GREAT LAKE TAUPŌ
Taupō District Council

Property File

Property File No: REF210327885

I have requested that the information be provided to me under the Local Government Official Information and Meetings Act 1987 (LGOIMA). Council is protected from liability for having provided this information by s41 of the LGOIMA. Council is not liable for any inaccuracies or errors in the information provided.

The information provided does not constitute a Land Information Memorandum or any similar document.

I will only use the information for a lawful purpose and will not use, copy or distribute any private or confidential information in a way that might constitute a breach of the Privacy Act.

The content of this document is confidential and may contain copyright information and/or legally privileged information. If the document is not intended for you, you must not use, read, copy or distribute it. If you have received the information by mistake please call 64 7 376 0899 immediately and erase all material immediately.

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Application accepted 11/05/17 - A1935477

From: buildingconsents@taupodc.govt.nz
Sent: Wednesday, 10 May 2017 8:44 p.m.
To: clint.bramley@callplus.net.nz; clint.bramley@callplus.net.nz; Tech Support; buildingconsents
Subject: Accepted Building Consent application for 6 The Fairways, Kinloch
Attachments: REF170506714.pdf

Categories: Steph Henson

Your online building consent application has been accepted.

Attached is a copy of the vetting checksheet completed by the vetting officer, for the proposed works at 6 The Fairways, Kinloch (REF170506714).

We will advise you of the outcome within 20 working days.

Please note that further information may be requested during the processing of your application.

Kind regards,
Taupō District Council Building Consent Team

Taupo District Council
72 Lake Terrace, Taupo
Private Bag 2005, Taupo 3352
New Zealand

Telephone 00 64 7 376 0899
Fax 00 64 7 378 0118
Email info@taupo.govt.nz
Website www.taupodc.govt.nz

GREAT LAKE TAUPŌ
Taupō District Council

Application for Building Consent/PIM (including Amendment &Temporary Structures) Checklist

Reference Number:	REF170506714
Submitted On:	09/05/2017 01:51
Submitted By:	clint bramley
Status:	Accepted

Office Use Only

PIM Required?	PIM
Restricted Building Work?	Yes
Building Category	Residential 1

General Documentation Required

Owner authorisation provided	Pass
Form 2A Certificate of Design Work	Pass
All drawings must meet the minimum requirements of the technical drawings standard AS/NZS1100 with a minimum font size of Microsoft Word text size 8. Index provided for plans and specifications.	Pass
Are you applying for owner/builder exemption? If yes, the appropriate documentation including Form 2B is to be supplied	N/A
All documents including photocopies must be legible	Pass
All plans are to be titled and dated (or version number)	Pass

Legal Documentation Required

Evidence of ownership provided.	Pass
Vetting Officer Comments	Council to provide CT
Comment from Vetting Officer:	Accepted, thank you. Steph M.

Vetting checksheet - A1935479

Taupo District Council
72 Lake Terrace, Taupo
Private Bag 2005, Taupo 3352
New Zealand

Telephone 00 64 7 376 0899
Fax 00 64 7 378 0118
Email info@taupo.govt.nz
Website www.taupodc.govt.nz

GREAT LAKE TAUPŌ
Taupō District Council

Application for Building Consent/PIM (including Amendment &Temporary Structures) Checklist

Reference Number:	REF170506714
Submitted On:	09/05/2017 01:51
Submitted By:	clint bramley
Status:	Accepted

Office Use Only

PIM Required?	PIM
Restricted Building Work?	Yes
Building Category	Residential 1

General Documentation Required

Owner authorisation provided	Pass
Form 2A Certificate of Design Work	Pass
All drawings must meet the minimum requirements of the technical drawings standard AS/NZS1100 with a minimum font size of Microsoft Word text size 8. Index provided for plans and specifications.	Pass
Are you applying for owner/builder exemption? If yes, the appropriate documentation including Form 2B is to be supplied	N/A
All documents including photocopies must be legible	Pass
All plans are to be titled and dated (or version number)	Pass

Legal Documentation Required

Evidence of ownership provided.	Pass
Vetting Officer Comments	Council to provide CT
Comment from Vetting Officer:	Accepted, thank you. Steph M.

Application submitted 09/05/17 - A1935503

From: buildingconsents@taupodc.govt.nz
Sent: Tuesday, 9 May 2017 2:28 p.m.
To: clint.bramley@callplus.net.nz; clint.bramley@callplus.net.nz; Tech Support
Subject: Building consent application submitted for 6 The Fairways, Kinloch
Attachments: REF170506714.pdf

Please be advised that Taupō District Council is in receipt of your Building Consent application for 6 The Fairways, Kinloch.

We have included a copy of your application for your reference.

Application reference number: **REF170506714**

Owner: Murray Jones
Address: 808 Acacia Bay Road, Acacia Bay, Taupo 3330
You will be updated on the status of your application within 2 business days.

Kind regards,
Taupō District Council Building Consent Team

Taupo District Council
72 Lake Terrace, Taupo
Private Bag 2005, Taupo 3352
New Zealand

Telephone 00 64 7 376 0899
Fax 00 64 7 378 0118
Email info@taupo.govt.nz
Website www.taupodc.govt.nz

GREAT LAKE TAUPŌ
Taupō District Council

Application for Building Consent/PIM (including Amendment &Temporary Structures)

Reference Number:	REF170506714
Submitted On:	09/05/2017 01:51
Submitted By:	clint bramley

Property Selection

Property ID	0738183051
Address	6 The Fairways, Kinloch
House Number	
Street	
Suburb	
Area Description	
Legal Description	LOT 52 DP 347410
Location	Map
Property Type	Residential
Valuation Number	
Property Ward	

Application &Project

Nature of application:	Residential
Application Info	Building Consent &Project Information Memorandum (PIM)
Project Information Memorandum	
MemoAvailable	• Subdivision • Alterations to land contours (e.g. digging out the site for a building platform) • New or altered connections to public utilities (e.g. Council sewer, stormwater or water mains) • New or altered access for vehicles • Disposal of wastewater or stormwater
Is there an existing PIM?	No
National Multi-Use Approval	No
Building name:	Jones Residence
Location of building within site/block number:	6 The Fairways, Kinloch
Level/Unit number:	

Number of levels:	1
Floor area:	256.6
Current, lawfully established use:	Housing
Year first constructed:	
Add number of occupants per level and per use if more than one:	
Description of the building work:	Proposed new Residence
Will the building work result in a change of use of the building?	No
Intended life of the building, if less than 50 years:	50 years
List any previous building consents/PIMs for this project, if applicable:	
Estimated value of the building work on which the building levies will be calculated (including GST):	650000.00
Does the building/site have any cultural significance, or is a Marae?	No
Is there a new swimming pool or spa pool proposed for this project?	No
Will the building work include any restricted building work?	Yes
Accept TandC	Yes

Applicant Details

Privacy Statement	
Name of owner(s)	Murray Jones
Contact person	
Mailing address	808 Acacia Bay Road, Acacia Bay, Taupo 3330
Street address/registered office	
Landline	
Mobile	0274574923
Daytime	
After hours	
Fax	
Email address	clint.bramley@callplus.net.nz
Confirm email address	clint.bramley@callplus.net.nz
Website	
The following evidence of ownership is attached	Council to provide Certificate of Title (cost associated)
Does a consent notice exist for this property?	No
Is there an agent working on behalf of the applicant?	Yes
Name of agent/business	Urbanform Architecture
Contact person	Clint Bramley
Mailing Address	PO Box 1604, Taupo 3351
Street address/registered office	
Landline	
Mobile	021544780
Daytime	
After hours	
Fax	

Email address	clint.bramley@callplus.net.nz
Confirm email address	clint.bramley@callplus.net.nz
Website	
Relationship to owner	designer
I confirm that I am authorised to submit this application on behalf of the owner and a copy of this authorisation is attached to this application.	Yes
Please upload authorisation documentation	• **authorisation.pdf (115737 bytes)**
First point of contact for technical queries related to the processing of this application	Agent
The person specified below will be responsible for all debt associated with this building consent.	
In ticking this box I agree that I will pay, or arrange payment, of all fees payable in respect of this application. I acknowledge that a cancellation fee may be payable if this application is withdrawn before a building consent is issued	Yes
Please specify the billing details for this application	Owner

Building Code

For further information on the below Building Code Clauses please visit the following website address: www.dbh.govt.nz/compliance-documents

Please complete all applicable building code clauses	
B1 Structure	Yes
Please select all that apply to your project:	• B1/AS1 • NZS3604
Please select all applicable verification methods	• B1/VM1
Alternative solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
B2 Durability	Yes
Please select all that apply to your project	• B2/AS1
Please select all applicable verification methods	• B2/VM1
Alternative solution?	No
Waiver/Modification?	No
Proposed Inspector	
C1-C6 Fire Safety Classes	N/A
D1 Access Routes	N/A
D2 Mechanical Installation for Access	N/A
E1 Surface Water	Yes
Please select all that apply to your project	• E1/AS1
Please select all applicable verification methods	• E1/VM1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
E2 External Moisture	Yes
Please select all that apply to your project	• E2/AS1
Please select all applicable verification methods	• E2/VM1

Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
E3 Internal Moisture	Yes
Please select all that apply to your project	• E3/AS1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
F1 Hazardous Agents on Site	N/A
F2 Hazardous Building Materials	Yes
Please select all that apply to your project	• F2/AS1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
F3 Hazardous Substances and Processes	N/A
F4 Safety from Falling	N/A
F5 Construction and Demolition Hazards	Yes
Please select all that apply to your project	• F5/AS1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
F6 Visibility in Escape Routes	N/A
F7 Warning Systems	N/A
F8 Signs	N/A
G1 Personal Hygiene	Yes
Please select all that apply to your project	• G1/AS1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
G2 Laundering	Yes
Please select all that apply to your project	• G2/AS1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
G3 Food Preparation and Prevention of Contamination	Yes
Please select all that apply to your project	• G3/AS1
Alternative Solution?	No
Waiver/Modifications?	No
Proposed Inspector	Council
G4 Ventilation	Yes
Please select all that apply to your project	• G4/AS1
Please select all that apply to your project	• G4/VM1
Alternative Solution?	No

Please upload supporting documents	**No files uploaded**
Waiver/Modification?	No
Proposed Inspector	Council
G5 Interior Environment	Yes
Please select all that apply to your project	• G5/AS1
Please select all that apply to your project	• G5/VM1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
G6 Airbourne Impact Sound	N/A
G7 Natural Light	Yes
Please select all that apply to your project	• G7/AS1
Please select all that apply to your project	• G7/VM1
Alternative Solution?	No
Waiver/Modifications	No
Proposed Inspector	Council
G8 Artificial Light	Yes
Please select all that apply to your project	• G8/AS1
Please select all that apply to your project	• G8/VM1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
G9 Electricity	Yes
Please select all that appyly to your project	• G9/AS1
Please select all that apply to your project	• G9/VM1
Alternative Solution?	No
Waiver/Modification?	No
By certification only	
G10 Piped Services	Yes
Please select all that apply to your project	• G10/AS1
Please select all that apply to your project	
Alternative Solution?	No
Waiver/Modification?	No
By certification only	
G11 Gas as an Energy Source	Yes
Please select all that apply to your project	• G11/AS1
Alternative Solutions?	No
Waiver/Modifications?	No
By certification only	
G12 Water Supplies	Yes
Please select all that apply to your project	• G12/AS1
Please select all that apply to your project	• G12/VM1
Alternative Solution?	No

Waiver/Modification?	No
Proposed Inspector	Council
G13 Foul Water	Yes
Please select all that apply to your project	• G13/AS1
Please select all that apply to your project	• G13/VM1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	• Council
G14 Industrial Liquid Waste	N/A
G15 Solid Waste	Yes
Please select all that apply to your project	• G15/AS1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
H1 Energy Efficiency	Yes
Please select all that apply to your project	• H1/AS1
Please select all that apply to your project	• H1/VM1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council

Compliance Schedule

SS16 - Cable Cars	Not Applicable

Application Checklist

Use this checklist when finalising your building drawings/plans to assist you to lodge a complete application and to avoid delays in processing. Your application will be accepted based on this checklist to ensure that is has sufficient information to commence processing. All items on this checklist must be circled to show that they are either provided or are not applicable to your project (N/A).

Later additional information may be requested during the processing of your building consent to confirm compliance with the Building Act, Building Code, District Plan and any other relevant legislation. Processing time will be suspended until information is received.

General Documentation Required

Owner authorisation provided	Yes
Form 2A Certificate of Design Work	Yes
All drawings must meet the minimum requirements of the technical drawings standard AS/NZS1100 with a minimum font size of Microsoft Word text size 8. Index provided for plans and specifications.	Yes
Are you applying for owner/builder exemption? If yes, the appropriate documentation including Form 2B is to be supplied	N/A
All documents including photocopies must be legible	Yes
All plans are to be titled and dated (or version number)	Yes
Comments	

Legal Documentation Required

Evidence of ownership provided.	N/A

Comments	CT to be provided by Council

Site/Location Plan

Site/Location Plan	Yes
North point	Yes
Road frontage indicated and street named	Yes
Location of all existing and proposed buildings	N/A
Distance of buildings to boundaries and distance between existing and proposed buildings including eaves and gutters.	Yes
Site levels and finished floor levels relative to Moturiki Datum survey point (if applicable)	Yes
Existing contours (proposed cut or fill also needs to be shown).	Yes
Building line restrictions and easements, if applicable	Yes
Site boundaries/exclusive area boundaries for cross lease properties and common areas clearly shown	Yes
Show calculations and percentage of net site coverage	Yes
Labelled points on boundaries where overshadowing is taken from.	Yes
Existing and proposed crossings/driveways, also showing berms and footpaths.	Yes
Sediment control plan	Yes
If building under or near transmission lines, please show transmission plan area or location of power lines.	N/A
Comments	Refer to sht. A002

Retaining Walls/Site Works

Retaining Walls/Site Works	N/A
Comments	

Floor Plan

Floor Plan	Yes
Plan of all floors describing the function of each room	Yes
Show all doors, windows and ventilation including enclosed space ventilation	Yes
Stairs, handrails and decking shown showing dimensions and details	N/A
Smoke alarm positions shown	Yes
For additions and alterations, the existing shall be shown separately to the proposed and to the same scale for comparison	N/A
Chimneys and solid fuel heaters	Yes
Lintel sizes/beam sizes and proprietary systems.	Yes
Comments	Refer to sht. A004

Framing Plan/Bracing Plan

Framing Plan/Bracing Plan	Yes
Bracing calculations/details - type and fixings	Yes
Framing plan, including size, centres, grade and treatment of members.	Yes
Bottom plate, top plate, stud, lintel fixing details.	Yes
Floor joist layout for floors and decks.	N/A
Upper storey floor design, if applicable.	N/A

Comments	Refer to sht. A010

Roof Plan

Roof Plan	Yes
Roof plans and roof bracing.	Yes
Truss types/roof framing layout, design statement and manufacturers PS1.	Yes
Truss/Rafter and purlin fixings.	Yes
Comments	Refer to sht. A008

Specific Design Engineering

Specific Design Engineering	Yes
Engineering calculations and scope of works.	Yes
Producer statements fully completed, signed and dated.	Yes
Engineered plans of Architectural plans with engineer's details to be signed, dated and stamped.	N/A
Proposed inspections regime	Yes
Comments	Refer to project specific specs and shts. A005 and A018

Elevations

Elevations	Yes
North, South, East and West elevations.	Yes
Overshadowing labelled to correspond with points on site plan shown on all elevations	Yes
Height from ground level to apex of building	Yes
Show existing finished ground levels/floor levels and proposed finished ground levels/floor levels (sub-floor ventilation and access).	Yes
Stairs, handrails and decking shown	N/A
Cladding systems, roofing type and any other relevant details	Yes
Window schedule	Yes
Roof pitch and chimneys (show height of chimney in relation to ridge)	Yes
Alterations to land contour, retaining, cut and fill and batters	Yes
Comments	Refer to sht. A003

Specifications &Other Documentation

Specifications and Other Documentation	Yes
Technical specifications for proprietary systems/products e.g. tile showers, membranes, claddings systems and foundation systems etc.)	Yes
H1 calculations	Yes
E2 Risk Matrix	Yes
Natural hazard assessment report, where applicable (erosion, falling debris, subsidence, inundation, slippage).	N/A
Comments	Refer to project specific specs

Plumbing &Drainage

Plumbing and Drainage	Yes
All existing SEWERS, sewer connections and sewer drains shown including Territorial Authority services	Yes

All existing STORMWATER drains and connections shown including Territorial Authority services	Yes
Proposed sewer and stormwater drains/soak holes, terminal vents shown.	Yes
Existing and proposed potable water supply.	N/A
All existing and proposed sanitary fittings including pipe sizes and gradients (isometric)	Yes
Wastewater design and on-site soil evaluation to show compliance with Waikato Regional Council rules.	N/A
Specifications for hot water heating system including seismic restraints.	N/A
Stormwater disposal design and calculations.	Yes
Comments	

Swimming Pool/Spa Pool

Swimming Pool/Spa Pool	N/A
Comments	

Fireplace

Solid Fuel Heater	Yes
Is the proposed appliance ‘clean air’ approved?	Yes
Make/Model of fire appliance.	Yes
Make &Model of fireplace:	Escea DL850 Gas Fire
Elevations showing roof cladding and height of flue in relation to roof.	Yes
Flashing details (roof/wall penetrations).	Yes
Entire floor plan showing position of proposed fireplace in relation to windows, doors and flammable materials. Include labels of all rooms.	Yes
Location of all smoke alarms.	Yes
Manufacturer specifications including seismic restraints and hearth information.	Yes
Wetback Installation	
Wetback installation	N/A
Comments	

Solar Heating

Solar Heating	N/A
Comments	

Cross Section

Cross sections	Yes
Drawings showing constructional details of foundations, floor systems, wall, ceiling, stud heights and stud sizes, roof construction, balustrades and barriers.	Yes
Surface finishes to wet areas (walls and floor to laundry, kitchen and bathroom).	Yes
Location and type of insulation.	Yes
Details for all penetration in walls, roof (i.e. windows, doors, meter boards, skylights etc.)	Yes
Cavity construction details, where applicable.	Yes
Comments	Refer to shts A006 and A007

Relocatable Buildings

Relocatable buildings	N/A
Comments	

Attachments

Please ensure all documents are correctly and adequately named prior to uploading.

Please upload the plans related to the proposed works in one document together (not as individual sheets)	• **permit plans.pdf (15431934 bytes)**
Please upload all generic specifications related to proposed works (not as individual sheets)	• **SPECIFICATION.pdf (743479 bytes)**
Please upload all project specific documentation related to proposed works (not as individual sheets)	• **project specific specifications 01.pdf (3178890 bytes)**
Please upload any other relevant documents	• **design memo.pdf (542394 bytes)**
Once issued I would like to receive my consent documentation by:	Pickup from Council - Printed versions incur an extra $35.00 minimum fee

Application form - A1935544

Taupo District Council
72 Lake Terrace, Taupo
Private Bag 2005, Taupo 3352
New Zealand

Telephone 00 64 7 376 0899
Fax 00 64 7 378 0118
Email info@taupo.govt.nz
Website www.taupodc.govt.nz

GREAT LAKE TAUPŌ
Taupō District Council

Application for Building Consent/PIM (including Amendment &Temporary Structures)

Reference Number:	REF170506714
Submitted On:	09/05/2017 01:51
Submitted By:	clint bramley

Property Selection

Property ID	0738183051
Address	6 The Fairways, Kinloch
House Number	
Street	
Suburb	
Area Description	
Legal Description	LOT 52 DP 347410
Location	Map
Property Type	Residential
Valuation Number	
Property Ward	

Application &Project

Nature of application:	Residential
Application Info	Building Consent &Project Information Memorandum (PIM)
Project Information Memorandum	
MemoAvailable	• Subdivision • Alterations to land contours (e.g. digging out the site for a building platform) • New or altered connections to public utilities (e.g. Council sewer, stormwater or water mains) • New or altered access for vehicles • Disposal of wastewater or stormwater
Is there an existing PIM?	No
National Multi-Use Approval	No
Building name:	Jones Residence
Location of building within site/block number:	6 The Fairways, Kinloch
Level/Unit number:	

Number of levels:	1
Floor area:	256.6
Current, lawfully established use:	Housing
Year first constructed:	
Add number of occupants per level and per use if more than one:	
Description of the building work:	Proposed new Residence
Will the building work result in a change of use of the building?	No
Intended life of the building, if less than 50 years:	50 years
List any previous building consents/PIMs for this project, if applicable:	
Estimated value of the building work on which the building levies will be calculated (including GST):	650000.00
Does the building/site have any cultural significance, or is a Marae?	No
Is there a new swimming pool or spa pool proposed for this project?	No
Will the building work include any restricted building work?	Yes
Accept TandC	Yes

Applicant Details

Privacy Statement	
Name of owner(s)	Murray Jones
Contact person	
Mailing address	808 Acacia Bay Road, Acacia Bay, Taupo 3330
Street address/registered office	
Landline	
Mobile	0274574923
Daytime	
After hours	
Fax	
Email address	clint.bramley@callplus.net.nz
Confirm email address	clint.bramley@callplus.net.nz
Website	
The following evidence of ownership is attached	Council to provide Certificate of Title (cost associated)
Does a consent notice exist for this property?	No
Is there an agent working on behalf of the applicant?	Yes
Name of agent/business	Urbanform Architecture
Contact person	Clint Bramley
Mailing Address	PO Box 1604, Taupo 3351
Street address/registered office	
Landline	
Mobile	021544780
Daytime	
After hours	
Fax	

Email address	clint.bramley@callplus.net.nz
Confirm email address	clint.bramley@callplus.net.nz
Website	
Relationship to owner	designer
I confirm that I am authorised to submit this application on behalf of the owner and a copy of this authorisation is attached to this application.	Yes
Please upload authorisation documentation	• **authorisation.pdf (115737 bytes)**
First point of contact for technical queries related to the processing of this application	Agent
The person specified below will be responsible for all debt associated with this building consent.	
In ticking this box I agree that I will pay, or arrange payment, of all fees payable in respect of this application. I acknowledge that a cancellation fee may be payable if this application is withdrawn before a building consent is issued	Yes
Please specify the billing details for this application	Owner

Building Code

For further information on the below Building Code Clauses please visit the following website address: www.dbh.govt.nz/compliance-documents

Please complete all applicable building code clauses	
B1 Structure	Yes
Please select all that apply to your project:	• B1/AS1 • NZS3604
Please select all applicable verification methods	• B1/VM1
Alternative solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
B2 Durability	Yes
Please select all that apply to your project	• B2/AS1
Please select all applicable verification methods	• B2/VM1
Alternative solution?	No
Waiver/Modification?	No
Proposed Inspector	
C1-C6 Fire Safety Classes	N/A
D1 Access Routes	N/A
D2 Mechanical Installation for Access	N/A
E1 Surface Water	Yes
Please select all that apply to your project	• E1/AS1
Please select all applicable verification methods	• E1/VM1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
E2 External Moisture	Yes
Please select all that apply to your project	• E2/AS1
Please select all applicable verification methods	• E2/VM1

Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
E3 Internal Moisture	Yes
Please select all that apply to your project	• E3/AS1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
F1 Hazardous Agents on Site	N/A
F2 Hazardous Building Materials	Yes
Please select all that apply to your project	• F2/AS1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
F3 Hazardous Substances and Processes	N/A
F4 Safety from Falling	N/A
F5 Construction and Demolition Hazards	Yes
Please select all that apply to your project	• F5/AS1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
F6 Visibility in Escape Routes	N/A
F7 Warning Systems	N/A
F8 Signs	N/A
G1 Personal Hygiene	Yes
Please select all that apply to your project	• G1/AS1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
G2 Laundering	Yes
Please select all that apply to your project	• G2/AS1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
G3 Food Preparation and Prevention of Contamination	Yes
Please select all that apply to your project	• G3/AS1
Alternative Solution?	No
Waiver/Modifications?	No
Proposed Inspector	Council
G4 Ventilation	Yes
Please select all that apply to your project	• G4/AS1
Please select all that apply to your project	• G4/VM1
Alternative Solution?	No

Please upload supporting documents	**No files uploaded**
Waiver/Modification?	No
Proposed Inspector	Council
G5 Interior Environment	Yes
Please select all that apply to your project	• G5/AS1
Please select all that apply to your project	• G5/VM1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
G6 Airbourne Impact Sound	N/A
G7 Natural Light	Yes
Please select all that apply to your project	• G7/AS1
Please select all that apply to your project	• G7/VM1
Alternative Solution?	No
Waiver/Modifications	No
Proposed Inspector	Council
G8 Artificial Light	Yes
Please select all that apply to your project	• G8/AS1
Please select all that apply to your project	• G8/VM1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
G9 Electricity	Yes
Please select all that appyly to your project	• G9/AS1
Please select all that apply to your project	• G9/VM1
Alternative Solution?	No
Waiver/Modification?	No
By certification only	
G10 Piped Services	Yes
Please select all that apply to your project	• G10/AS1
Please select all that apply to your project	
Alternative Solution?	No
Waiver/Modification?	No
By certification only	
G11 Gas as an Energy Source	Yes
Please select all that apply to your project	• G11/AS1
Alternative Solutions?	No
Waiver/Modifications?	No
By certification only	
G12 Water Supplies	Yes
Please select all that apply to your project	• G12/AS1
Please select all that apply to your project	• G12/VM1
Alternative Solution?	No

Waiver/Modification?	No
Proposed Inspector	Council
G13 Foul Water	Yes
Please select all that apply to your project	• G13/AS1
Please select all that apply to your project	• G13/VM1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	• Council
G14 Industrial Liquid Waste	N/A
G15 Solid Waste	Yes
Please select all that apply to your project	• G15/AS1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council
H1 Energy Efficiency	Yes
Please select all that apply to your project	• H1/AS1
Please select all that apply to your project	• H1/VM1
Alternative Solution?	No
Waiver/Modification?	No
Proposed Inspector	Council

Compliance Schedule

SS16 - Cable Cars	Not Applicable

Application Checklist

Use this checklist when finalising your building drawings/plans to assist you to lodge a complete application and to avoid delays in processing. Your application will be accepted based on this checklist to ensure that is has sufficient information to commence processing. All items on this checklist must be circled to show that they are either provided or are not applicable to your project (N/A).

Later additional information may be requested during the processing of your building consent to confirm compliance with the Building Act, Building Code, District Plan and any other relevant legislation. Processing time will be suspended until information is received.

General Documentation Required

Owner authorisation provided	Yes
Form 2A Certificate of Design Work	Yes
All drawings must meet the minimum requirements of the technical drawings standard AS/NZS1100 with a minimum font size of Microsoft Word text size 8. Index provided for plans and specifications.	Yes
Are you applying for owner/builder exemption? If yes, the appropriate documentation including Form 2B is to be supplied	N/A
All documents including photocopies must be legible	Yes
All plans are to be titled and dated (or version number)	Yes
Comments	

Legal Documentation Required

Evidence of ownership provided.	N/A

Comments	CT to be provided by Council

Site/Location Plan

Site/Location Plan	Yes
North point	Yes
Road frontage indicated and street named	Yes
Location of all existing and proposed buildings	N/A
Distance of buildings to boundaries and distance between existing and proposed buildings including eaves and gutters.	Yes
Site levels and finished floor levels relative to Moturiki Datum survey point (if applicable)	Yes
Existing contours (proposed cut or fill also needs to be shown).	Yes
Building line restrictions and easements, if applicable	Yes
Site boundaries/exclusive area boundaries for cross lease properties and common areas clearly shown	Yes
Show calculations and percentage of net site coverage	Yes
Labelled points on boundaries where overshadowing is taken from.	Yes
Existing and proposed crossings/driveways, also showing berms and footpaths.	Yes
Sediment control plan	Yes
If building under or near transmission lines, please show transmission plan area or location of power lines.	N/A
Comments	Refer to sht. A002

Retaining Walls/Site Works

Retaining Walls/Site Works	N/A
Comments	

Floor Plan

Floor Plan	Yes
Plan of all floors describing the function of each room	Yes
Show all doors, windows and ventilation including enclosed space ventilation	Yes
Stairs, handrails and decking shown showing dimensions and details	N/A
Smoke alarm positions shown	Yes
For additions and alterations, the existing shall be shown separately to the proposed and to the same scale for comparison	N/A
Chimneys and solid fuel heaters	Yes
Lintel sizes/beam sizes and proprietary systems.	Yes
Comments	Refer to sht. A004

Framing Plan/Bracing Plan

Framing Plan/Bracing Plan	Yes
Bracing calculations/details - type and fixings	Yes
Framing plan, including size, centres, grade and treatment of members.	Yes
Bottom plate, top plate, stud, lintel fixing details.	Yes
Floor joist layout for floors and decks.	N/A
Upper storey floor design, if applicable.	N/A

Comments	Refer to sht. A010

Roof Plan

Roof Plan	Yes
Roof plans and roof bracing.	Yes
Truss types/roof framing layout, design statement and manufacturers PS1.	Yes
Truss/Rafter and purlin fixings.	Yes
Comments	Refer to sht. A008

Specific Design Engineering

Specific Design Engineering	Yes
Engineering calculations and scope of works.	Yes
Producer statements fully completed, signed and dated.	Yes
Engineered plans of Architectural plans with engineer's details to be signed, dated and stamped.	N/A
Proposed inspections regime	Yes
Comments	Refer to project specific specs and shts. A005 and A018

Elevations

Elevations	Yes
North, South, East and West elevations.	Yes
Overshadowing labelled to correspond with points on site plan shown on all elevations	Yes
Height from ground level to apex of building	Yes
Show existing finished ground levels/floor levels and proposed finished ground levels/floor levels (sub-floor ventilation and access).	Yes
Stairs, handrails and decking shown	N/A
Cladding systems, roofing type and any other relevant details	Yes
Window schedule	Yes
Roof pitch and chimneys (show height of chimney in relation to ridge)	Yes
Alterations to land contour, retaining, cut and fill and batters	Yes
Comments	Refer to sht. A003

Specifications &Other Documentation

Specifications and Other Documentation	Yes
Technical specifications for proprietary systems/products e.g. tile showers, membranes, claddings systems and foundation systems etc.)	Yes
H1 calculations	Yes
E2 Risk Matrix	Yes
Natural hazard assessment report, where applicable (erosion, falling debris, subsidence, inundation, slippage).	N/A
Comments	Refer to project specific specs

Plumbing &Drainage

Plumbing and Drainage	Yes
All existing SEWERS, sewer connections and sewer drains shown including Territorial Authority services	Yes

All existing STORMWATER drains and connections shown including Territorial Authority services	Yes
Proposed sewer and stormwater drains/soak holes, terminal vents shown.	Yes
Existing and proposed potable water supply.	N/A
All existing and proposed sanitary fittings including pipe sizes and gradients (isometric)	Yes
Wastewater design and on-site soil evaluation to show compliance with Waikato Regional Council rules.	N/A
Specifications for hot water heating system including seismic restraints.	N/A
Stormwater disposal design and calculations.	Yes
Comments	

Swimming Pool/Spa Pool

Swimming Pool/Spa Pool	N/A
Comments	

Fireplace

Solid Fuel Heater	Yes
Is the proposed appliance ‘clean air’ approved?	Yes
Make/Model of fire appliance.	Yes
Make &Model of fireplace:	Escea DL850 Gas Fire
Elevations showing roof cladding and height of flue in relation to roof.	Yes
Flashing details (roof/wall penetrations).	Yes
Entire floor plan showing position of proposed fireplace in relation to windows, doors and flammable materials. Include labels of all rooms.	Yes
Location of all smoke alarms.	Yes
Manufacturer specifications including seismic restraints and hearth information.	Yes
Wetback Installation	
Wetback installation	N/A
Comments	

Solar Heating

Solar Heating	N/A
Comments	

Cross Section

Cross sections	Yes
Drawings showing constructional details of foundations, floor systems, wall, ceiling, stud heights and stud sizes, roof construction, balustrades and barriers.	Yes
Surface finishes to wet areas (walls and floor to laundry, kitchen and bathroom).	Yes
Location and type of insulation.	Yes
Details for all penetration in walls, roof (i.e. windows, doors, meter boards, skylights etc.)	Yes
Cavity construction details, where applicable.	Yes
Comments	Refer to shts A006 and A007

Relocatable Buildings

Relocatable buildings	N/A
Comments	

Attachments

Please ensure all documents are correctly and adequately named prior to uploading.

Please upload the plans related to the proposed works in one document together (not as individual sheets)	• **permit plans.pdf (15431934 bytes)**
Please upload all generic specifications related to proposed works (not as individual sheets)	• **SPECIFICATION.pdf (743479 bytes)**
Please upload all project specific documentation related to proposed works (not as individual sheets)	• **project specific specifications 01.pdf (3178890 bytes)**
Please upload any other relevant documents	• **design memo.pdf (542394 bytes)**
Once issued I would like to receive my consent documentation by:	Pickup from Council - Printed versions incur an extra $35.00 minimum fee

Building plans - 170355 - A1935545

GREAT LAKE TAUPŌ
Taupō District Council

REQUIRED ITEMS FOR BUILDING CONSENT
BC 170355

Inspections Required

The following inspections are required:

1	Prefloor Plumbing and Drainage	(under slab/floor drains and plumbing)
1	Prefloor Building	(polythene, mesh, reinforcement, bracing connections etc)
1	Sanitary Sewer/Drainage	(sewer connection, storm-water, materials, septic tank, falls etc)
1	Framing Inspection	(wall and roof framing, connections and fittings, timber sizes & treatments, bracing and fixings)
1	Pre-Ext Cladding Systems-Building	(cavities, head, jamb, sill flashings & wraps penetrations, cavities fixings etc prior to installation of exterior cladding. Brick veneer at ½ height)
1	Half High Brick	(Eldorado Stone)
1	Preline Plumbing	(internal plumbing and fittings, pressure test)
1	Preline Building	(exterior claddings & joinery, insulation, bracing, timber moisture content, fire protection glazing, building systems etc)
1	Post Lining	(wall bracing, fixings, fire protection, etc)
1	Code Compliance - Building (Single Dwelling Only)	(Surface finishes, access & egress, fire safety features, weathertightness, as per approved plans etc)
10	Total Inspections	

Documentation Required

The following documentation is required:

CCC application form	
Drainage as-built	
Electrical Certificate	
Gas Certificate	
Correct siting form	
Pre-floor plumbing as built	
PS3 General	SEE ADVICE NOTES FOR LIST
PS3 Fireplace	
Truss Manufacturers Asbuilt Plan (B1)	
Water Proofing Certificate - Internal (E3) Tilers membrane	PS3 - ARDEX SUPERFLEX WPM

The above list is an indication only of the inspections that may need to be carried out to ensure the work complies with the building consent. Additional inspections may be required to satisfy the requirements of Section 90 of the Building Act 2004. Persons carrying out building work are to ensure that adequate inspections are carried out to enable the Building Consent Authority to be satisfied the work complies with the consent as required by Section 94(1)(a) of the Building Act 2004.

Please ensure that all relevant components are inspected and 'signed off' by Taupō District Council building control staff before progressing to the next stage and all conditions/notes are complied with.

Inspection Bookings:
*For **Taupō & Mangakino** phone (07) 376 0899*
*For **Turangi** phone (07) 386 7017*

Licensed Building Practitioner Forms Required

The following Restricted Building Work must be carried out or supervised by a registered Licensed Building Practitioner (LBP) and a Record of Building Work form signed by each LBP is required at the completion of the work.

Design 1	Designer - Clint Bramley - LBP 112493
Design 2	Engineer - David Dekker - CPEng 1003026
Carpentry 1	
Foundations 1	
Roofing 1	

Advice Notes

#When all building work authorised by this building consent is complete written application should be made to Taupo District Council for a CODE COMPLIANCE CERTIFICATE. If no application has been made, Taupo District Council must decide whether to issue the CCC after 2 years of the building consent being granted. An application form for this purpose is enclosed.

#Drainage/as built plans including stormwater drains and soakholes, are to be provided, drawn to scale, and all parts clearly identified at the time of inspection. Failure to do this may result in the inspection not being carried out. A recheck will then be required, which will incur further charges.

All AS/NZS3500:2:2: underslab plumbing to be inspected and tested with as-built supplied before pipe work is covered up

#PLEASE NOTE: All external cladding's and internal linings that contribute to B1 - Structure, C3 & C6 - Protection from Fire, E2- External Moisture, E3 - Internal Moisture, & G6 - Acoustic and Impact Sound requirements of the Building Code must be installed in strict accordance with the manufacturers specifications and details except where details have been proposed and approved as alternative solutions as part of this consent.

#Prior to a Code of Compliance Inspection being undertaken, an Energy Works certificate shall be provided to the Taupo District Council to demonstrate compliance with Clause G9 and/or G10 and G11 of the NZBC.

#Prior to a Code of Compliance Inspection being carried out, a PS3 from a suitably qualified person is to be supplied stating the fire place has been installed in accordance with the New Zealand Building Code. An application form for this purpose is enclosed.

#Work site barriers, hoardings, fences and gantries (as required) for the protection of the public are required to be in place before any demolition and construction work begins and for the duration of the construction. Council inspectors will monitor this during construction, however where required an inspection for this should be called for before any work begins.

#As agreed prior to granting of consent, At the completion of the works and prior to the issue of the C.C.C, the applicant shall provide the Taupo District Council the following documentation to assist Council in establishing compliance with the NZBC for (PS3 - ELDORADO STONE VENEER & SUBSTRATE)
- Copy of the applicators approval certificate
- A producers statement from the Applicator
- Copy of Manufacturers' warranty

#As agreed prior to granting of consent, At the completion of the works and prior to the issue of the C.C.C, the applicant shall provide the Taupo District Council the following documentation to assist Council in establishing compliance with the NZBC for (PS3 - ARDEX SUPERFLEX WPM)
- Copy of the applicators approval certificate
- A producers statement from the Applicator
- Copy of Manufacturers' warranty

APPROVED CONSENT COPY
THESE PLANS AND SPECIFICATIONS ARE APPROVED SUBJECT TO THE PROVISIONS OF THE BUILDING ACT 2004 AND IT'S REGULATIONS. A FULL (PRINTED) COPY OF DRAWINGS AND SPECIFICATIONS ARE TO BE RETAINED ON SITE IN GOOD ORDER AND PRODUCED UPON REQUEST.

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS

APPROVED CONSENT COPY
THESE PLANS AND SPECIFICATIONS ARE APPROVED SUBJECT TO THE PROVISIONS OF THE BUILDING ACT 2004 AND IT'S REGULATIONS. A FULL (PRINTED) COPY OF DRAWINGS AND SPECIFICATIONS ARE TO BE RETAINED ON SITE IN GOOD ORDER AND PRODUCED UPON REQUEST.

DURABILITY ZONE - 3
EARTHQUAKE ZONE - 2
WIND ZONE A - HIGH

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS

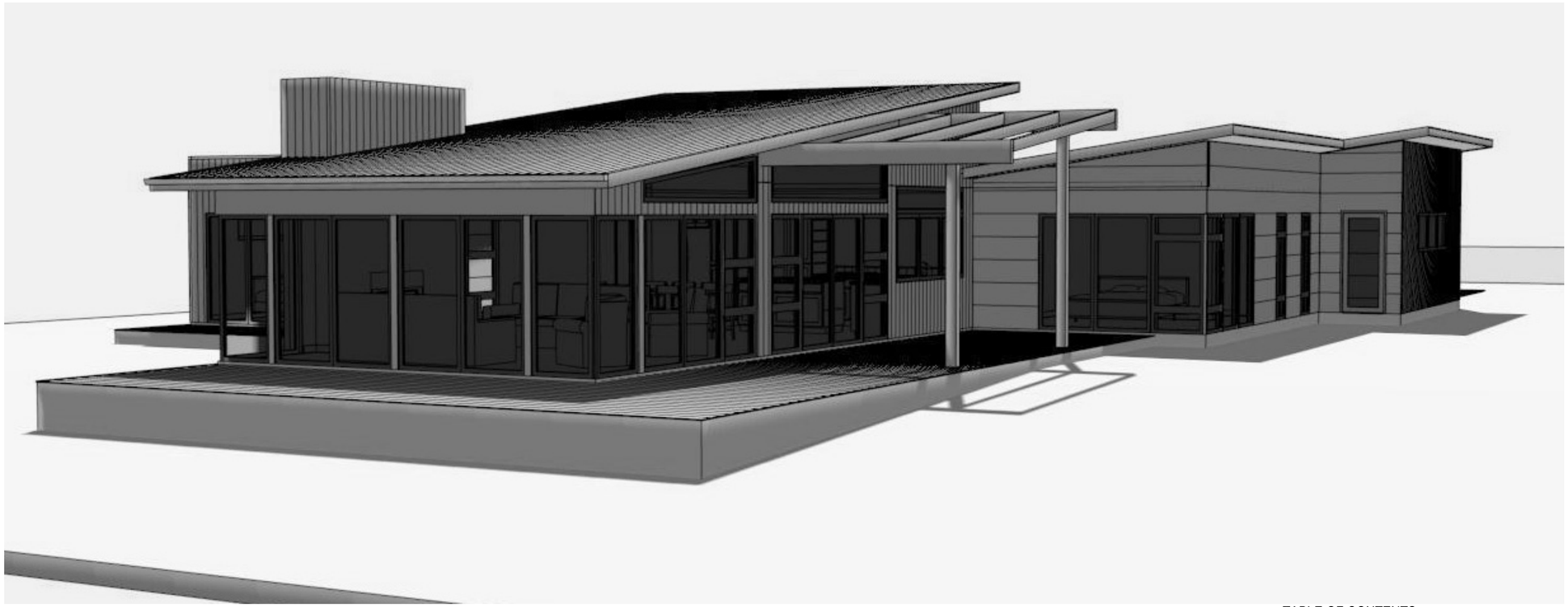


TABLE OF CONTENTS:

A001 COVER SHEET
A002 SITE AND DRAINAGE PLAN
A003 ELEVATIONS
A004 FLOOR PLAN
A005 FOUNDATION PLAN - RAFT FLOOR
A006 CROSS SECTION AA
A007 CROSS SECTION BB
A008 ROOF PLAN AND DETAILS
A009 INTERNAL GUTTER, SCUPPER AND RAINHEAD
A010 BRACING PLAN
A011 SHIPLAP CLADDING AND JUNCTION DETAILS
AO12 SHIPLAP CLADDING AND JUNCTION DETAILS
A013 LINEA OBLIQUE CLADDING AND JUNCTION DETAILS
A014 LINEA OBLIQUE CLADDING AND JUNCTION DETAILS
A015 LINEA OBLIQUE CLADDING AND JUNCTION DETAILS
A016 HARD AS ROCKS STONE VENEER DETAILS
A017 BATHROOM DETAILS
A018 RAFT FLOOR DETAILS

PERMIT PLANS 02 - 09/05/2017

Architecture urban FORM

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Phone: +64 7 378 5804
Mobile: 021 544 780
Email: clint.bramley@callplus.net.nz

DURABILITY ZONE - 3
EARTHQUAKE ZONE - 2
WIND ZONE A - HIGH

TAUPO DISTRICT COUNCIL

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APPROVED CONSENT PLANS/SPECIFICATIONS

Notes

Sewer

Sewer Drains

- main drain - Ø100mm @ 1:60 fall
- branch drain - Ø65mm @ 1:40 fall

Discharge and Vent Pipes

Refer to tables 2,3,4 of G13/AS1 for discharge pipe and vent sizes

Stormwater

Stormwater Drains - Ø90mm @ 1:60mm fall
Downpipes - Ø80mm Coloursteel

All plumbing and drainage to be installed and tested by a registered tradesperson in accordance with G13/AS1
All pipes are to have a minimum of 500mm protection as per Fig 7 of G13/AS2

Downpipes

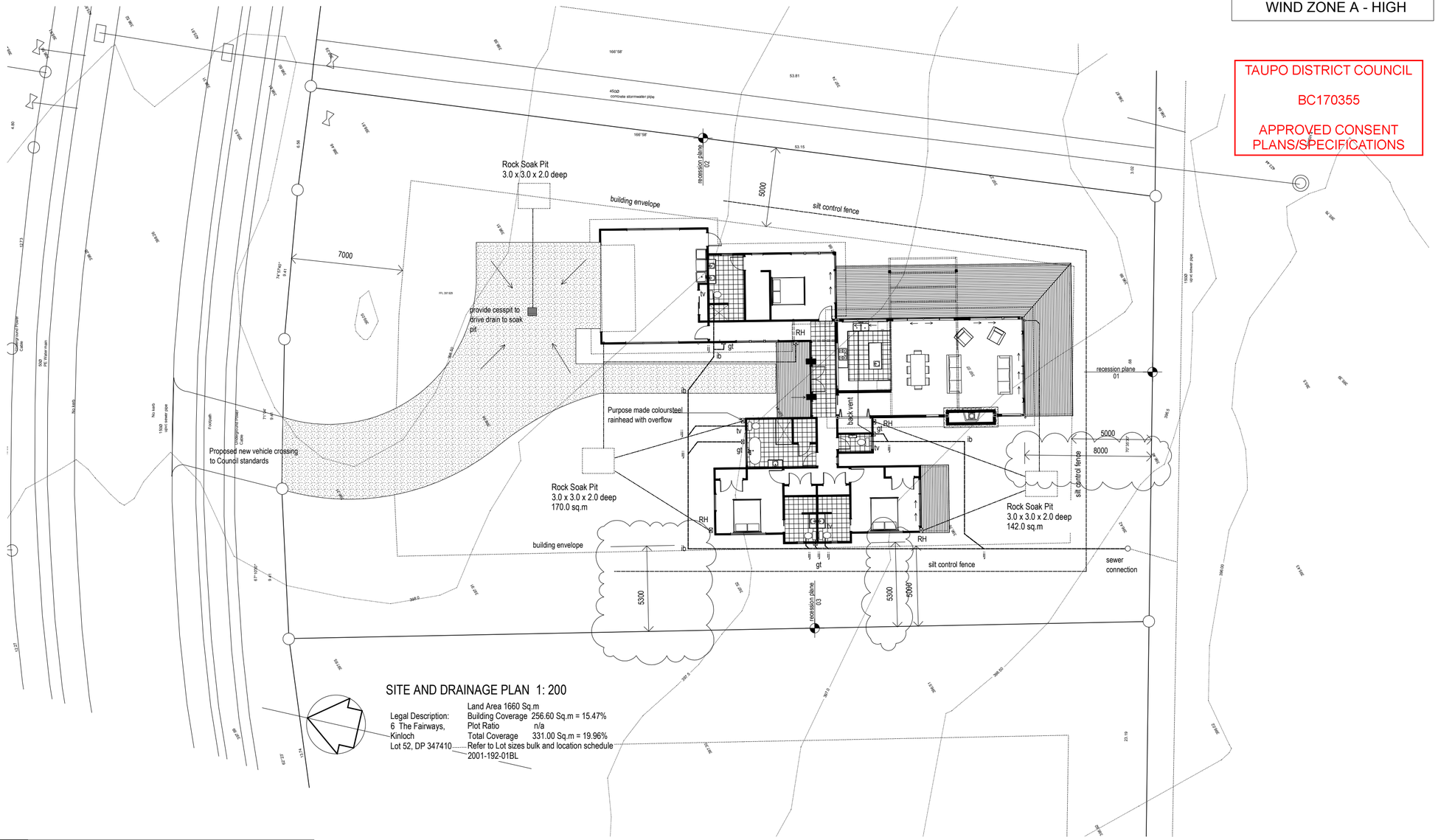
A Ø100mm downpipe services a maximum of 401.0 m² of roof area with a roof pitch between 0 - 30 as per Table 5 of E1/AS1

Therefore401.0 m² / 50m² = A minimum of 8 downpipes are required - 8 provided

Soak Holes

All soak holes to be Rock Soak Pits sized for m2 area of discharge as per E1/AS1 NZBC

bv - branch vent downstream of fixture
s.v - stack vent
dp - downpipe
org - overflow relief gully
i.b - inspection bend
i.p - inspection point
i.c - inspection chamber
2 - outside taps, contractor to verify before installation

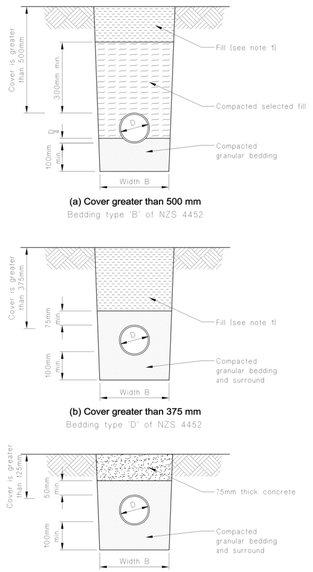


SITE AND DRAINAGE PLAN 1: 200

Legal Description:
6 The Fairways,
Kinloch
Lot 52, DP 347410

Land Area 1660 Sq.m
Building Coverage 256.60 Sq.m = 15.47%
Plot Ratio n/a
Total Coverage 331.00 Sq.m = 19.96%
Refer to Lot sizes bulk and location schedule 2001-192-01BL

Figure 13: Bedding and Backfilling
Paragraphs 3.9.2, 3.9.4 and 3.9.5



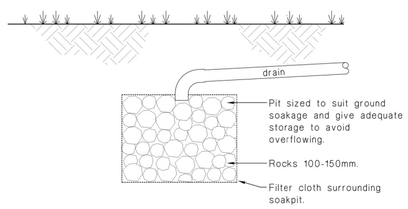
(a) Cover greater than 500 mm
Bedding type 'B' of NZS 4452

(b) Cover greater than 375 mm
Bedding type 'D' of NZS 4452

(c) Cover greater than 125 mm

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

Figure 13: Soak Pit for Surface Water Disposal
Paragraph 9.0.4



(a) Rock soak pit

PERMIT PLANS 02 - 09/05/2017

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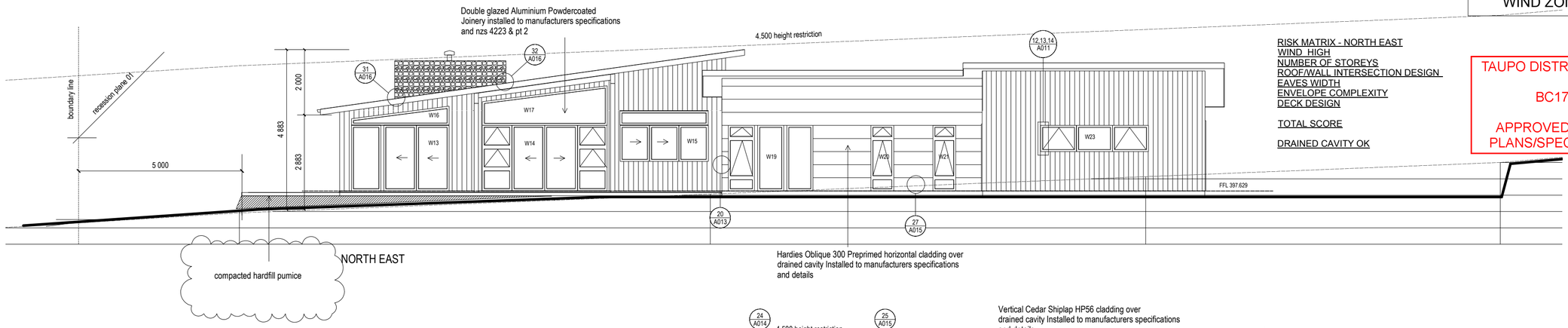
JONES RESIDENCE - 6 THE FAIRWAYS, KINLOCH

DURABILITY ZONE - 3
EARTHQUAKE ZONE - 2
WIND ZONE A - HIGH

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS

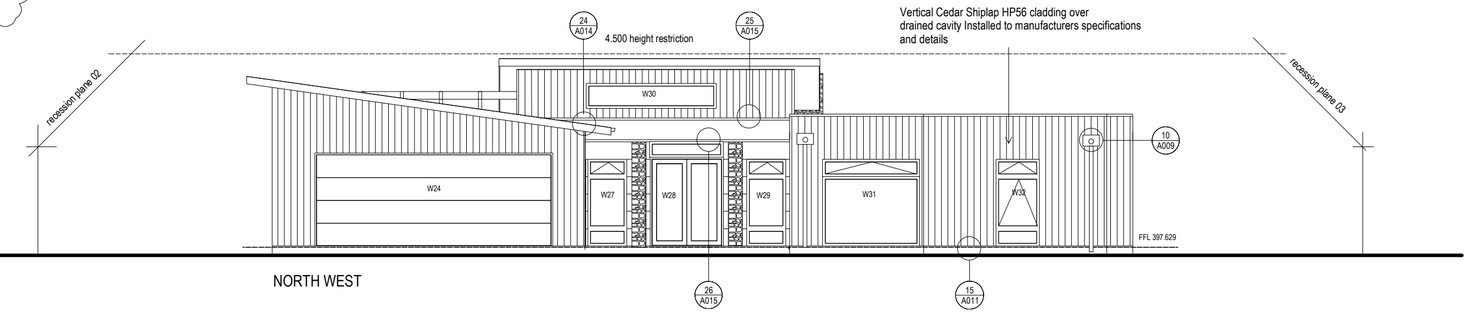


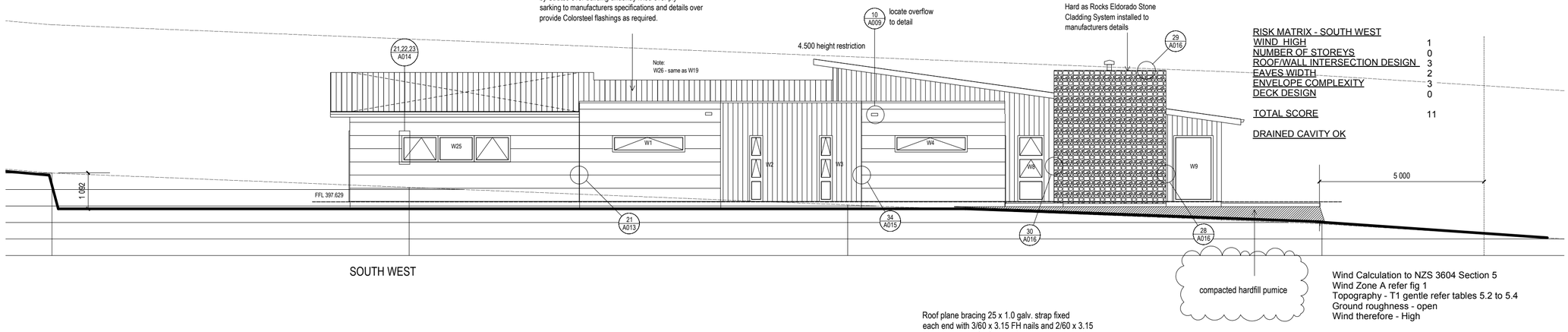
RISK MATRIX - NORTH EAST

WIND HIGH	
NUMBER OF STOREYS	
ROOF/WALL INTERSECTION DESIGN	
EAVES WIDTH	
ENVELOPE COMPLEXITY	
DECK DESIGN	
TOTAL SCORE	
DRAINED CAVITY OK	

RISK MATRIX - NORTH WEST

WIND HIGH	1
NUMBER OF STOREYS	0
ROOF/WALL INTERSECTION DESIGN	3
EAVES WIDTH	2
ENVELOPE COMPLEXITY	3
DECK DESIGN	0
TOTAL SCORE	11
DRAINED CAVITY OK	





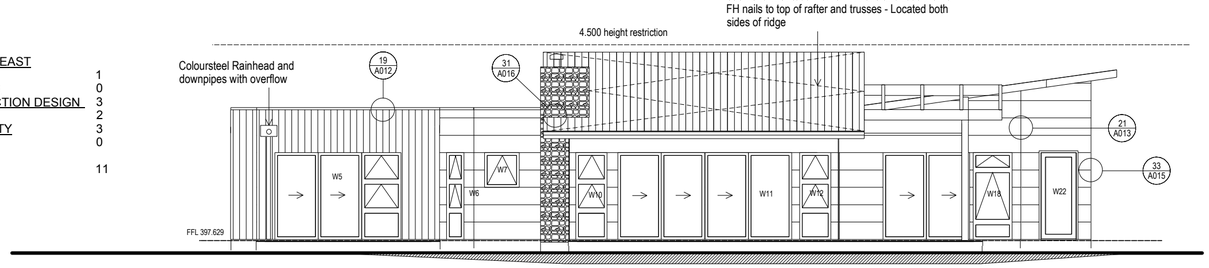
RISK MATRIX - SOUTH WEST

WIND HIGH	1
NUMBER OF STOREYS	0
ROOF/WALL INTERSECTION DESIGN	3
EAVES WIDTH	2
ENVELOPE COMPLEXITY	3
DECK DESIGN	0
TOTAL SCORE	11
DRAINED CAVITY OK	

Wind Calculation to NZS 3604 Section 5
Wind Zone A refer fig 1
Topography - T1 gentle refer tables 5.2 to 5.4
Ground roughness - open
Wind therefore - High

RISK MATRIX - SOUTH EAST

WIND HIGH	1
NUMBER OF STOREYS	0
ROOF/WALL INTERSECTION DESIGN	3
EAVES WIDTH	2
ENVELOPE COMPLEXITY	3
DECK DESIGN	0
TOTAL SCORE	11
DRAINED CAVITY OK	



H1/AS1 - ENERGY EFFICIENCY FOR SMALL BUILDINGS TO TABLE 1,NON SOLID CONSTRUCTION - NZS 4218

CLIMATE ZONE 3 - MAIN HOUSE

WALL AREA	312.64 SQ.M
WINDOW AREA	86.28 SQ.M
WWR ACHIEVED	27.62 % OK
WRR MAXIMUM ALLOWED	30.0 %

INSULATION ACHIEVED:

GROUND FLOOR SLAB	R1.3 REQUIRED
EXTERIOR WALLS,TIMBER FRAME	R2.0 REQUIRED
ROOF	R3.3 REQUIRED

PERMIT PLANS 02 - 09/05/2017

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JONES RESIDENCE - 6 THE FAIRWAYS, KINLOCH

DURABILITY ZONE - 3
EARTHQUAKE ZONE - 2
WIND ZONE A - HIGH

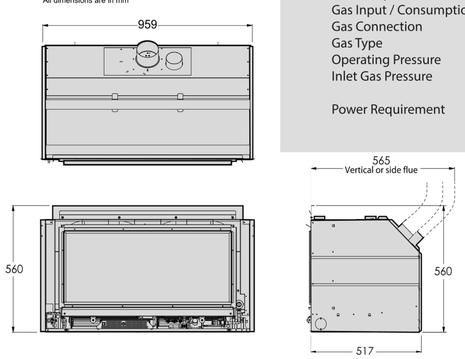
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APPROVED CONSENT PLANS/SPECIFICATIONS

Product Dimensions

All dimensions are in mm



Gas Specifications

Heat Output	9.2kW*
Gas Input / Consumption	38MJ/hr*
Gas Connection	Rear right or front right, 1/2" BSP female thread
Gas Type	Natural Gas / LPG (NZ) / Propane (Aus)
Operating Pressure	1.0kPa NG / 2.3kPa LPG or Propane
Inlet Gas Pressure	1.2kPa to 5.0kPa NG 2.75kPa to 5.0kPa LPG or Propane
Power Requirement	3 pin earthed 230V power outlet to be within 1.0m of rear left hand corner of the appliance

Cavity Construction

Cavity Dimensions

The cavity size is dependant on fascia type as the Rado fascia is recessed into the wall. Where possible, it is recommended that the cavity is made 5-10mm larger than the dimensions shown to give the installer the maximum amount of space to work in.

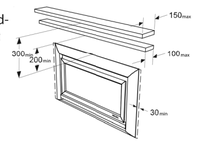
It is not necessary to line the sides, top or back of the cavity.

The wall directly above the Rado fascia must be constructed with non combustible materials, but all other surrounding walls and cavity materials may be constructed with combustible materials.

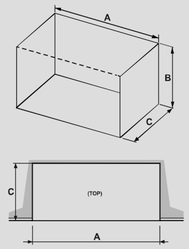
The cavity and surrounding walls for Velo or Quadrato fascias may be constructed using combustible materials.

Mantle Clearances

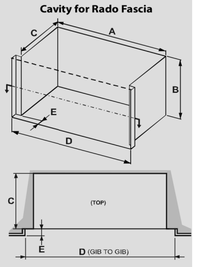
Any combustible mantles or protruding ledges above the fireplace must not extend outside the dimensions shown.



Cavity for Velo, Quadrato or Quadrato Lite Fascia



Cavity for Rado Fascia

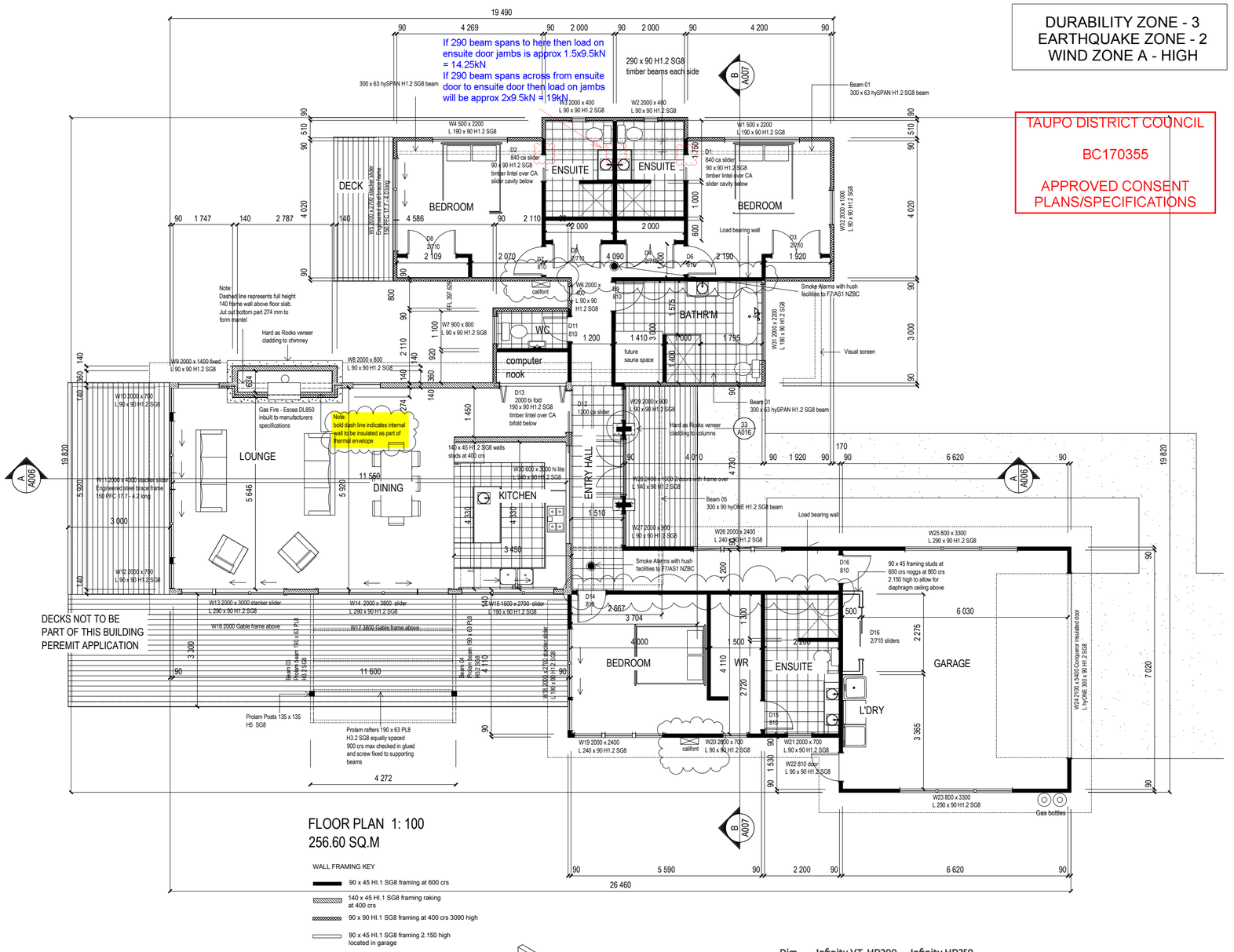


Ideal Cavity Dimensions (mm):

	A	B (min)	B (max)	C	D	E
Velo / Quadrato / Quadrato Lite	960	560	575	565	-	-
Rado	965	583	586	565	995	30 to 130

Escea Gas Fire DL850 insert

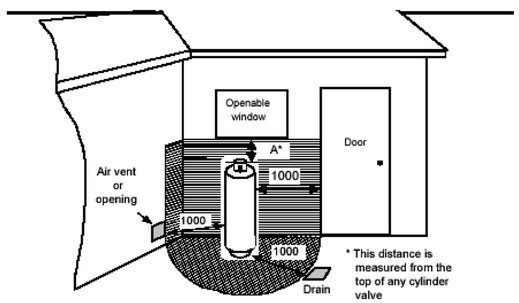
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FLOOR PLAN 1: 100
256.60 SQ.M

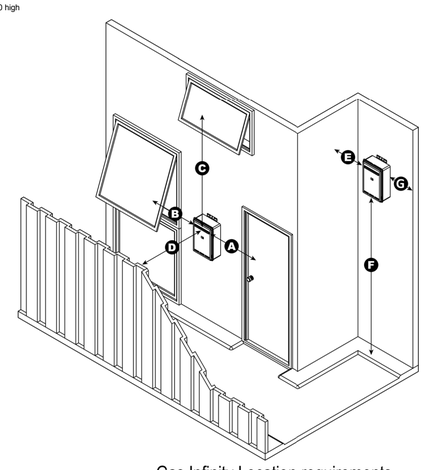
WALL FRAMING KEY

- 90 x 45 Hl.1 SG8 framing at 600 crs
- 140 x 45 Hl.1 SG8 framing raking at 400 crs
- 90 x 90 Hl.1 SG8 framing at 400 crs 3090 high
- 90 x 45 Hl.1 SG8 framing 2.150 high located in garage



	Exchange cylinder	In Situ Fill Cylinder
A	150	500

Gas Bottle Location requirements



Dim.	Infinity VT, HD200, EF models	Infinity HD250 models
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

Clearance below eaves, balconies, and other projections for all models is 300 mm.

* Rinnai recommend 1.5 m to give enough clearance for the pipe work, and to safely expel flue gases.

Gas Infinity Location requirements

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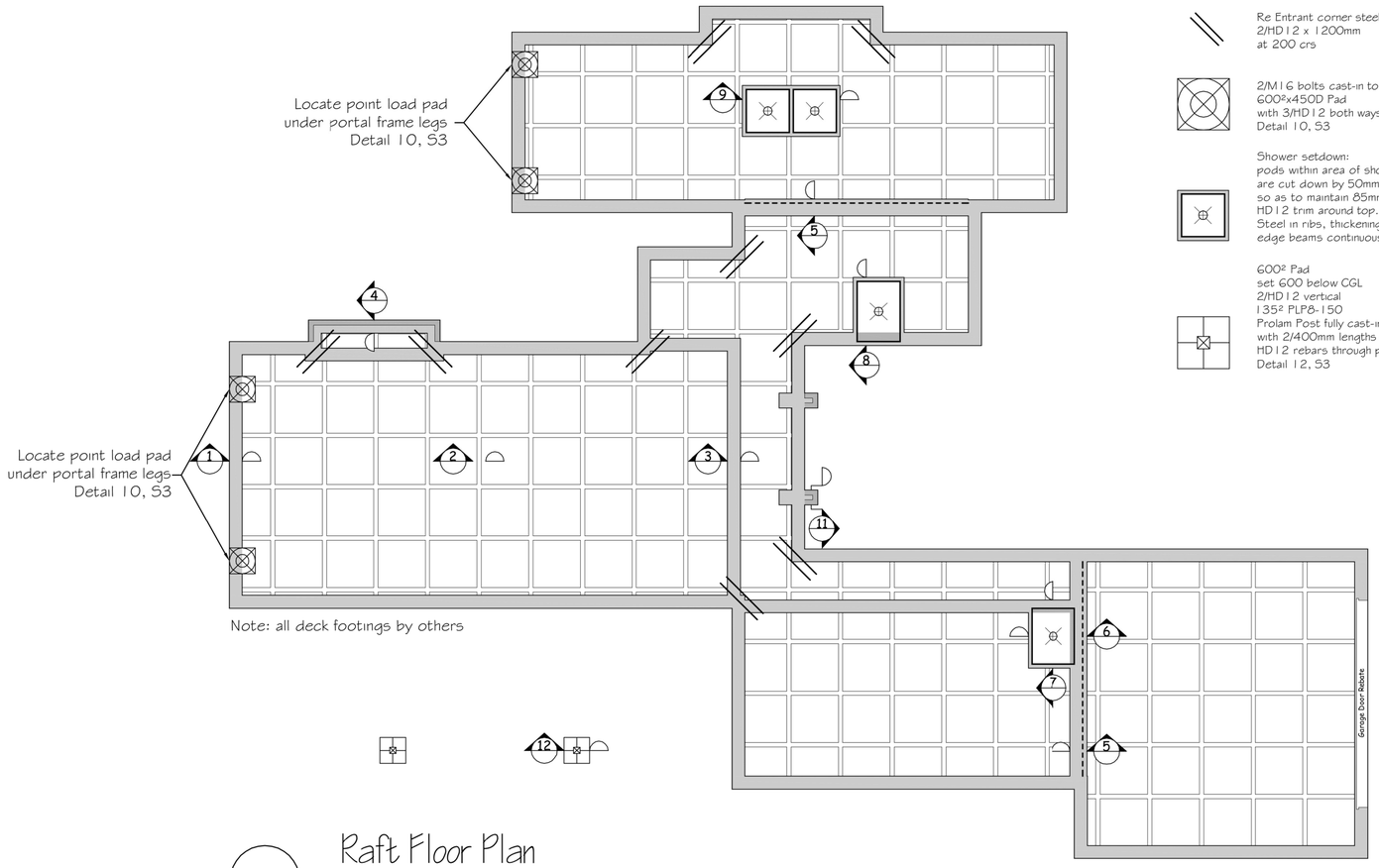
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EARTHQUAKE ZONE - 2
WIND ZONE A - HIGH

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Raft Floor Plan

Scale 1:100

Legend:

Re Entrant corner steel
2/HD12 x 1200mm
at 200 crs

2/M16 bolts cast-in to
600²x450D Pad
with 3/HD12 both ways
Detail 10, S3

Shower setdown:
pods within area of shower + 100mm
are cut down by 50mm max
so as to maintain 85mm topping
HD12 trim around top.
Steel in ribs, thickenings and
edge beams continuous through

600² Pad
set 600 below CGL
2/HD12 vertical
135² PLP8-150
Prolam Post fully cast-in
with 2/400mm lengths of
HD12 rebars through post
Detail 12, S3

Quantities of Spacers
(Quantities are approximate and to be used as a guide only)

Item	Qty.
WJ100 Centre Spacer	300
WJ101 Clip-on Spacer	170

NOTES:
Do not scale from Drawings.
Refer Architectural Drawings for overall dimensions. To be read in conjunction with all other related documents.

Revision	Description	Date

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Consulting Engineers
Northland: 09 945 4188
Auckland-Waikato: 09 527 0196
Canterbury: 021 824 063
Southern Lakes: 03 443 6209
www.wiltonjoubert.co.nz

Job Title:
Proposed Residence
Lot 52
6 The Fairways
Kinloch, Bay of Plenty

Sheet Title:
Raft Floor Plan

Drawn	AO	Drawn	MH
Checked	DCW	Checked	...
Scale	1:100	Date	6-4-2017
Job No.	Job # 66285	Drawing No.	S1

FOUNDATION PLAN - REFER TO SHT. A018 FOR DETAILS

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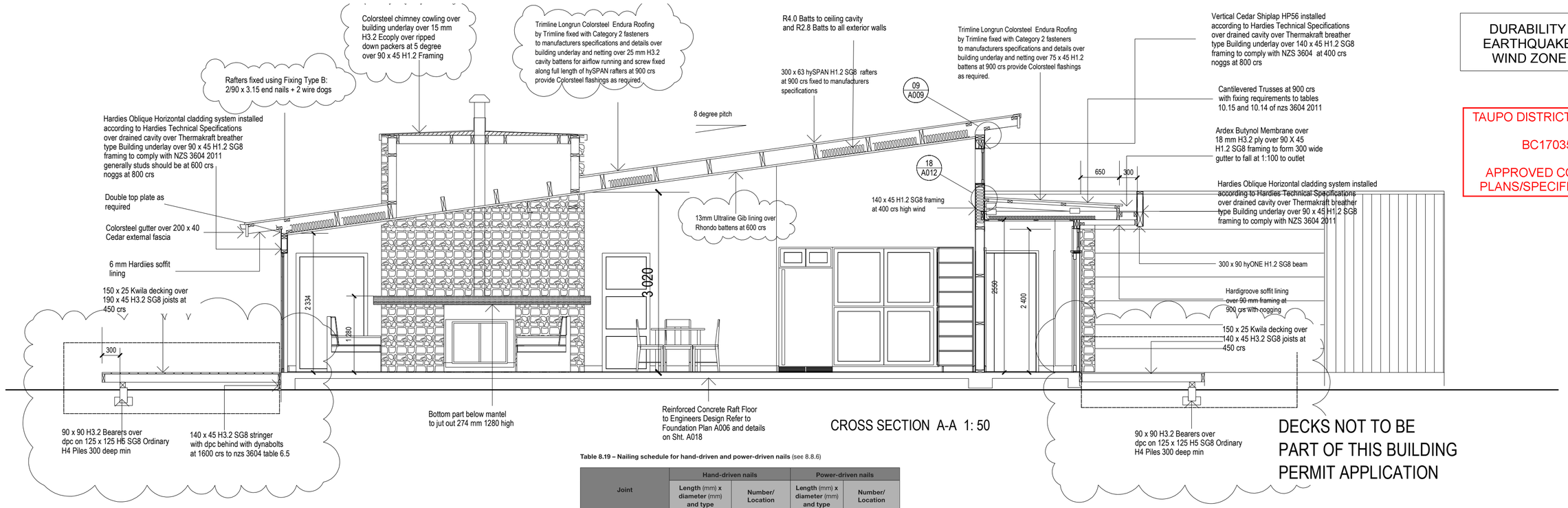
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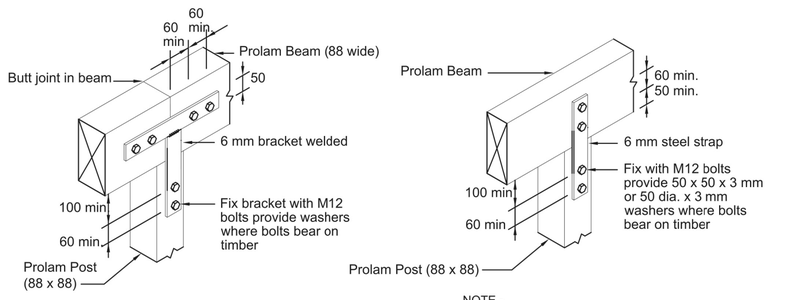
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APPROVED CONSENT PLANS/SPECIFICATIONS



CROSS SECTION A-A 1: 50

DECKS NOT TO BE PART OF THIS BUILDING PERMIT APPLICATION



Unless otherwise stated, all dimensions are in mm.

PROLAM POST FIXINGS

Table 8.19 – Nailing schedule for hand-driven and power-driven nails (see 8.8.6)

Joint	Hand-driven nails		Power-driven nails	
	Length (mm) **x diameter** (mm) **and type**	**Number/ Location**	**Length** (mm) **x diameter** (mm) **and type**	**Number/ Location**
Bottom plate to floor framing at:				
(a) External walls and internal wall bracing elements	100 x 3.75	2 at 600 mm centres	90 x 3.15	3 at 600 mm centres
(b) Internal walls (may be nailed to floor decking)	100 x 3.75	1 at 600 mm centres	90 x 3.15	1 at 600 mm centres
(c) Trimmer not exceeding 4.2 m long	100 x 3.75	4 (end nailed)	90 x 3.15	6 (end nailed)
Dwang to stud	75 x 3.15 or 100 x 3.75	2 (skewed) 2 (end nailed)	75 x 3.06 90 x 3.15	2 (skewed) 2 (end nailed)
Fishplate to straightened stud	60 x 2.8	4 each side of cut	60 x 2.8	4 (each side of cut)
Half joint in top plate	75 x 3.15	3	75 x 3.06	4
Lintel to trimming stud	75 x 3.15 or 100 x 3.75	4 (skewed) 2 (end nailed)	90 x 3.15	3 (end nailed)
Ribbon board to stud	100 x 3.75	2	90 x 3.15	3
Sill or header trimmer to trimming stud for:				
(a) Trimmer not exceeding 2.4 m long	100 x 3.75	2 (end nailed)	90 x 3.15	3 (end nailed)
(b) Trimmer not exceeding 3.0 m long	100 x 3.75	3 (end nailed)	90 x 3.15	5 (end nailed)
(c) Trimmers not exceeding 3.6 m long	100 x 3.75	4 (end nailed)	90 x 3.15	6 (end nailed)
Solid plaster batten to stud	60 x 2.8 (galv.)	500 mm centres	60 x 2.8 (galv.)	500 mm centres
Stud to plate	75 x 3.15 or 100 x 3.75	4 (skewed) 2 (end nailed)	75 x 3.06 90 x 3.15	4 (skewed) 3 (end nailed)
Top plate 140 mm x 35 mm to 90 mm x 45 mm and top plate to lintel	100 x 3.75	2 at 500 mm centres	90 x 3.15	3 at 500 mm centres
Trimming studs at openings, blocking and studs at wall intersections	100 x 3.75	600 mm centres	90 x 3.15	600 mm centres
Trimming stud to doubled stud immediately under lintel	100 x 3.75	2	90 x 3.15	2
Waling to stud	60 x 2.8	2	60 x 2.8	2

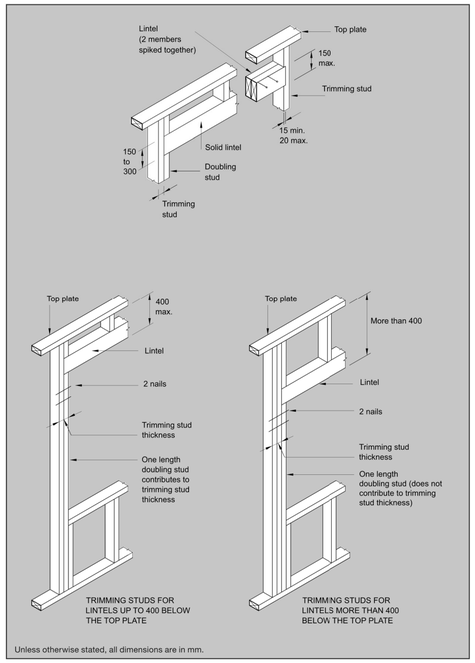
NOTE –
(1) Nail lengths and diameters are the minimum required.
(2) Refer to 4.4 for required protective coatings for metal fasteners.
(3) For studs up to 2.7 in length, 2 / 90 x 3.15 power-driven nails (end nailed) are sufficient.

Table 8.18 – Fixing of top plate of wall to supporting members such as studs and lintels at 600 mm centres (see 8.7.6 and figure 8.12)

Loaded dimension of wall (m)	Light roof					Heavy roof				
	Roof member spacing (mm)									
	900					1200				
	Wind zone					Wind zone				
	L	M	H	VH	EH	L	M	H	VH	EH
	Fixing type (see below)									
2.0	A	A	B	B	B	A	A	B	B	B
3.0	A	B	B	B	B	A	B	B	B	B
4.0	A	B	B	B	B	A	B	B	B	B
5.0	B	B	B	B	B	B	B	B	B	B
6.0	B	B	B	B	B	B	B	B	B	B

Fixing type	Fixing to resist uplift	Capacity of alternative fixing (kN)
A	2 / 90 x 3.15 end nails	0.7
B	2 / 90 x 3.15 end nails + 2 wire dogs	4.7

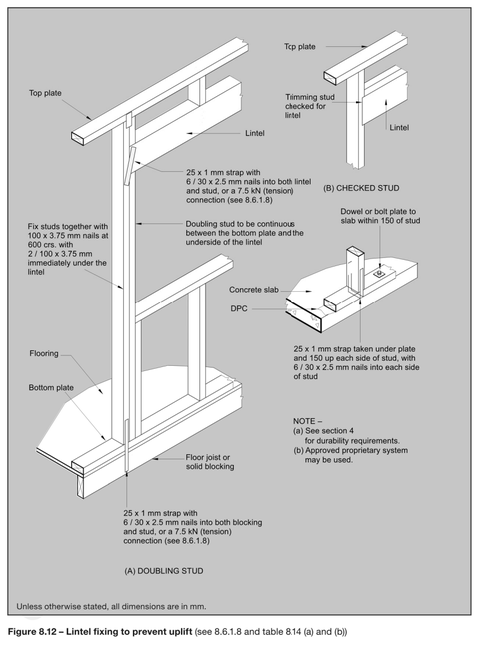
SECTION 8 – WALLS NZS 3604:2011



Unless otherwise stated, all dimensions are in mm.

Figure 8.5 – Trimming studs and lintels (see 8.5.2.1)

SECTION 8 – WALLS NZS 3604:2011



Unless otherwise stated, all dimensions are in mm.

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

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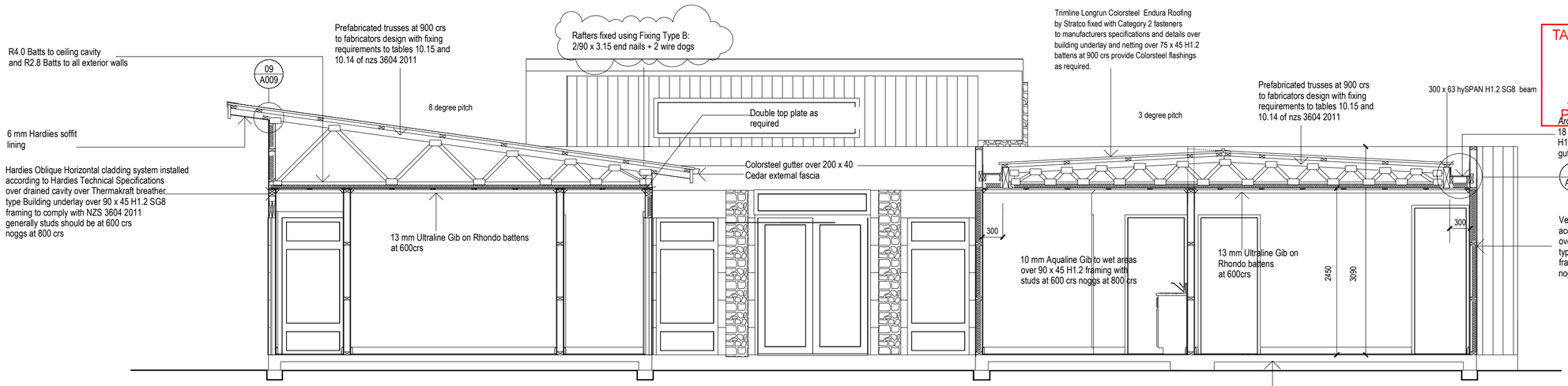
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WIND ZONE A - HIGH

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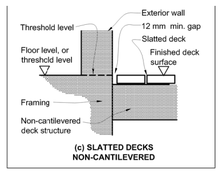


CROSS SECTION B-B 1: 50

NOTE
7.5.12.1 Cast in Anchors (alternative to lumberlok fixing anchors.)
Anchors shall be M12 bolts set within 150mm of each end of the place, spaced at a maximum of 900mm crs, bent to prevent turning and projecting sufficiently to allow washer and fully threaded nut above the timber.

