

Setting the timers 1005FT

Example, program Timer 1 to heat the room by 7:10 am and finish at 9:00 am at a temperature of 18 °C.

1. Press the Set Times button twice. The digital display will show AM 6:00 and the Timer 1 indicator will flash. Press the up or down button until AM 7:00 appears, release, then press the up or down button again until AM 7:10 appears.
2. Press the Set Times button again, the Timer 1 OFF indicator will flash. Press the up or down button until AM 9:00 appears.
3. Press the Set Times button again, the Timer 1 Temp indicator will flash. Press the up or down button until 18 appears.
4. Press the Set Button four times to lock in the programmed time. The digital display will show the current time.

Timer 2 is programmed in the same way—remember to ensure that the Timer 2 indicator is flashing before you start programming.

Operating the timers

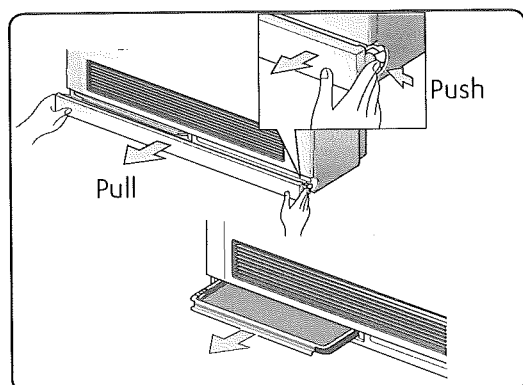
1. Press the ON/OFF button (ensure the clock and timer indicators are not flashing), the ON indicator will glow green.
2. For the RHFE-309FT, 559FT, and 561FT, using the up and down buttons, select the desired temperature setting.
3. Press the Timer 1 and/or Timer 2 button(s). The timer indicator(s) will glow and the heater will remain on standby until the timer setting is reached—timer indicator will flash and the heater will turn on.

Additional heater information

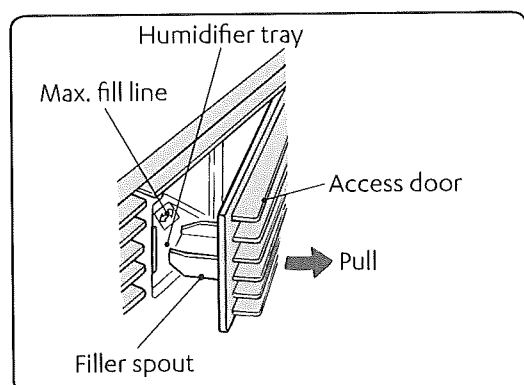
Humidifier tray

Your heater is fitted with an enamel humidifier tray. To fill the tray, open the access panel as shown in the diagrams below. Pour water into the tray, or in the case of the 1005FT, pour water into the filler spout built into the access panel.

RHFE-309FT / 559FT/561FT



RHFE-1005FT



If you notice water in the humidifier tray, but you have not placed any in there do not be alarmed, this is normal. This will be condensate from the flue system—designed to drain into the humidifier tray.

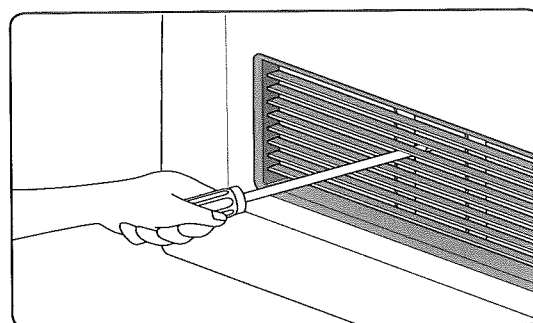
If you are using the humidifier tray, it will need filling approximately once a day.

- Do not fill the humidifier tray while the heater is on, it will be very hot and could cause burns—turn the heater off and wait at least five minutes.
- Do not operate the heater without the humidifier tray in place.

Vertical louvre adjustment

When the heater is turned off the warm air flow direction may be altered by carefully inserting a screwdriver or similar tool and gently bending the vertical louvres to the left or right.

The louvres are not designed to be adjusted more than six times as they will weaken and break.



Power failure

If a power failure occurs for at least 0.2 seconds the unit will turn itself off. After power has been restored the unit will automatically turn on again—you may need to reset the clock depending on the length of the power cut.

If timer settings have been programmed the system memory will retain the timer settings, but the clock will stop at the time the power goes off and will be slow by however long the power has been off.

Preheat

Automatic functions in conjunction with the timers. When a timer is selected, the heater may operate anywhere within an hour prior to the programmed on time. The preheat function ensures the room reaches the desired temperature by the programmed start time.

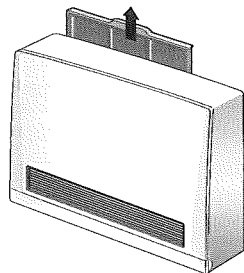
Care and maintenance

Before cleaning any part of the heater ensure it is turned off and has cooled down. All parts of the heater can be cleaned using a soft damp cloth and mild detergent—do not use solvents.

If the humidifier tray gets dirty it can be washed in warm soapy water.

Fan filter(s)

To protect the appliance from dust or lint a filter (two in the case of the 1005FT) is located at the rear of the appliance. If the filter becomes blocked the filter indicator will flash to indicate that it should be cleaned.



The build up of dust on the filter reduces the air flow through the heater. This reduces the heater's efficiency and can lead to the appliance shutting down. Regular (weekly) filter cleaning during the heating season will stop this from happening.

If you do not clean the filter at regular intervals and the 'Filter' indicator is allowed to remain flashing, the appliance will stop (ON indicator will flash and the display will show error code 14). The filter will need to be cleaned before operating the appliance again.

- Do not remove the filter when the appliance is operating.
- Do not use the heater with the 'Filter' indicator flashing as this may cause the appliance to overheat.

Cleaning the fan filter(s)

- Dry dust/lint: Use a duster or vacuum to remove the dust.
- Oily residue: Wash using a mild detergent, drain off the water, and dry.



Ensure the fan filter is fitted back into the appliance after cleaning. DO NOT operate the appliance without the filter in place.

Maintenance and servicing



Rinnai has a maintenance, service and spare parts network with personnel who are fully trained and equipped to give the best advice on your Rinnai appliance. If your appliance needs maintenance or servicing for repair, please call Rinnai (0800 746 624).

For reliable operation your Rinnai Energysaver, including inspection of the flue section, should be checked by a licensed tradesperson every two years. If located in a particularly dusty area or subject to excess lint, for example dog hair or where there are newly laid carpets, then annual servicing would be beneficial.

Regular maintenance and servicing is not covered by the Rinnai warranty.

If you have any other faults or problems, please contact your installer or call Rinnai.

Troubleshooting

Check the following information before making a service call. If you are still unsure or concerned after reading this section, please contact Rinnai.

Using the heater for the first time, or after a long period of non use

The heater may not start the first time it is operated due to air in the gas pipes. If ignition does not occur within approximately one minute the heater will attempt to start again. If it does not start the unit will switch itself off automatically—this is a safety feature. Try switching the heater back on if this occurs.

What's happening	Explanation and/or possible solution
Warm air not coming from the heater when it starts.	The heater's fan will start automatically after a short delay. This is to allow the appliance to warm up and to stop cold draughts.
Smoke or strange smells coming from the heater after it has been installed.	This is caused by grease, oil, or dust within the appliance. It will stop after a short time.
Clicking noises when the heater starts or stops, or changes to a higher or lower setting.	This is expansion and contraction of the heat exchanger and is a normal part of operation.
Clunking noise when the thermostat operates.	This is the sound of the gas valve opening and closing to regulate the flow of gas and is a normal part of operation.
Fan continues to run after the heater is turned off.	This is to remove heat from the appliance and will stop once the heater has cooled down.
Timer(s) do not operate at the set time.	Check the timers are set correctly as they may be inactivated or incorrectly programmed.
Timer operates for a short time then cuts out.	The room temperature may be higher than the set temperature. Increase the set temperature.
Smell of gas.	There may be a small leak in the appliance. Turn the heater off and contact Rinnai.
Heater doesn't start.	Check power cord is plugged in properly. Check Child Lock isn't on.