(a) For internal walls, where the slab edge is formed with in-situ concrete, anchors shall be set not less than 90mm into the concrete, maintaining a min edge distance of 50mm
(b) For external walls, where the slab edge is formed with blocks, anchors shall be set not less than120mm into the concrete, maintaining a min edge distance of 50mm to outside face of block

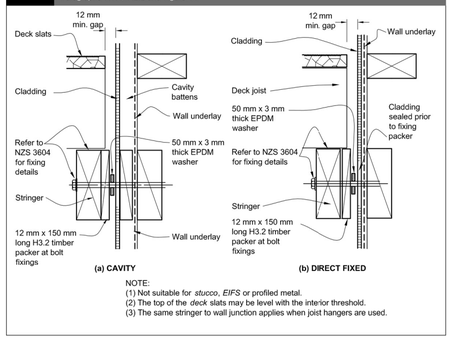
Figure 14: **Threshold separations**
Paragraphs 7.1, 7.3, 8.5.6, Figures 17A, 56, 62 and 64



(c) SLATTED DECKS
NON-CANTILEVERED

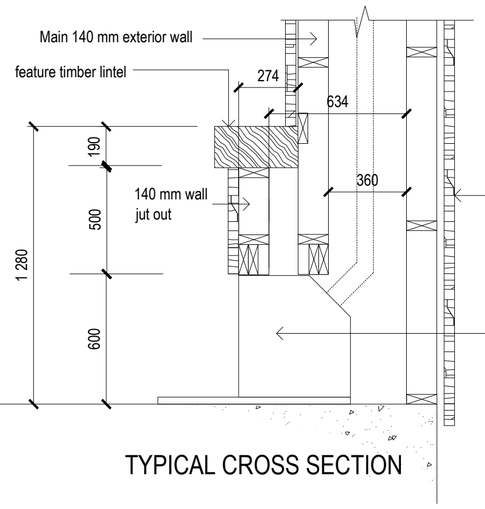
LEVEL ENTRY

Figure 15: **Junction with wall for non-cantilevered timber deck**
Paragraphs 7.1.1, 7.2.2 and Figure 14

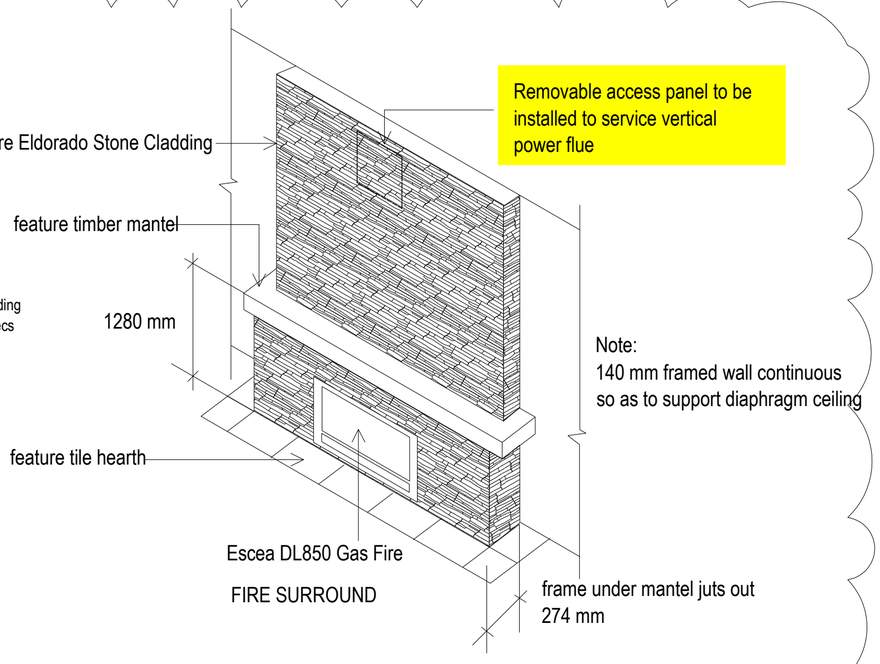


NOTE:
(1) Not suitable for *stucco*, *EIFS* or profiled metal.
(2) The top of the *deck* slats may be level with the interior threshold.
(3) The same stringer to wall junction applies when joist hangers are used.

DECK TO WALL JUNCTION DETAIL



TYPICAL CROSS SECTION



Fire Surround Design

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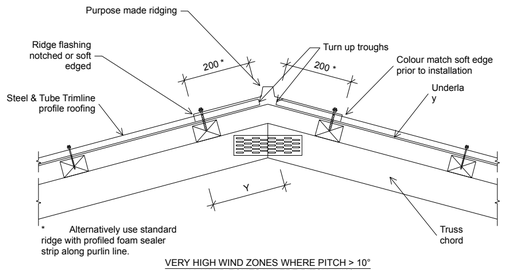
JONES RESIDENCE - 6 THE FAIRWAYS, KINLOCH

DURABILITY ZONE - 3
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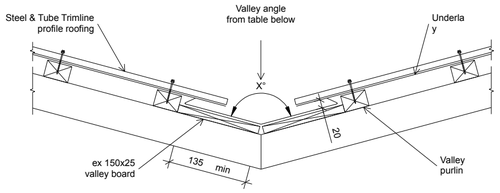


VERY HIGH WIND ZONES WHERE PITCH > 10°
ALL WIND ZONES WHERE PITCH < 10°

Roof Pitch	8	10	15	20	25	30	35	45
Dimension X mm	168	167	162	156	150	143	134	115
Dimension Y mm	218	217	212	206	200	193	184	165

For standard ridge using ex 50mm purlins on flat

01 - ROOF APEX

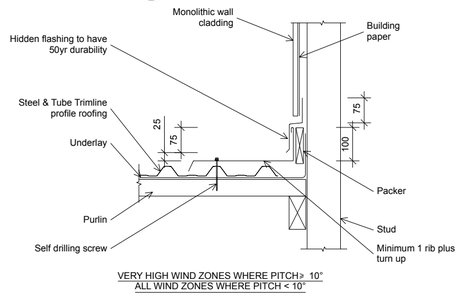


Valley Angles and Catchments

Roof Pitch	<8°	8°	10°	15°	20°	25°	30°	35°	45°
Valley Angle	Varies	169	166	159	152	145	139	132	120
Maximum Catchment	*	20m²	26m²	27m²	35m²	43m²	52m²	63m²	75m²

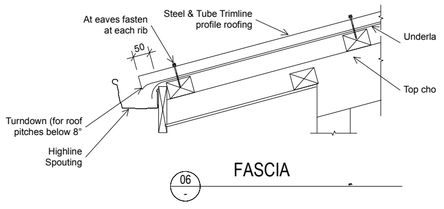
* For degrees below 8° and larger catchments design as internal gutter in accordance with E1/AS1 figure 16.

011 - ROOF VALLEY

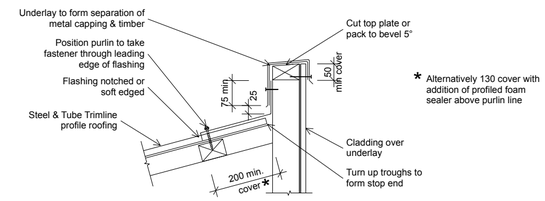


VERY HIGH WIND ZONES WHERE PITCH≥ 10°
ALL WIND ZONES WHERE PITCH < 10°

04 - APRON FLASHING



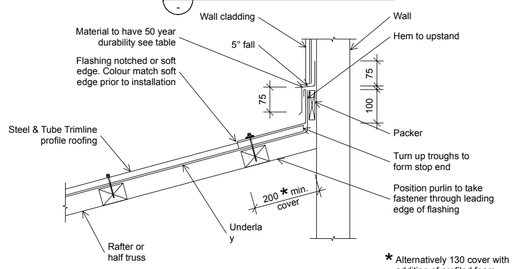
06 - FASCIA



* Alternatively 130 cover with addition of profiled foam sealer above purlin line

ROOF PITCH < 10°
LOW / MEDIUM / HIGH WIND ZONE

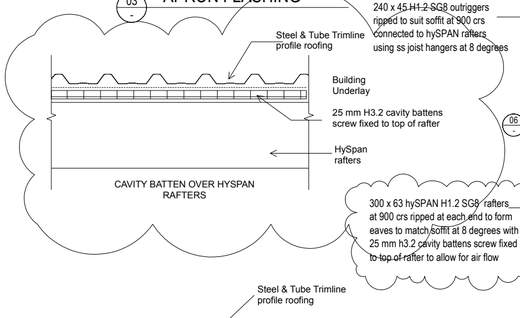
02 - PARAPET

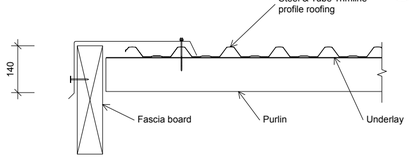


* Alternatively 130 cover with addition of profiled foam sealer above purlin line

VERY HIGH WIND ZONES WHERE PITCH> 10°
ALL WIND ZONES WHERE PITCH < 10°

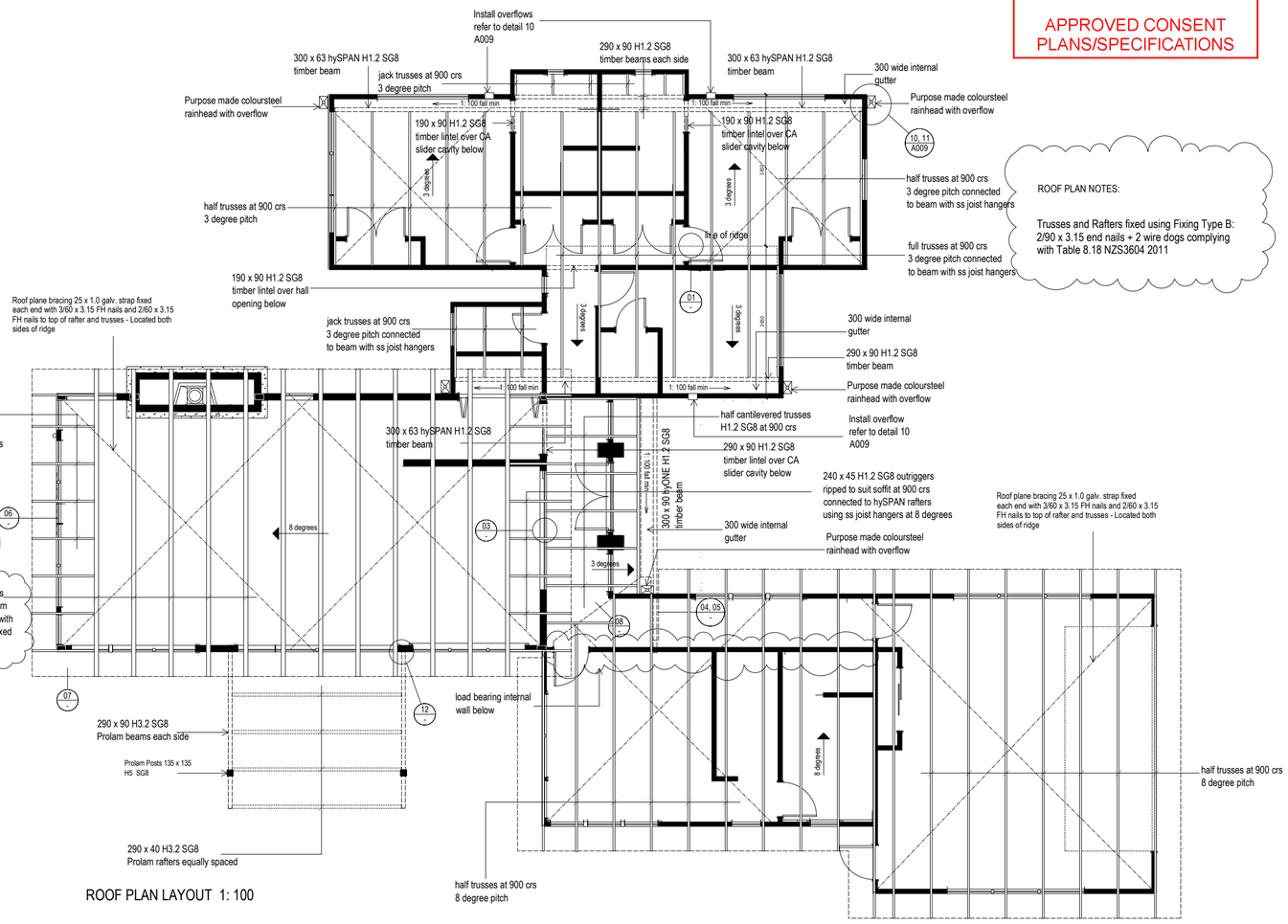
03 - APRON FLASHING



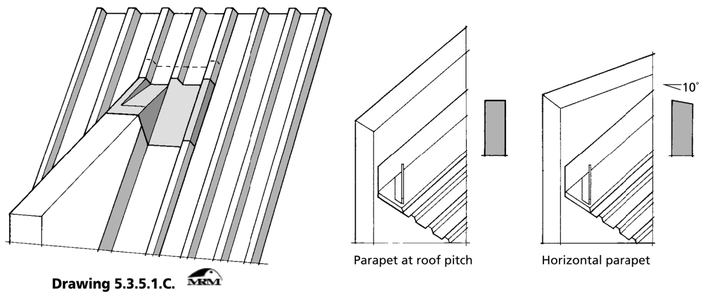


VERY HIGH WIND ZONES WHERE PITCH≥ 10°
ALL WIND ZONES WHERE PITCH < 10°

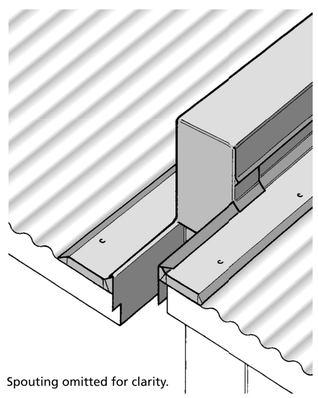
07 - BARGE



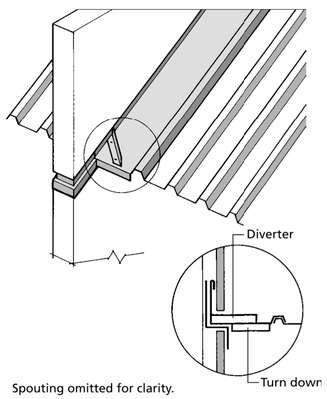
ROOF PLAN LAYOUT 1: 100



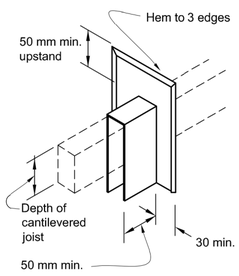
Drawing 5.3.5.1.C.



Drawing 5.3.5.1.A.



Drawing 5.3.5.1.B.



SADDLE FLASHING DETAIL
PERGOLA JUNCTION

12 - SADDLE FLASHING AT PERGOLA JUNCTION

Apron

Where an apron flashing meets a ridge there are two alternative methods of weathering this junction

- By carrying the apron over the ridge and covering this joint with the ridging as shown on drawing 5.3.5.1.G.
- By making a separate saddle flashing as drawing 5.3.5.1.H.

05 - PARAPET JUNCTION WITH ROOF

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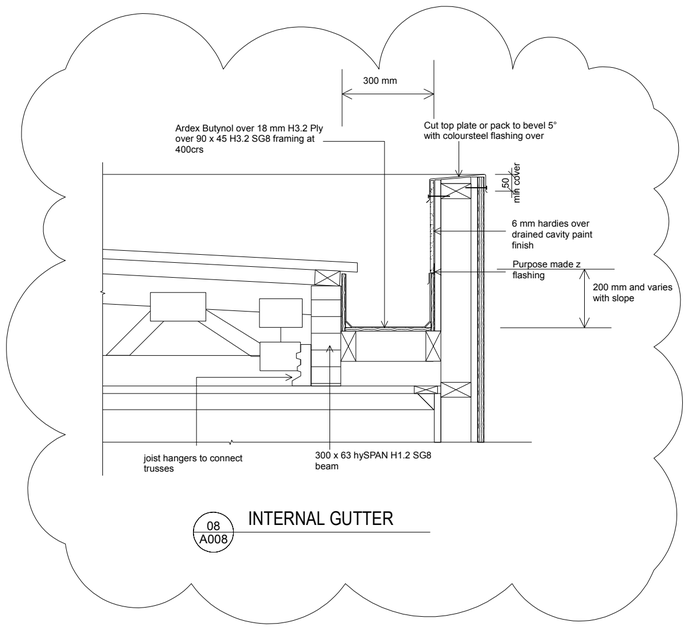
JONES RESIDENCE - 6 THE FAIRWAYS, KINLOCH

DURABILITY ZONE - 3
EARTHQUAKE ZONE - 2
WIND ZONE A - HIGH

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08 A008 INTERNAL GUTTER

Figure 8A: Soffit/wall junction
Paragraphs 5.3, 8.1.3.1, 8.4.6, 9.7.5, 9.8.6

Table 10.14 – Fixing types of roof trusses at supports for all wind zones (see 10.2.2.6)

Truss spacing (mm)	Fixing type														
	Light roofs										Heavy roofs				
	900					1200					900				
Wind zone	L	M	H	VH	EH	L	M	H	VH	EH	L	M	H	VH	EH
Loaded dimension of support (m)															
3.0	E	E	E	E	F	E	E	E	F	F	E	E	E	E	E
3.5	E	E	E	F	F	E	E	E	F	SED	E	E	E	E	E
4.0	E	E	E	F	F	E	E	F	SED	SED	E	E	E	E	F
4.5	E	E	E	F	SED	E	E	F	SED	SED	E	E	E	E	F
5.0	E	E	E	F	SED	E	E	F	SED	SED	E	E	E	E	F
5.5	E	E	F	F	SED	E	E	F	SED	SED	E	E	E	F	F
6.0	E	E	F	SED	SED	E	E	SED	SED	SED	E	E	E	F	SED

Fixing type	Fixing to resist uplift	Alternative fixing capacity (kN)
E	2 / 90 x 3.15 skew nails + 2 wire dogs	4.7
F	2 / 90 x 3.15 skew nails + strap fixing (see figure 10.6)	7.0

Table 10.15 – Key to fixing types and capacity for rafters, roof trusses, underpurlins, ridge beams and strutting beams (see 10.2.2.6)

Fixing type	Fixing to resist uplift	Alternative fixing capacity (kN)
E	2 / 90 x 3.15 skew nails + 2 wire dogs	4.7
F	2 / 90 x 3.15 skew nails + strap fixing (see figure 10.6)	7.0
G	10 / 90 x 3.15 nails (5 each side)	4.7
H	1 / M12 bolt	8.5
I	2 / M12 bolts	16.0
J	2 / M16 bolts	24.0
K	6 / 90 x 3.15 nails	3.0
L	2 / M12 bolts	9.8
M	2 / M16 bolts	13.0

Table 10.10 – Purlins on their flat in all wind zones – SG 8 (see 10.2.1.16.1)

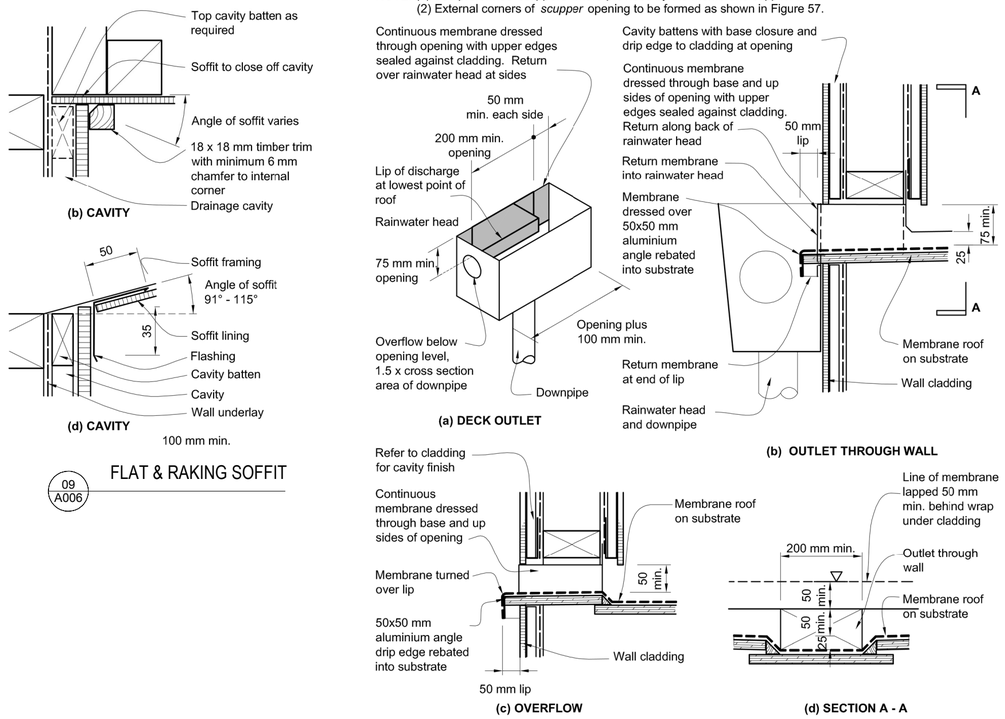
Purlin size	Max. span	Maximum spacing and fixing in the following wind zones									
		Low		Medium		High		Very high		Extra high	
		Spacing	Fixing	Spacing	Fixing	Spacing	Fixing	Spacing	Fixing	Spacing	Fixing
	(mm)	(mm)	(type)	(mm)	(type)	(mm)	(type)	(nm)	(type)	(mm)	(type)
70 x 45	900	900	S	900	T	900	T	900	T	900	U
70 x 45	900	1200	T	1200	T	1200	T	1350	U	900	U
70 x 45	900	1800	T	1800	U	1400	U	1350	U	900	U
70 x 45	1200	1200	T	1150	T	800	T	600	T	500	T
70 x 45	1200	1300	T	1150	T	800	T	600	T	500	T
90 x 45	1200	1700	T	1450	U	1000	U	750	U	650	U

Fixing type	Description	Alternative fixing capacity (kN)
S	2 / 90 x 3.15 gun nails	0.8
T	1 / 10g self-drilling screw, 80 mm long	2.4
U	1 / 14g self-drilling type 17 screw, 100 mm long	5.5

NOTE – All fixing types are determined as required for the higher uplift loads at the periphery of the roof (based on local pressure factors in AS/NZS 1170.2).

Figure 63: Rainwater head and scupper opening in membrane
Paragraph 8.5.6, Figure 56

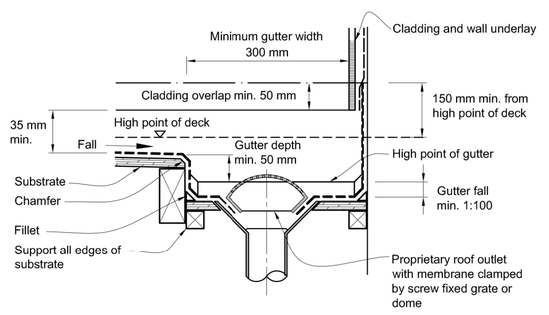
NOTE: (1) Use preformed *scuppers* where provided by the membrane supplier .
(2) External corners of *scupper* opening to be formed as shown in Figure 57.



10 A008 RAINHEAD AND OVERFLOW DETAIL

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





11 A008 OUTLET DETAIL

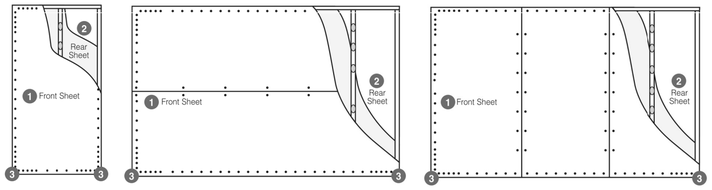
09 A006 FLAT & RAKING SOFFIT

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Construction Details

JUNE 2011

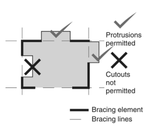


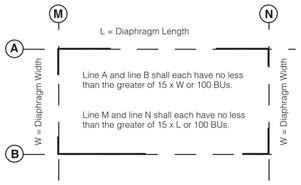
System	Lining one side 1		Lining opposite side 2		Panel Hold-Down Fixings 3	Fastener spacing
	Lining	Fasteners	Lining	Fasteners		
GS1-N	Any 10mm or 13mm GIB® Plasterboard	30mm GIB® nails, or minimum 32mm x 6g GIB® Grabber® high thread screws	Not required	Not required	Not required	*GIB® Plasterboard*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

Ceiling Diaphragms

JUNE 2011

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





Limitations for GIB® plasterboard ceiling diaphragms

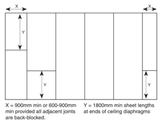
GIB® plasterboard ceiling diaphragms may be constructed as follows:

- For diaphragms not steeper than 15° and not exceeding 7.5m in length, any GIB® plasterboard may be used provided perimeter fixing is at 150mm centres
- For diaphragms not steeper than 45° and not exceeding 7.5m in length and for diaphragms not steeper than 25° and not exceeding 12m in length, any GIB® plasterboard may be used provided perimeter fixing is at 100mm centres

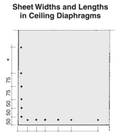
Otherwise construction is in accordance with the general fixing requirements for GIB® ceiling diaphragms outlined below.

General Fixing Requirements for GIB® Ceiling Diaphragms

- Linings shall be installed over the entire area of the diaphragm.
- Fastening shall be no less than 12mm from sheet edges and not less than 18mm from sheet end.
- Sheets shall be supported by framing members (e.g., ceiling battens) spaced at no more than 500mm centres for 10mm GIB® Plasterboard and at no more than 600mm centres for 13mm GIB® Plasterboard.
- Sheets within the diaphragm area may be fastened and finished conventionally in accordance with the publication entitled, "GIB® Site Guide". All joints shall be paper tape reinforced and stopped. It is recommended that sheet butt joints are formed off framing and back-blocked (see "GIB® Site Guide").
- Use full width sheets where possible. At least 900mm wide sheets with a length not less than 1800mm shall be used. Sheets less than 900mm wide but no less than 600mm may be used provided all joints with adjacent sheets are back-blocked (see "GIB® Site Guide").
- Openings are allowed within the middle third of the diaphragm's length and width. Fixing of sheet material to opening trimmers shall be at 150mm centres. Neither opening dimension shall exceed a third of the diaphragm width. Larger openings, or openings in other locations, require specific engineering design. Refer "Openings in Bracing Elements" page 17.
- Fasteners are placed at 150mm or 100mm centres around the ceiling diaphragm with the corners fastened using the GIB EzyBrace® 2011 fastener pattern.



Sheet Widths and Lengths in Ceiling Diaphragms



Fastening pattern for ceiling diaphragms

*** Perimeter centres at 150mm or 100mm depending on diaphragm limitations above**

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ELECTRICAL KEY

- Security infrared sensor light
- Halogen on sensor to stairs
- Recessed ceiling light
- Batten held ceiling light
- Wall mounted light
- ph — Phone jack
- tv — Television aerial
- Power outlet
- s — Earth leakage point
- Power switch
- htr — Heated towell rail
- Door Bell
- Heat lamp/vent combo
- Meter Board
- Sub main
- Smoke alarm

Notes:

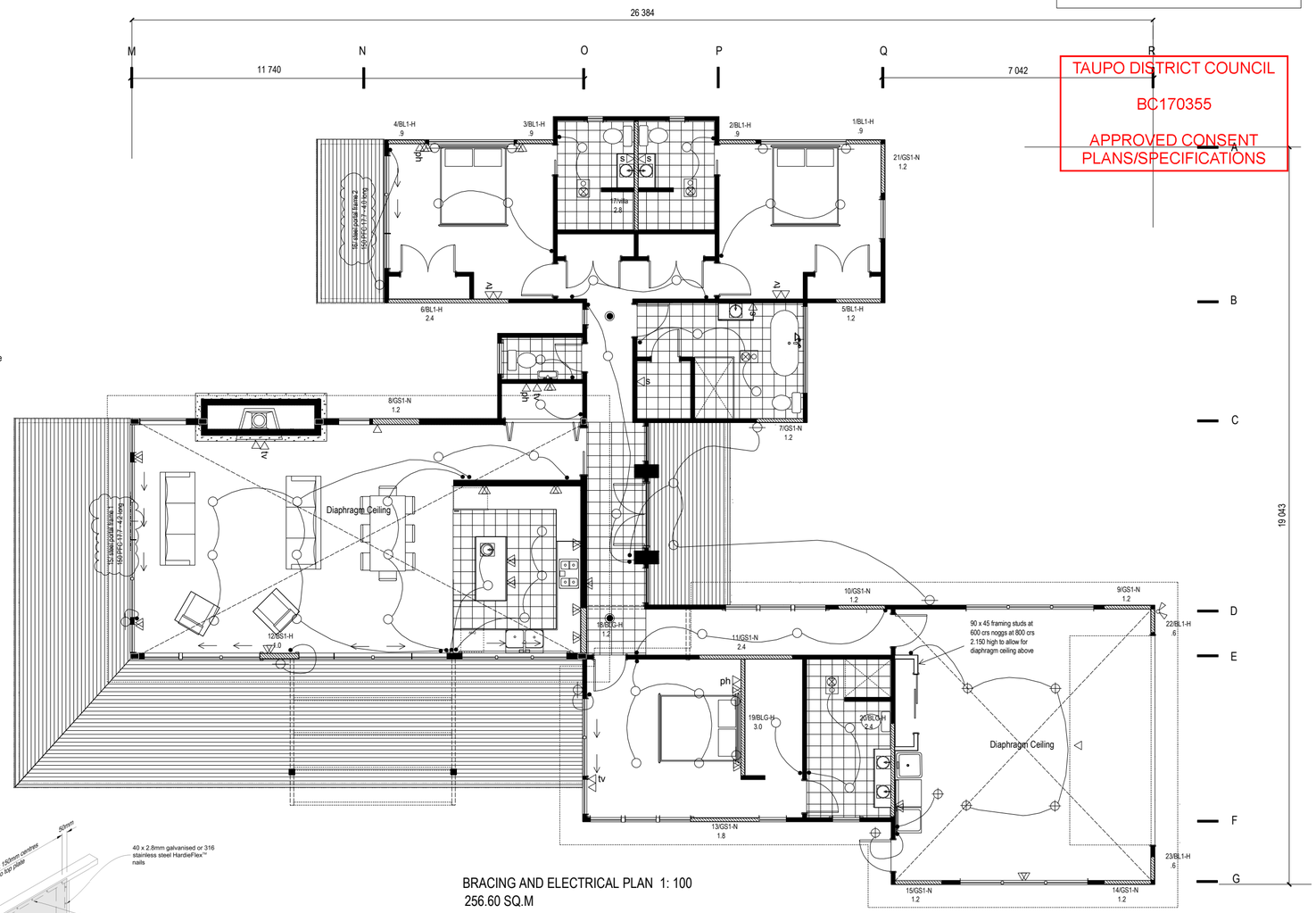
Electrician to verify positions of all power sockets and lights with owner before building commences.
All appliances to be chosen by owner.
All light fittings chosen by owner.

BRACE KEY

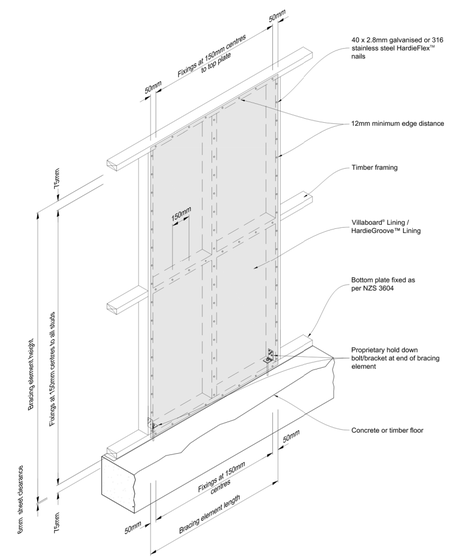
Numerical order of brace → 6/BL1-H 2.4 ← Type of brace required
↑ length of brace

DURABILITY ZONE - 3
EARTHQUAKE ZONE - 2
WIND ZONE A - HIGH

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BRACING AND ELECTRICAL PLAN 1: 100
256.60 SQ.M



FIBRE CEMENT FIXING DETAILS

Notes for Figure 3:

- **Concrete floor** bottom plate fixing:- Ramset bracing anchor kit Concrete or GIB Handibrac® with 15kN anchor at each end of bracing element
- **Timber floor** bottom plate fixing:- Ramset bracing anchor kit Wood or GIB Handibrac® with a 12x150mm galvanised coach screw at each end of bracing element

Product	System	Minimum length
Villaboard® Lining	Vv	1200mm
HardieGroove™ Lining	HG	1200mm

Bottom Plate Fixing

JUNE 2011

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

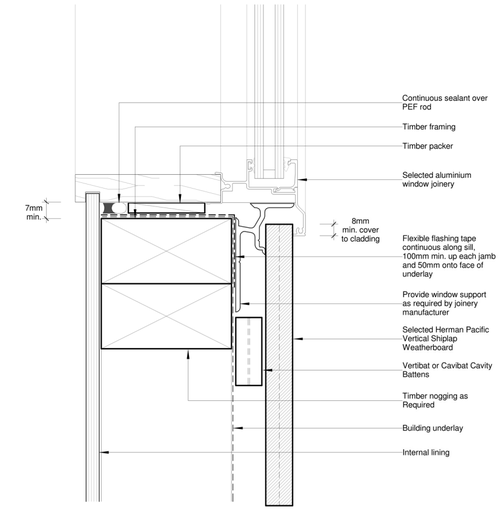
DURABILITY ZONE - 3
EARTHQUAKE ZONE - 2
WIND ZONE A - HIGH

TAUPO DISTRICT COUNCIL

BC170355

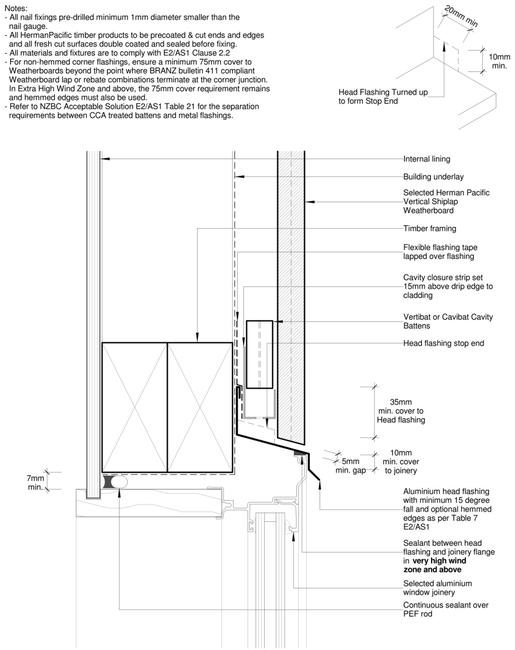
APPROVED CONSENT PLANS/SPECIFICATIONS

Notes:
- All nail fixings pre-drilled minimum 1mm diameter smaller than the nail gauge.
- All HermanPacific timber products to be precoated & cut ends and edges and all fresh cut surfaces double coated and sealed before fixing.
- All materials and fixtures are to comply with E2/AS1 Clause 2.2
- For non-hemmed corner flashings, ensure a minimum 75mm cover to Weatherboards beyond the point where BRANZ bulletin 411 compliant Weatherboard lap or rebate combinations terminate at the corner junction. In Extra High Wind Zone and above, the 75mm cover requirement remains and hemmed edges must also be used.
- Refer to NZBC Acceptable Solution E2/AS1 Table 21 for the separation requirements between CCA treated battens and metal flashings.



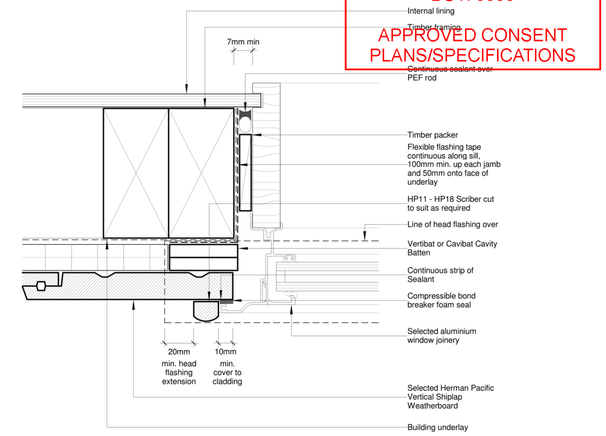
12 A003 VERTICAL SHIPLAP SILL DETAIL

Notes:
- All nail fixings pre-drilled minimum 1mm diameter smaller than the nail gauge.
- All HermanPacific timber products to be precoated & cut ends and edges and all fresh cut surfaces double coated and sealed before fixing.
- All materials and fixtures are to comply with E2/AS1 Clause 2.2
- For non-hemmed corner flashings, ensure a minimum 75mm cover to Weatherboards beyond the point where BRANZ bulletin 411 compliant Weatherboard lap or rebate combinations terminate at the corner junction. In Extra High Wind Zone and above, the 75mm cover requirement remains and hemmed edges must also be used.
- Refer to NZBC Acceptable Solution E2/AS1 Table 21 for the separation requirements between CCA treated battens and metal flashings.



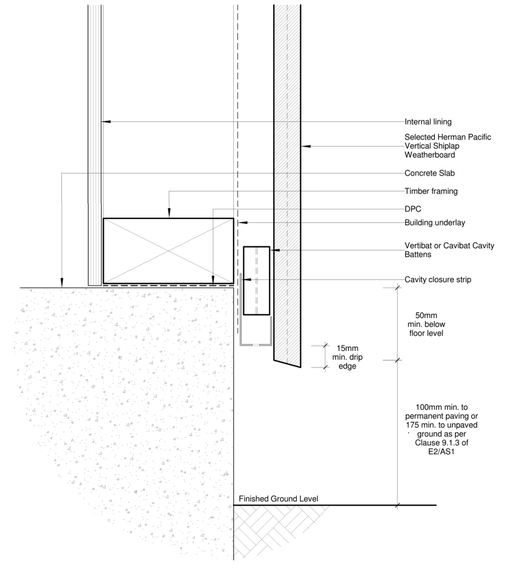
13 A003 VERTICAL SHIPLAP HEAD DETAIL

Notes:
- All nail fixings pre-drilled minimum 1mm diameter smaller than the nail gauge.
- All HermanPacific timber products to be precoated & cut ends and edges and all fresh cut surfaces double coated and sealed before fixing.
- All materials and fixtures are to comply with E2/AS1 Clause 2.2
- For non-hemmed corner flashings, ensure a minimum 75mm cover to Weatherboards beyond the point where BRANZ bulletin 411 compliant Weatherboard lap or rebate combinations terminate at the corner junction. In Extra High Wind Zone and above, the 75mm cover requirement remains and hemmed edges must also be used.
- Refer to NZBC Acceptable Solution E2/AS1 Table 21 for the separation requirements between CCA treated battens and metal flashings.



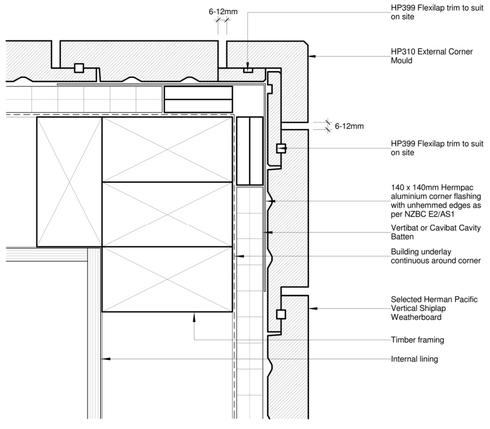
14 A003 VERTICAL SHIPLAP JAMB DETAIL

Notes:
- All nail fixings pre-drilled minimum 1mm diameter smaller than the nail gauge.
- All HermanPacific timber products to be precoated & cut ends and edges and all fresh cut surfaces double coated and sealed before fixing.
- All materials and fixtures are to comply with E2/AS1 Clause 2.2
- For non-hemmed corner flashings, ensure a minimum 75mm cover to Weatherboards beyond the point where BRANZ bulletin 411 compliant Weatherboard lap or rebate combinations terminate at the corner junction. In Extra High Wind Zone and above, the 75mm cover requirement remains and hemmed edges must also be used.
- Refer to NZBC Acceptable Solution E2/AS1 Table 21 for the separation requirements between CCA treated battens and metal flashings.



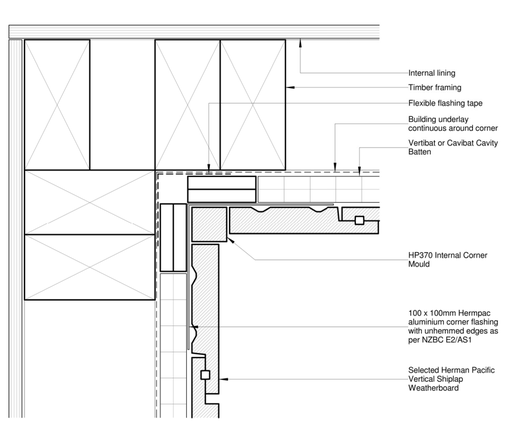
15 A003 VERTICAL SHIPLAP BASE OF WALL DETAIL

Notes:
- All nail fixings pre-drilled minimum 1mm diameter smaller than the nail gauge.
- All HermanPacific timber products to be precoated & cut ends and edges and all fresh cut surfaces double coated and sealed before fixing.
- All materials and fixtures are to comply with E2/AS1 Clause 2.2
- For non-hemmed corner flashings, ensure a minimum 75mm cover to Weatherboards beyond the point where BRANZ bulletin 411 compliant Weatherboard lap or rebate combinations terminate at the corner junction. In Extra High Wind Zone and above, the 75mm cover requirement remains and hemmed edges must also be used.
- Refer to NZBC Acceptable Solution E2/AS1 Table 21 for the separation requirements between CCA treated battens and metal flashings.

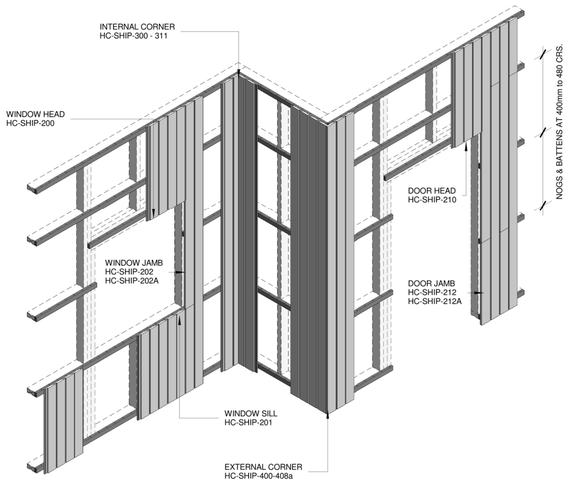


16 A003 VERTICAL SHIPLAP EXTERNAL WALL DETAIL

nail gauge.
- All HermanPacific timber products to be precoated & cut ends and edges and all fresh cut surfaces double coated and sealed before fixing.
- All materials and fixtures are to comply with E2/AS1 Clause 2.2
- For non-hemmed corner flashings, ensure a minimum 75mm cover to Weatherboards beyond the point where BRANZ bulletin 411 compliant Weatherboard lap or rebate combinations terminate at the corner junction. In Extra High Wind Zone and above, the 75mm cover requirement remains and hemmed edges must also be used.
- Refer to NZBC Acceptable Solution E2/AS1 Table 21 for the separation requirements between CCA treated battens and metal flashings.



17 A003 VERTICAL SHIPLAP INTERNAL WALL DETAIL



Cavity Fix Vertical Shiplap Weatherboard System
Isometric View

HermanPacific
www.hermpac.co.nz
SUBJECT TO CHANGE WITHOUT NOTICE

HC-SHIP-002 DRAWING
@ A4 SCALE
04/06/2015 ISSUED DATE

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JONES RESIDENCE - 6 THE FAIRWAYS, KINLOCH

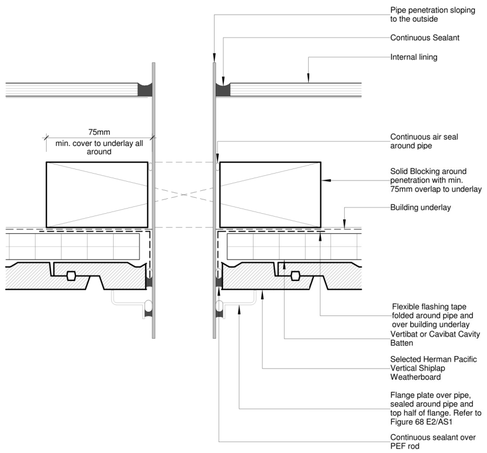
DURABILITY ZONE - 3
EARTHQUAKE ZONE - 2
WIND ZONE A - HIGH

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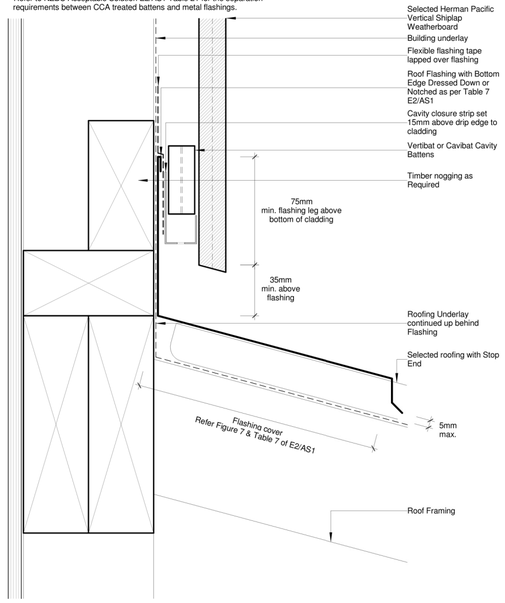
APPROVED CONSENT PLANS/SPECIFICATIONS

Notes:
- All nail fixings pre-drilled minimum 1mm diameter smaller than the nail gauge.
- All HermanPacific timber products to be precoated & cut ends and edges and all fresh cut surfaces double coated and sealed before fixing.
- All materials and fixtures are to comply with E2/AS1 Clause 2.2
- For non-hemmed corner flashings, ensure a minimum 75mm cover to Weatherboards beyond the point where BRANZ bulletin 411 compliant Weatherboard lap or rebate combinations terminate at the corner junction. In Extra High Wind Zone and above, the 75mm cover requirement remains and hemmed edges must also be used.
- Refer to NZBC Acceptable Solution E2/AS1 Table 21 for the separation requirements between CCA treated battens and metal flashings.



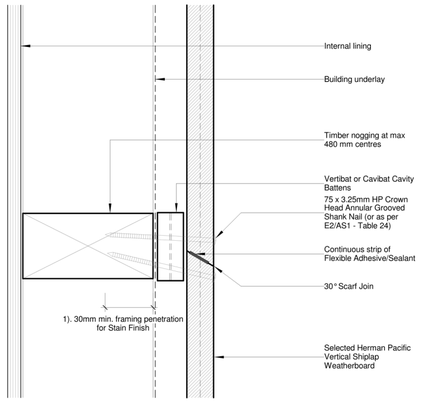
VERTICAL SHIPLAP TYPICAL PIPE PENETRATION DETAIL

Notes:
- All nail fixings pre-drilled minimum 1mm diameter smaller than the nail gauge.
- All HermanPacific timber products to be precoated & cut ends and edges and all fresh cut surfaces double coated and sealed before fixing.
- All materials and fixtures are to comply with E2/AS1 Clause 2.2
- For non-hemmed corner flashings, ensure a minimum 75mm cover to Weatherboards beyond the point where BRANZ bulletin 411 compliant Weatherboard lap or rebate combinations terminate at the corner junction. In Extra High Wind Zone and above, the 75mm cover requirement remains and hemmed edges must also be used.
- Refer to NZBC Acceptable Solution E2/AS1 Table 21 for the separation requirements between CCA treated battens and metal flashings.



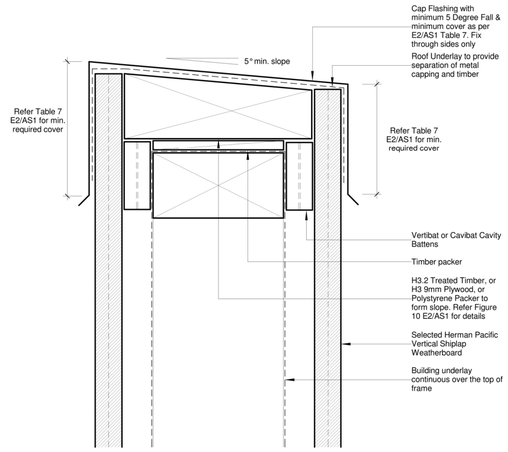
18
A006
VERTICAL SHIPLAP ROOF TO WALL JUNCTION

Notes:
- All nail fixings pre-drilled minimum 1mm diameter smaller than the nail gauge.
- All HermanPacific timber products to be precoated & cut ends and edges and all fresh cut surfaces double coated and sealed before fixing.
- All materials and fixtures are to comply with E2/AS1 Clause 2.2
- For non-hemmed corner flashings, ensure a minimum 75mm cover to Weatherboards beyond the point where BRANZ bulletin 411 compliant Weatherboard lap or rebate combinations terminate at the corner junction. In Extra High Wind Zone and above, the 75mm cover requirement remains and hemmed edges must also be used.
- Refer to NZBC Acceptable Solution E2/AS1 Table 21 for the separation requirements between CCA treated battens and metal flashings.



NOTE:
Cut ends of scarf join must be double coated with oil or stain.
35mm framing penetration using HPJolt Head Stainless Steel Annular Grooved nail for paint finish

VERTICAL SHIPLAP TYPICAL SCARF JOIN



19
A003
PARAPET DETAIL

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JONES RESIDENCE - 6 THE FAIRWAYS, KINLOCH

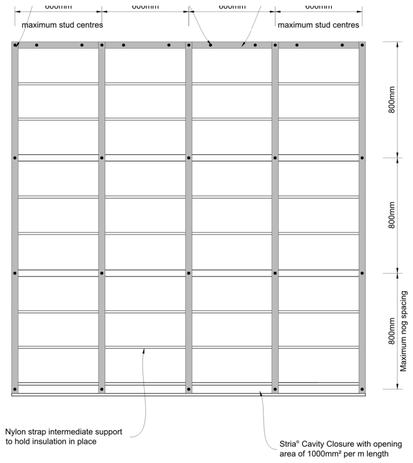
SHT A012 OF **18**

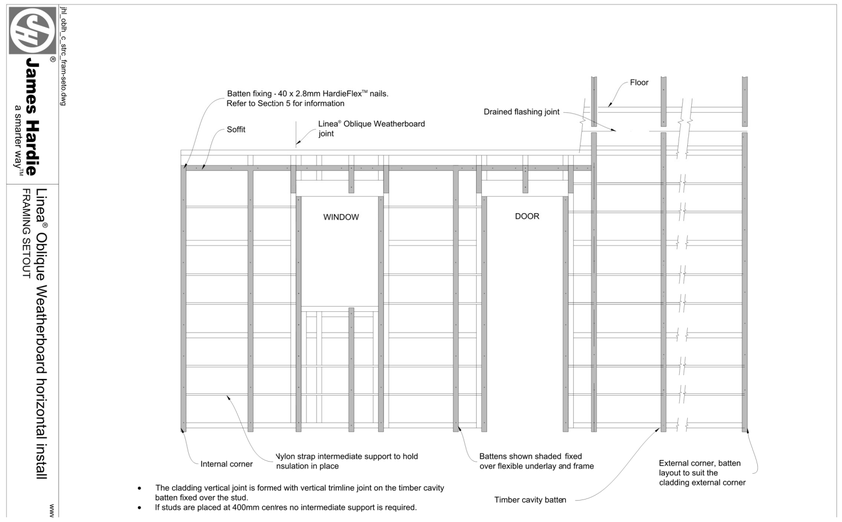
DURABILITY ZONE - 3
EARTHQUAKE ZONE - 2
WIND ZONE A - HIGH

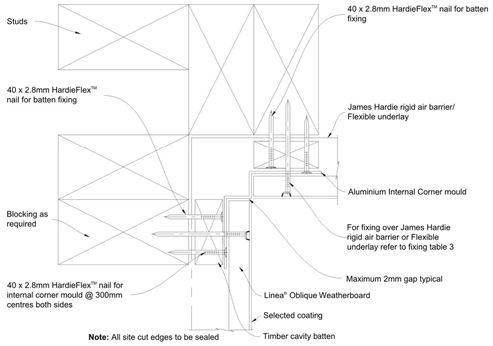
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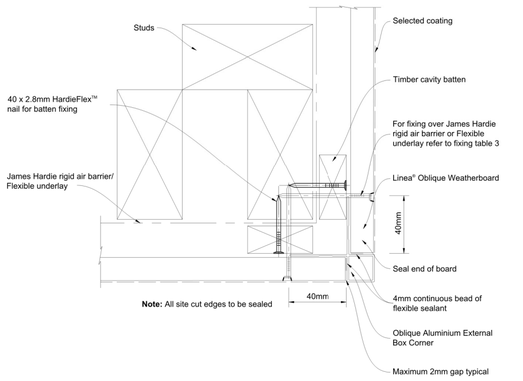




21
A003

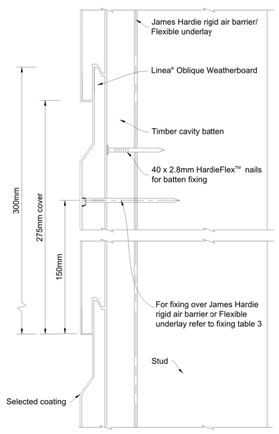
LINEA OBLIQUE INTERNAL CORNER DETAIL

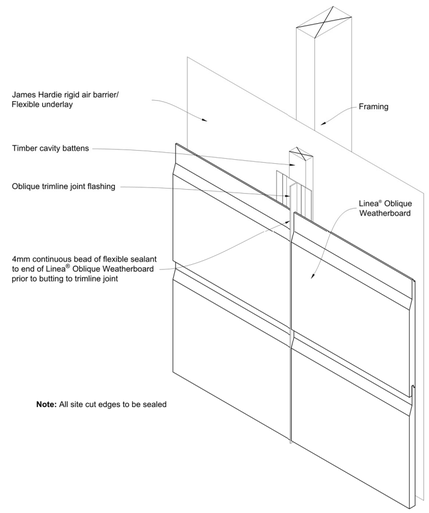
TYPICAL LINEA OBLIQUE INSTALLATION DETALS



20
A003

LINEA OBLIQUE EXTERNAL CORNER DETAIL





TYPICAL LINEA OBLIQUE WEATHERBOARD INSTALLATION DETAILS

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Email: clint.bramley@callplus.net.nz

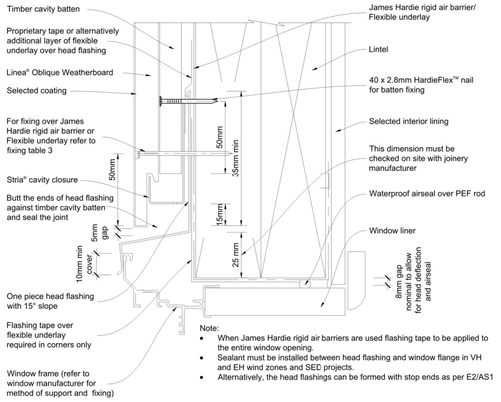
JONES RESIDENCE - 6 THE FAIRWAYS, KINLOCH

DURABILITY ZONE - 3
EARTHQUAKE ZONE - 2
WIND ZONE A - HIGH

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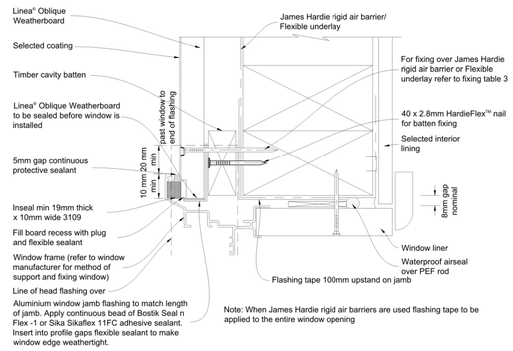
APPROVED CONSENT PLANS/SPECIFICATIONS



Note:
- When James Hardie rigid air barriers are used flashing tape to be applied to the entire window opening.
- Sealant must be installed between head flashing and window flange in VH and EH wind zones and SED projects.
- Alternatively, the head flashings can be formed with stop ends as per E2/AS1

21 A003

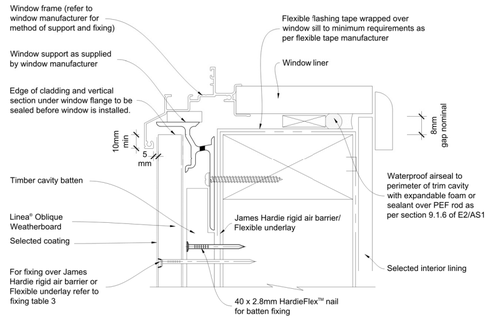
LINEA OBLIQUE HEAD DETAIL



Note: When James Hardie rigid air barriers are used flashing tape to be applied to the entire window opening

22 A003

LINEA OBLIQUE JAMB DETAIL



General notes for materials selection
1. Flashing materials must be selected based on environmental exposure, refer to NZS 3604 and Table 20 of NZBC E2/AS1.
2. Flexible underlay must comply with acceptable solution E2/AS1.
3. Flashing tape must have proven compatibility with the selected flexible underlay and other materials with which it comes into contact.
4. When James Hardie rigid air barriers are used flashing tape to be applied to the entire opening.

Refer to the manufacturer or supplier for technical information for these materials.

23 A003

LINEA OBLIQUE SILL DETAIL

TYPICAL LINEA OBLIQUE WEATHERBOARD INSTALLATION DETAILS

24 A003

LINEA OBLIQUE ROOF TO WALL JUNCTION

TYPICAL LINEA OBLIQUE WEATHERBOARD INSTALLATION DETAILS

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Clint Bramley Design & Associates

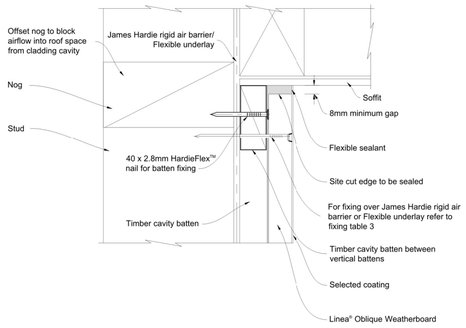
PO Box 1604
Taupo 3351
Phone: +64 7 378 5804
Mobile: 021 544 780
Email: clint.bramley@callplus.net.nz

DURABILITY ZONE - 3
EARTHQUAKE ZONE - 2
WIND ZONE A - HIGH

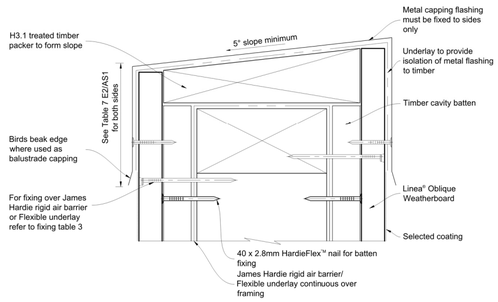
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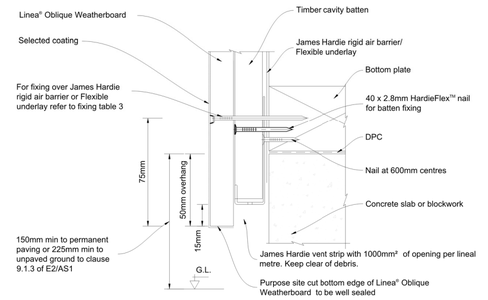
APPROVED CONSENT PLANS/SPECIFICATIONS



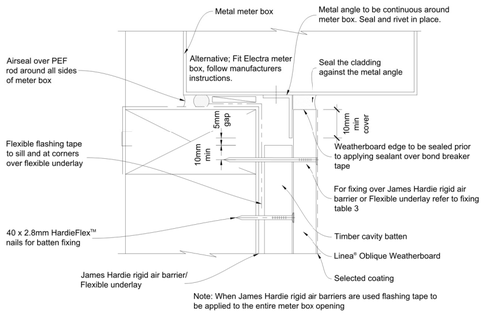
26 A003 LINEA OBLIQUE SOFFIT DETAIL



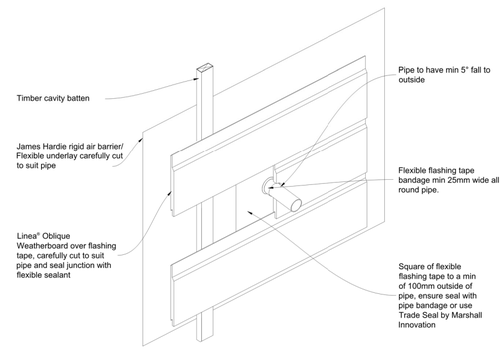
25 A003 LINEA OBLIQUE PARAPET DETAIL



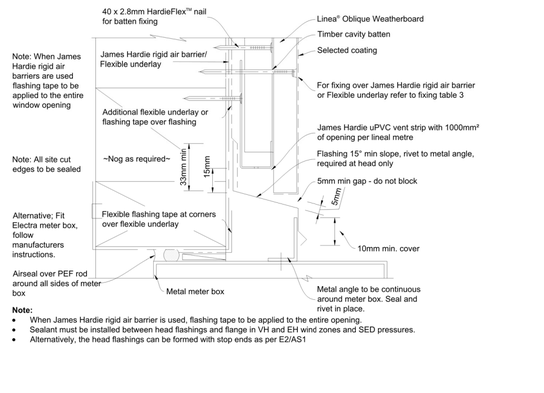
27 A003 LINEA OBLIQUE BASE DETAIL



LINEA OBLIQUE TYPICAL METER BOX SILL DETAIL

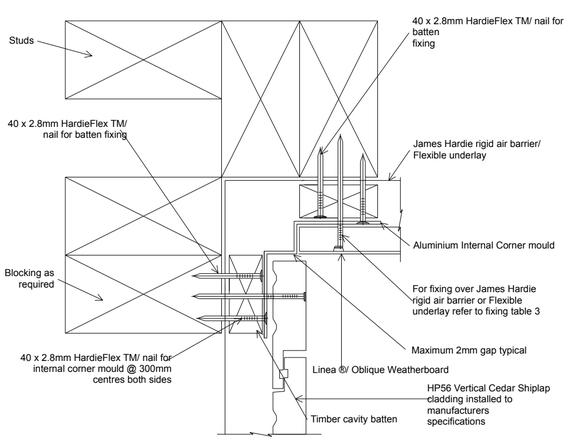


LINEA OBLIQUE TYPICAL PIPE PENETRATION DETAIL



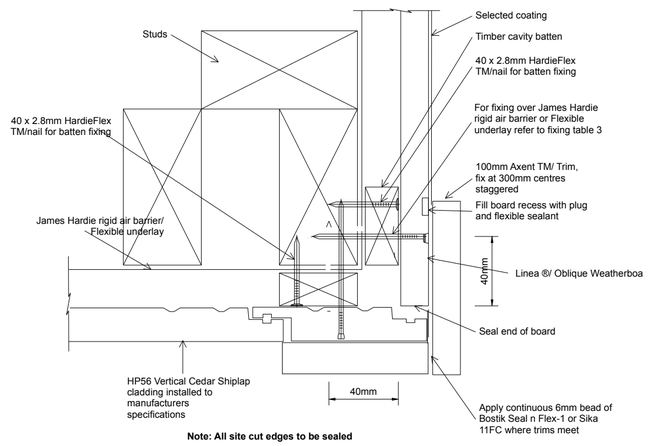
Note:
- When James Hardie rigid air barrier is used, flashing tape to be applied to the entire opening.
- Sealant must be installed between head flashings and flange in VH and EH wind zones and SED pressures.
- Alternatively, the head flashings can be formed with stop ends as per E2/AS1

LINEA OBLIQUE TYPICAL METER BOX HEAD DETAIL



34 A003 Internal Aluminium Corner Oblique and Shiplap

Note: All site cut edges to be sealed



33 A003 Axent Trim External Box Corner Shiplap and Linea Oblique junction

Note: All site cut edges to be sealed

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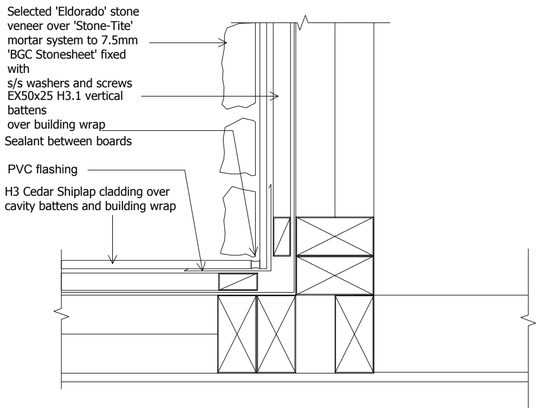
JONES RESIDENCE - 6 THE FAIRWAYS, KINLOCH

DURABILITY ZONE - 3
EARTHQUAKE ZONE - 2
WIND ZONE A - HIGH

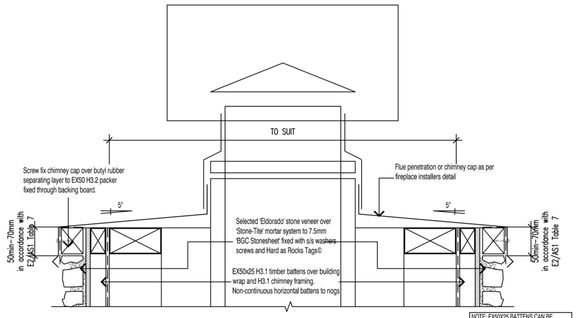
TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS



28 / A003 — INT. CORNER WITH SHIPLAP CLADDING



NOTE: EX50X25 BATTENS CAN BE SUBSTITUTED WITH EX50X50 WHERE APPROPRIATE

NOTE: BGC SUBSTRATE TO BE FIXED IN STRICT ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS AND LITERATURE

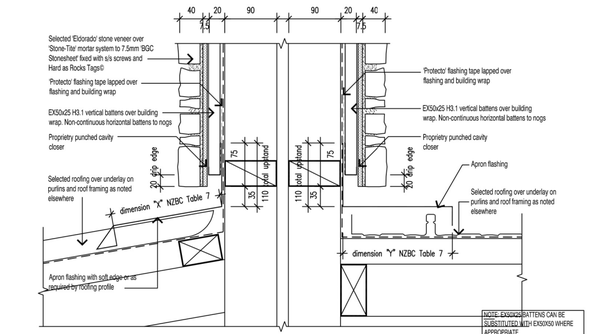
ATTENTION BUILDING CONSENT AUTHORITIES: ALL PROJECTS MUST BE REGISTERED AT BUILDING CONSENT STAGE BY PHONE (0800 353 672) OR E-MAIL (info@hardasrocks.co.nz) IN ORDER FOR LICENSED APPLICATORS TO TRACK AND PRODUCER STATEMENT TO BE ISSUED UPON COMPLETION AS PER SPECIFICATION MANUAL

29 / A003 — CHIMNEY CAP DETAIL FLASHING TO TIMBER

SCALE	DATE
NTS	23 Apr 2009
Hard As Rocks 0800 353672	PREFERRED DETAIL

HARD AS ROCKS SUGGESTED DETAIL ONLY - DETAILS TO BE APPROVED BY LOCAL AUTHORITY & COMPLY WITH NZBC WHERE RELEVANT

© 2009 HARD AS ROCKS



NOTE: EX50X25 BATTENS CAN BE SUBSTITUTED WITH EX50X50 WHERE APPROPRIATE

NOTE: BGC SUBSTRATE TO BE FIXED IN STRICT ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS AND LITERATURE

ATTENTION BUILDING CONSENT AUTHORITIES: ALL PROJECTS MUST BE REGISTERED AT BUILDING CONSENT STAGE BY PHONE (0800 353 672) OR E-MAIL (info@hardasrocks.co.nz) IN ORDER FOR LICENSED APPLICATORS TO TRACK AND PRODUCER STATEMENT TO BE ISSUED UPON COMPLETION AS PER SPECIFICATION MANUAL

31 / A003 — ROOF ABUTMENT DETAILS LONGRUN ROOFING

SCALE	DATE
NTS	23 Apr 2009
Hard As Rocks 0800 353672	PREFERRED DETAIL

HARD AS ROCKS SUGGESTED DETAIL ONLY - DETAILS TO BE APPROVED BY LOCAL AUTHORITY & COMPLY WITH NZBC WHERE RELEVANT

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NOTE: EX50X25 BATTENS CAN BE SUBSTITUTED WITH EX50X50 WHERE APPROPRIATE

NOTE: BGC SUBSTRATE TO BE FIXED IN STRICT ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS AND LITERATURE

ATTENTION BUILDING CONSENT AUTHORITIES: ALL PROJECTS MUST BE REGISTERED AT BUILDING CONSENT STAGE BY PHONE (0800 353 672) OR E-MAIL (info@hardasrocks.co.nz) IN ORDER FOR LICENSED APPLICATORS TO TRACK AND PRODUCER STATEMENT TO BE ISSUED UPON COMPLETION AS PER SPECIFICATION MANUAL

30 / A003 — EXT. CORNER DETAIL

SCALE	DATE
NTS	23 Apr 2009
Hard As Rocks 0800 353672	PREFERRED DETAIL

HARD AS ROCKS SUGGESTED DETAIL ONLY - DETAILS TO BE APPROVED BY LOCAL AUTHORITY & COMPLY WITH NZBC WHERE RELEVANT

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NOTE: EX50X25 BATTENS CAN BE SUBSTITUTED WITH EX50X50 WHERE APPROPRIATE

NOTE: BGC SUBSTRATE TO BE FIXED IN STRICT ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS AND LITERATURE

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32 / A003 — ROOF ABUTMENT DETAIL LONGRUN ROOFING

SCALE	DATE
NTS	23 Apr 2009
Hard As Rocks 0800 353672	PREFERRED DETAIL

HARD AS ROCKS SUGGESTED DETAIL ONLY - DETAILS TO BE APPROVED BY LOCAL AUTHORITY & COMPLY WITH NZBC WHERE RELEVANT

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30 / A004 — ENTRY COLUMNS WINDOW JAMB DETAIL

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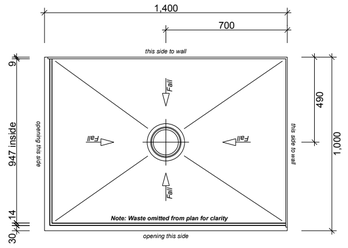
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Mobile: 021 544 780
Email: clint.bramley@callplus.net.nz

JONES RESIDENCE - 6 THE FAIRWAYS, KINLOCH

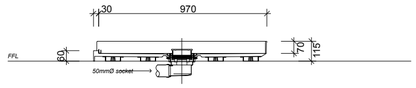
DURABILITY ZONE - 3
EARTHQUAKE ZONE - 2
WIND ZONE A - HIGH

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APPROVED CONSENT PLANS/SPECIFICATIONS

MAIN BATHROOM



Floor Plan Tranquillity - EasyTile -Slim Classic
Centre Waste 1400x1000
2WTraSC_1400x1000



Section Tranquillity - EasyTile -Slim Classic
Centre Waste 1400x1000
2WTraSCSect_1400x1000

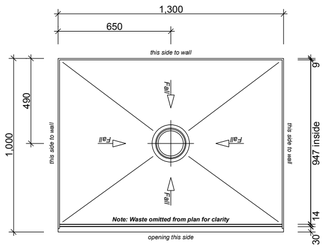
NOTE: Section cut through centre of waste outlet

Tranquillity 1400x1000mm (centre waste)

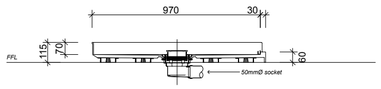
Slim Classic 2 Framed Wall Showers - Tile-over Shower Base

Atlantis Bathroom Style All rights reserved
NZ 0800 428 526

MASTER BEDROOM



Floor Plan Dominator - EasyTile -Slim Classic
Centre Waste 1300x1000
3WDomSC_1300x1000



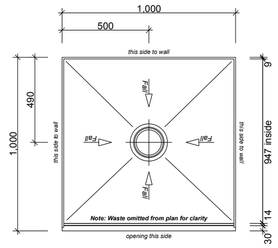
Section Dominator - EasyTile -Slim Classic
Centre Waste 1300x1000
3WDomSCSect_1300x1000

NOTE: Section cut through centre of waste outlet

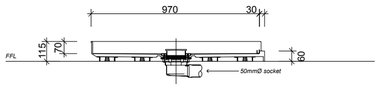
Dominator 1300x1000mm (centre waste)

Slim Classic 3 Framed Wall Showers - Tile-over Shower Base

BEDROOM ENSUITES



Floor Plan Aquarius - EasyTile -Slim Classic
Centre Waste 1000x1000
3WAquSC_1000x1000



Section Aquarius - EasyTile -Slim Classic
Centre Waste 1000x1000
3WAquSCSect_1000x1000

NOTE: Section cut through centre of waste outlet

Aquarius 1000x1000mm (centre waste)

Slim Classic 3 Framed Wall Showers - Tile-over Shower Base

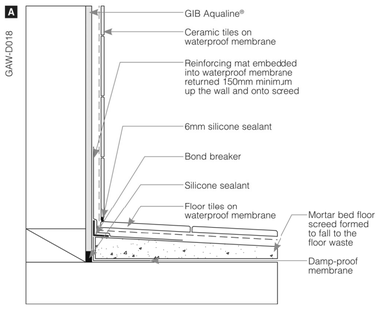
GIB AQUALINE® WET AREA SYSTEMS – TYPICAL DETAILS

GIB

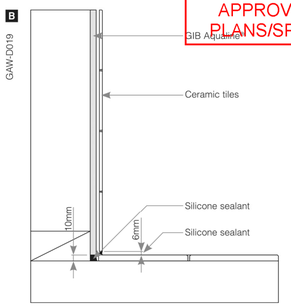
Shower – Tiled Walls and Base

MAY 2017

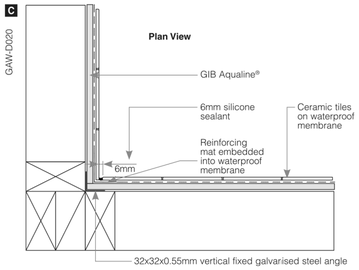
GAW-D018



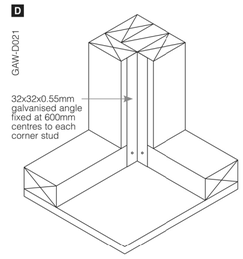
GAW-D019



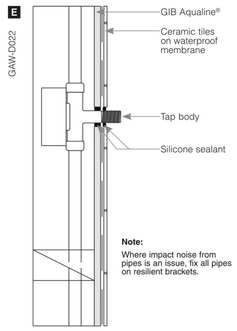
GAW-D020



GAW-D021



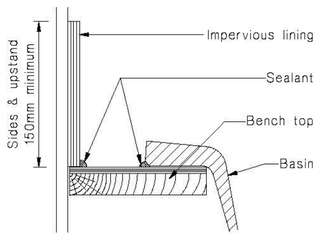
GAW-D022





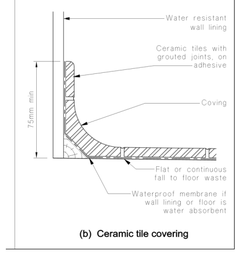
FOR FURTHER INFORMATION OR TO DOWNLOAD DETAILS VISIT WWW.GIB.CO.NZ

Figure 3: **Baths, Basins, Tubs and Sinks, Joints against Wall Linings**
Paragraph 3.2.2



(b) Tub, sink and basin

Figure 1: **Floor Coverings at Wall Junctions**
Paragraph 2.1.1



(b) Ceramic tile covering

ARDEX WPM 002

Superflex Bathroom & Balcony - 2 Part
2 Part Undertile Waterproofing Membrane

Movement/construction joints

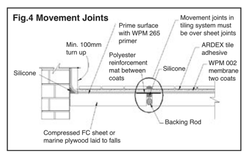
Movement joints (<6mm)

Clean and prime the joint before filling it with a bead of neutral cure silicone and extending it 6mm each side of joint. Apply a 300mm wide band of Ardex WPM 002 equidistantly across the crack along the entire length of the crack. Place a 190mm wide band of Ardex "Deckweb" polyester woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat.

Construction joints (>6mm)

Use the same procedure as above, but replace the reinforcing mat with 120mm of Ardex Coving Bandage. Note: if tiling, movement joints should be taken to the surface of the tiles. Fill the joints between the tiles immediately above the movement joints with an appropriate joint sealant. (Refer Fig.4)

Fig.4 Movement Joints



Corners and coving areas

After priming with Ardex WPM 265 and allowing to dry, apply a generous bead (16mm) of neutral cure silicone sealant in coving areas and corners. (Refer Fig.5) Smooth over the silicone so that it extends 8mm up the wall and 8mm over the floor and allow to touch dry.

Apply a first coat of Ardex WPM 002 to the area and allow the membrane to dry.

Apply a second coat ensuring that excess product is removed from the junction (the final dry film thickness should be around 1.2mm) Alternatively, if a polyester reinforcement mat is used between coats then the second coat can be applied as soon as the mat is fully bedded into the first coat.

WALL/FLOOR JUNCTION

After priming with Ardex Superflex WPM 265 and allowing to dry, apply a generous bead (16mm) of neutral cure silicone sealant to seal all junctions between two substrates. Smooth over the silicone so that it extends 8mm up the wall and 8mm over the floor and allow to touch dry. Place a 190mm wide band of Ardex "Deckweb" polyester woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat. The Ardex WPM 002 should be applied to at least 150mm up the wall surfaces as per the recommendations for the application of Ardex WPM 002 to floors.

Walls

Two coats of Ardex WPM 002 are required to achieve a minimum total dry film thickness of 0.8mm.

After priming with Ardex Superflex WPM 265 and allowing to dry, apply two coats of Ardex WPM 002 (to achieve a minimum dry film thickness of 0.8mm) in two opposite directions. Wall sheets joints should be treated with a neutral cure silicone, PVC duct tape or base jointing compound. In balcony situations take the membrane up underneath any existing cover flashing or install appropriate flashing. Allow the first coat to dry before applying the second coat.

Floors

Two coats of Ardex WPM 002 are required to achieve a minimum total dry film thickness of 1.2mm. The flooring recommendations should be extended at least 150mm up all perimeter walls.

Prime the surface with Ardex WPM 265 water based primer and allow to dry.

Apply the first coat over the primed surface and allow it to dry (1-2 hours at 23°C, 50% RH) before applying a second coat in an opposite direction. In shower recesses a drainage flange must be installed on all timber/sheetec floors, and are strongly recommended on all other substrates. Where possible rebate the flange into the floor. Seal the perimeter of the flange with neutral cure silicone treatment. If a flange is not installed the membrane must be applied down into the pipe. (Refer Fig.5) Allow the membrane to dry completely before tiling. Refer drying times above.

Waste outlet

Prime the surface with Ardex WPM 265 and allow to dry. Surfaces of outlet flange must be primed with an appropriate primer.

Apply Ardex WPM 002 over the adjacent floor surface extending down into the waste outlet pipe overlapping the pipe surfaces by at least 30mm. Place Ardex "Deckweb" polyester woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat. (Refer Fig. 5).

PERMIT PLANS 02 - 09/05/2017

Architecture urban FORM
Clint Bramley Design & Associates
PO Box 1604
Taupo 3351
Phone: +64 7 378 5804
Mobile: 021 544 780
Email: clint.bramley@callplus.net.nz

DURABILITY ZONE - 3
EARTHQUAKE ZONE - 2
WIND ZONE A - HIGH

GENERAL

1. Do not scale from drawings. These drawings are to be read in conjunction with the architectural drawings and all other related documents. Refer to architectural drawings for dimensions, rebates & recesses.

2. Contact the architect/engineer if any discrepancies are found.

3. Under no circumstances shall polystyrene spacers be used. Use recommended spacers as per details provided.

4. DPM shall be in accordance with NZS3604 (polyethylene sheet, min. 0.25mm). Do not use multiple layers. All penetrations through the DPM shall be sealed.

5. A layer of sand blinding or granular fines (GAP7) shall be placed, screeded and compacted over the building platform. The maximum thickness of this layer shall be no more than 50mm.

6. All service trenches shall be properly backfilled and compacted.

7. Where underfloor heating is installed, floor topping shall be increased to 110mm.

8. Where concrete polishing and/or architectural cuts are made to the floor, the floor thickness shall be increased such that the final topping depth is no less than that specified on the plans after all polishing/cuts.

9. Polystyrene pods shall be 1100 x 1100 x 220mm or 1200 x 1200 x 220mm.

CONCRETE

1. All concrete work and materials shall conform to NZS3109 and applicable building consent authority regulations.

2. No cuts shall be made to the floor other than those shown on the drawings.

3. Unless otherwise noted, concrete shall be:

20MPa minimum or 25MPa minimum within 'exposure zone D' (if in doubt, confirm with local BCA)

REINFORCEMENT

1. Unless otherwise specified, all reinforcement shall be Ductility Class E, in accordance with NZS 4671.

2. All bend diameters shall comply with NZS 3109. Re-bending of reinforcement is not permitted. 'Spot' welding of reinforcement is not permitted.

3. All mesh reinforcement shall be Ductility Class E as per NZS4671

4. Unless otherwise specified by proprietary product specifications, mesh shall be lapped a minimum of 250mm or by a grid plus 50mm, whichever is greater.

5. Unless otherwise specified on plans, minimum covers are:
   exposed to earth: 75mm
   exposed to edge: 50mm
   protected by damp proofing: 50mm

6. Unless otherwise specified, reinforcement laps are:

Reinforcement Grade	Nomination	min. lap (whichever is greater)	concrete strength (MPa)
300	'D'	40Ø or min. 600mm	all blockfill, 20 and 25
500	'HD'	70Ø	all blockfill
500	'HD'	56Ø	20
500	'HD'	50Ø	25

SITE CONDITIONS

1. Design is based on 'good ground' as per NZS3604:2011 (stable site, non expansive soils & non liquefiable soils and min 100kPa allowable bearing capacity), to be confirmed.

INSPECTIONS

1. Check the BUILDING CONSENT CONDITIONS for any inspections that are required by the Building Consent Authority (BCA).

2. If BCA requires PS4 to be issued for inspections, a local engineer may be engaged to carry out such inspections and issue a PS4 accordingly.

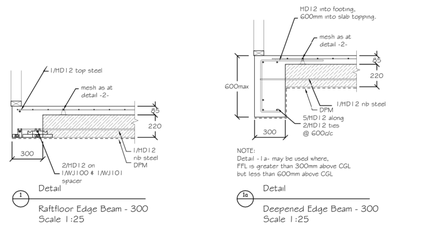
Revision	Description	Date

WILTON JOUBERT
Consulting Engineers
Northland: 09 945 4188
Auckland-Waikato: 09 527 0196
Canterbury: 021 824 063
Southern Lakes: 03 443 6209
www.wiltonjoubert.co.nz

Job Title: Proposed Residence Lot 52 6 The Fairways Kinloch, Bay of Plenty

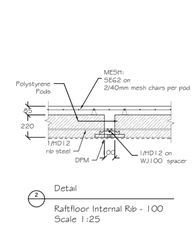
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Job # 66285			Sht: S0

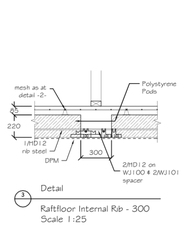


1 Detail
Raftfloor Edge Beam - 300
Scale 1:25

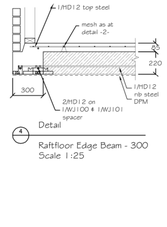
1a Detail
Deepened Edge Beam - 300
Scale 1:25



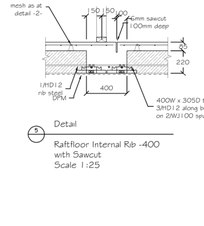
2 Detail
Raftfloor Internal Rib - 100
Scale 1:25



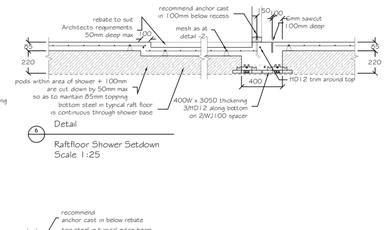
3 Detail
Raftfloor Internal Rib - 300
Scale 1:25



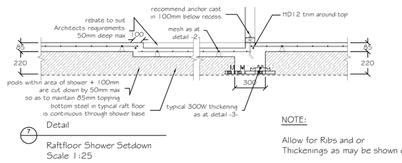
4 Detail
Raftfloor Edge Beam - 300
Scale 1:25



5 Detail
Raftfloor Internal Rib -400 with Sawcut
Scale 1:25



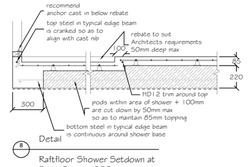
6 Detail
Raftfloor Shower Setdown
Scale 1:25



7 Detail
Raftfloor Shower Setdown
Scale 1:25

NOTE:

Allow for Ribs and or Thickenings as may be shown on plan



8 Detail
Raftfloor Shower Setdown at Edge Beam - 300
Scale 1:25

Quantities of Spacers
(Quantities are approximate and to be used as a guide only)

Item	Qty.
WJ100 Centre Spacer	300
WJ101 Clip-on Spacer	170

NOTES:
Do not scale from Drawings. Refer Architectural Drawings for overall dimensions. To be read in conjunction with all other related documents.