Error codes

The Energysaver range has built-in technology to continually monitor its own performance. If a fault occurs, an error message will flash on the digital display on the control panel. This assists with diagnosing the fault and may enable you to overcome a problem without a service call.

In all cases, you may be able to clear the error by turning the heater off and on again. If the error code remains or returns when the heater is used again, contact Rinnai.

Faults caused by insufficient gas supply, gas quality, installation or operation errors are not covered by the Rinnai warranty.

Error code	Likely cause	Suggested solution
11	Ignition failure	Check the gas supply is turned on, turn the heater OFF and then ON again. If the error persists a service call will be required.
12	Flame failure	As above.
14	Filter blockage/overheat	Clean filter(s), if error continues a service call is required.
16	Room overheat*	Lower room temperature to below 40 °C.
30	Overheat temperature sensor faulty	Service call.
31-32	Room temperature sensor faulty	Service call.
33-35	Overheat temperature sensor faulty	Service call.
53	Spark sensor faulty	Service call.
61	Combustion fan faulty	Service call.
62	Convection fan faulty	Service call.
70	Faulty ON/OFF switch	Service call.
71	Faulty solenoids	Service call.
72	Flame detection circuit fault	Service call.
73	Communication error	Service call.
81	Faulty solenoids	Service call.

* If the unit detects 40 °C for over ten minutes, the unit will stop operating.

Installation

Installation, servicing and repair shall be carried out only by authorised personnel.

Carton contents and item checklist

Unpacking the appliance

The heater is supplied in one carton containing the heater, standard rear panel set and screw pack. Remove all packaging materials and check for damage. If any damage is evident do not install or operate the appliance—contact your place of purchase for advice.

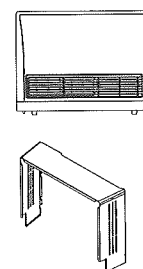
Before installing the heater, check it is labelled for the correct gas type. Refer to the data label at the rear of the heater.

The heater does not come supplied with flue components. These are purchased separately. Only Rinnai Energysaver flue components can be used with this appliance.

Carton contents and item checklist

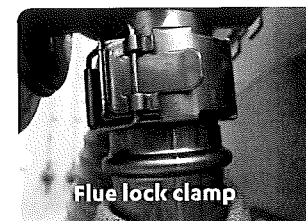
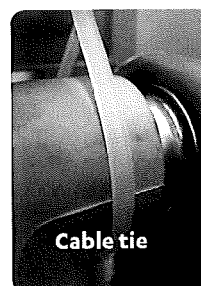
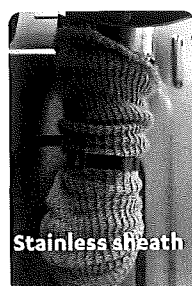
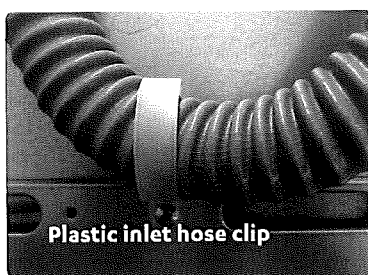
Check you have:

- One of the following Rinnai Energysaver heaters
 - RHFE-309FT - RHFE-559FT
 - RHFE-561FT - RHFE-1005FT
- One rear panel set comprising of left, right, and top panel cover panels
- One pack containing the following



Part		RHFE-1005FT	RHFE-309FT/559FT/561FT
Plastic inlet hose clips (holds the air intake hose in place)		0	2
Air intake baffle ring* (ensures maximum efficiency of the heater p. 21)		0	1 (309FT/559FT models only)
Stainless steel sheath clamp (holds the protective sock on the exhaust pipe in place)		1	1
Securing brackets (secures the heater to the wall p. 21)		2	2
150 mm cable tie (secures the air inlet elbow onto the flue)		1	1
Flue lock clamp (secures the exhaust pipe assembly onto the flue)		1 (large) 1 (small)	1 (small)
Screw hardware pack		1	1

* The air intake baffle ring is only required to be installed on 309FT/559FT models using the ESDFK component in a direct flue installation.