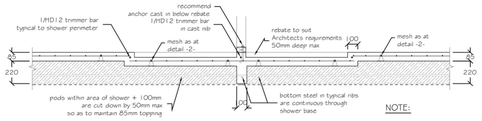
Revision	Description	Date

WILTON JOUBERT
Consulting Engineers
Northland: 09 945 4188
Auckland-Waikato: 09 527 0196
Canterbury: 021 824 063
Southern Lakes: 03 443 6209
www.wiltonjoubert.co.nz

Job Title: Proposed Residence Lot 52 6 The Fairways Kinloch, Bay of Plenty

Sheet Title: Raft Floor Details

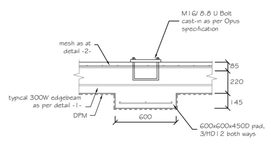
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Date: 1:25		Date: 6-4-2017	
Job # 66285			Sht: S2



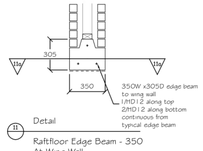
9 Detail
Raftfloor Shower Setdown
Scale 1:25

NOTE:

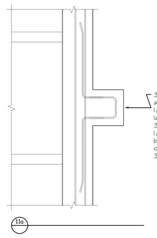
Allow for Ribs and or Thickenings as may be shown on plan



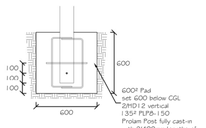
10 Detail
600x600x450 pad footing



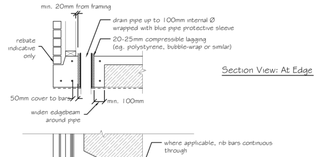
11 Detail
Raftfloor Edge Beam - 350
At Wing Wall
Scale 1:25



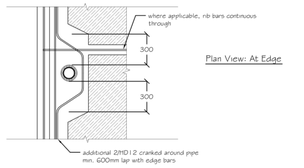
11a



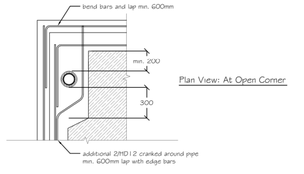
12 Detail
600x600x600 external pad footing



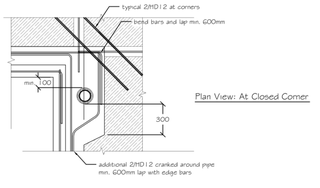
Section View: At Edge



Plan View: At Edge

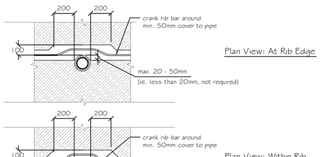


Plan View: At Open Corner

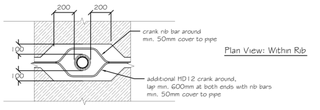


Plan View: At Closed Corner

Typical Detail Around Pipes
Raftfloor Edge Beam

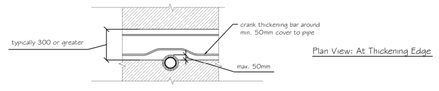


Plan View: At Rib Edge

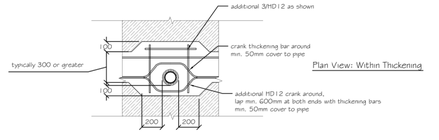


Plan View: Within Rib

Typical Detail Around Pipes
Raftfloor Internal Ribs



Plan View: At Thickening Edge



Plan View: Within Thickening

Typical Detail Around Pipes
Raftfloor Internal Thickenings

NOTES:

These details are applicable where plumbing/services are conveyed underground. Services are to be taken through polystyrene pods as much as possible. If this is unavoidable, it may be taken through ribs/thickenings, provided the details (or similar in principle) on this sheet are used.

All service trench backfill shall be properly compacted.

Member sizes and reinforcing shown are indicative only, details shown on raftslab plan & details shall take precedence over the details shown here.

NOTES:

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT PLANS/SPECIFICATIONS

Revision	Description	Date

WILTON JOUBERT
Consulting Engineers
Northland: 09 945 4188
Auckland-Waikato: 09 527 0196
Canterbury: 021 824 063
Southern Lakes: 03 443 6209
www.wiltonjoubert.co.nz

Job Title: Generic Raft Slab

Sheet Title: Typical Pipe Details

Size: A0		Drawn: AO	
Job No: PCW		Scale:	
Date: NTS		Date: 2017	
			Sht: D1

PERMIT PLANS 02 - 09/05/2017

Architecture urban FORM
Clint Bramley Design & Associates
PO Box 1604
Taupo 3351
Phone: +64 7 378 5804
Mobile: 021 544 780
Email: clint.bramley@callplus.net.nz

Memo from LBP - Design - 170355 - A1935547

Form 2A

Memorandum from licensed building practitioner: Certificate of design work

Section 45 & Section 30C, Building Act 2004

THE BUILDING

Street address of building: 6 The Fairways

Suburb: Kinloch Town/City: Taupo

Post Code: RD.1

THE OWNER

Name: Murray Jones

Address: 808 Acacia Bay Road

Suburb: Acacia Bay PO Box/Private Bag:

Town/City: Taupo Postcode: 3330

Phone : 0274574923 Email: clint.bramley@callplus.net.nz

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 work myself – no other person will be providing any additional memoranda for the project.

☐ **Lead** designer who carried out some of the RBW design myself but also supervised other designers – this memorandum covers their RBW design work as well as mine, and **no other** person will be providing any additional memoranda for the project.

☐ **Lead** designer for all but specific elements of RBW – this memorandum only covers the RBW design work that I carried out or supervised and the **other** designers will provide their own memorandum relating to their specific RBW design.

☐ **Specialist** designer who carried out specific elements of RBW design work as outlined in this memorandum – other designers will be providing a memorandum covering the RBW design work.

APPROVED CONSENT COPY
THESE PLANS AND SPECIFICATIONS ARE APPROVED SUBJECT TO THE PROVISIONS OF THE BUILDING ACT 2004 AND IT'S REGULATIONS. A FULL (PRINTED) COPY OF DRAWINGS AND SPECIFICATIONS ARE TO BE RETAINED ON SITE IN GOOD ORDER AND PRODUCED UPON REQUEST.

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT PLANS/SPECIFICATIONS

IDENTIFICATION OF DESIGN WORK THAT IS RESTRICTED BUILDING WORK

I Clint Bramley carried out/~~supervised the following design work that is restricted building work~~:

Design work that is restricted building work	Description	Carried out/ supervised	Reference to plans and specifications
Tick ☑ if included *Cross ☒ if excluded*	*[If appropriate, provide details of the restricted building work]*	*[Tick ☑ whether you carried out this design work or supervised someone else carrying out this design work]*	*[If appropriate, specify references]*
Primary Structure: B1			
All RBW design work relating to B1 ☑	Refer To drawing sheets A001 to A017	☑ Carried out ☐ Supervised	
Foundations and subfloor framing ☑	Refer to foundation plan and details Ribraft Floor	☑ Carried out ☑ Supervised	Refer to sht. A005
Walls ☑	Refer to floor plan and Cross Sections	☑ Carried out ☐ Supervised	Refer to shts. A004 and A007,A007
Roof ☑	Roofing plan and details	☑ Carried out ☐ Supervised	Refer to sht. A008
Columns and beams ☑	Refer to floor plan for column and beam locations	☑ Carried out ☐ Supervised	Refer to sht. A005
Other ☑	Refer to structural engineering documents for steel bracing frames	☐ Carried out ☑ Supervised	Refer to site specific specifications
External Moisture Management Systems: E2			
All RBW design work relating to E2 ☑		☑ Carried out ☐ Supervised	
Damp proofing ☐		☐ Carried out ☐ Supervised	
Roof cladding or roof cladding system ☐		☐ Carried out ☐ Supervised	
Ventilation system for example, subfloor or cavity) ☐		☐ Carried out ☐ Supervised	
Wall cladding or wall cladding system ☐		☐ Carried out ☐ Supervised	
Waterproofing ☐		☐ Carried out ☐ Supervised	
Other ☐		☐ Carried out ☐ Supervised	
Fire Safety Systems			
Emergency warning systems, evacuation and fire service operation systems, suppression or control systems, or other ☐		☐ Carried out ☐ Supervised	

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT PLANS/SPECIFICATIONS

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 or modifications of the building code are required? ☐ Yes ☑ No

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

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

Note: continue on another page if necessary

ISSUED BY

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

Name: Clint Bramley

LBP or registration number: 112493

The practitioner is a: ☑ Design LBP ☐ Registered architect ☐ Chartered professional engineer

Design Entity or Company [*optional*]: Urbanform Architecture

Mailing address [*if different from below*]

Street address or registered office:

Suburb: Town/City: Taupo

PO Box/~~Private Bag~~: 1604 Postcode: 3351

Phone No: Landline: 3785804 Mobile: 021544780

Daytime: After hours:

Fax:

Email address: clint.bramley@callplus.net.nz Website:

DECLARATION

I Clint Bramley 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:

(a) Complies with the building code; or

(b) ☒ Complies with the building code subject to any waiver or modification of the building code recorded on this form.

Signature:

Date: 09.02.2016

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT PLANS/SPECIFICATIONS

Owner authorisation - A1935548

27 January 2017

I Murray Jones authorise Urbanform Architectural Ltd to act as our agent to apply for Building Consent and all matters pertaining from Taupo District Council for our proposed new house at 6 The Fairways, Kinloch.

Contact Details:

Murray Jones

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Taupo 3330

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Mob: 0274 574 923

Signed: .....

Specifications - 170355 - A1935549

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SPECIFICATION

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

Jones Residence

6 The Fairways, Kinloch

Murray Jones

JANUARY 2017

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2241 EXCAVATION

1. GENERAL

This section relates to the excavating required for the building works, removing surface soils and the disposal of excavated material.

Related work

1.1 RELATED SECTIONS
Refer to ~ for ~.

Documents

1.2 DOCUMENTS REFERRED TO
Documents referred to in this section are:

NZS 4402	Methods of testing soils for civil engineering purposes
WorkSafe NZ	Good Practice Guidelines - Excavation Safety

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

Requirements

1.3 ARCHAEOLOGICAL DISCOVERY
If fossils, antiquities and other items of value are found refer to the general section 1220 PROJECT for actions to be taken with archaeological discovery.

Performance

1.4 GROUND CONDITIONS
Foundation investigations and drilling have been carried out. Place your own interpretation on this information as no warranty is implied that the information is truly representative or complete. Make such extra investigations as considered necessary.

Copies of bore logs are ~.

1.5 PROOF DRILLING
Site bores already carried out indicate underlying layers of unsuitable material in certain areas. For the foundations designated on the plan, hand augered proof holes may be required to determine the extent of such material. Include for this work in programming and adjust against provisional quantities scheduled.

1.6 ACCESS FOR MACHINES
Determine working conditions and access for machines. Take into account the time of year, the nature of the ground and subsoil to be excavated, the ground water table and all matters influencing the carrying out of the work.

1.7 SAFE WORKING CONDITIONS
Provide safe working conditions and adequate support to excavations at all times to WorkSafe NZ, Good Practice Guidelines - Excavation Safety. Cover holes and fence off trenches and banks.

1.8 FOUNDATION BEARING
Request written instructions if a natural bearing is:
- reached at a lesser depth or
- not reached at the depth shown on the drawings.

In made-up ground excavate down to a natural bearing. Remove unsuitable material that is exposed and replace with compacted backfill.

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1.9 INSPECTION
Arrange for inspections and before placing any new work. If bearing becomes inadequate due to any cause then stop work and request further instructions.

1.10 SITE MEASUREMENT, ROCK
Where rock is shown to be part of the site condition by the bore logs, all rock removed to be solid measured and the quantity recorded and agreed to in writing as the excavation proceeds.

1.11 SITE MEASUREMENT, OTHER FORMATIONS
If for any reason the excavations have to vary from the drawings, those affected to be solid measured and the quantity recorded and agreed to in writing as the excavation proceeds.

2. PRODUCTS

Materials

2.1 TOPSOIL
Weathered soil, with organic inclusions capable of supporting the growth of vegetation.

2.2 CUT MATERIAL
Consisting of sands, gravels, sedimentary materials, clays, scoria and similar deposits.

2.3 ROCK
Defined as material encountered in excavations which because of its size or position can be removed only by breaking up by explosives or mechanical plant such as jack hammers or percussion drills.

2.4 UNCONTROLLED FILL
Variable fill material placed with little or no compaction control.

2.5 EXCAVATED FILL
Material from other formations in the excavation which may be selected and approved as suitable for filling and complying with NZS 4402 by having grading and moisture content properties that will allow compaction to 95% of maximum density.

3. EXECUTION

Conditions

3.1 REPORT
Report any survey pegs, bench marks, and the like on any features, leaving them undisturbed until approval is given for removal.

3.2 COMPLY
Comply with the requirements of WorkSafe NZ, Good Practice Guidelines - Excavation Safety.

3.3 WORK BY OTHERS
Before taking over work done on the site by others check all levels and conditions and report any discrepancies affecting further work.

3.4 EXISTING SERVICES AND FOUNDATIONS
Locate underground services and foundations before work is started. Any information provided regarding the location of these services and foundations is given from available records but with no guarantee of accuracy as regards alignment or depth. Furthermore no guarantee is given or implied that the information provided covers all existing services and foundations. Make good at no extra cost damage to existing services to the satisfaction of the appropriate network utility operator. Protect existing roads, footpaths, gutters, crossings etc from damage during work.

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3.5 KEEP FREE OF WATER
Keep excavations free from water and keep water from excavations clear of other construction work.

3.6 TERRITORIAL AUTHORITY REQUIREMENTS
Obtain from the territorial authority requirements for the method of discharging water from the site.

3.7 FORM SUMPS
Form sumps outside the line of foundations and deep enough to drain excavations. Pump from sumps without disturbing excavations or any material in place.

3.8 SILT CONTROL
Undertake silt control measures required by territorial authorities and network utility operators in relation to design, location and discharge into the drainage system.

Application

3.9 STRIP TOPSOIL
Strip topsoil carefully over the whole site and stockpile where directed on the site, on the prepared subgrade, for re-spreading at the completion of the contract.

3.10 STRIP TO SUBGRADE
Strip the soil over the whole site to form a subgrade generally, but at a minimum of 200mm below the original ground level. Leave the subgrade level, clear of all loose material and with no impediment for the excavation work.

3.11 DIVERT WATERWAYS
Temporarily divert as necessary all ditches, field drains and other waterways encountered during the excavations and reinstate to approval on completion.

3.12 DIVERT DRAINS AND SERVICE LINES
Divert services, drains and field drains encountered in the excavations to new routes clear of the building and reconnect to the requirements of the network utility operator.

3.13 BREAK OUT
Break out and remove old foundations, floor slabs, drains, manholes and septic tanks, seal up connections and remove contaminated soil. Grub out roots in excess of 75mm diameter to a minimum of 500mm below the bottom level of footings or paving. Backfill with selected excavated material, well rammed in layers.

Take special care when working close to retained trees and shrubs.

3.14 EXCAVATION GENERALLY
Excavate for pads, strip foundations and tie beams to the profiles and levels shown on the drawings. Allow clearance for working space and formwork as necessary. Trim to required profiles, falls and levels. If pouring against natural ground excavate an extra 25mm that side to provide 75mm minimum cover to reinforcement horizontally. Bench surface of sloping ground to receive filling.
Use plant and equipment suitable for the purpose.

3.15 OVER EXCAVATION
Make good with well compacted backfill.

3.16 EXCAVATED BACKFILL
Stockpile selected excavated backfill on site where directed so that it does not impede continuing works until it is required.

Finishing

3.17 BATTERS, TEMPORARY PROTECTION
Protect batters with a change of level between crest and toe of more than 1.5 metres from weather erosion with a waterproof covering of either hessian and tar, or heavy duty black

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polythene sheet. Seal at joints and securely fix down at crest and toe. Maintain coverings in good condition until the ground is secured by permanent construction.

Completion

3.18 LEAVE
Leave work to the standard required by following procedures.

3.19 SURPLUS TOPSOIL
Remove unwanted stripped soil from the site continually as the work proceeds. Clean up continually any soil if dropped on footpaths or roads.

3.20 SURPLUS MATERIAL
Remove surplus excavated material from the site continually as the excavation proceeds. Clean up continually any excavated material dropped on footpaths or roads.

4. SELECTIONS

4.1 BORE LOGS
Copies of bore logs are ~.

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2361 STRIP FOOTINGS

1. GENERAL

This section relates to the supply and installation of concrete strip footings of non-specific design to NZS 3604 and NZS 4229, including;
- formwork, reinforcement, concrete mixes and the placing of concrete

1.1 RELATED WORK
Refer to ~ for ~

Documents

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

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

Requirements

1.3 QUALIFICATIONS
Concrete workers to be experienced, competent and familiar in the fabrication and erection of formwork and with the materials and the techniques specified.
All work to be installed or supervised by a Registered Mason or licensed building practitioner (LBP): Licensed for Bricklaying and Blocklaying 2: Structural Masonry. RBW must be supervised by an LBP.

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

2. PRODUCTS

2.1 NORMAL CONCRETE
Normal concrete 17.5, 20 or 25 MPa grade (refer to SELECTIONS), maximum aggregate size 19mm ready-mixed to NZS 3104. Retain delivery dockets listing mix and despatch details.
Mass concrete 10 MPa grade.

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

2.3 TYING WIRE
Mild drawn steel wire not less than 1.2mm diameter.

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

2.5 SPACERS AND CHAIRS
Precast concrete or purpose made moulded PVC.

3. EXECUTION

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3.1 STORAGE

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

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

3.2 SOIL BEARING

To NZS 3604 or NZS 4229, Section 3, **Site Requirements**.
All soil bearing surfaces of footings shall be horizontal and may be stepped to accommodate variations in cleared ground level. Bearing shall be upon solid bottom in undisturbed good ground to NZS 3604or NZS 4229, or firm fill with a "Statement Of Suitability...." to NZS 4431.

3.3 DEPTH OF FOOTINGS

As shown on drawings with minimum depth of footings below cleared ground level, to NZS 3604 or NZS 4229, clause 3.4.2.
- 200mm.

3.4 STEPPED FOOTINGS

Footings can be stepped for uneven sites with the following requirements:
- minimum vertical step in footings 600mm
- stepped walls overlapped minimum 450mm vertically and horizontally

3.5 WIDTH OF FOOTINGS

Footing to be centred on foundation wall above. Refer to drawings or SELECTIONS for minimum dimensions.

3.6 REINFORCEMENT

Cut and bend bars using proper bending tools to avoid notching and to the requirements of NZS 3109. Do not rebend bars. Where rebending is approved, use a purpose built tool, proper preparation and preheating.
Longitudinal reinforcing and ties, refer to SELECTIONS for size and quantity.
Stepped footings to NZS 4229, at least 50% of the lower footing reinforcement shall be turned up the step to a minimum of 450mm beyond the rebar intersection, and at least 50% of the upper footing reinforcement shall be carry on into the lower foundation wall to a minimum of 450mm (350 with hook) beyond the rebar intersection.

3.7 REINFORCING LAPS

To NZS 3604, 6.11.7, **Foundation wall reinforcement.** Horizontal reinforcing bars lapped 500mm minimum.
To NZS 4229, 6.6.3, 40 diameter laps for deformed bars.
Tie all lapping bars to each other.

3.8 STARTER BARS

Vertical starter reinforcement to NZS 4229, to match vertical wall reinforcement in size, type, location and spacing. Starters to penetrate foundation wall by 600mm minimum, and in the footing to be bent through 90° and tied to longitudinal reinforcing.

3.9 COVER

Minimum cover 75mm.

3.10 OPENINGS

Footings to be continuous under openings unless shown otherwise.

3.11 PUMPING CONCRETE

Set up and supervise pump operation, placing and compaction of the mix to, NZS 3109: **7.4Handling and placing** and **7.6 Compaction,** advise the ready-mix supplier of the type of pump and the slump required, in addition to the concrete grade, strength and quantity.

Completion

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3.12 PROGRESSIVE CLEANING
Clean off concrete spills as they occur, making good any damage at the same time.

3.13 FINAL CLEANING
Clean down exposed walls and remove waste material from adjoining surfaces at completion.

3.14 REMOVE
Remove from the site materials not used.

4. SELECTIONS

4.1 CONCRETE
Normal concrete: 17.5 MPa

4.2 FOOTING SIZE AND REINFORCING
The following are minimum requirements.
Location: ~
Footing width: ~.mm
Footing height/depth: ~.mm
Longitudinal steel: ~ / D~
Stirrups: R6 ties @ 600mm centres minimum (to NZS 4229 table 6.2)

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3102 CONCRETE WORK - STANDARD

1. GENERAL

This section relates to formwork, reinforcement, concrete mixes and the placing of concrete.

1.1 RELATED WORK
Refer to ~ for ~.

1.2 ABBREVIATIONS AND DEFINITIONS
Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

DPM	Damp proof membrane
MPa	Megapascal
CCANZ	Cement and Concrete Association of New Zealand

The following definitions apply specifically to this section:

ACRS	Australian Certification Authority for Reinforcing Steels - An independent certification scheme for reinforcing steel and structural steel, by product and manufacturer/processor. Certifies compliance with Australia/New Zealand Standards. Web site - www.steelcertification.com

Documents

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

NZBC B1/AS1	Structure
NZBC E2/AS3	External moisture
AS 1366.3	Rigid cellular plastics for thermal insulation - Rigid cellular polystyrene - Moulded (RC/PS - M)
AS 1478	Chemical admixtures for concrete, mortar and grout - Admixtures for concrete.
AS/NZS 2269.0	Plywood - Structural - Specifications
NZS 3101.1	Concrete structures standard
NZS 3104	Specification for concrete production
NZS 3109	Concrete construction
NZS 3112.1	Methods of test for concrete - Tests relating to fresh concrete
NZS 3114	Specification for concrete surface finishes
NZS 3121	Water and aggregate for concrete
NZS 3122	Specification for Portland and blended cements (General and special purpose)
NZS 3125	Specification for Portland-limestone filler cement
NZS 3604	Timber-framed buildings
NZS 3631	New Zealand timber grading rules
NZS 4229	Concrete masonry buildings not requiring specific engineering design
AS/NZS 4671	Steel reinforcing materials
AS/NZS 4672.1	Steel prestressing materials - General requirements
AS/NZS 4858	Wet area membranes
CCANZ CP 01	Code of practice for weathertight concrete and concrete masonry construction

1.4 MANUFACTURER/SUPPLIER DOCUMENTS
Manufacturer's and supplier's documents relating to this part of the work:
~

Manufacturer/supplier contact details
Company: ~

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Web: ~
Email: ~
Telephone: ~

Requirements

1.5 QUALIFICATIONS
Workers to be experienced, competent trades people familiar with the materials and techniques specified.

Performance

1.6 TESTING
Carry out sampling and concrete acceptance tests during construction to NZS 3109.9. **Concrete acceptance tests during construction**. Conduct 7 day strength tests. After a 7 day test result of less than 60% of the specified strength, stop concrete placement until it is shown that the suspect concrete compiles with the specification.

Carry out slump tests, yield tests and air content tests to NZS 3112.1, sections 4, 5 and 9, and evaluate to NZS 3104.2.15. **Control tests and their evaluation**. Make available all test records to the contract administrator on request.

1.7 STEEL REINFORCING COMPLIANCE
Steel reinforcing and steel prestressing materials for concrete to AS/NZS 4671 or AS/NZS 4672.1, respectively. Steel to be manufactured in New Zealand, or by an overseas manufacturer holding a current valid NZ S Mark or ACRS certificate for that type of steel. Confirm compliance and provide evidence if requested.
Steel that fails to meet these requirements is not to be used (or ordered) without the contract administrators written approval, further proof and/or testing may be required.

1.8 QUALITY ASSURANCE
Carry out the whole of this work to the requirements of NZS 3109.

Quality assurance procedures to include all aspects of concrete construction including;
- Formwork quality
- Reinforcing steel placing
- Cast in items
- Concrete quality
- Concrete finishes
- Construction tolerances

Advise the name of the suitably qualified and experienced representative who is responsible for quality control of the concrete work. The representative is to sign a written quality control checklist for each on-site concrete pour. Provide a copy to the construction reviewer in sufficient time for a pre-pour inspection on request.

1.9 INSPECTION NOTIFICATION REQUIREMENTS
~

1.10 INSPECTIONS BY CONSTRUCTION REVIEWER
~

1.11 INSPECTIONS BY BUILDING CONSENT AUTHORITY
~

2. PRODUCTS

Materials

2.1 CEMENT
Portland cement to NZS 3122.

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2.2 CEMENT, FILLER
Portland limestone filler cement to NZS 3125.

2.3 SAND
To NZS 3121.

2.4 COARSE AGGREGATE, NORMAL CONCRETE
To NZS 3121, except as modified by NZS 3104: clause 2.4.3, Coarse aggregate. The total mass of reactive alkali in the concrete mix to not exceed the requirements of section 2 of the Cement and Concrete Association, Alkali Aggregate Reaction publication.

2.5 WATER
To NZS 3121.

Concrete

2.6 NORMAL CONCRETE
Normal concrete 17.5, 20, 25 MPA up to 50 MPa grade, (refer to SELECTIONS), maximum aggregate size 19mm ready-mixed to NZS 3104. Provide delivery dockets listing mix and despatch details.

Reinforcement

2.7 GRADE 300E STEEL
To AS/NZS 4671. Round bars are shown by symbol "R" and deformed bars by symbol "D", followed by the diameter in millimetres.

2.8 GRADE 500E STEEL
To AS/NZS 4671. Round bars shown by symbol "HR" and deformed bars by symbol "HD" followed by diameter in millimetres.

2.9 WELDED WIRE FABRIC
Hard drawn steel wire spot welded with correct gauge to AS/NZS 4671 Class E, smooth or deformed and to the spacings and dimensions either specified or shown on the drawings.

2.10 MESH FOR SLABS TO NZS 3604 OR NZS 4229
For slabs on ground mesh to be welded reinforcing mesh to AS/NZS 4671, Class E, minimum to NZBC B1/AS1 - Grade 500E, 2.27kg/m2 (1.14kg/m2 in each direction).

2.11 TYING WIRE
Mild drawn steel wire not less than 1.2mm diameter.

2.12 SPACERS AND CHAIRS
Precast concrete or purpose made moulded PVC to approval. Where concrete spacer blocks are used in exposed concrete work use blocks similar to surrounding concrete.

Damp proof membrane

2.13 DAMP-PROOF MEMBRANE
0.25mm minimum polyethylene to NZS 3604, 7.5.4, **Damp-proof membrane**.

3. EXECUTION

3.1 HANDLE AND STORE
Handle and store reinforcing steel and accessories without damage or contamination.
Store on timber fillets on hard ground in a secure area clear of any building operation.
Lay steel fabric flat.
Ensure reinforcement is clean and remains clean so that at the time of placing concrete it is free of all loose mill scale, loose rust and any other contamination that may reduce bonding capacity.

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3.2 EXPOSED CONCRETE

Formwork linings and surface finishes as nominated for both fair face and concealed concrete exposed surfaces. Unless detailed, obtain written confirmation of the type and pattern of all joints.

Install reinforcing

3.3 CUT AND BEND

Cut and bend bars using proper bending tools to avoid notching and to the requirements of NZS 3101.1, 8 and NZS 3109: 3.3 **Hooks and bends**. Minimum radii of reinforcement bends to NZS 3101.1, 8 and NZS 3109: table 3.1, **Minimum radii of reinforcement bends**. Do not rebend grade 500E bars. Where rebending is necessary for grade 300E bars, use a purpose built tool, proper preparation and preheating.

3.4 ADJUSTMENTS

Use a purpose built tool for on site bending and to deal with minor adjustments to steel reinforcement.

3.5 TOLERANCES, BENDING

To NZS 3109, 3.9, Tolerances for reinforcement.

3.6 SECURE REINFORCEMENT

Secure reinforcement adequately with tying wire and place, support and secure against displacement when concreting. Bend tying wire back well clear of the formwork. Spacing as dimensioned, or if not shown, to the clear distance minimums in NZS 3109, 3.6, **Spacing of reinforcement**.

3.7 LAPPED SPLICES

Length of laps where not dimensioned on the drawings in accordance with the SELECTIONS. Increase laps of plain round steel by 100%. Provide laps only where indicated on the drawings. Tie all lapping bars to each other.
Welded wire mesh laps to NZS 3101, lap one mesh square plus 50mm minimum (do not count bar extension beyond the outermost wire).

3.8 MESH LAPS FOR SLABS TO NZS 3604 OR NZS 4229

For slabs on ground the welded reinforcing mesh to be lapped such that the outermost wires overlap by the greater of:
- the spacing of the cross wires plus 50mm
- 150mm or
- manufacturer's requirements

Do not count bar extensions beyond the outermost cross wire

3.9 REINFORCEMENT COVER TO NZS 3604 OR NZS 4229

For in-situ concrete, foundations and interior slabs on ground, to NZS 3604 or NZS 4229, the reinforcement and welded mesh cover to be:

Location, cover to	**NZS 3604**	**NZS 4229**
Footing, to earth	75mm	75mm
Footing, to DPM	75mm	50mm
Foundation, to edge	75mm	75mm
Slab, to slab top	30mm	30mm
Slab, to slab edge	50mm to 75mm	50mm to 75mm

3.10 CASTING IN

Build in all grounds, bolts and fixings for wall plates and bracing elements, holding down bolts, pipes, sleeves and fixings as required by all trades and as shown on the drawings, prior to pouring the concrete.

Do not use grounds exceeding 100mm in length. Location and form of conduits to be approved in writing by the Contract Administrator. Minimum cover 40mm. Do not encase aluminium items in concrete. Do not paint steel embedded items more than 25mm into the concrete encasement. Cut back form ties to specified cover and fill the cavities with mortar.

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Form all pockets, chases and flashing grooves as required by all trades and as shown on the drawings.

Wrap all pipes embedded in concrete with tape to break the bond and to accommodate expansion. Do not embed pipes for conveying liquids exceeding a temperature of 50°C in concrete.

3.11 CONSTRUCTION JOINTS
Locate and construct as shown on the drawings or in accordance with NZS 3109, 5.6, Type B.

Place concrete

3.12 PRE-PLACEMENT INSPECTION
Do not place concrete until all excavations, boxing and reinforcing have been inspected and passed by the Building Consent Authority.

3.13 UNFAVOURABLE CONDITIONS
Do not place concrete in high winds or other unfavourable conditions. Refer to NZS 3109: 7.2 Unfavourable conditions, for when concrete may not be placed. Remove and make good concrete damaged by frost, dry and wet conditions.

3.14 PROTECT CONCRETE WORK
Protect formwork, reinforcement, "build in" items and fresh concrete from damage, as the pour is placed, making good any damage if it occurs.

3.15 TRANSPORT CONCRETE
Transport concrete from agitator to final placement as quickly as possible using means that avoid segregation.

3.16 PUMPING CONCRETE
Set up and supervise pump operation, placing and compaction of the mix to NZS 3109, 7.4, Handling and placing and NZS 3109, 7.6, Compaction Advise the ready-mix supplier of the type of pump and the slump required, in addition to the concrete grade, strength and quantity.

3.17 PLACE CONCRETE
Place concrete in layers not more than 500mm deep, compacted and vibrated. Do not place fresh concrete against the preceding layer after more than 45 minutes, or such lesser time as required by the circumstances, to NZS 3109: clause 7.4, Handling and placing.

3.18 COMPACT CONCRETE
To NZS 3109: clause 7.6, **Compaction**. Compact by vibration of the concrete to expel entrapped air and until settlement of the concrete is visibly evident over all areas of the surface. Maintain vibration until settlement ceases and coarse aggregate at the surface is embedded. Do not continue vibration beyond reaching this condition.

3.19 VIBRATORS
Use sufficient immersion vibrators, with one spare for emergency, to ensure that vibration is achieved throughout the entire volume of each layer of concrete, and until complete compaction is reached, to NZS 3109: clause 7.6, **Compaction**.

Floor slabs

3.20 FLOOR SLABS TO NZS 3604
Generally for slabs on ground to NZS 3604 as modified by NZBC B1/AS1 and NZBC E2/AS3. Construct to NZS 3604, 4.5 **Concrete and concrete masonry** and NZS 3604, 7.5, **Concrete slab-on-ground floors in timber buildings** as modified by NZBC B1/AS1, 3.0 **Timber**. Lay to true and straight surfaces, screeded, floated and steel (manual or power) trowelled finish. Tolerance on flatness: maximum 3mm gradual deviation over a 3 metre straight-edge, to NZS 3114, 304, **Surface tolerances**.

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Allow for free joints maximum 24m centres to NZBC B1/AS1, 3.1.13 **NZS 3604 New clause**.

Finishing

3.21 SCREED THE SURFACE
Screed the concrete surface by straight edge or vibrating screed immediately after compaction and to tolerances in NZS 3109: table 5.2, Tolerances for in situ construction.

3.22 SURFACE FINISHES
To NZS 3114, 105, **Specification of finishes**, for off the form finishes and to NZS 3114, Part 3, **Floors, exterior pavements, and inverts**, for slabs and pavements. Refer SELECTIONS.

3.23 SAW CUTS TO NZS 3604 OR NZS 4229
Cut slabs where indicated on the drawings as required to control shrinkage cracking. Form by saw cutting the slab (blade width approximately 5 mm) to a quarter of the depth of the slab after it has hardened (saw cutting shall take place no later than 24 hours after initial set for average ambient temperatures above 20 ºC, and 48 hours for average ambient temperatures below 20 ºC).

3.24 SPACING OF SAW CUTS

Floor situation	**Maximum spacing of sawcuts both ways**
Industrial floor	5m
Architectural, exposed floor, thin finishes, rigid finishes	4m
Carpet on underlay flooring	6m
Supermarket floor	5m

Curing

3.25 CURING PERIOD
Cure all concrete of normal cement type and mixing proportions for a minimum of 7 days. Keep time between placing of concrete and the start of curing to an absolute minimum. Ensure curing is continuous.

3.26 CURING METHOD
Notify the curing method to be used for this work. Select from the following methods;
- Ponding
- Sprinkling
- Wet coverings
- Plastic sheet
- Curing compound

3.27 SECURE COVERINGS
When covering with sheet materials, ensure that edges are well secured throughout the specified curing period, to prevent draughts passing over the surfaces of the concrete.

3.28 COLD WEATHER
Do not use coverings employing water at times of freezing weather.

Protect

3.29 PROTECT PLASTIC CONCRETE
Protect plastic concrete from indentation and surface marking.

3.30 PROTECT HARDENED CONCRETE
Protect surfaces of stripped concrete from damage especially at arrises.

3.31 PROTECT EXPOSED SURFACES
Protect from rust marks and other surface disfigurements.

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Defects

3.32 DEFECTS
Reject concrete with structural defects. Immediately after stripping formwork, identify all defects and obtain direction. Do not carry out any repair work until directed and then only in accordance with the direction. Repair defects by cutting out, making good and replacing, or otherwise as directed.

3.33 SURFACE DEFECTS
Make good surface defects immediately after forms are stripped. Make good hollows or bony areas with 1:2 mortar or plaster, finished to the same tolerances as the parent concrete. Fill any tie rod holes with 1:2 mortar.

Completion

3.34 CLEAN OUT
Clean out saw cuts. Fill with cement grout where the floor will be covered with carpet or vinyl.

3.35 REMOVE
Remove all unused materials and all concrete and reinforcing debris from the site.

4. SELECTIONS

4.1 DAMP-PROOF MEMBRANE
Location: ~
Brand/type: ~
Thickness: ~

4.2 LOCATION OF CONSTRUCTION JOINTS
Where construction joints are not shown on the drawings, locate as follows:

	maximum area	maximum length
Slabs on ground	200 m²	20 metres
Suspended slabs	400 m²	40 metres

	maximum length	maximum lift
Beams:	25 metres	
Walls:	10 metres	4 metres
Columns:		3 metres

Residential slabs on ground Free Joints modified by NZBC B1/AS1

	Maximum length
NZS 3604 Free joints	24 meters
NZS 4229 Free joints	18 meters

4.3 REINFORCEMENT LAPS
Where reinforcement laps are not shown on the drawings, lap as follows:

Bar Diameter	Grade 300E deformed	Grade 500E deformed
10mm	400mm	650mm
12mm	500mm	750mm
16mm	650mm	1000mm
20mm	800mm	1250mm
25mm	1000mm	1600mm
32mm	1200mm	2000mm

4.4 WELDED WIRE FABRIC
Location: ~
Type: ~
Wire diameter: ~mm
Pitch: ~mm

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4.5 NORMAL CONCRETE

Location: ~

Concrete grade: ~ MPa.

Add to mix: ~

4.6 SURFACE FINISHES FLOOR SLABS

Surface finish class to NZS 3114: table 2, Classes of floor, exterior pavement and invert finishes.

Finish class	Location
U3	~

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3411 STRUCTURAL STEELWORK

1. GENERAL

This section relates to the fabrication and erection of structural steel framing and steel framed buildings of a general nature.

1.1 RELATED WORK
Refer to ~ for ~.

Documents

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

NZBC F5/AS1	Construction and demolition hazards
AS/NZS 1252	High strength steel bolts with associated nuts and washers for structural engineering
AS/NZS 1554.1	Structural steel welding - Welding of steel structures
AS/NZS 1554.2	Structural steel welding - Stud welding (steel studs to steel)
AS 1627.4	Metal finishing - Preparation and pre-treatment of surfaces - Abrasive blast cleaning
AS 1627.9	Metal finishing - Preparation and pre-treatment of surfaces - Pictorial surface preparation standards for painting steel surfaces
AS/NZS 2980	Qualification of welders for fusion welding of steel
NZS 3404.1:1997	Steel Structures Standard
AS/NZS 4680	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
NZS 4781	Code of practice for safety in welding and cutting
AS/NZS ISO 9001	Quality systems - Requirements
AS 1111.1	ISO metric hexagon bolts and screws - Product grade C - Bolts
AS 1111.2	ISO metric hexagon bolts and screws - Product grade C - Screws
AS 1112.1	ISO metric hexagon nuts - Style 1 - Product grades A and B
AS 1897	Electroplated coatings on threaded components (metric coarse series)
AS 3828	Guidelines for the erection of building steelwork
GANZ:	Galvanizing Association of New Zealand - After-Fabrication Hot Dip Galvanizing. A practical reference for designers, specifiers, engineers, consultants, manufacturers and users
HERA R4-99	Specification for the fabrication, erection and surface treatment of structural steelwork
WorkSafe NZ	Guidelines for the provision of facilities and general safety in the construction industry

1.3 MANUFACTURER'S DOCUMENTS
Manufacturer's and supplier's documents relating to work in this section are:
~

Copies of the above literature are available from ~

Web:	~
Email:	~
Telephone:	~
Facsimile:	~

1.4 CO-ORDINATION
Refer to architectural, electrical and services drawings to ensure details and fixings required are provided for in the structural steel work.

1.5 VERIFY DIMENSIONS
Verify dimensions against site measurements prior to fabrication. For existing structures, verify grade of steel and dimensions against site measurement.

Requirements

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1.6 QUALIFICATIONS
Welding operators to be experienced, competent workers, qualified to AS/NZS 2980, familiar with the materials and techniques specified. Comply with NZS 3404.1 and AS/NZS 1554.1. Welding operators to have passed the qualifications tests covering those welding positions required to complete the work as set out in NZS 4781. Provide evidence of qualifications on request.

Riggers to be experienced and competent workers, familiar with the materials and techniques required.

Performance

1.7 QUALITY ASSURANCE
Maintain quality assurance programmes to AS/NZS ISO 9001 for both fabrication and erection as necessary to assure that work is performed in accordance with this specification and the qualifying requirements of the contract documents.

1.8 INSPECTION
Inspect fabrication and construction of the structure to NZS 3404.1.

1.9 MATERIAL CERTIFICATES
Supply mill test certificates relating to mill sections, bolts and nuts or welding consumables. High strength steel to be marked accordingly by the supplier before delivery.

1.10 TEST WELDING
Non-destructive weld examination with method, extent and standards of acceptance to AS/NZS 1554.1, Section 7 and NZS 3404.1, Appendix D.

2. PRODUCTS

Materials

2.1 STRUCTURAL STEEL
Comply with New Zealand, Australian, British or Japanese Standards for steel as required by NZS 3404.1, section 2, including, type, category, and suppression of brittle fracture.

Grade 300, except RHS sections Grade 350, unless noted otherwise on the drawings.

Components

2.2 BOLTS, NUTS AND WASHERS
Grade 4.6, screws AS 1111.2 and bolts to AS 1111.1. Grade 4.6 nuts to comply with AS 1112.1. Grade 8.8 bolts, nuts and washers (high strength structural quality only) to comply with AS/NZS 1252. Hot-dip galvanize to AS/NZS 4680, bolts, nuts and washers forming a permanent part of a structure subject to a protective coating. Alternatively electrogalvanize to AS 1897.

Accessories

2.3 ELECTRODES
To comply with and be selected for grade of steel being welded as required by AS/NZS 1554.1.

2.4 WELDING WIRE
Welding wire as required by the manufacturer for materials to be joined and the welding position.

2.5 FLUX
Welding flux to be dry and from sealed containers.

2.6 STEEL STUDS
Material for arc stud welding to comply with AS/NZS 1554.1 and AS/NZS 1554.2.

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3. EXECUTION

Conditions

3.1 GENERALLY
Construct to NZS 3404.1, section 14 (fabrication) and section 15 (erection). Identify steel to NZS 3404.1.

3.2 DEFECTS
Discard any material or fabricated items showing defects affecting its structural integrity.

3.3 SURFACE FINISH
Grind off burrs and sharp arrises.

3.4 TOLERANCES
Comply with the tolerances laid down for holding down bolts, columns, beams and other members in HERA R4-99 and NZS 3404.1. Comply with NZS 3404.1 for level and alignment of beams and alignment and plumbing of struts.
Structural elements to comply for straightness, length, full contact splices and struts not prepared for full contact with NZS 3404.1.

3.5 CARRY OUT ERECTION
Carry out the erection of structural steel to the requirements of NZS 3404.1, section 15 Erection. Comply with NZBC F5/AS1: Construction and demolition hazards, and the WorkSafe NZ publication: Guidelines for the provision of facilities and general safety in the construction industry.

3.6 START ERECTION
Start erection only when the holding down bolts and anchorages have been cast-in-place long enough to achieve sufficient strength.

3.7 SAFETY DURING ERECTION
Erection practices to comply with AS 3828. During erection make structure safe against erection loading including loading due to erection equipment or its operation, and wind.

3.8 TEMPORARY BRACING
Provide temporary bracing and restraint as required to make structure safe. Leave temporary bracing and restraint in place until the erection is sufficiently advanced to allow safe removal of temporary bracing.

Assembly

3.9 CUTTING
Hand cut only where machine cutting is not possible. Cutting to comply with NZS 3404.1. Site cutting and welding are forbidden.

Application

3.10 WELD FAILURE
Comply with AS/NZS 1554.1 for detailed guidance on welding inspection and quality control.

3.11 WELDING
Carry out welding in accordance with AS/NZS 1554.1 and the additional requirements of NZS 3404.1. Equipment to comply with AS/NZS 1554.1, clause 1.8.2.

3.12 WELDING SYMBOLS
Welding symbols have not been used on the drawings. Unless denoted otherwise on the drawings, shop weld touching or near-touching steelwork together all round with 6mm continuous fillet welds.

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3.13 HOLING

Comply with NZS 3404.1 for sizes, alignment, finishing, punching and flame cutting of holes.

3.14 BOLTING

Bolting, including high strength bolting to comply with NZS 3404.1, section 14.3.6. Ensure that at least one clear thread shows above the nut and at least one thread run out is clear beneath the thread after tightening

3.15 BOLTING NOTATION

Notation of bolting categories:

Bolting category	Bolt standard	Bolt grade	Tension method	Tensioned joint type
4.6/S	AS 1111.1	4.6	Snug tight	
8.8/S	AS/NZS 1252	8.8	Snug tight	
8.8/TB	AS/NZS 1252	8.8	Full tension	Bearing
8.8/TF	AS/NZS 1252	8.8	Full tension	Friction

In bearing type connections where the thread position relative to the shear plane is to be controlled.

N - threads included in shear plane

X - threads excluded from shear plane

F - friction type joints - prepare faying surfaces

3.16 THREADS EXCLUDED FROM SHEAR PLANE

Select length of bolts such that the threaded portion does not occur within the shear plane between joined parts.

3.17 BASE PLATES

Enlargement or site cutting of holes is not permitted. Bending or displacement of holding down bolts is not permitted.

3.18 INSTALLATION OF COLUMNS

Plumb columns using sawn steel packs and wedges not larger than necessary for the purpose. Obtain written instructions when any column base needs to be raised by more than 25mm. Fill the space beneath the base plate with cement-sand grout, containing an approved non-shrink additive, having a minimum compressive strength of 30MPa at 28 days, or by the use of a dry pack of 1:2 cement:sand mortar hammered in tight to ensure complete filling of space.

Finishing

3.19 BRUSHING AND POWER TOOL CLEANING

Remove oil and grease by the use of solvents. Scrape and power wire brush to a minimum Class 2 finish to AS 1627.9. Clean to bright metal, but avoid producing a polished surface. Check that no burrs or sharp arrises remain which may prevent the full coating thickness being attained.

3.20 UNPAINTED SURFACES

Do not paint:

- Faying face of high strength friction grip (HSFG) bolted joints
- Areas for site welding keeping 75mm clear all round
- Surfaces for embedding in concrete.

Where steel is only partly encased, then extend priming 30mm minimum into the concrete encasement area.

4. SELECTIONS

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3811 PREFABRICATED STRUCTURAL TIMBER FRAMING

1. GENERAL

This section relates to the manufacture, supply and erection, of prefabricated:
- timber trusses
- timber frames

1.1 RELATED WORK
Refer to 3821 TIMBER FRAMING for general timber framing and installation of prefabricated timber framing.

1.2 ABBREVIATIONS AND DEFINITIONS
Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

FTMA	Frame and Truss Manufacturers Association of New Zealand Inc.
SED	Specific Engineering Design

Documents

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

NZBC B1/VM1	Structure
NZBC B2/AS1	Durability
AS/NZS 1170	Structural Design Actions
NZS 1170.5	Structural Design Actions - Earthquake actions - New Zealand
NZS 3602	Timber and wood-based products for use in building
NZS 3603	Timber structures standard
NZS 3604	Timber-framed buildings
NZS 3640	Chemical preservation of round and sawn timber
FTMA CoP	Frame and Truss Manufacturers Association Code of Practice

1.4 MANUFACTURER/SUPPLIER DOCUMENTS
Manufacturer's and supplier's documents relating to this part of the work:
~

Manufacturer/supplier contact details

Company:	~
Web:	~
Email:	~
Telephone:	~

Requirements

1.5 QUALIFICATIONS
Fabricators to be experienced competent workers, familiar with the materials and the techniques specified.
Fabrication companies to be members of the FTMA and accredited by the connector plate manufacturers.

1.6 DESIGN CRITERIA NON-SPECIFIC DESIGN
Frames and trusses to NZS 3604.

1.7 DESIGN CRITERIA SED
Frames and trusses to, NZBC B1/VM1, AS/NZS 1170, NZS 1170.5 and NZS 3603.

Documentation required for the Code Compliance Certificate application

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1.8 PROVISION OF STATEMENTS

Provide the following documentation. The statements shall include the name and position within the company of the person providing the statement.

Fabricator Design and Manufacturing Statements shall be noted as being:

- Issued by a named company, accredited as a fabricator by the nail plate manufacturer
- Issued to the named Owner and available for use by a BCA to assist in determining compliance with the NZBC.

1.9 SHOP DRAWINGS

Provide drawings showing the trusses and their layout;

- one prior to fabrication (buildable truss layout) for consent purposes.
- one post fabrication (final truss layout) for construction and code compliance purposes.

The drawing shall be identified as 'Buildable' or 'Final' and shall include the following:

- The name and contact details of the accredited fabricator
- The job/design reference name or number
- The site address/location

Site specific structural and loading information including

- Pitch
- Cladding type
- Wind and snow loading values
- Date drawn
- A truss layout with truss labels and dimensions to locate the trusses on the supporting structure
- Identification of all load bearing walls/beams used to support trusses
- Specification and location of truss to truss and truss to top plate fixings or notification that such items are specified by
- Identification of the location of any resulting loads where the design of the supporting member will be outside the scope of NZS 3604 (point loaded lintels and point loads on internal walls where the downward and upward loads are higher than 16kN)
- Reference to the Fabricator Design Statement

1.10 DESIGN STATEMENT - FABRICATOR

Provide a Design Statement issued by the fabricator listing the job specific inputs used in the design process.

The Design Statement shall identify:

- The name and contact details of the accredited fabricator
- The name of the software/nail plate manufacturer that has accredited the fabricator
- Software date/version
- Reference to the Producer Statement - Design
- Supporting compliance documents including standards for material grades and sizes
- The job/design reference name or number
- The site address/location

Job specific information:

- Loads allowed for in the specific design including dead loads (cladding and ceiling) and live loads (wind and snow)
- Roof pitch
- Nominal overhang length
- Importance Level

Design working life:

- A list of the designed trusses, spans and maximum spacing
- Date of design

1.11 PRODUCER STATEMENT - DESIGN

Provide a Producer Statement - Design issued by the software provider, supporting the software and the engineering principles being applied by the software.

The Producer Statement shall:

- Have a level of detail consistent with that of an IPENZ Producer Statement PS1

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- State the means of compliance with NZBC
- Reference the truss layout and Fabricator Design Statements
- Identify the job/design reference name or number
- Identify the software date/version
- Be signed by a Chartered Professional Engineer

1.12 MANUFACTURING STATEMENT

Provide a statement to support the manufacture of the roof trusses, issued by a fabricator after manufacture has occurred and identifying:

- The job/design reference name or number
- The site address/location
- The name and contact details of the accredited fabricator
- The name of the software/nail plate manufacturer that has accredited the fabricator
- That the trusses were manufactured in accordance with the Fabricator Design Statement
- The name and position within the company of the person providing the statement

Truss identification

1.13 IDENTIFICATION OF TRUSSES ON-SITE

A selection of trusses in a job lot manufactured by a fabricator shall carry identification labels or markings fitted during manufacture, to NZS 3604, 10.2.2.5, **Truss identification**.

Identification shall be evident on the bottom chords of main rafter or girder trusses on a minimum of 6 trusses in a job lot, or on every truss where there are less than 6 trusses in the job lot.

Identification text shall be a minimum of 10mm high and shall include:

- The fabricator name
- The nail-plate manufacturer name
- The job/design reference name or number

2. PRODUCTS

Materials

2.1 TRUSSES NOT EXPOSED

Structural grade timber to NZS 3602, NZBC B2/AS1, gauged, maximum moisture content of 20%, treated to NZS 3640, NZBC B2/AS1, hazard class H1.2 and identified with its unique identifier.

2.2 FRAMES NOT EXPOSED

Structural grade timber to NZS 3602, NZBC B2/AS1, gauged, maximum moisture content of 20%, treated to NZS 3640, NZBC B2/AS1, hazard class H1.2 and identified with its unique identifier.

Accessories

2.3 STEEL CONNECTOR PLATES

0.8mm to 2.0mm thick steel sheet, hot-dip galvanized to NZS 3604, table 4.2, **Galvanizing of steel components other than nails and screws** and punched to form a toothed connector or nail on connector.

2.4 STAINLESS STEEL CONNECTOR PLATES

0.9mm to 2.0mm thick 304 stainless steel sheet, punched to form a nail on connector.

2.5 CORROSION RISKS

For interior timber, treated with copper-based timber preservatives (H3.2 or higher), use a minimum of hot-dipped galvanized steel fixings and fasteners.

For exterior timber, timber in damp areas and timber subject to occasional wetting, use only stainless steel (or equivalent) fixings and connectors, when the timber is treated with;

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Copper Azole (CuAz, Preservative code 58), Alkaline Copper Quaternary (ACQ, Preservative code 90), Micronise Copper Azole (code 88) or Micronised Copper Quaternary (code 89).

3. EXECUTION

Conditions

3.1 COMPLY
Comply with current standards, code requirements and the FTMA CoP in the design and fabrication of trusses and frames.

3.2 DELIVER, HANDLE AND STORE TRUSSES AND FRAMES
Deliver, handle and store frames and trusses so no structural damage occurs, corners and edges are not damaged, or surfaces marked or stained. Follow manufacturer's requirements. Handle all frames and trusses with nylon strops or similar to prevent damage. Store under cover and clear of the ground, to keep dry prior to installation.

Fabrication

3.3 DIMENSIONS, NOT EXPOSED ELEMENTS
Each member calculated length ±3mm. Width and thickness to gauging tolerances. Each overall joint within ±3mm of correct outside profile (including camber allowance).

3.4 DIMENSIONS, EXPOSED ELEMENTS
Each member calculated length ±1mm width and thickness to gauging tolerances. Each overall joint within ±3mm of correct outside profile (including camber allowance). Joint thickness and width difference between members 1mm maximum. Plate location within half of the manufacturer's tolerances plus a rotation of no more than 1mm in 100mm off reference line.

3.5 INSPECTION
Request inspection when timber for exposed trusses and frames is ready for cutting prior to fabrication.

3.6 FABRICATION
Factory fabricate to FTMA CoP. Build camber into all elements to accommodate normal deflection under load. Lay up members accurately with all joints tight fitting. Mechanically press plates to manufacturer's tolerances, fully and flat over their whole area into the members forming the joint.

3.7 TRUSS AND FRAME FIXINGS
Factory fit truss and frame fixings to comply with the required loading capacity for that particular joint and in accordance with the fixing type and capacity in NZS 3604, Section 10, **Roof framing**, the manufacturer's requirements or to engineering specific design. Ensure all elements are correctly located, plumb and true to line and face.

Site installation

3.8 TRUSS ERECTION
Lift, place and fix trusses without overstressing or deformation. Use temporary supports as needed without causing damage. Fix trusses to wall plates and beams to manufacturer's requirements, but no less than NZS 3604, section 10, **Roof framing** and in particular section 10.2.2, **Roof trusses**. Fit and fix bracing as detailed and to NZS 3604: section 10.2.2, **Roof trusses** and section 10.3, **Systems to resist horizontal loads**. Ensure all trusses are correctly located, plumb and true to line and face.

3.9 FRAME ERECTION
Lift, place and fix frames without overstressing or deformation. Use temporary bracing and supports as needed without causing damage. Fix frames to floor or base plates and other walls or columns to manufacturer's requirements, but no less than NZS 3604, section 8, **Walls** and in particular section 8.7, **Plates**. Fit and fix bracing as detailed and

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to NZS 3604: section 5, **Bracing design** and section 8.3, **Systems to resist horizontal loads**. Ensure all frames are correctly located, plumb and true to line and face.

3.10 FIT CONNECTORS AND FIXINGS - TRUSS
Fit connectors and fixings to obtain full bearing over all contact surfaces and ensure the required loading capacity for the truss and frame roof is maintained. Fix each roof framing member in accordance with NZS 3604, Section 10, **Roof framing.** Ensure the size, number and location of nails to be used in roof framing comply with requirements of Table 10.8, **Nailing schedule for hand-driven and power-driven nails**, the manufacturer's requirements or to engineering specific design. Ensure all elements are correctly located, plumb and true to line and face.

3.11 FIT CONNECTORS AND FIXINGS - FRAMES
Fit connectors and fixings to obtain full bearing over all contact surfaces and ensure the required loading capacity for the frame is maintained. Fix each framing member in accordance with NZS 3604, Section 8, **Walls.** Ensure the size, number and location of nails to be used in framing comply with requirements of Table 8.19, **Nailing schedule for hand-driven and power-driven nails**, the manufacturer's requirements or to engineering specific design. Ensure all elements are correctly located, plumb and true to line and face.

3.12 ROOF BRACING
Refer to 3821 TIMBER FRAMING for roof bracing of trussed roofs.

3.13 WALL BRACING
Refer to 3821 TIMBER FRAMING for wall bracing.

3.14 DPC TO TIMBER
Lay DPC between all timber frames and concrete, in a single layer with 50mm overlaps at joints to provide a waterproof barrier. For LOSP treated timber use only a DPC specifically suitable with LOSP treatment.

3.15 TIGHTEN BOLTS
Check and tighten all fixing bolts after erection is completed.

Completion

3.16 REPLACE
Replace or repair damaged elements.

3.17 REMOVE
Remove debris, unused materials and elements from the site.

3.18 LEAVE
Leave work to the standard required by following procedures.

4. SELECTIONS

4.1 PREFABRICATED TIMBER TRUSSES, NOT EXPOSED
Location: ~
Fabricator/brand: ~
Species/grade: ~
Moisture content: 20% maximum
Treatment: ~
Connectors: ~

4.2 PREFABRICATED TIMBER FRAMES, NOT EXPOSED
Location: ~
Fabricator/brand: ~
Species/grade: ~
Moisture content: 20% maximum
Treatment: ~
Connectors: ~

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4221HV HERMPAC VERTICAL CLADDING SYSTEM

1. GENERAL

This section relates to the supply and fixing of **Hermpac** Vertical cladding:
- Vertical shiplap weatherboards
- Board and Batten
- Fascia
- Mouldings
- Proprietary flashing systems
- Vertical Shiplap 'Vertiline' cavity batten systems

1.1 RELATED WORK
Refer to painting sections for finishes to weatherboard cladding.

Documents

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

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

1.3 MANUFACTURER/SUPPLIER DOCUMENTS
Hermpac Ltd documents relating to this part of the work:
Hermpac Construction drawings
Hermpac Vertical Shiplap Vertiline installation specification
Hermpac Vertical Shiplap direct fix installation specification
Hermpac Board and Batten installation specifications
Hermpac Standard and custom profiles
Hermpac Profiles chart - Volume 4
Hermpac Grade descriptions
Hermpac Nail fixings
Hermpac Legal and / or Sustainable Certification
Hermpac Product Technical Statement
Machinecoat - Flood Coat Inundation versus Spray Application
Maintenance of selected wood oil/oil based stain finishes

BRANZ Appraisal 650 - Vertiline Shiplap Cedar Weatherboard Cavity System
BRANZ Appraisal 828 - Hermpac Board and Batten Cedar Weatherboard Cavity System
BRANZ Appraisal 524 - Cavibat Cavity Battens
CodeMark Certificate of Conformity for Hermpac VertiLine Shiplap Cedar Weatherboard Cavity System Certificate Number GM-CM30036-RevB

Manufacturer/supplier contact details:

Company:	Hermpac Ltd
Contacts:	
	Kyle Deans - 021 771 857, kyle.deans@hermpac.co.nz
	Carmen Hansen - 027 809 4588, carmen@hermpac.co.nz
Web:	www.hermpac.co.nz
Email:	technical@hermpac.co.nz
	information@hermpac.co.nz
Telephone:	09 421 9840 Auckland
	04 586 9674 Wellington
	03 341 2163 Christchurch

Performance

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1.4 FIXINGS, WIND
Design and use the fixings appropriate for the wind zone (R) and topographical classification (T) of this site and building height; as required by NZS 3604.

1.5 PERFORMANCE
Accept responsibility for the weather-tight performance of the completed cladding system, including all penetrations. To NZBC B2 Durability and NZBC E2/AS1 External moisture.

1.6 SAMPLES AND PROFILE DRAWINGS
Hard Profiles, Technical Profile Drawings, Timber Species samples and/or Colour Chips for Machinecoat (NZ) applied finish options are available by request at technical@hermpac.co.nz, or via telephone or fax.

2. PRODUCTS

Materials

2.1 WESTERN RED CEDAR
Hermpac Canadian Coastal Western Red Cedar (Thuja plicata) harvested from the sustainable managed forests of British Columbia, Canada. Hermpac Western Red Cedar is supplied from forest sources, certified legal and sustainable under one or more independent third party verified certification systems (PEFC, CSA, SFI or FSC).
Refer to website for Hermpac's policy on sustainability and for links to suppliers websites and forest management goals and policies.

2.2 VERTICAL SHIPLAP / VERTICAL BOARD AND BATTEN
Weatherboards to Hermpac profiles, Lap and Rebate details to BRANZ BU 411 and general design to the NZS 3617, species and grading to NZS 3602, table 2, reference 2A.1, Requirements for wood-based building components to achieve a 15-year durability performance. Weatherboards in lengths relevant to profile selection and application, with all unsound and open split knots excluded by cross cut removal prior to fixing into position.
Acceptable Solution is limited to the following types of weatherboards and their derivatives:
- Vertical Shiplap and Hermpac Custom Profiles
- Vertical Board and Batten and Hermpac Custom Profiles

A selection of the above profiles are also available in Western Red Cedar Finger-Joint (CEDARONE) Pre-primed and undercoated, sanded and/or de-nibbed between coats.

2.3 COVER BOARDS, SMART CORNERS, MOULDINGS AND SCRIBERS
To Hermpac profiles as detailed, with species and grading to NZS 3602, but with all unsound and open split knots excluded by cross cut removal prior to fixing into position. To NZS 3602, table 2, reference 2A.3, Requirements for wood-based building components to achieve a 15-year durability performance.

2.4 FASCIA BOARDS
To Hermpac profiles, with species and grading to NZS 3602, but with all unsound and open split knots excluded by cross cut removal prior to fixing into position. To NZS 3602, table 2, reference 2A.3, Requirements for wood-based building components to achieve a 15-year durability performance.

2.5 WALL UNDERLAYS
For flexible wall underlays, rigid wall underlays and rigid air barriers, refer to the appropriate separate section(s).

2.6 VERTIBAT EXTERIOR CAVITY WALL BATTENS - STRUCTURALLY FIXED
Vertibat Radiata Pine H3.1 or H3.2 castellated and double bevelled cavity batten.

Components

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2.7 NAILS, SILICON BRONZE
Hermpac Crown, Rose or Flat Head, Annular Grooved Silicon Bronze fixings to NZBC E2/AS1 Table 24, flush fixed to face of weatherboard. Refer to Hermpac construction drawings for fixing details and to SELECTIONS for fixing sizes.

2.8 CLINCH NAILS, STAINLESS STEEL
Hermpac proprietary 40mm x 2.0mm and 50mm x 2.0mm Clinch Nail, Annular Grooved Grade 316 Stainless Steel.

2.9 FLASHINGS
To NZBC E2/AS1, 4.0 **Flashings**. Material, grade and colour as detailed and scheduled and to NZBC E2/AS1; Table 21: Compatibility of materials in contact and table 22: Compatibility of materials subject to run-off. Ensure that materials used for flashings are compatible with the window frame materials and fixings and cladding materials and fixings.

Finishes

2.10 SITE APPLICATION OF WOOD OIL/OIL BASED STAIN & PAINTS
Site applications to manufacturers specifications. All Hermpac weatherboards and mouldings must be coated all six sides prior to installation. Refer to SELECTIONS.

3. EXECUTION

Conditions

3.1 GENERALLY
Execution to NZBC E2/AS1: 3.0 Weathertightness risk factors, and 9.0 Wall claddings, 9.1.8 Drained cavities and 9.4 Timber weatherboards.

3.2 STORAGE
Take delivery of Hermpac timber products, dry, unmarked and undamaged from freight and handling (Grade characteristics excluded). Stack Hermpac weatherboards flat and true, clear of the ground by a minimum of 150mm and supported on dry, clean timber bearers at maximum 900mm centres. Keep weatherboards dry at all times, either by storing within an enclosed building, or when stored externally place an additional secondary cover on the plastic wrapping. Care must be taken to avoid damage to weatherboard edges and surfaces.

3.3 SUBSTRATE
Before starting fixing ensure that the substrate conforms to NZS 3604, section 2, table 2.1 Timber framing tolerances, and the requirements of NZS 3604, section 6, **Foundation and subfloor framing**, and NZBC E2/AS1, 9.4 **Timber weatherboards**, governing support for timber board cladding.

Application - preparation

3.4 SITE STAINING - WOOD OIL/OIL STAIN FINISH
If not pre-finished before delivery, prepare and coat all faces and edges with one coat of premium wood oil or oil stain to coating manufacturers specifications, immediately the block stack is opened. Open stack each board to dry with the back facing down, ensuring faces remain well finished, untouched and unblemished. Once dry, place boards in fillet stack, laid flat and true, until fixed. Keep dry and undamaged. Coat to suit the paint system specified in painting section/s. Re-coat the boards once they have been installed.

Application - vertical cladding over cavity battens

3.5 VERTIBAT DRAINED CAVITY / STRUCTURALLY FIXED
Install 20mm minimum thickness drained cavity to NZBC E2/AS1: 9.0 Wall claddings, where required. The Vertibat battens are permanently fixed using grade 304 Hermpac stainless steel Hex head screws ensuring minimum 25mm penetration into framing (Refer Hermpac construction drawings and installation guide for detailed structural fixing).

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3.6 CAVITY CLOSER / VERMIN PROOFING

Refer to Hermpac Cavity System Installation Specification. Seal the top of the cavity and install cavity closer/vermin-proofing at base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc). Use cavity spacers where fixing is required between cavity battens.

3.7 PENETRATIONS

Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the cladding. Required preparatory work includes the following:

- wall underlay to openings finished and dressed off ready for the installation of window and door frames and other penetrations
- claddings neatly finished off to all sides of openings
- installation of flashings (those required to be installed prior to installation of penetrating elements).

3.8 SET-OUT

Using laser or mechanical devices set-out the overlap boards to ensure dimension to exposed face in line of weather is constant and that boards remain vertical. Use a string line to set out all nailing that will be visible in the finished work. Align all nailing accurately in straight lines. Use the appropriate Hermpac proprietary weatherboard set-out tools to establish correct angle of nail and consistent, accurate placement relative to visible edge of board.

Application - fixing

3.9 FIXING - OIL STAIN FINISH

Install level, true to line and face, to NZBC E2/AS1: 9.4 **Timber weatherboards**. Double coat all cut ends before fixing. Pilot drill all fixings slightly smaller than gauge of fixing to ensure a snug fit and to minimise risk of moisture entry. Finish the heads of Hermpac Crown, Rose and Flat head nails flush onto and not into the board surface. Do not over drive the nail head and crush the timber surface beneath and surrounding the nail.

3.10 FIXING VERTICAL SHIPLAP WEATHERBOARDS

Install level, true to line and face, to NZBC E2/AS1: 9.4 **Timber weatherboards**. Single nail weatherboards to every fixing point, just clear of the adjacent lapped board. Nails to be driven in with a slightly upward slope. Line nails horizontally across the boards. Pilot drill all fixings slightly smaller than gauge of fixing to ensure a snug fit and to minimise risk of moisture entry. Refer to Hermpac website for accurate weatherboard fixing information.

Using a Hermpac 40 or 50 x 2.0mm specialty clinch nail, prior to the next row of Vertical Shiplap boards being fixed alongside (nogs or dwangs at maximum 480mm centres) and at a position hard up against but not into the hidden lap board edge at every fixing point, restrain the hidden lap tongue by driving the clinch nail into the frame so that the clinch head settles flush into the weatherboard's surface. The clinch nail head must not sit proud of the timber surface nor prevent the correct separation of each adjacent row of boards.

Refer to Hermpac website for external and internal corner construction details.

3.11 INSTALL FLASHINGS

Install flashings, covers and soakers as detailed on the drawings and to NZBC E2/AS1.

3.12 COMPLETE

Ensure the work is complete with all flashings, finishings and trim properly installed so the cladding system is completely weathertight.

Completion

3.13 REPLACE

Replace all damaged or marked elements.

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3.14 LEAVE
Leave work to the standard required for following procedures.

3.15 REMOVE
Remove all debris, unused materials and elements from the site.

4. SELECTIONS
Substitutions are not permitted to the following, unless stated otherwise.

4.1 HERMPAC - VERTICAL SHIPLAP

Location:	~
Species:	HERMPAC Western Red Cedar
Grade:	HERMPAC Premium Clears No.1 (PC1)
Profile:	~
Cover dimensions:	~mm
Thickness:	~mm
Fixing system:	~
Surface finish:	Band Sawn Face (BSF)
Moisture content:	≤18 % at fixing
External corners:	~
Internal corners:	~

4.2 HERMPAC COVER BOARDS, BOXED CORNERS AND SCRIBERS

Location:	~
Species:	HERMPAC Western Red Cedar
Grade:	HERMPAC Premium Clears No.1 (PC1)
Cover boards:	HP 201, HP 202
Scriber:	HP11 - HP18
Surface finish:	Band Sawn Face (BSF)
Moisture content:	≤18% at fixing

4.3 HERMPAC FASCIA

Species:	HERMPAC Western Red Cedar
Grade:	HERMPAC Premium Clears No.1 (PC1)
Profile:	~
Surface finish:	Band Sawn Face (BSF). Option: DuraLarch (limited profiles - refer Herpac for confirmation).

4.4 WEATHERBOARD FASTENINGS - SILICON BRONZE NAILS

Nails:	Crown Head
Type:	Silicon Bronze
Size:~	

4.5 WEATHERBOARD FASTENINGS - CLINCH NAILS

Nails:	Clinch nails
Type:	Grade 316 stainless steel
Size:	40mm x 2.0mm

4.6 VERTIBAT CAVITY BATTENS - STRUCTURALLY FIXED

Product:	Vertibat (V3) castellated and double bevelled batten
Material:	H3.1 or H3.2 Radiata Pine
Size:	45mm wide x 40mm thick x 2700mm long
Fixing:	Grade 304 Stainless steel Hex head screws
Fixing size:	~

4.7 SIGMA CAVITY CLOSER/VERMIN-PROOFING

Brand/type:	Sigma cavity closure
Material:	Aluminium

4.8 HERMPAC INTERNAL AND EXTERNAL CORNER BACK FLASHINGS

Material:	Aluminium
Size:	~

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4.9 SITE COATING - PENETRATING WOOD OIL / OIL STAIN

Brand:	Wood-X penetrating wood oil
Colour:	~
On-site manual coats:	Refer Manufacturers specifications

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4231HL JAMES HARDIE LINEA® CLADDING

1. GENERAL

This section relates to the supply and fixing of the following fibre cement products:
- James Hardie Linea® Weatherboard cladding
- James Hardie Linea® Oblique Weatherboard cladding

1.1 RELATED WORK
Refer to ~ for ~.
Refer to painting section/s for the protective coating required to meet the NZBC durability requirements.

Documents

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

NZBC E2/AS1	External moisture
NZBC E2/VM1	Weathertightness
AS/NZS 1170.2	Structural design actions - Wind actions
AS/NZS 2908.2	Cellulose-cement products - Flat sheet
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings

1.3 MANUFACTURER/SUPPLIER DOCUMENTS
James Hardie documents relating to this part of the work:
Linea® Weatherboard Technical Specification
Linea® Oblique Weatherboard Horizontal Installation Technical Specification
Linea® Oblique Weatherboard Vertical Installation Technical Specification
James Hardie Technical Supplement - James Hardie Claddings Installation to Steel Framing
James Hardie Fire and Acoustic Design Manual
James Hardie Bracing Design Manual
BRANZ Appraisal 446 - Linea® Weatherboard Direct Fixed Cladding
BRANZ Appraisal 447 - Linea® Weatherboard Cavity Cladding
BRANZ Appraisal 896 - Linea® Oblique Weatherboard (Horizontal) Cavity Cladding
BRANZ Appraisal 897 - Linea® Oblique Weatherboard (Vertical) Cavity Cladding
CodeMark™ Certificate Number GM-CM30018 James Hardie Linea® Weatherboard Direct fixed and Cavity Cladding

Manufacturer/supplier contact details

Company:	James Hardie New Zealand
Web:	www.jameshardie.co.nz
Email:	info@jameshardie.co.nz
Telephone:	Contact James Hardie™ on 0800 808 868

BRANZ appraisal is available at www.branz.co.nz.
CodeMark™ Certificate is available at www.building.govt.nz

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER - LINEA® OBLIQUE WEATHERBOARD
Provide a material manufacturer/supplier warranty:

25 years:	Linea® Oblique Weatherboard product (refer to James Hardie™ product warranty)
15 year:	For accessories supplied by James Hardie (refer to James Hardie™ product warranty)
From:	Date of purchase

- Provide this warranty on the manufacturer's standard form.

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Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5 QUALIFICATIONS - NON-CODEMARK INSTALLATION
Workers / Installers / applicators to be experienced, competent trades people familiar with the materials and techniques specified.

1.6 NO SUBSTITUTIONS
Substitutions are not permitted to any specified system, or associated components and products.

1.7 INFORMATION FOR OPERATION AND MAINTENANCE
Provide relevant James Hardie maintenance requirements at completion of the work. Refer to the general section 1239 OPERATION & MAINTENANCE for provision of the information.

Requirements - Linea® Oblique weatherboard

1.8 LINEA® OBLIQUE HORIZONTAL WEATHERBOARD INSTALLATION INFORMATION
Installer to comply with all the relevant information in;
- Linea® Oblique Weatherboard Horizontal Installation Technical Specification
- BRANZ Appraisal 896

1.9 LINEA® OBLIQUE WEATHERBOARD INSTALLATION CHECKLIST
Installer to complete, sign and provide a James Hardie Installation Checklist. Contact James Hardie for a copy of the Installation Checklist.

Performance

1.10 PERFORMANCE, WIND
The design wind zones are to NZS 3604, up to and including Extra High Wind Zone. James Hardie Technical Specifications are suitable for these conditions.

2. PRODUCTS

Materials

2.1 LINEA® OBLIQUE WEATHERBOARDS
James Hardie Linea® Oblique Weatherboards, rusticated profile, 16mm thick, pre-primed, manufactured from a reduced density cellulose fibre cement formulation and cured by high pressure autoclaving, manufactured to AS/NZS 2908.2, tested to NZBC E2/VM1 for weathertightness and complying with the NZBC.

2.2 WALL UNDERLAY
For flexible wall underlays and rigid wall underlays, refer to the appropriate separate section(s).

2.3 EXTERIOR CAVITY BATTENS
Radiata pine battens, minimum 45mm wide x 18mm thick, H3.1 treated, height to match timber framing studs. To NZS 3602, Table 1, reference 1D.10, Requirements for wood-based building components to achieve a 50-year durability performance.

Components - Linea® Oblique Weatherboards horizontally fixed

2.4 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING
Perforated uPVC with upstands.

2.5 STRIA ALUMINIUM CAVITY CLOSURE
Perforated aluminium moulding, with upstands.

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2.6 VERTICAL JOINT FLASHING
James Hardie aluminium flashing extrusion with channel used behind cladding at vertical joints to provide a negative detail.

2.7 JH WEATHERBOARD INTERNAL "W" CORNER
Anodised aluminium extrusion to flash behind cladding at internal corners.

2.8 LINEA® OBLIQUE WEATHERBOARD EXTERNAL BOX CORNER
Anodised aluminium extrusion at external corners.

2.9 AXENT™ TRIM
16mm thick pre-primed fibre cement trim.

2.10 ALUMINIUM WINDOW JAMB FLASHING
Aluminium moulding to flash behind cladding at external corners.

2.11 FLEXIBLE SEALANT
Bostik Seal N Flex-1 or Sikaflex AT Facade or Sikaflex MS sealants.

2.12 FASTENER TYPE
Fasteners to minimum durability requirements of the NZBC. Refer to NZS 3604, section 4, **Durability**, for requirements for fixing's material to be used in relation to the exposure conditions.

Refer to NZBC E2/AS1, Table 20, Material selection, and NZBC E2/AS1, Table 21, Compatibility of materials in contact, for selection of suitable fixing materials and their compatibility with other materials.

Zone	**Fixings Material**
Zone D, Zone E / Microclimates (incl. Geothermal)	Grade 316 Stainless
Zone B, Zone C	Hot-dipped galvanized

Check against SED (specific engineering design) requirements for microclimate conditions. For fastener type refer to following clause(s).

2.13 HOT DIPPED GALVANIZED NAILS
Hot-dipped galvanized, 65 x 2.87mm D head or 65 x 2.87mm RounDrive ring shank nails for fixing Linea® Oblique Weatherboards over cavity batten over flexible underlay.

Accessories

2.14 SEALANT
Silaflex AT-Facade sealant.

3. EXECUTION

Conditions

3.1 STORAGE
Take delivery of products dry and undamaged on pallets, and keep on pallet. Protect edges and corners from damage and cover to keep dry until fixed.

3.2 HANDLING
Avoid distortion and contact with potentially damaging surfaces. Carry weatherboards on edge. Do not drag weatherboards across each other, or across other materials. Protect edges, corners and surface finish from damage.

3.3 SUBSTRATE - TIMBER FRAMING
Do not commence work until the substrate is of the standard required by James Hardie for the specified finish; plumb, level and in true alignment. Moisture content of timber framing must not exceed the requirements specified by NZS 3602 to minimise shrinkage and movement after sheets are fixed.

Application - particular installations

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3.4 FIRE RESISTANCE RATING
Refer to project drawings for FRR system construction details and James Hardie Fire and Acoustic Design Manual for further information.

3.5 BRACING SYSTEM
Fix Linea® Weatherboards to James Hardie Bracing Design Manual.

Application - generally

3.6 INSTALL CAVITY BATTENS
Install 18mm minimum thick cavity battens to NZBC E2/AS1: 9.0 **Wall claddings**, where required. Fix vertical cavity battens to wall framing studs. The battens are fixed by the cladding fixings which will penetrate the wall framing studs under the wall underlay. Seal the top of the cavity and install cavity closer/vermin-proofing at base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc). Do not use horizontal cavity battens. Use cavity spacers where fixing is required between cavity battens.

3.7 PENETRATIONS AND FLASHINGS
Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the cladding. Required preparatory work includes the following:
- Wall underlay appropriately incorporated with penetration and junction flashings.
- Materials lapped in a way that water tracks down to the exterior face of the wall underlay.
- Wall underlay to openings finished and dressed off ready for the installation of window and door frames and other penetrations.
- Claddings neatly finished off to all sides of openings
- Installation of flashings (those required to be installed prior to installation of penetrating elements).

3.8 INSTALL LINEA® OBLIQUE WEATHERBOARDS - HORIZONTAL INSTALLATION
Cut weatherboards to required lengths for vertical jointing. Fit vertical jointers, internal and external corners and fix weatherboards as per Linea® Oblique Weatherboard Horizontal technical specifications.

3.9 INSTALL FLASHINGS
Install flashings at all wall openings, penetrations, junctions, connections, window sills, heads and jambs to NZBC E2/AS1.

Completion

3.10 REPLACE
Replace all damaged or marked elements.

3.11 LEAVE
Leave work to the standard required for following procedures.

3.12 REMOVE
Remove debris, unused materials and elements from the site.

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

Linea® Oblique Weatherboards horizontally fixed

4.1 JAMES HARDIE LINEA® OBLIQUE WEATHERBOARDS HORIZONTALLY FIXED

Location:	~
Brand/type:	James Hardie Linea® Oblique Weatherboards
Thickness:	16mm
Width:	~mm
Construction:	Cavity fix

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Fixing: Refer to items under 2.0 PRODUCTS

4.2 STRIA ALUMINIUM CAVITY CLOSURE
Location: ~
Brand/Type: Stria Aluminium Cavity Closure

4.3 JAMES HARDIE LINEA® OBLIQUE ALUMINIUM EXTERNAL BOX CORNER
Location: ~
Brand/Type: Oblique Aluminium External Box Corner
Finish: Etched primed aluminium extrusion

4.4 AXENT™ TRIM BOXED CORNER
Location: ~
Brand/type: Axent™ Trim
Thickness: 16mm
Width: 84mm and 100mm width to form boxed corner
Fixing: Refer to items under 2.0 PRODUCTS

4.5 JAMES HARDIE VERTICAL JOINT FLASHING
Location: ~
Brand/type: James Hardie Vertical Joint Flashing
Finish: Etched primed aluminium extrusion

4.6 PRIMER TO CUT ENDS
Type: ~

Finishing

4.7 PAINTING
Refer to painting section(s) for details.

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4311 PROFILED METAL ROOFING

1. GENERAL

This section relates to the supply and fixing of proprietary overlap rigid sheet metal profiled roofing complete with accessories.

1.1 RELATED WORK
Refer to 4312 PROFILED PLASTIC ROOFING for plastic sheeting
Refer to 7411 RAINWATER SPOUTING SYSTEMS for rainwater disposal

1.2 ABBREVIATIONS
Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

BMT	Base metal thickness
NZMRM	New Zealand Metal Roofing Manufacturers Inc
MS	Modified silyl

Documents

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

NZBC E2/AS1	External Moisture
AS/NZS 1170.2	Structural design actions - Wind actions
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
NZS 2295	Pliable, permeable building underlays
AS 3566	Self-drilling screws for the building and construction industries
NZS 3604	Timber-framed buildings
AS/NZS 4200.1	Pliable building membranes and underlays - Materials
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
NZMRM CoP	NZ metal roof and wall cladding Code of Practice

1.4 MANUFACTURER'S DOCUMENTS
Manufacturer's and supplier's documents relating to work in this section are:
~

Copies of the above literature are available from ~

Web:	~
Email:	~
Telephone:	~
Facsimile:	~

Warranties

1.5 WARRANTY - INSTALLER/APPLICATOR
Warrant this work under normal environmental and use conditions against weatherproofing failure.

5 years:	from the date of completion of the roof
Form:	Roofing installers standard form

Include a copy of the roofing manufacturers' maintenance requirements with the warranty.
Refer to the general section 1237 WARRANTIES - INSTALLER/APPLICATOR for additional requirements.

1.6 WARRANTY - MANUFACTURER/SUPPLIER
Warrant this work under normal environmental and use conditions against materials failure.

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15 years	For failure of coating adhesion
15 years	For weatherproofing by material penetration
Form:	Roofing manufacturers standard form

Requirements

1.7 QUALIFICATIONS
Carry out work with experienced, competent installers familiar with the products being used and with appropriate qualifications such as the National Certificate in Metal Roofing and Cladding.

Performance

1.8 CO-ORDINATE
Co-ordinate to ensure substrate and preparatory work is complete and other work programmed in the order required for access and completion of the roof. Ensure that all necessary members are positioned so that flashings can be fastened at both edges through the roof profile or cladding to the primary structure.

1.9 PERFORMANCE
Accept responsibility for the weather-tight performance of the completed roofing system, including penetrations through the roof and junctions with walls and parapets.

1.10 FIXINGS, WIND
Design and use the fixings appropriate for the design loads of this site; refer to general section 1220 PROJECT for details of wind zone. Allow for specific loadings at corners and the periphery of the roof, where localised pressure factors apply.

Performance - Wind (design by contractor)

1.11 DESIGN PARAMETERS - NON SPECIFIC DESIGN
Design the installation to the wind zone parameters of NZS 3604, table 5.4.
Refer to general section 1220 PROJECT for details.

2. PRODUCTS

Materials

2.1 WIRE NETTING AND SAFETY MESH
Refer to 4161 UNDERLAYS, FOIL AND DPC.

2.2 UNDERLAY AND REFLECTIVE FOIL
Refer to 4161 UNDERLAYS, FOIL AND DPC.

2.3 INSULATION
Refer to appropriate insulation section.

2.4 PRE-FINISHED HOT-DIPPED ALUMINIUM/ZINC COATED STEEL
Formability G550 steel sheet coated to AS 1397.

Components

2.5 FLASHINGS GENERALLY
To E2/AS1, 4.0 **Flashings**.
Formable grade 0.55mm BMT for galvanized, aluminium/zinc-coated and pre-painted steel, and 0.9mm for aluminium (or 0.7mm for small aluminium flashings) to the same standards as the profiled sheets, notched where across profile or provided with a soft edge.

2.6 FLASHINGS TO VERGE, RIDGE AND HIP
Supplied by the roofing manufacturer to match or to suit the roofing in the same material as the roof.

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2.7 BOOT FLASHINGS
Generally to E2/AS1, 8.4.17 **Roof penetrations** (note; E2/AS1, Figure.54 **Soaker flashing for pipe penetration**, has an error, use as guide only).
EPDM proprietary pipe flashing laid on 45º bias to roofing, with over-flashing (soaker flashing) if required.
A boot flashing should be positioned so that it dams a roofing pan no more than 50%, if this cannot be avoided use an over-flashing back to the ridge and fix the boot flashing to that.

Fixings

2.8 FASTENERS GENERALLY
Minimum Class 4 and durability not less than the roofing material being fixed. Screw fasteners to be head stamped identifying the manufacturer and class.

2.9 FIXING SCREWS
To AS 3566. Screws appropriate to the roofing material and the supporting structure, as required by the roofing manufacturer and with a minimum Class 4 durability and not less than the material being fixed. Screws into timber to penetrate by minimum 30mm.

2.10 RIVETS
Sealed aluminium, minimum diameter 4mm, for use with zinc coated, zinc/aluminium coated or aluminium roofing.

Accessories

2.11 SEALANT
Neutral Curing silicone or MS polymer sealant as required by the roofing manufacturerand used as directed.

2.12 CLOSURE STRIPS
Compressible, closed cell profiled foam strips to fit the sheet profile.

2.13 LAP SEALING TAPE
Closed cell self adhesive nitrile tape.

3. EXECUTION

Conditions

3.1 INSPECTION
Inspect the roof framing and supporting structure to ensure that it is complete and fully braced ready for roofing and free from any misalignments or protrusions that could adversely affect the roofing.

3.2 FRAMING TIMBER MOISTURE
When continuous metal cladding etc. Runs along a long continuous timber member and is directly fixed to it, the timbers equilibrium moisture content (EMC) to be 18% or less. For flashings in this situation (sometimes called transverse flashings) the framing EMC to be maximum 16%, and preferably as low as 12%. Transverse flashings can be temporarily tacked in place and final fixing done when moisture content is acceptable.

3.3 STORAGE
Take delivery of and accept packs of roofing undamaged on delivery. Reject all damaged material. Store on a level firm base with packs well ventilated and completely protected from weather and damage. Do not allow moisture to build up between sheets. If sheet packs become wet, fillet or cross stack to allow air movement between sheets.

3.4 HANDLING
Avoid distortion and contact with damaging substances, including cement. Do not drag sheets across each other and other materials. Protect edges and surface finishes from damage. Use soft, flat soled shoes when fixing and for all other work on the roof.

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3.5 SEPARATION
Place isolators between dissimilar metals, also separate roofing from treated timbers and cement based materials. Do not use unpainted lead sheet or copper in contact with or allow water run-off onto galvanized or Zincalume® materials.

Application

3.6 SET-OUT
Carefully set out with consideration of the position of side laps to take account of the line of sight. Ensure all sheets are square and oversailing the gutter true to line. Check during fixing to eliminate creep or spread and string lines along purlin centres to keep fastenings in line.

3.7 END LAPS
End laps are not permitted, except where specifically detailed.

3.8 MOVEMENT JOINTS
Fixing and jointing to conform with the roofing manufacturer's requirements for thermal movement.
Over timber framing, transverse flashings (those running long continuous framing members) to have expansion joints at maximum 12 centres.

3.9 FIXING GENERALLY
Install and fix in accordance with the NZMRM CoP requirements, and to roofing manufacturer's recommendations. Paint colour matched fixings and accessories before installation.

3.10 MARKING AND CUTTING
Cut only by shearing tools. Do not use black lead pencils for marking aluminium/zinc coated products.

3.11 FIX SHEETS
Fix sheets in place using the fastening system required by the roofing manufacturerfor specified profiles, making due allowance for dynamic local wind pressures on the building and thermal movement in the sheet.

3.12 STOP ENDS AND DOWNTURNS
Form stop-ends at the upper end of sheets. Form downturns at the gutter line where the roof pitch is less than 8 degrees. Form using purpose made tools.

3.13 FLASHINGS
Flash roof to parapets, walls and penetrations to detail. Where no detail is provided flash to NZMRM CoP recommendations and the roofing manufacturer's requirements. Cut accurately and fix using sealant and rivets to detail and to the roofing manufacturer's requirements to form a weatherproof cover. For highly visible flashings, plan joints/junction to take account of the aesthetic requirements.

3.14 USE OF SEALANTS
Select and use sealants only as recommended by the roofing manufacturer. Apply sealant in two narrow beads transversely across flashing intersections, close to the two edges. Avoid exposing sealant on outside surfaces.

3.15 FLASHING PENETRATIONS
Flash all penetrations through the roof. Fit pipe flashings with a proprietary collar flashing to manufacturer's requirements, with other penetrations flashed as detailed and to provide a weathertight installation. Ensure that flashings are set to avoid any ponding of water.

3.16 INSTALL RIDGING
Install ridging by fastening to the purlins through the leading edge of the roofing to manufacturer's requirements.

Completion

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3.17 REPLACE
Replace damaged or marked elements.

3.18 LEAVE
Leave this work complete with all necessary flashings, undercloaks, valleys, ridges and hips all properly installed as the work proceeds so the finished roof is completely weathertight.

3.19 REMOVE
Remove trade rubbish and unused materials from the roof and surrounds daily during the work. Sweep down at the end of each day, and clean out spoutings, gutters and rainwater pipes on completion of the roof. Remove debris, unused materials and elements from the site.

4. SELECTIONS

Roofing

4.1 PROFILED METAL ROOFING PRE-FINISHED HOT-DIPPED ALUMINIUM/ZINC COATED STEEL
Brand/profile: ~
BMT: 0.~mm
Coating grade: ~
Colour: ~

Accessories

4.2 FLASHING
Material/thickness: ~

4.3 FLASHING - INACCESSIBLE
Material/thickness: 0.~mm

4.4 CLOSURE STRIP
Brand: ~

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4422A ARDEX BUTYNOL MEMBRANE ROOFING

1. GENERAL

This section relates to ARDEX Butynol® as single-layer external waterproof covering bonded to:
- construction plywood, including all underlays and accessories
- concrete, including all underlays and accessories.

1.1 RELATED WORK
Refer to ~ for ~.

Documents

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

Ardex waterproofing solutions manual
NZBC E2/AS1 External moisture
AS/NZS 2269.0 Plywood - Structural - Specifications

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

1.3 MANUFACTURER'S DOCUMENTS
Manufacturer's and supplier's documents relating to work in this section are:

Ardex waterproofing systems manual
BRANZ Appraisal 436 - Butynol®, Butynol®HD and ECO Butynol® Roofing Membrane
CodeMark™ Certificate of Conformity for Butynol® Roofing Membranes
Cert No. AQ-050516-CMNZ

Copies of the above literature are available from Ardex
Web: www.ardex.co.nz
Email: ardexspec@ardexnz.com
Telephone: 0800 2 ARDEX (27339)
0-9-636 0005 Auckland
0-4-568 5949 Wellington
0-3-373 6900 Christchurch

Requirements

1.4 NO SUBSTITUTIONS
Substitutions are not permitted to any specified ARDEX materials, or associated products, components or accessories.

1.5 QUALIFICATIONS
Roofing work to be carried out by an ARDEX approved Butynol roofing applicator. Application to be strictly in accordance with the Ardex waterproofing solutions manual and BRANZ Appraisal 436 - Butynol®, Butynol®HD and ECO Butynol® Roofing Membrane.

1.6 SYSTEM ARDEX PROJECT
Contact Ardex with any relevant key dates and for a list of approved applicators. The contractor is to contact Ardex prior to starting the project.

Email: ardexspec@ardexnz.com
Telephone: 0800 2 ARDEX (27339)
0-9-636 0005 Auckland
0-4-568 5949 Wellington
0-3-373 6900 Christchurch

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Warranties

1.7 WARRANTY
Warrant this work under normal environmental and use conditions against failure.
Warranty period: Materials up to 20 years
Warranty period: Execution up to 5 years

Provide separate material and application warranties signed by ARDEX and the applicator.

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

Performance

1.8 TEST
Where required a suitable time lapse or water test shall be carried out.

1.9 PERFORMANCE
Accept responsibility for the weather-tight performance of the completed roofing system, including all penetrations through the roof and junctions with walls and parapets. All penetrations to comply with NZBC E2/AS1 and ARDEX recommendations.

2. PRODUCTS

Materials

2.1 BUTYNOL RUBBER SHEET
Single ply membrane compounded from butyl.
Thickness: 1.5mm

Components

2.2 BUTYNOL SEAM TAPE
ARDEX uncured butyl cold gum seam tape, 50mm x 30.5m

2.3 BUTYNOL SEALANT
ARDEX CA20P sealant.

2.4 BUTYNOL FLASHING TAPE
ARDEX flashing tape, 100mm x 5m. Not be left exposed.

2.5 ARDEX DETAIL TAPE
ARDEX semi-cured silicone backed detail/finishing tape.

2.6 ARDEX ADHESIVES AND SOLVENTS
ARDEX WA98 Butynol contact adhesive.
ARDEX WA98 Butynol solvent.

2.7 EDGE TRIM
Metal or timber to Ardex details to suit the specific location.

Accessories

2.8 ROOFING ACCESSORIES
ARDEX substrate ventilators, roof outlets, overflows, scuppers and rainwater heads.

2.9 RAIN HEADS
Rotationally moulded one piece plastic rain head. 100mm, 150mm or 200mm outlets.

2.10 SCUPPERS OUTLETS
Moulded scupper outlets, 105mm x 80mm and 210mm x 80mm.

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3. EXECUTION

Conditions

3.1 GENERALLY
All work and materials to the Ardex Waterproofing systems Manual, the current Ardex technical literature , BRANZ Appraisal 436 and NZBC E2/AS1 External moisture, 8.5 **Membrane roofs and decks**.

3.2 STORAGE
Take delivery of ARDEX Butynol® branded rolls, undamaged and allow for site handling facilities where required. Store membranes and accessory materials under conditions that ensure no deterioration or damage.

3.3 WEATHER
Apply coverings in a dry atmospheric condition and only when the air temperature is 6°C and above.

Application - preparation

3.4 PRELIMINARY WORK
Ensure that preliminary work, including formation of falls, flashing rebates, grooves, ducts, provision of battens and fillets and fixing of vents and outlets to levels, is complete and properly constructed to enable the system to work as intended. This work and the substrate to be smooth, clean and dry.

3.5 ACCEPTANCE OF SUBSTRATE
Ensure that the substrate, including fillets, outlets and projections, meets design specification and ARDEX conditions.
Ensure whichever is the greater falls are provided:
- as shown on the drawings
- to the membrane manufacturer's requirements
- minimum to NZBC E2/AS1, 8.5.1, - 1:30 for roofs, 1:40 for decks and 1:100 for gutters.

3.6 PLYWOOD SUBSTRATE
Ensure plywood is:
- a minimum of 17mm thick and complying with AS/NZS 2269.0
- minimum CD structural grade with the sanded C side upwards
- hazard Class H3.2 with waterborne CCA treatment and kiln dried after treatment
- laid with staggered joints (brick bond) with all edges of the sheets fully supported or with tongue and groove jointing
- provide with 20mm H3.2 timber fillets at the base of all upstands and chamfer all external edges with a minimum radius of 5mm
- fixed with 10 gauge x 50mm stainless steel countersunk head screws, with a 3mm gap between all sheets
- fixed at 150mm centres on edges and 200mm in the body of the sheets.

Plywood and the timber substructure to have a maximum moisture content of 18% when the membrane is adhered. Consult with plywood manufacturer's correct testing technique.

Application - laying Butynol

3.7 CONDITIONS
Do not lay membrane in wet or misty conditions or below 7º; C. Check that the substrate is dry at time of laying. Concrete maximum moisture content 75% RH; plywood maximum moisture content 18%

3.8 GENERAL
Tape plywood joints using 25mm ARDEX approved self-adhesive tape. Run out sheets and allow to relax for 20 minutes before laying. Do not stretch sheets or tapes in laying.

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3.9 APPLY ADHESIVE
Apply ARDEX WA98 adhesive to the substrate and the Butynol rubber sheeting by brush, spray, or roller at a spreading rate of not less than 2.5 square metres per litre. Leave to tack dry before bonding the two surfaces together.

3.10 LAY SHEETS
Lay sheets across the roof slope and lap long edges to full width of selvage, 50mm minimum. Smooth down and roll to remove entrapped air. Adhesive bond and seal to the membrane manufacturer's requirements and roll or rub down as the work proceeds.

3.11 BONDING LAPS
Bond all laps to Ardex requirements. Where the roof slope is less than 5 degrees, where coloured membranes are used, where ponding can occur and in all gutters, use special lap bonding incorporating ARDEX seam tape and seam primer.

3.12 MINOR MOVEMENT JOINTS
Lay sheets across joint but leave unbonded on both sides.
Unbonded width: 25mm minimum
All joints to be taped using ARDEX approved self adhesive release tape.

3.13 INSPECT
Inspect and test joints on completion.

3.14 PENETRATIONS
Form and finish upstands, downturns, penetrations, sumps and vents to conform with Ardex details and NZBC E2/AS1.

3.15 PENETRATIONS AND JUNCTIONS
Check that adjoining walls and parapets are prepared ready for the installation of the roofing. Confirm that openings have been prepared ready for the installation of skylights and other penetrations through the roof. Required work includes the following:
- roofing installation neatly finished to all sides of openings and to all wall and parapet junctions
- installation of flashings (those required to be installed prior to installation of penetrating elements and/or wall linings).

Protection

3.16 FOOT TRAFFIC
Foot traffic is to be limited during and after laying.

3.17 ACCESS BOARDS
Provide access boards for later operations and remove when no longer needed.

3.18 ACCEPTANCE
Sign off on completed areas. The main contractor to protect and maintain roofing until completion of the contract works.

3.19 SUBSEQUENT WORK
Make good any damage by later work. Making good to take the form of inserting a new whole or part infill sheet to maintain the appearance of the covering as originally laid.

Completion

3.20 CLEAN UP
Clean up as the work proceeds.

3.21 LEAVE
Leave work to the standard required by following procedures.

3.22 REMOVE
Remove debris, unused materials and elements from the site.

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4. SELECTIONS

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

4.1 ARDEX BUTYNOL RUBBER MEMBRANE

Location: ~
Brand/type: ARDEX Butynol®
Thickness: 1.5mm
Colour: ~

Components and Accessories

4.2 ARDEX RAIN HEADS

~

4.3 ARDEX SCUPPER OUTLETS

~

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4521 ALUMINIUM WINDOWS AND DOORS

1. GENERAL

This section relates to the manufacture, supply, and installation of:
- aluminium windows
- aluminium doors and frames
- hardware and furniture
- overhead glazing
- flashings

1.1 RELATED WORK
Refer to glazing sections for glass types

1.2 ABBREVIATIONS AND TERMS

SLS	Serviceability limit state
ULS	Ultimate limit state
WANZ	Windows Association of Zealand
PQAS	Powder Coating Quality Assurance System

Documents

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

NZBC E2/AS1	External moisture
NZBC F4/AS1	Safety from falling
NZBC H1/VM1	Energy efficiency
NZBC H1/AS1	Energy efficiency
AS/NZS 1580.108.1	Methods of test for paints and related materials - Determination of dry film thickness on metallic substrates - Non destructive methods
AS/NZS 1170.2	Structural design actions - Wind loads
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 1734	Aluminium and aluminium alloys - flat sheets, coiled sheet and plate
AS/NZS 1866	Aluminium and aluminium alloys - Extruded rod, bar, solid and hollow shapes
NZS 3604	Timber-framed buildings
AS 3715	Metal finishing - Thermoset powder coatings for architectural applications
BS 3900	Methods of tests for paints, Part C5: Determination of film thickness
NZS 4211	Specification for performance of windows
NZS 4223.3	Glazing in buildings - Human impact safety requirements
AS/NZS 4680	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
WANZ Installation Guide:	The WANZ Guide to Window Installation as described in E2/AS1 Amendment 6.
WANZ PQAS	Powder Coating Quality Assurance System
WANZ SFA 3503-03	Anodic Oxide coatings on wrought aluminium for external architectural application (2005).
BRANZ BU 337	Protecting Window Glass from Surface Damage
AAMA 2604	Voluntary specification, performance requirements and test procedures for high performance organic coatings on aluminium extrusions and panels.
AAMA 2605	Voluntary specification, performance requirements and test procedures for superior performing organic coatings on aluminium extrusions and panels.

US Federal Specification

TT-S-001543A	Sealing compound, silicone rubber base (for caulking, sealing and glazing in buildings and other structures)
TT-S-00230C	Sealing compound, elastomeric type, single component (for caulking, sealing and glazing in buildings and other structures)

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1.4 MANUFACTURER'S DOCUMENTS
Manufacturer's and supplier's documents relating to work in this section are:
~

Copies of the above literature are available from ~
Web: ~
Email: ~
Telephone: ~
Facsimile: ~

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER
Provide a material manufacturer/supplier warranty:
5 years: For fabrication
Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

1.6 WARRANTY - INSTALLER/APPLICATOR
Provide an installer/applicator warranty:
2 years: For installation

- Provide this warranty in the installer/applicator standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.7 QUALIFICATIONS
Work to be carried out by trades people experienced, competent and familiar with the materials and techniques specified.

1.8 COMPLIANCE
Windows and doors to be manufactured and installed to NZBC E2/AS1.

1.9 CERTIFICATION
Provide evidence of a certificate by a laboratory accredited by International Accreditation of New Zealand that the windows and doors offered comply with the requirements of NZS 4211.

Performance

1.10 PERFORMANCE - WINDOWS AND DOORS
To NZS 4211, including:
- deflection, opening sashes, air infiltration, water penetration, ultimate strength, torsional strength of sashes, marking.

Refer to SELECTIONS.

1.11 PERFORMANCE - STRUCTURAL/WEATHER-TIGHTNESS
The structural and weather-tight performance of the completed joinery, the glazing and infill panels is the responsibility of the window manufacturer.

Performance - Wind (design by contractor)

1.12 WIND - NON SPECIFIC DESIGN
Design the installation to the wind zone parameters of NZS 3604, table 5.4.
Refer to SELECTIONS for wind zone.

1.13 WIND - SPECIFIC DESIGN
Design the installation to the wind pressure parameters of AS/NZS 1170.2 Refer to SELECTIONS for ULS and SLS

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Finishes

1.14 CERTIFY COATINGS - POWDER COATING
Certify on request, compliance with this specification and support with control and sampling records. Test for film thickness to BS 3900, part C5, method No. 4, using method (b) or to AS/NZ 1580.108.1 for certifying thickness and method (a) where any dispute arises as to the thickness provided.
The coating should be applied by an applicator who can certify that the coating has been applied in accordance with the specification.

2. PRODUCTS

Materials

2.1 WINDOWS
Refer to SELECTIONS for type and finish.

2.2 DOORS
Refer to SELECTIONS for type and finish.

2.3 ALUMINIUM EXTRUSIONS
Alloy designation to comply with AS/NZS 1866. Branded and extruded for anodising or powder coating.

2.4 ALUMINIUM SHEET AND STRIP
Complying with AS/NZS 1734 of suitable thickness. Rolled for anodising or powder coating.
Alloy designation: 5251 - H16 or 5005 - H16

2.5 STAINLESS STEEL SHEET AND STRIP
Type: 316 austenitic steel
Finish grade: 2B (satin lustre)

2.6 GLASS
Refer to the glazing section for glass types and installation.

2.7 REVEALS - TIMBER PAINTED
Timber reveals for paint finish with all sides primed grooved for wall linings or flush finished for architraves.

2.8 FLASHINGS GENERALLY
To NZBC E2/AS1, 9.1.10 **Windows and Doors**. Material, grade and colour of head flashings to match the window frames. Ensure that materials used for head, jamb and sill flashings are compatible with the window frame materials and fixings and cladding materials.

Materials - overhead glazing

2.9 OVERHEAD GLAZING SYSTEM
Overhead purpose made aluminium glazing bars, other system components, flashings and hardware.
Refer to SELECTIONS.

Components - for cavity systems

2.10 STANDARD CAVITY CLOSER
A perforated device constructed from either aluminium or PVC to close the cavity above the window or door unit, between the cladding and head flashing, to provide ventilation in accordance with NZBC E2/AS1 to the spaces above the window or door.

2.11 WANZ SUPPORT BAR
Extruded aluminium support bar with built in drainage and ventilation to NZBC E2/AS1, to provide continuous support to the window unit. Size to suit cladding type.

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Components

2.12 GLAZING GASKETS
Thermoplastic rubber. Do not stretch glazing gaskets during installation. Measure and cut gaskets 5-10% over length before installation.

2.13 HARDWARE AND FURNITURE
Hinges, stays, catches, fasteners, latches, locks and furniture as offered by the window and door manufacturer. Refer to SELECTIONS for type and finish. Key alike all lockable window hardware able to be keyed alike.

2.14 SAFETY STAYS
Stainless steel non releasable restrictors to limit window opening to NZBC F4/AS1, Table 2, Acceptable opening sizes for barriers.

Sealants

2.15 STRUCTURAL SEALANT
Silicone chemically curing sealant specifically formulated and tested or approved equivalent with not less than a ± 40% movement factor complying with US Federal Specification TT S 001543A.

2.16 WEATHERING/INSTALLATION SEALANT
Building sealant used in accordance with manufacturer's instructions for weather sealing aluminium frames to the cladding, complying with US Federal Specification TT S 0011534A, or a one-part polyurethane moisture curing, elastic joint sealant of medium modulus (± 25% movement) to US Federal Specification TT S 00230C.

2.17 FOAM TAPE
Foam tape to NZBC E2/AS1, 9.1.10.7 **Closed cell foam tape**.

Finishes

2.18 POWDER COATED ALUMINIUM - EXTRA DURABLE
Polyester powder organic coating in accordance with WANZ PQAS and AS 3715.

2.19 POWDER COATED ALUMINIUM - HIGH DUTY
Polyester powder coating in accordance with WANZ PQAS and AAMA 2604.

2.20 POWDER COATED ALUMINIUM - SUPER DUTY
PVF² fluoropolymer powder coating in accordance with AAMA 2605 and WANZ PQAS.

3. EXECUTION

Conditions - generally

3.1 DO NOT DELIVER
Do not deliver to site any elements which cannot be unloaded immediately into suitable conditions of storage.

3.2 UNLOAD WINDOW JOINERY
Unload, handle and store elements in accordance with the window manufacturer's requirements.

3.3 AVOID DISTORTION
Avoid distortion of elements during transit, storage and handling.

3.4 PREVENT DAMAGE
Prevent prefinished surfaces rubbing together, and contact with mud, plaster and cement. Keep paper and cardboard wrappings dry.

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3.5 PROPRIETARY ELEMENTS
Fix in accordance with the window manufacturer's requirements.

3.6 PROTECTIVE COVERINGS
Retain protective coverings and coatings to BRANZ BU 337 and keep in place during the fixing process. Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades. Remove protection on completion.

3.7 ADDITIONAL PROTECTION
Supply and fix additional protection as necessary to prevent marking of surfaces which will be visible on completed work.

Conditions - fixings and fastenings

3.8 SUPPLY OF FIXINGS
Use only fixings and fastenings recommended by the manufacturer of the component being fixed and to comply with the ULS wind pressure stated in SELECTIONS. Ensure fixings and fastenings exposed to the weather are of aluminium, or Type 316 stainless steel or if not exposed to the weather may they be hot-dip galvanized steel with a coating weight of 610 g/m² complying with AS/NZS 4680.

3.9 INSTALLATION FIXING
To NZBC E2/AS1, 9.1.10.8, **Attachments for windows and doors**. Fix windows/doors through reveal to frame with a pair of 75 x 3.15mm minimum galvanised jolt head nails or a pair of 8 gauge x 65mm minimum stainless steel screws. Fix at a maximum of 450 centres along all reveals and a maximum of 150mm from reveal ends. Ensure fixings do not penetrate metal flashings.
Install packers between reveals and framing at fixing points, except at the head.

Assembly

3.10 FABRICATION
Fabricate frames as detailed on shop drawings. Install glazing, hinges, stays and running gear as scheduled. Provide temporary bracing and protection. Temporarily secure all opening elements for transportation.

3.11 TIMBER / PVC REVEALS
Before fixing to aluminium frames, ensure that timber reveals which are being painted have been primed on all surfaces.

3.12 HARDWARE GENERALLY
Factory fit all required and scheduled hardware. Account for all keys and deliver separately to the site manager.

3.13 SAFETY STAYS
Factory fit safety stays to all windows scheduled for safety stays and to all windows where safety stays are required to comply with NZBC F4/AS1 4.0, Opening windows.

Installation - windows and doors

3.14 CORROSION PROTECTION
Before fixing, apply suitable barriers of bituminous coatings, stops or underlays between dissimilar metals in contact, or between aluminium in contact with concrete.

3.15 CONFIRM PREPARATION OF EXTERIOR WALL OPENINGS
Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames. Do not proceed with the window and door installation until required preparatory work has been completed.

Required preparatory work includes the following:

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- wall underlay/building wrap to openings finished and dressed off ready for the installation of window and door frames to NZBC E2/AS1:9.1.5 **Wall underlays to wall openings**.
- Full height 20mm jamb battens to NZBC E2/AS1 figure 72A (direct fix only)
- claddings neatly finished off to all sides of openings
- installation of flashings (those which are required to be installed prior to frames).

3.16 INSTALLATION
Fix to comply with the reviewed shop drawings and installation details including flashings and bedding compounds, pointing sealants and weathering sealants.

3.17 INSTALLATION CAVITY CONSTRUCTION
Install to WANZ Installation Guide details and drawings including WANZ sill support bars. For thresholds with support bars fixed through membranes, pre-fill support bar screw holes with silicone sealant to NZBC E2/AS1, figure 62(d).

3.18 INSTALL FLASHINGS
Install flashings to heads, jambs and sills of frames as supplied and required by the window manufacturer and as detailed on the drawings. Finish head flashings to match window finish.

Place all flashings so that the head flashing weathers the jamb flashings, which in turn weathers over the upstand of the sill flashing. Ensure that sill flashings drain to the outside air.

Except where window/door frames are recessed, ensure that head flashings over-sail unit by 20mm minimum plus any jamb scriber width at each end.

3.19 COMPLETE AIR SEAL
To NZBC E2/AS1:9.1.6 Air seals. Form an air-tight seal by means of a proprietary expanding foam or sealants used with backing rods, applied between the window / door reveal and structural framing to a depth of 10 - 20mm, to provide a continuous air tight seal to the perimeter of the window or door.

3.20 FIX HARDWARE
Fix all sash and door hardware and furniture as scheduled.

Installation - overhead glazing system

3.21 INSTALL OVERHEAD GLAZING SYSTEM
Check that the trimmed openings are formed and constructed to suit the required units. Do not proceed until roof and structural openings are properly formed. Install and fix the overhead glazing system strictly in accordance with the roof window manufacturer's requirements and drawings. Install flashings and overflashings as detailed and as required to make the installation completely weatherproof.

3.22 INSTALL OVERHEAD GLAZING SYSTEM HARDWARE
Install selected accessories and hardware. Install and complete all operating systems.

Application - jointing and sealing

3.23 SEAL FRAMES ON SITE
Seal frames to each other and to adjoining structure and finishes, all as required by the window manufacturer and to make the installation weathertight. In very high and extra high or greater wind zones, seal between the window head and the head flashing. Do not seal the junction between the sill member and the cladding or sill flashing which must remain open.

3.24 PREPARE JOINTS
Ensure joints are dry. Remove loose material, dust and grease. Prepare joints in accordance with the sealant manufacturer's requirements, using required solvents and primers where necessary. Mask adjoining surfaces which would be difficult to clean if smeared with sealant.

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3.25 BACK UP
When using back-up materials do not reduce depth of joint for sealant to less than the minimum required by the manufacturer of the sealant. Insert polyethylene rod or tape back-up behind joints being pointed with sealant.

3.26 SEALANT FINISH
Tool sealant to form a smooth fillet with a profile and dimensions required by the sealant manufacturer. Remove excess sealant from adjoining surfaces, using the cleaning materials nominated by the sealant manufacturer and leave clean.

Completion - cleaning

3.27 REMOVE TRADE DEBRIS
Remove trade debris by appropriate means on a floor by floor basis as each floor is completed and again before any work is covered up by others. Arrange for general removal.

3.28 TRADE CLEAN
Trade clean window frames, operable windows and doors, glass and other related surfaces inside and out at the time of installation to remove marks, dust and dirt, to enable a visual inspection of all surfaces.

Completion

3.29 PROTECTIVE COVERINGS
Retain protective coverings and coatings and keep in place during the fixing process. Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades.

3.30 SAFETY
Indicate the presence of transparent glasses for the remainder of the contract period, with whiting, tape or signs compatible with the glass type. Indicators other than whiting must not be applied to the glass surface. Masking tape must not be used for this purpose.

3.31 IN SITU TOUCH-UP TO POWDER COATED ALUMINIUM
In situ touch-up of polyester or fluoropolymer coated aluminium is only permitted only to minor surface scratching. Otherwise replace all damaged material.

3.32 REMOVE
At the appropriate stage of the project, remove safety indicators and protective coverings and wipe down all joinery thoroughly.

3.33 REPLACE
Replace damaged, cracked or marked elements.

4. SELECTIONS

Performance

4.1 THERMAL PERFORMANCE
R-value: ~ (as determined from NZBC H1/VM1 or H1/AS1)

4.2 AIR INFILTRATION
For NZS 4211, table 3 **Air infiltration**.
Non-air conditioned zones: ~
Air conditioned zones: ~

4.3 SEISMIC SUB-FRAMES
Windows No.: ~
Movement: ~mm

Performance - Wind (design by contractor)

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4.4 WIND - NON SPECIFIC DESIGN
Building wind zone ~ (refer to NZS 3604, table 5.4)

4.5 WIND - SPECIFIC DESIGN
The design wind pressures are to AS/NZS 1170.2.
SLS ~ Pa
ULS ~ Pa

Window and door system

4.6 ALUMINIUM WINDOWS
Manufacturer: ~
Type/location: ~

4.7 ALUMINIUM DOORS
Manufacturer: ~
Type/location: ~

4.8 TIMBER REVEALS
Timber species: ~
Grade/treatment: ~ / H3.1
Thickness: ~mm
Reveals: ~
Finish: ~

Finishes

4.9 ORGANIC POWDER COATING FINISH
Type: Polyester organic powder coating ~
System integrity: ~
Thickness: Average of 80 microns with a minimum of 50 microns
Colour: ~

4.10 FLUOROPOLYMER POWDER COATING FINISH
Type: PVF2 fluoropolymer powder coating
System integrity: ~
Thickness: Average of 80 microns with a minimum of 50 microns
Colour: ~

4.11 FLASHINGS
Material/type: ~
Pattern: Formed to suit details provided

4.12 STRUCTURAL SEALANT
Brand/type: ~
Movement: ~mm
Colour: ~

4.13 WEATHERING SEALANT
Brand/type: ~ 1-part polyurethane moisture curing, elastic joint sealant
Colour: ~

4.14 HARDWARE

	Brand/style	**Material/finish**
Sash fasteners:	~	
Door furniture:	~	

4.15 OVERHEAD GLAZING SYSTEM
Location: ~
Brand/type: ~
System: ~
Finish/colour: ~

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Hardware: ~

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4711 THERMAL INSULATION

1. GENERAL

This section relates to materials installed, laid, hung or fitted as thermal insulation to the building fabric.

1.1 RELATED WORK
Refer to 4721 ACOUSTIC INSULATION for acoustic insulation.
Refer to 4161 UNDERLAYS, FOIL AND DPC for wall underlays, roofing underlays, foils and films.
Refer to roofing sections for roofing underlays.

1.2 ABBREVIATIONS AND DEFINITIONS
Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

BIB	Building Insulation Blanket (term used by some manufacturers)
EPS	Expanded polystyrene sheets

Documents

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

NZBC H1/AS1	Energy efficiency
AS/NZS 3000	Electrical installations
NZS 4218 2004	Energy efficiency - Small building envelope
NZS 4220	Code of practice for energy conservation in non-residential buildings
NZS 4243.1	Energy efficiency - Large buildings - Building thermal envelope
NZS 4246	Energy efficiency - Installing bulk thermal insulation in residential buildings
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
AS/NZS 60598.2.2:2001	Luminaires- Particular Requirements - Recessed luminaires
AS/NZS 60695.11.5	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance
Health and Safety at Work Act 2015	

1.4 MANUFACTURER/SUPPLIER DOCUMENTS
Manufacturer's and supplier's documents related to this section are:
~

Manufacturer/supplier contact details

Company:	~
Web:	~
Email:	~
Telephone:	~
Facsimile:	~

Requirements

1.5 QUALIFICATIONS
Work to be carried out by trades people experienced, competent and familiar with the specified insulation materials and techniques specified.

2. PRODUCTS

Materials

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2.1 GLASS FIBRE THERMAL BLANKET/ROLL
Glass fibres bonded with a thermosetting resin to form a flexible blanket/roll.
NOTE: When insulation abutting or covering recessed downlights is intended to be in contact with IC, CA 80, CA 135 luminaries the insulation must withstand a 30s Needle Flame test to AS/NZS 60695.11.5.

Components

2.2 WIRE NETTING
Refer to 4161 UNDERLAYS, FOIL AND DPC for wire netting used to support the insulation.

2.3 NAILS
Galvanized steel clouts, 25mm gauge.

2.4 STAPLES
Stainless steel gauge and length to suit application and to manufacturer's requirements.

2.5 STRAPPING TAPES
Proprietary plastic strapping tape, stapled over framing to retain insulation in unlined wall, ceiling and underfloor locations.

2.6 ADHESIVE TAPE
Adhesive tapes to compliment the underlay. Pressure sensitive aluminium foil tapes for joining foil insulation and vapour barriers.

3. EXECUTION

Conditions

3.1 DELIVERY
Keep insulation dry in transit. Take delivery of insulation dry and undamaged and store in a location that protects them from the weather and damage. Reject all damaged materials.

3.2 STORAGE
Accept materials undamaged and dry and store in a location that protects them from the weather and damage. Avoid distortion, stretching, puncturing and damage to edges of sheet materials. Do not use damaged sheets.

3.3 HANDLING
Wear protective clothing as necessary and when handling, avoid delamination or distortion of the rectangular form. Maintain full thickness unless compression is an installation system requirement.

3.4 HAZARD & RISK MANAGEMENT
To Health and Safety at Work Act 2015 and take all safety precautions necessary to reduce potential hazards and risks.

3.5 INSPECTION
Before starting installation of blankets and pads, check that the location and framing are free from moisture, that the cavities are not interconnected and that mesh, netting, underlays and vapour barriers are in place.

Application

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

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3.7 RECESSED LIGHT FITTINGS - CLEARANCE

Non-residential applications;
The clearance between insulation and recessed downlights;
- 100mm gap to AS/NZS 3000, figure 4.9
- Provide larger gaps where required by the light manufacturer.

Residential applications;
- Ensure new recessed downlights are one of the new classes classified in AS/NZS 60598.2.2; CA 80, CA 135, IC and IC - F
- Classification type CA 80, CA 135, to AS/NZS 60598.2.2; insulation can abut the sides (wrapping around the sides)
- Classification type IC and IC - F, to AS/NZS 60598.2.2; insulation can abut and cover over the top of the downlight
- Provide larger gaps where required by the light manufacturer.
- In a retrofit situation where recessed downlights are unclassified or unknown, ensure 100mm clearance from the insulation to AS/NZS 3000, figure 4.9.

3.8 INSULATION - CLEARANCE TO ROOFING UNDERLAY

Ensure a minimum 25mm clearance is maintained between the insulation and any non rigid roofing underlay.

3.9 INSULATION CLEARANCES GENERALLY

Insulation may need to have a gap to some mechanical and electrical services and equipment, including ducts and chimneys. The gaps should be to the NZS 4246 based tables below or to the equipment manufacturers requirements if they require larger gaps. Smaller gaps to manufacturers requirements can be used for equipment specifically manufactured with heat shielding or similar (excludes light fittings). Installed gap not to be more than 50mm bigger than the required gap.
The following tables are subject to:
- The requirements of NZS 4246.
- The insulation is exposed to the source of heat or equipment etc.
- Insulation, has passed the needle flame test to AS/NZS 60695.11.5 and/or is non-combustible.
- Gaps to hot surfaces may have to be increased with non-compliant insulation and plastic/polymeric type insulation (EPS, XPS, PIR, etc), check with insulation manufacturer.
- Gaps to hot surfaces may be able to be reduced with non-combustible insulation, check with equipment manufacturer.
- "Secure insulation" if required means, glue, mechanical fix, or provide fixed barriers at gap edge of insulation to hold in place. Rigid or semi rigid insulation may only need a firm friction fit (secure loose pieces).
- Loose fill insulation will require fixed barriers to NZS 4246 to maintain gaps.

LIGHT FITTINGS

Type of fitting	**Minimum insulation clearance**	**Comments**
Unmarked recessed	100mm	New or old unmarked & unknown fittings and/or insulation. Secure insulation.
CA 80, CA 90 or CA 135 recessed	Abut in residential. 100mm in others	Do NOT cover the fittings
IC, IC-F or IC-4 recessed	Abut in residential. 100mm in others	Cover in residential only. Do NOT cover in others
Independent control gear	Place on top of insulation & 50mm from fitting	If not on top allow 50mm clearance to insulation, do not cover. Includes, transformers, ballasts & drivers etc.
Surface fittings not exposed to insulation	Nil	Where surface fittings are isolated from insulation by appropriate linings. Excludes high heat fittings.

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Surface fittings & exposed insulation	200mm	This is exposed insulation to any part of the exposed fitting & bulb/tube (e.g. exposed light in an unlined basement). Secure insulation.

INBUILT RECESSED HOT APPLIANCES

Appliance	**Minimum insulation clearance**	**Comments**
Electrical heaters	100mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation.
Gas appliance exposed flame	200mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Excludes uncommon appliances, refer NZS 4246.
Gas appliance flues	75mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation. Excludes uncommon appliances refer NZS 4246.
Oil-fired appliances and flues	230mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.
Open fireplace opening	200mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation.
Brick masonry chimneys	50mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation.
Metal chimneys & flues	75mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.
Solid fuel appliance	600mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.
Solid fuel appliance flue	600mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.

EXTRACTS, VENTS, PIPES & ROOF UNDERLAY

Application	**Minimum insulation clearance**	**Comments**
Ducted fan motors	50mm	Includes ducted rangehoods, extractors etc. Applies to the motor unit and electrical enclosures (not the ducts)
Ducted fan ducts	Abut	Excludes motor unit and electrical enclosures.
Unducted fan motors usually discharging to ceiling space	200mm	Includes unducted, rangehoods, extractors etc, discharging into roof space. To prevent debris falling into motor. Clearance may be able to be reduced, by providing a fixed barrier around the vent.
Passive vents (still in use)	200mm	To prevent debris falling through. Clearance may be able to be reduced, with more cohesive insulation, like some of the rigid plastic types or providing a fixed barrier around the vent.
Plumbing penetrations through floors	100mm	Keep gap between pipe penetration and floor insulation in case of leaks.
Roofing material/underlay	25mm	From underside of roofing or flexible roofing underlay, to prevent wicking

3.10 WIRE NETTING TO SUBSTRATE

Lay at right angles across the rafters/roof joists (under purlins). Pull tight and temporarily fix. Tie edges of netting together with galvanized wire clips.

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3.11 LAY WIRE NETTING
Lay at right angles over the purlins with enough slack to allow insulation to retain its nominal thickness between. Tie edges of netting together with galvanized wire clips.

3.12 STRAPPING TAPE
Lay at right angles across the framing at a minimum of 400mm centres, staple tape to each framing member with stainless steel staples.

3.13 ADHESIVE TAPES
Fully seal all laps and all penetrations with adhesive tape.

3.14 FIT INSULATING BLANKET/ROLL
Friction fit insulating blanket in place to completely fill the whole of the cavities. Slightly oversize for friction fit to framing. Use smaller pieces for smaller spaces and around penetrations. Leave no gaps between, and maintain full thickness of the insulating blanket over the whole of the installation.

3.15 FIT INSULATING BLANKET/ROLL/BIB OVER PURLINS
Ensure mesh/vapour barrier are laid over and draped between the purlins to the manufacturer's requirements. Lay blanket on and in the same direction as the mesh/vapour barrier, firmly butting edges together. Carefully size blanket to maintain firmly butted edges and ends. Maintain full thickness of the blanket over the draped areas, except where detailed otherwise.

Completion

3.16 CLEAN UP
Clean up as the work proceeds, so no spare off cuts or any other matter or item remain behind claddings or linings.

3.17 CHECK WALL AND ROOF UNDERLAYS
Ensure these are dry, clean, undamaged and free of debris before being covered.

3.18 LEAVE
Leave work to the standard required by following procedures.

3.19 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise.

4.1 THERMAL BLANKET

Location:	~
Brand:	~
Material/Type:	~/~
R Value:	R~
Thickness:	~mm

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5113G GIB® PLASTERBOARD LININGS

1. GENERAL

This section relates to the supply, fixing and jointing of GIB® plasterboard linings and accessories to timber and steel framed walls and ceilings to form:
- standard systems
- superior finish quality systems
- bracing systems
- fire rated garage boundary wall systems
- wet area systems
- GIBFix® Framing systems

1.1 RELATED WORK
Refer to ~ for ~.

1.2 ABBREVIATIONS AND DEFINITIONS
Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

AWCINZ	Association of Wall and Ceiling Industries New Zealand

Documents

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

NZBC C/AS2-AS6	Protection from fire
NZBC E2/AS1	External moisture
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS/NZS 2588	Gypsum plasterboard
AS/NZS 2589	Gypsum linings - Application and finishing
NZS 3604	Timber-framed buildings
AS/NZS 4600	Cold-formed steel structures
ISO 5660.1	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 1: Heat release rate (cone calorimeter method)
ISO 5660.2	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 2: Smoke production rate (dynamic measurement)
BRANZ Technical Paper P21	BRANZ Technical Paper P21: A wall bracing test and evaluation procedure (2010)
NASH	Residential and Low-Rise Steel Framing Part 1 2010 Design Criteria

1.4 MANUFACTURER/SUPPLIER DOCUMENTS
Manufacturer's and supplier's documents relating to this part of the work:
- GIB® Site Guide (Dec 2014)
- GIB® Noise Control Systems (March 2006)
- GIB® Fire Rated Systems (Oct 2012)
- GIB Aqualine® Wet Area Systems (March 2007)
- GIB Superline® (June 2013)
- GIB® Ezybrace® Systems (2016)
- GIB Ezybrace® Bracing Software (2016)
- GIB Ezybrace® Systems (June 2011), with amendments (Dec 2014)
- GIB Ezybrace® for Steel Frame Housing (NASH) Software (2011)
- GIBFix® Framing System (2016)
- GIB® Rondo® Metal Ceiling Batten Systems
- GIB-Cove®
- GIB® Goldline™ Platinum Tape-on Trims (Jan 2006)
- GIB® UltraFlex® high impact corner mould (Sept 2004)
- GIB® Tough Systems (Nov 2014)

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BRANZ Appraisal 294 (2011) - GIB Ezybrace® Systems
BRANZ Appraisal 427 (2007) - GIB Aqualine® Wet Area Systems
BRANZ Appraisal 928 (2016) - GIB Ezybrace® Systems 2016

GreenTag Certification WWLCG001-001-A-2015 - GreenTag™ GreenRate/Level C for:
- GIB® Standard (10mm & 13mm)
- GIB Fyreline®(10mm, 13mm, 16mm &19mm)
- GIB Braceline® (10mm & 13mm)
- GIB® Noiseline® (10mm & 13mm)
- GIB Toughline® (13mm)

Copies of the above literature are available at
Company: Winstone Wallboards
Web: www.gib.co.nz
Telephone: 0800 100 442

Requirements

1.5 NO SUBSTITUTIONS
Substitutions are not permitted to any specified GIB® systems, GIB® system components, GIB® plasterboard, associated GIB® products or GIB® accessories.

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

Performance

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

1.8 BRACING REQUIREMENTS
Braced wall systems to NZS 3604 when tested to BRANZ Technical Paper P21, using:
- GIB Ezybrace® Systems (2016) and/or GIB Ezybrace® Bracing Software (2016)
- GIB Ezybrace® Systems (2011)
- GIB Ezybrace® for Steel Frame Housing (NASH) Software 2011 (to NASH Residential and Low-Rise Steel Framing Part 1 2010 Design Criteria)

Refer to drawings for location and type.

2. PRODUCTS

Materials

2.1 GIB® PLASTERBOARD
Gypsum plaster core encased in a face and backing paper formed for standard and water resistance use to AS/NZS 2588. Refer to SELECTIONS for location, type, thickness and finish.
GIB® Standard plasterboard
GIB Wideline® plasterboard
GIB Ultraline® high quality surface plasterboard
GIB Fyreline® fire resistant plasterboard
GIB Braceline® & GIB® Noiseline® dual purpose wall bracing & noise control plasterboard
GIB Aqualine® wet area plasterboard
GIB Toughline®
GIB Superline®

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2.2 GIB® COVING
GIB-Cove® plasterboard coving. Refer to SELECTIONS for profile and size.

Components

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

2.4 SCREWS
GIB® Grabber® drywall type screws as follows:

Grabber® type	**Used for fixing:**
High Thread	GIB Ezybrace® or Standard systems to timber
Self Tapping	Standard systems to light gauge steel or timber
Dual Thread Screws	GIBFix®, GIB Ezybrace®, or Standard systems, to light gauge steel or timber
Wafer Head Needle Tip	Light gauge metal to timber not directly under plasterboard
Pancake Head Drill Tip	Light gauge metal to light gauge metal directly under plasterboard

Refer to GIB® requirements for appropriate details.

2.5 NAILS
GIB® Nails (gold passivated).
Size: 30mm, 40mm

2.6 TAPE ON TRIMS AND EDGES
GIB® Goldline™ tape-on trims
GIB® UltraFlex® high impact corner mould
GIB® Levelline® Tape on Trim

2.7 METAL ANGLE TRIMS
GIB® galvanized steel slim angle trims.

2.8 CONTROL JOINTS
GIB® Rondo® P35 control joints.
GIB® Goldline™ tape-on trims
GIB® plastic smooth control joints.
GIB® plastic W-profile control joints.

Accessories

2.9 ADHESIVE
Timber frame and/or steel frame:
GIBFix® One ultra low VOC water based wallboard adhesive
GIBFix® All-Bond solvent based wallboard adhesive

2.10 JOINTING COMPOUND

Bedding compound:	GIB Tradeset®, GIB Lite Blue®, GIB MaxSet®, GIB ProMix® All Purpose, GIB Plus 4®
Finishing compound:	GIB ProMix® All Purpose, GIB® Trade Finish®, GIB® Trade Finish® Lite, GIB ProMix® Lite, GIB® U-Mix, GIB Plus 4®, GIB Trade Finish® Multi
Cove:	GIB-Cove® Bond

2.11 JOINTING TAPE
GIB® paper jointing tape.

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

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3. EXECUTION

Conditions

3.1 STORAGE
Store GIB® plasterboard sheets and accessories in dry conditions stored indoors out of direct sunlight in neat flat stacks on either an impervious plastic sheet or clear of the floor with no sagging and avoiding damage to ends, edges and surfaces. Reject damaged material. Refer to GIB® Site Guide (Dec 2014).

3.2 LEVELS OF PLASTERBOARD FINISH
Provide the selected plasterboard surfaces to the pre decorative levels of finish specified in AS/NZS 2589.

3.3 CONFIRM LEVELS OF PLASTERBOARD FINISH ACCEPTANCE
Before commencing work, agree in writing upon the surface finish assessment procedure towards ensuring that the quality of finish expectations are reasonable and are subsequently obtained and acceptable.

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

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

3.4 SUBSTRATE
Do not commence work until the substrate is plumb, level and to the standard required by the sheet manufacturer's requirements. Refer to GIB® Site Guide (Dec 2014).

3.5 TIMBER FRAME MOISTURE CONTENT
Maximum allowable moisture content to AS/NZS 2589 for timber framing at lining: 18% or less for plasterboard linings. Refer to NZBC E2/AS1 and GIB® Site Guide (Dec 2014).

3.6 PROTECTION
Protect surfaces; cabinetwork, fittings, equipment and finishes already in place from the possibility of water staining and stopping damage. Refer to GIB® Site Guide (Dec 2014).

Application

3.7 INSTALL CEILING BATTENS
Install to GIB® Rondo® Ceiling Batten Systems requirements.

3.8 LINING WALLS AND CEILINGS GENERALLY
Form to GIB® Site Guide (Dec 2014). Ensure bulk insulation thickness shall not exceed that of the wall framing.

3.9 BOARD ORIENTATION
Minimise joints by careful sheet layout using the largest sheet sizes possible, and generally fixing horizontally. Where part sheets are required for various stud heights they should be positioned so the cut sheet is as low as possible to keep joints below eye level.

3.10 FORM WET AREA SYSTEMS
Form to GIB Aqualine® Wet Area Systems requirements.

3.11 FORM BRACING SYSTEMS
Form bracing systems to:
- GIB Ezybrace® Systems (2016)
- GIB Ezybrace® Systems (2011)

3.12 FORM CONTROL JOINTS
Form control joints to GIB® Site Guide (Dec 2014) requirements.

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3.13 INSTALL COVES
Install to GIB-Cove® literature using GIB-Cove® Bond.

3.14 INSTALL TAPE-ON TRIMS
Install to GIB® Goldline™ Tape-on trims literature and/or GIB® Ultraflex high impact corner mould literature.

Finishing

3.15 FINISHING GENERALLY
To GIB® Site Guide (Dec 2014) and AS/NZS 2589.

Completion

3.16 REPLACE
Replace damaged sheets or elements.

3.17 CLEAN DOWN
Clean down completed surfaces to remove irregularities and finally sand down with fine paper to the sheet manufacturer's requirements, to leave completely smooth and clean.

3.18 REMOVE
Remove debris, unused materials and elements from the site.

3.19 LEAVE
Leave work to the standard required by following procedures.

4. SELECTIONS

Plasterboard

4.1 GIB® STANDARD SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
~	GIB® Standard plasterboard	10mm	
~	GIB® Standard plasterboard	13mm	
~	GIB Ultraline® plasterboard	10mm	
~	GIB Ultraline® plasterboard	13mm	

4.2 GIB® WATER RESISTANT SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
~	GIB Aqualine® plasterboard	10mm	
~	GIB Aqualine® plasterboard	13mm	
~	GIB Superline®	13mm	

4.3 GIB® STANDARD SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
~	GIB® Standard plasterboard	13mm	
~	GIB Ultraline® plasterboard	13mm	

4.4 GIB® WATER RESISTANT SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
~	GIB Aqualine® plasterboard	13mm	
~	GIB Superline®	13mm	

4.5 GIB® BRACING SYSTEMS
Refer to:
- GIB Ezybrace® Systems (2016)

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- GIB Ezybrace® Systems (2011)
For bracing element location refer to drawn documentation.

Accessories

4.6 GIB® COVE®
Size/brand/type: ~mm ~

4.7 GIB® RONDO® CEILING BATTENS
Brand/type: GIB® Rondo® Ceiling battens

4.8 GIB® TAPE ON EDGE OR CORNER TRIMS
Brand/type: ~

4.9 GIB® EDGE PROFILES
Brand/type: ~

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5511 JOINERY & CABINETRY FIXTURES

1. GENERAL

This section relates to custom joinery fittings and cabinetwork, purpose made in a factory and fitted on site.

1.1 RELATED WORKS
Refer to ~ for ~.

Documents

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

AS/NZS 1859.1	Reconstituted wood based panels - Specifications - Particleboard
AS/NZS 1859.2	Reconstituted wood based panels - Specifications - Dry processed fibreboard
AS/NZS 1859.3	Reconstituted wood based panels - Specifications - decorative overlaid wood panels
AS/NZS 4386.1	Domestic kitchen assemblies - Kitchen units
AS/NZS 4386.2	Domestic kitchen assemblies - Installation

1.3 MANUFACTURER'S DOCUMENTS
Manufacturer's and supplier's documents relating to work in this section are:
~

Copies of the above literature are available from ~

Web:	~
Email:	~
Telephone:	~
Facsimile:	~

2. PRODUCTS

Materials

Components

2.1 BENCHTOPS
As detailed on the drawings and as required for specified fittings and appliances.

Accessories

2.2 ADHESIVES
As approved by the manufacturer for the timber product or pre-finished timber product joint being used.

3. EXECUTION

Conditions

3.1 JOINERY FIXTURES GENERALLY
Execution to include those methods, practices and processes contained in the current syllabus for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs). Take responsibility for the completed joinery fixtures including fittings included within fixtures and the on site installation.

3.2 DOMESTIC KITCHEN ASSEMBLIES
Unless otherwise specified / detailed, domestic kitchens to be constructed to AS/NZS 4386.1 and installed to AS/NZS 4386.2

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3.3 SITE MEASURE
Site check and confirm dimensions after wall linings have been fixed. Verify positions of electric power outlets, wiring to light fittings included in joinery fixtures, water supplies and waste pipe locations.

3.4 SHRINKAGE
Arrange jointing and fixing so that shrinkage in any part and direction does not impair the strength or appearance of the finished work or damage the adjoining work.

3.5 TOLERANCES
Provide reasonable tolerances at connections between the joinery fittings and the building fabric so that any irregularities are adequately compensated for in the site fixing.

Conditions - site

3.6 TRANSIT
Load, transport and unload fittings without distortion or damage and keep covered to protect from the weather.

3.7 DELIVERY
Deliver fittings to the site only when floor, wall and ceiling surfaces are in place and the fittings can be immediately placed in their final location.

Assembly

3.8 MACHINING
Carry out machining within the practices required for the particular timber, wood product or pre-finished wood product being used. Machine drill holes, cut recesses and form joints ready for assembly to the componentry manufacturer's requirements. Ensure work is accurate, square and true to line.

3.9 MAKE CUT OUTS FOR APPLIANCES AND FITTINGS
Obtain fitting templates from the appliances and other fittings to be installed within joinery fixtures and bench tops. Ensure appliances and fittings can be installed with the required tolerances and clearances. Where bench tops are being provided under other work sections, provide templates and confirm dimensions to others.

3.10 ASSEMBLY
Carry out gluing, dowelling, and other operations necessary for the proper assembly of the fittings as detailed with fixings concealed unless detailed otherwise. Scribe fit adjustable shelves with 4 shelf pins to each and with force fit pin holes at 50mm maximum centres in solid cheeks. Construct drawers and using groove mounting runners, fit them with 3mm clearance into drawer space. Hang doors on concealed hinges with 115 degree openings except where detailed for 170 degrees.

3.11 GLUE JOINTS
Use glue joints where provision for shrinkage is not required. Cross-tongue or otherwise reinforce. Surfaces in contact to have an even sawn or planed finish and be free of contamination. Mix, apply and set to the glue manufacturer's requirements with adequate pressure applied to ensure intimate contact that will be maintained while the glue sets.

Application

3.12 FIXING ON SITE
- Scribe fit and conceal fix rigidly in place square, level, plumb and true to line and face as detailed and to the required standard.
- Assemble fittings on-site if brought in sections.
- Fit counter and bench tops and upstands.
- Complete with moveable parts in place and freely moving in their proper range.

3.13 PROTECT
Protect finished surfaces from damage, particularly benchtops.

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Completion

3.14 REPLACE
Replace damaged or marked elements.

3.15 LEAVE
Leave work complete, clean and without blemish and to the standard required by following procedures.

3.16 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS

4.1 BENCH TOP
Location: ~
Type: ~
Finish: ~
Edge thickness: ~
Edge profile: ~
Edge detail: ~

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6221A ARDEX TILING SOLUTIONS

1. GENERAL

This section relates to the preparation of floor and wall surfaces for tiling systems with ARDEX Tiling Solutions:
- acoustic underlays
- levelling screeds
- primers
- undertile heating
- waterproofing systems
- decoupling system
- adhesives
- sealants
- grouts

1.1 RELATED WORK
Refer to ~ for ~.

Documents

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

NZBC D1/VM1	Access routes
NZBC D1/AS1	Access routes
AS CA27	Code of recommended practice for internal plaster on solid backgrounds
AS 1315	Portland Cement
AS/NZS 3661.1	Slip resistance of pedestrian surfaces - Requirements
AS 3740	Waterproofing of wet areas within residential buildings
AS 3958.1	Ceramic tiles - Guide to the installation of ceramic tiles
AS/NZS 4671	Steel reinforcing materials

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

1.3 MANUFACTURER'S DOCUMENTS
Manufacturer's and supplier's documents relating to work in this section are:

Ardex Tiling Solutions
BRANZ Appraisal 472 - Superflex® Wet Area Membranes
BRANZ Appraisal 473 - Superflex™ External Waterproofing Membranes
BRANZ Appraisal 727 - Ardex Undertile Sheet Membrane (WPM 750)

Copies of the above literature are available from Ardex

Web:	www.ardex.co.nz
Email:	ardexspec@ardexnz.com
Telephone:	0800 2 ARDEX (27339)
	0-9-636 0005 Auckland
	0-4-568 5949 Wellington
	0-3-373 6900 Christchurch

Warranties - waterproofing

1.4 WARRANTY
Warrant this waterproofing work under normal environmental and use conditions against failure of materials and execution

Warranty period:	Materials	15 years
	Execution	2 years

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Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

Warranties - tiling

1.5 WARRANTY
Warrant this tiling work under normal environmental and use conditions against failure of materials and execution
Warranty period: 2 years

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

Requirements

1.6 NO SUBSTITUTIONS
Substitutions are not permitted to any specified Ardex materials, or associated products, components or accessories.

1.7 QUALIFICATIONS
Waterproofing work to be carried out by an Ardex approved waterproofing applicator. Tiling to be carried out by competent workers experienced with the materials and in the techniques specified.

1.8 DEFLECTION CRITERIA FOR SUSPENDED FLOORS
Check that the floor is rigid enough for the tiling. Deflection of suspended floors should not exceed 1/360th of the span under dead load and live load.

1.9 PROVIDE SPARE TILES
Provide spare tiles. Refer to SELECTIONS for type and quantity.

1.10 SYSTEMS ARDEX PROJECT
Contact Ardex with any relevant key dates and for a list of approved applicators. The contractor is to contact Ardex prior to starting the contract.
Web: www.ardex.co.nz
Email: ardexspec@ardexnz.com
Telephone: 0800 2 ARDEX (27339)
0-9-636 0005 Auckland
0-4-568 5949 Wellington
0-3-373 6900 Christchurch

Performance

1.11 SLIP RESISTANCE FOR ACCESS ROUTES
Slip resistance for tiles to comply with NZBC D1/AS1: 2.0 Level access routes and 3.0 Ramps.
- when in place on a level access route, to have a mean coefficient of friction (μ) not less than 0.4 when tested in accordance with AS/NZS 3661.1.
- when in place on a sloping access route, to have a coefficient of friction (μ) not less than 0.4 + 0.0125S (S = slope of surface expressed as a percentage).

1.12 PROVIDE EVIDENCE OF SLIP RESISTANCE
Provide evidence that the tiles comply with the standard of performance specified.

1.13 CERTIFY SLIP RESISTANCE
Provide certificates and any other evidence at the time of selection/supply that the tiles comply with NZBC D1/VM1 and NZBC D1/AS1: Access routes.

1.14 QUALITY ASSURANCE
Prepare an inspection and test plan (ITP) for the work. Record on the ITP the inspections and checks as they are made. Make ITP's available for inspection.

Refer to Ardex Tiling flow chart and check list.

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2. PRODUCTS

Materials - preparation

2.1 SCREED
Use Abacrete liquid polymer or Abacrete mixed with 3:1 Portland cement, coarse washed sand gauged to the tile manufacturer's stated requirements.

2.2 ARDEX LQ 92
Cement based, fast setting, under-tile levelling compound.

2.3 ARDEX MULTIPRIME
Water based primer for porous substrates.

Materials - Waterproofing

2.4 WATERPROOFING SYSTEM
Flexible waterproofing membranes.

Superflex Premixed:	ARDEX WPM 001 (internal/external wet areas)
Superflex Two part:	ARDEX WPM 002 (swimming pools, internal/external wet areas)
Sheet Membrane: .	ARDEX WPM 750 (wet rooms, internal wet areas)
Hybrid Premixed:	ARDEX WPM 155 (rapid set, internal/external wet areas)

Materials - Additives

2.5 ARDEX ABACRETE
Liquid polymer additive. A bonding agent designed to improve shear and tensile bond strength of sand/cement screeds, renders and also ARDEX's standard cement-based adhesives.

Materials - Tile adhesives

2.6 ARDEX ABAFLEX
High performance, flexible, polymer modified, cement based floor and wall adhesive for Ceramic,Porcelain,and large format tiles.

2.7 ARDEX X52
Rubber modified cementitious floor and wall adhesive, where minimal movement is anticipated, for Ceramic and Porcelain tiles.

2.8 ARDEX X10
Flexible, non-slump, polymer fortified, cement based floor and wall tile adhesive, with mastic properties, for Ceramic, Porcelain, glass Mosaic tiles and some stones.

2.9 ARDEX D2
High performance, non slump, water resistant dispersion, mastic wall adhesive, for porous Ceramic and Mosaic tiles.
High performance shear adhesion and non slump characteristics. Suitable for porous tiles and porous substrates only.

2.10 ARDEX S16
Rapid drying, interior, cement based floor and wall adhesive with ARDEX Rapidry Formula Technology, particularly suitable for natural stone, and floor tiling.
Ready to grout after 2 to 3 hours.

Materials - Sealants - grouts

2.11 SEALANTS
Ardex SE Acetic cure, for movement joints within a tiling system.
Ardex ST Neutral cure, for bond breakers or movement joints within a tiling system.

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Sealants and back-up materials as described in clause 2.7 of AS 3958.1 and clause 9.18 of AS 3740.
Colours match some grout colours

2.12 ARDEX GROUTS
Ardex FG8 for joints 1mm to 8mm wide, for wet areas mixed with groutbooster polymer.
Ardex FSDD non-scratch, fine sanded grout for joints 1 - 4mm.
Ardex MG Rapid Drying (90 minutes) Marble and moisture sensitive Natural Stone.
Ardex WA Easy to use Epoxy Grout and Adhesive, for joints 2mm to 12mm wide.
Ardex WJ50 for joints 2mm to 50mm wide.

2.13 ARDEX GROUT BOOSTER
A water-based, synthetic polymer grout additive formulated for use with cement-based grouts for improved adhesion strength, flexibility and abrasion resistance.

Components

2.14 STRIPS AND WEATHERBARS
Unless otherwise specified tile trim, edge strips, floor finish divider strips and weather bars shall be aluminium.

2.15 EXPANSION JOINT, METAL AND RUBBER
Clear anodised aluminium/brass with metal anchor to set into in-situ concrete, cement screed/bed and complete with rubber infill.

2.16 EXPANSION JOINT, METAL AND COMPOUND
Aluminium/brass angles with high density foam rubber insert and jointing compound.

2.17 EXPANSION JOINT, PLASTIC
Rigid stabilised PVC sides with flexible central section, for external corners within a tiling system.

3. EXECUTION

General

3.1 HANDLING AND STORAGE
Take delivery of packets of tiles undamaged and dry. Handle tiles with care to avoid chipping, soiling and damage. Store on hard level standings in non-traffic, non-work areas that are enclosed, clean and dry.

3.2 CHECK TILES
Check tiles to ensure that they are as specified, from the same batch, of a consistent colour and pattern and sufficient to complete the work. Reject tiles that vary widely in colour or pattern. Reject tiles that are damaged.

3.3 CONFIRM LAYOUT
Before commencing work confirm the proposed layout of tiles and expansion joints and other visual considerations of the finished work.

3.4 SETTING OUT
Before commencing the setting out confirm the number and location of cut tiles. Minimise in number with no cut tiles less than half size and only at the perimeter of the work.

3.5 PREPARATION OF BACKGROUNDS
Prepare backgrounds in accordance with AS 3958.1, section 4 and to the manufacturer's instructions for the selected substrate. See also the Ardex Flooring Solutions manual by visiting www.ardex.co.nz/

Conditions

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3.6 SERVICES AND ACCESSORIES
Ensure that all services and accessories are in place and located to suit the tile layout and that the substrate, background and adjoining surfaces (with the preparation called for in this section) are of the quality necessary to allow tiling of the required standard.

3.7 DO NOT START
Do not start laying tiles until concrete floors are cured, moisture content of floors is such that shrinkage is complete, thermal movement has been accommodated and the levels and surface finish will allow for tile laying of the required standard.

3.8 SUBSTRATE TEMPERATURE
Do not carry out tiling where the substrate temperature is below 5°C or above 40°C.

3.9 MOISTURE CONTENT
Ensure the floor is dry and if in doubt check for moisture content by hygrometer. Do not proceed with tiling work until readings for the whole area show 75% relative humidity or less.

Application

3.10 APPLICATION GENERALLY
Prepare backgrounds as described in AS 3958.1, Section 4. Suitably prepare backgrounds and substrates to the manufacturer's instructions to receive the bedded finish. Remove all dirt, dust, grease, oil, loose particles and any other form of contamination or deleterious material. Ensure that substrates are sound and dry.

Installation to be in accordance with AS 3958.1, Section 5, including setting out, fitting, movement joints, sealants, tile finish and joints, and grouting.

3.11 BACKGROUND MATERIALS
Ensure that the installation of background materials and substrate materials meets relevant standards and the manufacturer's instructions. Inspect background and substrate materials for any conditions unsuitable for tiling over. Do not commence work until the affected area is rectified. Confirm any specific preparation required for the adhesive being used.

Waterproofing

3.12 WET AREA WATERPROOFING
Provide waterproofing to wet areas as described in AS 3740.

Material:	Refer to SELECTIONS
Locations:	Extent of wet areas as described in AS 3740 and as shown on the drawings.
Installation:	Supply and install waterproofing membrane to the manufacturer's recommendations by an Ardex approved Superflex waterproofing applicator.

Screed

3.13 SCREED
Install as described in AS 3958.1, appendix A.

Preparation:	Apply a slurry coat to background of 3:2 by volume of cement to Abacrete, to improve adhesion.
Mixing:	For screeds mix 21 litres of diluted Abacrete (1:3 by volume, Abacrete to water) with 40kg of Portland cement and 120kg of clean sand. Apply screed while slurry coat is still damp.
Thickness:	Reinforce as per AS 3958.1 if over 40mm thick. Minimum screed thickness is 15mm with Abacrete.
Tiling over:	Allow at least 7 days after screeding before tiling over, unless using X77 or X78 in which case tiling can commence after 16 hours.

3.14 CEMENT RENDER
Prepare surfaces, mix and apply as described in AS 3958.1, Appendix B.

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Cement render:	Apply slurry coat and render coat to required thickness.
Slurry coat:	3:2 by volume of cement to Abacrete.
Render coat:	Mix 27 litres of diluted Abacrete (1:3 by volume, Abacrete to water) with 40kg of Portland cement and 120kg of clean sand. Apply render while slurry coat is still damp. Apply renders up to 13mm thick in the normal manner. For renders over 13mm contact Ardex before proceeding.
Tiling over:	Allow at least 7 days after rendering before tiling over, unless using X77 in which case tiling can commence after 16 hours.

Tiling

3.15 ADHESIVE APPLICATION METHODS

Ensure that the whole of the back of the tile is in good contact with the adhesive with no voids. Remove a tile periodically during installation to ensure correct coverage. Do not fix tiles over skinned adhesive.

Notched trowel method

- Adhesive application to be as described in AS 3958.1, clause 5.6.2(a). Notched trowel sizes shall be 4.5mm x 4.5mm x 4.5mm (mosaics) 6mm x 6mm x 6mm, 10mm x 10mm x 10mm, 12mm x 12mm x 12mm. Use an appropriately notched trowel to achieve full coverage.

Buttering method

- Adhesive application to be as described in AS 3958.1, Clause 5.6.2(c).

Tiles in awkward locations

- The buttering method may be required, or fixing might be necessary to achieve full bedding, even though the notched trowel method is used generally.

3.16 SETTING OUT

Setting out, cutting and fitting of tiles to be as described in AS 3958.1, clauses 5.4.2 and 5.4.3. Set out tiling as shown on the drawings. Confirm bond and pattern before installing. Provide even and correct falls to floor tiles where required, including falls to floor wastes. Ensure that a level finish is provided at wall lines. Where falls are not required ensure that the tiles are laid level.

3.17 TILE FINISH AND JOINTS

Provide tile finish and joints, including tolerances, as described in AS 3958.1, clause 5.4.6. Joint widths to be suited to tile and to the manufacturer's instructions.

3.18 MOVEMENT JOINTS

Provide movement joints as described in AS 3958.1, clause 5.4.5 and AS 3740, clause 8.5.

Depth:	Movement joints to go right through the tile and bed to the background.
Width:	Minimum 6mm.
Corner locations:	In wall tiling at internal vertical corners; in floor tiling at walls, columns, nibs, hobs and similar.
Interruptions:	Around sanitary fixtures, around fixtures interrupting the tile surface; at junctions with joinery fixtures, including window and door frames and built in cupboards; at changes in substrate or background.
Large areas:	In floor tiling provide joints at not less than 4.5 metres spacing in both directions and 3.5 metres externally. In wall tiling provide vertical joints at not less than 3.5 metres spacing along the length of a wall. In wall tiling, provide horizontal joints at each story rise in the height of a wall. Over all existing expansion joints.

3.19 GROUTING

Grout tiling to AS 3958.1, clause 5.7.

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3.20 SILICONE
Apply Ardex SE acetic cure or Ardex ST neutral cure silicone to movement joints between tiles, and at junctions to tiled walls and tiled floors. The silicone should only be fixed to two surfaces to allow movement. On flat joints use a polyethylene tape or release agent and on floor to wall joints greater than 10mm deep use a backing rod.

Completion

3.21 REPLACE
Replace damaged tiles or elements.

3.22 CLEANING
Upon completion of setting and grouting, thoroughly sponge and wash the tiles to leave them completely clean and without blemish. Finally polish glazed tiles with a clean dry cloth.

3.23 LEAVE
Leave work to the standard required by following procedures.

3.24 REMOVE
Remove debris, unused materials and elements from the site.

3.25 PROTECT TILES
Protect tiles from damage. Ensure tiles are not disturbed by foot traffic for at least 24 hours after laying and after grouting. Provide protection to tiles by laying sheet material such as insulating board for the period between completion of laying and completion of the contract works.

4. SELECTIONS
Substitutions are not permitted to the following, unless stated otherwise.

4.1 CERAMIC TILES

Location:	~
Supplier/Manufacturer:	~
Pattern/number:	~
Colour:	~
Edging:	~

4.2 PROVIDE SPARE TILES

Tile:	~
Number of tiles:	~

Systems Ardex typical application selections

4.3 RESIDENTIAL FLOORS AND WALLS ON CONCRETE OR CFC SHEET

Primer:	Ardex Multiprime
Screeding compound:	Ardex A46
Levelling compound:	Ardex LQ92 (for use with heating elements)
Waterproofing:	Ardex Superflex WPM 001 or WPM 002
Tile adhesive floors:	Ardex Abaflex or Ardex X52
Tile adhesive walls:	Ardex D2 or X10
Grout/colour:	Ardex FSDD 1 - 4mm, Ardex FG8 4 - 8mm with Ardex Grout Booster
Silicone/colour:	Ardex SE or Ardex ST

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6700 PAINTING GENERAL

1. GENERAL

This section relates to the general matters related to painting work

1.1 RELATED WORK
Refer to 6711 PAINTING EXTERIOR for exterior paint systems.
Refer to 6721 PAINTING INTERIOR for interior paint systems.

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

APAS	Australian Paint Approval Scheme
MPNZA	Master Painters New Zealand Association Inc.
VOC	Volatile organic compound

Documents

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

NZBC C/AS1-AS7	Protection from fire
AS/NZS 2311	Guide to the painting of buildings
AS/NZS 2312.1	Guide to the protection of structural steel against exterior atmospheric corrosion by the use of protective coatings - Paint Coatings
AS/NZS ISO 9001	Quality management systems - requirements
WorkSafe NZ	Guidelines for the provision of facilities and general safety in the construction industry
WorkSafe NZ	Guidelines for the management of lead-based paint
MPNZA	Specification manual
MPNZA	Painters hazard handbook
Health and Safety at Work Act 2015	

1.4 MANUFACTURER'S DOCUMENTS
Manufacturer's and supplier's documents relating to work in this section are:
~

Copies of the above literature are available from ~

Web:	~
Email:	~
Telephone:	~

Requirements

1.5 NO SUBSTITUTIONS
Substitutions are not permitted to any specified manufacturer's system, or associated components and products.

1.6 QUALIFICATIONS
Painters to be a member of MPNZA and experienced competent workers, familiar with the materials and the techniques specified.

1.7 HEALTH AND SAFETY
Refer to the requirements of the Health and Safety at Work Act 2015 and WorkSafe NZ: Guidelines for the provision of facilities and general safety in the construction industry. If the elimination or isolation of potential hazards is not possible then minimise hazards in this work on site by using the proper equipment and techniques as required in the MPNZA Painters hazard handbook. Supply protective clothing and equipment. Inform employees and others on site of the hazards and put in place procedures for dealing with emergencies.

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Refer to WorkSafe NZ: Guidelines for the management of lead-based paint for the required procedures and precautions when:
- treating/removing lead-based paint
- burning off paint
- sanding off paint
- using solvent based paint removers.

1.8 MATERIAL SAFETY DATA SHEET
Obtain from each paint manufacturer the material safety sheet for each product used. Keep sheets on site and comply with the required safety procedures.

Warranties

1.9 WARRANTY
Warrant this work under normal environmental and use conditions against failure.
2 years: Warranty period

Refer to the general section 1237WA WARRANTY AGREEMENT for the required format and details of when completed warranty must be submitted.

Performance

1.10 MANUFACTURER'S INSPECTION
Allow the paint manufacturers to inspect the work in progress and to take samples of their products from site if requested.

1.11 INSPECTION OF WORK
Inspection of the whole of the work at each of the stages scheduled may be made. Agree a programme that will facilitate such inspection, including notification when each part and stage of the work is ready for inspection.

2. PRODUCTS

Materials

2.1 PAINT TYPES
Use the manufacturer's complete system and only the products specified.

2.2 MATERIALS GENERALLY
Use only the Manufacturer's products which are guaranteed for their consistency and performance under AS/NZS ISO 9001 and APAS approval, prepared, mixed and applied as directed in the Manufacturer's specification sheets, specification manuals and product data sheets.

2.3 THINNERS AND ADDITIVES
Only use thinners or additives within the stated limits for the particular situations specified.

Accessories

2.4 FILLERS
For recommendations on; fillers, stopping, paint strippers, cleaning agents, etching solutions, mould inhibitors, rust inhibitors, knotting and other commodities used for the surface preparation, refer to the manufacturer of the specified coating.

3. EXECUTION

Conditions

3.1 EXECUTION
To conform to manufacturer's requirements and those methods, practices and techniques contained in AS/NZS 2311, the MPNZA Specification manual, and WorkSafe NZ: Guidelines for the provision of facilities and general safety in the construction industry.

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3.2 PREPARE
Prepare surfaces to the coating manufacturer's requirements.

3.3 COATED SURFACES
Ensure that substrate surfaces are able to achieve the specified finish.

3.4 PRE-PRIMED SURFACES
Sand down any breakdown or damage of the primer to a sound surface and immediately re-prime.

3.5 BRUSH DOWN
Brush down surfaces immediately before application, to remove dust, dirt and loose material.

3.6 COMPATIBILITY
Check that materials are as required by the paint manufacturers for the particular surface and conditions of exposure, and that they are compatible with each other. Use paint from the same manufacturer for each paint system. If not compatible, obtain instructions before proceeding.

3.7 TREATED SURFACES
Where surfaces have been treated with preservatives or fire retardants, check with the treatment manufacturer that coating materials are compatible with the treatment and do not inhibit its performance. If they are not compatible, obtain instructions before proceeding.

3.8 ANCILLARY SURFACES
The coatings listed in schedules and elsewhere are of necessity simplified. Coat ancillary exposed surfaces to match similar or adjacent materials or areas, except where a fair-faced natural finish is required or items are completely prefinished. In cases of doubt obtain instructions before proceeding.

3.9 HARDWARE
Do not paint hinges or hardware that cannot be removed. If items can be removed, carefully remove hardware, fixtures and fittings before commencing work. Set aside where they cannot be damaged or misplaced and replace on completion.

3.10 PROTECTION
Use dropsheets, coverings and masking necessary to protect adjoining fixtures, fittings and spaces from paint drops, spots, spray and damage.

Preparation - unpainted and pre-primed timber and wood based products

3.11 MOISTURE CONTENT
Ensure moisture content at the time of application is near to the equilibrium moisture content pertaining to the particular locality in which the timber is used, without any excessive moisture content gradient between core and surface.

3.12 PREPARING DRESSED TIMBER
Ensure dressed timber is smooth, free from raised or woolly grain, planing burrs or other machining defects. Slightly round or ease sharp edges to ensure they can be properly coated. Sand timber to bring up to a smooth finish along the direction of the grain. Sand timber back to new condition timber that has been weathered.

3.13 PREPARING ROUGH SAWN TIMBER
Thoroughly brush along the direction of the grain to remove dust and dirt.

3.14 PREPARING PRE-PRIMED TIMBER
Check pre-prime coat for damage, powdering, weathering or loss of adhesion. Where primer is sound, thoroughly brush along the direction of the grain to remove dust and dirt. If there is doubt, sand back and re-prime.

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3.15 TIMBER SPECIES
Check that the preparation and paint system is suitable for the timber species.

3.16 PREPARING DAMAGE AND DEFECTS
Scrape clean loose or soft material holes, depressions, resin or gum pockets, knot holes, surface splits, checks, or any localised decay. Apply primer and/or sealer specified and fill these areas with linseed oil putty or other appropriate filler.

3.17 FIXINGS
Take timber fixings below the painted or clear finished surface. Leave corrosion resistant timber fixings flush with clear finished surfaces.

3.18 CLEANING
Remove grease and oil by wiping down with solvent or water-based degreasing agent. Remove resin by wiping down with solvent or water-based degreasing agent or heating and scraping. Remove sanding dust. Bad staining may be untreatable and require replacement of timber, discuss with paint manufacturer and main contractor.

Preparation - unpainted masonry

3.19 PREPARING BRICKS
Remove loose dirt, sand, aggregate and mortar by brushing down or blocking-off surface with a flat stone, hose with clean water. Fill holes with mortar/acrylic based filler. Remove efflorescence by dry brushing with a stiff bristle brush. Brickwork that has been acid cleaned shall have the pH tested to ensure it is neutralized before painting.

3.20 PREPARING CONCRETE
Remove grease and formwork oil with solvent or water and household detergent. Wash with clean water and allow to dry. Fill unwanted holes with cement grouting and allow to cure. Remove loose surface material and surface projections with a flat stone. Roughen slightly dense or glazed surfaces with light (30 mesh) sandblasting, rubbing with coarse abrasive stones, or by wetting the surface and treating with 10% commercial hydrochloric acid solution. Allow to react for 5 minutes, scour surface with a stiff bristle brush, wash off with clean water and allow to dry. Remove efflorescence by dry brushing or by wetting the surface and treating with 10% commercial hydrochloric acid solution as above.

Remove dust and dirt by brushing, air blast, hosing, or scrubbing as may be necessary.

3.21 PREPARING CEMENT PLASTER
Ensure surface is adequately cured and dry. Treat mould with one part sodium hypochlorite household bleach to three parts clean water solution or a proprietary anti-mould solution, and allow to dry. Remove efflorescence by brushing only.

3.22 PREPARING CONCRETE MASONRY
Remove loose dirt, sand, aggregate and mortar by brushing down or blocking-off the surface with a flat stone or hardwood block. Fill holes with mortar or acrylic based filler. Treat mould with one part sodium hypochlorite household bleach to three parts clean water solution, or a proprietary anti-mould solution, and allow to dry.

Remove efflorescence by dry brushing or by wetting the surface and treating with 10% commercial hydrochloric acid solution. Allow to react for 5 minutes, scour the surface with a stiff bristle brush, wash off with clean water and allow to dry.

Remove dust and dirt by brushing, air blast, hosing or scrubbing.

Preparation - gypsum plaster

3.23 PREPARING GYPSUM PLASTER
Fill and sand small crevices and cracks. Surface moisture content not to exceed 12% at time of coating.

Preparation - unpainted linings

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3.24 PREPARING FIBROUS PLASTER
Check for and remove release agents and other contaminants by washing with soap, water or solvent and allow to dry. Fill cracks and surface imperfections with patching plaster and lightly sand smooth. Remove dust.

3.25 PREPARING PLASTERBOARD
Check that joints are prepared to a smooth level surface finish. Fill cracks and surface imperfections with the sheet manufacturer's required stopping compound and lightly sand smooth. Remove dust.

Preparation - painted surfaces generally

3.26 SURFACE PREPARATION
Refer to the Manufacturer's specification sheets and product data sheets. Carry out the preparatory work required by them for each of the substrates.

For interior surfaces such as paper faced plasterboard use the Manufacturer's recommended finishing compound as an aid to achieving a Level 5 finish.

3.27 MOULD
Sterilise surface mould by washing or sponging the whole surface with a one part sodium hypochlorite household bleach to three parts clean water solution. Allow bleach to act for 30 minutes and wash off with clean water. Wash cloths and sponges regularly in clean water. Reapplication may be necessary. Treat with anti-mould solution to the treatment manufacturer's requirements.

3.28 GAP FILLING
Fill cracks, holes, indented and damaged surfaces with putty, plaster filler, wood filler, or plastic wood, as appropriate and in accordance with the paint manufacturer's requirements. Allow to dry or set before sanding back level with the surface. Prime coat or seal the timber before using putty. Wet cement or gypsum base plasters before applying filler. Use only Portland cement base types, or water-insoluble organic-based gap fillers in exterior or wet areas.

Preparation - painted surfaces in good condition

3.29 PREPARING SURFACES
Wash down surfaces with either:
- a chlorine based solution; or
- 5-10 millilitres of ordinary household detergent to 1 litre of warm water; or
- a solution of 30 grams of trisodium phosphate to 1 litre of water

Replace solutions frequently and finally wipe over a second time with a clean absorbent cloth.

For surfaces containing heavy smoke and grease deposits, wash down with either:
- mineral turpentine; or
- a 5% solution of ammonia; or
- a 1:40 solution of sugar soap and water

as necessary to remove the deposits. Wipe over with a clean absorbent cloth.

Prepare coatings which have chalked by sanding, brushing, waterblasting or other methods as appropriate.

Lightly sand glossy surfaces to ensure good adhesion of the coatings.

Application - before applying final coatings

3.30 OFF-SITE WORK
Carry out off-site preparation and coating under cover, in a suitable environment and with adequate lighting. Store items both before and after coating in a clean, dry area, protected from the weather and mechanical damage, properly stacked and spaced to permit air circulation and to prevent sticking of surfaces.

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3.31 PRIMING JOINERY
Before priming preservative treated timber ensure that any cut surfaces have been retreated. Liberally coat end grain, allow to soak in and then recoat. Ensure LOSP treated joinery has dried sufficiently to lose odour.

3.32 CONCEALED JOINERY SURFACES
Apply off-site coatings to all surfaces including those which will be concealed when incorporated into the building.

3.33 CONCEALED METAL SURFACES
Apply primer to suit the coating system to all metal surfaces which will be concealed when incorporated into the building.

3.34 DOORS
Prime or seal and paint all six faces of doors before hanging.

3.35 BEAD GLAZING
Before glazing apply the first two coats, or the primer and one undercoat, to rebates of stained, varnished or painted joinery and beads.

3.36 PUTTY GLAZING
Follow putty manufacturers recommendations for application, drying, and painting. Ensure that the putty is fully protected by the coating system as soon as it is sufficiently hard.

Application - generally

3.37 PAINTING GENERALLY
Comply with the paint manufacturer's requirements and any additional requirements in this specification.

3.38 MIXING
Thoroughly mix paints. Lift any settled pigment and ensure the paint is homogenous.

3.39 ENVIRONMENT
Paint exterior surfaces only in favourable weather conditions:
- warm dry days without frost or heavy dews
- avoid painting in direct sunlight any surfaces that absorb heat excessively
- as far as possible apply paint in the temperature range 15°C to 25°C
- do not paint if temperatures fall outside the range of 10°C and 35°C unless paints with the necessary temperature tolerance have been specified
- do not apply solvent borne paint if moisture is present on the surface

3.40 SEQUENCE OF OPERATIONS
Painting work to generally follow the following sequences:
- complete surface preparation before commencing painting
- apply paint in the specified sequence using the specified paint
- allow full drying time between coats to the paint manufacturer's requirements
- do not expose primers, undercoats and intermediate coats beyond manufacturers stated instructions before applying the next coat
- finish broad areas before painting trim
- ensure batch numbers of tins are matched for whole areas
- internally, paint ceilings before walls and walls before joinery, trim and other items

3.41 PAINT APPLICATIONS
Select brush, roller, or pad and apply paint to the requirements of the paint manufacturer and to obtain a smooth even coating of correct thickness, uniform gloss and colour.

3.42 DRYING TIME
Before handling or applying the next coat of paint, give each coat the full drying time as required by the paint manufacturer. Ensure that surfaces are dry and that condensation does not occur before the paint reaches surface-dry condition.

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3.43 LIGHTLY SAND
Lightly sand primers, sealers, undercoats and intermediate coats to remove dust, pick up, protruding fibres and coarse particles. Remove dust immediately before applying the next coat.

3.44 DEFECTIVE WORK
Correct defective work immediately and re-coat as required, following precisely the paint system specified.

3.45 EACH COAT
Each coat of paint and the completed paint system to have the following qualities and properties:
- uniform finish, colour, texture, sheen and hiding power
- the specified number of coats applied
- no blemishes such as runs, sags, crinkling, fat edges, entrained paint skins, hairs, dust, bare or starved patches, cracks, brush marks, ladder marks and blistering
- proper covering of corners, crannies, thin edges, cracks, end grain and other difficult places of application

Completion

3.46 CLEAN
Clean adjoining surfaces, glass and fittings of any paint contamination. Clean off glass indicators at completion of the building works. Clean glass inside and out to a shining finish.

3.47 CLEAN EQUIPMENT
Use the Manufacturer's environmental wash system for the cleaning of water-based paint and plasters from brushes, rollers, plastering or spray equipment to separate the solids from the water component for safe disposal.

3.48 LEAVE
Leave the whole of this work uniform in gloss and colour, of correct thickness, free from painting defects, clean and unmarked and to the standard required by following procedures.

3.49 REMOVE
Remove dropsheets, coverings and masking to leave surrounding surfaces and areas clean, tidy and undamaged. Remove debris, unused materials and elements from the site.

3.50 REPLACE HARDWARE
Replace hardware without damage to it or the adjoining surface. Leave properly fitted and in working order.

4. SELECTIONS

4.1 SELECTIONS
Refer to 6711 PAINTING EXTERIOR and 6721 PAINTING INTERIOR for selections.

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7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES

1. GENERAL

This section relates to the supply and installation of sanitary fixtures, tapware and sanitary accessories.

1.1 RELATED WORK
Refer to 7120 or 7123 HOT AND COLD WATER SYSTEM for hot water cylinders.
Refer to 7420 or 7421 SANITARY SYSTEMS for the supply and fitting of waste disposal pipework
Refer to the electrical section/s for electrical connection of accessories.