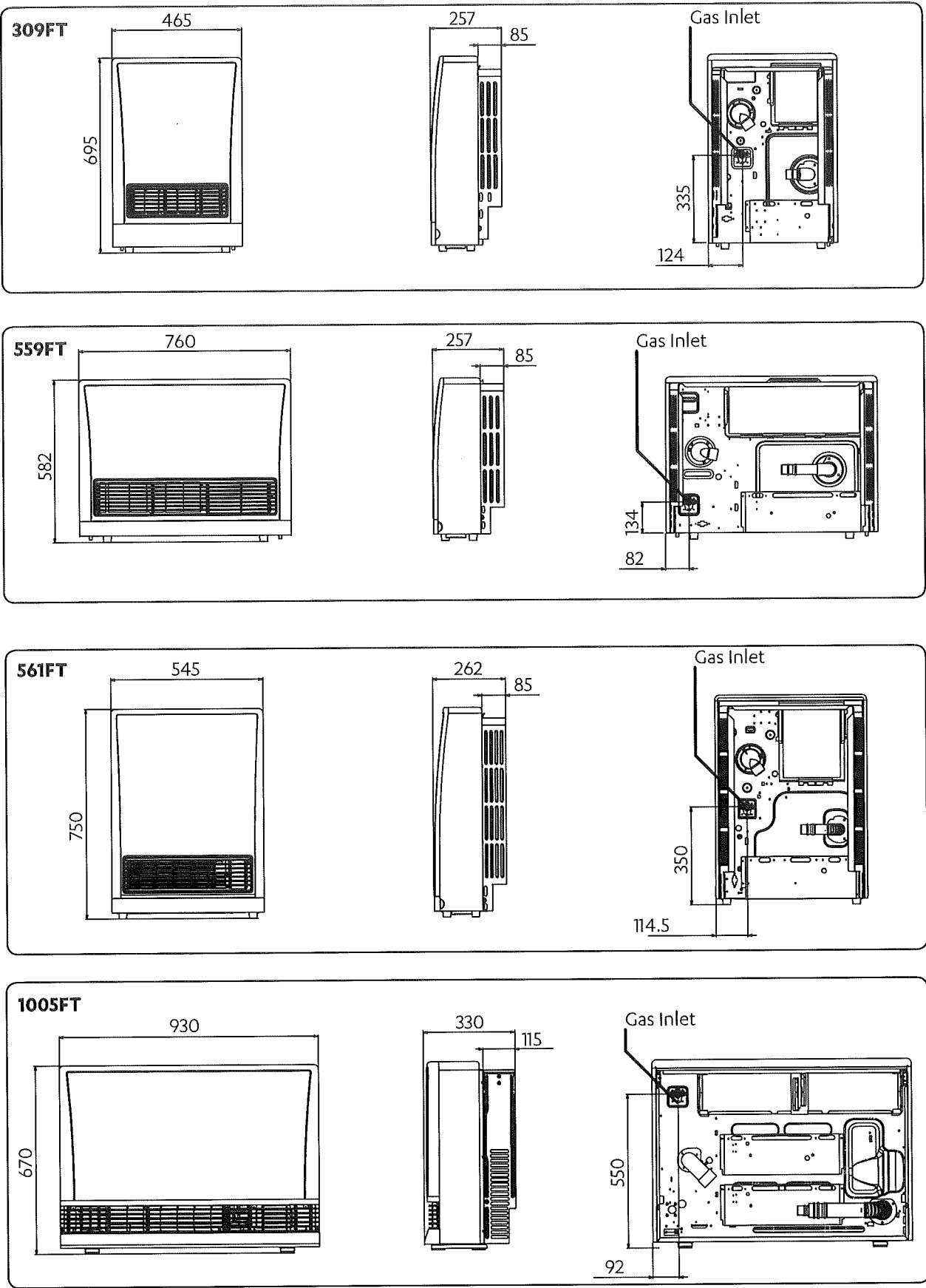


Energysaver specification summary

	Energysaver 309FT	Energysaver 561FT	Energysaver 559FT	Energysaver 1005FT
Colour	White with grey louvres	White with grey louvres	White with grey louvres	White with grey louvres
Data plate	Lower right hand side	Lower right hand side	Lower right hand side	Lower right hand side
Efficiency*	82.9%	82.7%	83.3%	83.5%
Energy star rating	4.8 star energy equivalent	4.8 star energy equivalent	4.8 star energy equivalent	4.8 star energy equivalent
Remote switch	No	No	No	Yes**
Gas connection	15 mm BSP male thread	15 mm BSP male thread	15 mm BSP male thread	15 mm BSP male thread
Input*	5.8-13 MJ/h	9-23 MJ/h	9-23 MJ/h	15.5-37 MJ/h
Output*	1.2-3.1 kW	1.9-4.9 kW	1.9-5.3 kW	2.3-8.8 kW
Humidifier tray capacity	0.8 L	1.0 L	1.0 L	3.0 L
Injectors (mm) Natural Gas	2 x 1.25 Ø	4 x 1.25 Ø	4 x 1.25 Ø	4 x 1.50 Ø 1 x 0.45 Ø
Injectors (mm) ULPG	2 x 0.85 Ø	4 x 0.82 Ø	4 x 0.82 Ø	4 x 1.00 Ø 1 x 0.30 Ø
Noise level	31-38 dB(A)	34-42 dB(A)	33-42 dB(A)	39-45 dB(A)
Power consumption	Approx. 41 W (on high) <1 W on standby	Approx. 90 W (on high) <1 W on standby	Approx. 50 W (on high) <1 W on standby	Approx. 123 W (on high) <1 W on standby
Temperature range	16-26 °C	16-26 °C	16-26 °C	16-26 °C
Weight	21 kg	25 kg	26 kg	42 kg
Additional features	Common to all Energysavers: Preheat function, dual timers, manual control, electronic ignition, economy mode, air filter, overheat safety device, and child lock.			
* Will vary depending on gas type and flue length				
** Remote switching kit R1347				
For gas pressure and gas type refer to the data plate on the lower right hand side of the appliance.				

Energysaver dimension diagrams

All dimensions are in mm.



Positioning, gas, and electrical supply

Positioning

The main points governing the location of the heater are flueing and warm air distribution. The heater must not be installed where curtains or other combustible materials could come into contact with the appliance. In some cases curtains may need restraining—refer p. 7 for clearance information.

This heater is not recommended for installations in unusually dusty environments such as hair salons or where there are a large number of pets—will cause continual blockage of the fan filter.

Gas supply

The gas supply terminates outside the heater at the rear of the appliance. The gap required between the wall and heater body is 85 mm for the standard rear panels (115 mm for the 1005FT) or 200 mm for the back spacer kit.

Gas piping must consider the gas input to this appliance as well as other gas appliances in the building. An approved sizing chart such as the one in AS/NZS 5601.1:2013 should be used.

All foreign materials such as filings must be purged from the gas supply as they may cause the gas control valve to malfunction.

Electrical supply

The electrical connection is to the right hand side of the heater (passes out of the rear of the appliance). A 3-pin plug with a 1500 mm power cord is supplied, this must be connected to a dedicated earthed power point. The power point must not be above the unit as this is a potential fire hazard.

Alternatively the appliance can be direct wired if the power supply is to be concealed. The electric isolation switch **MUST BE** accessible after the appliance has been installed. Consult a qualified electrician if direct wiring is required as it must comply with the requirement of AS/NZS 5601.1:2013 and AS/NZS 3000 and any other relevant local regulations.

If the supply cord is damaged and requires replacing, it must be replaced by a licensed tradesperson. This must be a genuine replacement part available from Rinnai.

Energysaver flueing guidelines

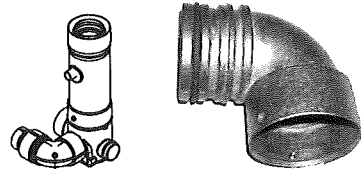
Every Energysaver heater requires a flue system that will draw effectively and clear flue products safely under all potential wind and climatic conditions.

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 listed below. These must be read and modified as necessary with reference to the particular installation.

All Rinnai Energysavers must be installed with an approved Rinnai Energysaver flue system. Approved flue components are detailed in this guide.

Clearance to combustibles

All Energysaver flueing components have zero clearance EXCEPT for the elbow section of the ESKIT03, and ESELBOWB. These components require a minimum clearance of 25 mm from combustible materials.



Elbow section

Condensate trap

A condensate trap is required for all vertical installations to ensure condensate generated during combustion is trapped and prevented from entering the chamber of the heater.

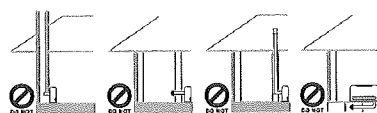
2° fall to wall terminal

For direct, sideways, and down-and-out installations, there must be a continuous fall of at least 2° to the wall terminal (equates to 20 mm per metre). The Energysaver AA/A direct mushroom flue kits have an inbuilt 2° fall, and the wall plate of the ESDFK kit has a 2° offset.

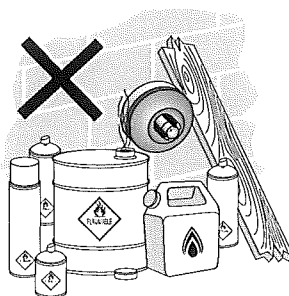
Flue terminal locations

Must be compliant with AS/NZS 5601.1:2013.

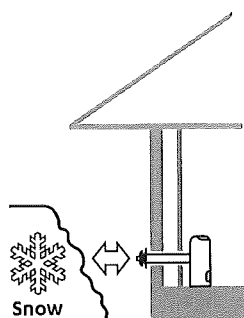
- Do not flue into natural draught flues or fireplaces.
- Do not flue into other rooms, roof spaces, or under floor spaces.



Flue terminal must be positioned away from flammable materials.



In areas subject to heavy snowfall, keep snow clear of the flue terminal at all times.



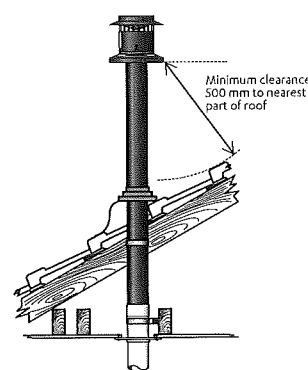
Flashings

Flashings are not part of the flue kit and must be specified.

Vertical terminations: 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 which should be clear of the ridge line. Lesser clearances may provide perfectly adequate flue systems depending on the installation. Minimum clearances are shown in AS/NZS 5601.1:2013.



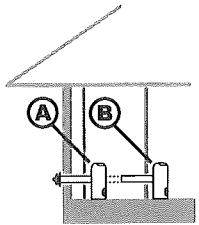
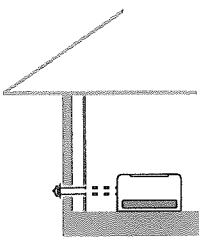
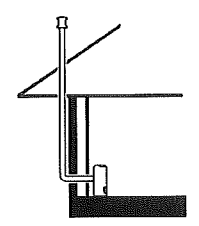
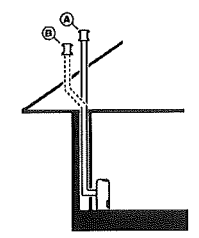
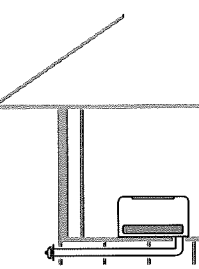
Maximum flue length and number of bends

Max. flue length = 9 m
Max. number of bends = 3

One 90° bend equals 1 m. For every 90° bend the overall length must be reduced by 1 m. For example, if an installation has three 90° bends, the maximum flue length can be 6 m.