Documents

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

NZBC E3/AS1	Internal moisture
NZBC F2/AS1	Hazardous building materials
NZBC G1/AS1	Personal hygiene
NZBC G12/VM1	Water supplies
NZBC G12/AS1	Water supplies
NZBC G13/AS1	Foul water
NZBC G13/AS3	Plumbing and drainage
AS/NZS 1730	Washbasins
AS/NZS 2023	Baths for ablutionary purposes
AS/NZS 3500.1:2003	Plumbing and drainage - water services
AS/NZS 3500.2:2003	Plumbing and drainage - sanitary plumbing and drainage
AS/NZS 3662	Performance of showers for bathing
NZS 4223.3	Glazing in buildings - Human impact safety requirements
Plumbers, Gasfitters and Drainlayers Act 2006	

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

1.3 MANUFACTURER'S DOCUMENTS
Manufacturer's and supplier's documents relating to work in this section are:
~

Copies of the above literature are available from ~
Web: ~
Email: ~
Telephone: ~
Facsimile: ~

Requirements

1.4 QUALIFICATIONS
Plumbers to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a Certifying Plumber under the Plumbers, Gasfitters and Drainlayers Act 2006.

1.5 SUPPLIER
A specialist in the supply of tapware, and employing experienced architectural representatives available to assist during the course of the installation.

1.6 SUBMIT A SUPPLIER'S SCHEDULE
~

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2. PRODUCTS

2.1 SANITARY FIXTURES
Refer to SELECTIONS for product selection.

2.2 TAPWARE
Refer to SELECTIONS for product selection.

2.3 SANITARY APPLIANCES
Refer to SELECTIONS for product selection.

2.4 SANITARY ACCESSORIES
Refer to SELECTIONS for product selection.

2.5 ELECTRICAL SANITARY ACCESSORIES
Refer to SELECTIONS for product selection.

3. EXECUTION

Conditions - sanitary fixtures

3.1 DELIVERY
Only deliver to the site fixtures or fittings that can be immediately unloaded into suitable storage or be placed for direct installation.

3.2 STORAGE AND HANDLING
Take delivery of and store components complete with protective casings and coverings in areas that are enclosed, clean and dry and where no work is being done. Remove protection only to the extent that will allow installation.

3.3 QUALITY STANDARDS INCLUDING NZBC G13/AS1
Installation work to comply with NZBC G1/AS1, NZBC G12/VM1, NZBC G12/AS1, NZBC G13/AS1 and the fixture manufacturer's requirements.

3.4 SUBSTRATE
Ensure substrate and fixings will allow work of the specified standard.

3.5 CO-ORDINATION
Do not proceed if the points of supply and drainage services do not match the points of the fixtures without force or distortion.

3.6 INSTALLATION REQUIREMENTS INCLUDING NZBC G13/AS1
Install to NZBC G1/AS1, NZBC G12/VM1, NZBC G12/AS1, NZBC G13/AS1, NZBC E3/AS1 and to the fixture manufacturer's installation requirements for each component.
Carry out preparatory and assembly work, including connections to supply and drainage services and the application of slurries and sealants in sequence.
Seal between all sanitary fixtures and wall linings, fixtures and the tops they are in, the tops and wall linings, to NZBC E3/AS1, 3.2.2. Fixtures include baths, basins, tubs or sinks, Tops include, vanities, bath surrounds, sink benches, etc, and there upstands.

3.7 PROVIDE SUPPORT
Confirm fixing points needed for each unit and provide solid blocking at each fixing bracket location.

Conditions - tapware

3.8 RETAIN
Retain tapware in the manufacturer's original packaging and ensure that units are complete with fixings and installation instructions. Label each unit separately with its fitting name and space number.

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3.9 STORE
Store tapware packages in a shelved, dry and securely locked area. Provide supervision when the secure area is unlocked and packages and cartons are being distributed; signing off each package from the schedule as released.

Conditions - sanitary accessories

3.10 RETAIN
Retain fixtures, fittings and hardware in the manufacturer's original packaging and ensure that units are complete with associated fixings and installation instructions. Label each unit separately to match the submitted and approved schedule.

3.11 PACKAGE
Package fixtures, fittings and hardware units required in clear plastic and label each to match the drawings and the submitted schedule. Place packages in cartons selected for 'level', 'location', and/or 'sector' and label the packages and the cartons similarly.

3.12 STORE
Store items in a shelved, dry and securely locked area. Provide supervision when the secure area is unlocked and packages and cartons are being distributed; signing off each package from the schedule as released.

3.13 INSPECTION
Before starting the installation of proprietary items, check relevant spaces and wall and floor finishes for any condition that would not allow the proper installation of any unit. Do not proceed until such conditions have been remedied.

Installation - sanitary fixtures

3.14 INSTALLING TOILET PAN
Carry out preparatory and assembly work, including connections to supply and drainage services and the application of slurries/bedding and sealants in sequence. Fit the toilet pan in position, plumb, level, flush and rigid without stressing the attachment points of the component. Fixings to be corrosive resistant. Fit seat.

3.15 INSTALLING CISTERNS
Fit firmly in place and connect the specified cisterns from the supply services through the flush pipes to the relative fixtures in the positions as detailed all plumb and level.

Installation - Basins

3.16 INSTALLING WASHBASINS
Install to NZBC G1/AS1, AS/NZS 1730. Set basins firmly to walls or vanities as detailed and to comply with NZBC E3/AS1. Connect to supply and drains through trap to the drainage system.

3.17 INSTALLING VANITIES - INTEGRAL BASINS
Install in accordance with the manufacturer's requirements. Connect to supply and drains through trap to the drainage system. Seal top and upstand to wall surface to comply with NZBC E3/AS1.

Installation - Showers

3.18 INSTALLING SHOWER FITTINGS
Shower waste, mixer and rose to be install to NZBC G1/AS1 and to AS/NZS 3662.

Installation - Baths

3.19 INSTALLING BATHS
Install to NZBC G1/AS1. Set firmly in cradle with required points fully supported, level and flush. Connect to supply and drainage services.

Installation - Sinks

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3.20 INSTALLING CLEANERS SINKS AND TUB UNITS
Install in accordance with manufacturer's requirements. Connect to supply and drainage services.

Installation - Miscellaneous

3.21 INSTALLING STAINLESS STEEL FIXTURES
Carry out preparatory work and fit elements in position plumb, level, flush and rigid without stressing the attachment points in sequence. Connect to supply and drainage services.

Application - tapware

3.22 GENERAL
To AS/NZS 3500.1 dated 2003 and in accordance with the manufacturer's requirements. Maintain safe water temperatures to comply with NZBC G12/AS1.

Application - sanitary accessories

3.23 INSTALLING ACCESSORIES
Fit specified fittings firmly in place at required dimensions relative to floor and adjoining sanitaryware fittings, all plumb and level.

3.24 LOCATE
Locate units at heights and/or locations shown on the drawings, or as required to comply with NZBC G1/AS1. For any dimension not shown or known, request direction before proceeding.

3.25 CUTTING AND FITTING
Where cutting and fitting of the substrate is necessary for installing any unit, carry out this work before the painting or finishing of that surface. Remove any hardware when required for painting, placing it in the packaging or carton originally supplied and returning it to the secure store until ready for re-installation.

3.26 INSTALLING UNITS
Install each unit in accordance with the proprietary fixture manufacturer's requirements, using the templates and tools supplied or recommended by them. Set units level, plumb and true to line and required location, with moving parts and actions freely and easily operating. Do not make any modifications to supplied units.

Completion

3.27 REPLACE
Replace damaged or marked elements.

3.28 PROTECTIVE COVERINGS
Leave fixtures, fittings and accessories clean and unblemished with stickers and protective coverings removed, with supply and drainage connections and all parts fully operating and working. Leave the whole of this work free of blemishes, undamaged and to the standard of finish required for following work.

3.29 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS

4.1 TOILET
Location: ~
Toilet pan: ~
Trap type: ~
Toilet seat: ~
Flush system: ~

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Isolating valve: ~

4.2 BASIN
Location: ~
Basin: ~
Basin taps/mixer: ~
Waste/plug: ~
Trap: ~
Isolating valves: ~

4.3 VANITY UNIT - INTEGRAL BASINS
Location: ~
Vanity: ~
Colour: ~
Taps/mixer: ~
Waste/plug: ~
Trap: ~
Isolating valves: ~

4.4 BATH
Location: ~
Bath model: ~
Bath taps/mixer: ~
Bath spout: ~
Bath/shower set: ~
Bath/ shower screen: ~
Waste/plug: ~
Trap: ~
Accessories: ~

4.5 LAUNDRY TUB
Location: ~
Tub model: ~
Taps: ~
Machine taps: ~
Isolating valves: ~
Waste/plug: ~
Trap: ~

4.6 TAPWARE - MISCELLANEOUS
Taps not related to and separate from sanitary fixtures:

Hose tap external: ~
Dishwasher: ~
Washing machine: ~

4.7 SANITARY APPLIANCES
Dishwasher: ~
Waste disposal unit: ~
Washing machine: ~

4.8 SANITARY ACCESSORIES
Location: ~
Roll holder: ~
Towel rail: ~
Towel ring: ~
Hooks: ~
Toothbrush holder: ~
Soap dispenser: ~
Wall cabinet: ~

4.9 ELECTRICAL SANITARY ACCESSORIES
Location: ~

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Heated towel rail: ~
Hair dryer: ~
Hand dryer: ~
Finish: ~

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7212 GAS SYSTEM LPG CYLINDERS

1. GENERAL

This section relates to Installation and maintenance of a 45kg LPG twin cylinder system and associated piping systems.

1.1 RELATED WORK
Refer to ~ for ~

1.2 ABBREVIATIONS AND DEFINITIONS
Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.
The following abbreviations apply specifically to this section:

WorkSafe:	WorkSafe New Zealand.
HSNO:	Hazardous Substances and New Organisms Act 1996.
LPGA	LPG Association of New Zealand Inc.

The following definitions apply specifically to this section:

Condensate:	The liquid that separates from the gas downstream of any regulator due to the reduction in temperature resulting from pressure reduction.
Condensate trap:	(also known as a drip leg or tailpipe) a device installed in a gas line to trap the condensate liquid
Enclosure:	A compartment, an enclosed area or a partitioned-off space primarily used for the installing of a gas cylinder meter, or gas pressure regulator.
LAB number:	Number allocated by WorkSafe when a cylinder is approved.
POL fitting:	(Prest-O-Lite) The common name given for a standard union with left hand thread, used for connection to a 45 Kg cylinder.
Pigtail:	A short length of flexible tube or copper pipe completed with end couplings. Use for connecting the cylinder to the manifold or the changeover valve.
Twin cylinder installation:	A cylinder installation where two cylinders are connected separately to the system. Each cylinder is connected to a change over valve that can be operated manually or automatically, to change over the cylinder which is supplying LPG to the installation. Connection may be made using flexible rubber or copper pigtails, or pipe fittings.

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

NZBC G10/AS1	Piped services
NZBC G11/AS1	Gas as an energy source
AS/NZS 1596	The storage and handling of LPG.
AS/NZS 4129	Fittings for polyethylene pipes for pressure applications
AS/NZS 4130	Polyethylene (PE) pipes for pressure applications
AS 4176	Polyethylene/aluminium and cross linked polyethylene/aluminium macrocomposite pipe systems for pressure applications
AS/NZS 5601.1: 2010	Gas Installations - general installations
LPGA CoP No.2	Installation and maintenance of twin 45kg cylinder systems

Electricity (Safety) Regulations 2010
Gas (Safety and Measurement) Regulations 2010
Plumbers, Gasfitters and Drainlayers Act 2006

1.4 MANUFACTURER/SUPPLIER DOCUMENTS
Manufacturer's and supplier's documents related to this section are:
~
Manufacturer/supplier contact details

Company:	~
Web:	~
Email:	~

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Telephone: ~

Warranties

1.5 WARRANTY - INSTALLER/APPLICATOR
Provide an installer/applicator warranty:
2 years: For the complete gas system

- Provide this warranty on the installer/applicator standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 COMPLY
Comply with the Gas (Safety and Measurement) Regulations 2010 and Electricity (Safety) Regulations 2010.

1.7 QUALIFICATIONS
Work to be carried out by gasfitters experienced, competent and familiar with the materials and techniques specified. Carry out all work under the direct supervision of a certifying gasfitter under the Plumbers, Gasfitters and Drainlayers Act 2006.

1.8 ACCEPTABLE PRODUCT/MATERIAL SUPPLIERS
Where a product or material supplier is named in SELECTIONS, the product/material must be provided by the named supplier. Where more than one named supplier, any one of the named suppliers will be acceptable.

1.9 DESIGN
Design the piping system to AS/NZS 5601.1, with pipe sizes to give a minimum pressure at any appliance inlet, to AS/NZS 5601.1, Table 5.1, of 2.75 kPa for LPG. Include pressure regulators if required.

1.10 LOCATION OF CYLINDERS
Cylinders and associated equipment to be installed external to buildings, except where AS/NZS 1596 permits. Location and clearances to AS/NZS 5601.1. Ensure location allows good accessibility for cylinder replacement to AS/NZS 5601.1. Coordinate with electrical installations to ensure clearances are maintained.

Compliance information

1.11 INFORMATION REQUIRED FOR CODE COMPLIANCE
Provide the following compliance documentation: -
Manufacturer's, importers or distributors warranty
- Installer / applicator's warranty
- Gasfitting Certificate of Compliance - from the installer

1.12 GAS CERTIFICATE OF COMPLIANCE
Provide a Certificate of Compliance (CoC) as required by the Gas (Safety and Measurement) Regulations 2010 to the owner, and when required provide a copy to the energy supplier before connection.

1.13 GAS SAFETY CERTIFICATION
Provide a Gas Safety Certificate (GSC) as required by the Gas (Safety and Measurement) Regulations 2010 and provide a copy to the owner and when required the BCA. To be provided at completion of the work, prior to Practical Completion.

1.14 GAS APPLIANCE COMPLIANCE
Supplier to provide Supplier Declaration of Compliance (SDoC) in accordance with the requirements of the Gas (Safety and Measurement) Regulations 2010.

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2. PRODUCTS

Materials

2.1 PIPEWORK GENERAL
Pipework requirements to AS/NZS 5601.1, particularly AS/NZS 5601.1, Section 4, **Materials fittings and components**.

2.2 COPPER PIPE
Complete with fittings to AS/NZS 5601.1. Range of use to AS/NZS 5601.1, table 4.1 **Consumer Piping Materials**.

2.3 MACROCOMPOSITE PIPE
Polyethylene/aluminium/cross linked polyethylene combination (PE/AL/PE, PE-X/AL/PE-X or PE-X/AL/PE) macrocomposite pipe systems for pressure applications to AS 4176. Range of use to AS/NZS 5601.1, table 4.1 **Consumer Piping Materials**. Used for general pipework, can also be used in ground beneath a building.

2.4 POLYETHYLENE PIPE
Polyethylene pipes to AS/NZS 4130 Series two, or AS/NZS 4130 Series three. Fittings to AS/NZS 4129. Range of use to AS/NZS 5601.1, table 4.1 **Consumer Piping Materials**. For use in ground but not beneath a building.

2.5 ISOLATING VALVES
Manual shut-off valves to AS/NZS 5601.1.

2.6 CYLINDERS
Full 45kg cylinders to be supplied by the LPG supply company.

Components

2.7 CHANGEOVER VALVES
To the requirements of AS/NZS 5601.1.
Automatic changeover valves including a non-return valve on each pigtail connection. The valve must comply with the requirements of HSNO and WorkSafe.

Changeover valves may be comprised of a first and second stage regulator system in a single body, or as a combination of separate component items.

Changeover valves complete with all components necessary for the operation of the bottle gas system including: -
- Flexible Pigtails
- Regulators
- Condensate trap
- Over pressure shut off
- All required valves

Protect from weather.

Accessories

2.8 ANCHORS AND CHAINS
To the requirements of LPGA COP No.2.
All cylinders larger than 25 litres capacity shall be securely held in place by galvanized chains and brackets. The brackets shall be fastened to a wall or similar robust anchorage. The cylinder's fastenings must be capable of withstanding a steady applied load equal to four times the weight of the filled cylinder.

3. EXECUTION

Conditions

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3.1 GENERALLY

Carry out the whole of this work to the requirements of NZBC G10/AS1 NZBC G12/AS1 and AS/NZS 5601.1.

3.2 BURIED PIPES

Pipes to be bedded in a trench, backfilled, marker taped and separated from other services, to AS/NZS 5601.1, 5.4 Installation of consumer piping underground.

Application

3.3 INSTALL PIPING

Run the system, completely concealed, in the most suitable type of pipe for each part of the installation, bent, supported, jointed and complete with all fittings to AS/NZS 5601.1. Confirm the type of pipe and its location. Label pipework to distinguish it from other services to AS/NZS 5601.1, 5.1.12 **Identification of pipework.**

3.4 PRESSURE TEST

Pressure test the system for leakage to AS/NZS 5601.1 before pipework is concealed by linings.

3.5 LOCATION OF CYLINDERS

Cylinders and associated equipment to be installed external to buildings, except where AS/NZS 1596 permits. Location and clearances to AS/NZS 5601.1, Appendix J, **LP Gas cylinder locations.**

Installation of cylinders

3.6 GENERAL

Cylinders shall be installed upright with the valve uppermost to ensure the inlet to the safety valve remains in the vapour space clear of the liquid content of the cylinder.

- Clearances around cylinders shall comply with CLEARANCES AROUND CYLINDER clause.
- Where two or more exchange cylinders are installed, a manual or automatic changeover valve shall be fitted immediately upstream of the regulator. This valve may be an integral part of an automatic changeover regulator.

3.7 SUPPORT

Cylinders shall not be supported by other cylinders.

Cylinders shall be installed on supporting bases that are firm, level, of non-combustible material, and with a finished surface that prevents ponding of water and at least 50mm above the surrounding surface. Soil is not considered an acceptable supporting base.

All cylinders to be securely held in place by galvanized chains and anchor brackets. The brackets shall be fastened to a wall or similar robust anchorage. Fixings shall be galvanised or stainless steel.

3.8 CYLINDER CONNECTION

Cylinders should be connected directly to the changeover valve assembly by flexible pigtails.

An excess flow valve, to prevent cylinder venting if hose fails, shall be fitted immediately upstream of the piping or hose assembly. This excess flow valve may be an integral part of the POL fitting.

Pigtails connecting cylinders to changeover valves or manifolds should not exceed 1 metre in length.

A non-return valve must be fitted in the supply between each cylinder and the changeover valve, or in a manifold system, between each cylinder and its manifold connection, to prevent flow across the changeover system to AS/NZS 5601.1.

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3.9 CYLINDERS IN AN ENCLOSURE OR RECESS
To AS/NZS 5601.1, Appendix J, **LP Gas cylinder locations.**

3.10 CYLINDERS UNDER BUILDINGS SUPPORTED ON PIERS
To AS/NZS 5601.1, Appendix J, **LP Gas cylinder locations.**

3.11 CLEARANCES AROUND CYLINDER
Cylinders should be installed with clearances complying with the AS/NZS 5601.1, Appendix J, **LP Gas cylinder locations**, figure J3 **Minimum clearance to ignition sources**, and figure J4 **Minimum clearance to a drain or opening into a building**, and at least 1 metre from any readily ignitable material. Readily ignitable materials include paper, dry grass or oily substances.

3.12 CYLINDER SAFETY VALVE DISCHARGE
The discharge point of the cylinder safety valve shall be directed away from any other cylinder, piping, building, drain, approach path to cylinders and any opening into or under a building.

3.13 TEST POINTS
A pressure test point should be installed immediately downstream of each second stage regulator. Such test point may be an integral part of the regulator.

Completion

3.14 ROUTINE CLEANING
Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused materials and elements from the site.

3.15 DEFECTIVE OR DAMAGED WORK
Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Adjust operation of equipment and moving parts not working correctly. Leave work to the standard required for following procedures.

3.16 PROTECTION
Provide the following temporary protection of the finished work:
~

Commissioning

3.17 FINAL INSPECTION AND TESTING
Check cylinders are working and ensure all connected appliances are operating correctly. Carry out final inspections and testing, pressure test the system for leakage to AS/NZS 5601.1. Leave system shut off at the cylinders until practical completion.

3.18 HANDOVER
Provide a copy of the system operating and maintenance instructions.

Completion

3.19 REPLACE
Replace damaged, cracked or marked elements.

3.20 LEAVE
Leave appliances clean and in full working order to the standard required by following procedures.

3.21 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS

Materials

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4.1 LPG CYLINDER SYSTEM

Location:	~
LPG supplier:	~
Cylinder Number/size:	2 x 45kg
Changeover valve supply:	~
Cylinder restraint:	Anchors and chain ~
Proprietary enclosure:	~

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7221 GAS APPLIANCES

1. GENERAL

This section relates to the supply and installation of gas-powered appliances using low pressure gas.

1.1 RELATED WORK
Refer to ~ for ~
Refer to hot and cold water system section for gas water heaters

1.2 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:
NZBC C/AS1-AS7 Protection from fire
NZBC G4/AS1 Ventilation
NZBC G10/AS1 Piped services
NZBC G11/AS1 Gas as an energy source
NZBC G12/AS1 Water supplies
AS/NZS 5601.1: 2010 Gas Installations - general installations
Electricity (Safety) Regulations 2010 (Reprint as at 4 April 2016)
Gas (Safety and Measurement) Regulations 2010
Plumbers, Gasfitters and Drainlayers Act 2006

1.3 MANUFACTURER'S DOCUMENTS
Manufacturer's and supplier's documents relating to work in this section are:
~

Copies of the above literature are available from ~
Web: ~
Email: ~
Telephone: ~
Facsimile: ~

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER
Provide a material manufacturer/supplier warranty:
~ years: For; range, wall oven, hob
~ years: For; central heating, room heater, fireplace

- Provide this warranty on the manufacturer/supplier standard form
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5 COMPLY
Comply with the Gas (Safety and Measurement) Regulations 2010, Electricity (Safety) Regulations 2010 and the network utility operator's/gas suppliers requirements. Give notices for inspections and carry out tests as required.

1.6 QUALIFICATIONS
Gasfitters to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a certifying gasfitter under the Plumbers, Gasfitters and Drainlayers Act 2006.

Performance

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1.7 FINAL INSPECTION AND TEST
Submit the work for inspection and test and prove to the satisfaction of the network utility operator that the installation complies with all Acts and Regulations and has been tested for leakage and proved to be sound.

1.8 GAS CERTIFICATE OF COMPLIANCE
Provide a Gasfitting Certificate of Compliance as required by Clause 46 and 47 of the Gas (Safety and Measurement) Regulations 2010 and when required provide a copy to the energy supplier.

1.9 GAS SAFETY CERTIFICATION
Provide a Gas Safety Certificate (GSC) as required by the Gas (Safety and Measurement) Regulations 2010 and provide a copy to the owner and when required the BCA. To be provided at completion of the work, prior to Practical Completion.

1.10 APPLIANCE COMPLIANCE
Supplier to provide a Supplier Declaration of Compliance (SDoC) in accordance with the requirements of the Gas (Safety and Measurement) Regulations 2010.

2. PRODUCTS

Materials

2.1 GAS APPLIANCES
Refer to SELECTIONS for product selection.

2.2 GAS TYPE
All appliance to be specifically suited to the gas type supply, refer to SELECTIONS.

3. EXECUTION

Conditions

3.1 GENERALLY
Carry out the whole of this work to the requirements of NZBC G10/AS1, NZBC G11/AS1 and AS/NZS 5601.1.

Application

3.2 INSTALL GAS APPLIANCES
Fit and connect gas appliances to AS/NZS 5601.1, complete with isolation valves as required to the appliance manufacturer's requirements.

3.3 SEISMIC RESTRAINTS - GAS APPLIANCES
Where gas appliances require seismic restraints, restrain to manufacturer's requirements, AS/NZS 5601.1 and NZBC C/AS1-AS7, 7.2 Gas-burning Appliances.

3.4 CONNECT UP GAS HOT WATER HEATERS
Connect gas hot water heaters supplied and fitted under Hot and Cold Water system section or by gas fitter, to NZBC G10/AS1, G11/AS1, G12/AS1 and to AS/NZS 5601.1 and the water heater manufacturer's requirements.

Completion

3.5 REPLACE
Replace damaged, cracked or marked elements.

3.6 LEAVE
Leave appliances clean and in full working order and leave work to the standard required by following procedures.

3.7 REMOVE
Remove debris, unused materials and elements from the site.

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4. SELECTIONS

4.1 GAS TYPE

Gas type: ~

4.2 GAS APPLIANCES

Appliance	Make and code	Supplied by
Range:	~	~
Wall oven:	~	~
Cooker top:	~	~
Central heater:	~	~
Room heaters:	~	~
Fireplace:	~	~
Out door bayonets:	~	~

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7701 ELECTRICAL BASIC

1. GENERAL

This section relates to the wiring for domestic and small scale commercial installations, including:
- power
- lighting
- electrical automation
- security system
- complete with componentry
- electrically-powered fittings
- fire rated sealers, liners and accessories

1.1 RELATED WORK
Refer to ~ for ~.

1.2 ABBREVIATIONS AND DEFINITIONS
Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.
The following abbreviations apply specifically to this section:

CFL	compact fluorescent lamp
ELV	extra low voltage
GLS	general lighting service
IP	international (ingress) protection classification
LCD	liquid crystal display
LED	light emitting diode
MCB	miniature circuit breaker
NUO	Network Utility Operator
PCB	printed circuit board
PIR	passive infrared
RCBO	residual current-operated circuit breaker with over current protection
RCCB	residual current-operated circuit breakers
RCD	residual current device
SIA	security integration architecture
TPS	tough plastic sheathed
TCF	Telecommunications Carriers' Forum

Documents

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

NZBC E2/AS1	External moisture
NZBC F6/AS1	Visibility in escape routes
NZBC F7/AS1	Warning systems
NZBC G4/AS1	Ventilation
NZBC G9/AS1	Electricity
AS/NZS 1125	Conductors in insulated electric cables and flexible cord
AS/NZS 1768	Lightning protection
AS/NZS 2201.1	Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance
AS 2293.1	Emergency escape lighting and exit signs for buildings - System design, installation and operation
AS 2293.3	Emergency escape lighting and exit signs for buildings - Emergency escape luminaires and exit signs
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3008.1.2	Electrical installations - Selection of cables - Cables for alternating voltages up to and including 0.6/1 kV - Typical New Zealand installation conditions

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AS/NZS 3100	Approval and test specification-general requirements for electrical equipment
AS/NZS 3112	Approval and test specification - Plugs and socket-outlets
AS/NZS 3113	Approval and test specification - Ceiling roses
AS/NZS 3190	Approval and test specification - Residual current devices (current-operated earth-leakage devices)
AS/NZS 3350.1	Safety of household and similar electrical appliances - General requirements
AS/NZS 3439.3	Low-voltage switchgear and controlgear assemblies - Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access for their use - Distribution boards
AS 3786	Smoke alarms
NZS 4514	Interconnected smoke alarms for houses
AS/NZS 5000.2	Electric cables - Polymeric insulated - for working voltages up to and including 450/750v
AS/NZS 60598.2.2:2001	Luminaires - Particular requirements - Recessed luminaires
IEC 61643	Components for low voltage surge protection devices

Electricity (Safety) Regulations 2010 (Reprint as at 4 April 2016)
TCF Premises Wiring Code of Practice 2011

1.4 MANUFACTURER/SUPPLIER DOCUMENTS
Manufacturer's and supplier's documents related to this section are:
~

Manufacturer/supplier contact details
Company: ~
Web: ~
Email: ~
Telephone: ~

Warranties

1.5 WARRANTY
Warrant the complete electrical installation under normal environmental and use conditions against failure of materials and execution.
1 year: Warranty period

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

Requirements

1.6 COMPLY
Comply with the Electricity (Safety) Regulations 2010, AS/NZS 3000, AS/NZS 3008.1.2 and TCF Premises Wiring Code of Practice for listed and prescribed work and with the utility network operator's requirements. Apply for the service connection. Arrange for the required inspections of listed work. Pay all fees.

1.7 QUALIFICATIONS
Carry out work under the supervision of an electrical licensed supervisor.

1.8 QUALIFICATIONS - SECURITY SYSTEM
Installation by an installer licensed under the Private Investigators and Security Guards Act. Installation of all security equipment to comply with AS/NZS 2201.1 Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance.

1.9 ELECTRICAL CERTIFICATE OF COMPLIANCE
Supply a certificate of compliance (CoC) to the owner, and if required the NUO, as required by the Electricity (Safety) Regulations (2010), prior to connection.
- Arrange for the NUO to inspect before the meter installation, listed work inspection, polarity check and supply becoming live.

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- Arrange for an inspector to inspect as required by regulation 70.

1.10 ELECTRICAL SAFETY CERTIFICATE
Provide an Electrical Safety Certificate (ESC), as required by the Electrical (Safety) Regulations 2010, to the owner and when required the BCA. To be provided no later than 20 working days after connection and prior to Practical Completion.

2. PRODUCTS

2.1 MAINS SUPPLY, SINGLE PHASE
Tough plastic sheathed neutral screened cable to AS/NZS 4961 and AS/NZS 3008.1.2, with a minimum rating of 60 amps per phase. Include pilot cable where required by network utility company.

2.2 CABLES
Tough plastic sheathed copper conductors to AS/NZS 5000.2, stranded above 1.0mm², and to AS/NZS 3008.1.2. Minimum sizes as below. Increase sizes if the method of installation, thermal insulation, cable length or load will reduce the cable rating below that of the MCB rating, or produce an excessive voltage drop.

Lighting circuits:	Domestic: 1.5mm² on 10 amp MCBs
Lighting circuits:	Commercial: 1.5mm² on 16 amp MCBs
Power circuits:	2.5mm² on 16 amp MCBs for domestic and unenclosed or unfilled cavity construction
	2.5mm² on 16 amp MCBs for domestic insulated construction, or filled cavity
	2.5mm² on 20 amp MCBs for unenclosed or unfilled cavity construction
	2.5mm² on 16 amp MCBs for insulated construction, or filled cavity, or lengths over 30 metres
Hot water cylinder circuits:	Single phase: 2.5mm² on 20 amp MCBs
Range/oven/hob circuits:	Single phase: 6mm² on 32 amp MCBs

Heat resistant cable for final connections to all heated appliances, and high temperature cable in ambient conditions that may be above 35°C.

2.3 METER BOX
Proprietary manufactured, zinc plated powder coated metal case, or ABS plastic, with glazed panel door, weatherproof where mounted outdoors, and complete with meter mounting, main switch and fuse.

2.4 DISTRIBUTION BOARD
Flush surface mount boards manufactured to AS/NZS 3439.3 and installed in accordance with AS/NZS 3000. Manufactured from engineering grade resin with a glow wire rating of 850°C, complete with neutral and earth busbars, and insulated comb phase bar. Distribution boards to have 20% spare capacity for future additions and alterations.

2.5 CIRCUIT PROTECTION
General requirements including main switch 63A or 100A. Residual current protection 30mA, ensure RCCBs' meet Type A and comply with AS/NZS 3190. MCBs to 4.5kA or 6kA rated.

2.6 WALL BOXES
Standard grid size or equivalent to be manufactured from plastic or metal, with 2 or more gang size to be metal with steel inserts for accessory securing screws. Screw fixed.

2.7 SWITCH UNITS
Single pole switches to be 16 amp minimum rated, double pole or intermediate to be 16 amp minimum rated. All switches to be 230 volt a.c. polycarbonate flushplate units. Refer to drawings/schedules for number of switches per unit, dimmer units, neon (indicator or toggle) units and 2 way units.

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2.8 SWITCHED SOCKET UNITS
10 amp, 230 volt flat 3 pin socket outlets fitted with safety shutters and manufactured to AS/NZS 3100, AS/NZS 3112 and AS/NZS 3113, single or multi gang as detailed.

2.9 SMOKE ALARMS
Type 1 domestic smoke alarm to NZBC F7/AS1. 1.2 **Descriptions of alarm systems**. Alarm to AS 3786. A wired 230 volt ionised smoke detector type.

2.10 SURGE PROTECTION
Protection for the homes appliances with IEC 61643 Class ll surge protection devices fitted to the switchboard. For variable electronic equipment fit IEC 61643 Class lll surge protection to switched socket outlets.

2.11 CEILING ROSES
White plastic mounting base with screwed cover, manufactured to AS/NZS 3113. Terminal type. Cylindrical section TPS for suspended fittings.

2.12 BATTEN HOLDERS
Standard white plastic bayonet cap, with cap angled where wall mounted. Brass liners.

2.13 DOOR BELL SYSTEM
Complete with transformer for mounting on distribution board.

2.14 LIGHT FITTINGS
Fluorescent and High Intensity Discharge fittings with low loss control gear and power factor corrected to 0.95 minimum. Control gear suitable for dimming if this is required. All fittings complete with lamps; Incandescent GLS lamps pearl, coiled-coil 230v rated, bayonet cap; Fluorescent triphosphor 2700K; CFL; halogen ELV 12v dichroic reflector with cover glass unless detailed otherwise; integral/non-integral LEDs, reflectors, lenses, heatsinks and drivers - 3,000K to 4,000K, CRI >80, L70.

2.15 RESIDENTIAL RECESSED LIGHT FITTINGS
Residential recessed luminaires to AS/NZS 60598.2.2, types IC-F, IC, CA-80 or CA-135 only.

2.16 EXHAUST FANS
Ceiling, wall or duct mounted exhaust fans for ventilation to NZBC G4/AS1, and compliant with AS/NZS 3350.1.

2.17 HEATED TOWEL RAILS
Fixed wired heated towel warmers, double insulated, IPX4 splash-proof, compliant with AS/NZS 3350.1, scratch resistant powdercoated or chrome finish.

2.18 OUTDOOR SWITCHES & SOCKETS
Using materials with superior UV protection, impact strength, and addition chemical resistance when compared with interior polycarbonate fittings. Weather protected, switches to IP56 minimum, and sockets to IP53 minimum. Sockets fitted with safety shutters behind socket pins, and all products able to be padlocked off or on.

Security system

2.19 CONTROL PANEL
Control panel system with a minimum of one installer code, one master code, 6 zones minimum and 6 user codes. The installer to select codes to suit installation.

2.20 DETECTORS
There are two main types of detectors:
- Standard passive infrared sensors: Install in stable environments with no wind flow and no direct bright sunlight.
- Passive infrared/ microwave sensors: Install in area where environmental stability is an issue.

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2.21 AUDIBLE DEVICES
Internal sirens can be either a 12V Piezo Siren or a Horn speaker with a sound pressure level of no less than 95dB.
External siren can be either a stainless steel design or have hardened plastic casing. Both designs to be fully weatherproof but not limited to IP66 Rating. The siren box to contain a strobe diffuser in either blue or red. The siren shall contain a horn speaker, 12v speaker or an electronic siren. The external siren box to have both a cover and rear wall tamper mechanism.

2.22 CABLING
Security alarm wiring to NZS/AS 1125 for cables.
Security alarm wiring to be multi stranded and not single stranded, minimum 0.5mm².

2.23 PERIPHERALS
Fit anti-tamper devices to detectors, control panels and equipment housings, programmed to give a tamper indication when the system is unset and a tamper alarm when the system is set.
Standard keypad manufactured of moulded hardened plastic with either a LED or LCD screen, to match the style of the wiring accessories in diameter, colour and aesthetics.

2.24 COMMUNICATIONS
Digital dialler to be built into the PCB of all control panels, with the options for both monitoring and remote dial in windows based software. Digital dialler to comply with all the industry standard communication formats including contact I.D and SIA, and NZ Telepermit certification.
Remote software able to upload / download programming changes and or history events and change status of the security alarm with the ability to be turned off if required.

3. EXECUTION

3.1 MAIN SUPPLY
Lay underground mains to the NUO requirements. Excavate trench, install cable and marker tape and backfill.

3.2 METER BOX
Fit to meter box manufacturer's and Electricity Retailer's requirements. Recess into external wall in sheltered area and flash to weatherproof to NZBC E2/AS1 fig 69.
Arrange for meter installation and connection.

3.3 DISTRIBUTION BOARD
Fit to AS/NZS 3000 and board manufacturer's requirements. Recess into wall or surface mount and ensure fire containment properties of the enclosure are maintained.

3.4 CIRCUIT PROTECTION
Install MCBs at distribution board to AS/NZS3000 to protect each final sub circuit.

3.5 EARTH BONDS
Bond together and to earth all plumbing fittings not adequately isolated, to AS/NZS 3000, the Electricity (Safety) Regulations 2010 and the fitting manufacturer's requirements.

3.6 MAIN EARTH
Provide a plastic toby box to contain and protect the earth electrode. Fix the connecting earth wiring closely and securely against wall surfaces.

3.7 EARTH LEAKAGE PROTECTION
Install RCD protection to AS/NZS 3000.

3.8 RCD - DOMESTIC INSTALLATIONS
Install 30mA RCD protection at the switchboard for all final sub circuits to control outlets and lighting except for fixed or stationary cooking equipment, to AS/NZS 3000.

3.9 RCD - SPECIFIC INSTALLATIONS
Install 30mA RCDs at the distribution board.

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Install fixed wired RCD protected outlets (SRCD) in the following areas:
- Wet areas: bathrooms, laundries, kitchens.
- Near pools and water features.
- Where intended for use with cleaning equipment.
- Hand-held tools subject to movement in use, i.e. work-shops, garages.

3.10 SET-OUT

The position of outlets and equipment shown on drawings is indicative of requirements. Confirm documents and site conditions are not in conflict with other services or features. Resolve conflicts and discrepancies before proceeding with work affected. Confirm on site the exact location, disposition and mounting heights of all outlets, fittings, equipment, penetrations, and use of exposed wiring. Fix outlet items level, plumb and in line.

3.11 CABLING

Install wiring systems to AS/NZS 3000. All cabling run concealed. No TPS cable laid directly in concrete. Locate holes in timber framing for the passage of cables at the centre line of the timber member. Install cable in conduits where required to pass through concrete or underground. In walls run cabling horizontally and vertically in straight lines. In ceilings either run cabling along ceiling framing or attached to catenary wires. Clip cabling to ceiling framing/catenary wires.

3.12 CABLING CIRCUITS

Install all circuits with the appropriately rated cable and circuit protection. Install with a maximum of 8 light switch units or 4 double or single switched socket units on any circuit. Minimum 2 lighting circuits per floor. Separate circuits for all electric heating appliances. Kitchen sockets to be on at least two different circuits.

3.13 WALL BOXES

Mount flush in cavity construction size to fit products selected. Fix vertically mounted wall boxes to studs. Screw fix horizontally mounted switched socket outlet wall boxes to solid blocking or nogs. Fix switch panel wall boxes to solid blocking.

3.14 SWITCH AND SOCKET UNITS

Fit all single and double switch units, all sockets to the following heights (to the centre of the unit) unless shown otherwise on the drawings.

Switch Units: 1000mm above finished floor
Socket Units: 150mm above work benches
400mm above finished floor

Mount light switches and switch socket outlets vertically and socket units horizontally. Label all switch units that control electrical equipment or special lighting circuits by colour filled engraving on the switch. Use proprietary engraved switch mechanisms where applicable.

3.15 ISOLATING SWITCHES

Locate isolating switches in positions as confirmed by the owner, when not specifically shown on the drawings.

3.16 LIGHT FITTINGS

Install light fittings in locations and at heights specified and confirmed by the owner, in accordance with the fitting manufacturer's requirements.

3.17 EXTRA LOW VOLTAGE LIGHTING

Use electronic, transformers (halogen) or drivers (LED) for ELV lamps, one transformer/driver per lamp. Locate to manufacturer's requirements and as close as practicable to the lamp. Ensure transformers/drivers and rear of light fittings are adequately ventilated and appropriately clear of any building elements, to AS/NZS 3000.

3.18 RECESSED LIGHT FITTINGS - CLEARANCE TO INSULATION

Non-residential applications;
The clearance between insulation and recessed downlights;
- Leave 100mm gap to AS/NZS 3000, figure 4.9
- Provide larger gaps where required by the downlight manufacturer

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Residential applications;
- Ensure new recessed downlights are one of the new classes classified in AS/NZS 60598.2.2; CA 80, CA 135, IC and IC - F.
- Classification type CA 80, CA 135, to AS/NZS 60598.2.2; insulation can abut the sides (wrapping around the sides)
- Classification type IC and IC - F, to AS/NZS 60598.2.2; insulation can abut and cover over the top of the downlight
- Provide larger gaps where required by the light manufacturer
- In a retrofit situation where the insulation is non-approved or unknown, ensure 100mm clearance from the insulation to AS/NZS 3000, figure 4.9.

3.19 SMOKE ALARMS

Install Type 1 domestic smoke alarm system to NZBC F7/AS1 3.0 **Domestic smoke alarms**, NZS 4514 and to the alarm manufacturer's requirements. Fit neatly and without damage to the surrounding finish.

3.20 SURGE PROTECTION

Install surge protection devices to manufacturer's requirements and in accordance with AS/NZS 3000 and AS/NZS 1768. When fitting IEC 61643 Class ll protection at the switchboard, protect the device by a dedicated MCB.

3.21 ELECTRIC POWERED FITTINGS AND EQUIPMENT

Install and wire fittings and equipment to individual fittings and equipment manufacturer's requirements. Refer to the drawings for required layouts and locations for equipment. Refer to SELECTIONS for schedules of fittings.

3.22 BATHROOM ELECTRICAL FIXTURES

Install all electrical fixtures. Connect the following bathroom and toilet electrical items:
- Heated towel rails: Install to manufacturers requirements and installed in accordance with AS/NZS 3000 and the NZBC G9/AS1
- Mirror demisters: Locate centrally above the wash hand basin(s). Connect wiring to room lighting unless specified otherwise.
- Exhaust fans: Install exhaust fans to manufacturer requirements. Installed in accordance with AS/NZS 3000 and NZBC G4/AS1.

3.23 OUTDOOR/EXTERIOR SERVICES

Install all wiring systems in accordance with AS/NZS 3000 and in accordance with the manufacturer's recommendations:
Provide circuits and connections for exterior installations, including ELV 12/24 Volt path lighting and electronic irrigation systems. Refer to drawings for connection points. Where underground, ensure appropriate protection, such as thickness of sheathing, conduit, depth of cabling, and proximity to other services.
Use the appropriate rated fittings for power control and power supply. Weather protected switches to IP56, and sockets to IP53 as a minimum. Install to manufacturer's specifications using recommended fittings and sealants to maintain the products integrity.
Earth leakage protection to be provided for in areas where there is increased risk to human safety in the form of either RCDs at the distribution board, or socket outlet. RCDs are recommended for visible awareness of protection.

3.24 LABELLING

Include label under each controller, switch and circuit breaker on distribution boards. Include a warning notice if light dimmers are used in the installation. List the rating of each circuit.

Security system

3.25 SECURITY SYSTEM

Install to the system manufacturer's requirements, control panel, detectors and associated equipment fitted neatly and without damage to surrounding finishes.
Installation of security equipment to AS/NZS 2201.1 Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance. All 230v mains power connections to the security panel are to be in accordance with AS/NZS 3000. The 230V power is to be switched using a dedicated single gang Isolator switch or similar.

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Completion

3.26 COMPLETION
Leave installation operating correctly, with equipment clean and operational.

4. SELECTIONS

Materials

4.1 SELECTIONS - FITTINGS AND HARDWARE
Confirm selections of all outlet fittings and hardware with the owner in writing before ordering.

4.2 METER BOX

Location:	~
Brand / type:	~

4.3 DISTRIBUTION BOARD

Location:	~
Brand / type:	~
MCB:	~
RCCB:	~
RCBO:	~
Surge protectors:	~
Modular contactors:	~
Main switch:	~
Timers	~

4.4 SECURITY SYSTEM

Location	**Brand / type**	**Detector**
~	~	~

Outlets - fittings

4.5 INTERIOR OUTLETS

Item	**Brand / type**
Switch / socket outlets:	~
Coverplate colour:	~
Switch module colour:	~

Item	**Brand / type**
Light dimmers:	~
Timer switch:	~
Push button switch:	~
Symbol switch:	~
PIR sensor switch:	~
Toggle switch:	~
Waterproof switches:	~

Item - RCD	**Brand / type**
Socket outlet:	~
Shaver outlet:	~
Safety switch:	~

4.6 INTERNAL LIGHT FITTINGS

Fitting	**Brand / type**
Pendant lights:	~
Ceiling lights:	~
Recessed ceiling lights:	~
Recessed wall lights:	~
Recessed floor lights:	~
Wall lights:	~

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Spotlights:	~
Fluorescent lights:	~
Strip lights:	~
Emergency lights:	~
Transformers:	~
LED Drivers:	~

4.7 SMOKE ALARMS

Location:	~
Brand / type:	~

4.8 EXTERIOR SWITCHES AND SOCKETS

Item	**Brand / type**
Weatherproof socket outlets:	~
Timer switch:	~
Weatherproof switch:	~
Daylight switch:	~

4.9 EXTERNAL LIGHT FITTINGS

Fitting	**Brand / type**
Wall lights:	~
Bulkhead lights:	~
Spotlights:	~
Recessed lights:	~
Strip lights:	~
Floodlights:	~
Pole lights:	~
Security lights:	~
Security light sensors:	~
Transformers:	~
LED Drivers:	~

4.10 MISCELLANEOUS ELECTRICAL ITEMS

Item	**Brand / type**
Door bell system:	~
Extractor fan:	~

4.11 HEATED TOWEL RAILS

Location	**Brand / type**
~	~

4.12 MIRROR DE-MISTERS

Location	**Size**	**Wattage**
~	~mm x 550mm	~ watts
Brand:	~	

4.13 BATHROOM FANS AND HEATERS

Location	**Brand / type**
Bathroom / ensuite-Heating:	~
Bathroom / ensuite-Extract:	~

4.14 ELECTRICAL APPLIANCES

Item	**Brand / type**
Range:	~
Wall oven:	~
Cooker top/hob:	~
Waste disposal unit:	~
Range hood:	~

Specifications - Project specific - 170355 - A1935550

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PROJECT SPECIFIC SPECIFICATION

Structural Engineering details and PS1

Truss Design and PS1

HySPAN beams and rafters

Prolam post, rafters and beams

Construction R Values

Hardies Oblique Cladding Branz Appraisal

Hermpac Shiplap Cladding Branz Appraisal

Ardex Membrane Specification

Escea DL850 Gas Fire specification

Bracing Calculations

Raft Floor details and PS1

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TAUPO DISTRICT COUNCIL

BC170355

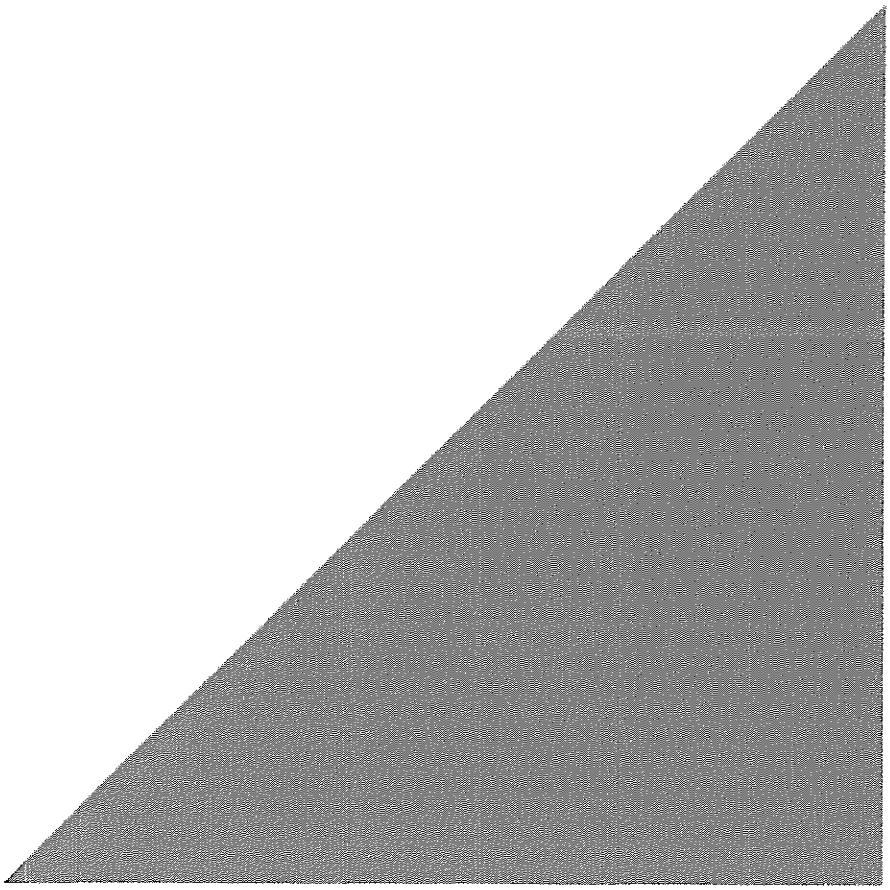
APPROVED CONSENT
PLANS/SPECIFICATIONS

OPUS

Structural Engineering Design

Jones Residence 6 The Fairways, Kinloch

2-37235.00



TAUPO DISTRICT COUNCIL

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APPROVED CONSENT
PLANS/SPECIFICATIONS

OPUS

Structural Engineering Design

Jones Residence

6 The Fairways, Kinloch

2-37235.00

Prepared By

James Arnold
Structural Engineer

Reviewed By

Luke Hight
Structural Project Manager

Approved for Release By

David Dekker
Technical Principal

Opus International Consultants Ltd
Taupo Office
Level 1, 48 Tuwharetoa Street
PO Box 43, Taupo 3351
New Zealand

Telephone: +64 7 378 0746
Facsimile:

Date: 08 February, 2017
Reference: 2-37235.00
Status: Final

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APPROVED CONSENT PLANS/SPECIFICATIONS

Scope of Work

We have interpreted the scope of work to include:

- Portal frames to provide bracing in two locations
- Foundation design to support Portal Frames
- Bracing calculation for Lines M & N provided by Portal Frames

Contents:

PS1

Design Memorandum

ACENZ B2 Compliance Letter

Portal Frame Structural Engineering Design 1-13

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS

ENGINEERS NEW ZEALAND | NEW ZEALAND INSTITUTE OF ARCHITECTS INCORPORATED | ACENZ

Building Code Clause(s)...B1/VM1/VM4...

PRODUCER STATEMENT – PS1 – DESIGN

(Guidance notes on the use of this form are printed on page 2)

ISSUED BY: OPUS INTERNATIONAL CONSULTANTS LTD.
(Design Firm)

TO: JONES RESIDENCE
(Owner/Developer)

TO BE SUPPLIED TO: TAUPO DISTRICT COUNCIL
(Building Consent Authority)

IN RESPECT OF: NEW RESIDENTIAL DWELLING
(Description of Building Work)

AT: 6 THE FAIRWAYS, KINLOCH
(Address)
LOT 52 DP 347410 SO

We have been engaged by the owner/developer referred to above to provide SPECIFIC ENGINEERING DESIGN OF 2 No. STEEL PORTAL FRAMES AND ASSOCIATED FOUNDATIONS services in respect of the requirements of
(Extent of Engagement)
Clause(s) ...B1 ...of the Building Code for
All ☐ or Part only ☒ (as specified in the attachment to this statement), of the proposed building work.

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

☒ Compliance Documents issued by the Ministry of Business, Innovation & Employment B1/VM1/VM4 .or
(verification method / acceptable solution)

☐ Alternative solution as per the attached schedule.....

The proposed building work covered by this producer statement is described on the drawings titled JONES RESIDENCE – 6 The Fairways, Kinloch, Structural Engineering Design;

and numbered Structural Engineering Design Pgs 1-13 ;
together with the specification, and other documents set out in the schedule attached to this statement.
On behalf of the Design Firm, and subject to:
(i) Site verification of the following design assumptions Safe bearing capacity of 100kPa (Ultimate Capacity ~ 300kPa)
(ii) All proprietary products meeting their performance specification requirements;

I believe on reasonable grounds that a) the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that b), the persons who have undertaken the design have the necessary competency to do so. I also recommend the following level of construction monitoring/observation:
☐CM1 ☐CM2 ☒CM3 ☐CM4 ☐CM5 (Engineering Categories) or ☐ as per agreement with owner/developer (Architectural)

I, DAVID DEKKER..... am:
(Name of Design Professional)
☒CPEng ...1003026.....#
☐Reg Arch ..... .#

I am a Member of : ☒ IPENZ ☐NZIA and hold the following qualifications: CPEng, MIPENZ
The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.
The Design Firm is a member of ACENZ: ☒

SIGNED BY : DAVID DEKKER..... ON BEHALF OF : OPUS INTERNATIONAL CONSULTANTS LTD
(Design Firm)

Date...09/02/2017..... (signature).

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

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

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, IPENZ AND NZIA

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BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS

Form 2A

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: **6 The Fairways**	
Suburb:	
Town/City **Kinloch**	Postcode:

THE OWNER

Name(s): **Jones**	
Mailing address:	
Suburb:	PO Box:
Town/City:	Postcode:
Phone number:	Email address:

BASIS FOR PROVIDING THIS MEMORANDUM

I am providing this memorandum in my role as the: Please tick the option that applies (√)	
( )	**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 Dekker*** 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]*

TAUPO DISTRICT COUNCIL

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APPROVED CONSENT PLANS/SPECIFICATIONS

Primary structure

All RBW Design work relating to B1	(X)		( ) Carried out ( ) Supervised	
Foundations and subfloor framing	(√)	**Wall Foundation at Portal Frames(2).**	( ) Carried out (x) Supervised	**See Opus Int Calculations and PS1, Attached.**
Walls	(X)		( ) Carried out ( ) Supervised	
Roof	(X)		( ) Carried out ( ) Supervised	
Columns and beams	(√)	***Portal Frames(2),***	( ) Carried out (x) Supervised	**See Opus Int Calculations and PS1, Attached.**
Bracing	(X)		( ) Carried out ( ) Supervised	
Other	(X)		( ) Carried out ( ) Supervised	

EXTERNAL MOISTURE MANAGEMENT SYSTEMS: E2

All RBW design work relating to E2	(x)		( ) Carried out ( ) Supervised	
Damp proofing	(x)		( ) Carried out ( ) Supervised	
Roof cladding or roof cladding system	(x)		( ) Carried out ( ) Supervised	
Ventilation system (for example, subfloor or cavity)	(x)		( ) Carried out ( ) Supervised	
Wall cladding or wall cladding system	(x)		( ) Carried out ( ) Supervised	
Waterproofing	(x)		( ) Carried out ( ) Supervised	
Other	(x)		( ) Carried out ( ) Supervised	

FIRE SAFETY SYSTEMS: C1 – C6

Emergency warning systems, evacuation and fire service operation systems, suppression or control systems, or	(x)		( ) Carried out ( ) Supervised	

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APPROVED CONSENT PLANS/SPECIFICATIONS

other			

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 (x) Yes (√) No

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

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

Note: continue on another page if necessary.

ISSUED BY

Name: David Dekker	LBP or Registration number: 1003026
The practitioner is a: ( ) Design LBP ( ) Registered architect (√) Chartered professional engineer	
Design Entity or Company (optional): Opus International Consultants Ltd	
Mailing address (if different from below): NA	
Street address / Registered office:	
Suburb:	Town/City: Tauranga
PO Box/Private Bag: PO Box 646	Postcode: 3140
Phone number: (07) 577 3813	Mobile:
After Hours:	Fax:
Email address: dave.dekker@opus.co.nz	Website:

DECLARATION

I David Dekker *[name of practitioner]*, CPEng

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

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

Signature: 

Date:09/02/2017

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT
PLANS/SPECIFICATIONS

Opus International
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Dunedin Office
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t: +64 3 471 5500
f: +64 3 474 8995
w: www.opus.co.nz

9 February 2017

Taupo District Council
72 Lake Terrace
Taupo 3330

Dear Sir/Madam

RE: New Residence at 6 The Fairways, Kinloch

BC #170____

B2 Compliance

You have requested a Producer Statement for Design-PS1 for Clause B2 of the Building Code – Structural Durability.

We are not able to provide this because there is no effective verification method for B2 contained within the Building Code.

However we can confirm that for the structural elements shown in our documentation:

Mild Steel
Steel protection has been specified in accordance with the "Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings" AS/NZS 2312. We note that this is on a time to first maintenance basis.

We trust this provides the information you are seeking.

Yours Faithfully,

David Dekker
Technical Principal- Earthquake Engineering and Building Structures

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT PLANS/SPECIFICATIONS

OPUS

Calculation Sheet

Project/Reference No: **2-37235.00**	Sheet No: 1
Project and Description: **Jones Residence, 6 The Fairways, Kinloch**	Office: **Taupo**
	Computed: **James Arnold**
PORTAL FRAME DESIGN	Checked:

2 PORTAL FRAMES REQUIRED

(1) - LINE M - END OF LIVINGROOM (FRAME TOP BEAM AS LINTEL)

(2) - LINE N - END OF BEDROOM (FRAME TOP BEAM AS LINTEL)

DESIGN TO NZS 1170 FOR WIND + EARTHQUAKE ACTION

NZS1170.0-2002

IMPORTANCE LEVEL - ORDINARY LEVEL 2 - SINGLE FAMILY DWELLING

EXPECTED LIFE - 50 YEARS

ANNUAL PROBABILITY EXCEEDANCE

	WIND	EQ	SNOW
ULTIMATE LIMIT STATE	1/500	1/500	NA
SERVICEABILITY LIMIT STATE	1/25	1/25	N/A

LOAD CASES

ULS

$E_d = 1.2G + 1.5Q$

$E_d = 1.2G + W_u + \psi_c Q$

$E_d = G + E_u + \psi_E Q$

TABLE 4.1 NZS1170
LONG TERM + COMBINATION FACTORS

$\psi_c = 0.0$

$\psi_E = 0.0$

SLS

$E_s = W_s$

$E_s = E_s$

$E_s = G + 0.3Q$

DEFLECTION RESPONSE

SIDESWAY ⇒ HEIGHT/500 PORTAL LEGS

LINTEL ⇒ SPAN/240 PORTAL BEAM (AS LINTEL)

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APPROVED CONSENT PLANS/SPECIFICATIONS

OPUS

Calculation Sheet

Project/Reference No: **2-37235.00**	Sheet No: 2
Project and Description: **Jones Residence, 6 The Fairways, Kinloch**	Office: **Taupo**
	Computed: **James Arnold**
EARTHQUAKE ACTION	Checked:

SEISMIC WEIGHT - DESIGN FOR PORTAL FRAME (1)

LOADS + ACTIONS ON PORTAL FRAME 1 WILL EXCEED REQUIREMENTS ON PORTAL FRAME 2, USE PORTAL FRAME 1 FOR DESIGN.

ROOF $0.35\ kPa \times 5.9m \times 11.55/2 = 11.93\ kN$

WALLS $0.4\ kPa \times 2.4m \times 2(5.775) = 11.1\ kN$

FRAME $20.9\ kg/m \times 2(2.4) \times 9.81\times10^{-3} = 1.0\ kN$ (ASSUME FRAME 180 PFC 20.9)

$20.9\ kg/m \times 5.9 \times 9.81\times10^{-3} = 1.2\ kN$

$Wt = 25.23\ kN$

BASE SHEAR ON PORTAL FRAME

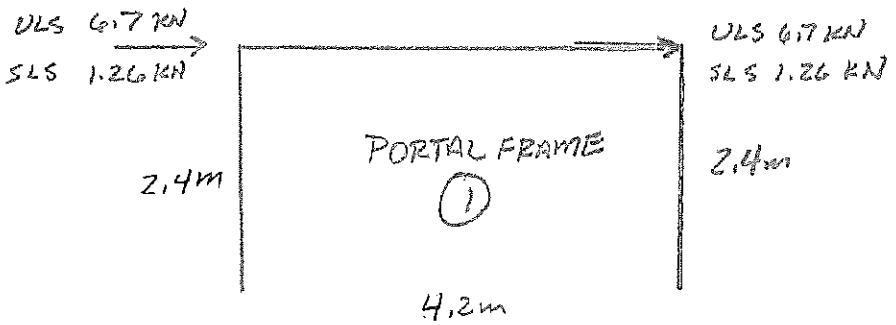
$V = C_d(t_1) \times W_t$ $C_d(t_1)$ IS SEISMIC COEFFICIENT FROM NZS1170.5-2004

ULS $C_d(t_1) = 0.53$ SEE Pg 2a

SLS $C_d(t_1) = 0.10$ SEE Pg 2b

$V_{ULS} = 0.53 \times 25.23\ kN = 13.37\ kN/FRAME/2\ LEGS = 6.7\ kN$

$V_{SLS} = 0.10 \times 25.23\ kN = 2.52\ kN/FRAME/2\ LEGS = 1.26\ kN$



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APPROVED CONSENT
PLANS/SPECIFICATIONS

OPUS

Calculation Sheet			
Project No:	2-37235.00	Sheet No:	2a
Project:	6 The Fairways, Kinloch	Office:	Taupo
Date:	31/01/2017	Computed:	JA
		Checked:	

DETERMINATION of AS/NZS1170 SEISMIC COEFFICIENT

Applicable to Structure Of Period T < 0.7 Seconds

Base Shear Force $v = C_d.W_t$

Location	Taupo	First Mode Period (>0.3 Sec)	0.4
Subsoil Category	Shallow Soil	Structural Ductility Factor μ =	1.25
State	Ultimate		

S_p =	0.925
R =	1.00
Z =	0.28
N(T,D) =	1.00
From AS/NZS1170 $C_h(T_1)$ =	2.36
$C(T) = C_h(T_1)RZN(T,D)$ =	0.66
$K_m = (m-1)T_1 / 0.7 + 1$ =	1.14
$Cd(T_1) = C(T)Sp/Ku$ =	**0.53**

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APPROVED CONSENT
PLANS/SPECIFICATIONS

OPUS

Calculation Sheet			
Project No:	2-37235.00	Sheet No:	2b
Project:	6 The Fairways, Kinloch	Office:	Taupo
Date:	31/01/2017	Computed:	JA
		Checked:	

DETERMINATION of AS/NZS1170 SEISMIC COEFFICIENT

Applicable to Structure Of Period T < 0.7 Seconds

Base Shear Force $v = C_d.W_t$

Location	Taupo	First Mode Period (>0.3 Sec)	0.4
Subsoil Category	Shallow Soil	Structural Ductility Factor μ =	1.25
State	Serviceability		

S_p =	0.700
R =	0.25
Z =	0.28
N(T,D) =	1.00
From AS/NZS1170 $C_h(T_1)$ =	2.36
$C(T) = C_h(T_1)RZN(T,D)$ =	0.17
$K_m = (m-1)T_1 / 0.7 + 1$ =	1.14
$Cd(T_1) = C(T)Sp/Ku$ =	**0.10**

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APPROVED CONSENT PLANS/SPECIFICATIONS

OPUS

Calculation Sheet

Project/Reference No: **2-37235.00**	Sheet No: 3
Project and Description: **Jones Residence, 6 The Fairways, Kinloch**	Office: **Taupo**
	Computed: **James Arnold**
WIND + GRAVITY ACTION	Checked:

NZS 1170.2 WIND ACTION

* SITE WIND SPEED $V_{sitb} = V_R M_d (M_{zcat}, M_s M_t)$

BUILDING SITE : SLIGHTLY WEST OF NORTH-SOUTH

PORTALS FACE SOUTH ⇒ DESIGN DIRECTION = WEST (ACROSS)

WIND REGION 3.1(B) = A7

$V_{RU} = V_{500}$ (ULS) = 45 m/s

$V_{RS} = V_{25}$ (SLS) = 37 m/s

M_d ⇒ WEST - A7 ⇒ $M_d = 1.00$ TABLE 3.2

$M_{Z\,CAT}$ ⇒ TERRAIN/HEIGHT

4.2.1 TERRAIN CATAGORY = TC2 ⇒ $M_{zcat} = 0.91$

M_s ⇒ SHEILDING ⇒ NONE $M_s = 1.0$ 4.3.1

M_t ⇒ TOPOGRAPHICAL ⇒ $M_t = 1.0$ 4.4.2(a)

$V_{sitb\ ULS} = 45\ m/s \times 1.0 \times (0.91 \times 1 \times 1) = 41.0\ m/s$

$V_{sitb\ SLS} = 37\ ms \times 1.0 \times (.91 \times 1 \times 1) = 33.7\ m/s$

* LOADING G PERMANENT (G) + IMPOSED (Q)

G

ROOF $1.2m \times 0.35\ kN/m^2 = 0.42\ kN/m$

$G = 0.42\ kN/m$

Q

$1.2m \times 0.25\ kN/m^2 = 0.3\ kN/m$

$Q = 0.3\ kN/m$

TAUPO DISTRICT COUNCIL

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APPROVED CONSENT PLANS/SPECIFICATIONS

OPUS

Calculation Sheet

Project/Reference No: **2-37235.00**	Sheet No: 4
Project and Description: **Jones Residence, 6 The Fairways, Kinloch**	Office: **Taupo**
	Computed: **James Arnold**
WIND LOAD	Checked:

NZS 1170.2 WIND ACTION

$$f = (0.5\,\rho_{air})(V_{des\theta})^2\, C_{fig}\, C_{dyn}$$

$C_{dyn} = 1.0$ 1170.2 6.1 (a)

$C_{fig_i} = C_{pi}\, K_{ci}$

$C_{fig_e} = C_{pe}\, K_{ce}\, K_a\, K_p$

$C_{pi} = -0.3, 0.0$ PER 5.1(B) ROOF 0.5 or LESS

$C_{pe} = 0.7$ PER 5.2(A) WINDWARD WALL

$C_{pe} = -0.3$ PER 5.2(B) LEEWARD WALL

$C_{pe} = -0.9, -0.4$ PER 5.3(A) Roof $\alpha = 5^0$ $h/d \le 0.5$

$K_{ci} = 0.8$ PER 5.5 d

$K_{ce} = 0.8$ PER 5.5 d

$K_a = 1.0$ PER 5.4.4

$K_p = 1.0$ PER 5.4.5

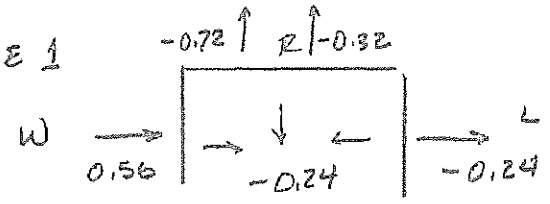
$C_{fig_L} = -0.3 \times .8$ or $0.0 \times .8 = -0.24, 0.0$

$C_{fig_E} = 0.7 \times .8 \times 1 \times 1 = 0.56$ (W)

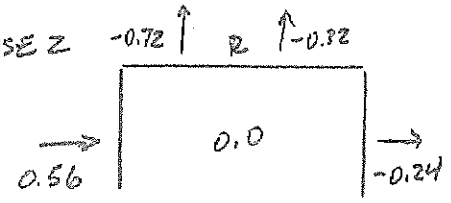
$C_{fig_E} = -0.3 \times .8 \times 1 \times 1 = -0.24$ (L)

$C_{fig_E} = -0.9 \times .8 \times 1 \times 1$ or $-0.4 \times .8 \times 1 \times 1 = -0.72, -0.32$ (R)

WIND CASE 1



CASE 2



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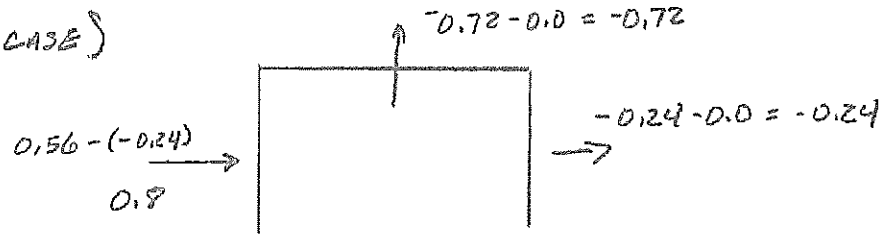
APPROVED CONSENT PLANS/SPECIFICATIONS

OPUS

Calculation Sheet

Project/Reference No: **2-37235.00**	Sheet No: 5
Project and Description: **Jones Residence, 6 The Fairways, Kinloch**	Office: **Taupo**
	Computed: **James Arnold**
WIND LOAD	Checked:

WIND (WORST CASE)



WIND FORCE

$$f = 0.5\,\rho_{air}\,(V_{(des\,\theta)})^2\,C_{fig}$$

$V_{ULS} = 41$ m/s

$V_{SLS} = 33.7$ m/s

$\rho_{air} = 1.2$

$$f_{ULS} = 0.5 \times 1.2 \times (41)^2\,C_{fig}$$
$$= 1.004\,C_{fig}$$

$$f_{SLS} = 0.5 \times 1.2 \times (33.7)^2\,C_{fig}$$
$$= 0.681\,C_{fig}$$

$W_{U\ ULS}$ TRIBUTARY LENGTH = 5.775 m

ROOF $1.009 \times -0.72 \times 5.775 = 4.2$ kN/m ↑

W WALL $1.009 \times 0.8 \times 5.775 = 4.66$ kN/m →

L WALL $1.009 \times -0.24 \times 5.775 = 1.4$ kN/m →

$W_{S\ SLS}$

ROOF $0.681 \times -0.72 \times 5.775\,m = 2.83$ kN/m ↑

W WALL $0.681 \times 0.8 \times 5.775m = 3.14$ kN/m →

L WALL $0.681 \times -0.24 \times 5.775m = 0.94$ kN/m →

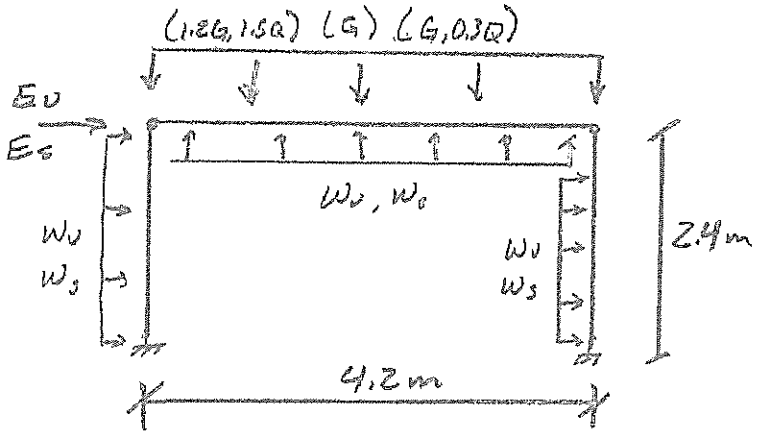
TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT PLANS/SPECIFICATIONS

OPUS

Calculation Sheet

Project/Reference No: **2-37235.00**	Sheet No: 6
Project and Description: **Jones Residence, 6 The Fairways, Kinloch**	Office: **Taupo**
	Computed: **James Arnold**
	Checked:

PORTAL FRAME 1 LINE M LIVINGROOM



PORTAL MEMBER SIZE

ALL 150 PFC 20.9

LOAD CASES ⇒ SEE MICROSTRAN ANALYSIS

ULS

1.2G + 1.5Q = 1.2(.42) + 1.5(.3) = 0.954 kN/m

1.2G + Wu + 0.0Q = 0.51 kN/m , 4.2 kN/m ↑ , 4.66 kN/m → 1.4 kN/m →

G + Eu + 0.0Q = 0.42 kN/m 6.7 kN → (governs)

SLS

Ws = 2.83 kN/m ↑ 3.14 kN/m → 0.94 kN/m (governs)

Es = 1.26 kN

G + 0.3Q = 0.42 + 0.3(0.3) = 0.51 kN/m

* CHECK ULS FLEXURAL $m^* \le \phi M_{bx}$ $\phi M_{bx} = \phi M_{sx} \alpha_m \alpha_s$

MICROSTRAN $m^* = 10.4$ kN.m (SEE 3a) $\alpha_m = 1.0$ $\alpha_s = 0.471$

$\phi M_{bx} = 1.0 \times 0.471 \cdot 37 = 17.4$ kNm $\phi M_{sx} = 37$ kN.m

10.4 kN.m ≤ 17.4 kNm ✓ OKAY

* CHECK SLS DEFLECTION Δ DESIGN ≤ Δ ALLOWABLE

Δ ALLOWABLE = $\frac{\text{HEIGHT}}{500} = \frac{2400}{500} = 4.8$ mm

Δ ALLOWABLE = $\frac{\text{SPAN}}{240} = \frac{4200}{240} = 12$ mm

MICROSTRAN

Δ DESIGN = 3 mm

Δ DESIGN = 3 mm

3 mm ≤ 4.8 mm ≤ 12 mm ✓ OKAY

TAUPO DISTRICT COUNCIL

BC170355

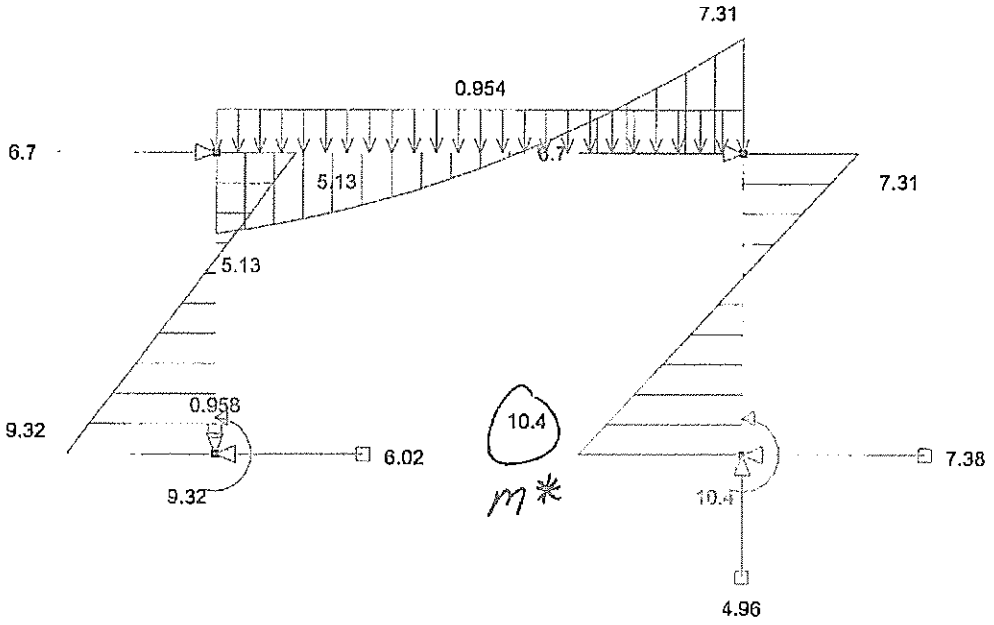
APPROVED CONSENT
PLANS/SPECIFICATIONS

Microstran V9

tpjba0
Job: portal 2
Jones Residence
Portal Frame 2 Line M Livingroom

Loa
01/02/2017
10:38:01 a.

Load Cases:
1 P ULS



Y
Z
X
theta: 270 phi: 0

ULS Eu, (1.2G,1.5Q)

Bending Moment, Mz
Support Reactions

TAUPO DISTRICT COUNCIL

BC170355

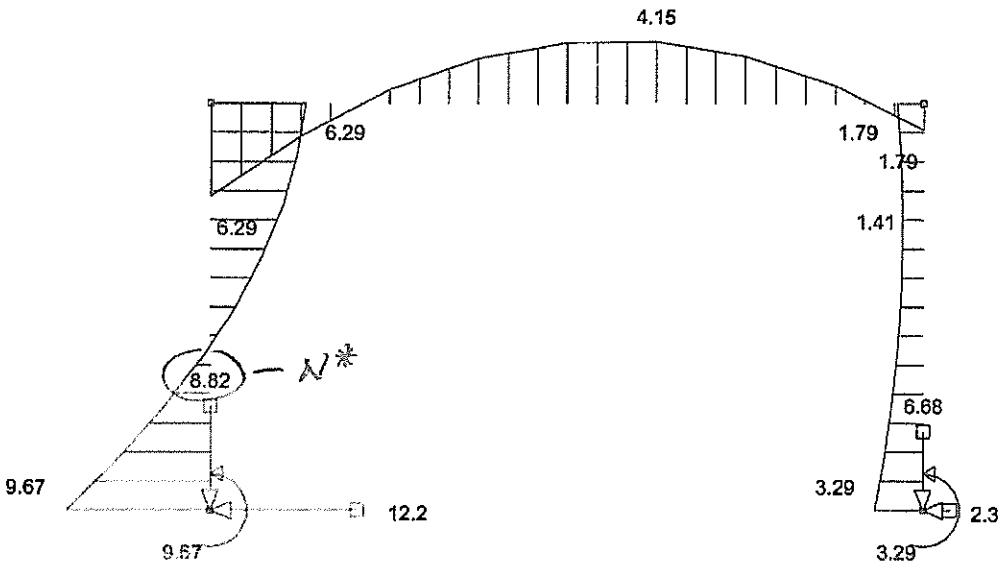
APPROVED CONSENT
PLANS/SPECIFICATIONS

Microstran V9

tpjba0
Job: portal 2
Jones Residence
Portal Frame 2 Line M Livingroom

07/02/2017
09:01:21 a.

Load Cases:
3 P wind ULS



Y
Z X
theta: 270 phi: 0

ULS, Wu, (1.2G, 0.0Q)

Bending Moment, Mz
Support Reactions

TAUPO DISTRICT COUNCIL

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APPROVED CONSENT
PLANS/SPECIFICATIONS

Loc

Load Cases:
4 P wind SLS

Portal Frame 1 Deflection Ws (G) BEAM

Member 2, 150PFC, Load Case 4

Pnt	Offset	Global X	Global Y	Global Z	Local y	Local z
1	0.000	0.002453	0.000031	0.000000	0.000000	0.000000
2	0.525	0.002454	0.000559	0.000000	0.000529	0.000000
3	1.050	0.002454	0.001335	0.000000	0.001306	0.000000
4	1.575	0.002455	0.002023	0.000000	0.001995	0.000000
5	2.100	0.002456	0.002335	0.000000	0.002368	0.000000
6	2.625	0.002457	0.002334	0.000000	0.002308	0.000000
7	3.150	0.002457	0.001852	0.000000	0.001867	0.000000
8	3.675	0.002458	0.000991	0.000000	0.000967	0.000000
9	4.200	0.002459	0.000023	0.000000	-0.000000	0.000000

$\Delta_s = 3mm$

0.002 0.000

0.002 0.000

$\Delta_s = 3mm$

0.000 0.000

0.000 0.000

Portal Frame 1 Deflection Ws (G) LEG

Member 3, 150PFC, Load Case 4

Pnt	Offset	Global X	Global Y	Global Z	Local y	Local z
1	0.000	0.000000	0.000000	0.000000	0.000000	0.000000
2	0.300	0.000087	0.000003	0.000000	0.000251	0.000000
3	0.600	0.000212	0.000006	0.000000	0.000403	0.000000
4	0.900	0.000446	0.000009	0.000000	0.000476	0.000000
5	1.200	0.000745	0.000012	0.000000	0.000485	0.000000
6	1.500	0.001099	0.000014	0.000000	0.000436	0.000000
7	1.800	0.001502	0.000017	0.000000	0.000342	0.000000
8	2.100	0.001954	0.000020	0.000000	0.000197	0.000000
9	2.400	0.002459	0.000023	0.000000	0.000000	0.000000
10	2.400	0.002459	0.000023	0.000000	-0.000000	0.000000

Y
Z X
theta: 270 phi: 0

SLS Ws (G)

Displaced Shape

TAUPO DISTRICT COUNCIL

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APPROVED CONSENT
PLANS/SPECIFICATIONS

Lod

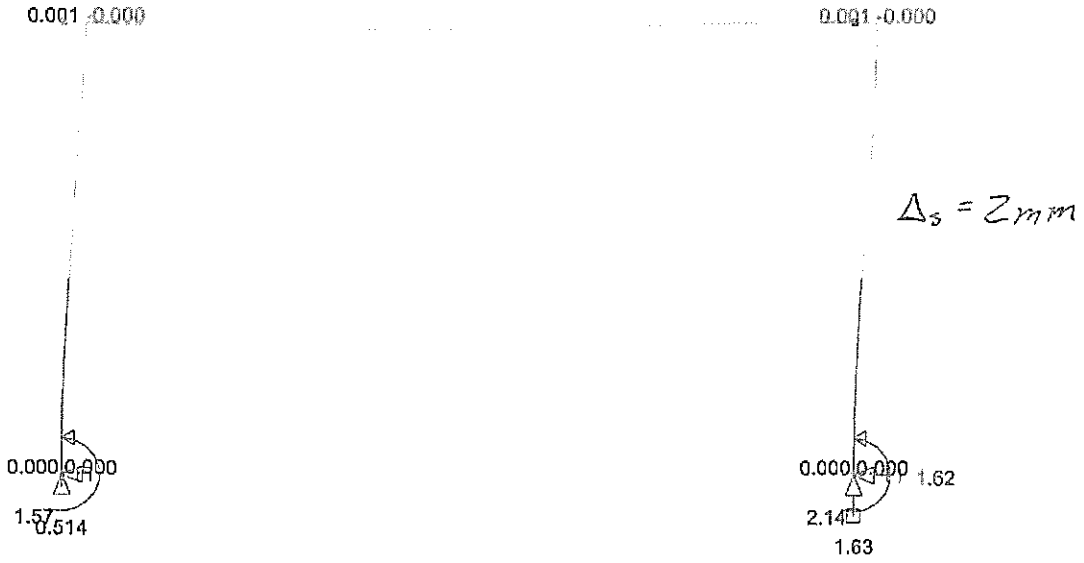
Load Cases:
2 P SLS

Portal Frame 1 Deflection Es, (G,0 3Q) BEAM

Member 2, 150PFC, Load Case 2

Pnt	Offset	Global X	Global Y	Global Z	Local y	Local z
1	0.000	0.001463	-0.000003	0.000000	0.000000	0.000000
2	0.525	0.001462	-0.000317	0.000000	-0.000313	0.000000
3	1.050	0.001462	-0.000503	0.000000	-0.000498	0.000000
4	1.575	0.001461	-0.000552	0.000000	-0.000546	0.000000
5	2.100	0.001461	-0.000474	0.000000	-0.000469	0.000000
6	2.625	0.001460	-0.000311	0.000000	-0.000304	0.000000
7	3.150	0.001460	-0.000119	0.000000	-0.000112	0.000000
8	3.675	0.001459	0.000017	0.000000	0.000025	0.000000
9	4.200	0.001458	-0.000009	0.000000	-0.000000	0.000000

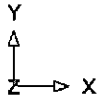
$\Delta_s = 2mm$



Portal Frame 1 Deflection Es, (G,0.3Q) LEG

Member 3, 150PFC, Load Case 2

Pnt	Offset	Global X	Global Y	Global Z	Local y	Local z
1	0.000	0.000000	0.000000	0.000000	0.000000	0.000000
2	0.300	0.000053	-0.000001	0.000000	0.000129	0.000000
3	0.600	0.000196	-0.000002	0.000000	0.000169	0.000000
4	0.900	0.000402	-0.000003	0.000000	0.000165	0.000000
5	1.200	0.000665	-0.000004	0.000000	0.000085	0.000000
6	1.500	0.000898	-0.000005	0.000000	0.000014	0.000000
7	1.800	0.001136	-0.000006	0.000000	-0.000042	0.000000
8	2.100	0.001332	-0.000008	0.000000	-0.000055	0.000000
9	2.400	0.001459	-0.000009	0.000000	-0.000000	0.000000
10	2.400	0.001459	-0.000009	0.000000	0.000000	0.000000



theta: 270 phi: 0

SLS (G,0.3Q)

Displaced Shape
Support Reactions

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT PLANS/SPECIFICATIONS

OPUS

Calculation Sheet

Project/Reference No: **2-37235.00**	Sheet No: 7
Project and Description: **Jones Residence, 6 The Fairways, Kinloch**	Office: **Taupo**
	Computed: **James Arnold**
	Checked:

PORTAL FRAME FOOTING + ANCHORING

MAXIMUM AXIAL LOAD $\Rightarrow N^* = 8.82$ kN

BEARING DESIGN $\Rightarrow$ BEARING CAPACITY $= \frac{\text{VERTICAL LOAD}}{\text{FOOTING AREA}}$

OR FOOTING AREA $= \frac{\text{VERT LOAD}}{\text{BEARING CAPACITY}}$ $\Rightarrow$ ASSUME SQUARE FOOTING

DESIGN BEARING CAPACITY = 100 kPa

FOOTING $= \sqrt{\frac{8.82}{100}} = 0.296$ m $\Rightarrow$ 300 mm WIDTH minimum

✓ SLAB PERIMETER FOOTING IS SUFFICIENT FOR AXIAL LOAD

* ANCHORING

* FROM MICROSTRAN OUTPUT $\Rightarrow$ $M^* = 10.4$ kN.m
$N^* = 8.82$ kN
$V^* = 12.2$ kN

* BOLT GROUP @ BASE $\Rightarrow$ 1 - M16 U-BOLT GRADE 8.8

BY INSPECTION M16/8.8 WILL HAVE MORE THAN ENOUGH CAPACITY

1 M16: $\phi V_{fn} = 59.3$ kN WHICH SURPASSES DEMAND (12.2 kN)

✓ OK FOR BASE SHEAR

* TENSION CHECK BOLT SPACING 240mm

$N^* = 8.82$
$M^* = 10.4$

$N_T^* = \frac{M^*}{L} + N^* = \frac{10.4}{0.240} + 8.82 = 52.2$ kN M16/8.8 - $\phi N_t = 104$ kN $\phi = 0.8$

$N_{tf}^* = 0.8(104) = 83.2 \geq 52.2$ ✓ OKAY

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APPROVED CONSENT PLANS/SPECIFICATIONS

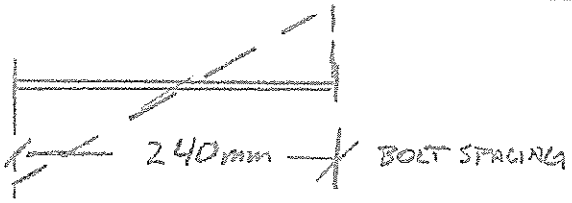
OPUS

Calculation Sheet

Project/Reference No: **2-37235.00**	Sheet No: 8
Project and Description: **Jones Residence, 6 The Fairways, Kinloch**	Office: **Taupo**
	Computed: **James Arnold**
	Checked:

* CHECK CONCRETE BEARING FOR MOMENT RESISTANCE BASE PLATE

$N^* = 52.2$ kN



$N = 52.2$ kN

BASE PLATE 300mm

BEARING AREA = $\frac{52.2\ kN}{100\ kPa}$ 100kPa ALLOWABLE BEARING CAPACITY NZS 3604:2011

$A = 0.522\ m^2$

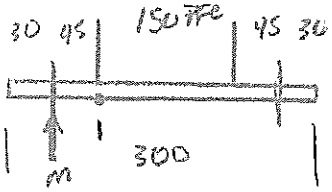
PERIMETER FOOTING WIDTH = 300mm

$L = \frac{0.52\ m^2}{.300\ m} = 1.7\ m$ MINIMUM FOOTING LENGTH

PORTAL FRAME 1 $L = 4.0\ m / 2\ Legs = 2.0\ m$ ✓ OK

PORTAL FRAME 2 $L = 4.2\ m / 2\ Legs = 2.1\ m$ ✓ OK

* CHECK BASE PLATE



MOMENT = 52.2kN × 0.045 m = 2.4 kNm

BASE PLATE THICKNESS = ? mm NEED $\phi M_n \geq 2.4$ kNm

PLATE BENDING CAPACITY $\phi M_n = 0.9 f_y b \times t^2/6$

$t = \sqrt{\frac{6\ \phi M_n}{0.9 f_y b}} = \sqrt{\frac{6 \times 2.4}{0.9 \times 300 \times 90}} = 0.0243\ m \Rightarrow 25\ mm$

CHECK $\phi M_n = 0.9 \times 300 \times 90 \times 25^2/6 = 2.53$ kNm ≥ 2.4 kNm ✓ OK

RECOMMEND BASE PLATE THICKNESS: 25 mm

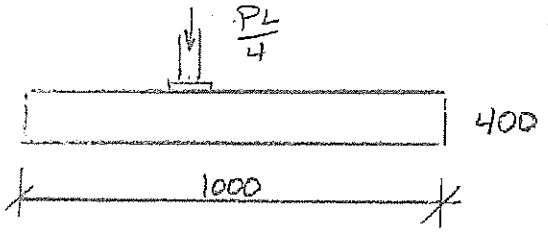
TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT PLANS/SPECIFICATIONS

OPUS

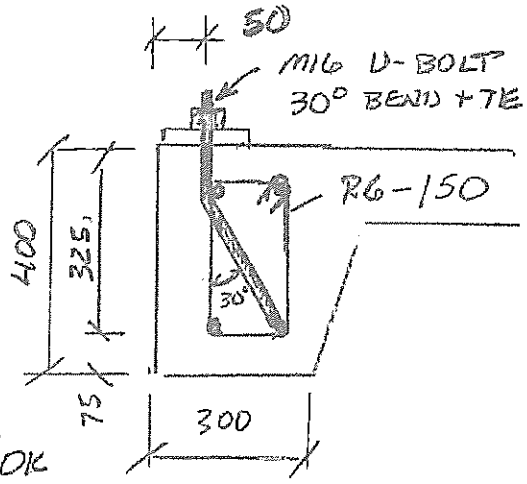
Calculation Sheet

Project/Reference No: **2-37235.00**	Sheet No: 9
Project and Description: **Jones Residence, 6 The Fairways, Kinloch**	Office: **Taupo**
	Computed: **James Arnold**
	Checked:

CHECK CONCRETE COVER + REINFORCEMENT $m^* = 10.4$ kNm



$P = \frac{10.4 \times 1.0m}{4} = 2.6$ kN



CONCRETE : 25 mPa

NZS 3101 = COVER

EXPOSURE CLASS. ⇒ A2

MIN COVER = 35 mm

SIDE COVER $50 - 16/2 = 42$ mm ✓ OK

BTM 300 + 75 (min cover) = 375 ⇒ 400mm Deep

CHECK REINFORCING ASSUME 4/D12

$\phi M_n = A_s f_y (d - 0.5a)$ $\quad a = \frac{A_s f_y}{\alpha_1 f'_c b}$ $\quad \alpha_1 = 0.85$ $\quad f'_c = 25$ mPa

$b = 1000$ $\quad f_y = 300$ mPa

BTM

2-D12 BARS ⇒ $A_s = 220 mm^2$ $\quad d = 400 - 75 - 12 - \frac{12}{2} = 307$mm

$a = \frac{220 \times 300}{0.85 \times 25 \times 1000} = 3.11$ mm

$\phi M_n = 220 \times 300 (307 - 0.5(3.11) = 20.2$ kN ≥ 2.6 kN ✓ OK

RECOMMEND

25 mPa CONCRETE FOOTING 300 x 400 deep

4/D12 BARS W/ R6 STIRRUPS @ 150 mm c-c.

D10 STARTERS + MESH PER PLAN

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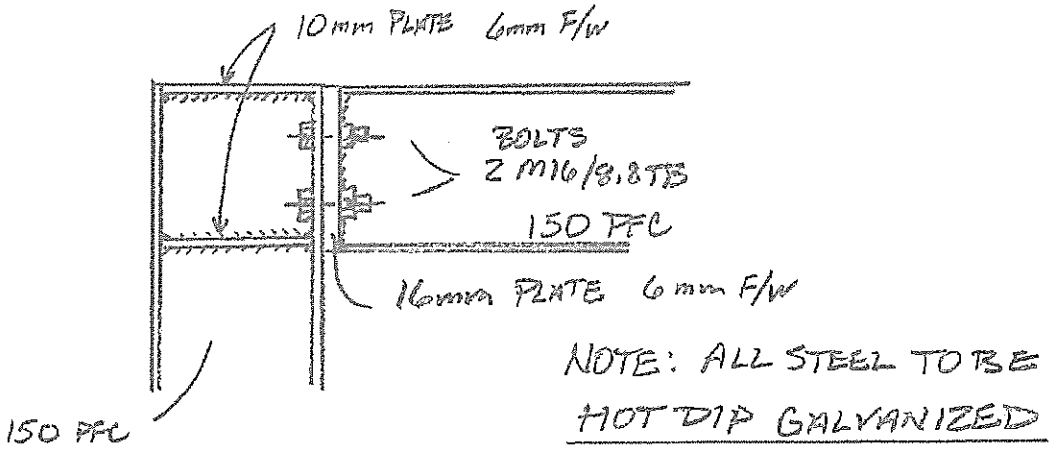
APPROVED CONSENT PLANS/SPECIFICATIONS

OPUS

Calculation Sheet

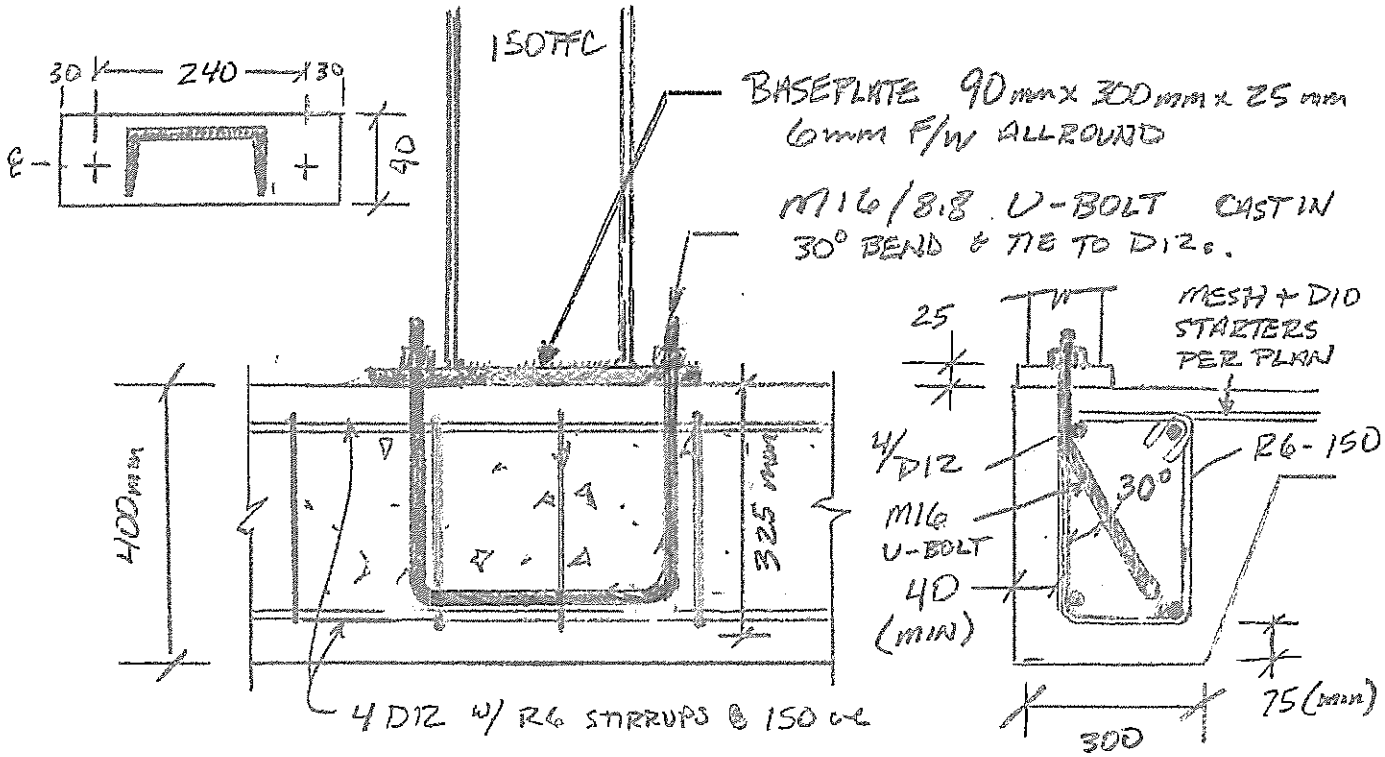
Project/Reference No: **2-37235.00**	Sheet No: 10
Project and Description: **Jones Residence, 6 The Fairways, Kinloch**	Office: **Taupo**
	Computed: **James Arnold**
	Checked:

SO1 PORTAL CONNECTION DETAIL



NOTE: ALL STEEL TO BE HOT DIP GALVANIZED

SO2 PORTAL BASE PLATE DETAIL + CONCRETE FOOTING



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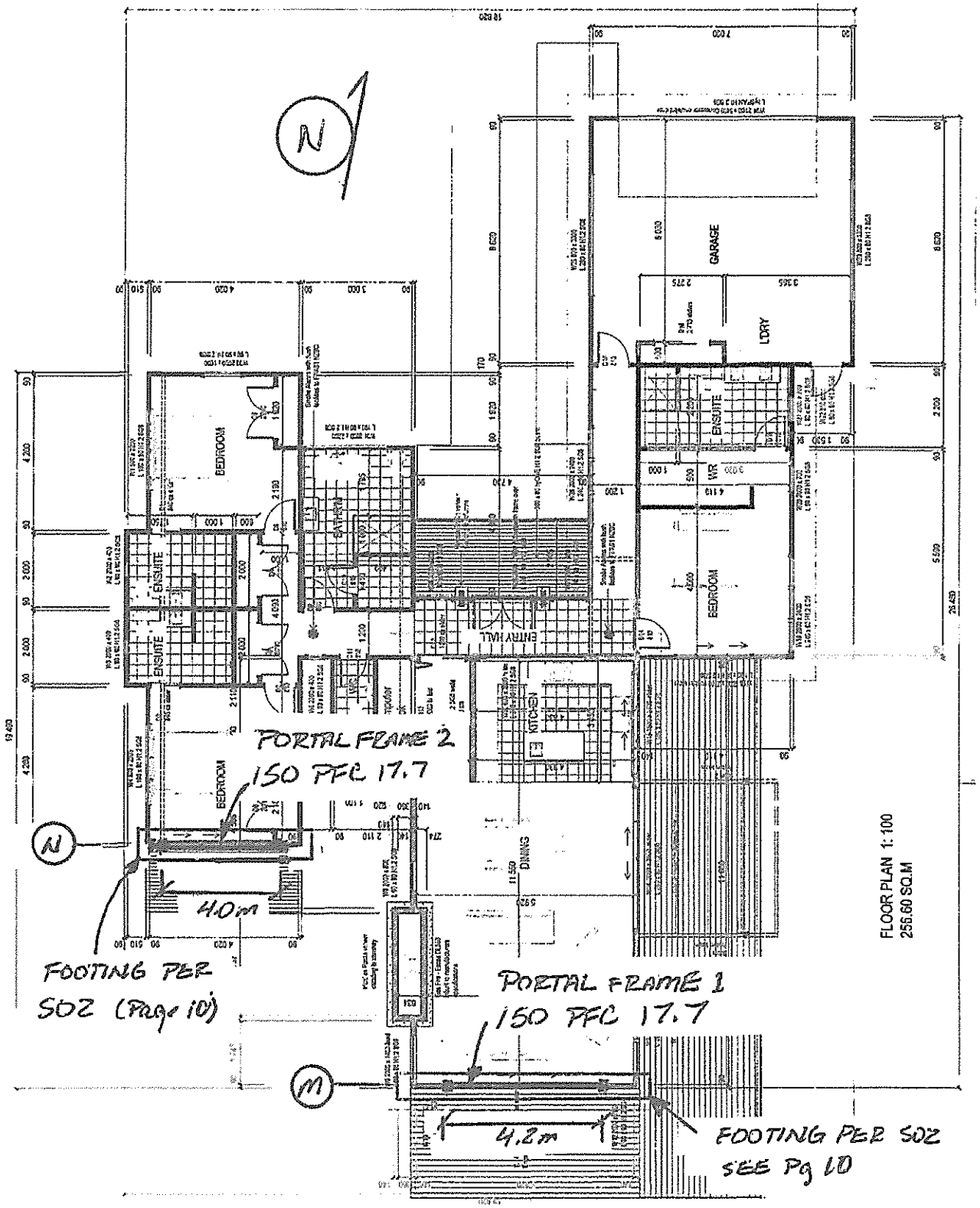
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APPROVED CONSENT PLANS/SPECIFICATIONS

OPUS

Calculation Sheet

Project/Reference No: **2-37235.00**	Sheet No: 11
Project and Description: **Jones Residence, 6 The Fairways, Kinloch**	Office: **Taupo**
	Computed: **James Arnold**
FOOTING + PORTAL FRAME LOCATION	Checked:



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BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS

OPUS

Calculation Sheet

Project/Reference No: **2-37235.00**	Sheet No: 12
Project and Description: **Jones Residence, 6 The Fairways, Kinloch**	Office: **Taupo**
	Computed: **James Arnold**
BRACING	Checked:

BRACING VALUE: 150 PFC 17.1 PORTAL FRAME

FROM JED DESIGN:

EQ ULS DESIGN ⇒ 13.7 kN × 20 BU/kN = 274 BU
V ULS (Pg 2)

WIND ULS DESIGN ⇒ 4.66 kN/m WINDWARD
W_U (Pg 5) 1.4 kN/m LEEWARD
6.06 kN/m
× 2.4 m
14.5 kN × 20 BU/kN = 291 BU

Calc BU/m

274 BU / 4.2 m = 65 BU/m EQ

291 BU / 4.2 = 69 BU/m WIND

USE THESE VALUES TO CREATE CUSTOM WALL BRACING ELEMENT AND BRACING VALUES FOR LINE M + N.

SEE Pg 12a, 12b

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APPROVED CONSENT PLANS/SPECIFICATIONS

Wall Bracing Elements

Supplier	System	Minimum Length (m)	BUs W/m	BUs EQ/m
GIB®	GS1-N	0.4	BRANZ Appraised Appraisal No.294 [2011]	
GIB®	GS2-N	0.4		
GIB®	GSP-H	0.4		
GIB®	BL1-H	0.4		
GIB®	BLP-H	0.4		
GIB®	BLG-H	0.4		
block 1	masonry	0.75	42	42
block 2	masonry	1.5	42	42
block 3	masonry	3	200	200
block 4	masonry	4.5	300	300
Hardies	Villa	1.2	130	101
Portal 1	steel	1	69	65
Portal 2	steel	1	69	65

SED. C

Subfloor Bracing Elements

Supplier	System	Minimum Length (m)	BUs W/m	BUs EQ/m
NZS3604	masonry 0.75	1.5	42	42
NZS3604	masonry 1.5	1.5	100	100
NZS3604	masonry 3.0	1.5	200	200
NZS3604	masonry 4.5	1.5	300	300
NZS3604	braced piles	1	160	120
NZS3604	cantilever pile	1	70	30
NZS3604	anchor pile	1	160	120

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12b

APPROVED CONSENT PLANS/SPECIFICATIONS

GIB EzyBrace® 2011 Software

SINGLE OR UPPER STOREY WALLS ACROSS

V06/11

Lines		*Bracing Elements*							
1	2	3	4	5	6	7	8	9	10
Line Total Check	Line Label	Bracing Element No.	Available Wall Length L (m)	Angle to Bracing line (degrees)	Element Height H (m)	Bracing Type	Supplier	Bracing Units Achieved	
								W	E
273	M	15	4.2		2.4	steel	Portal 1	290	273
260	N	16	4		2.4	steel	Portal 2	276	260
458	O	17	2.8		2.4	Villa	Hardies	364	283
		18	1.2		2.4	BLG-H	GIB®	180	175
438	P	19	3		2.4	BLG-H	GIB®	450	438
350	q	20	2.4		2.4	BLG-H	GIB®	360	350
119	r	21	0.6		2.4	BL1-H	GIB®	59	61
		22	0.6		2.4	BL1-H	GIB®	59	61

SED.

					Wind	Earthq.
Totals Achieved	W	183%	EQ	197%	2038	1901
Concrete Slab					*OK*	*OK*
Totals Required (from Demand)					1116	966

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT PLANS/SPECIFICATIONS

OPUS

Calculation Sheet

Project/Reference No: **2-37235.00**	Sheet No: 13
Project and Description: **Jones Residence, 6 The Fairways, Kinloch**	Office: **Taupo**
	Computed: **James Arnold**
SUMMARY	Checked:

* PORTAL FRAME 1 ⇒ 150 PFC 17.7 FRAME
  90 x 300 x 25 BASEPLATE
  1 - M16/8.8 U-BOLT - CAST IN
  KNEE PLATE CONNECTION 16mm
  2 - M16/8.8 BOLTS

BY INSPECTION PORTAL FRAME 1 DESIGN IS SUFFICIENT FOR PORTAL FRAME 2

* ∴ PORTAL FRAME 2 ⇒ 150 PFC 17.7 FRAME

* SEE DRAWINGS S01 + S02 ON PAGE 10 + PLAN Pg 11

* FOOTING 300 mm WIDE x 400 mm deep (minimum)
  4 D12 BARS w/ STIRRUPS R6 - 150 c/c
  D10 STARTERS + MESH PER PLAN

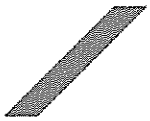
NOTE: (1) FOOTINGS TO BE FULL LENGTH OF HOUSE FOUNDATION AT LIVING ROOM (LINE M) AND BEDROOM (LINE N).

(2) ALL STEEL TO BE HOT DIPPED GALVANIZED. INCLUDING M16 U-BOLT ANCHORS. GALVANIZING PER AS/NZS 2312.2 HDG 320 MIN AVG THICKNESS 45 microns.

TAUPO DISTRICT COUNCIL

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APPROVED CONSENT
PLANS/SPECIFICATIONS



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www.opus.co.nz

MiTek New Zealand Limited

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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.miteknz.co.nz

ACCEPTANCE CONDITIONS
BC170355
APPROVED CONSENT
PLANS/SPECIFICATIONS

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

ISSUED BY: **MiTek New Zealand Limited**

TO: **Napier Manufacturing**

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 **FA10596** and may be used by a Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

The MiTek 20/20® truss design program has been developed by MiTek New Zealand Limited for the design of MiTek® timber roof, floor and attic trusses in New Zealand. The truss designs computed by MiTek 20/20 ® are prepared using sound and widely accepted engineering principles, and in accordance with compliance documents of the New Zealand Building Code and Verification Method B1/VM1; and internationally accepted standard ANSI/TPI 1 - 2002 as an alternative solution, to satisfy the requirements of Clauses B1 and B2 of the New Zealand Building Code.

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

i) All proprietary products meeting their performance specification requirements
ii) The provision of adequate roof bracing and overall building stability
iii) Correct selection and placement of GANG-NAIL connector plates
iv) Correct input of Truss Design Data as shown in the Fabricator Design Statement for this job
v) The design being undertaken by the accredited fabricator under the terms of the software licence
vi) Timber is graded to the requirements of NZS 3603:1993
vii) Minimum timber treatment for these MiTek® trusses shall be in accordance with B2/AS1 Table 1A and the relevant sections of NZS 3602:2003

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

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

On behalf of MiTek New Zealand Limited, **Date: Wednesday, 25 January 2017**



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

Job: FA10596
Client: PENNY HOMES LTD
Phone:
Site: JONES RESIDENCE
6 THE FAIRWAYS
KINLOCH
Description:
Building Consent No.:
Phone:

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT
PLANS/SPECIFICATIONS

MITEK FABRICATOR DESIGN STATEMENT

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

MiTek 20/20® TRUSS DESIGN DATA

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

Job Details

Importance Level : 2

Design Working Life : 50 years

Roof Truss

Timber Group:	MSG8 DDP H1.2	Pitch:	8.000 deg	Nominal Overhang:	600 mm
Roof		**Ceiling**		**Wind**	
Material:	Galv Iron .5mm	Material:	Gib 13mm/Rondo Screwed	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:	600 mm centres		
Live Load:	Qur = 0.250 kPa Qc = 1.100 kN	Live Load:	Qc = 1.400 kN		

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

MiTek® Truss List

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

Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
T1	7	7200	8.000	900	T4	1	4290	8.000	900
T3	1	5580	8.000	900	T5	6	2250	3.000	900
T8	7	6330	3.000	900	T6	1	1710	3.000	900
ET1	1	7200	8.000	900	T7	9	3630	3.000	900
ET2	1	1620	-8.000	900	T9	3	1720	3.000	900
ET3	1	4200	8.000	900	*R1	1	1620	8.000	900
T2	6	5580	8.000	900	*R2	1	8400	8.000	900
T2A	1	5580	8.000	900	*R3	1	4800	8.000	900

Total quantity : 48

The computer design input has been carried out by:

Name of Computer Operator: David shaw

Qualifications and Title: Truss Detailer

Signed:

CARTERS

A Division of Carter Holt Harvey

Dated: Wednesday, 25 January 2017

BUILDABLE CONSENT LAYOUT

TAUPO DISTRICT COUNCIL
BC170655
APPROVED CONSENT
PLANS/SPECIFICATIONS

CARTERS
YourBuildingPartner

Napier Manufacturing
5 Waitane Place, Onekawa
(07) 377 6904

JOB No **FA10596**

Client: PENNY HOMES LTD
Job Name: JONES RESIDENCE
Address: 6 THE FAIRWAYS
KINLOCH

Pitch: 8.0deg
Roof Type: Galv Iron .5mm
Overhang: 600mm
Wind Area: High
Roof Snow: 0.000kPa

Trusses and rafters at 900mm max centres unless stated otherwise. This layout is to be read in conjunction with the Architectural plans.

DRAWN David shaw | 25 Jan,2017

FIXINGS

A = 47x90 Joist Hanger
B = 47x120 Joist Hanger
C = CT200 (pair)
D = 47x190 Joist Hanger
E = 95x165 Joist Hanger
G = SH-140 Split Hanger
H = SH-180 Split Hanger
K = SH-220 Split Hanger
L = 6kN Strap
M = Multigrips (pair)
N = Nailon Plate
S = CPC 40 Single Cleat
T = CPC 40 Short (pair)
U = CPC 80 Single Cleat
Q = 9kN Pack
P = 16kN Pack
X = 25kN Uplift
Y = 35kN Uplift
Z = 45kN Uplift

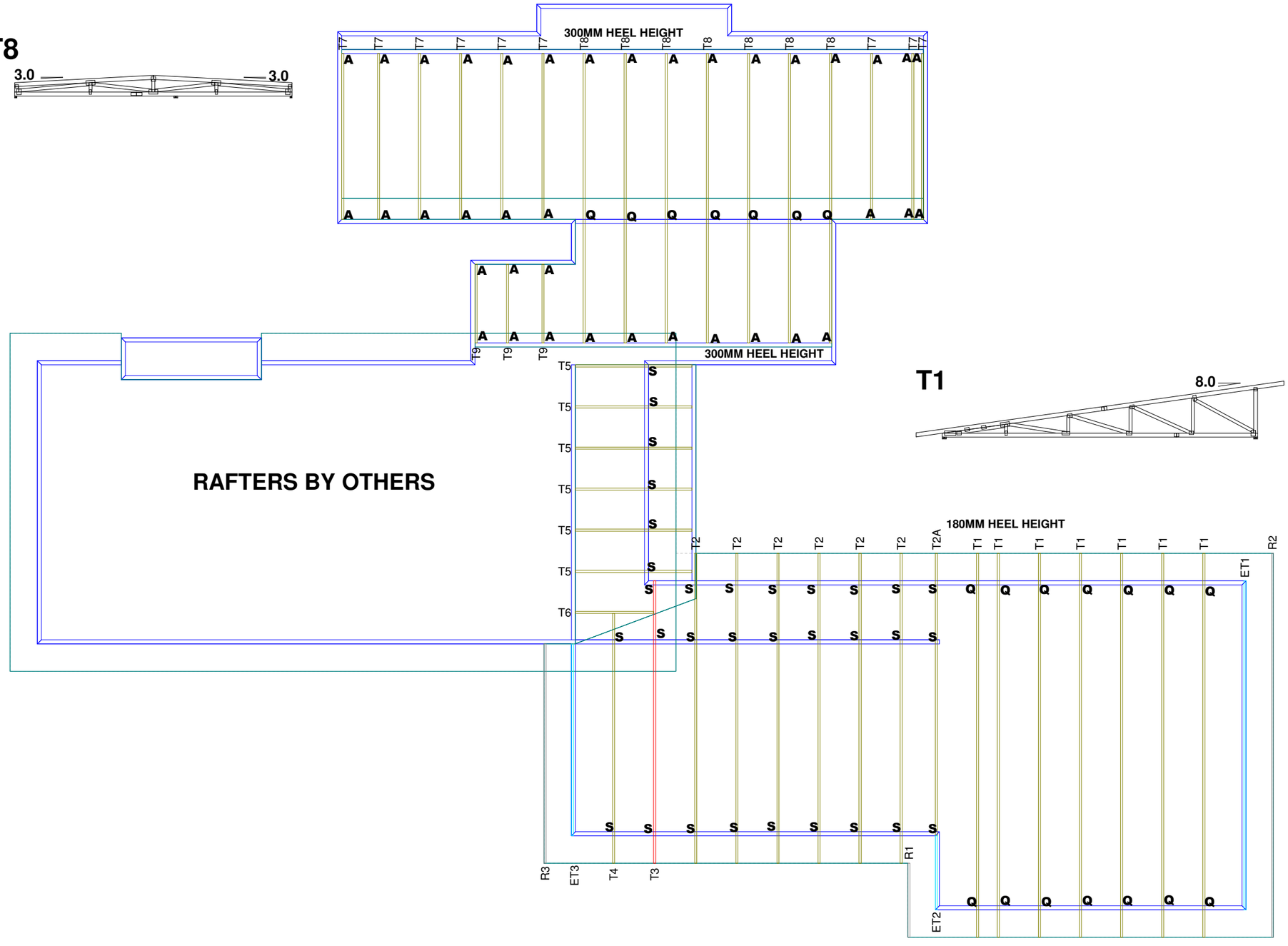
All truss fixings not indicated as above must have two wire dogs.

Please contact your local CARTERS Manufacturing Branch for any queries regarding this layout.

See Back Page for Dimensions, Lintel Statement & Point Load Notification.

FTMA NEW ZEALAND

T8

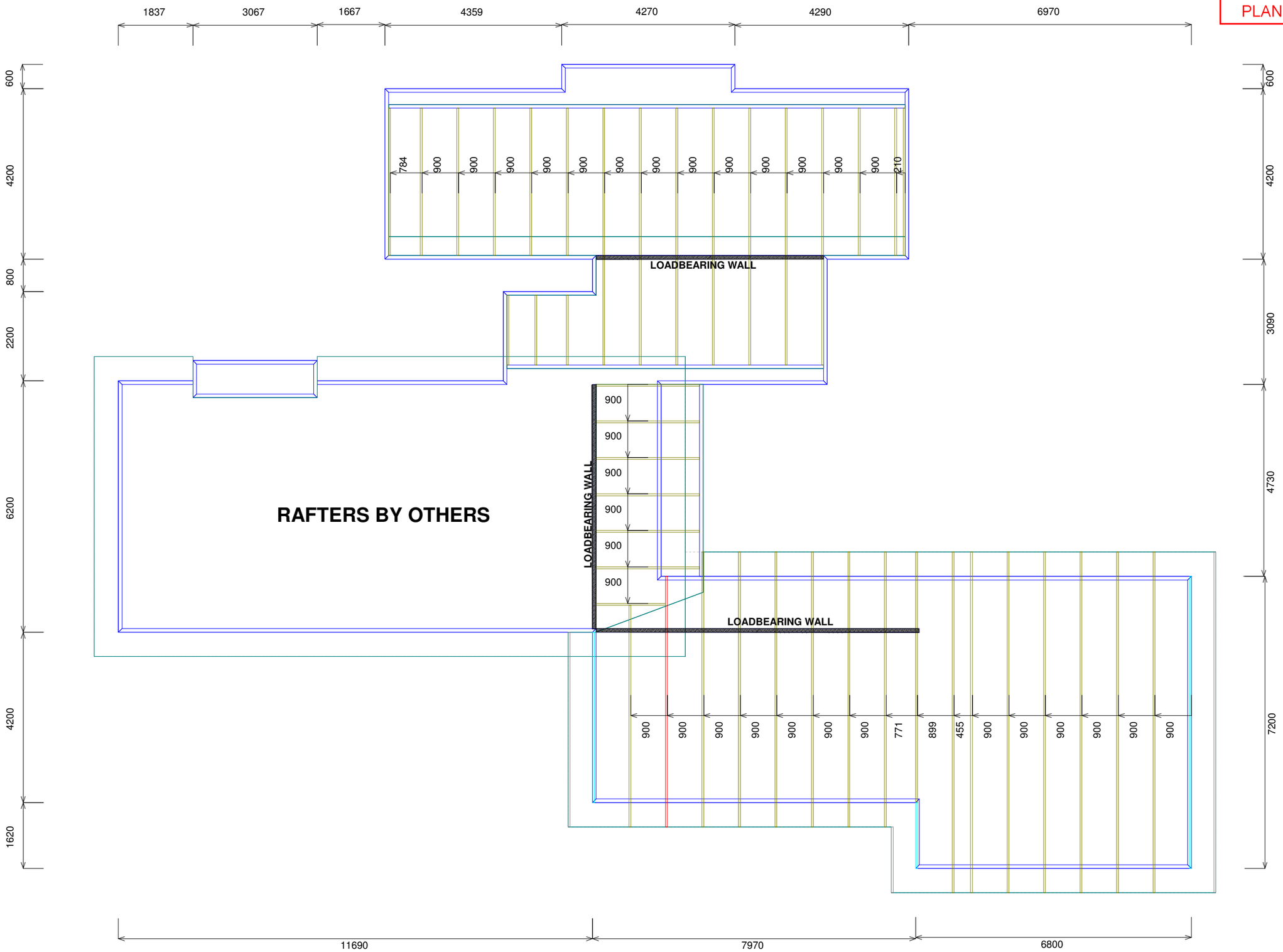


T1

NOTE: All gable trusses are designed to suit cladding manufacturers framing requirements.
If a gable truss requires a windbeam brace, the type of MiTek brace will be noted as such on the layout

BUILDABLE CONSENT LAYOUT

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT
PLANS/SPECIFICATIONS



NOTE: If metal ceiling battens on clips are used, bottom chord bracing is required at 1800mm centres.

CARTERS
Your Building Partner

Napier Manufacturing
5 Waitane Place, Onekawa
(07) 377 6904

JOB No **FA10596**

Client: PENNY HOMES LTD
Job Name: JONES RESIDENCE
Address: 6 THE FAIRWAYS
KINLOCH

Pitch: 8.0deg
Roof Type: Galv Iron .5mm
Overhang: 600mm
Wind Area: High
Roof Snow: 0.000kPa

Trusses and rafters at 900mm max centres unless stated otherwise. This layout is to be read in conjunction with the Architectural plans.

DRAWN David shaw | 25 Jan,2017

The lintels have been sized using one of the following:

hy90, hyONE and hySPAN lintels have been sized using the designIT for houses - New Zealand series 5 software.

GANGLAM and FLITCH BEAMS have been sized using the MiTek Beam Program V1.10 June 2011.

Any treated LVL product is H3.1, which satisfies the minimum treatment requirement of H1.2 as per NZS3602.

Unless otherwise stated the timber grade for all lintels is SG8. Lintels not shown are to be selected as per NZS3604: 2011.

All walls shown on this layout are considered to be load bearing.

__kN

Dn ____ kN
Up ____ kN

Notification of point loaded lintels or point loads on internal walls where the downward load is higher than 10kN or the upward load is greater than 12kN.

See Front Page for Truss Layout and Fixings

FTMA NEW ZEALAND

TAUPO DISTRICT COUNCIL
RC 170855
APPROVED CONSENT PLANS/SPECIFICATIONS
Date printed: 27/01/2017

designIT HOUSES

Carter Holt Harvey Woodproducts New Zealand

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

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

AS 1720.1 – 2010 Timber structures. Part 1: Design methods.
NZS 3603:1993 Timber Structures Standard.
NZS 3604:2011 Timber-framed buildings.
NZS 3602:2003 Timber and Wood-based products for Use in Building
AS 1684.1 – 1999 Residential timber framed construction. Part 1: Design criteria.
AS/NZS 1170:2002 Structural design actions, Parts 0 and 1.
AS/NZS 1170:2011 Structural design actions, Part 2: Wind actions.
AS/NZS 1170:2003 Structural design actions, Part 3: Snow and Ice actions.

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: 15 September 2016

For further information or advice please contact:
Carter Holt Harvey Woodproducts New Zealand
173 Captain Springs Road, Onehunga. Auckland
Telephone 0800 808 131
Facsimile 0800 808 132
Email: designit@chhwoodproducts.co.nz

Specifier details:

Specifier:	Clint	
Business name:	URBANFORM ARCHITECTURAL	
Address:		
Email:		
Phone: 021 544 780	**Mobile:**	**Facsimile:**

Project & Site details:

Project:	jones residence	**Ref. no.:** rafters
At (address):		
For (owner/s):		
Wind zone:	High	
Snow loading	Snow region: N0, snow loading not applicable	

MEMBER DESIGN DETAILS

Member 1

1) Member code and description R1 - Common rafters

2) Date prepared 27/01/2017

3) Serviceability criteria AS 1720.1-2010 and AS 1684.1-1999

4) Design inputs

Span	6.0 m - single
Maximum rafter spacing	900 mm
Roof mass	30 kg/m²
Lateral restraint condition	Bottom edge restrained by ceiling / ceiling battens at 600 crs max.

TAUPO DISTRICT COUNCIL
BC170855
APPROVED CONSENT PLANS/SPECIFICATIONS

designIT HOUSES

Carter Holt Harvey Woodproducts New Zealand

5) Member specification

Size, stress grade/product	Use 300 x 63 hySPAN
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 - $G+\psi_L Q$ *	20.0 mm	7.0 mm (long term)	$\frac{20.0}{7.0} = 2.9$
*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 [4] kN
1.35G	0.60	-1.6
1.2G + 1.5Q	0.80	-3.3
$1.2G + W_U + \Psi_C Q$	1.00	-3.3
$0.9G + W_U$	1.00	2.5

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

8) Installation requirements Minimum bearing - end supports, 30 mm.

Notes for interpretation of serviceability data

1. "average deflection" is an engineering concept based upon a notional estimated load, notional member rigidity and, in some cases, an approximate model of material response to environmental conditions. These parameters are, 'standardised' in AS/NZS 1170, AS 1684.1 and AS 1720. Deflections calculated using this methodology cannot therefore be usefully compared with deflections calculated using other methods, eg GLTAA design methodology.
2. 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/NZS 1328	Average + 33%
LVL to AS/NZS 4357 (includes hySPAN and hyJOIST)	Average +18%

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

3. The limits referred are those specified in AS 1684.1 for the stated load case.
4. 'Rigidity ratio' expresses the rigidity of the specified beam relative to the rigidity of a notional beam just meeting the serviceability requirements of AS 1684.1

Notes for interpretation of reaction data

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

TAUPO DISTRICT COUNCIL
BC170355
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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 (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 Laserframe 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:

NZS 3603:1993 Timber Structures Standard.

NZS 3604:2011 Timber-framed buildings.

AS 1720.1:2010 Timber structures. Part 1: Design methods.

AS 1720.3:2016 Timber structures. Part 3: Design criteria for timber-framed residential buildings

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

AS/NZS 1170:2011 Structural design actions, Part 2: Wind actions.

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

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: 3 May 2017

For further information or advice contact:

Carter Holt Harvey Woodproducts New Zealand,
173 Captain Springs Road, Onehunga. Auckland
Telephone: 0800 808 131
Facsimilie: 0800 808 132
Email: designit@chhwoodproducts.co.nz
Web: http://www.chhwoodproducts.co.nz

Specifier details:

Specifier:	Clint
Business name:	URBANFORM ARCHITECTURAL
Email:	clint.bramley@callplus.net.nz

Project & site details:

Project:	jones residence
At (address):	6 the fairways, kinloch
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	09 June 2017
3) Serviceability criteria	AS 1720.1: 2010 and AS 1720.3: 2016

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PLANS/SPECIFICATIONS

4) Design inputs

Span	4.2 m
Roof load width 'RLW'	3.4 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 63 hySPAN
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 + Ψ_{LQ}*	10.0 mm	6.4 mm (long term)	1.6
Live load - $\Psi_{s}Q$	15.0 mm	1.8 mm	8.1
Wind load - W_s	21.0 mm	5.6 mm	3.8

*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	-4.4
1.2G + 1.5Q	0.80	-6.8
1.2G + W_u + $\Psi_c Q$	1.00	-9.5
0.9G + W_u	1.00	5.9

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

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Notes for interpretation of serviceability data

1. '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. Deflections calculated using this methodology cannot therefore be usefully compared with deflections calculated using other methods, eg GLTAA design methodology.

2. 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!

3. The limits referred are those specified in AS 1720.3 for the stated load case.

4. 'Rigidity ratio' expresses the rigidity of the specified beam relative to the rigidity of a notional beam just meeting the serviceability requirements of AS 1720.3

Notes for interpretation of reaction data

1. Duration of load factor 'k_1' for strength as per NZ 3603:1993
2. Negative (-) reactions relate to the 'gravity' or 'downwards' force on the support

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT
PLANS/SPECIFICATIONS

3. Positive reactions relate to the 'upwards' forces or 'tie-down' requirement on the support
4. End reaction includes allowance for overhang/cantilever where one has been designed

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT
PLANS/SPECIFICATIONS

DESIGN CERTIFICATE

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

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

NZS 3603:1993 Timber Structures Standard.

NZS 3604:2011 Timber-framed buildings.

AS 1720.1:2010 Timber structures. Part 1: Design methods.

AS 1720.3:2016 Timber structures. Part 3: Design criteria for timber-framed residential buildings

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

AS/NZS 1170:2011 Structural design actions, Part 2: Wind actions.

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

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: 3 May 2017

For further information or advice contact:

Carter Holt Harvey Woodproducts New Zealand,
173 Captain Springs Road, Onehunga. Auckland
Telephone: 0800 808 131
Facsimilie: 0800 808 132
Email: designit@chhwoodproducts.co.nz
Web: http://www.chhwoodproducts.co.nz

Specifier details:

Specifier:	Clint
Business name:	URBANFORM ARCHITECTURAL
Email:	clint.bramley@callplus.net.nz

Project & site details:

Project:	jones residence
At (address):	6 The Fairways, Kinloch
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	13 June 2017
3) Serviceability criteria	AS 1720.1: 2010 and AS 1720.3: 2016

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT
PLANS/SPECIFICATIONS

4) Design inputs

Span	5.4 m
Roof load width 'RLW'	1.0 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 - $G + \Psi_{LQ}$*	10.0 mm	3.9 mm (long term)	2.5
Live load - $\Psi_s Q$	15.0 mm	0.9 mm	17.2
Wind load - W_s	27.0 mm	2.6 mm	10.2

*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	-2.1
1.2G + 1.5Q	0.80	-3.0
$1.2G + W_u + \Psi_c Q$	1.00	-4.0
$0.9G + W_u$	1.00	1.9

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

8) Installation requirements

- Provide at least 30 mm bearing at end supports

Notes for interpretation of serviceability data

1. '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. Deflections calculated using this methodology cannot therefore be usefully compared with deflections calculated using other methods, eg GLTAA design methodology.

2. 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!

3. The limits referred are those specified in AS 1720.3 for the stated load case.

4. 'Rigidity ratio' expresses the rigidity of the specified beam relative to the rigidity of a notional beam just meeting the serviceability requirements of AS 1720.3

Notes for interpretation of reaction data

1. Duration of load factor 'k_1' for strength as per NZ 3603:1993
2. Negative (-) reactions relate to the 'gravity' or 'downwards' force on the support

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT
PLANS/SPECIFICATIONS

3. Positive reactions relate to the 'upwards' forces or 'tie-down' requirement on the support
4. End reaction includes allowance for overhang/cantilever where one has been designed

TAUPO DISTRICT COUNCIL
Worksheet
BC170355
27 January 2017
APPROVED CONSENT
PLANS/SPECIFICATIONS

PROLAM SUMMARY

SN-R10066555

Customer/Project: Worksheet
Physical Address:

Designer: clint bramley, urbanform architecture
PO Box 1604, Taupo 3330
E: bramleyfamily@gmail.com P: 21544780

jones residence

Prolam Lintels Supporting Roof and Ceiling

Building Type	House	Roof Weight	Light without Ceiling
Timber	Pine, Machined	Roof Load	0.25 kPa
Treatment	H3.2	Live Load	0.25 kPa uniform
Visual	Yes		1.10 kN concentrated
Exposed	Yes	Wind Zone	High (44.0 m/s)
Roof Pitch	8 °	Snow Region	No Snow
Roof Span	4.20 m		
Lintel Span	3.00 m		

Use Prolam PLVL8H3-20075 190 x 63mm PL8

Capacity Ratio	2.0
Long Term Deflection	< 1.0 mm
Max. Bearing Reaction	2.8 kN
Load Combination	1.2G + 1.5Qpoint
Minimum Bearing Length	35 mm
Uplift Fixing Requirements	4.625 kN Characteristic Load

PRODUCER STATEMENT

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

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

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

David King

David King
ME (civil, MIPENZ CPEng (no 145511) IntPE
For Tasman Consulting Engineers, PO Box 3631, Richmond, NELSON 7050
27 January 2017

TAUPO DISTRICT COUNCIL
Worksheet
BC170355
27 January 2017
APPROVED CONSENT
PLANS/SPECIFICATIONS

PROLAM SUMMARY

SN-R10066556

Customer/Project: Worksheet
Physical Address:

Designer: clint bramley, urbanform architecture
PO Box 1604, Taupo 3330
E: bramleyfamily@gmail.com P: 21544780

jones residence

Prolam Verandah / Carport Posts - non-bracing

Building Type	House	Roof Weight	Light without Ceiling
Timber	Radiata Pine, Machined	Wind Zone	High (44.0 m/s)
Treatment	H5	Snow Region	nosnow
Post Height	4.30 m	Altitude	0 m
Exposed	Yes	Ground Snow Load	0.00 kPa
Roof Pitch	8 °	Roof Snow Load	0.00 kPa
Verandah Beam Span	3.00 m		
Roof Loading Width	2.20 m		

Use Prolam PLP8H5-150 135 x 135mm PL8

Maximum Wind Uplift	9.40 kN
Concrete Volume To Resist Wind Uplift	0.41 m^3

PRODUCER STATEMENT

TASMAN CONSULTING ENGINEERS

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

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

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

David King

David King
ME (civil, MIPENZ CPEng (no 145511) IntPE
For Tasman Consulting Engineers, PO Box 3631, Richmond, NELSON 7050
27 January 2017

TAUPO DISTRICT COUNCIL
Worksheet
BC170355
27 January 2017
APPROVED CONSENT
PLANS/SPECIFICATIONS

PROLAM SUMMARY

SN-R10066557

Customer/Project: Worksheet
Physical Address:

Designer: clint bramley, urbanform architecture
PO Box 1604, Taupo 3330
E: bramleyfamily@gmail.com P: 21544780

jones residence

Prolam Internal and External Rafters

Building Type	House	Roof Weight	Light without Ceiling
Timber	Pine, Machined	Roof Load	0.25 kPa
Treatment	H3.2	Live Load	0.25 kPa uniform
Visual	Yes		1.10 kN concentrated
Exposed	No	Wind Zone	High (44.0 m/s)
Roof Pitch	8 °	Snow Region	No Snow
Rafter Spacing	0.90 m		
Rafter Span	4.30 m		

Use Prolam PLVL8H3-20075 190 x 63mm PL8

Capacity Ratio	2.2
Long Term Deflection	< 1.0 mm
Max. Bearing Reaction	2.4 kN
Load Combination	1.2G + 1.5Qpoint
Minimum Bearing Length	35 mm
Uplift Fixing Requirements	2.75 kN Characteristic Load
End Fixing to Resist Uplift	2/100 x 3.75 skewed nails and 2 wire dogs or 4.7kN connection

PRODUCER STATEMENT

TASMAN CONSULTING ENGINEERS

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

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

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

David King

David King
ME (civil, MIPENZ CPEng (no 145511) IntPE
For Tasman Consulting Engineers, PO Box 3631, Richmond, NELSON 7050
27 January 2017

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT
PLANS/SPECIFICATIONS

prolam
Engineered Timber Innovations

PAINTING SPECIFICATIONS

IMPORTANT PLEASE READ!

This laminated treated product must be protected from the elements until it is sealed. Timber naturally absorbs moisture from the surrounding environment. This can cause the product to alter dimensionally. Sealing the product with a quality paint system dramatically reduces the incidence of dimensional change and increases longevity.

Recommended procedure:

1. Fill nail holes with an exterior grade woodfiller.
2. Sand back until surface is smooth and completely free from dirt and dust.
3. If painting, prime all surfaces and cut ends and joints with a good quality alkyd primer and allow drying as per paint manufacturer's instructions.
4. Apply two full coats of a premium brand acrylic or enamel topcoat.
5. If staining apply three full coats of a premium stain including cut ends and joints.
6. Product must be recoated every 2 years.

NOTE: Light colours are recommended. As timber moves with environmental changes, resin bleeding, distortion and cracking may occur.

NO WARRANTY APPLIES TO ANY PRODUCT THAT HAS NOT BEEN KEPT DRY, OR HAS NOT BEEN PAINTED AS RECOMMENDED ABOVE.

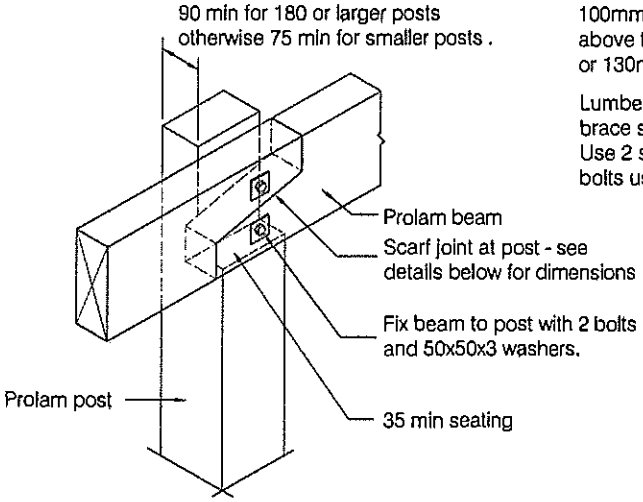
283 Waiwhero Rd P O Box 413 Motueka New Zealand Phone 03 526 7436 Fax 03 526 7437
Email: info@prowoodnz.com

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT
PLANS/SPECIFICATIONS

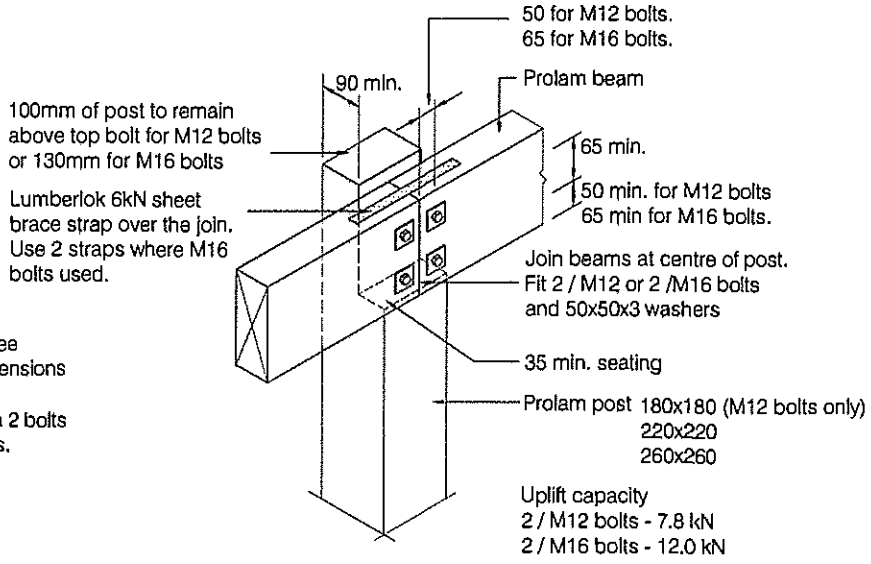
prolam
Engineered Timber Innovations

Prolam® On-line Calculator - www.prolamnz.com/specifiers
Ph 03 526 7436 E info@prowoodnz.com

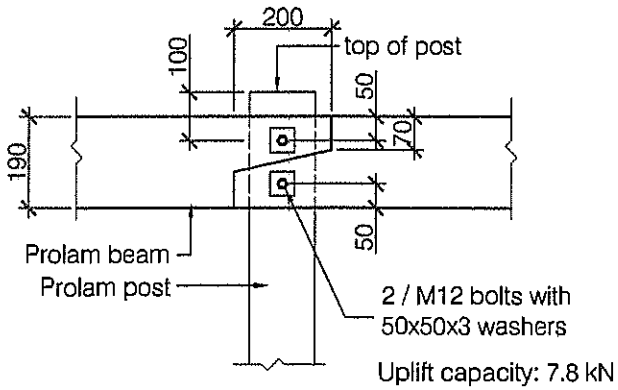
PROLAM POST FIXINGS



SCARF JOINT AT POSTS

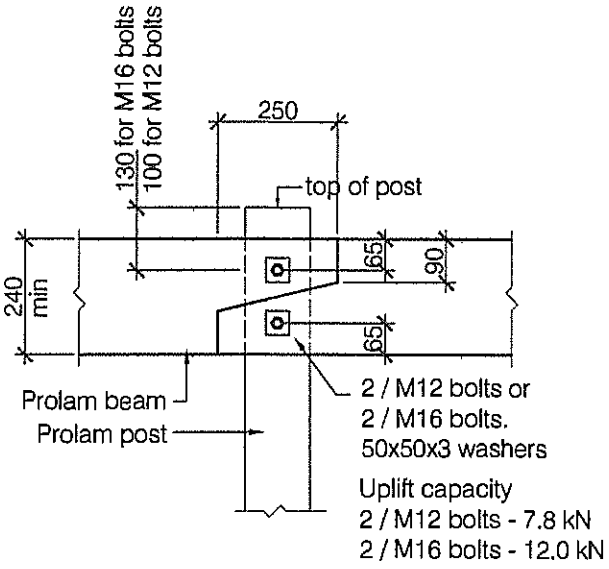


BEAM SPLICE FOR 180x180
OR LARGER POSTS



SCARF JOINT FOR 190 BEAMS

Not suitable for M16 bolts



SCARF JOINT FOR 240 OR LARGER BEAMS

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT
PLANS/SPECIFICATIONS

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

Subfloor Applications:

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

External Use:

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

Preservative Treatment:

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

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

Storage of **PROLAM®**:

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

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

Branded **PROLAM®**:

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

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS

Construction R-value Calculator

This webpage calculates the R-value of walls, roofs and suspended floors for most insulation material R-values. It uses the "iso-thermal planes" method, the same method as used in NZS4214:2006.

Some of the possible material combinations may not be suitable for actual constructions, i.e. EPS based claddings directly fixed on timber framing. Please make sure to select only appropriate material combinations.

If your construction is not listed, please send an e-mail to designnavigator@gmail.com with a description and a detail drawing (pdf) of it or use the new Design Navigator message board.

Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel.

- (•) Floors
- ( ) Walls
- ( ) Roofs

jones slab 1.43 m²K/W

Type: Floor: Slab floor

Slab floor

internal surface 0.09

Flooring : none (Example: polished surface of a concrete floor)

R-value: 0.00

Slab Insulation

Slab floor area [m²]:	256.6		
Perimeter length [m]:	99.22		
External wall thickness [mm]:	90		
Soil conductivity [W/m °C]	1.2		
Underslab insulation:	none	Insulation :	
Piles Footings:	Number:	Penetration Diameter:	
Slab edge insulation:	none	Insulation :	

Print Page

Current NZS4218/H1 Schedule minimum R-value Targets (non-solid contruction)

	Zone 1	Zone 2	Zone 3
Roof	R-2.9	R-2.9	R-3.3
Wall	R-1.9	R-1.9	R-2.0
Floor	R-1.3	R-1.3	R-1.3
Glazing (vertical)	R-0.26	R-0.26	R-0.26
Glazing (skylights)	R-0.26	R-0.26	R-0.31

Australian Building Code Targets

	All Zones except NSW	NSW
Roof	R-4.1	R-6.3
Wall	R-2.9	R-3.8

TAUPO DISTRICT COUNCIL

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APPROVED CONSENT PLANS/SPECIFICATIONS

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Floors ○
Walls ◉
Roofs ○

shiplap 140 wall — 2.70 m²K/W

Type: Wall: Timber frame with vented cavity

timber frame with vented cavity

external surface 0.03

Cladding : Rusticated or shiplap weatherboard
R-value: 0.16

Air Barrier : Building paper
R-value: 0.01

Timber Frame & Cavity : 140mm, studs @ 400mm, dwangs @ 800mm

Wall Frame Area: 17.9%	*Cavity Area: 82.1%*
15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08	15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08
Framing : *R-value: 1.19*	Insulation : 2.8
	still Airgap: 20-90mm airgap (non-reflective) *R-value: 0.16*

Wall Lining : Gypsum plasterboard 10mm
R-value: 0.04

internal surface 0.09

Print Page

Current NZS4218/H1 Schedule minimum R-value Targets (non-solid contruction):

	Zone 1	Zone 2	Zone 3
Roof	R-2.9	R-2.9	R-3.3
Wall	R-1.9	R-1.9	R-2.0
Floor	R-1.3	R-1.3	R-1.3
Glazing (vertical)	R-0.26	R-0.26	R-0.26
Glazing (skylights)	R-0.26	R-0.26	R-0.31

Australian Building Code Targets:

	All Zones except NSW	NSW
Roof	R-4.1	R-6.3
Wall	R-2.9	R-3.8

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS

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Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel.

Floors ○
Walls ◉
Roofs ○

oblique 140 wall 2.66 m²K/W

Type: Wall: Timber frame with vented cavity

timber frame with vented cavity

external surface 0.03

Cladding : James Hardie Oblique Cladding 16mm

R-value: 0.10

Air Barrier : Building paper

R-value: 0.01

Timber Frame & Cavity : 140mm, studs @ 400mm, dwangs @ 800mm

Wall Frame Area: 17.9%	*Cavity Area: 82.1%*
15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08	15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08
Framing : *R-value: 1.19*	Insulation : 2.8
	still Airgap: 20-90mm airgap (non-reflective) *R-value: 0.16*

Wall Lining : Gypsum plasterboard 10mm

R-value: 0.04

internal surface 0.09

Print Page

Current NZS4218/H1 Schedule minimum R-value Targets (non-solid contruction):

	Zone 1	Zone 2	Zone 3
Roof	R-2.9	R-2.9	R-3.3
Wall	R-1.9	R-1.9	R-2.0
Floor	R-1.3	R-1.3	R-1.3
Glazing (vertical)	R-0.26	R-0.26	R-0.26
Glazing (skylights)	R-0.26	R-0.26	R-0.31

Australian Building Code Targets:

	All Zones except NSW	NSW
Roof	R-4.1	R-6.3
Wall	R-2.9	R-3.8

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS

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Floors ○
Walls ◉
Roofs ○

shiplap 2.00 m²K/W

Type: Wall: Timber frame with vented cavity

timber frame with vented cavity

external surface 0.03

Cladding : Rusticated or shiplap weatherboard

R-value: 0.16

Air Barrier : Building paper

R-value: 0.01

Timber Frame & Cavity : 90x90mm, studs @ 400mm, 90x45mm dwangs @ 800mm

Wall Frame Area: 28.3% *Cavity Area: 71.7%*

15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08	15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08
Framing : *R-value: 0.75*	Insulation : 2.8
	still Airgap: 20-90mm airgap (non-reflective) *R-value: 0.16*

Wall Lining : Gypsum plasterboard 10mm

R-value: 0.04

internal surface 0.09

Print Page

Current NZS4218/H1 Schedule minimum R-value Targets (non-solid contruction):

	Zone 1	Zone 2	Zone 3
Roof	R-2.9	R-2.9	R-3.3
Wall	R-1.9	R-1.9	R-2.0
Floor	R-1.3	R-1.3	R-1.3
Glazing (vertical)	R-0.26	R-0.26	R-0.26
Glazing (skylights)	R-0.26	R-0.26	R-0.31

Australian Building Code Targets:

	All Zones except NSW	NSW
Roof	R-4.1	R-6.3
Wall	R-2.9	R-3.8

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APPROVED CONSENT PLANS/SPECIFICATIONS

Construction R-value Calculator

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Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel.

Floors ○
Walls ◉
Roofs ○

oblique 90 wall 2.28 m²K/W

Type: Wall: Timber frame with vented cavity

timber frame with vented cavity

external surface 0.03

Cladding : James Hardie Stria Cladding 14mm
R-value: 0.10

Air Barrier : Building paper
R-value: 0.01

Timber Frame & Cavity : 90mm, studs @ 400mm, dwangs @ 800mm

Wall Frame Area: 17.9%	*Cavity Area: 82.1%*
15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08	15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08
Framing : *R-value: 0.75*	Insulation : 2.8
	still Airgap: 20-90mm airgap (non-reflective) *R-value: 0.16*

Wall Lining : Gypsum plasterboard 10mm
R-value: 0.04

internal surface 0.09

Print Page

Current NZS4218/H1 Schedule minimum R-value Targets (non-solid contruction):

	Zone 1	Zone 2	Zone 3
Roof	R-2.9	R-2.9	R-3.3
Wall	R-1.9	R-1.9	R-2.0
Floor	R-1.3	R-1.3	R-1.3
Glazing (vertical)	R-0.26	R-0.26	R-0.26
Glazing (skylights)	R-0.26	R-0.26	R-0.31

Australian Building Code Targets:

	All Zones except NSW	NSW
Roof	R-4.1	R-6.3
Wall	R-2.9	R-3.8

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APPROVED CONSENT PLANS/SPECIFICATIONS

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Floors ○
Walls ○
Roofs ◉

ROOF TRUSSES 3.84 m²K/W

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

Pitched timber framed roof, flat ceiling

external surface 0.03

Roofing : Corrugate iron with building paper

R-value: 0.01

Insulation : 3.6

Timber Frame & Cavity :

45mm timber battens @ 900mm with insulation inbetween, any type of purlins underneath

Roof Frame Area: 5.0% *Cavity Area: 95.0%*

Roof space (still air) 0.11	Roof space (still air) 0.11
Framing : *R-value: 0.37*	Insulation :

Roof Lining : none

R-value: 0.00

internal surface 0.09

Recessed downlights

Ceiling Area [m²]:	Number of downlights:	Clearance from lamp holder side [m]:

Print Page

Current NZS4218/H1 Schedule minimum R-value Targets (non-solid contruction):

	Zone 1	Zone 2	Zone 3
Roof	R-2.9	R-2.9	R-3.3
Wall	R-1.9	R-1.9	R-2.0
Floor	R-1.3	R-1.3	R-1.3
Glazing (vertical)	R-0.26	R-0.26	R-0.26
Glazing (skylights)	R-0.26	R-0.26	R-0.31

Australian Building Code Targets:

	All Zones except NSW	NSW
Roof	R-4.1	R-6.3

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Floors ○
Walls ○
Roofs ◉

Element Name (optional) 3.87 m²K/W

Type: Roof: Timber framed skillion roof with additional strapping

Timber framed skillion roof with additional strapping

external surface 0.03

Roofing : Corrugate iron with building paper

R-value: 0.01

Timber Frame & Cavity :

190mm rafters or joists @ 600mm, battens (covered with insulation)

Roof Frame Area: 7.5% *Cavity Area: 92.5%*

Framing : *R-value: 1.56*

still Airgap : 10-30mm airgap (non-reflective) *R-value: 0.13*

Thermal Break : none *R-value: 0.00*

Insulation : 4.0

Strapping :

Timber batten, 35mm deep, 70mm wide @ 600mm centers

Strapping Area: 16.8% *Cavity Area: 83.2%*

Strapping : *R-value: 0.29*

Insulation :

Roof Lining : Gypsum plasterboard 13mm

R-value: 0.06

internal surface 0.09

Print Page

Current NZS4218/H1 Schedule minimum R-value Targets (non-solid contruction):

	Zone 1	Zone 2	Zone 3
Roof	R-2.9	R-2.9	R-3.3
Wall	R-1.9	R-1.9	R-2.0
Floor	R-1.3	R-1.3	R-1.3
Glazing (vertical)	R-0.26	R-0.26	R-0.26
Glazing (skylights)	R-0.26	R-0.26	R-0.31

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- Floors ○
- Walls ○
- Roofs ◉

Element Name (optional) 3.87 m²K/W

Type: Roof: Timber framed skillion roof with additional strapping

Timber framed skillion roof with additional strapping

external surface 0.03

Roofing : Corrugate iron with building paper

R-value: 0.01

Timber Frame & Cavity :

190mm rafters or joists @ 600mm, battens (covered with insulation)

Roof Frame Area: 7.5% *Cavity Area: 92.5%*

Framing : *R-value: 1.56*

still Airgap : 10-30mm airgap (non-reflective) *R-value: 0.13*

Thermal Break : none *R-value: 0.00*

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Timber batten, 35mm deep, 70mm wide @ 600mm centers

Strapping Area: 16.8% *Cavity Area: 83.2%*

Strapping : *R-value: 0.29*

Insulation :

Roof Lining : Gypsum plasterboard 13mm

R-value: 0.06

internal surface 0.09

Print Page

Current NZS4218/H1 Schedule minimum R-value Targets (non-solid contruction):

	Zone 1	Zone 2	Zone 3
Roof	R-2.9	R-2.9	R-3.3
Wall	R-1.9	R-1.9	R-2.0
Floor	R-1.3	R-1.3	R-1.3
Glazing (vertical)	R-0.26	R-0.26	R-0.26
Glazing (skylights)	R-0.26	R-0.26	R-0.31

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT
PLANS/SPECIFICATIONS

BRANZ Appraised
Appraisal No. 897 [2015]

LINEA® OBLIQUE WEATHERBOARD [VERTICAL] CAVITY CLADDING



Appraisal No. 897 (2015)
Amended 15 December 2015

BRANZ Appraisals
Technical Assessments of products for building and construction.

James Hardie

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Penrose
Auckland

Tel: 0800 808 868
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Web: www.jameshardie.co.nz

BRANZ

BRANZ
1222 Moonshine Rd,
RD1, Porirua 5381
Private Bag 50 908
Porirua 5240,
New Zealand
Tel: 04 237 1170
branz.co.nz

Product

1.1 Linea® Oblique Weatherboard (Vertical) Cavity Cladding is a cavity-based fibre cement weatherboard wall cladding. It is designed to be used as an external cladding system for residential and light commercial type buildings where domestic construction techniques are used.

1.2 Linea® Oblique Weatherboard (Vertical) Cavity Cladding consists of Linea® Oblique Weatherboard, which is a rusticated profile fibre cement weatherboard, fixed vertically over ventilated timber battens to form the cavity. The cladding is finished with a latex paint system.

1.3 The cladding incorporates a primary and secondary means of weather resistance (first and second line of defence) against water penetration by separating the cladding from the external wall framing with a nominal 20 mm cavity. The cavity allows for any occasional ingress of water that may get past the external skin to drain to the exterior of the building, and any remaining moisture to dry by evaporation.

Scope

2.1 Linea® Oblique Weatherboard (Vertical) Cavity Cladding has been appraised as an external wall cladding for buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- situated in NZS 3604 Wind Zones up to, and including Extra High.

2.2 Linea® Oblique Weatherboard (Vertical) Cavity Cladding has also been appraised for weathertightness and structural wind loading when used as an external vertically fixed wall cladding for buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
- constructed with timber framing subject to specific engineering design; and,
- situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 2.5 kPa.

2.3 Linea® Oblique Weatherboard must only be installed vertically on vertical surfaces.

2.4 Linea® Oblique Weatherboard (Vertical) Cavity Cladding is appraised for use with aluminium window and door joinery that is installed with vertical jambs and vertical heads and sills. *(Note: The Appraisal of Linea® Oblique Weatherboard (Vertical) Cavity Cladding relies on the joinery meeting the requirements of NZS 4211 for the relevant Wind Zone or wind pressure.)*

(Note: Linea® Oblique Weatherboard (Vertical) Cavity Cladding can be used to provide fire resistance rated construction, but this aspect has not been assessed by this Appraisal and is outside its scope.)

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, Linea® Oblique Weatherboard (Vertical) Cavity Cladding if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:**

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. Linea® Oblique Weatherboard (Vertical) Cavity Cladding meets the requirements for loads arising from self-weight, wind, impact and creep [i.e. B1.3.3 (a), (h), (j) and (q)]. See Paragraphs 9.1 - 9.3.

Clause B2 DURABILITY: Performance B2.3.1 (b), 15 years, B2.3.1 (c) 5 years and B2.3.2. Linea® Oblique Weatherboard (Vertical) Cavity Cladding meets these requirements. See Paragraphs 10.1 - 10.4.

Clause C3 FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE: Performance C3.7 (a). Linea® Oblique Weatherboard (Vertical) Cavity Cladding meets this requirement. See Paragraph 12.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. Linea® Oblique Weatherboard (Vertical) Cavity Cladding meets this requirement. See Paragraphs 14.1 - 14.5.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Linea® Oblique Weatherboard (Vertical) Cavity Cladding meets this requirement and will not present a health hazard to people.

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

Technical Specification

4.1 Linea® Oblique Weatherboards are rusticated profile weatherboards. The weatherboards are pre-primed with an acrylic primer on the front face and edges. Linea® Oblique Weatherboards are 16 mm thick and are available 200 and 300 mm wide. The boards are supplied 2700 and 4200 mm long.

4.2 Linea® Oblique Weatherboards are manufactured from a reduced density cellulose fibre cement formulation. The boards are formed, cut to length and then cured by high-pressure autoclaving. After autoclaving, a rusticated profile is machined on the top edge of the front face, and a rebated lap is machined on the bottom of the back face of the weatherboard. The front edge at the bottom of the board and the board ends are finished square. Linea® Oblique Weatherboards are manufactured to meet the requirements of AS/NZS 2908.2.

Accessories

4.3 Accessories used with Linea® Oblique Weatherboard (Vertical) Cavity Cladding which are supplied by James Hardie New Zealand are:

- **James Hardie horizontal cavity battens** – 45 x 20 mm thick Radiata pine batten treated to Hazard Class H3.1. The top edge is bevelled with an 18° slope. The back face is grooved with 50 mm wide x 6 mm deep rebates at 150 mm centres, and the front face is grooved with 5 mm wide x 5 mm deep rebates at 150 mm centres. The grooves are offset on each face.
- **Oblique Trimline joint flashing** – extruded aluminium in 3000 mm lengths.
- **Trimline jointers** – aluminium horizontal, internal corner and external corner jointers to cover joints in the Trimline joint flashing.
- **External and internal corner mouldings** – 90° anodised aluminium external box corner available in 2700 and 4000 mm lengths, and 90° internal corner 'W' mould, available in 2700 mm lengths.
- **Cavity vent strip** – uPVC, available in 3000 mm lengths.

4.4 Accessories used with Linea® Oblique Weatherboard (Vertical) Cavity Cladding which are supplied by the building contractor are:

- **Flexible wall underlay** – building paper complying with NZBC Acceptable Solution E2/AS1 Table 23, or breather-type membranes covered by a valid BRANZ Appraisal for use as wall underlays.

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- **Flexible wall underlay support** – polypropylene strap, 75 mm galvanised mesh, galvanised wire, or additional vertical battens for securing the flexible wall underlay in place and preventing bulging of the bulk insulation into the drainage cavity. [Note: mesh and wire galvanising must comply with AS/NZS 4534.]
- **Rigid wall underlay** – James Hardie Rigid Air Barriers covered by BRANZ Appraisal No. 611 [2011].
- **Flexible sill, head and jamb flashing tape** - flexible flashing tapes complying with NZBC Acceptable Solution E2/AS1, Paragraph 4.3.11, or flexible flashing tapes covered by a valid BRANZ Appraisal for use around window and door joinery openings.
- **Cavity batten fixings** - 40 x 2.8 mm flat head hot-dip galvanised nails.
- **Linea® Oblique Weatherboard fixings [with flexible wall underlays]** - 65 x 2.87 mm D-head or RounDrive hot-dip galvanised or stainless steel ring shank nails.
- **Linea® Oblique Weatherboard fixings [with rigid wall underlays up to 10 mm thick]** - 75 x 3.06 mm D-head or RounDrive hot-dip galvanised or stainless steel ring shank nails.

[Note: Stainless steel fixings must be Grade 316 and hot-dip galvanising must comply with AS/NZS 4680].

- **Joinery head flashings** - extruded or folded from aluminium or galvanised steel to suit the window or door trim opening. Refer to NZS 3604, Section 4 and NZBC Acceptable Solution E2/AS1, Table 20 for durability requirements.
- **Window and door trim cavity air seal** - air seals complying with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.6, or self-expanding, moisture cure polyurethane foam air seals covered by a valid BRANZ Appraisal suitable for use around window, door and other wall penetration openings.
- **Flexible sealant** - sealant complying with NZBC Acceptable Solution E2/AS1, or sealant covered by a valid BRANZ Appraisal for use as a weather sealing sealant for exterior use.

Paint System Specification

4.5 Paint systems are not supplied by James Hardie New Zealand and have not been assessed, therefore they are outside the scope of this Appraisal.

4.6 All exposed faces, including top edges at sills and all bottom edges of Linea® Oblique Weatherboard and accessories must be finished with a latex exterior paint system complying with any of Parts 7, 8, 9, or 10 of AS 3730.

Handling and Storage

5.1 Handling and storage of all materials supplied by James Hardie New Zealand or the building contractor, whether on site or off site, is under the control of the building contractor. Linea® Oblique Weatherboards must be stacked flat, off the ground and supported on a level platform. They must be kept dry at all times either by storing under cover or providing waterproof covers to the stack. Care must be taken to avoid damage to edges, ends and surfaces. Weatherboards must always be carried on edge.

5.2 Accessories must be stored so they are kept clean, dry and undamaged. All accessories must be used within the maximum storage period recommended by the manufacturer.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Linea® Oblique Weatherboard [Vertical] Cavity Cladding. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

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Design Information

Framing

Timber Treatment

7.1 Timber wall framing behind Linea® Oblique Weatherboard [Vertical] Cavity Cladding must be treated as required by NZBC Acceptable Solution B2/AS1.

Timber Framing

7.2 Timber framing must comply with NZS 3604 for buildings or parts of a building within the scope limitations of NZS 3604. Buildings or parts of a building outside the scope of NZS 3604 must be to a specific design in accordance with NZS 3603 and AS/NZS 1170. Where specific design is required, the framing must be of at least equivalent stiffness to the framing provisions of NZS 3604. Studs must be at maximum 600 mm centres. Nogs/dwangs must be in a continuous line and be fitted flush between the studs at maximum 600 mm centres.

7.3 Timber framing must have a maximum moisture content of 24% at the time of the cladding application. [Note: If weatherboards are fixed to framing with a moisture content of greater than 24% problems may occur at a later date due to excessive timber shrinkage.]

7.4 Timber wall framing must have a maximum moisture content of 18% before the weatherboards are painted.

General

8.1 When the Linea® Oblique Weatherboard [Vertical] Cavity Cladding is used for specifically designed buildings up to 2.5 kPa ULS wind pressure, only the weathertightness and structural aspects of the cladding are within the scope of this Appraisal. All other aspects of the building need to be specifically designed and are outside the scope of this Appraisal.

8.2 Punchings in the cavity vent strip and rebates in the cavity batten provide a minimum ventilation opening area of 1000 mm² per lineal metre of wall. *[Note: James Hardie horizontal cavity battens do not provide vermin proofing to the bottom of the cavity and an additional cavity vent strip must be used.]*

8.3 At ground level the bottom edge of Linea® Oblique Weatherboards must be kept clear of paved surfaces, such as footpaths, by a minimum of 100 mm and unpaved surfaces by 175 mm in accordance with NZBC Acceptable Solution E2/AS1, Table 18. The ground clearances to finished floor levels as set out in NZS 3604 must be adhered to.

8.4 At balcony, deck or low pitch roof/wall junctions, the bottom edge of Linea® Oblique Weatherboards must be kept clear of any adjacent surface, or above the top surface of any adjacent roof flashing by a minimum of 50 mm.

8.5 All external walls of buildings must have barriers to airflow in the form of interior linings with all joints stopped for wind zones up to and including Very High, and rigid underlays for buildings in the Extra High wind zone and specifically designed buildings up to 2.5 kPa design differential ULS wind pressure. Unlined gables and walls must incorporate RAB® Board, a rigid sheathing or an air barrier which meets the requirements of NZBC Acceptable Solution E2/AS1, Table 23. For attached garages, wall underlays must be selected in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.4. Where rigid underlays are used, the weatherboard fixing lengths must be increased by a minimum of the thickness of the underlay.

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

8.7 Where Linea® Oblique Weatherboard [Vertical] Cavity Cladding abuts other cladding systems, designers must detail the junction to meet their own requirements and the performance requirements of the NZBC. Details not included within the Technical Literature have not been assessed and are outside the scope of this Appraisal.

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Interstorey Junctions

8.8 Inter-storey drained joints must be constructed in accordance with the Technical Literature. Inter-storey drained joints must be provided to limit continuous cavities to the lesser of 2-storeys or 7 metres in height, in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.9.4(b).

Structure

Mass

9.1 The mass of the 200 mm wide Linea® Oblique Weatherboard when installed on the wall is 20.6 kg/m² at equilibrium moisture content (EMC) and the mass of the 300 mm wide board is 19.7 kg/m² at EMC. Linea® Oblique Weatherboard (Vertical) Cavity Cladding is therefore considered a light wall cladding in terms of NZS 3604.

Impact Resistance

9.2 Linea® Oblique Weatherboard (Vertical) Cavity Cladding will resist impacts likely to be encountered in normal residential use. The likelihood of impact damage to the cladding when used in light commercial situations should be considered at the design stage, and appropriate protection such as the installation of bollards and barriers provided for vulnerable areas.

Wind Zones

9.3 Linea® Oblique Weatherboard (Vertical) Cavity Cladding is suitable for use in all Wind Zones of NZS 3604 up to, and including, Extra High where buildings are designed to meet the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 1.1, or up to 2.5 kPa ULS wind pressure where buildings are specifically designed.

Durability

10.1 Linea® Oblique Weatherboard (Vertical) Cavity Cladding meets the performance requirements of NZBC Clause B2.3.1 (b), 15 years for the Linea® Oblique Weatherboards, flashings and cavity system, and the performance requirements of NZBC Clause B2.3.1 (c), 5 years for the exterior paint system.

Serviceable Life

10.2 Linea® Oblique Weatherboard (Vertical) Cavity Cladding installations are expected to have a serviceable life of at least 50 years provided the paint coating system is maintained in accordance with this Appraisal to ensure the Linea® Oblique Weatherboards and fixings remain dry in service. Linea® Oblique Weatherboards must be painted within 3 months of fixing.

10.3 Coastal locations can be very corrosive to fasteners, especially locations within distances of up to 500 m from the sea including harbours, or 100 metres from tidal estuaries and sheltered inlets, and otherwise as shown in NZS 3604 Figure 4.2. These coastal locations are defined in NZS 3604 as Zone D. To achieve a 50 year serviceable life in Zone D, Linea® Oblique Weatherboards must be fixed with stainless steel fasteners. Fasteners outside Zone D may be hot-dip galvanised steel.

10.4 Microclimatic conditions, including geothermal hot spots, industrial contamination and corrosive atmospheres, and contamination from agricultural chemicals or fertilisers can convert mildly corrosive atmosphere into aggressive environments for fasteners. The fixing of Linea® Oblique Weatherboards in areas subject to microclimatic conditions requires specific design in accordance with NZS 3604 Paragraph 4.2.4, and is outside the scope of this Appraisal.

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Maintenance

11.1 Regular maintenance is essential for Linea® Oblique Weatherboard [Vertical] Cavity Cladding installations to continue to meet the NZBC durability performance provision and to maximise their serviceable life.

11.2 Annual inspections must be made to ensure that all aspects of the cladding system, including the paint coating system, flashings and any sealed joints remain in a weatherproof condition. Any damaged areas or areas showing signs of deterioration which would allow water ingress must be repaired immediately. Sealant and paint coatings must be rapaired in accordance with the sealant or paint coating manufacturer's instructions.

11.3 Regular cleaning [at least annually] of the paint coating surface is recommended to remove grime, dirt and organic growth and to maximise the life and appearance of the coating. Paint systems must be recoated at approximately 7-15 yearly intervals in accordance with the paint manufacturer's instructions.

11.4 Minimum ground clearances as set out in this Appraisal must be maintained at all times during the life of the cladding. *[Note: Failure to adhere to the minimum ground clearances given in this Appraisal and the Technical Literature will adversely affect the long term durability of Linea® Oblique Weatherboard [Vertical] Cavity Cladding.]*

Control of External Fire Spread

12.1 Linea® Oblique Weatherboard has a peak heat release rate of less than 100 kw/m² and a total heat released of less than 25 MJ/m² in accordance with NZBC Acceptable Solution C/AS1 Table 5.1. The system is suitable for use on buildings with a SH Risk Group classification, at any distance to the relevant boundary. Linea® Oblique Weatherboard is also suitable for use where a non-combustible material is specified. When Linea® Oblique Weatherboard is finished with a paint coating of not more than 1.0 mm in thickness, the exterior surface finishes requirements of NZBC Acceptable Solutions C/AS2 – C/AS6 Paragraph 5.8.1 do not apply in accordance with NZBC Acceptable Solutions C/AS2 – C/AS6 Paragraph 5.8.2 a).

Prevention of Fire Occurring

13.1 Linea® Oblique Weatherboard is considered a non-combustible material and need not be separated from heat sources such as fire places, heating appliances, flues and chimneys. However, when used in conjunction with, or attached to heat sensitive materials, the heat sensitive material must be separated from fireplaces, heating appliances, flues and chimneys in accordance with the requirements of Part 7 of NZBC Acceptable Solutions C/AS1 – C/AS6 and NZBC Verification Method C/VM1.

External Moisture

14.1 Linea® Oblique Weatherboard [Vertical] Cavity Cladding, when installed in accordance with this Appraisal and the Technical Literature will prevent the penetration of moisture that could cause undue dampness or damage to building elements.

14.2 The cavity must be sealed off from the roof and sub-floor space to meet code compliance with Clause E2.3.5.

14.3 Linea® Oblique Weatherboard [Vertical] Cavity Cladding allows excess moisture present at the completion of construction to be dissipated without permanent damage to building elements to meet code compliance with Clause E2.3.6.

14.4 The details given in the Technical Literature for weather sealing are based on the design principle of having a first and second line of defence against moisture entry for all joints, penetrations and junctions. The ingress of moisture must be excluded by detailing joinery and wall interfaces as shown in the Technical Literature. Weathertightness details that are developed by the designer are outside the scope of this Appraisal and are the responsibility of the designer for compliance with the NZBC.

14.5 The use of Linea® Oblique Weatherboard [Vertical] Cavity Cladding where there is a designed cavity drainage path for moisture that penetrates the cladding, does not reduce the requirement for junctions, penetrations, etc to remain weather resistant.

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Internal Moisture

15.1 Buildings must be constructed with an adequate combination of thermal resistance and ventilation, and space temperature must be provided to all habitable spaces, bathrooms, laundries and other spaces where moisture may be generated or may accumulate.

Water Vapour

15.2 Linea® Oblique Weatherboard [Vertical] Cavity Cladding is not a barrier to the passage of water vapour, and when installed in accordance with the Technical Literature and this Appraisal will not create or increase the risk of moisture damage resulting from condensation.

Installation Information

Installation Skill Level Requirements

16.1 Installation of Linea® Oblique Weatherboard and accessories supplied by James Hardie New Zealand and the building contractor must be carried out by, or under the supervision of a Licensed Building Practitioner with the relevent Licence Class, in accordance with instructions given within the Linea® Oblique Weatherboard [Vertical] Cavity Cladding Technical Literature and this Appraisal.

System Installation

Wall underlay and Flexible Sill and Jamb Tape Installation

17.1 The selected wall underlay and flexible sill and jamb tape system must be installed by the building contractor in accordance with the underlay and tape manufacturer's instructions prior to the installation of the cavity battens and the rest of the Linea® Oblique Weatherboard [Vertical] Cavity Cladding system. Flexible wall underlay must be installed vertically and be continuous around corners. Underlay must be lapped 75 mm minimum at vertical joints and 150 mm minimum over studs at vertical joints. James Hardie Rigid Air Barriers must be installed in accordance with the instructions of James Hardie New Zealand. Particular attention must be paid to the installation of the wall underlay and sill and jamb tapes around window and door openings to ensure a continuous seal is achieved and all exposed wall framing in the opening is protected.

James Hardie Horizontal Cavity Battens

17.2 James Hardie horizontal cavity battens must be installed over the wall underlay to the wall framing (nogs/dwangs) at maximum 600 mm centres. The battens must be installed with tha top edge sloping away from the wall underlay towards the back of the weatherboards. The cavity battens must be fixed in place with 40 x 2.8 mm hot-dip galvanised flat-head nails at maximum 800 mm centres to temporarily fix the battens in place prior to installation of the cladding.

17.3 A wall underlay support must be installed over flexible wall underlay at maximum 300 mm horizontal centres.

Linea® Oblique Weatherboard Installation

17.4 Linea® Oblique Weatherboards may be cut on site by power saw. Holes and cut-outs may be formed by drilling a number of holes around the perimater of the opening required and tapping out the centre with a hammer, or by using a hole saw.

17.5 Weatherboards must be dry prior to installation. Before the weatherboards are installed, cut ends exposed to the exterior such as at aluminium box corners or internal corners must be sealed with an acrylic sealer to reduce the absorbency of the fibre cement.

17.6 Before the weatherboards are installed, the corner detail must be prepared to suit the selected option, e.g. external box corner. The necessary flashings, including window flashings, must be installed before commencing weatherboard fixing and the cavity vent strip must be installed continuously around the bottom of the cavity.

17.7 Linea® Oblique weatherboards must be installed starting at the corner of the wall being clad. The first weatherboard must be installed plumb to assist with the installation of subsequent weatherboards. The weatherboards must overhang the bottom plate by a minimum of 50 mm. The weatherboards should be installed with the lap facing away from the prevailing winds.

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17.8 Linea® Oblique Weatherboard laps are pre-determined by the machined joint detail.

17.9 200 mm wide Linea® Oblique Weatherboards must be fixed to each framing member [nog/dwang] using one 65 x 2.87 mm D-head or RounDrive hot-dip galvanised or stainless steel ring shank nail depending on the location - see Paragraph 10.3. The nails must be positioned 100 mm in from the over lapping edge of the weatherboard. The 65 x 2.87 mm D-head nails must be punched a maximum of 2 mm below the surface of the board. Nails must not be closer than 12 mm to the end of the board.