The flue transition connection for the ESKIT03 and ESELBOWB is counted as a 90° bend.

Energysaver flueing options (most common)

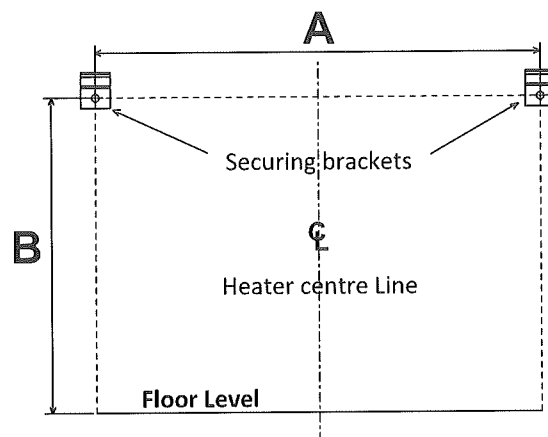
FLUEING OPTION	DESCRIPTION	FLUE COMPONENTS NEEDED
Direct and direct extended flueing		
	Direct through-the-wall flueing for walls 75-385 mm thick.	<u>A: Direct</u> - R1350, mushroom flue kit for walls 75-115 mm - R1351, mushroom flue kit for walls 115-240 mm - ESDFK ¹ , straight horiz. kit for walls up to 385 mm
	Flue can be extended if wall thickness is greater than 385 mm using the ESDFK and additional lengths of ESPIPE900.	<u>B: Direct extended</u> - ESDFK ¹ + ESPIPE900 ²
Horizontal (sideways extension) flueing		
	Flue runs along the left or right hand side of an internal wall behind the heater.	<u>Sideways in-wall</u> - ESDFK ¹ + ESELBOWB + ESPIPE900 ²
	If retrofitting the flue can be boxed in along the floor or behind a 125 mm false wall. This installation requires additional clearance off the wall—back spacer kit required.	<u>Sideways front-of-wall</u> - Back spacer kit + ESDFK ¹ + ESPIPE900 ²
Through-wall (vertical extension) flueing		
	Flue runs directly from the appliance to a vertical termination point on the roof. Typical installation examples for this type of flue configuration is for Energysavers installed against solid brick walls, or where there are flue clearance restrictions.	<u>Vertical termination</u> - ESDFK + ESBEND ³ + ESPIPE900 ² + ESKIT03 + ESROOFCOWL
In-wall (vertical extension) flueing		
	Flue is installed within a stud wall (minimum cavity depth of 90 mm) and is run vertically. This type of installation is usually completed at the framing stage.	<u>A: Direct</u> ESKIT03 + ESPIPE900 ² + ESROOFCOWL <u>B: Offset</u> ESKIT03 + ESPIPE900 ² + ESBEND ³ x 2 + ESROOFCOWL
Down and out flueing		
	Flue runs below floor level to an external termination point (must have a continuous fall of 2° to drain condensate). Ideal for Energysavers that need to be located in a central position of a building.	<u>Down and out</u> Back spacer kit + ESDFK ¹ + ESPIPE900 ² + ESBEND ³
		<u>Down and out in-wall</u> ESELBOWB + ESDFK ¹ + ESBEND ³ + ESPIPE900 ²
	If not going in-wall, flue configuration requires additional clearance off the wall—back spacer kit required.	<u>Down and out through-wall⁴</u> ESDFK ¹ + ESBEND ³ x 2 + ESPIPE900 ²

¹ Use terminal off ESDFK on outside wall² ESPIPE900, order lengths as required³ ESBEND kit contains 2 x 45° bends⁴ Installation that goes out to another room and then down and out

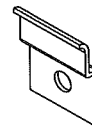
Installation

Connecting the heater to the gas pipe

1. Remove the plastic protection cap from the threaded gas inlet located at the rear of the appliance.
2. Position the appliance gas inlet in line with the gas supply.
3. Attach the gas supply pipe to the appliance gas inlet and tighten (finger tight).



Attach the two securing brackets supplied to the wall using the two 8 g x 30 mm screws supplied or suitable equivalent.



Baffle ring installation: 309FT/559FT installations using the ESDFK (direct flue)

To ensure maximum efficiency of the appliance a baffle ring is required to be installed for the 309FT and 559FT heaters that use the ESDFK in a direct flue installation (refer A: Direct flueing on previous page).

Mark the flue position

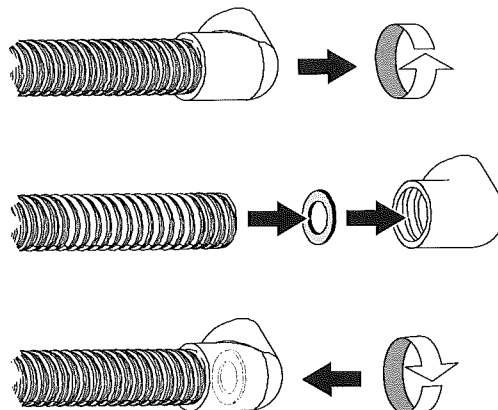
1. On the wall behind the appliance mark the vertical line of the heater, centre line .
2. Mark the flue penetration according to the instructions in the Energysaver flue installation manual. Undo the gas connection and remove the heater, and cut the flue penetration (wall penetration example shown below).

Attach securing wall brackets

Mark out the securing bracket screw holes using the heater centre line as reference. For example, the 309FT model is 465 mm wide so the centre line will be 232.5 mm. Measurement 'A' is 250 mm, which will be 125 mm either side of the centre line.

Model	A	B
RHFE-309FT	250 mm (125 mm either side of )	630 mm
RHFE-559FT	350 mm (175 mm either side of )	537 mm
RHFE-561FT	280 mm (140 mm either side of )	688 mm
RHFE-1005FT	875 mm (437.5 mm either side of )	622 mm

1. Unscrew the air intake elbow from the air intake hose (left handed thread, clockwise to undo).
2. Insert the air intake baffle ring into the appliance end of the air intake elbow.
3. Screw the air intake hose back into the air intake elbow, ensuring that the air intake baffle ring is seated flush against the end of the air intake hose.



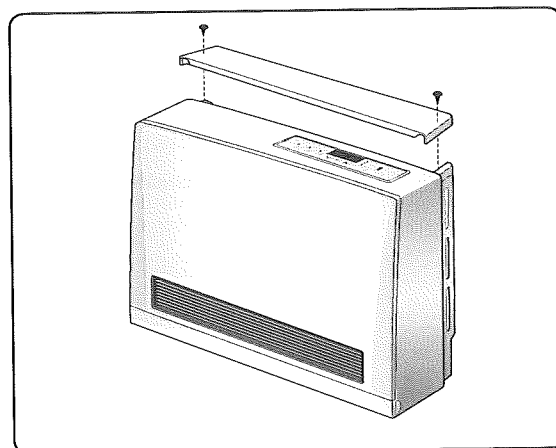
Install flue

1. Install the flue as per the instructions in the Energysaver flue installation manual.
2. Return the Energysaver to its final position and connect to the flue.
3. Connect gas supply line and fully tighten connection. Use a soapy solution to test all gas connections. If a leak is present bubbles will form at the leak point. When finished remove any residue with a rag. Prevent any soapy solution from coming into contact with the electrical components.
2. Remove the fan filter(s).
3. Carefully fit the top cover panel ensuring the rear fold locates neatly between the two securing brackets and the wall. Secure the top cover panel with the 6 g x 8 mm pan head screws supplied (2 for the 309, 559, 561FT, and 3 for the 1005FT).

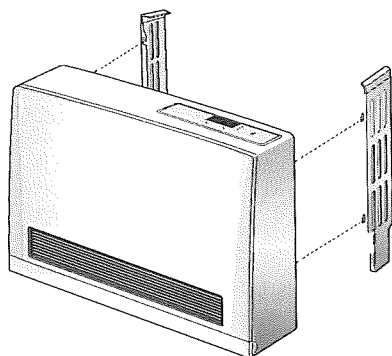
Fit the rear panels

The rear panels are NOT an optional component and MUST BE fitted to ensure the correct and safe operation of the appliance while also providing concealment and protection of the flue and gas connections. Failure to fit the panels will void any warranty.