17.10 300 mm wide Linea® Oblique Weatherboards must be fixed to each framing member [nog/dwang] using one 65 x 2.87 mm D-head or RounDrive hot-dip galvanised or stainless steel ring shank nails depending on the location - see Paragraph 10.3. The nail must be positioned 150 mm in from the over lapping edge of the weatherboard. The 65 x 2.87 mm D-head nails must be punched a maximum of 2 mm below the surface of the board. Nails must not be closer than 12 mm to the end of the board.

Aluminium Joinery Installation

17.11 Aluminium joinery and associated head and sill flashings must be installed by the building contractor in accordance with the Technical Literature. An 8 mm nominal gap must be left between the joinery reveal and the wall framing so a PEF rod and air seal can be installed after the joinery has been secured in place.

Finishing

17.12 All punched fixings must be filled. The paint coating manufacturer's instructions must be followed at all times for application of the paint finish. Linea® Oblique Weatherboards and trim must be clean and dry before commencing painting.

Inspections

17.13 The Technical Literature must be referred to during the inspection of Linea® Oblique Weatherboard [Vertical] Cavity Cladding installations.

Health and Safety

18.1 Cutting of Linea® Oblique Weatherboard must be carried out in well ventilated areas, and a dust mask and eye protection must be worn.

18.2 When power tools are used for cutting, grinding or forming holes, health and safety measures as set out in the Technical Literature must be observed to minimise the amount of dust generated.

18.3 Safe use and handling procedures for Linea® Oblique Weatherboard and the components that make up the cladding system are provided in the relevant manufacturer's Technical Literature.

Basis of Appraisal

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

Tests

19.1 BRANZ expert opinion on NZBC E2 code compliance for Linea® Oblique Weatherboard [Vertical] Cavity Cladding was based on testing and evaluation of all details within the scope and as stated within this Appraisal. Linea® Oblique Weatherboard [Vertical] Cavity Cladding was tested to NZBC Verification Method E2/VM1. The testing assessed the performance of the foundation detail, window head, jamb and sill details, meterbox head, jamb and sill details, balustrade to wall junction, parapet cap, internal and external corners and James Hardie horizontal cavity battens. In addition to the weathertightness test, the details contained within the Technical Literature have been reviewed, and an opinion has been given by BRANZ technical experts that the system will meet the performance levels of NZBC Acceptable Solution E2/AS1 for drained cavity claddings.

19.2 Uniform wind face load tests to simulate wind pressures on Linea® Oblique Weatherboards were carried out by a James Hardie NATA accredited laboratory. The testing determined design wind suction pressures, and by comparing these pressures with the NZS 3604 and AS/NZS 1170 pressure coefficients, the fixing requirements were determined for timber framed walls. The test methods and results have been reviewed by BRANZ and found to be satisfactory.

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19.3 Cone Calorimeter testing to determine the peak rate of heat release and total heat release of Linea® Oblique Weatherboard was completed by BRANZ. The testing was carried out in accordance with AS/NZS 3837.

19.4 Linea® Oblique Weatherboards have been tested by a James Hardie NATA accredited laboratory in accordance with AS/NZS 2908.2 and ISO 8336. The testing covered: soak-dry, bending strength, warm water soaking, heat/rain, freeze/thaw and apparent density. The test methods and results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

20.1 Weathertightness, structural, fire and durability opinions have been provided by BRANZ technical experts.

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

20.3 The manufacturer's Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

21.1 The manufacture of Linea® Oblique Weatherboard has been examined by BRANZ, and details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.

21.2 The quality of materials, components and accessories supplied by James Hardie New Zealand is the responsibility of James Hardie New Zealand. The quality control system of James Hardie New Zealand has been assessed and registered as meeting the requirements of ISO 9001: 2008.

21.3 Quality on site is the responsibility of the installer.

21.4 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the wall underlay, cavity battens, Linea® Oblique Weatherboard and accessories in accordance with the instructions of James Hardie New Zealand.

21.5 Building owners are responsible for the maintenance of Linea® Oblique Weatherboard (Vertical) Cavity Cladding in accordance with the instructions of James Hardie New Zealand.

Sources of Information

- AS 3730 Guide to the properties of paints for buildings.
- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 2908.2: 2000 Cellulose-cement products - Flat sheet.
- AS/NZS 3837: 1998 Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter.
- AS/NZS 4534: 1998 Zinc and zinc/aluminium-alloy coatings on steel wire.
- AS/NZS 4680: 2006 Hot-dip galvanized (zinc) coatings on fabricated ferrous articles.
- ISO 8336: 2009 Fibre-cement flat sheets -- Product specification and test methods.
- NZS 3603: 1993 Timber Structures Standard.
- NZS 3604: 2011 Timber framed buildings.
- NZS 4211: 2008 Specification for performance of windows.
- Compliance Document for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005 (Amendment 6, 14 February 2014).
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 15 December 2015.

This Appraisal has been amended to remove rigid wall underlay complying with NZBC Acceptable Solution E2/AS1.

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BRANZ

In the opinion of BRANZ, Linea® Oblique Weatherboard (Vertical) Cavity Cladding is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

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

Conditions of Appraisal

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

For BRANZ

Cheiydra Percy
Chief Executive

Date of Issue:
20 November 2015

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BRANZ Appraised
Appraisal No.650 [2014]

BRANZ Appraisals

Technical Assessments of products for building and construction

BRANZ APPRAISAL No. 650 (2014)

This Appraisal replaces BRANZ Appraisal No. 650 (2009).

VERTILINE SHIPLAP CEDAR WEATHERBOARD CAVITY SYSTEM

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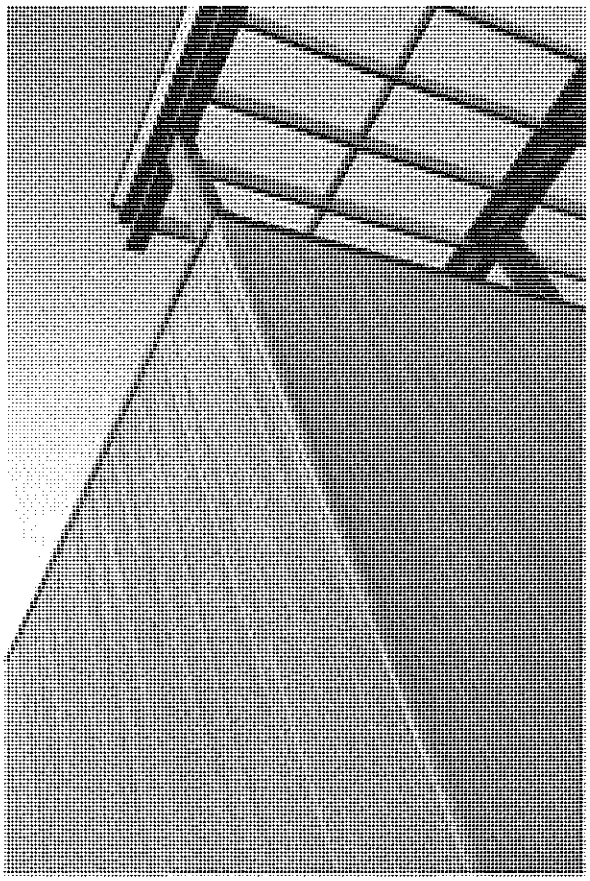
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1.1 The VertiLine Cavity System is a cavity-based shiplap cedar weatherboard external wall cladding system for residential and light commercial type buildings where domestic construction techniques are used.

1.2 The system consists of vertically fixed Herman Pacific Limited shiplap cedar timber weatherboards, ventilated cavity battens, flashings and accessories and is finished with a premium penetrating oil stain to Herman Pacific Limited specifications.

1.3 The system incorporates a primary and secondary means of weather resistance (first and second line of defence) against water penetration by separating the cladding from the external wall frame with an 18 mm minimum drained cavity.



2.1 The VertiLine Cavity System has been appraised as an external vertically fixed wall cladding system for buildings within the following scope:

- the scope limitations of NZBC Acceptable System E2/AS1, Paragraph 1.1; and,
- constructed with timber framing complying with the NZBC; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- situated in NZS 3604 Wind Zones up to, and including Extra High.

2.2 The VertiLine Cavity System has also been appraised for weathertightness and structural wind loading when used as an external vertically fixed wall cladding system for buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
- constructed with timber framing subject to specific engineering design; and,
- situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 2.5 kPa.

2.3 The VertiLine Cavity System must only be installed vertically on vertical, flat surfaces.

2.4 The VertiLine Cavity System is appraised for use with aluminium window and door joinery that is installed with vertical jambs and horizontal heads and sills. *(The Appraisal of the VertiLine Cavity System relies on the joinery meeting the requirements of NZS 4211 for the relevant Wind Zone or wind pressure.)*

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, the VertiLine Cavity System, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4 for the relevant physical conditions of B1.3.3 being self-weight, wind, impact and creep [i.e. B1.3.3 (a), (h), (j) and (q)]. The VertiLine Cavity System meets these requirements. See Paragraphs 9.1 - 9.3.

Clause B2 DURABILITY: Performance B2.3.1(b), 15 years and B2.3.2. The VertiLine Cavity System meets these requirements. See Paragraphs 10.1 and 10.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. The VertiLine Cavity System meets this requirement. See Paragraphs 14.1 - 14.5.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The VertiLine Cavity System meets this requirement and will not present a health hazard to people.

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

Materials

4.1 System components and accessories supplied by Herman Pacific Limited are as follows:

Hermpac Shiplap Weatherboards

- Hermpac shiplap weatherboards are manufactured from Canadian Coastal Western Red Cedar (Thuja plicata) and Canadian Coastal Yellow Cedar (Chamaecyparis nootkatensis).
- The weatherboard lap and rebate profiles are in accordance with NZS 3617 and BRANZ Bulletin 411. The weatherboards are minimum 18.5 mm thick and are available in a range of widths and face profiles. They are supplied in 1.83 to 4.88 m lengths. Lengths outside of the general specification may be available by special contract. The weatherboards are supplied unfinished for site finishing prior to installation, or prefinished using the flood coat application method by Machinecoat NZ Limited. Refer to the Appraisals listing on the BRANZ website for details of the Herman Pacific shiplap weatherboard profiles covered by this Appraisal. *(Note: This Appraisal is only valid when weatherboards with profiles as listed are supplied by Herman Pacific Limited.)*

Accessories

- Hermpac external corner mouldings - 40 x 40 mm and 42 x 42 mm profiled external corner moulds supplied in lengths 1.8 m and longer.
- Hermpac internal corner mould - 18.5 x 18.5 mm, supplied in 1.8 m and longer.
- Hermpac cover boards - 18 mm thick boards in widths of 69 and 90 mm. The cover boards are supplied in lengths 1.8 m and longer.
- Hermpac eaves moulding - 40 x 27 mm bevelled profile, supplied in 1.8 m and longer.

(Note: All timber accessories are manufactured from Canadian Coastal Western Red Cedar.)

- Vertibat cavity battens - 45 x 20 mm thick or 45 x 40 mm thick Radiata pine batten treated to Hazard Class H3.1. The top and bottom edges are bevelled with an 18° slope. The front and back face of the batten is grooved with 20 mm wide x 5 mm deep rebates at 100 mm centres. The grooves are offset on each face.
- Vertibat cavity batten fixings (for 40 mm thick battens when fixed to studs only) - 12 gauge x 65 mm long Grade 316 stainless steel screws,
- Hermpac shiplap weatherboard fixings (for Vertibat and Cavibat battens fixed to dwangs) - silicon bronze, Grade 304 or Grade 316 stainless steel annular grooved Hermpac Crown Head, Rose Head or Flat Head nails. The nail shank must be minimum 3.15 mm diameter and the length must allow minimum 30 mm penetration of the wall frame.
- Hermpac shiplap weatherboard fixings (for 40 mm Vertibat battens fixed to studs only) - silicon bronze, Grade 304 or Grade 316 stainless steel annular grooved Hermpac Crown Head, Rose Head or Flat Head nails. The nail shank must be minimum 3.15 mm diameter and the length must allow minimum 30 mm penetration of the Vertibat cavity batten.
- Hermpac clinch nails - 40 x 2.0 mm Grade 316 stainless steel annular grooved nails with an off-set flat head.
- Hermpac cover board fixings - 50 x 2.8 mm silicon bronze, Grade 304 or Grade 316 stainless steel annular grooved Hermpac Crown Head, Rose Head or Flat Head nails.

4.2 Accessories used with the VertiLine Cavity System which are supplied by the building contractor are:

- Flexible wall underlay - building paper complying with NZBC Acceptable Solution E2/AS1 Table 23, or breather-type membranes covered by a valid BRANZ Appraisal for use as wall underlays.
- Flexible wall underlay support - polypropylene strap, 75 mm galvanised mesh, galvanised wire, or additional vertical battens for securing the flexible wall underlay in place and preventing bulging of the bulk insulation into the drainage cavity. *(Note: mesh and wire galvanising must comply with AS/NZS 4534.)*
- Rigid wall underlay - Plywood or fibre cement sheet complying with NZBC Acceptable Solution E2/AS1 Table 23, or rigid sheathing covered by a valid BRANZ Appraisal for use as rigid air barrier systems.
- Flexible sill and jamb flashing tape - flexible flashing tapes complying with NZBC Acceptable Solution E2/AS1 Paragraph 4.3.11, or flexible flashing tapes covered by a valid BRANZ Appraisal for use around window and door joinery openings.
- Window and door trim cavity air seal - air seals complying with NZBC Acceptable Solution E2/AS1 Paragraph 9.1.6, or self-expanding, moisture cure polyurethane foam air seals covered by a valid BRANZ Appraisal suitable for use around window, door and other wall penetration openings.
- Cavibat cavity battens - manufactured from extruded polypropylene. The battens are cut after extruding to a finished size of approximately 45 mm wide by 18 mm thick. The battens are coloured green and are supplied in 1200 mm long lengths. Cavibat cavity battens are covered by BRANZ Appraisal No. 524 (2012).
- Cavibat fixings - 40 x 2.5 mm flat head hot-dip galvanised nails or stainless steel finishing brads used to temporarily fix the battens in place until the cladding is installed.
- Vertibat cavity batten fixings (20 mm thick batten) - 40 x 2.5 mm flat head hot-dipped galvanised nails or 50 x 2.87 mm hot-dipped galvanised gun nails to temporarily fix the battens in place prior to installation of the cladding.
- Vertibat cavity batten fixings (40 mm thick battens when fixed to dwangs) - 60 x 2.8 mm flat head hot-dipped galvanised nails or 60 x 2.87 mm hot-dipped galvanised gun nails to temporarily fix the battens in place prior to installation of the cladding.
- Cavity vent strip - μPVC, aluminium or stainless steel, punched with 3-5 mm diameter holes or slots complying with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.3.

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- Flashings - including external corner flashing, internal corner flashing, horizontal inter-storey joint flashing, balustrade and parapet saddle flashing and balustrade and parapet cap flashings. Refer to NZS 3604, Section 4 and NZBC Acceptable Solution E2/AS1, Table 20 and Table 21 for durability and material compatibility requirements.
- Aluminium joinery head flashings - as supplied by the joinery manufacturer or contractor.
- Flexible sealant - sealant complying with NZBC Acceptable Solution E2/AS1, or sealant covered by a valid BRANZ Appraisal for use as a weather sealing sealant for exterior use.

Finishing System Specification

4.3 Prior to installation, the back face, ends and edges of the Hermpac shiplap weatherboards not supplied prefinished must be sealed with an exterior grade oil-based penetrating stain. At least two coats of an exterior grade quality oil-based penetrating stain must be used over the front face of the Hermpac shiplap weatherboards to protect the weatherboards and give the desired finish colour to the exterior walls. The stain must be recommended for use as a wall cladding stain by the manufacturer and must be brush applied. Proprietary stain systems have not been assessed, and are therefore outside the scope of this Appraisal. *(Note: Herman Pacific Limited recommends the use of oil based stains manufactured by Resene and WoodX.)*

Handling and Storage

5.1 Handling and storage of all materials supplied by Herman Pacific Limited or the building contractor, whether on site or off-site, is under the control of the building contractor. Hermpac vertical shiplap weatherboards must be stacked flat and true, clear of the ground by a minimum of 150 mm and supported on dry and clean timber bearers at maximum 900 mm centres. They must be kept dry at all times either by storing within an enclosed building or when stored externally an additional secondary cover to the plastic wrapping is required. Care must be taken to avoid damage to edges, ends and the weatherboard surfaces.

5.2 Accessories must be stored so they are kept clean, dry and undamaged. All accessories must be used within the maximum storage period recommended by the manufacturer.

Technical Literature

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

Framing

Timber Treatment

7.1 Timber wall framing behind the VertiLine Cavity System must be treated as required by NZBC Acceptable Solution B2/AS1.

Timber Framing

7.2 Timber framing must comply with NZS 3604 for buildings or parts of buildings within the scope limitations of NZS 3604. Buildings or parts of buildings outside the scope of NZS 3604 must be to a specific design in accordance with NZS 3603 and AS/NZS 1170. Where specific design is required, the framing must be of at least equivalent stiffness to the framing provisions of NZS 3604. In all cases studs must be at maximum 600 mm centres. Where Vertibat or Cavibat cavity battens are fixed to dwangs, the dwangs must be fitted flush between the studs at maximum 480 mm centres. Where 40 mm thick Vertibat cavity battens are fixed to studs only, dwangs must be fitted flush between the studs at maximum 800 mm centres.

7.3 Additional framing may be required at soffits, internal and external corners and window and door openings for the support and fixing of cavity battens and the VertiLine Cavity System.

7.4 Timber wall framing behind where weatherboards are joined over a cavity batten must be nominal 50 mm thickness (i.e. 45 mm minimum finished thickness).

7.5 Timber wall framing must have a maximum moisture content of 24% at the time of the cladding application. *(Note: If Hermpac shiplap cedar weatherboards are fixed to framing with a moisture content of greater than 24% problems may occur at a later date due to excessive timber shrinkage.)*

General

8.1 When the VertiLine Cavity System is used for specifically designed buildings up to 2.5 kPa design differential ULS wind pressure, only the weathertightness aspects of the cladding and maximum framing centres are within the scope of this Appraisal. All other aspects of the building need to be specifically designed and are outside the scope of this Appraisal.

8.2 Punchings in the cavity vent strip must provide a minimum ventilation opening area of 1000 mm² per lineal metre of wall in accordance with the requirements of NZBC Acceptable System E2/AS1, Paragraph 9.1.8.3(b). *(Note: Vertibat cavity battens can be used to provide vermin proofing at the bottom of the cavity. Cavibat cavity battens do not provide vermin proofing to the bottom of the drained cavity and an additional cavity vent strip must be used.)*

8.3 The ground clearance to finished floor levels as set out in NZS 3604 must be adhered to at all times. At ground level, paved surfaces, such as footpaths, must be kept clear of the bottom edge of the cladding system by a minimum of 100 mm, and unpaved surfaces by 175 mm in accordance with the requirements of NZBC Acceptable System E2/AS1, Table 18.

8.4 At balcony, deck or roof/wall junctions, the bottom edge of the VertiLine Cavity System must be kept above the top surface of any adjacent roof flashing by a minimum of 35 mm in accordance with NZBC Acceptable System E2/AS1, Paragraph 9.1.3.

8.5 All external walls of buildings must have barriers to airflow in the form of interior linings with all joints stopped for wind zones up to and including Very High, and rigid underlays for buildings in the Extra High wind zone and specifically designed buildings up to 2.5 kPa design differential ULS wind pressure. Unlined gables and walls must incorporate a rigid sheathing or an air barrier which meets the requirements of NZBC Acceptable Solution E2/AS1, Table 23. For attached garages, wall underlays must be selected in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.4. Where rigid underlays are used, the weatherboard fixing lengths must be increased by a minimum of the thickness of the underlay.

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8.6 Where the system abuts other cladding systems, designers must detail the junction to meet their own requirements and the performance requirements of the NZBC. Details not included within the Technical Literature have not been assessed and are outside the scope of this Appraisal.

Inter-storey Junctions

8.7 Inter-storey drained joints must be constructed in accordance with the Technical Literature. Inter-storey drained joints must be provided to limit continuous cavities to the lesser of 2-storeys or 7 metres in height, in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.9.4(b).

Structure

Mass

9.1 The mass of the VertiLine Cavity System is approximately 12 kg/m² at equilibrium moisture content. The system is therefore considered a lightweight cladding in terms of NZS 3604.

Impact Resistance

9.2 The VertiLine Cavity System has good resistance to impact loads likely to be encountered in normal residential use. The likelihood of impact damage to the system when used in light commercial situations should be considered at the design stage, and appropriate protection such as the installation of bollards and barriers should be considered for vulnerable areas.

Wind Zones

9.3 The VertiLine Cavity System is suitable for use in all Wind Zones of NZS 3604, up to and including Extra High where buildings are designed to meet the requirements of NZBC Acceptable System E2/AS1, Paragraph 1.1, or up to 2.5 kPa design differential ULS wind pressure where buildings are specifically designed.

Durability

Serviceable Life

10.1 VertiLine Cavity System installations are expected to have a serviceable life of at least 20 years provided the system is maintained in accordance with this Appraisal and the Hermpac shiplap weatherboards are continuously protected by a stain finish.
(Note: This opinion only covers serviceability with regards to structural and weathertightness performance. It does not cover appearance, which may deteriorate significantly, especially when proper and regular maintenance is not carried out.)

10.2 Microclimatic conditions, including geothermal hot spots, industrial contamination and corrosive atmospheres and contamination from agricultural chemicals or fertilisers can convert mildly corrosive atmosphere into aggressive environments for fasteners. The fixing of weatherboards in areas subject to microclimatic conditions requires specific design in accordance with NZS 3604 Paragraph 4.2.4, and is outside the scope of this Appraisal.

Maintenance

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

11.2 Regular cleaning (at least annually) of the stain coating is required to remove grime, dirt and organic growth and to maximise the life and appearance of the coating. Grime may be removed by brushing with a soft brush, warm water and detergent.

11.3 Recoating of the stain finish will be necessary throughout the life of the cladding system. Restaining must be carried out every 2-3 years or in accordance with the stain manufacturer's instructions. Restaining will be required more frequently on exposed northern and western facing walls. When re-staining, care must be taken to ensure bottom edges and shiplap edges are well covered and penetrated with the stain.

11.4 Annual inspections must be made to ensure that all aspects of the cladding system, including flashings and joints remain in a weatherproof condition. Any damaged areas or areas showing signs of deterioration which would allow water ingress must be repaired immediately. Sealant, stain coatings, flashings or the weatherboards must be repaired in accordance with the relevant manufacturer's instructions.

11.5 Minimum ground clearances as set out in this Appraisal and the Technical Literature must be maintained at all times during the life of the system. *(Note: Failure to adhere to the minimum ground clearances given in this Appraisal and the Technical Literature will adversely affect the long term durability of the VertiLine Cavity System.)*

Control of External Fire Spread

12.1 The VertiLine Cavity System is suitable for use on buildings with an SH Risk Group classification, a building height of ≤ 10 m and at a distance of ≥ 1.0 m to the relevant boundary. Refer to NZBC Acceptable Solutions C/AS2 - C/AS6 Paragraph 5.8.1 for the specific exterior surface finishes requirements for other building Risk Groups.
(Note: The scope of this Appraisal limits building heights to 10 m in accordance with the limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1(a). The building heights referenced in Paragraph 12.1 above are as defined in the Definitions Sections of NZBC Clauses C1 - C6 Protection from Fire.)

Prevention of Fire Occurring

13.1 Separation or protection must be provided to the VertiLine Cavity System from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 - C/AS6 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

External Moisture

14.1 The VertiLine Cavity System, when installed in accordance with this Appraisal and the Technical Literature will prevent the penetration of moisture that could cause undue dampness or damage to building elements.

14.2 The cavity must be sealed off from the roof and sub-floor space to meet code compliance with NZBC Clause E2.3.5.

14.3 The VertiLine Cavity System allows excess moisture present at the completion of construction to be dissipated without permanent damage to building elements to meet code compliance with Clause E2.3.6.

14.4 The details given in the Technical Literature for weather sealing are based on the principle of having a first and second line of defence against moisture entry for all joints, penetrations and junctions. The ingress of moisture must be excluded by detailing joinery and wall interfaces as shown in the Technical Literature. Weathertightness details that are developed by the designer are outside the scope of this Appraisal and are the responsibility of the designer for compliance with the NZBC.

14.5 The VertiLine Cavity System, where there is a designed cavity drainage path for moisture that penetrates the cladding, does not reduce the requirements for junctions, penetrations, etc to remain weather resistant.

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Internal Moisture

15.1 Buildings must be constructed with an adequate combination of thermal resistance and ventilation, and space temperature must be provided to all habitable spaces, bathrooms, laundries and other spaces where moisture may be generated or may accumulate.

Water Vapour

15.2 The VertiLine Cavity System is not a barrier to the passage of water vapour, and when installed in accordance with this Appraisal will not create a risk of moisture damage resulting from condensation.

Installation Skill Level Requirements

16.1 Installation and finishing of the VertiLine Cavity System must be completed by competent, experienced tradespersons with an understanding of cavity installation and shiplap weatherboard installation, in accordance with instructions given within the VertiLine Cavity System Technical Literature and this Appraisal.

VertiLine Cavity System Installation

Wall Underlay and Flexible Sill and Jamb Tape Installation

17.1 The selected wall underlay and flexible sill and jamb tape system must be installed by the building contractor in accordance with the underlay and tape manufacturer's instructions prior to the installation of the cavity battens and the rest of the VertiLine Cavity System. Flexible wall underlay must be installed horizontally and be continuous around corners. Underlay must be lapped 75 mm minimum at horizontal joints and 150 mm minimum over studs at vertical joints. Generic rigid sheathing materials must be installed in accordance with NZBC Acceptable Solution E2/AS1 and be overlaid with a flexible wall underlay. Proprietary systems must be installed in accordance with the manufacturer's instructions. Particular attention must be paid to the installation of the wall underlay and sill and jamb tapes around window and door openings to ensure a continuous seal is achieved and all exposed wall framing in the opening is protected.

Vertibat Cavity Batten Installation (to Dwangs)

17.2 Vertibat cavity battens must be installed horizontally over the wall underlay to the wall framing (dwangs) at maximum 480 mm centres. The battens must be installed with the top edge sloping away from the wall underlay towards the back of the weatherboards. The cavity battens must be fixed in place with 40 x 2.5 mm flat head hot-dipped galvanised nails or 50 x 2.87 mm hot-dipped galvanised gun nails (for 20 mm thick battens), or 60 x 2.8 mm flat head hot-dipped galvanised nails or 60 x 2.87 mm hot-dipped galvanised gun nails (for 40 mm thick battens) to temporarily fix the battens in place prior to installation of the cladding.

Vertibat Cavity Batten Installation (to Studs)

17.3 Vertibat cavity battens (40 mm thick only) must be installed horizontally over the wall underlay to the wall framing (studs) at maximum 480 mm centres. The battens must be installed with the top edge sloping away from the wall underlay towards the back of the weatherboards. The cavity battens must be fixed in place with one 12 gauge x 65 mm long Grade 316 stainless steel screw at each stud crossing (maximum 600 mm centres).

Cavibat Cavity Batten Installation

17.4 The Cavibat cavity battens must be installed horizontally over the wall underlay to the wall framing (dwangs) at maximum 480 mm centres. The cavity battens must be fixed in place with 40 x 2.5 mm hot-dip galvanised flat head nails or galvanised or stainless steel finishing brads at 400 mm centres. Refer to BRANZ Appraisal Number 524 (2012) for further information.

VertiLine Cavity System Installation

17.5 Hermpac shiplap weatherboards may be cut on site by power or hand saw. Holes and cut-outs may be formed by using a hole saw.

17.6 Hermpac shiplap weatherboards must not be wet prior to installation. Prior to installation, the back face and edges of the Hermpac shiplap weatherboards must be sealed with an exterior grade oil-based penetrating stain. During installation, cut ends must be sealed with an exterior grade oil-based penetrating stain.

17.7 Before the weatherboards are installed, the corner detail must be prepared to suit the selected option, e.g. external box corner, external corner moulding etc. The necessary flashings must be installed before commencing weatherboard fixing and the cavity closure must be installed continuously around the bottom of the cavity.

17.8 Hermpac shiplap weatherboards must be installed starting at the corner of the wall section being clad. The first weatherboard must be installed plumb to assist with the installation of subsequent weatherboards. The weatherboards must overhang the bottom plate by a minimum of 50 mm. The weatherboards should be installed with the lap facing away from the prevailing winds.

17.9 Immediately prior to installing the weatherboards over the internal and external corner flashings, a continuous bead of sealant must be applied to the face of the flashing along the fixing line.

17.10 Hermpac shiplap weatherboards must be overlapped a minimum of 25 mm with an expansion gap of 2 mm at the overlap. The top of the weatherboard lap must be restrained using the Hermpac clinch nail at every cavity batten.

17.11 Hermpac shiplap weatherboards must be pre-drilled with a hole slightly smaller than that of the nail. Fix each weatherboard with one nail per board at every cavity batten. Fixing must be carried out using silicon bronze or Grade 304 or 316 stainless steel annular grooved Hermpac Crown Head, Rose Head or Flat Head nails. The nail shank must be minimum 3.15 mm diameter and the length must allow minimum 30 mm penetration of the wall frame (for Vertibat and Cavibat battens fixed to dwangs) and minimum 30 mm penetration of the batten (for 40 mm thick Vertibat battens fixed to studs only). The fixing must be located 30-35 mm in from the weatherboard lap and a minimum of 32 mm from the end of the board and must finish flush onto the surface of the weatherboard, not into or below the surface.

17.12 Fix weatherboards in full lengths where possible. Where joints are unavoidable, scarf the weatherboard at 30° over a cavity batten and fix with one fixing through the overlapping board.

Aluminium Joinery Installation

17.13 Aluminium joinery and associated head flashings must be installed by the building contractor in accordance with the Technical Literature. A 7.5 - 10 mm nominal gap must be left between the joinery reveal and the wall framing so a PEF rod and air seal can be installed after the joinery has been secured in place.

Finishing

17.14 The stain manufacturer's instructions must be followed at all times for application of the stain finish.

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Inspection

17.15 The Technical Literature must be referred to during the inspection of VertiLine Cavity System installations.

Health and Safety

18.1 Cutting of Hermpac shiplap weatherboards must be carried out in well ventilated areas and dust masks, eye and hearing protection must be worn.

18.2 Safe use and handling procedures for the components that make up the VertiLine Cavity System are provided in the relevant manufacturer's Technical Literature,

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

Tests

19.1 The following testing has been completed by BRANZ:

- BRANZ expert opinion on NZBC E2 code compliance for the VertiLine Cavity System is based on testing and evaluation of all details within the scope and as stated within this Appraisal. The VertiLine Cavity System was tested to NZBC E2/VM1 (as contained within NZBC Clause E2, Amendment 5). The testing assessed the performance of the Vertibat and Cavibat cavity battens, foundation detail, window head, jamb and sill details, meter box head, jamb and sill details, vertical joints, internal and external corners and balustrade to wall junction. In addition to the weathertightness test, the details contained within the Technical Literature have been reviewed, and an opinion has been given by BRANZ technical experts that the system will meet the performance levels of NZBC Acceptable Solution E2/AS1 for cavity-based weatherboard claddings.
- Fastener pull through testing. BRANZ determined design wind suction pressures, and by comparing these pressures with AS/NZS 1170 pressure coefficients, the fixing requirements were determined for timber framed walls.

Other Investigations

20.1 Structural and durability opinions have been provided by BRANZ technical experts.

20.2 The performance of cedar weatherboard wall cladding products in New Zealand has been considered, including the structural and durability performance, and non-hazardous nature.

20.3 Site visits have been carried out by BRANZ to assess the practicability of installation.

20.4 The Technical Literature for the VertiLine Cavity System has been examined by BRANZ and found to be satisfactory.

Quality

21.1 The manufacture of Hermpac shiplap weatherboards has been examined by BRANZ, including methods adopted for quality control. Details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.

21.2 The quality of materials, components and accessories supplied by Herman Pacific Limited is the responsibility of Herman Pacific Limited.

21.3 Quality of installation on site of components and accessories supplied by Herman Pacific Limited and the building contractor is the responsibility of the installer.

21.4 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of framing systems and joinery, wall underlays, flashing tapes, air seals, cavity battens and the VertiLine Cavity System in accordance with the instructions of Herman Pacific Limited.

21.5 Building owners are responsible for the maintenance of the VertiLine Cavity System in accordance with the instructions of Herman Pacific Limited.

Sources of Information

- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 4534:2006 Zinc and zinc/aluminium-alloy coatings on steel wire.
- NZS 3602:2003 Timber and wood-based products for use in building.
- NZS 3603:1993 Timber Structures Standard.
- NZS 3604:2011 Timber-framed buildings.
- NZS 3617:1979 Specification for profiles of weatherboards, fascia boards and flooring.
- NZS 4211:2008 Specification for performance of windows.
- BRANZ Bulletin Number 411, April 2001, Recommended Timber Cladding Profiles.
- Compliance Document for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005 (Amendment 6, 14 February 2014).
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.

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In the opinion of BRANZ, VertiLine Shiplap Cedar Weatherboard Cavity System **is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.**

The Appraisal is issued only to Herman Pacific Limited, **and is valid until further notice, subject to the Conditions of Appraisal.**

Conditions of Appraisal

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

For BRANZ

C Percy
Chief Executive

Date of issue: 16 September 2014

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT
PLANS/SPECIFICATIONS

ARDEX WPM 002

Superflex Bathroom & Balcony - 2 Part

2 Part Undertile Waterproofing Membrane

BRANZ Appraised

Rapid Drying Time

Two Component Undertile Waterproofing Membrane

Advanced acrylic – will not re-emulsify

Liquid reinforced – eliminates the need for reinforcing mat

Water based – safe to use, low odour and easy cleaning

Meets class III category for AS/NZ 4858 Wet Area Membranes

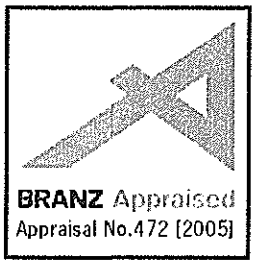
Low VOC content – meets Green Building Council of Australia Green Star IEQ-13 requirements

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APPROVED CONSENT
PLANS/SPECIFICATIONS

Superflex Bathroom & Balcony - 2 Part
2 Part Undertile Waterproofing Membrane





Copies available on request.

PRODUCT DESCRIPTION

Ardex WPM 002 (Superflex Bathroom & Balcony 2 Part) is a tough, fast drying two component waterproofing membrane specifically designed for use under tiles. The product has been uniquely formulated with synthetic microfibres to increase its strength and eliminate the need for a separate reinforcement mat. Ardex WPM 002 is based on the most advanced acrylic polymer technology, and is totally resistant to re-emulsification.

Ardex WPM 002 is flexible, safe to use, low in odour, and is fully compatible with polymer modified tile adhesives. Ardex WPM 002 is one of the fastest drying acrylic membranes on the market – normally ready to tile in 16-24 hours @ 23°C.

WPM 002 meets the Green Building Council of Australia Green Star IEQ-13 requirements for Architectural Sealant when tested in accordance with SCAQMD Method 304-91 Determination of Volatile Organic Compounds (VOC) in Various Materials as referenced by South Coast Air Quality Management Division (SCAQMD) Rule 1168.

FEATURES/BENEFITS

Fast drying Ardex WPM 002 can be tiled over in 16-24 hours, or 4 hours @ 23°C/50% RH in non critical areas*.

Features benefits

- Liquid reinforced: Excellent strength, eliminates need for reinforcing mat.
- Flexible: Accommodates normal building movement.
- Advanced acrylic: Will not re-emulsify.
- Designed for tiling: Fully compatible with ABA/Ardex tile systems adhesives.
- Water based, safe to use, low odour and easy cleaning for undertile waterproofing in shower recesses by independent testing authority.
- Excellent exterior.
- Conforms to the requirements of AS/NZ 4858: 2004 Wet Area Membranes (Ref: CSIRO Report 3879)

*Critical areas include areas where the membrane is applied at greater than 0.5mm or over impermeable substances such as over bond breakers or incorporating other reinforcement. Longer drying times are necessary in these areas.

APPLICATION RANGE

Performance levels
Commercial and residential.

Location
Internal and external wet areas, balconies, decks, and other areas that will be tiled or otherwise protected from regular foot traffic.

Surfaces
Walls and floors.

Substrates

Concrete	Cured for min. 28 days or sealed when set with one coat Ardex WPM 300 (HydrEpoxy 300) at a coverage rate of 3.0 square metres per litre and allowed to cure overnight. Wet concrete should be allowed to dry thoroughly or sealed with one coat of Ardex WPM 300 as above.
Renders and screeds	Cured for min. 7 days or sealed when set with one coat Ardex WPM 300 at a coverage rate of 3.0 square metres per litre and allowed to cure overnight. Wet render should be allowed to dry thoroughly or sealed with one coat of Ardex WPM 300 as above.
Fibre cement	Wet area grade only.
Plasterboard	Wet area grade only.
Plywood	Structural plywood (PAA branded) or marine grade or other wet area grade only. Not recommended for external use (refer Ardex).
Particleboard	Wet area grade, internal use only (special preparation is required – contact Ardex). Not recommended for external use (refer Ardex).
Permanent Immersion	In conditions of permanent immersion, it is recommended that WPM 002 must be covered with tiles for full immersion applications.

Contact Ardex for use over existing membranes, covering materials, and any other substrates not listed.

SPECIFICATION CLAUSE

Ardex WPM 002 (Superflex Two Part)
The waterproofing membrane shall be Ardex WPM 002, a two component cementitious acrylic modified fibre reinforced membrane formulated to provide a tough, long lasting water barrier under tiling systems.

PACKAGING

Two component: 20kg (approx 20 litres) liquid pail/ 2 x 10kg bags powder.

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TABLE 1

	Thickness per coat		Total dry film thickness (2 coats)	Theoretical coverage		Per unit
	Dry film	Wet film		Per coat	For 2 coats	
FLOORS	0.6mm	0.9mm	1.2mm	32m²	16m²	40kg kit
WALLS	0.4mm	0.6mm	0.8mm	48m²	24m²	40kg kit

SHELF LIFE

12 months when stored in the original unopened packaging, in a dry place at 23°C. Do not store in direct sunlight. Replace lid tightly after use. Use remaining contents from part used containers within 3 months.

COVERAGE

Two coats are recommended for an effective waterproof membrane. Coverage will vary depending on the porosity of the surface.

One 40kg kit will cover approximately 16-24m (based on two coats) depending on area requirements between wall and floor surfaces to be treated.

DRYING TIMES

Curing time will vary depending on temperature and humidity.

Recoat time

1-2 hours (23°C/50% RH) between first and second coats. Alternatively, if a polyester mat is used between coats then the second coat can be applied whilst the first coat is still wet.

Dry through

The slowest drying areas are those where the membrane has been applied over a silicone bond breaker, eg. wall and floor junctions. The membrane cannot be tiled over until these critical areas are completely dry.

Ardex WPM 002 membrane is totally dry in 16 hours at 23°C/50% RH but can take up to 24 hours at 10°C / 50% RH in corners or for thick films.

In areas where bond breakers or additional reinforcement are not used, Ardex WPM 002 can be tiled over after 4 hours at 23°C / 50% RH.

Fully cured

The shower should not be used until the membrane has reached its full strength. Normally Ardex WPM 002 membranes are fully cured after 3 days at 23°C, or after 5 days at 10°C.

Drying times will vary depending on humidity, surface temperature and surface porosity.

Do not apply on substrates where the surface temperature is below 10°C or above 35°C.

CLEANING

Wash hands, brushes, rollers, etc, with water while the membrane is still fresh. Remove cured material with mineral turpentine.

SAFETY PRECAUTIONS

Do not use the product in the following situations:

- Areas subject to negative hydrostatic pressure or rising damp, unless treated with Ardex WPM 300.
- Where the substrate is wet – wet surfaces can be sealed with one coat of Ardex WPM 300 at a coverage rate of 3.0 square metres per litre and allowed to cure overnight.
- Where rain is imminent.
- Where the membrane will be left exposed and subjected to regular foot traffic.
- On glazed, glass or other totally impervious surfaces (eg. areas pre-treated with water repellants).
- Where the surface temperature is below 10°C or greater than 35°C.
- All floor areas must have adequate falls either built into the substrate or achieved with a sand/cement screed prior to application of the Ardex WPM 002.

For substrates or situations other than those listed contact Ardex.

SAFETY DATA

Ardex WPM 002 Part A is non-hazardous. It may produce discomfort of the eyes, respiratory tract and skin. It should not be swallowed or inhaled. Avoid contact with skin and wear eye/face protection. In case of contact with eyes, rinse with plenty of water and contact a doctor or Poisons Information Centre.

Ardex WPM 002 Part B contains cement and is therefore hazardous. It may cause burns and serious damage to eyes. Do not breathe dust and avoid contact with eyes. Wear dust masks, goggles and gloves when handling. Keep container locked up and in a well ventilated place.

ADDITIONAL INFORMATION IS LISTED IN THE MATERIAL SAFETY DATA SHEET.

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Superflex Bathroom & Balcony - 2 Part
2 Part Undertile Waterproofing Membrane

APPLICATION

Apply Ardex WPM 002 by brush or roller. A medium nap (12–15mm pile) paint roller is recommended. New rollers should be dampened with water before being used for the first time.

For best results with a paint brush use a good quality, 50mm long bristle variety.

To achieve the required dry film thickness per coat application must consist of laying the product onto the surface and light finish the surface. Do not try to apply in the same manner as a building paint. A conventional building paint is normally applied at 25–40 micrometers wet film thickness while Ardex WPM 002 needs to be applied at between 0.6 and 0.9 mm per coat depending on product and application (Refer Table 1).

Critical areas:

INTERNAL WET AREAS

1. Construction should be in accordance with Australian 3740 - 2004 Waterproofing of wet areas within residential buildings.
2. All render and tile bed requirements should be completed before application of the membrane and tiles or other floor coverings should be direct bonded to the membrane.
3. Ensure wall and floor sheets are installed as per sheet manufacturer's recommendations.
4. Ensure suitable brick/concrete hobs are used (do not use timber), and that the top of the hob does not slope outwards.
5. Ensure that falls to the waste are min 1:60 (ie. approx. 30mm in 2m) before waterproofing. Ensure outlet pipes are fixed securely and that the waste or drainage flanges are recessed into the floor.
6. Avoid sheet joints in shower recess floor. Ensure that sheets are securely fixed to the wall at the bottom edge, and sheet joints are sealed with a neutral cured silicone sealant spread approximately 6mm on either side of the joint.
7. Treat nail and screw holes with neutral cure silicone sealant.
8. Seal the perimeters of taps, shower outlets and waste outlets with neutral cure silicone sealant.
9. Apply a bead of neutral cure silicone sealant to all horizontal and vertical corners, and spread to 6mm on either side of joint.
10. Apply a bead of neutral cure silicone sealant to the junction of the hob or angle and walls, and spread to 6mm on either side of joint.
11. Waste outlets shall incorporate a puddle flange or similar in accordance with AS3740 and the top surface shall be set flush with the surface to which the membrane is to be applied. A bead of neutral cure silicone shall be applied across the intersection of the puddle flange and the screed/ floor.
12. Apply the membrane to the entire shower recess floor and down into waste or drainage flange. Apply the membrane over the hob and at least 150mm beyond the outside edge of the hob (ideally to entire wet area floor).
13. Apply the membrane 1800mm up the walls or to the height of the shower rose within the shower recess.
14. Install the shower screen to inside edge of the hob.

BALCONIES AND DECKS

1. Ensure that the deck is constructed with falls to edge/drains of min 1:100 (ie. 20mm in 2m) or else achieve the fall with a sand/cement screed.
2. Ensure a min set down (step down) of 50mm to the finished floor level (ie. top of tiles).
3. Ensure suitable flashing is installed, ideally prior to the installation of the balcony screen/sliding door.
4. Treat any sheet joints with a neutral cure silicone

Fig.1 – Shower recess – critical areas

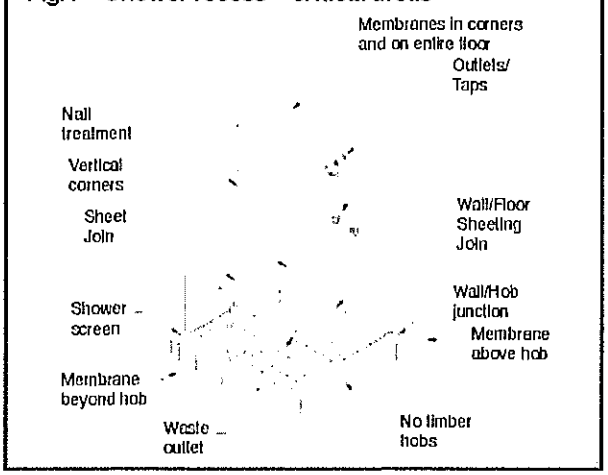
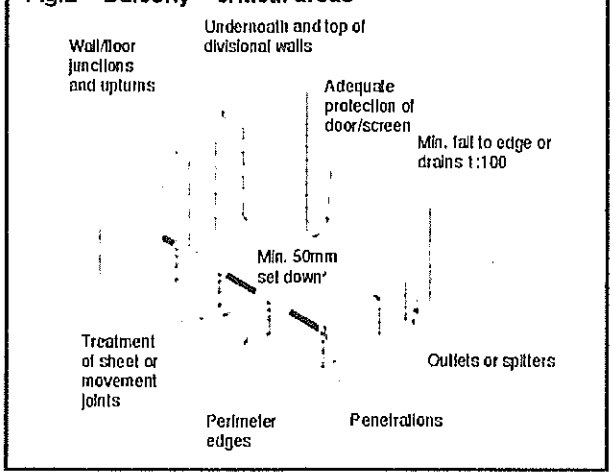


Fig.2 – Balcony – critical areas



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prior to waterproofing.

5. Prepare and seal all wall/floor junctions with a bead of neutral cure silicone.
6. Apply the membrane up the step down and as far up underneath the screen door flashing as possible (ideally waterproof prior to installing door).
7. Where possible, apply the membrane prior to building divisional walls.
8. Apply the membrane to the entire balcony floor and at least 50mm up the wall above the top surface of the finished tiles and finished below the wall drainage vents.
9. Apply the membrane to the top of the parapets and divisional walls, or else install suitable metal capping.
10. Apply the membrane down over the front edge of the balcony onto the drip rail.
11. Carefully seal any gaps around balcony penetrations prior to applying the membrane.
12. Apply the membrane down into outlets and drains, ensuring excess material is removed.
13. Ensure all weep holes are above the membrane application area.

APPLICATION NOTES

Surface preparation

- Ensure all surfaces are structurally sound and totally dry. The pores of concrete surfaces should be open (absorbent surface). All sheet substrates must be securely fixed in accordance with the manufacturers instructions.
- Falls to outlets of at least 1:60 or approx. 30mm in 2m (wet areas) or 1:100 externally, must be achieved prior to tiling.
- The surface to be coated should be free from dust, oil, paint, curing compounds and any other contaminating materials.
- Damaged concrete should be repaired (leveled) and surface defects including all cracks and sharp protrusions should be treated prior to the application of the membrane.
- Remove laitance on concrete or screeds by mechanical means.
- Highly dense (>40MPa) or steel trowelled concrete should be roughened by suitable mechanical means (shot blasting, grinding, etc).

Priming

The primer is a critical part of the waterproofing system. Apply one coat of Ardex WPM 265 (Sheltercoat/Superflex Water Based Primer) by brush or roller to all areas to be waterproofed including the floor waste. Allow the primer to be completely dry prior to the application of the Ardex WPM 002 membrane. This will take around 20-30 minutes depending upon weather conditions and porosity of the substrate. Coverage is approximately 6m² per litre. Plastic (eg. PVC) pipes should be primed with a solvent based plumbers pink primer. Prime metal surfaces with a suitable metal primer such as epoxy polyamide primer.

GENERAL APPLICATION

Crack preparation

Cracks <2mm:

Clean and remove any loose particles in the crack. Prime the crack and adjacent area carefully with Ardex WPM 265 and allow to dry before applying two coats of Ardex WPM 002 membrane, in a band at least 200mm wide equidistantly across the crack, along the length of the crack.

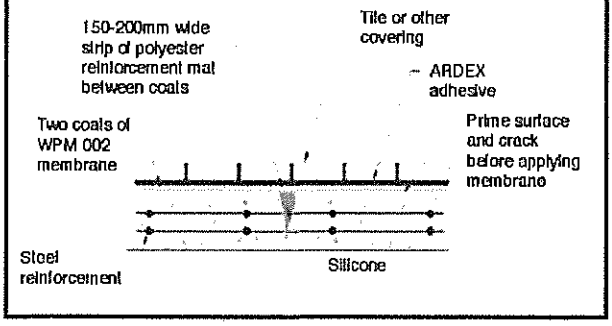
Cracks 2-6mm:

(Refer Fig. 3) prepare and prime the crack as above. Apply a bead of neutral cure silicone into the crack and extend it 6mm either side. Apply a 300mm wide band of Ardex WPM 002 equidistantly across the crack along the entire length of the crack. Place a 190mm wide band of Ardex "Deckweb" polyester woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat.

Cracks >6mm:

Contact your local Ardex representative.

Fig.3 Crack Treatments



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Superflex Bathroom & Balcony - 2 Part
2 Part Undertile Waterproofing Membrane

Movement/construction joints

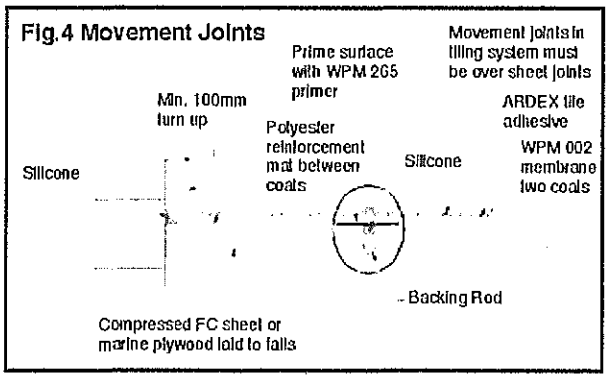
Movement joints (<6mm)

Clean and prime the joint before filling it with a bead of neutral cure silicone and extending it 6mm each side of joint. Apply a 300mm wide band of Ardex WPM 002 equidistantly across the crack along the entire length of the crack. Place a 190mm wide band of Ardex "Deckweb" polyester woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat.

Construction joints (>6mm)

Use the same procedure as above, but replace the reinforcing mat with 120mm of Ardex Coving Bandage. Note: if tiling, movement joints should be taken to the surface of the tiles. Fill the joints between the tiles immediately above the movement joints with an appropriate joint sealant. (Refer Fig.4)

Fig.4 Movement Joints



Corners and coving areas

After priming with Ardex WPM 265 and allowing to dry, apply a generous bead (16mm) of neutral cure silicone sealant in coving areas and corners. (Refer Fig.5) Smooth over the silicone so that it extends 8mm up the wall and 8mm over the floor and allow to touch dry.

Apply a first coat of Ardex WPM 002 to the area and allow the membrane to dry.

Apply a second coat ensuring that excess product is removed from the junction (the final dry film thickness should be around 1.2mm) Alternatively, if a polyester reinforcement mat is used between coats then the second coat can be applied as soon as the mat is fully bedded into the first coat.

WALL/FLOOR JUNCTION

After priming with Ardex Superflex WPM 265 and allowing to dry, apply a generous bead (16mm) of neutral cure silicone sealant to seal all junctions between two substrates. Smooth over the silicone so that it extends 8mm up the wall and 8mm over the floor and allow to touch dry. Place a 190mm wide band of Ardex "Deckweb" polyester woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat. The Ardex WPM 002 should be applied to at least 150mm up the wall surfaces as per the recommendations for the application of Ardex WPM 002 to floors.

Walls

Two coats of Ardex WPM 002 are required to achieve a minimum total dry film thickness of 0.8mm.

After priming with Ardex Superflex WPM 265 and allowing to dry, apply two coats of Ardex WPM 002 (to achieve a minimum dry film thickness of 0.8mm) in two opposite directions. Wall sheets joints should be treated with a neutral cure silicone, PVC duct tape or base jointing compound. In balcony situations take the membrane up underneath any existing cover flashing or install appropriate flashing. Allow the first coat to dry before applying the second coat.

Floors

Two coats of Ardex WPM 002 are required to achieve a minimum total dry film thickness of 1.2mm. The flooring recommendations should be extended at least 150mm up all perimeter walls.

Prime the surface with Ardex WPM 265 water based primer and allow to dry.

Apply the first coat over the primed surface and allow it to dry (1-2 hours at 23°C, 50% RH) before applying a second coat in an opposite direction. In shower recesses a drainage flange must be installed on all timber/sheeted floors, and are strongly recommended on all other substrates. Where possible rebate the flange into the floor. Seal the perimeter of the flange with neutral cure silicone treatment. If a flange is not installed the membrane must be applied down into the pipe. (Refer Fig.5) Allow the membrane to dry completely before tiling. Refer drying times above.

Waste outlet

Prime the surface with Ardex WPM 265 and allow to dry. Surfaces of outlet flange must be primed with an appropriate primer.

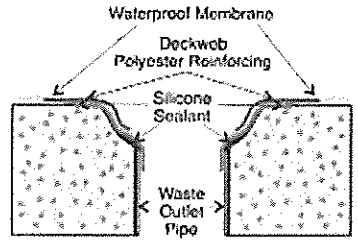
Apply Ardex WPM 002 over the adjacent floor surface extending down into the waste outlet pipe overlapping the pipe surfaces by at least 30mm. Place Ardex "Deckweb" polyester woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat. (Refer Fig. 5).

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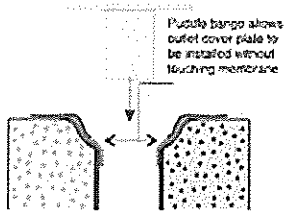
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Fig.5 – Waste outlet



Outlet Detail Using
Puddle Flange



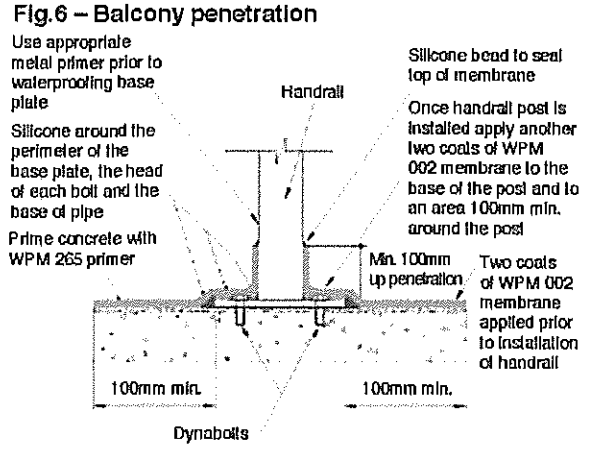
Balcony penetrations (Refer Fig.6)

All upstands are to be mechanically fixed through the membrane, which must be fabricated with a base plate flange.

Prime the metal with an appropriate metal primer such as an epoxy polyamide primer and allow to dry. Apply a 10mm bead of neutral cure silicone around the perimeter of the penetration. Apply the first coat of Ardex WPM 002 on the substrate and the flanged metal.

Allow first coat to dry before applying a second coat ensuring a finished dry film thickness of no less than 1.2mm is achieved. Place a suitable flashing collar around the penetration sealing it with a suitable sealant.

Fig.6 – Balcony penetration



Tiling systems

It is advisable to conduct a flood test of the shower once the membrane has cured (normally after 48 hours), and before the tiling commences. A broad range of Ardex tile adhesives can be used over Ardex Superflex membranes. Contact Ardex or your nearest Ardex stockist for advice on the most suitable system.

QUALITY PRODUCT

Ardex WPM 002 is manufactured and tested to Ardex procedures which are maintained in accordance with Quality System Standard ISO 9001.

USER NOTES

The technical details and recommendations contained in this data sheet are given in good faith and represent the best of our knowledge and experience at the time of printing. It is the responsibility of the user to ensure that the product is used in accordance with Ardex instructions and in applications for which they are intended.

TECHNICAL DATA

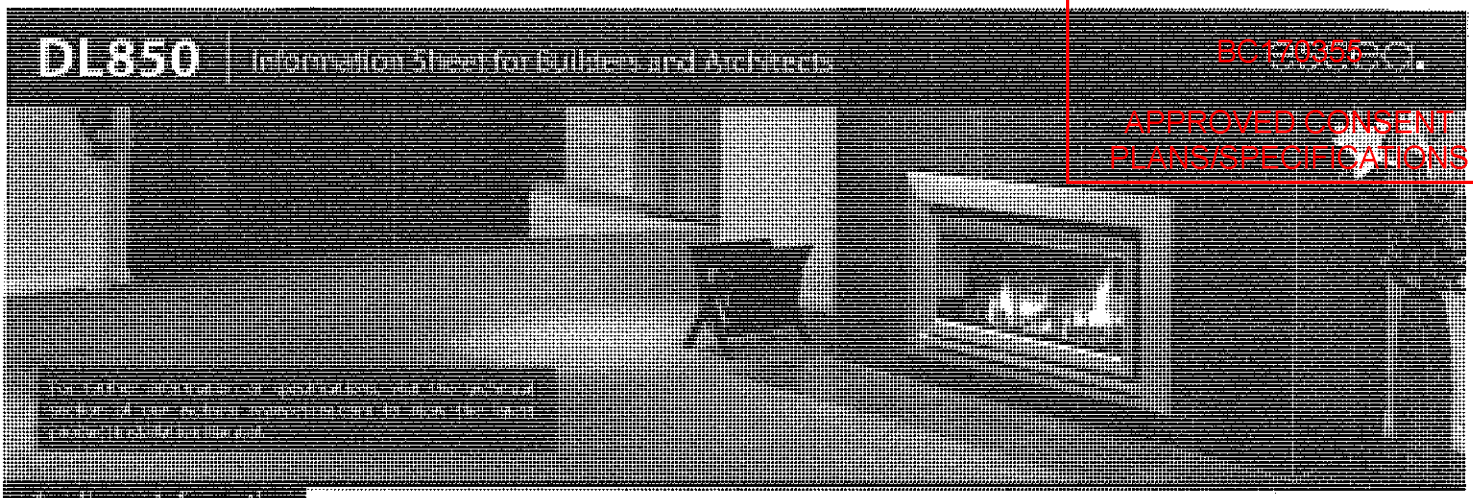
Ardex WPM 002
Characteristics of components

Form & Colour	Liquid: white, medium viscosity Powder: off white
Characteristics of mixed product	
Mixing Ratio	1:1 by weight
SG of mixed product	1.44kg/litre
Non Volatile Matter	77±1%
Colour	light grey/green
Characteristics of cured membrane	
Shore A hardness ASTM D2240	
– dry film	85 – 90
– wet film	75 – 80
Tensile Strength	
7 days dry AS1145	1.7 MPa
Full Cure 28 days:	2.9 MPa
Elongation at Break	
7 days dry AS1145	332%

NOTE: Most of the tests have been carried out in the Ardex laboratory under standard conditions (23±2°C, 50±5% RH)

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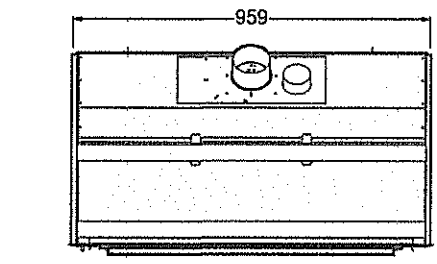
DL850 | Information Sheet for Builders and Architects

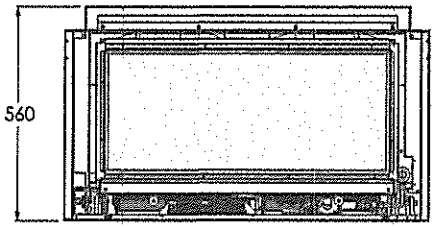


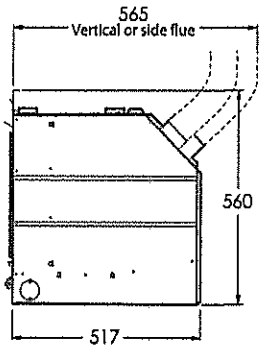
Appliance Information

Product Dimensions

All dimensions are in mm







Gas Specifications

Heat Output	9.2kW*
Gas Input / Consumption	38MJ/hr*
Gas Connection	Rear right or front right, 1/2" BSP female thread
Gas Type	Natural Gas / LPG (NZ) / Propane (Aus)
Operating Pressure	1.0kPa NG / 2.3kPa LPG or Propane
Inlet Gas Pressure	1.2kPa to 5.0kPa NG 2.75kPa to 5.0kPa LPG or Propane
Power Requirement	3 pin earthed 230V power outlet to be within 1.0m of rear left hand corner of the appliance

Cavity Construction

Cavity Dimensions

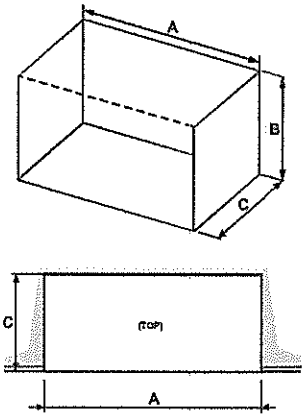
The cavity size is dependant on fascia type as the Rado fascia is recessed into the wall. Where possible, it is recommended that the cavity is made 5-10mm larger than the dimensions shown to give the installer the maximum amount of space to work in.

It is not necessary to line the sides, top or back of the cavity.

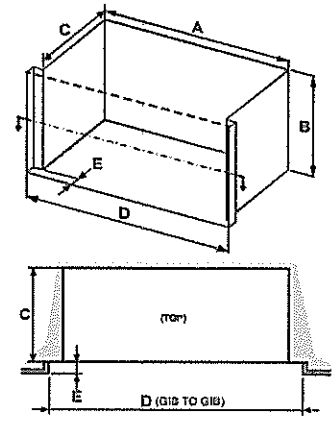
The wall directly above the Rado fascia must be constructed with non combustible materials, but all other surrounding walls and cavity materials may be constructed with combustible materials.

The cavity and surrounding walls for Velo or Quadrato fascias may be constructed using combustible materials.

Cavity for Velo, Quadrato or Quadrato Lite Fascia



Cavity for Rado Fascia

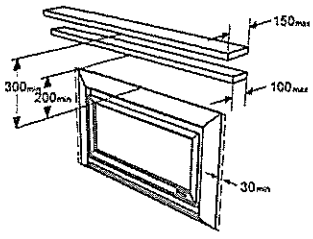


Ideal Cavity Dimensions (mm):

	A	B (min)	B (max)	C	D	E
Velo / Quadrato / Quadrato Lite	960	560	575	565	-	-
Rado	965	583	586	565	995	30 to 130

Mantle Clearances

Any combustible mantles or protruding ledges above the fireplace must not extend outside the dimensions shown.



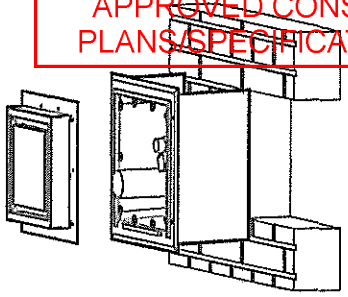
TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT PLANS/SPECIFICATIONS

Flue Information

Horizontal Powerflue Description:

The Horizontal Powerflue Wall Terminal must be weather-tight when installation is complete to prevent damage to the dwelling, and must be installed accordance with AS/NZS 5601 and any other relevant building codes.

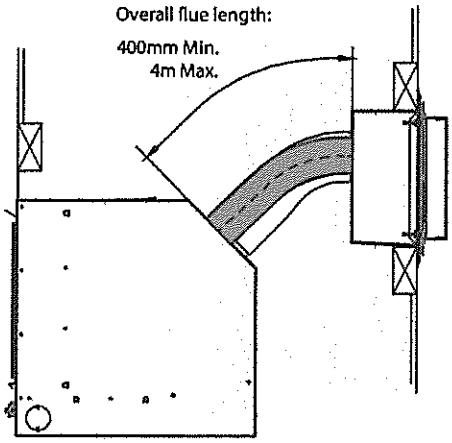
The Horizontal Powerflue connects to the appliance via two Ø100mm and Ø75mm flexible flues.

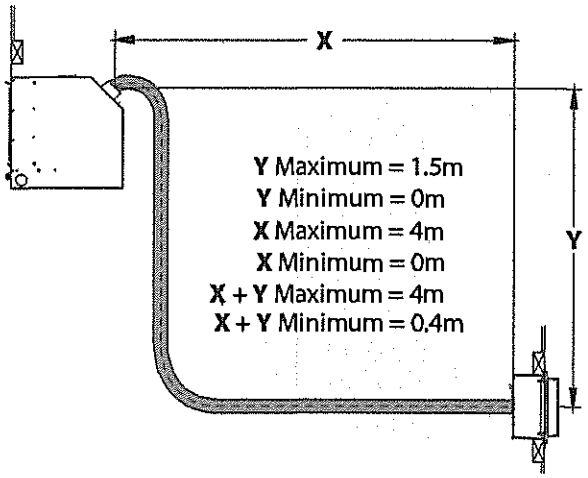


Flue Configurations:

The maximum length of flue is 4m and minimum 600mm, and may be run in any variety or combination of directions or angles as required, providing it does not extend past 1.5m horizontally downwards.

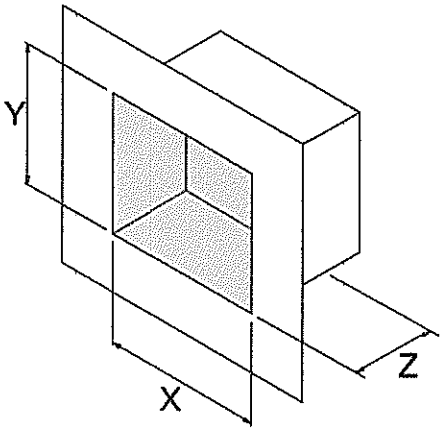
Where possible, the flue terminal should not be situated in areas exposed to high winds and extreme weather.





Cavity Size for Horizontal Powerflue:

When cutting the hole in the outside wall, be mindful of how the installation Horizontal Powerflue Wall Terminal will be finished, the installation must be weatherproof.



Ideal hole/cavity size for Horizontal Powerflue

X	298mm
Y	298mm
Z	175mm*

* Note, Z dimension does not include allowance for flue which exists here as shown in the above diagrams. If the flue is exiting the powerflue and immediately going downwards, Z dimension will need to be at least 400mm to allow for the flue and flue bend radius.

TAUPO DISTRICT COUNCIL

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APPROVED CONSENT
PLANS/SPECIFICATIONS

GIB EzyBrace® 2011 Software

Demand Calculation Sheet — single storey — V06/11

Job Details

Name jones residence
Lot 52 The Fairways
Lot 52
City/Town/I Kinloch
Designer
Company Name Urbanform Architecture
Date 13/08/2015

BRANZ Appraised
Appraisal No.294 [2011]

Select Lining Option: 10 or 13 mm GIB® Plasterboard

Building Specification

Number of storeys	single	
Floor Loading	2kPa	
Foundation Type	slab	
	Single Floor	**Complete Single Floor Column only**
Cladding Weight	light	
Roof Weight	light	
Room in Roof Space	no	
Roof Pitch (degrees)	8	20
Roof height above eaves (m)	2.0	1.0
Building height to apex (m)	4.9	
Ground to lower floor level (m)	0.5	
		2.8
Stud Height (m)	2.4	2.4
Building Length (m)	25.0	14.5
Building Width (m)	20.0	12.8
Building Plan Area (m2)	257	210

Building Location

Wind Zone *High*

Select by Building Consent Authority Map
or Preference: High

Wind Region	Preference selected
Lee Zone	Preference selected
Ground Roughness	Preference selected
Site Exposure	Preference selected
Topographic Class	Preference selected

Earthquake Zone: 2

Soil Type: D&E (deep to very soft)

Annual exceedance probability: 1/500 (NZS3604:2011 default)

Bracing Units required for Wind

Demand W (BU)		Walls single
along	slab	982
across	slab	1116

Bracing Units required for Earthquake

Demand along / across E (BU)	Walls single
slab	966

TAUPO DISTRICT COUNCIL

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APPROVED CONSENT PLANS/SPECIFICATIONS

GIB EzyBrace® 2011 Software

GIB

SINGLE OR UPPER STOREY WALLS ALONG

V06/11

Lines		*Bracing Elements*							
1	2	3	4	5	6	7	8	9	10
Line Total Check	Line Label	Bracing Element No.	Available Wall Length L (m)	Angle to Bracing line (degrees)	Element Height H (m)	Bracing Type	Supplier	Bracing Units Achieved	
								W	E
369	**a**	1	0.9		2.4	BL1-H	GIB®	102	92
		2	0.9		2.4	BL1-H	GIB®	102	92
		3	0.9		2.4	BL1-H	GIB®	102	92
		4	0.9		2.4	BL1-H	GIB®	102	92
						Villa	Hardies		
374	**b**	5	1.2		2.4	BL1-H	GIB®	154	125
		6	2.4		2.4	BL1-H	GIB®	307	250
192	**c**	7	1.2		2.4	GS1-N	GIB®	83	72
		8	3		3.6	GS1-N	GIB®	138	120
144	**d**	9	1.2		2.4	GS1-N	GIB®	83	72
		10	1.2		2.4	GS1-N	GIB®	83	72
236	**e**	11	2.4		2.4	GS1-N	GIB®	166	144
		12	1		2.7	BL1-H	GIB®	105	92
108	**f**	13	1.8		2.4	GS1-N	GIB®	124	108
144	**g**	14	1.2		2.4	GS1-N	GIB®	83	72
		15	1.2		2.4	GS1-N	GIB®	83	72

					Wind	Earthq.
Totals Achieved	W	185%	EQ	162%	1816	1567
Concrete Slab					*OK*	*OK*
Totals Required (from Demand)					982	966

TAUPO DISTRICT COUNCIL

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APPROVED CONSENT
PLANS/SPECIFICATIONS

Wall Bracing Elements

Supplier	System	Minimum Length (m)	BUs W/m	BUs EQ/m
GIB®	GS1-N	0.4		
GIB®	GS2-N	0.4		
GIB®	GSP-H	0.4		
GIB®	BL1-H	0.4		
GIB®	BLP-H	0.4		
GIB®	BLG-H	0.4		
block 1	masonry	0.75	42	42
block 2	masonry	1.5	42	42
block 3	masonry	3	200	200
block 4	masonry	4.5	300	300
Hardies	Villa	1.2	130	101
Portal 1	steel	1	69	65
Portal 2	steel	1	69	65

BRANZ Appraised
Appraisal No.294 [2011]

Subfloor Bracing Elements

Supplier	System	Minimum Length (m)	BUs W/m	BUs EQ/m
NZS3604	masonry 0.75	1.5	42	42
NZS3604	masonry 1.5	1.5	100	100
NZS3604	masonry 3.0	1.5	200	200
NZS3604	masonry 4.5	1.5	300	300
NZS3604	braced piles	1	160	120
NZS3604	cantilever pile	1	70	30
NZS3604	anchor pile	1	160	120

TAUPO DISTRICT COUNCIL

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APPROVED CONSENT PLANS/SPECIFICATIONS

Building Code Clause(s).....

PRODUCER STATEMENT – PS1 – DESIGN

(Guidance notes on the use of this form are printed on page 2)

ISSUED BY: Wilton Joubert Ltd.
(Design Firm)

TO: Scottbuilt Construction NZ Ltd
(Owner/Developer)

TO BE SUPPLIED TO: Taupo District Council
(Building Consent Authority)

IN RESPECT OF: Raftfloor, footings, beams
(Description of Building Work)

AT: Lot 52, 6 The Fairways, Kinloch, Bay of Plenty
(Address)

..... **LOT** 52 **DP** 347410 **SO** .....

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

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

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

☑ Compliance Documents issued by the Ministry of Business, Innovation & Employment B1/VM1,VM4 or
(verification method / acceptable solution)

☐ Alternative solution as per the attached schedule.....

The proposed building work covered by this producer statement is described on the drawings titled .....

Lot 52, 6 The Fairways, Kinloch, Bay of Plenty and numbered S0-S3, D1, sheet 4;
together with the specification, and other documents set out in the schedule attached to this statement.

On behalf of the Design Firm, and subject to:

(i) Site verification of the following design assumptions .....
Design is based on 'good ground' as per NZS3604:2011 (stable site, non expansive soils & non liquefiable soils and min 100kPa allowable bearing capacity), to be confirmed.

(ii) All proprietary products meeting their performance specification requirements;

I **believe on reasonable grounds** that a) the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that b), the persons who have undertaken the design have the necessary competency to do so. I also recommend the following level of construction monitoring/observation:

☐CM1 ☑CM2 ☐CM3 ☐CM4 ☐CM5 (Engineering Categories) or ☐ as per agreement with owner/developer (Architectural)

I, David Lau ..... am:
(Name of Design Professional)

☑CPEng 221906 .....#

☐Reg Arch ..... .#

I am a Member of : ☑ IPENZ ☐NZIA and hold the following qualifications: BE(Hons), PhD, MIPENZ, CPEng, IntPE
The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.
The Design Firm is a member of ACENZ: ☐

SIGNED BY David Lau ..... ON BEHALF OF Wilton Joubert Ltd.
(Design Firm)

Date 20/06/2017 ..... (signature).....

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

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

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, IPENZ AND NZIA

TAUPO DISTRICT COUNCIL
BC 170356
APPROVED CONSENT
PLANS/SPECIFICATIONS

Recommended Site Inspections / Construction Review

WJ Job #: 66285 rev01

Site Address: Lot 52, 6 The Fairways, Kinloch, Bay of Plenty

Important Notes:

- Check building consent conditions for any inspections that are required by the Building Consent Authority.

- In order to issue Producer Statement – Construction Review (PS4) for specific item(s) as per the building consent conditions, Wilton Joubert needs to carry out the inspection for the item(s) specified.
  NO INSPECTION = NO PS4.

- It is the building consent applicant's (or authorised agent) responsibility to ensure that Wilton Joubert is notified in advance of the required inspection. Bookings should be made 48 hours prior to the intended time of inspection.

Ultimately, it is up to the building consent authority to determine which step of the construction process requires an engineer's review. Please check your eventual building consent conditions thoroughly for these. In support of your application for building consent, the following inspections / construction reviews are suggested:

- Pile holes
- Site cut
- Fill compaction
- Footings prepour
- Raftfloor prepour
- Beams connection
-
-

For bookings call: (09) 527 0196

TAUPO DISTRICT COUNCIL
BC 170356
APPROVED CONSENT
PLANS/SPECIFICATIONS

To the BCA

Site address: Lot 52, 6 The Fairways, Kinloch, Bay of Plenty

Dear Sir / Madam,

B2 Compliance

You have requested a Producer Statement for Design – PS1 for Clause B2 of the Building Code – Structural Durability.

Based on advice by the Institution of Professional Engineers New Zealand (IPENZ), we are not able to provide this because there is no effective verification method for B2 contained within the Building Code.

However, we can confirm that for the structural elements shown in our documentation:

Timber

Timber treatment has been selected in accordance with Table 1A of B2/AS1. In general this is already covered by the submitted architectural drawings.

Concrete

Concrete covers have been selected in accordance with NZS3101, Part 1, Section 3.

Mild Steel

Generally, steel member/connections requirements as per NZS3604:2011 or proprietary coatings to comply with AS/NZS2312. Otherwise, steel protection has been specified in accordance with the 'Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings' AS/NZS 2312. We note that this is on a time to first maintenance basis.

We trust this provides the information that you are seeking.

Yours faithfully

David Lau, Wilton Joubert Ltd. Dated: 20/06/2017

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT PLANS/SPECIFICATIONS

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Consulting Engineers

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Upper Riccarton
Christchurch 8442
T +64 3 341 1373

SOUTHERN LAKES
PO Box 169
Wanaka 9343
T +64 3 443 5322

PRODUCER STATEMENTS – Advisory Note

Producer Statements shall be submitted to territorial authorities or building consent authority in order for Code of Compliance Certificates to be issued. The requirement for consultants to issue the related Producer Statements may appear as a condition under the building consent documents or as a separate letter from the territorial authority or building certifier. **It is the owner's (or consent applicant) responsibility to check the building consent documentation and notify Wilton Joubert Ltd. in relation to the requirement for construction inspections required (and the subsequent PS4: Producer Statement for Construction Review) as stated on the consent documents. Please note, we cannot issue PS4 if we did not carry out the inspection.**

In order to secure our inspection services, it is strongly recommended that Wilton Joubert Ltd. be given at least 48 hours notice prior to time of inspection. Our inspections are limited to items that have been designed and detailed by us. We are also unable to inspect non-consented or unauthorised work. Building consented, stamped plans with consent numbers (or legible copy of the same) including amendments where applicable shall be made available on site during inspections.

In some cases due to the distance of the job from our offices, it may be more practical and cost effective to contact a local professional engineer to carry out the inspection, who may contact us with any questions that may arise. The engineer who carried out the inspection would subsequently be responsible for the issue of the producer statement for construction review.

The costs associated with site inspections and issuing of Producer Statements are separate from any previous work that we have been engaged for, such as engineering design of works. The costs for carrying out the inspections and related work are based on time spent travelling to site, time on site and other associated costs. Please contact us for an estimate of costs. Our assumptions are that the person(s) who arranged the inspection is responsible for payment of the fees, unless otherwise stated at time of engagement.