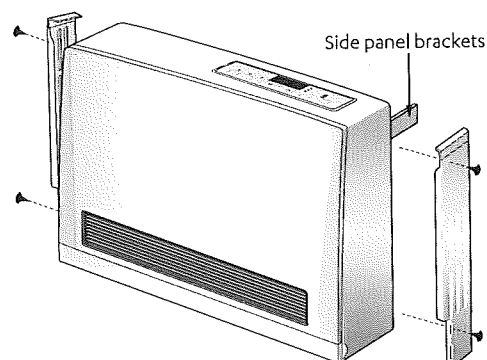
1. Fit the left and right cover panels to the rear of the appliance by clipping the panels onto the location tabs, then fastening into position using the two 6 g x 8 mm self tapping screws. These screws located into the pre-drilled and formed recesses of the panels and appliance. N.B: The 1005FT model, in addition to the above step, also requires securing into the two side panel brackets, refer image below.
4. Replace the filter(s).



Side rear panels 309, 559, 561FT



Side rear panels 1005FT



Commissioning

For commissioning instructions, refer to the Commissioning sheet attached to the front panel of this appliance.

Ensure you leave this guide and the completed installation checklist with the customer. Explain to the customer about the use and care of the unit and that they understand the instructions and operation of the heater.

It is the responsibility of the installer to check that all flue gases are exhausted to the 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.

Burning in period

Advise the customer that during the initial burning in period of approximately two hours some vapour and smell may be emitted from the heater—this is normal. During this period the heater should be operated on 'High', ensure the space being heated is well ventilated.

Installation checklist

The installer must complete the installation checklist below and make sure this guide is left with you. They must also instruct you about the use and care of the appliance, and ensure you understand the safety instructions.

Checklist

- ☐ Appliance positioned in a suitable location (clearances, etc.).
- ☐ All packaging/protective materials removed prior to operation.
- ☐ Appliance test point pressure correct for the installation and flue configuration adjusted if necessary.
- ☐ Only Rinnai Energysaver flue components used.
- ☐ Sound air inlet hose and flue connections.
- ☐ Heater secured to wall.
- ☐ Gas connection correct and gas supply pipe purged of foreign matter before connection.
- ☐ Appliance inlet pressure correct with all other gas appliances operating.
- ☐ Where applicable condensate hose has been connected.
- ☐ Flue clearances and installation as per AS/NZS 5601.1:2013
- ☐ Customer advised to service the heater every two years.

Installer details

Company name:

Installer name:

Address:

Phone:

Mobile:

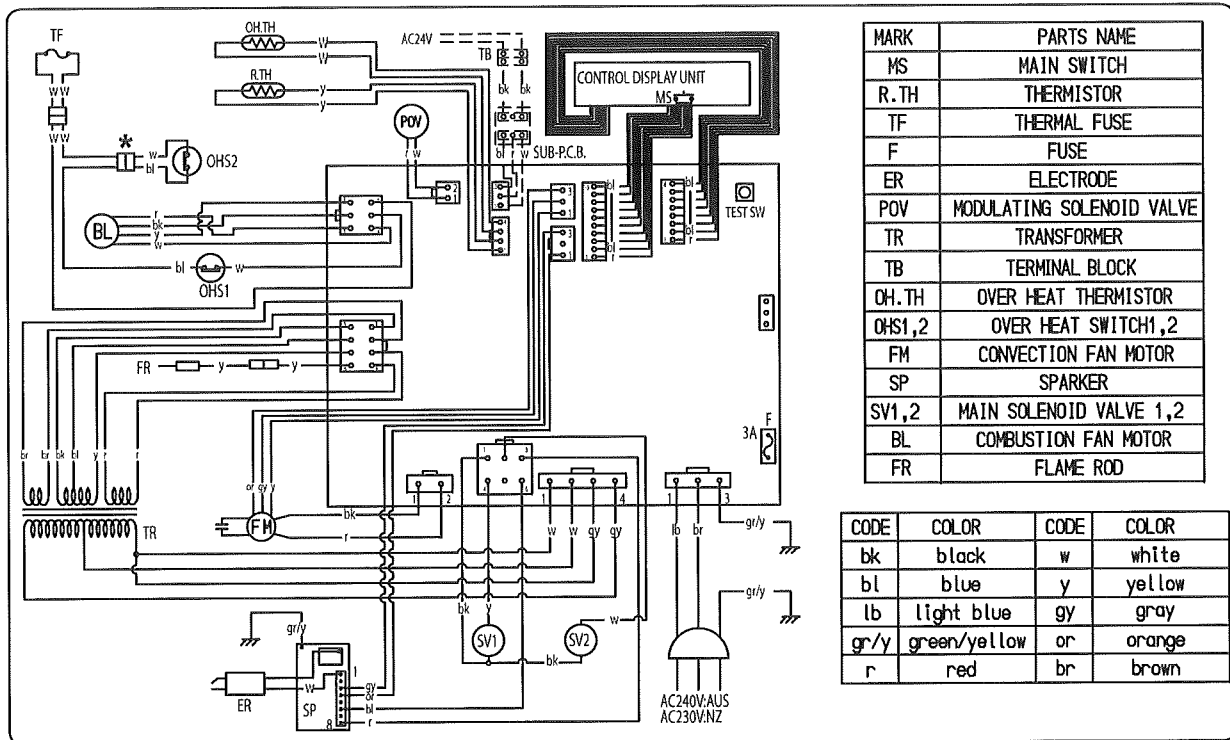
Certificate of compliance number for installation:

Signed:

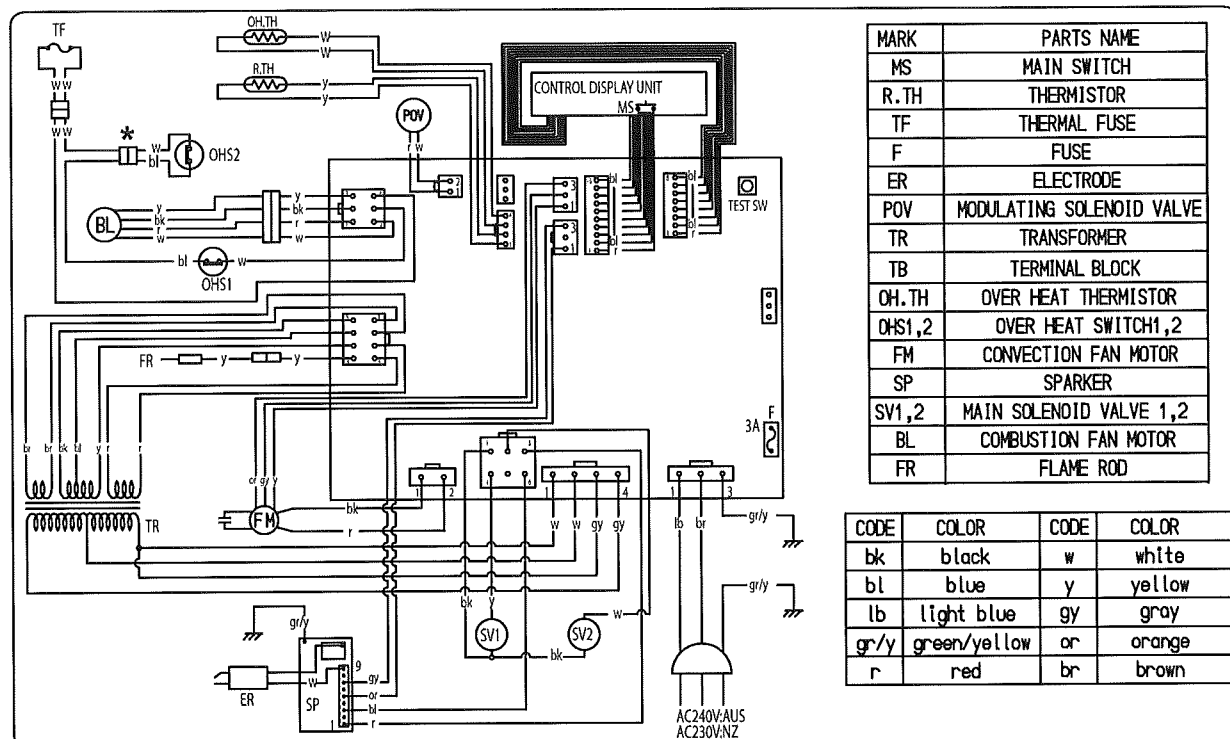
Date:

Wiring diagrams

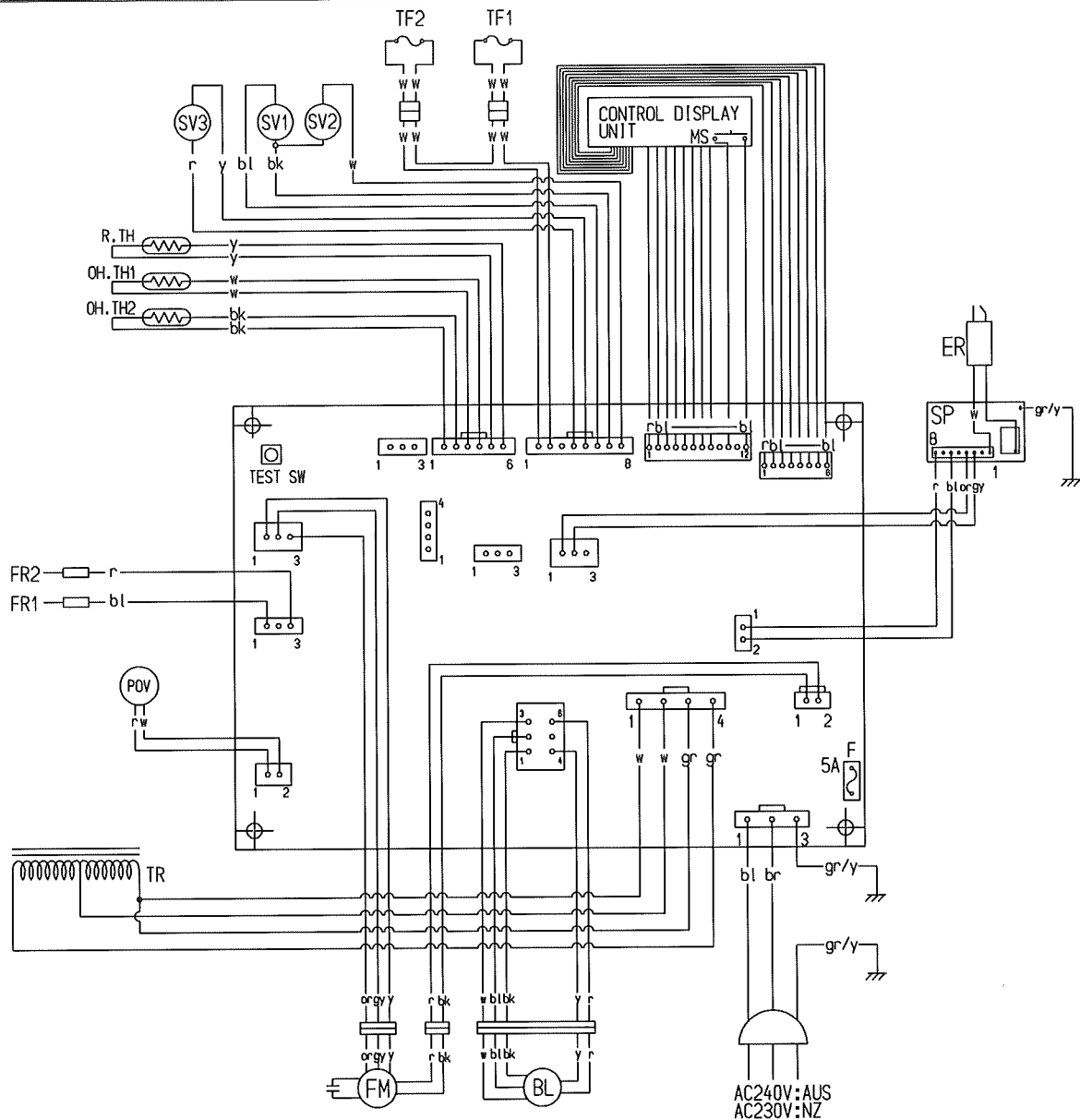
RHFE-309FT/ RHFE-559FT



RHFE-561FT



RHFE-1005FT



CODE	COLOR	CODE	COLOR
bk	black	w	white
bl	blue	y	yellow
gr/y	green/yellow	gy	gray
r	red	or	orange
gr	green	br	brown

MARK	PARTS NAME
MS	MAIN SWITCH
R.TH	THERMISTOR
TF1,2	THERMAL FUSE 1,2
F	FUSE
ER	ELECTRODE
POV	MODULATING SOLENOID VALVE
TR	TRANSFORMER
OH.TH1,2	OVER HEAT THERMISTOR 1,2
FM	CONVECTION FAN MOTOR
SP	SPARKER
SV1,2	MAIN SOLENOID VALVE 1,2
SV3	SOLENOID VALVE 3
BL	COMBUSTION FAN MOTOR
FR1,2	FLAME ROD 1,2

Limited Warranty

Rinnai brings you peace of mind with a:

2 Year minimum warranty

Terms and conditions

1. During the 24 month period from date of purchase and subject to clauses 2 and 3 below, Rinnai New Zealand Limited ("Rinnai") will, at its own discretion, either replace or repair any defective product at no charge to the customer.

2. This warranty covers manufacturing defects only. This warranty will not apply if (for example) the product has been improperly installed or is otherwise installed contrary to manufacturer's recommendations, has been damaged

during or after installation, has not been operated in accordance with operating instructions, or has been subjected to damage or abuse beyond that expected from conditions of normal use.

3. Warranty claims may be invalid if not accompanied by details of the installing or supervising gas fitter's registration number and the gas fitting certification number.

4. This warranty commences from the date of purchase. Proof of purchase is required at the time of any warranty claim.

5. Servicing of the product is to be carried out by a Rinnai authorised service centre.

All Rinnai appliances meet or exceed the safety standards required by New Zealand gas and electrical regulations. The company is constantly improving its products and as such specifications are subject to change or variation without notice.

RECORD YOUR DETAILS
OF PURCHASE BELOW:

Retailer:

Retailer address:

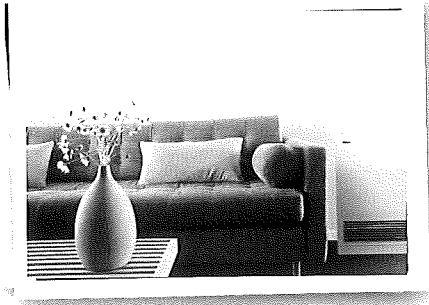
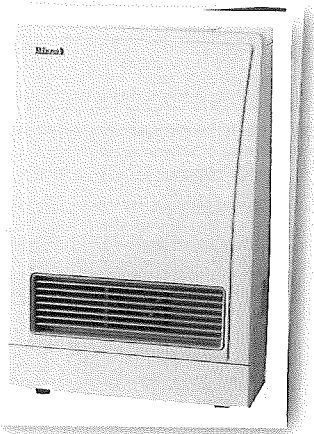
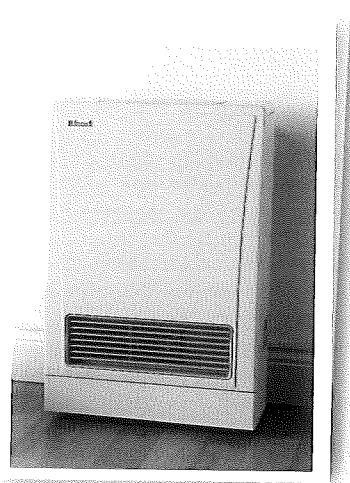
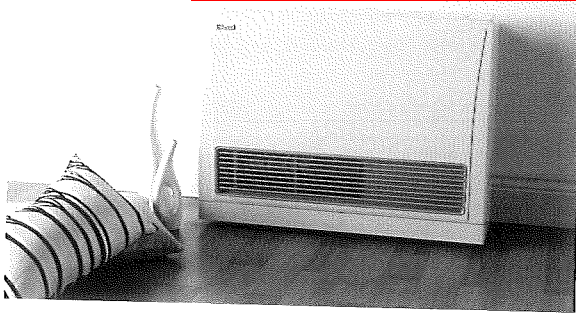
Date of purchase:

Product details:

Please keep these details in a safe place for future reference.

ATTACH YOUR PROOF OF
PURCHASE HERE:





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103112

RHF559-1153X06(00)



Rinnai

Energysaver[®] mushroom flue kit installation guide

Before installation check for damage (do not install any damaged items), check all components have been supplied, and read these instructions to get an overview of the steps required before starting.

Suitability

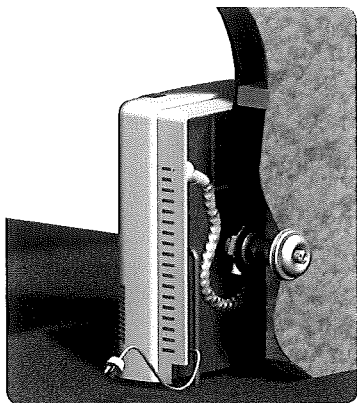
To suit the following Rinnai Energysaver direct mushroom flue kits:

- R1350 Direct AA mushroom flue kit
- R1351 Direct A mushroom flue kit

Wall penetrations

Where the flue is to penetrate ensure there are no wall studs, noggins, wiring, or other obstructions within the wall cavity.

In most instances the flue penetration can be marked using the heater and the mushroom flue. Where the heater is not on site use the penetration arc diagrams on p. 4. Once you have worked out where the flue is to penetrate drill a 80 mm flue hole and then follow the instructions on the following pages.



Direct AA mushroom flue kit

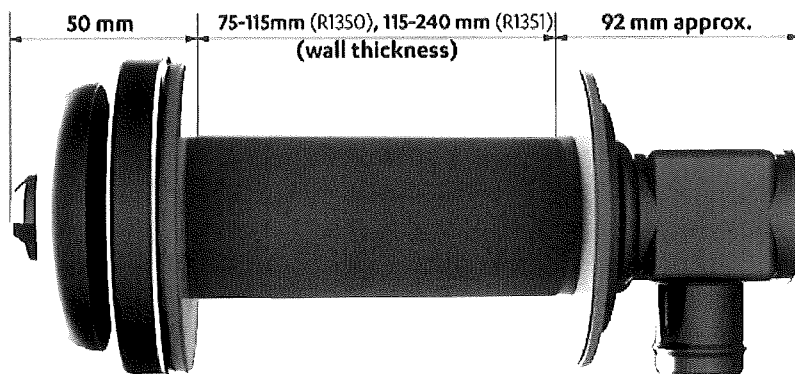
Code = R1350 (stainless steel)

For use in walls 75-115 mm thick (can be cut to size). This is a complete kit with an inbuilt 2° fall to drain condensate, no other components are required.

Direct A mushroom flue kit

Code = R1351 (stainless steel)

For use in walls 115-240 mm thick (can be cut to size). This is a complete kit with an inbuilt 2° fall to drain condensate, no other components are required.

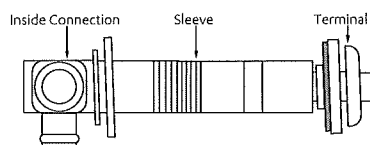


Sleeve and manifold installation

1. Disassemble

The flue consists of three parts; sleeve, inside connections and tube, and outside terminal.

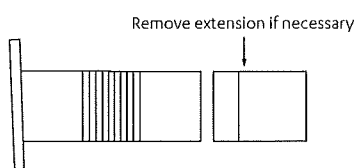
Disassemble by pulling hard on the outside terminal and inner connections, then pull the sleeve off the outer terminal.



2. Adjust sleeve length

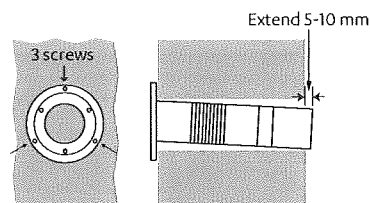
Measure the wall length through the drilled hole. Adjust the sleeve length to the wall thickness, plus 5-10 mm (required sleeve protrusion from wall).

Remove extension if necessary.

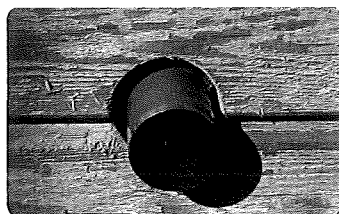
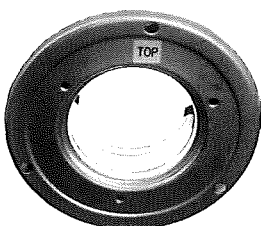


3. Fix sleeve

Fix the sleeve to the wall using the three screws provided. The flange is marked 'TOP'. The sleeve must be fitted with this mark up.

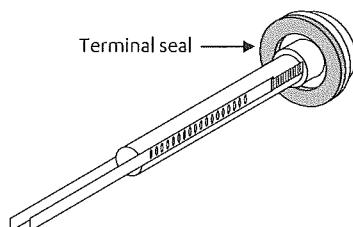


3. Fix sleeve continued



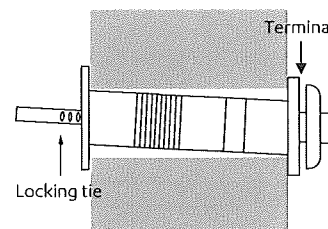
4. Rubber seal

Check the rubber seal is in place on the terminal. For weatherboard walls, add the spare rubber seal provided to compensate for the weatherboard angle.



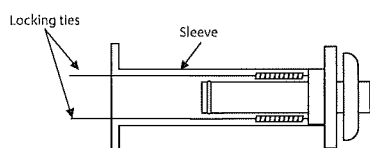
5. Install terminal

From the outside insert the terminal into the sleeve. Make sure 'TOP' is at the top and that the locking tie marked 'LEFT' is on the left.



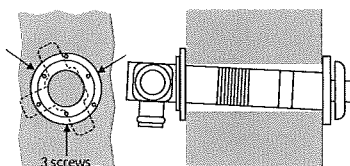
6. Lock the ties

Pull hard on the left and right hand ties, and clip the ties over the lugs inside the sleeve. You should be able to pull the ties two or three slots past the starting point. Cut the ties approx. 20 mm past the lugs and bend so they are parallel to the wall.



7. Insert inner connection

Push the inner connection assembly into the terminal tube. Ensure correct positioning—refer 'TOP' mark. Fix with the three screws provided.



8. Adjust manifold

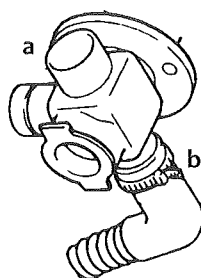
Adjust the manifold as required—it can still be turned after attaching.



Fitting the flue to the Energysaver

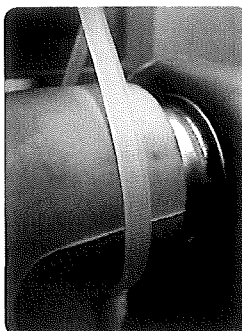
1. Attach the air inlet hose

Attach the combustion air hose to the flue manifold on the a or b position which is marked 'Air Intake'. The unused inlet is plugged with the rubber cap supplied.



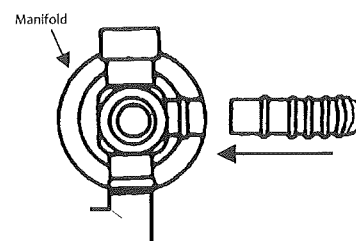
2. Attach the air inlet hose

Secure the combustion air hose to the combustion 'Air Intake' with the cable tie supplied with the heater.



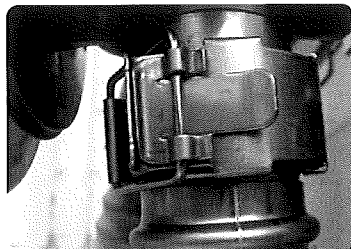
3. Connect flue outlet

The remaining steps can be completed by reaching down the rear of the appliance as it is positioned against the wall. Connect the flue outlet to the manifold until the stainless steel tube is fully inserted¹.



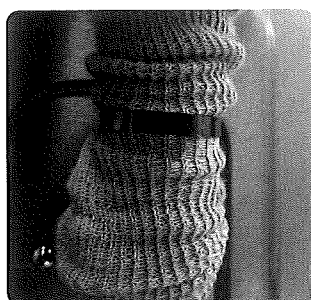
4. Attach the flue lock clamp

Attach the flue lock clamp², provided with the heater. Close the clamp until the tab locks to secure both components together.



5. Fit the insulation sleeve

Secure the protective sock on the exhaust pipe in place using the stainless steel sheath clamp provided with the heater.



Connecting the heater exhaust and air supply is critical. If the joint is not secured properly products of combustion could disperse into the room being heated.

¹The 559FT, 561FT, and 1005FT models, use the adjustable telescopic tube of the exhaust pipe to fine tune the position of the heater. DO NOT extend the telescopic tube past the red indicator groove.

Maximum extension



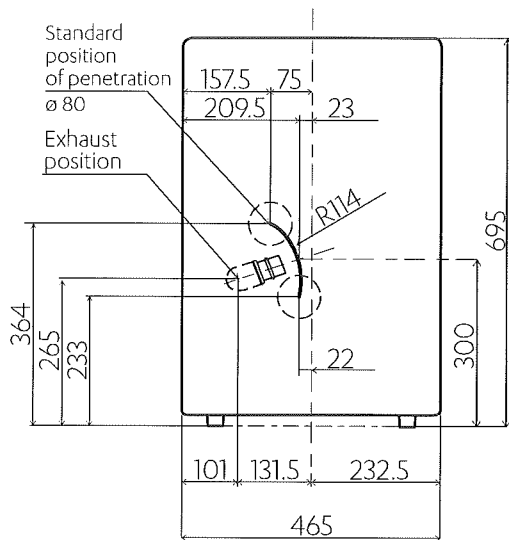
Incorrect tube is over extended



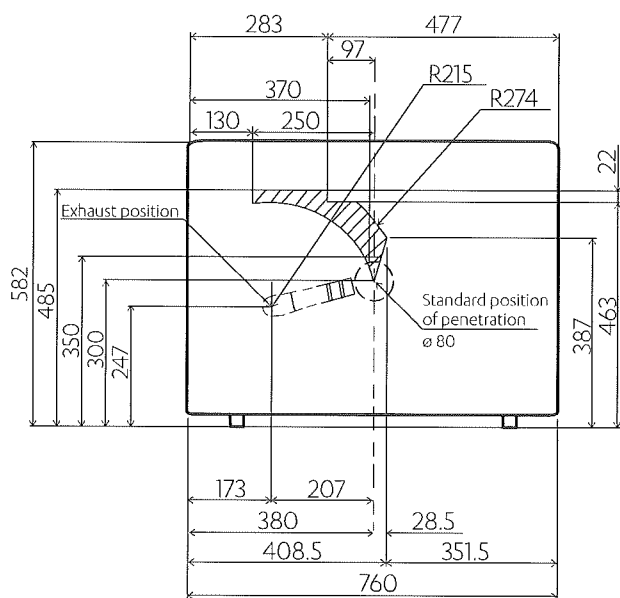
²1005FT Energysavers come with two flue lock clamps, one large and one small.

Penetration arc diagrams (mm)

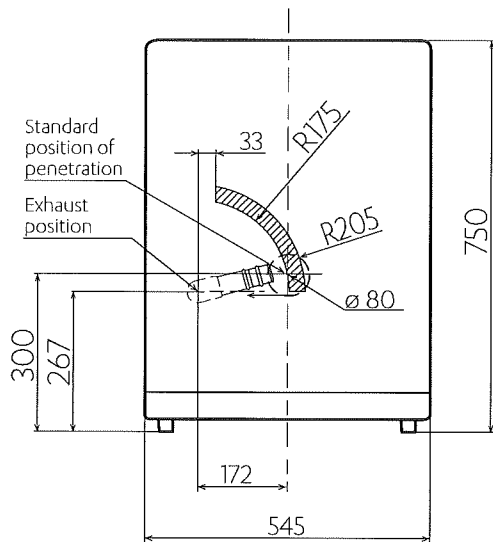
309FT



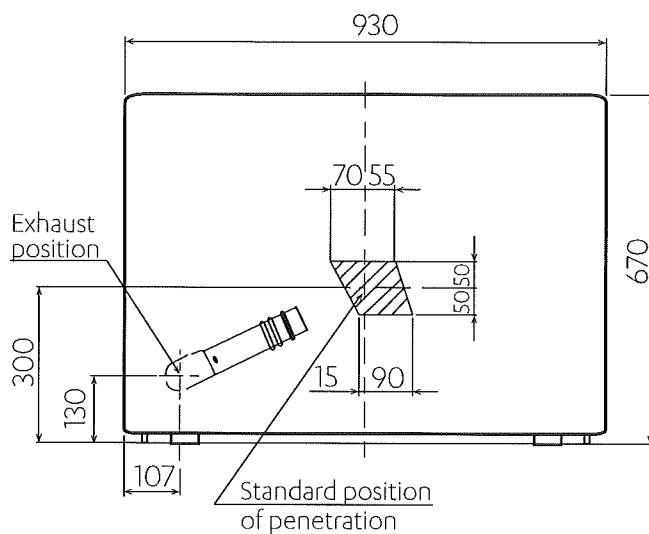
559FT



561FT



1005FT





FORM 7

CODE COMPLIANCE CERTIFICATE NUMBER BCon19/0766

Section 95(3), Building Act 2004

Mrs JL Hansen, Mr DI Lightfoot
17A McGregor Street
Milson
Palmerston North 4414

**Building Consent
No:** BCon19/0766

Issue Date: 12/11/2020

The building:

Street address of building:	Legal description of land where building is located:
9 Golf Vue Pl WHANGANUI	LOT 42 DP 392850 0.1094 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:	
2020	

The owner:

Name of Owner:	
Mrs JL Hansen, Mr DI Lightfoot	
Mailing address:	Street Address/registered Office:
17A McGregor Street Milson Palmerston North 4414	17A McGregor Street Milson Palmerston North 4414

Phone numbers:

Landline:	063569796	Mobile:	0212656247
Daytime:		After hours:	
Facsimile number:			
Email address:		Website:	

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

Contact Person:	
Mr DJ Coker	
Mailing address:	Street Address/registered Office:
144 Westmere Station Road, RD 1, Whanganui 4571	144 Westmere Station Road, RD 1, Whanganui 4571

Phone number:

Landline:		Mobile:	027936216
Daytime:	063454757	After hours:	
Facsimile number:			
Email address:	coker.d.l.e@xtra.co.nz	Website:	

Building Work

Building consent number:	Issued by:
BCon19/0766	Whanganui District Council
Type of Work	
Single Detached Residential	
Description of Work	
Construct a new detached dwelling with attached garage.	
Intended Life	Estimated Value
Indefinite but not less than 50 years.	\$450000.00

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