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS

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: Lot 52, 6 The Fairways	
Suburb: Kinloch	
Town/City: Bay of Plenty	Postcode:

THE OWNER(S)		
Name(s):		
Mailing address:		
Suburb:	PO Box/Private Bag:	
Town/City:		Postcode:
Phone number:	Email address:	

TAUPO DISTRICT COUNCIL

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APPROVED CONSENT
PLANS/SPECIFICATIONS

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

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

I David Lau carried out / supervised the following design work that is restricted building work

PRIMARY STRUCTURE: B1

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
All RBW design work relating to B1 ○		○ Carried out ○ Supervised	
Foundations and subfloor framing ○	Raftfloor , footings (B1)	○ Carried out ◉ Supervised	S0-S3, D1

TAUPO DISTRICT COUNCIL

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APPROVED CONSENT
PLANS/SPECIFICATIONS

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
Walls ○		○ Carried out ○ Supervised	
Roof ○		○ Carried out ○ Supervised	
Columns and beams ○	Beams (B1)	○ Carried out ● Supervised	Sheet 4
Bracing ○		○ Carried out ○ Supervised	
Other ○		○ Carried out ○ Supervised	

TAUPO DISTRICT COUNCIL

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APPROVED CONSENT
PLANS/SPECIFICATIONS

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

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PLANS/SPECIFICATIONS

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

WAIVERS AND MODIFICATIONS

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

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

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

TAUPO DISTRICT COUNCIL

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APPROVED CONSENT PLANS/SPECIFICATIONS

ISSUED BY

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

Name: David Lau	LBP or Registration number: 221906
The practitioner is a: ◯ Design LBP ◯ Registered architect ◉ Chartered professional engineer	
Design Entity or Company (optional): Wilton Joubert Ltd.	
Mailing address (if different from below): PO Box 11381, Ellerslie, Auckland 1542	
Street address/Registered office: 108 Lunn Avenue	
Suburb: Mt. Wellington	Town/City: Auckland
PO Box/Private Bag:	Postcode:
Phone number: 09 527 0196	Mobile:
After hours:	Fax:
Email address: jobs@wjl.co.nz	Website: www.wiltonjoubert.co.nz

DECLARATION

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

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

Signature: _____

Date: 20/06/2017

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT
PLANS/SPECIFICATIONS

WILTON JOUBERT
Consulting Engineers

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Structural Design Calculations for:

Lot 52 : DP 347410

6 The Fairways

Kinloch

Bay of Plenty

Job #: 66285

April 2017

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT PLANS/SPECIFICATIONS

Date : 5/04/2017
Designer : AO
Checker : DCW
Job Number : 66285

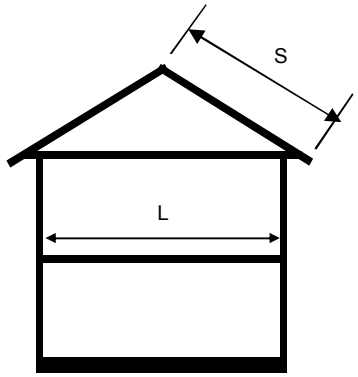
Raftfloor Design

WILTON JOUBERT Consulting Engineers

Site Address : 6 The Fairways
Description : EDGE BEAM

Loadings

Upper Wall must be Timber



Tributary Roof and Floor Lengths

WALLS

Lower: Timber

(North/South Taupo)

= 38 kg/m²
= 0.37 kPa
Height = m
Load/m = kN/m

Upper: Timber

(North/South Taupo)

= 38 kg/m²
= 0.37 kPa
Height = m
Load/m = kN/m

Other (Specify Wall Weight) — Eldorado stone cladding system

Weight = 80 kg/m²
= 0.78 kPa
Height = 4.10 m
Load = 3.22 kN/m

SUSPENDED MID-FLOOR — Tributary Length L/2

Unit/Floor = Timber
Topping = N/A
= 0.38 kPa
Live Loading = 1.50 kPa
Super Imposed Dead = kPa

Tributary Span = m
Dead Load/m = kN/m
Live Load/m = kN/m

ROOF Light — Tributary Length = S

= 0.46 kPa
Live Loading 0.25 kPa

Tributary Span = 3.75 m
Dead Load/m = 1.73 kN/m
Live Load/m = 0.94 kN/m

Loadings Summary

Walls	3.22	kN/m	Dead
Mid Floors		kN/m	Dead
		kN/m	Live
Slab*	3.42	kN/m	Dead+SDL
	0.90	kN/m	Live
Roof	1.73	kN/m	Dead
	0.94	kN/m	Live^
Extra Dead		kN/m	Dead
Extra Live		kN/m	Live

* Includes Edge Beam Weight, SDL = 0.5 kPa LL = 1.5 kPa

^ Roof LL not added if midfloor exists else LL = 0.25 kPa

TAUPO DISTRICT COUNCIL
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APPROVED CONSENT PLANS/SPECIFICATIONS

Date : 5/04/2017
Designer : AO
Checker : DCW
Job Number : 66285

Raftfloor Design

WILTON JOUBERT Consulting Engineers

Site Address : 6 The Fairways
Description : EDGE BEAM

Working Loads

	Dead		8.36	kN/m
	Live		1.84	kN/m
Ultimate Loads (1.2G + 1.5Q)	Dead		10.04	kN/m
	Live		2.76	kN/m
Total Ultimate Load on Edge		w =	12.79	kN/m

Edge Beam Details

Wall Construction Type: Brick Veneer min beam width 300mm

Beam Width =	300	mm
Pod Depth =	220	mm
Top slab Depth =	85	mm
Self Weight =	2.20	kN/m
Construction Type =	Standard Raft	

Standard Raft Construction

Dependable bearing capacity: 150 kPa

Bearing Check = OK!
Working Pressure = 31 kPa

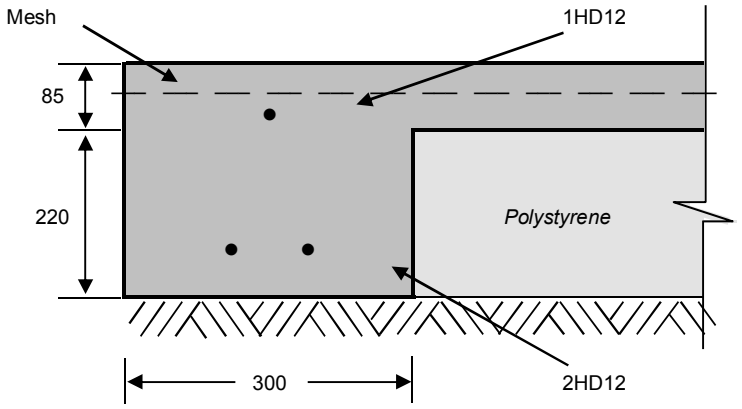
Steel Requirements - As Per Std Drg's

Top Steel: 1HD12
Btm Steel: 2HD12

Prescribed Edge Beam Design

Location (ie: which wall):
EDGE BEAM

Standard Raft Contruction
300 mm wide edge beam with
1HD12 in top & 2HD12 in bottom



TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT PLANS/SPECIFICATIONS

Date : 5/04/2017
Designer : AO
Checker : DCW
Job Number : 66285

Raftfloor Design

WILTON JOUBERT Consulting Engineers

Site Address : 6 The Fairways
Description : DEEPENED EDGE BEAM

Loadings

WALLS

Lower: Timber (North/South Taupo)

= 38 kg/m²
= 0.37 kPa
Height = m
Load/m = kN/m

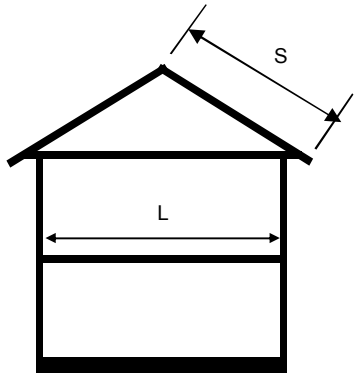
Upper Wall must be Timber

Upper: Timber (North/South Taupo)

= 38 kg/m²
= 0.37 kPa
Height = m
Load/m = kN/m

Other (Specify Wall Weight) — Eldorado stone cladding system

Weight = 80 kg/m²
= 0.78 kPa
Height = 4.10 m
Load = 3.22 kN/m



Tributary Roof and Floor Lengths

SUSPENDED MID-FLOOR — Tributary Length L/2

Unit/Floor = Timber
Topping = N/A
= 0.38 kPa
Live Loading = 1.50 kPa
Super Imposed Dead = kPa

Tributary Span = m
Dead Load/m = kN/m
Live Load/m = kN/m

ROOF Light — Tributary Length = S

= 0.46 kPa
Live Loading 0.25 kPa

Tributary Span = 3.75 m
Dead Load/m = 1.73 kN/m
Live Load/m = 0.94 kN/m

Loadings Summary

Walls	3.22	kN/m	Dead
Mid Floors		kN/m	Dead
		kN/m	Live
Slab*	5.54	kN/m	Dead+SDL
	0.90	kN/m	Live
Roof	1.73	kN/m	Dead
	0.94	kN/m	Live^
Extra Dead		kN/m	Dead
Extra Live		kN/m	Live

* Includes Edge Beam Weight, SDL = 0.5 kPa LL = 1.5 kPa

^ Roof LL not added if midfloor exists else LL = 0.25 kPa

TAUPO DISTRICT COUNCIL
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APPROVED CONSENT PLANS/SPECIFICATIONS

Date : 5/04/2017
Designer : AO
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Job Number : 66285

Raftfloor Design

WILTON JOUBERT Consulting Engineers

Site Address : 6 The Fairways
Description : DEEPENED EDGE BEAM

Working Loads

	Dead		10.49	kN/m
	Live		1.84	kN/m
Ultimate Loads (1.2G + 1.5Q)	Dead		12.58	kN/m
	Live		2.76	kN/m
Total Ultimate Load on Edge		w =	15.34	kN/m

Edge Beam Details

Wall Construction Type: Brick Veneer min beam width 300mm

Beam Width =	300	mm
Pod Depth =	515	mm
Top slab Depth =	85	mm
Self Weight =	4.32	kN/m
Construction Type =	Standard Raft	

Standard Raft Construction

Dependable bearing capacity: 150 kPa

Bearing Check = OK!
Working Pressure = 38 kPa

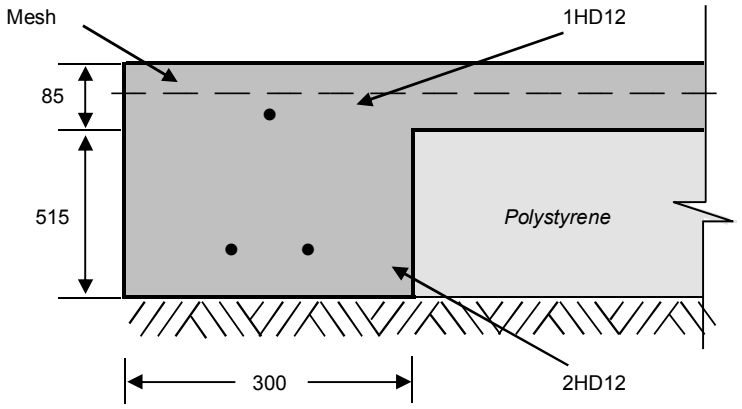
Steel Requirements - As Per Std Drg's

Top Steel: 1HD12
Btm Steel: 2HD12

Prescribed Edge Beam Design

Location (ie: which wall):
DEEPENED EDGE BEAM

Standard Raft Contruction
300 mm wide edge beam with
1HD12 in top & 2HD12 in bottom



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APPROVED CONSENT PLANS/SPECIFICATIONS

Date : 5/04/2017
Designer : AO
Checker : DCW
Job Number : 66285

Raftfloor Design

WILTON JOUBERT Consulting Engineers

Site Address : 6 The Fairways
Description : INTERNAL RIB

Loadings

WALLS

Lower: HOTBloc — Solid

Light — (North/South Taupo)

	=	400	kg/m^2
	=	3.92	kPa
Height	=		m
Load/m	=		kN/m

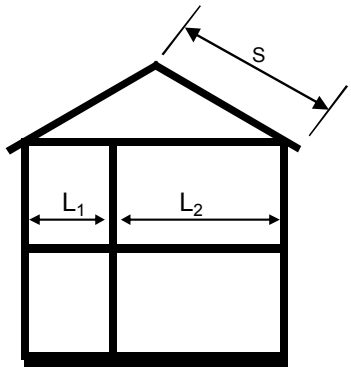
Upper: HOTBloc — Solid

Light — (North/South Taupo)

	=	400	kg/m^2
	=	3.92	kPa
Height	=		m
Load/m	=		kN/m

Other (Specify Wall Weight) — Eldorado stone cladding system

Weight	=	80	kg/m^2
	=	0.78	kPa
Height	=	4.10	m
Load	=	3.22	kN/m



Tributary Roof and Floor Lengths

SUSPENDED MID-FLOOR — Tributary Length = $(L_1+L_2)/2$

Unit/Floor	=	Timber	
Topping	=	N/A	
	=	0.38	kPa
Live Loading	=		kPa
Super Imposed Dead	=		kPa
Tributary Span	=		m
Dead Load/m	=		kN/m
Live Load/m	=		kN/m

ROOF — Tributary Length = S — (Check if Rafter or Truss)

Light	=	0.46	kPa
Live Loading		0.25	kPa
Tributary Span	=	3.75	m
Dead Load/m	=	1.73	kN/m
Live Load/m	=	0.94	kN/m

Loadings Summary

Walls	3.22	kN/m	Dead
Mid Floors		kN/m	Dead
		kN/m	Live
Slab*	4.64	kN/m	Dead+SDL
	1.80	kN/m	Live
Roof	1.73	kN/m	Dead
	0.94	kN/m	Live^
Extra Dead		kN/m	Dead
Extra Live		kN/m	Live

* Includes Internal Rib Weight, LL = 1.5 kPa

^ Roof LL not added if midfloor exists else LL = 0.25 kPa

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT PLANS/SPECIFICATIONS

Date : 5/04/2017
Designer : AO
Checker : DCW
Job Number : 66285

Raftfloor Design

WILTON JOUBERT Consulting Engineers

Site Address : 6 The Fairways
Description : INTERNAL RIB

Working Loads

Loadings	Dead		9.59	kN/m
	Live		2.74	kN/m
Ultimate Loads (1.2G + 1.5Q)	Dead		11.50	kN/m
	Live		4.11	kN/m
Total Ultimate Load on Internal		w =	15.61	kN/m

Internal Rib Details

Rib Width =	300	mm
Pod Depth =	220	mm
Top slab Depth =	85	mm
Self Weight =	2.20	kN/m
Construction Type	Standard Raft	

Standard Raft Construction

Dependable bearing capacity: 150 kPa

Bearing Check = OK!
Working Pressure = 37 kPa

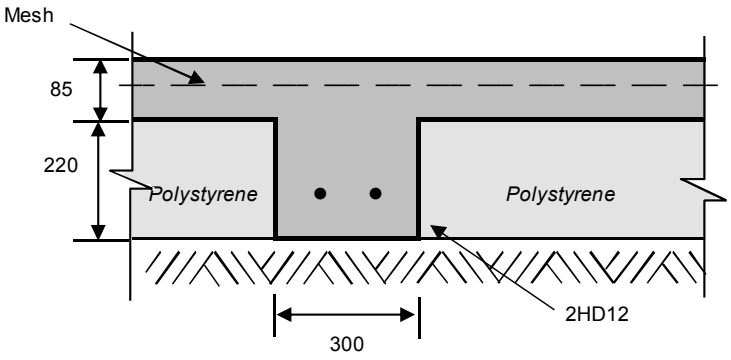
Steel Requirements - As Per Std Drg's

Btm Steel: 2HD12

Prescribed Internal Rib Design

Location (ie: which wall):
INTERNAL RIB

Standard Raft Contruction,
300 wide Rib required with 2HD12 in bottom



TAUPO DISTRICT COUNCIL
BC170365
APPROVED CONSENT PLANS/SPECIFICATIONS

Date :	5/04/2017
Designer :	AO
Checker :	DCW
Job Number :	66285

Raftfloor Design

WILTON JOUBERT Consulting Engineers

Site Address :	6 The Fairways
Description :	SLIDING RESITANCE

Calculation of Shear Pile Requirements

Use AS1170 design philosphy of preventing damaging movement up to an SLS event,and thereafter accepting increasing levels of damage as the event increases.

Assumed Class C soil:

City/town:	Taupo		
C(t) = Ch(t) Z R N(T,D)			
Ch(t)	2.36		
Z	0.28		
Rs (25 yr RP)	0.25		
Ru 500yr	1	Assume T1 = 0.4	
N(T,D)	1 SLS	ku = 1 + (u-1)T1/0.7	
C(t) SLS	0.17	ku =	1
C(t) ULS	0.66		

Cd(T1) = C(t) Sp/ku For base sliding Sp = 1.0

SLS Cd(T1) =	0.17	Note for Class D soil SLS Cd(t1) =	0.21
ULS Cd(T1) =	0.58	ULS Cd(t1) =	0.74

Testing by Dr McManus University of Canterbury (Geotechnical Society Symposium, 2003) found the friction co-efficient of slab on polythene on sand had peak friction co-efficients of 0.42 for an unloaded slab and 0.53 for a loaded slab. Residual friction coefficient were 0.38 and 0.49 respectively.

These values are some what lower than that published by other sources, normally 0.7 peak and 0.5 residual.

Even using the lower values there will be no relative movement between the slab and the ground at SLS level event on either Class C or D. At ULS level event there may be relative movement between the slab and the ground, this may break services to the house, but will also serve to reduce the forces transferred to the structure of the house. This is acceptable within the intent of NZS 1170.5 2004.

Therefore, based on the above, shear key piles are unnecessary.

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT
PLANS/SPECIFICATIONS

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Structural Design Calculations for:

Lot 52 : DP 347410

6 The Fairways

Kinloch

Bay of Plenty

Job #: 66285 rev01

June 2017

TAUPO DISTRICT COUNCIL
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APPROVED CONSENT PLANS/SPECIFICATIONS

Date :	20/06/2017
Designer :	AO
Checker :	DCW
Job Number :	66285 rev01

Beam Analysis

WILTON JOUBERT Consulting Engineers

Site Address :	Lot 52, 6 The Fairways
Description :	W15

Beam Loadings - Primary Beam :

roof span:	3.75	m	Beam Span:	2.80	m
roof weight:	0.46	kPa	floor A span:		m
roof live load (Q):	0.25	kPa	floor A weight:		kPa
roof uplift wind load (Wu):	-1.16	kPa	floor A live load:		kPa
roof snow load (Su):	0.00	kPa			
wall A height:	1.70	m	floor B span:		m
wall A mass:	38.00	kg/m^2	floor B weight:		kPa
wall B height:		m	floor B live load:		kPa
wall B mass:		kg/m^2	self weight:	0.16	kN/m

Beam Loadings - Secondary Beam (PL A) :

roof span:		m	Beam Span:		m
roof weight:		kPa	floor A span:		m
roof live load (Q):		kPa	floor A weight:		kPa
roof uplift wind load (Wu):		kPa	floor A live load:		kPa
roof snow load (Su):		kPa			
wall A height:		m	floor B span:		m
wall A mass:		kg/m^2	floor B weight:		kPa
wall B height:		m	floor B live load:		kPa
wall B mass:		kg/m^2	self weight:		kN/m

Point Load B (PL B) :		
G:		kN
Q:		kN
Wu		kN
Su		kN

Point Load C (PL C) :		
G:		kN
Q:		kN
Wu		kN
Su		kN

Loadings Summary

UDL G :	2.52	kN/m	Point Load, G :	0.00	kN
Q :	0.94	kN/m	Q :	0.00	kN
Wu :	-4.35	kN/m	Wu :	0.00	kN
Su :	0.00	kN/m	Su :	0.00	kN

Load Combo : 1.2 G, 1.5 Q, 0 Wu, 0 Su

UDL:	4.42	kN/m		
Sec Beam Point Load:	0.00	kN	at	m from support 1
Additional Point Load (PL b):	0.00	kN	at	m from support 1
Additional Point Load (PL c):	0.00	kN	at	m from support 1

	ULS	Wind Uplift	Snow (& mid-floor Q)	Snow (& roof only)
Load Cases	1.2G + 1.5Q	0.9G + Wu	1.2G + 0.4Q + Su	1.2 G + 0.0Q + Su
Support 1	6.19 kN	-2.92 kN	4.75 kN	4.23 kN
Support 2	6.19 kN	-2.92 kN	4.75 kN	4.23 kN

Beam end support condition: simply supported

Try: **2/290x45 SG8**

Beam Type: timber

for timber &	b =	90	mm	
flitched beams	d =	290	mm	
	I =	1.83E+08	mm^4	
for other beams	I =		mm^4	
	E =	6700	MPa	

M* =	**4.34 kNm**
V* =	**6.19 kN**
support 1 reaction:	6.19 kN
support 2 reaction:	6.19 kN
k2 =	2.00
max. long term deflection:	**3.78 mm**
max. short term deflection:	**2.07 mm**
allowable defn (functionality), L/400 =	7.00 mm
	OK

Beam Design

	ϕ =	0.8	
	k1 =	0.8	
	lay/b =	10	
	k8 =	1	
ϕ M =	**40.4**	**kNm**	**OK**
ϕ V =	**51.2**	**kN**	**OK**

shear stress =	4.6	MPa
bending stress =	50	MPa
Z =	1.26E+06	mm3

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT PLANS/SPECIFICATIONS

Date :	13/06/2017
Designer :	AO
Checker :	DCW
Job Number :	66285 rev01

Beam Analysis

WILTON JOUBERT Consulting Engineers

Site Address : Lot 52, 6 The Fairways
Description : D13

Beam Loadings - Primary Beam :

roof span:	3.75	m	Beam Span:	2.10	m
roof weight:	0.46	kPa	floor A span:		m
roof live load (Q):	0.25	kPa	floor A weight:		kPa
roof uplift wind load (Wu):	-1.16	kPa	floor A live load:		kPa
roof snow load (Su):	0.00	kPa			
wall A height:	1.70	m	floor B span:		m
wall A mass:	38.00	kg/m^2	floor B weight:		kPa
wall B height:		m	floor B live load:		kPa
wall B mass:		kg/m^2	self weight:	0.10	kN/m

Beam Loadings - Secondary Beam (PL A) :

roof span:		m	Beam Span:		m
roof weight:		kPa	floor A span:		m
roof live load (Q):		kPa	floor A weight:		kPa
roof uplift wind load (Wu):		kPa	floor A live load:		kPa
roof snow load (Su):		kPa			
wall A height:		m	floor B span:		m
wall A mass:		kg/m^2	floor B weight:		kPa
wall B height:		m	floor B live load:		kPa
wall B mass:		kg/m^2	self weight:		kN/m

Point Load B (PL B) :			Point Load C (PL C) :		
G:		kN	G:		kN
Q:		kN	Q:		kN
Wu		kN	Wu		kN
Su		kN	Su		kN

Loadings Summary

UDL G :	2.46	kN/m	Point Load, G :	0.00	kN		
Q :	0.94	kN/m	Q :	0.00	kN		
Wu :	-4.35	kN/m	Wu :	0.00	kN		
Su :	0.00	kN/m	Su :	0.00	kN		
Load Combo :	1.2	G	1.5	Q	0	Wu	0 Su
		UDL:	4.36	kN/m			
		Sec Beam Point Load:	0.00	kN	at		m from support 1
		Additional Point Load (PL b):	0.00	kN	at		m from support 1
		Additional Point Load (PL c):	0.00	kN	at		m from support 1

	ULS	Wind Uplift	Snow (& mid-floor Q)	Snow (& roof only)
Load Cases	1.2G + 1.5Q	0.9G + Wu	1.2G + 0.4Q + Su	1.2 G + 0.0Q + Su
Support 1	4.58 kN	-2.24 kN	3.50 kN	3.10 kN
Support 2	4.58 kN	-2.24 kN	3.50 kN	3.10 kN

Beam end support condition: simply supported

Try: **2/190x45 SG8**

Beam Type: timber

			M* =	**2.40 kNm**
			V* =	**4.58 kN**
			support 1 reaction:	4.58 kN
			support 2 reaction:	4.58 kN
			k2 =	2.00
for timber &	b =	90 mm	**max. long term deflection:**	**4.17 mm**
flitched beams	d =	190 mm	**max. short term deflection:**	**2.29 mm**
	I =	5.14E+07 mm^4	allowable defn (functionality), L/400 =	5.25 mm
for other beams	I =	mm^4		OK
	E =	6700 MPa		

Beam Design

			shear stress =	3.8	MPa
	ϕ =	0.8	bending stress =	14	MPa
	k1 =	0.8	Z =	5.42E+05	mm3
	lay/b =	10			
	k8 =	1			
ϕ M =	**4.9**	**kNm**	OK		
ϕ V =	**27.7**	**kN**	OK		

DURABILITY ZONE - 3
EARTHQUAKE ZONE - 2
WIND ZONE A - HIGH

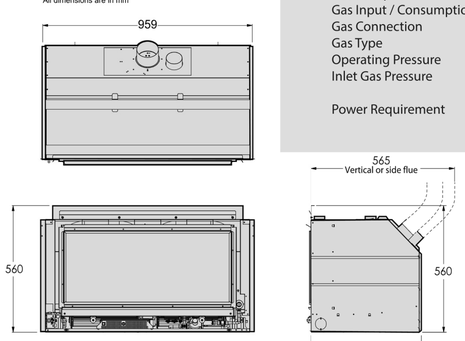
TAUPO DISTRICT COUNCIL

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APPROVED CONSENT PLANS/SPECIFICATIONS

Product Dimensions

All dimensions are in mm



Gas Specifications

Heat Output	9.2kW*
Gas Input / Consumption	38MJ/hr*
Gas Connection	Rear right or front right, 1/2" BSP female thread
Gas Type	Natural Gas / LPG (NZ) / Propane (Aus)
Operating Pressure	1.0kPa NG / 2.3kPa LPG or Propane
Inlet Gas Pressure	1.2kPa to 5.0kPa NG 2.75kPa to 5.0kPa LPG or Propane
Power Requirement	3 pin earthed 230V power outlet to be within 1.0m of rear left hand corner of the appliance

Cavity Construction

Cavity Dimensions

The cavity size is dependant on fascia type as the Rado fascia is recessed into the wall. Where possible, it is recommended that the cavity is made 5-10mm larger than the dimensions shown to give the installer the maximum amount of space to work in.

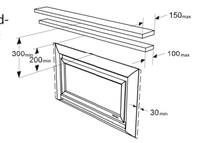
It is not necessary to line the sides, top or back of the cavity.

The wall directly above the Rado fascia must be constructed with non combustible materials, but all other surrounding walls and cavity materials may be constructed with combustible materials.

The cavity and surrounding walls for Velo or Quadrato fascias may be constructed using combustible materials.

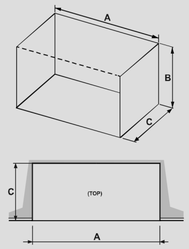
Mantle Clearances

Any combustible mantles or protruding ledges above the fireplace must not extend outside the dimensions shown.

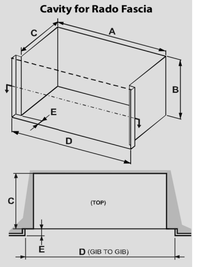


Escea Gas Fire DL850 insert

Cavity for Velo, Quadrato or Quadrato Lite Fascia



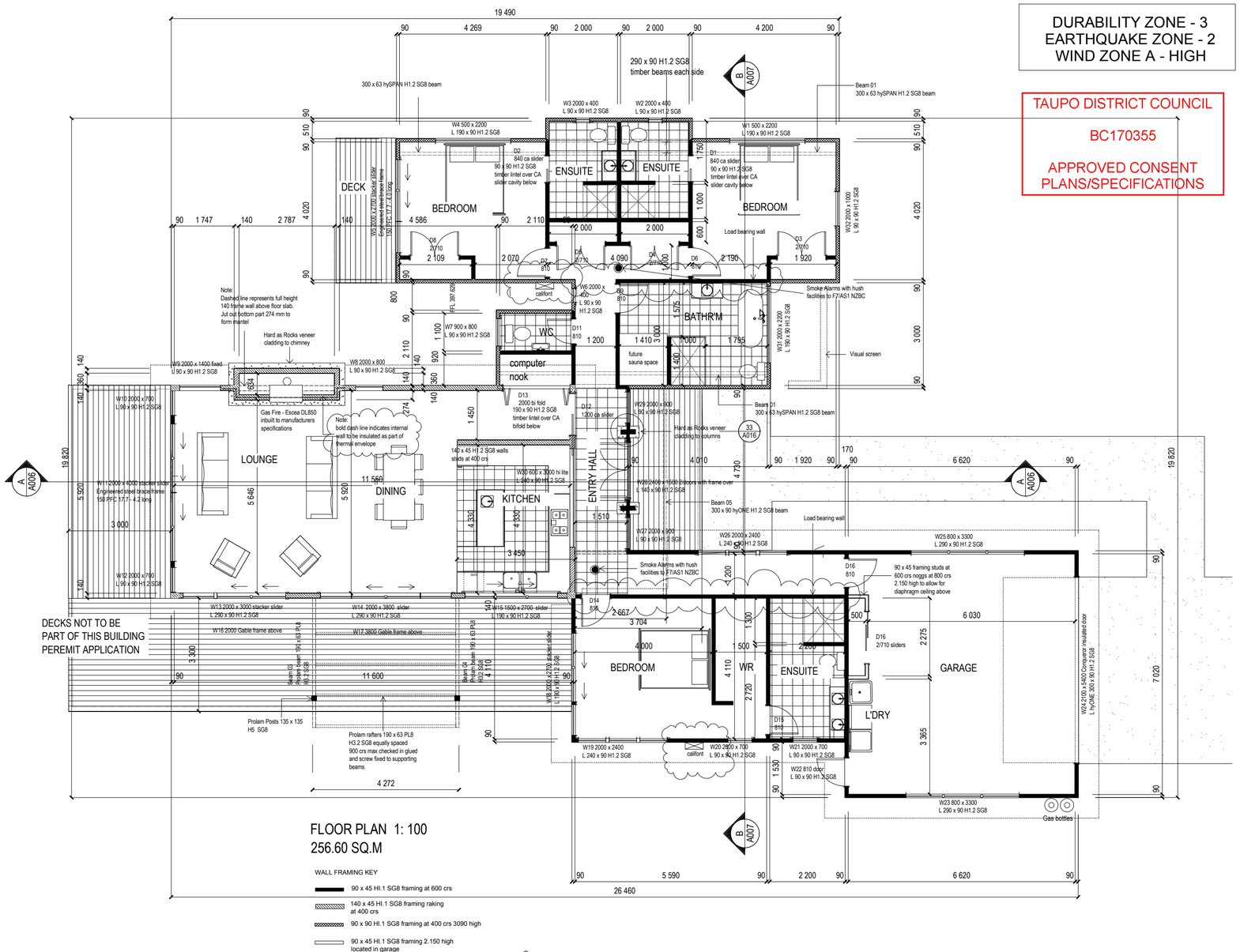
Cavity for Rado Fascia

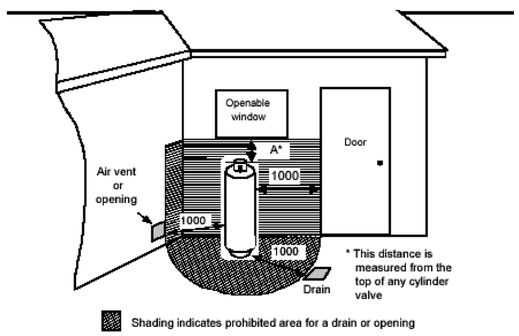


Ideal Cavity Dimensions (mm):

	A	B (min)	B (max)	C	D	E
Velo / Quadrato / Quadrato Lite	960	560	575	565	-	-
Rado	965	583	586	565	995	30 to 130

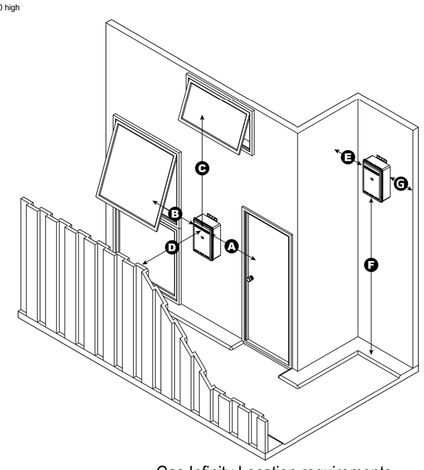
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	Exchange cylinder	In Situ Fill Cylinder
A	150	500

Gas Bottle Location requirements



Dim.	Infinity VT, HD200, EF models	Infinity HD250 models
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

Clearance below eaves, balconies, and other projections for all models is 300 mm.

* Rinnai recommend 1.5 m to give enough clearance for the pipe work, and to safely expel flue gases.

Gas Infinity Location requirements

PERMIT PLANS 02 - 09/05/2017

Architecture urban FORM
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JONES RESIDENCE - 6 THE FAIRWAYS, KINLOCH

GENERAL

1. Do not scale from drawings. These drawings are to be read in conjunction with the architectural drawings and all other related documents. Refer to architectural drawings for dimensions, rebates & recesses.

2. Contact the architect/engineer if any discrepancies are found.

3. Under no circumstances shall polystyrene spacers be used. Use recommended spacers as per details provided.

4. DPM shall be in accordance with NZS3604 (polyethylene sheet, min. 0.25mm). Do not use multiple layers. All penetrations through the DPM shall be sealed.

5. A layer of sand blinding or granular fines (GAP7) shall be placed, screeded and compacted over the building platform. The maximum thickness of this layer shall be no more than 50mm.

6. All service trenches shall be properly backfilled and compacted.

7. Where underfloor heating is installed, floor topping shall be increased to 110mm.

8. Where concrete polishing and/or architectural cuts are made to the floor, the floor thickness shall be increased such that the final topping depth is no less than that specified on the plans after all polishing/cuts.

9. Polystyrene pods shall be 1100 x 1100 x 220mm or 1200 x 1200 x 220mm.

CONCRETE

1. All concrete work and materials shall conform to NZS3109 and applicable building consent authority regulations.

2. No cuts shall be made to the floor other than those shown on the drawings.

3. Unless otherwise noted, concrete shall be:

20MPa minimum or 25MPa minimum within 'exposure zone D' (if in doubt, confirm with local BCA)

REINFORCEMENT

1. Unless otherwise specified, all reinforcement shall be Ductility Class E, in accordance with NZS 4671.

2. All bend diameters shall comply with NZS 3109. Re-bending of reinforcement is not permitted. 'Spot' welding of reinforcement is not permitted.

3. All mesh reinforcement shall be Ductility Class E as per NZS4671

4. Unless otherwise specified by proprietary product specifications, mesh shall be lapped a minimum of 250mm or by a grid plus 50mm, whichever is greater.

5. Unless otherwise specified on plans, minimum covers are:
   exposed to earth: 75mm
   exposed to edge: 50mm
   protected by damp proofing: 50mm

6. Unless otherwise specified, reinforcement laps are:

Reinforcement Grade	Nomination	min. lap (whichever is greater)	concrete strength (MPa)
300	'D'	40Ø or min. 600mm	all blockfill, 20 and 25
500	'HD'	70Ø	all blockfill
500	'HD'	56Ø	20
500	'HD'	50Ø	25

SITE CONDITIONS

1. Design based on soils report/assessment

By: **Earthtech Consulting Ltd.**
Ref: **R1748-3**
Dated: **March 2005**

Specifically: Design based on all unsuitable material removed (to approximate depth of 0.20m) and uniform soils across building platform with a ultimate bearing capacity of: 200 kPa. For filled ground, minimum ultimate bearing capacity of 300kPa for hardfill such as GAP40 etc, and minimum shear strength of 150 kPa for clay fill, subject to engineers confirmation.

2. Where compacted fill (to replace excavated material) is required to form building platform, the fill/excavation shall be extended past the building edge by at least the same depth that is being excavated.

3. Confirm position & depth of soak pits on the site, prior to any works. If different to the site plan then Wilton Joubert Ltd. shall be contacted.

4. Building foundation shall be outside of 45° influence line from the bottom of any soak pits.

INSPECTIONS

1. Check the BUILDING CONSENT CONDITIONS for any inspections that are required by the Building Consent Authority (BCA).

2. If BCA requires PS4 to be issued for inspections, a local engineer may be engaged to carry out such inspections and issue a PS4 accordingly.

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS

Revision	Description	Date
1	Geo update	12-Jun-17

WILTON JOUBERT
Consulting Engineers

Northland:	09 945 4188
Auckland-Waikato:	09 527 0196
Canterbury:	021 824 063
Southern Lakes:	03 443 6209

www.wiltonjoubert.co.nz

Job Title:
Proposed Residence
Lot 52
6 The Fairways
Kinloch, Bay of Plenty

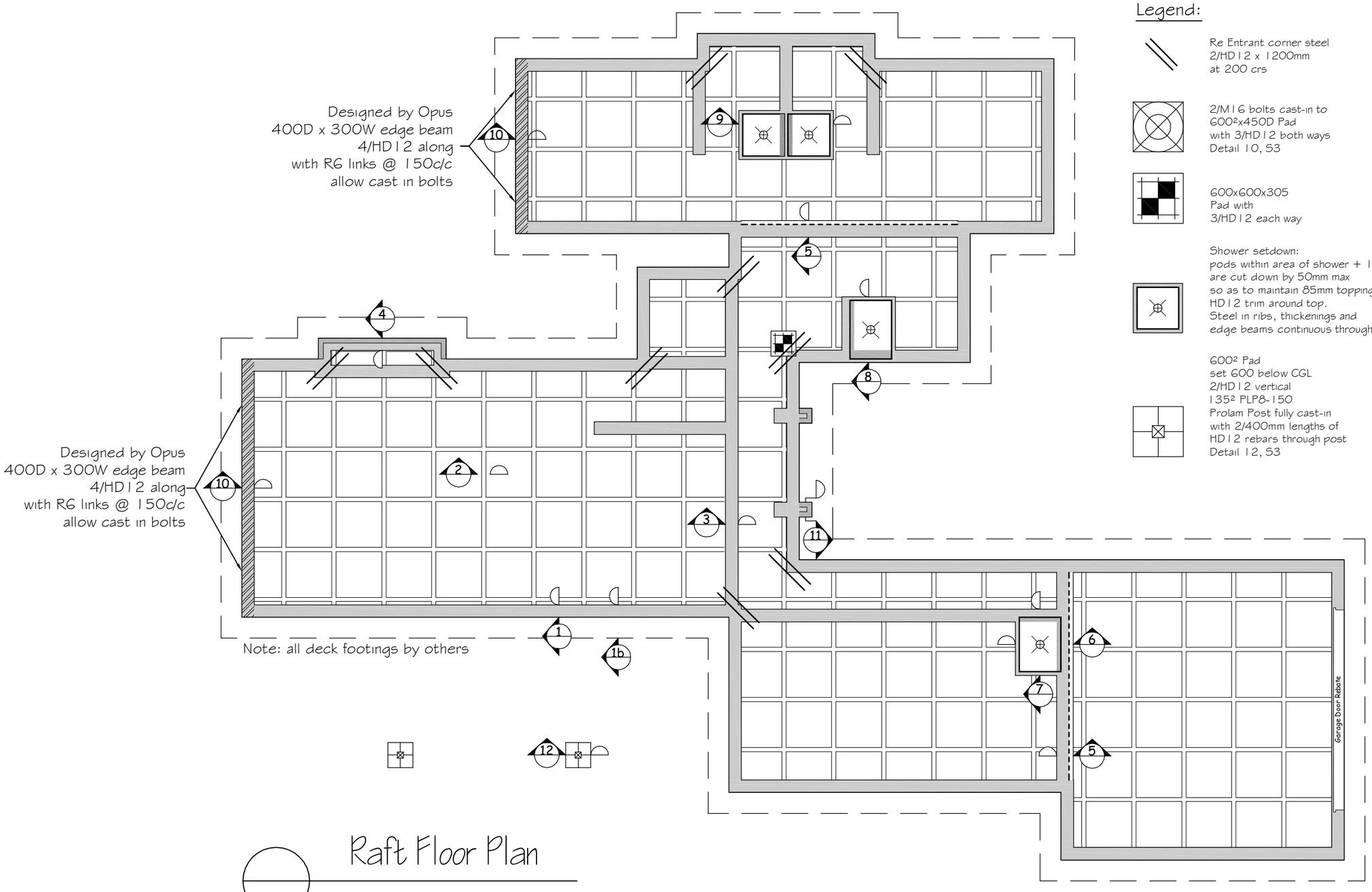
Sheet Title:
General Notes

Designed: AO	Drawn: MH
Checked: DCW	Checked:
Scales:	Date: 6-4-2017

Job # 66285

Drwg No: S0

Revision 1 (#68342)



Raft Floor Plan

Scale 1:100

Legend:

- Re Entrant corner steel 2/HD12 x 1200mm at 200 crs
- 2/M16 bolts cast-in to 600²x450D Pad with 3/HD12 both ways Detail 10, S3
- 600x600x305 Pad with 3/HD12 each way
- Shower setdown: pods within area of shower + 100mm are cut down by 50mm max so as to maintain 85mm topping HD12 trim around top. Steel in ribs, thickenings and edge beams continuous through
- 600² Pad set 600 below CGL 2/HD12 vertical 135² PLP8-150 Prolam Post fully cast-in with 2/400mm lengths of HD12 rebars through post Detail 12, S3

Quantities of Spacers

(Quantities are approximate and to be used as a guide only)

Item	Qty.
WJ100 Centre Spacer	300
WJ101 Clip-on Spacer	170

NOTES:

Do not scale from Drawings. Refer Architectural Drawings for overall dimensions. To be read in conjunction with all other related documents.

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS

Revision	Description	Date
1	Geo update	12-Jun-17

WILTON JOUBERT
Consulting Engineers
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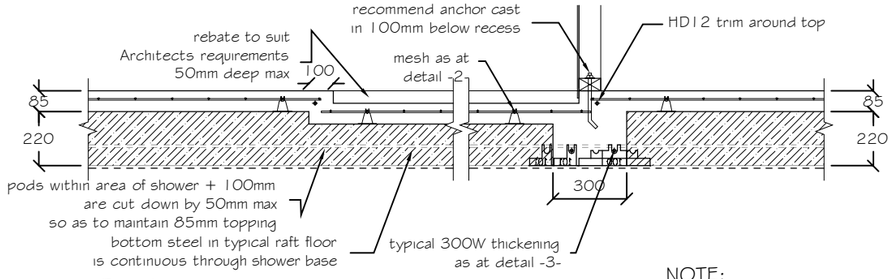
Job Title:

Proposed Residence
Lot 52
6 The Fairways
Kinloch, Bay of Plenty

Sheet Title:

Raft Floor Plan

Designed: AO	Drawn: MH
Checked: DCW	Checked:
Scale: 1:100	Date: 6-4-2017
Job No: Job # 66285	Dwg No: S1
Revision 1 (#68542)	

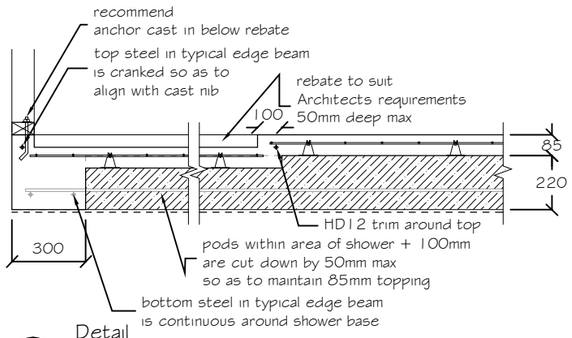


7 Detail

Raftfloor Shower Setdown
Scale 1:25

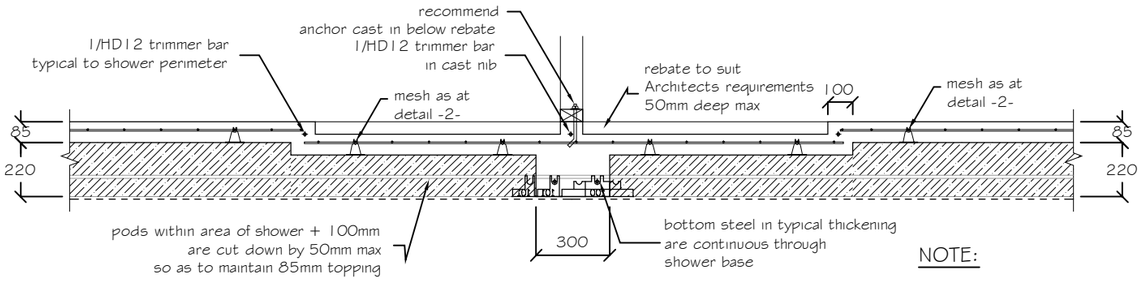
NOTE:

Allow for Ribs and or
Thickenings as may be shown on plan



8 Detail

Raftfloor Shower Setdown at
Edge Beam - 300
Scale 1:25

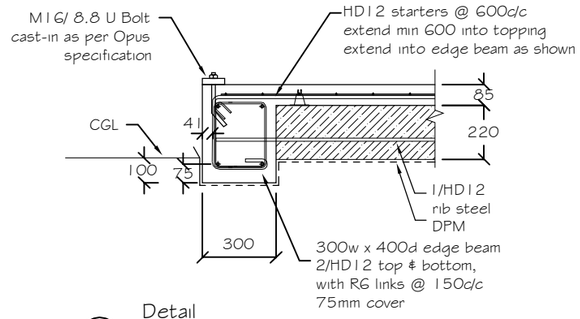


9 Detail

Raftfloor Shower Setdown
Scale 1:25

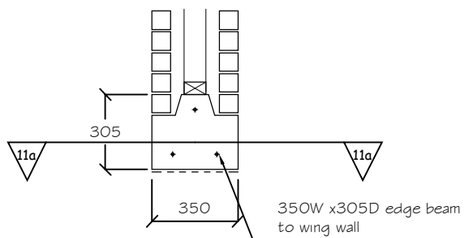
NOTE:

Allow for Ribs and or
Thickenings as may be shown on plan



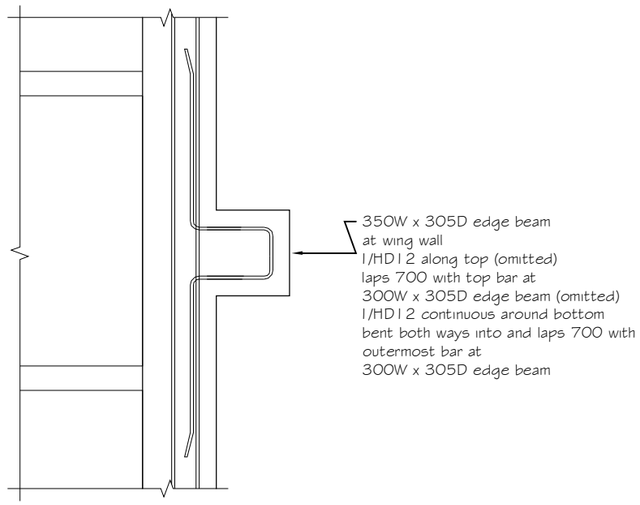
10 Detail

Opus Edge Beam - 300
Scale 1:25

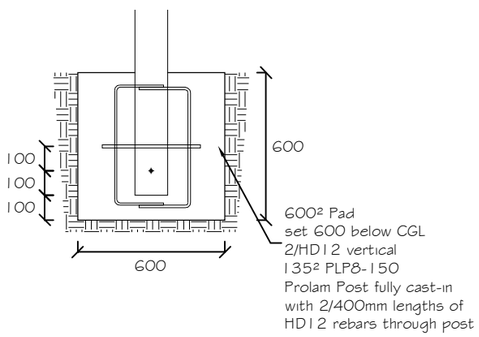


11 Detail

Raftfloor Edge Beam - 350
At Wing Wall
Scale 1:25



11a



12 - Detail

600x600x600
external pad footing

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS

Quantities of Spacers
(Quantities are approximate and to be used as a guide only)

Item	Qty.
WJ100 Centre Spacer	300
WJ101 Clip-on Spacer	170

NOTES:

Do not scale from Drawings.
Refer Architectural Drawings for overall dimensions. To be read in conjunction with all other related documents.

Revision	Description	Date
1	Geo update	12-Jun-17

WILTON JOUBERT
Consulting Engineers

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Auckland-Waikato: 09 527 0196
Canterbury: 021 824 063
Southern Lakes: 03 443 6209
www.wiltonjoubert.co.nz

Job Title:
Proposed Residence
Lot 52
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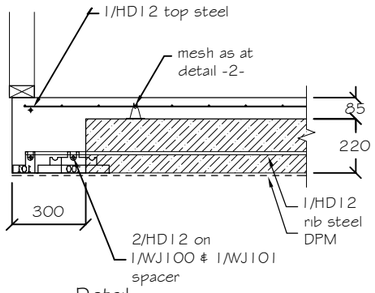
Sheet Title:
Raft Floor Details

Designed: AO	Drawn: MH
Checked: DCW	Checked:
Scale: 1:25	Date: 6-4-2017
Job No: Job # 66285	Dwg No: S3
Revision 1 (#68542)	

TAUPO DISTRICT COUNCIL

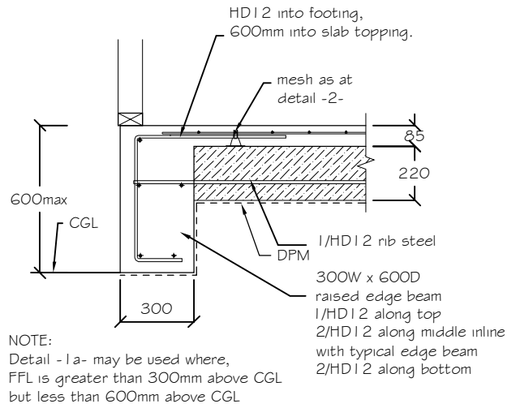
BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS



1 Detail

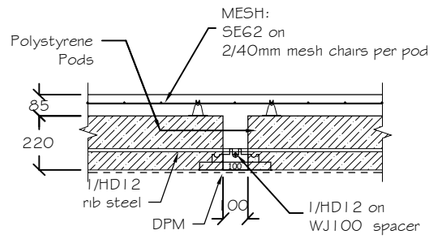
Raftfloor Edge Beam - 300
Scale 1:25



NOTE:
Detail -1a- may be used where, FFL is greater than 300mm above CGL but less than 600mm above CGL

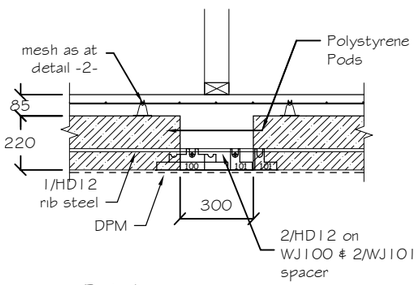
1a Detail

Deepened Edge Beam - 300
Scale 1:25



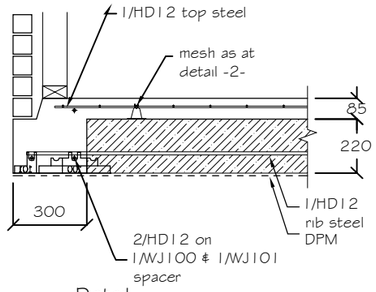
2 Detail

Raftfloor Internal Rib - 100
Scale 1:25



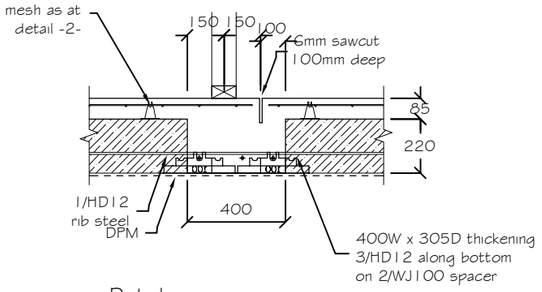
3 Detail

Raftfloor Internal Rib - 300
Scale 1:25



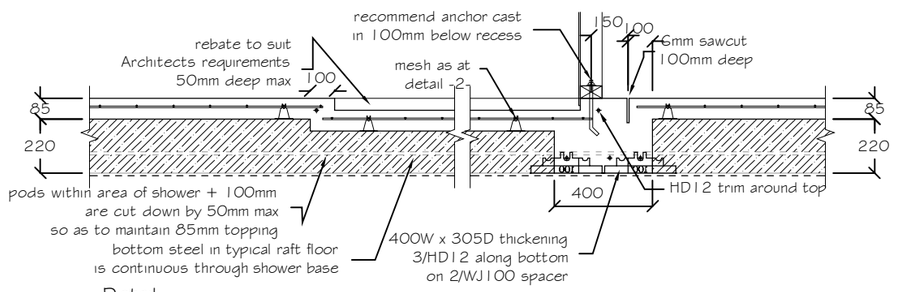
4 Detail

Raftfloor Edge Beam - 300
Scale 1:25



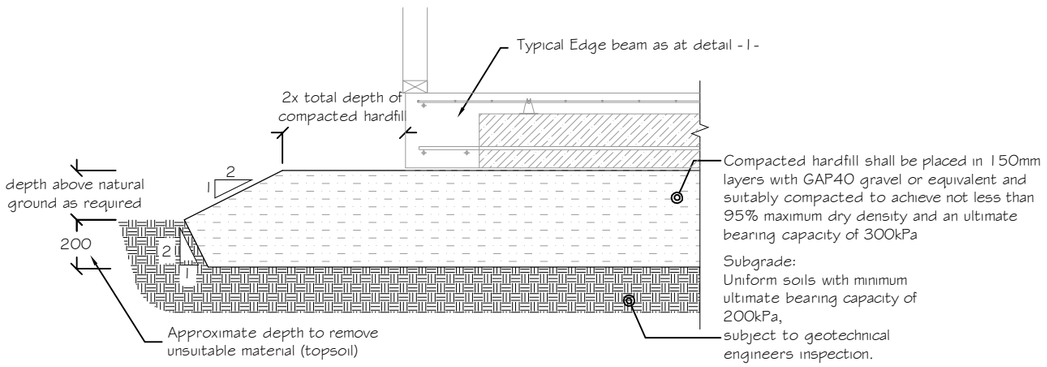
5 Detail

Raftfloor Internal Rib -400 with Sawcut
Scale 1:25



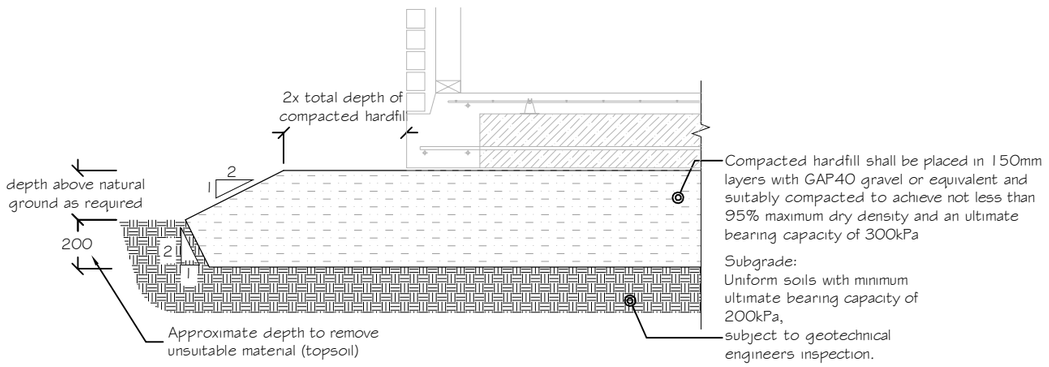
6 Detail

Raftfloor Shower Setdown
Scale 1:25



1b Detail

Raftfloor Edge Beam - 300
on Gravel Raft
Scale 1:25



4a Detail

Raftfloor Edge Beam - 300
on Gravel Raft
Scale 1:25

Quantities of Spacers
(Quantities are approximate and to be used as a guide only)

Item	Qty.
WJ100 Centre Spacer	300
WJ101 Clip-on Spacer	170

NOTES:

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Revision	Description	Date
1	Geo update	12-Jun-17

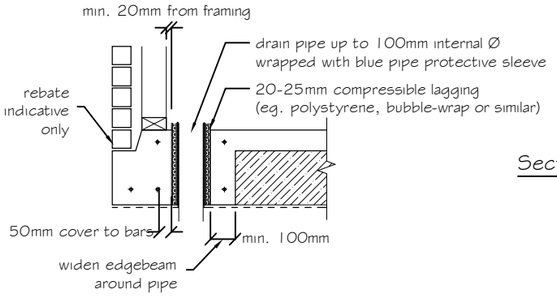
WILTON JOUBERT
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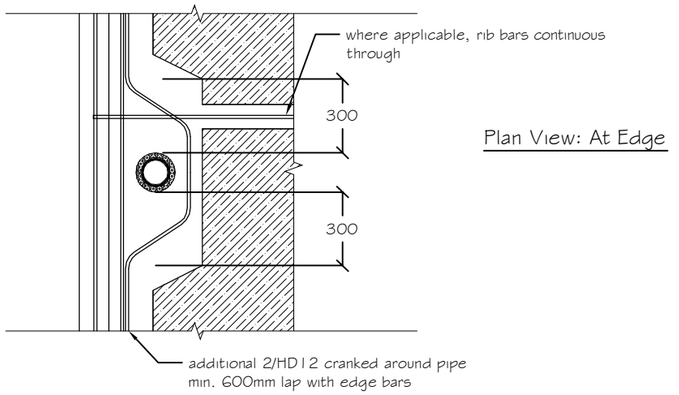
Job Title:
Proposed Residence
Lot 52
6 The Fairways
Kinloch, Bay of Plenty

Sheet Title:
Raft Floor Details

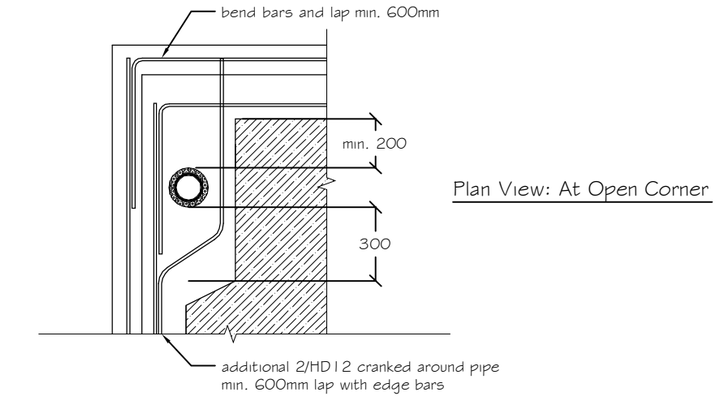
Designed: AO	Drawn: MH
Checked: DCW	Checked:
Scale: 1:25	Date: 6-4-2017
Job No: Job # 66285	Dwg No: S2
Revision 1 (#68342)	



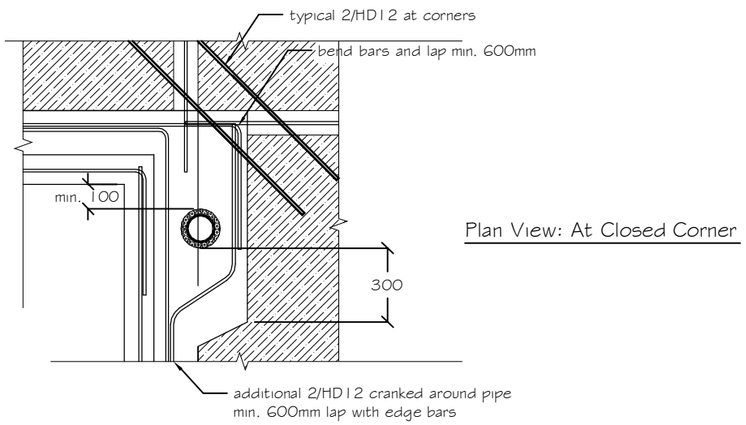
Section View: At Edge



Plan View: At Edge



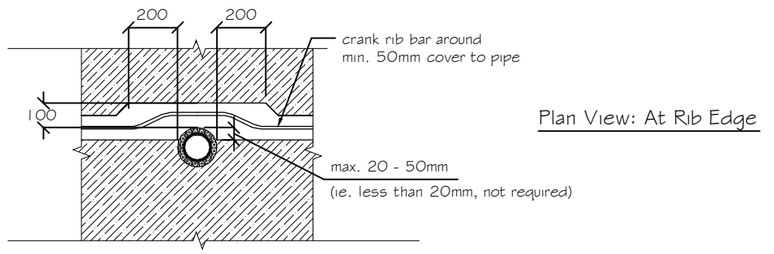
Plan View: At Open Corner



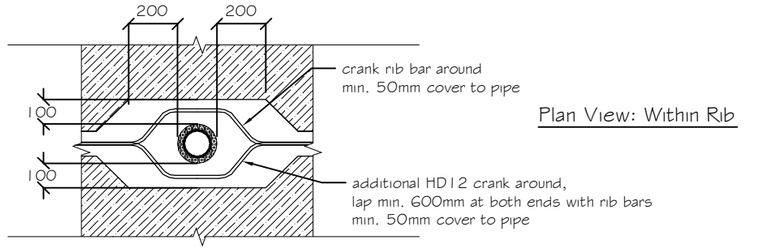
Plan View: At Closed Corner

Typical Detail Around Pipes

Raftfloor Edge Beam



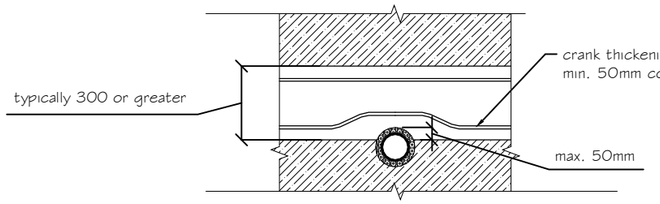
Plan View: At Rib Edge



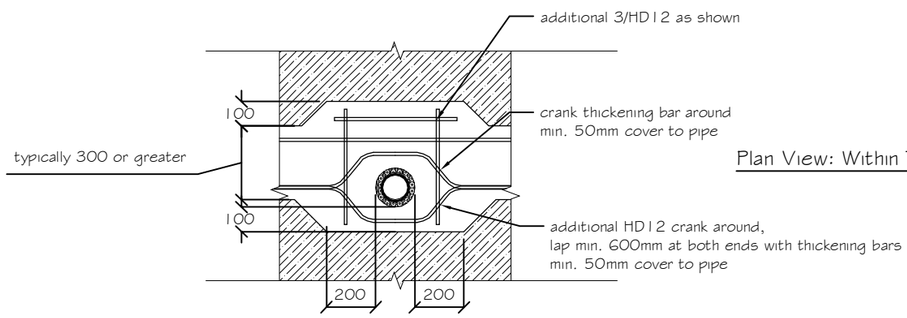
Plan View: Within Rib

Typical Detail Around Pipes

Raftfloor Internal Ribs



Plan View: At Thickening Edge



Plan View: Within Thickening

Typical Detail Around Pipes

Raftfloor Internal Thickenings

NOTES:

These details are applicable where plumbing/services are conveyed underground. Services are to be taken through polystyrene pods as much as possible. If this is unavoidable, it may be taken through ribs/thickenings, provided the details (or similar in principle) on this sheet are used.

All service trench backfill shall be properly compacted.

Member sizes and reinforcing shown are indicative only, details shown on raftslab plan & details shall take precedence over the details shown here.

NOTES:

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS

Revision	Description	Date

WILTON JOUBERT
Consulting Engineers
Northland: 09 945 4188
Auckland-Waikato: 09 527 0196
Canterbury: 021 824 063
Southern Lakes: 03 443 6209
www.wiltonjoubert.co.nz

Job Title:

Generic Raft Slab

Sheet Title:

Typical Pipe Details

Designed:	AO	Drawn:	AO
Checked:	DCW	Checked:	DCW
Scales:	NTS	Date:	2017
Job No:		Dwg No:	D1
Revision No:			

CN - 170355 - A1935554

CONO 6496391.1 Consen
Cpy - 01/06, Pgs - 005, 14/07/05, 11:28
DocID: 511248284

TAUPO DISTRICT COUNCIL

CONSENT NOTICE

Section 221 Resource Management Act 1991

Subdivider: Kinloch Golf Resort Limited [2001-192]

Subdivision: *(Legal Description)* Lots 1 to 54, 250 and 251 being a Subdivision of Lot 1 DPS 72534 and Lot 1 DPS 88333

Location: Kinloch Road, Kinloch

Plan No.: DP 347410

TAKE NOTICE that a resource consent [subdivision] has been granted to the subdivider pursuant to Sections 94, 104, 105 and 405[I] of the Resource Management Act 1991 upon condition [inter alia] –

i) That there be registered upon the title to Lots 26 and 27 Deposited Plan 347410 a condition stating that at the time the existing woolshed building is removed from the lots, the existing unformed Whangamata Road entrance to the existing woolshed shall be closed off and the grassed road berm reinstated, and

ii) That there be registered upon the titles of Lots 1 to 54 Deposited Plan 347410 that payment of a development levy to the value of 0.5% of the total value of each of the residential buildings be paid prior to the occupation of each of the houses on those said lots, and

iii) That there be registered against the titles of Lots 1 to 54 Deposited Plan 347410 that development on the abovementioned lots is subject to the building coverages and plot ratios as specified in the Bulk & Location plan 2001-192-901 and schedule 2001-192-015BL attached to plans.

iv) That there be registered upon the titles of Lots 1 to 54 Deposited Plan 347410 the following conditions:

- One single dwelling household unit only may be built on the lots
- The exterior surfaces of all household units and any accessory buildings shall have exterior surfaces including roofs but excluding windows finished in reflective materials not exceeding 37% reflectivity, or in natural wood, earth or stone finishes
- The exterior cladding and roofs of all dwellings shall be clad in a material or painted in a colour of natural or earth toning to complement the surrounding rural area.

v) That there be registered on the certificate of title of Lot 250 Deposited Plan 347410 that the water pumping station servicing Lots 1 to 54 on Deposited Plan 347410 be owned and operated by the owner of said Lot 250 until such time as public supply with suitable pressure is installed.

This consent notice shall be deemed to be the covenant containing such a restriction.

TO: The District Land Registrar
South Auckland Registry

for registration please.

AND TO: Kinloch Golf Resort Limited
P O Box 1198
Auckland 1015

Dated this 3rd day of May 2005.

Signed: _____

Simon Rowbotham
Chief Executive Officer
Taupo District Council

Landonline User ID: ramilliesaslau

LODGING FIRM: Ramillies Agency Services

Address: PO Box105472

Auckland

DX CP21515

Uplifting Box Number: 206

ASSOCIATED FIRM: Claymore Management Ltd

Client Code / Ref: 29-21

HEREWITH

Survey Plan (#)	
Title Plan (#)	
Traverse Sheets (#)	
Field Notes (#)	
Calc Sheets (#)	
Survey Report	
Other (state)	

Dealing / SUD Number (LINZ Use only)

Priority Barcode/Date Stamp (LINZ use only)

Scott Auckland

CONO 6496391.1 Consen

Cpy – 02/06,Pgs – 005,14/07/05,11:28

Copies (inc. original)

DocID: 511248284

Plan Number Pre-Allocated or to be Deposited: Plan 347410

Rejected Dealing Number:

RECEIVED 14 JUL 2005

Priority Order	CT Ref.	Type of Instrument	Names of Parties	DOCUMENT OR SURVEY FEES	MULTI-TITLE FEES		NOTICES		ADVERTISING	NETWORK TITLES		OTHER	RE-SUBMISSION & PRIORITY FEE	FEES $ GST INCLUSIVE
1	58B/560 69D/931	C221	Taupo District Council	50.00	1	$2								$52.00
2	As Above & 40D/874	EI (PSE)	Kinloch Golf Resort Ltd - HS & SD Hancock	50.00	1	$2								$52.00
3	558/560	EI (SE)	Kleg Ltd - Kinloch Golf Resort Ltd	50.00										$50.00
4	58B/560 69D/931 69D/931	PRAG	Waikato Regional Council (H083274)	NIL ~~50.00~~	1	$2								$~~52~~.00
5	As Above	OCT	Kinloch Golf Resort Ltd							55	$5,830			$5,830.00
6	194825	EI	Kinloch Golf Resort Ltd - Telecom NZ Ltd	50.00										$50.00

Land Information New Zealand Lodgement Form

Fees Receipt or Tax Invoice

GST Registered Number 17-022-895

LINZ Form P005

LINZ Form P005 - PDF

Annotations (LINZ use only)

Original Signatures? _____

Subtotal (for this page)	$6,086.00
Total for this dealing	$6,882.00
Less Fees paid on Dealing #	6496-00
Debit my Account for	~~$6,882.00~~

Version 1.7: 28 May 2004

Landonline User ID: ramilliesaslau

LODGING FIRM: Ramillies Agency Services

Dealing / SUD Number: (LINZ Use only) CONO 6496391.1 Consen
Cpy – 03/06,Pgs – 005,14/07/05,11:28

Priority Barcode/Date Stamp (LINZ use only)

Copies (inc. original)

DocID: 511248284

Plan Number Pre-Allocated or Plan Number to be Deposited: Plan 347410

Client Code / Ref: 29-21

Rejected Dealing Number:

[Priority Order]	[CT Ref.]	[Type of Instrument]	[Names of Parties]	DOCUMENT OR SURVEY FEES	MULTI-TITLE FEES		NOTICES		ADVERTISING		NEW TITLES		OTHER	RE-SUBMISSION & PRIORITY FEE	FEES $ GST INCLUSIVE
7	194825	EI	Kinloch Golf Resort Ltd - Unison Networks Ltd	50.00											$50.00
8	194784 194789 194825 194808	EI	Kinloch Golf Resort Ltd - Taupo District Council	50.00	3	$6									$56.00
9	See Schedule	EI	Knloch Golf Resort Ltd - Kinloch Golf Resort Ltd	50.00	10	$20									$70.00
10	See Schedule	EI	Kinloch Golf Resort Ltd - Kinloch Golf Resort Ltd	50.00	54	$108									$158.00
11	194770 -194823	Enc	Kinloch Golf Resort Ltd - Kinloch Golf Resort Owners Asoc	50.00	53	$106									$156.00
12	194825	PDM	Covenant TrusteeCo Ltd	50.00											$50.00
13	194825	PDM	ASB Bank Ltd	50.00											$50.00

Land Information New Zealand Lodgement Form

Fees Receipt and Tax Invoice

GST Registered Number 17-023-895

LINZ Form P005

Annotations (LINZ use only)

Subtotal (for this page) $590.00

Running Total for Page 2 - $796.00

Landonline User ID: ramilliesaslau

LODGING FIRM: Ramillies Agency Services

Dealing / SUD Number: (LINZ Use only)

Priority Barcode/Date Stamp: (LINZ use only)

CONO 6496391.1 Consen
Cpy – 04/08,Pgs – 005,14/07/05,11:28
Copies (inc. original)
DocID: 511248264

Plan Number Pre-Allocated or Plan Number to be Deposited: Plan 347410

Client Code / Ref: 29-21

Rejected Dealing Number:

[Priority Order]	[CT Ref]	[Type of Instrument]	[Names of Parties]	DOCUMENT OR SURVEY FEES	MULTI-TITLE FEES		NOTICES		ADVERTISING		NEW TITLES		OTHER	RE-SUBMISSION & PRIORITY FEE	FEES $ GST INCLUSIVE
14	194770	T	Kinloch Golf Resort Ltd - Kinloch Golf Resortt Owners As	50.00											$50.00
~~12~~	194770-194823 incl	Deed	Kinloch Golf Resort Ltd - Kinloch Golf Resort Owners Inc	50.00	53	~~$106~~									$156.00
9															
10															
11															
12															
13															

Land Information New Zealand Lodgement Form

Fees Receipt and Tax Invoice

Co Registered Number 17-022-895

LINZ Form P005

Annotations (LINZ use only)

Subtotal (for this page) $206.00

Running Total for Page 2 - $590.00

TITLE SCHEDULE

Landonline User ID: ramilliesaslau
LODGING FIRM: Ramillies Agency Services
Client Code / Ref: 29-21

Line Number	CT Ref:
1	
2	
3	
4	

Line Number	CT Ref:
5	
6	
7	
8	

Line Number	CT Ref:
9	194820 194802 194817 194814 194825 194810 194800 194809 194786 194825 194806 194804
10	194770 -194823inc 194824 194825
11	
12	

Line Number	CT Ref:
13	
14	
15	
16	

Line Number	CT Ref:
17	
18	
19	
20	

CT - 170355 - A1935555

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

R.W. Muir
Registrar-General
of Land

Guaranteed Search Copy issued under Section 172A of the Land Transfer Act 1952

Identifier **194821**
Land Registration District **South Auckland**
Date Issued 15 July 2005

Prior References
SA58B/560

Estate	Fee Simple
Area	1660 square metres more or less
Legal Description	Lot 52 Deposited Plan 347410

Proprietors
Murray Godfrey Geddes Jones

Interests

Appurtenant hereto is a right to convey water created by Transfer S441040

6496391.1 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 15.7.2005 at 9:00 am

Appurtenant hereto is a right of way created by Easement Instrument 6496391.10 - 15.7.2005 at 9:00 am

The easements created by Easement Instrument 6496391.10 are subject to Section 243 (a) Resource Management Act 1991

6496391.11 Encumbrance to Kinloch Golf Resort Owners Association Incorporated - 15.7.2005 at 9:00 am

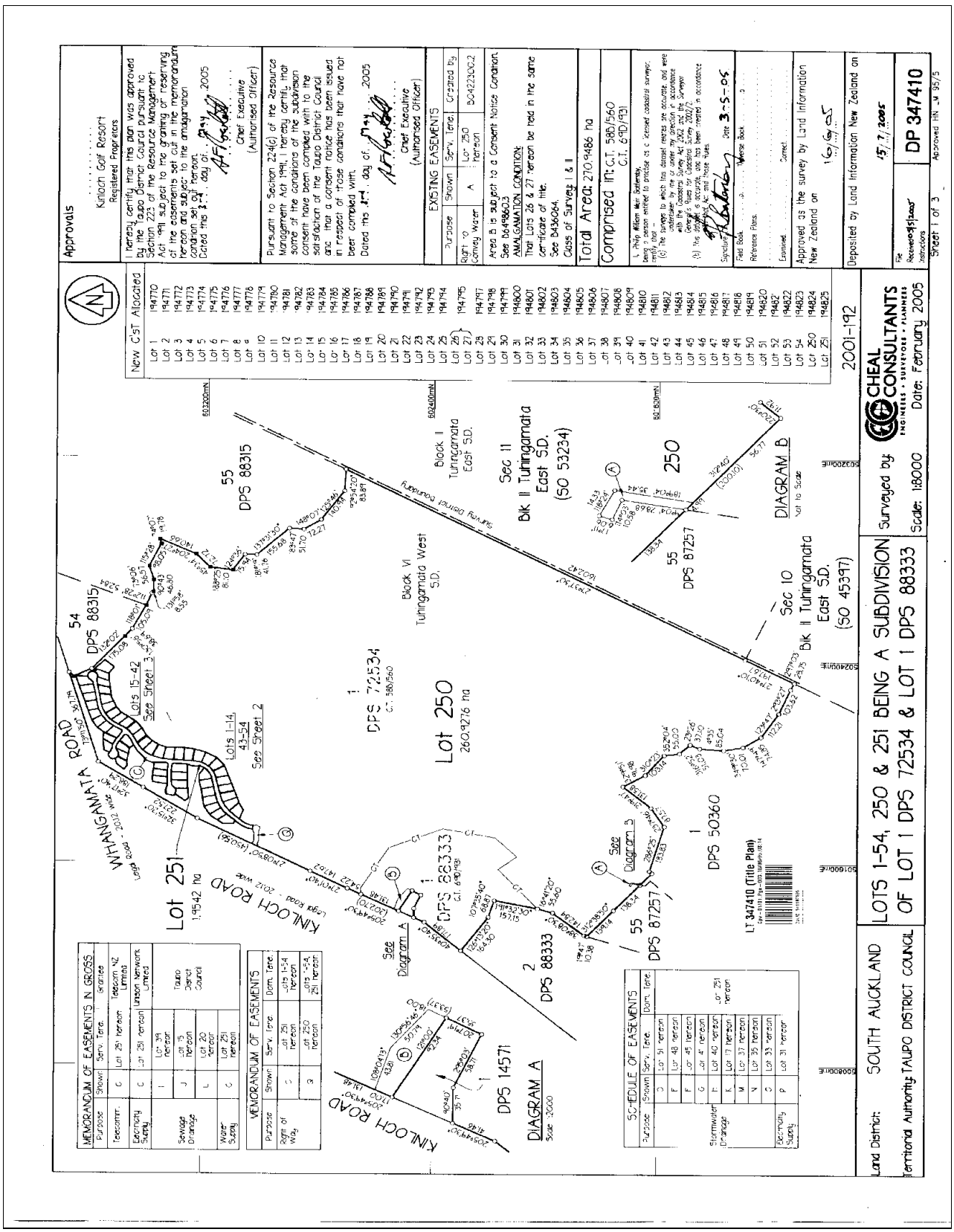
Land Covenant in Deed 6496391.15 - 15.7.2005 at 9:00 am

Fencing Covenant in Transfer 7421266.2 - 18.6.2007 at 9:00 am

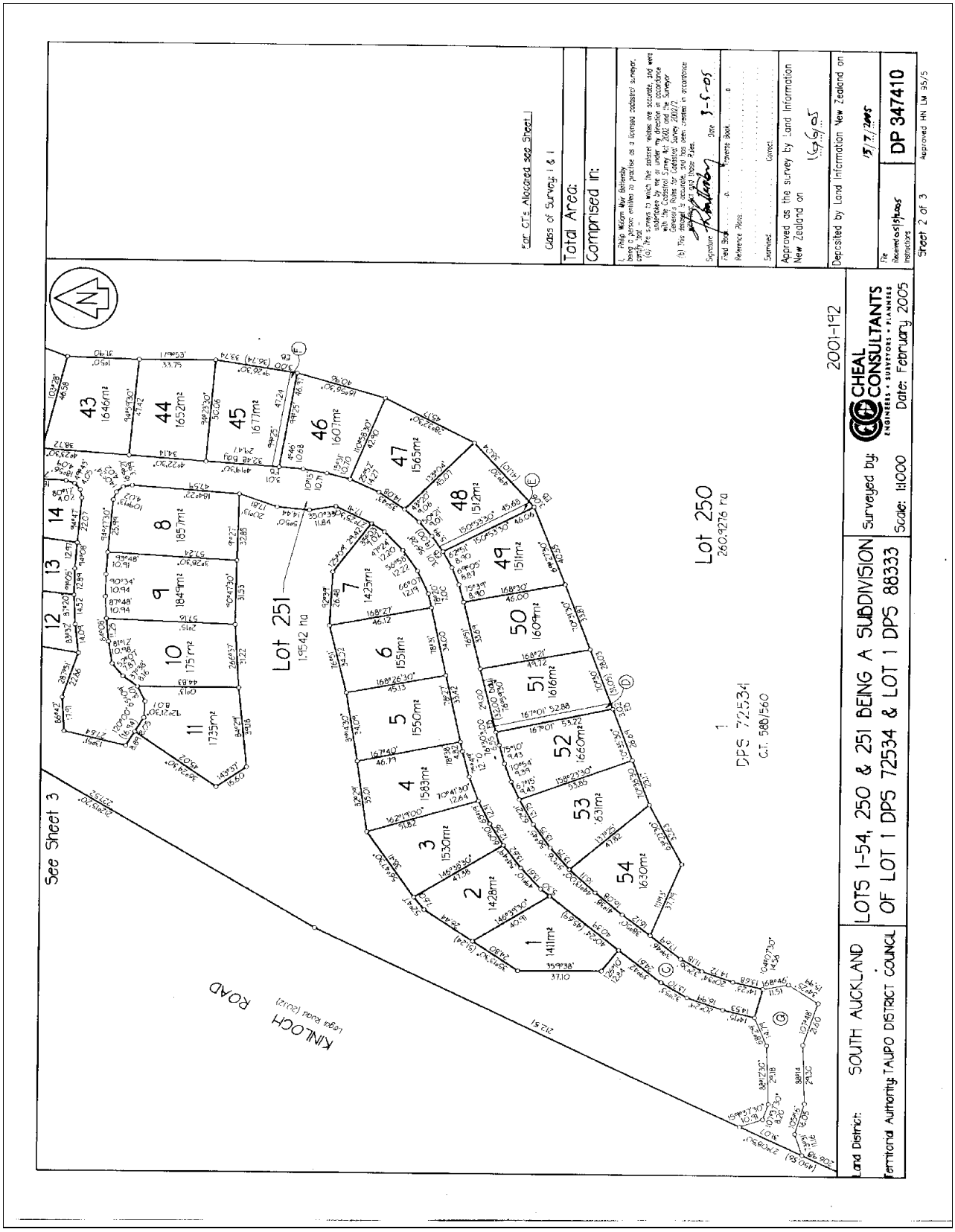
Land Covenant in Transfer 7421266.2 - 18.6.2007 at 9:00 am

10573133.10 Mortgage to Kiwibank Limited - 27.9.2016 at 4:57 pm

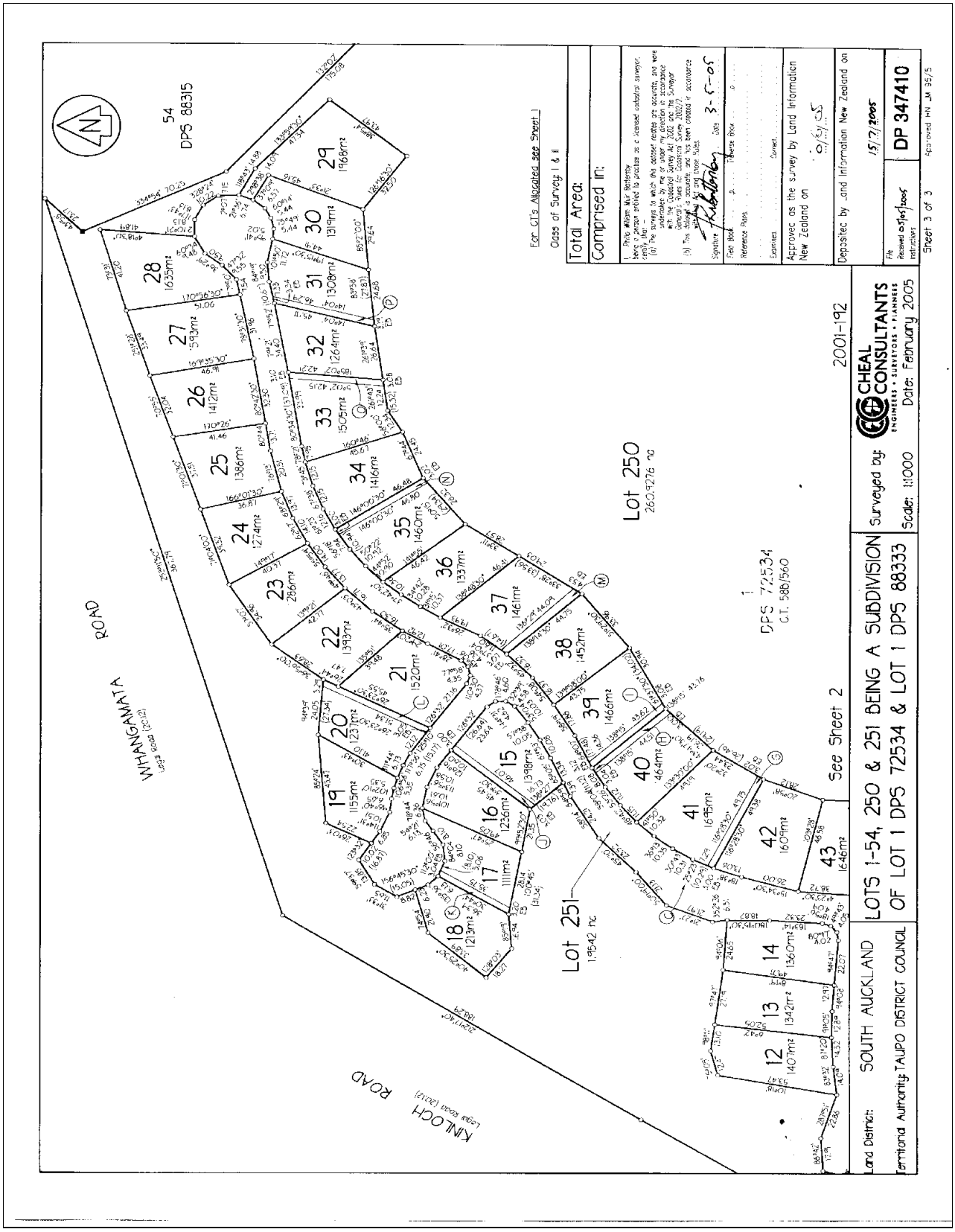
Identifier **194821**



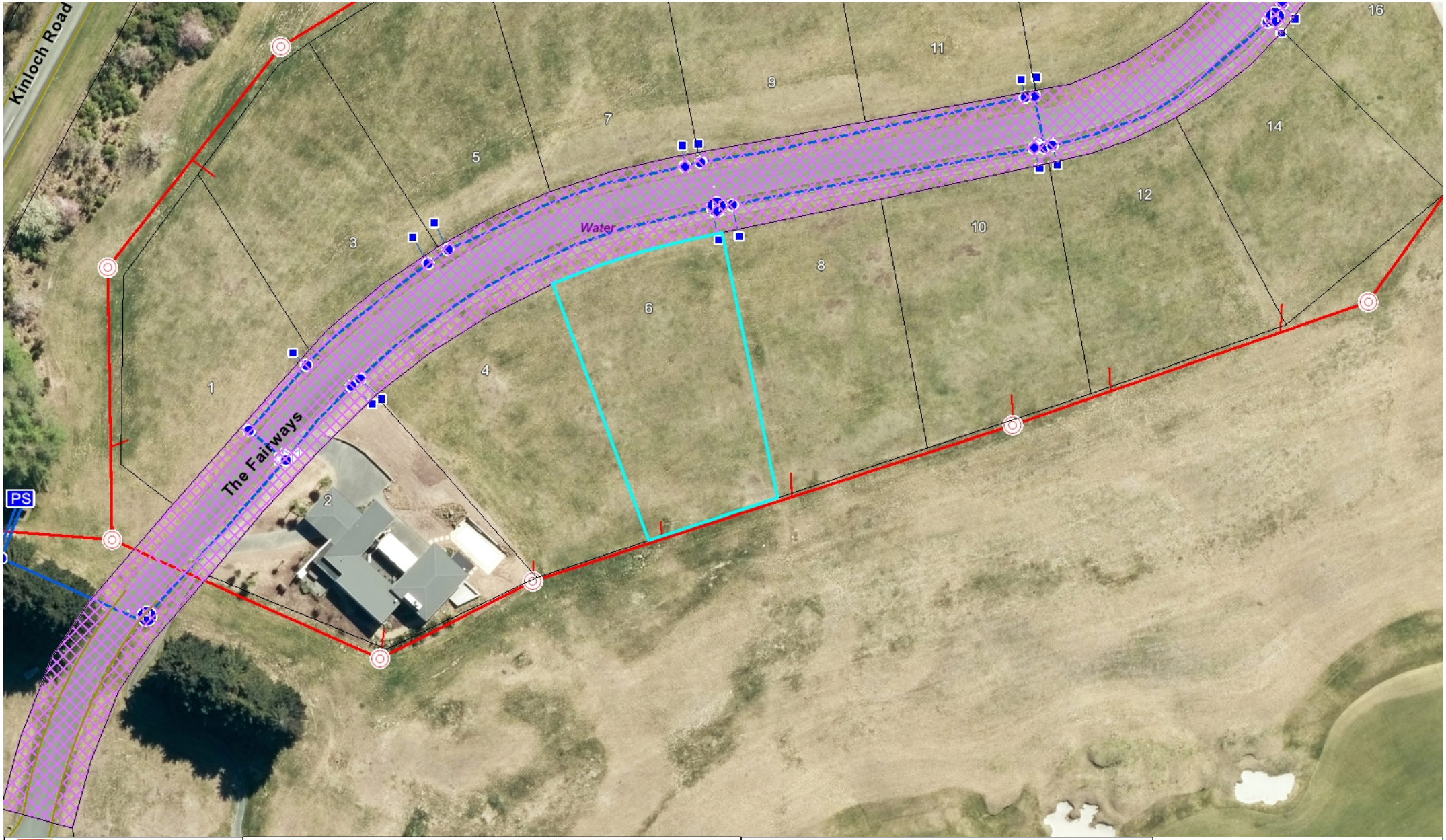
Identifier **194821**



Identifier **194821**



Services Plan - A1945684



GREAT LAKE TAUPŌ
Taupō District Council

The information displayed has been taken from Taupo District Council's GIS databases and maps. It is made available in good faith, but its accuracy or completeness is not guaranteed. Position of property boundaries are INDICATIVE only and must not be used for legal purposes. Cadastral information sourced from Land Information New Zealand. Crown Copyright Reserved. This map is not to be reproduced without permission of TDC. © Copyright Reserved Taupo District Council.

LEGEND:

- Property Boundaries
- Proposed Subdivisions
- Lease Boundaries
- Taupo District Boundary
- TDC Reserves
- DOC Reserves
- Council Owned Land
- Council Easements

SERVICES

Sewer (wastewater)

- Manhole
- Node
- Pump Station
- Sewer pipe

Water

- Water point (valve, fire hydrant)
- Water pipe

Stormwater

- Manhole
- Inlet / cesspit
- Node
- Stormwater pipe

- Fibre Optic Cable (Council)
- Street Lights

MAP PRODUCED FROM GEOCORTEX

52.388 Meters

Scale = 1: 1,000 (A4)

Date Created: 18 May 2017 10:28 a.m.

Author:

N

Earthtech Consulting Ltd Geotechnical Report Mar 2005 - 170355 - A1948541

EARTHTECH CONSULTING LTD

US1725
FILE
RM 040415

KINLOCH GOLF RESORT LTD

GEOTECHNICAL REPORT
STAGE 1 – FAIRWAY LOTS



MARCH 2005

Report prepared for:
KINLOCH GOLF RESORT LTD

Report prepared by:
EARTHTECH CONSULTING
P O Box 721, Pukekohe
Phone: 09 238 3669

Ref : R1748-3
Date : 2 March 2005

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT
PLANS/SPECIFICATIONS

APPROVED CONSENT COPY
THESE PLANS AND SPECIFICATIONS ARE APPROVED SUBJECT TO THE PROVISIONS OF THE BUILDING ACT 2004 AND IT'S REGULATIONS. A FULL (PRINTED) COPY OF DRAWINGS AND SPECIFICATIONS ARE TO BE RETAINED ON SITE IN GOOD ORDER AND PRODUCED UPON REQUEST.

0 4 MAR 2005

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT
PLANS/SPECIFICATIONS

KINLOCH GOLF RESORT LTD

GEOTECHNICAL REPORT
STAGE 1 – FAIRWAY LOTS

CONTENTS

1. INTRODUCTION

2. SITE CONDITIONS
   - 2.1 Topography and Site Features
   - 2.2 Aerial Photography
   - 2.3 Stage 1 Development

3. SITE GEOLOGY AND GROUND CONDITIONS
   - 3.1 Published Geology
   - 3.2 Taupo District Council Active Fault Lines
   - 3.3 Ground Conditions
   - 3.4 Groundwater Conditions

4. GEOTECHNICAL CONSTRAINTS AND DEVELOPMENT RECOMMENDATIONS
   - 4.1 Foundation Conditions
   - 4.2 Erosion Control and Stormwater Disposal
   - 4.3 Fault Rupture
   - 4.4 Slope Stability
   - 4.5 Summary

Drawings

Figure 1 Subdivision Investigation Plan
Figure 2 Lineament LnA TR1-04 Log – 20 May 2004
Figure 3 Pond 3 Sketch Plan

Appendices

Appendix A Cheal Scala Penetrometer Soundings
Appendix B Dr Colin Wilson, IGNS Review

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT
PLANS/SPECIFICATIONS

KINLOCH GOLF RESORT LTD

GEOTECHNICAL REPORT
STAGE 1 – FAIRWAY LOTS

1. INTRODUCTION

Stage 1 of the Kinloch Golf Resort consists of 54 residential lots adjacent to Kinloch Road and Whangamata Road.

Specific investigations have been carried out in order to investigate an "active fault line" shown on the Taupo District Council planning maps in the vicinity of Stage 1 and to assess building foundation conditions. The geotechnical site investigation plan is shown in Figure 1.

Sewerage is to be reticulated and hence no on-site wastewater disposal is proposed. Stormwater from roads will be piped to overland flow paths and soak pits around the perimeter of the subdivision area. Within lot boundaries, stormwater from impervious surfaces (roofs and driveways) is to be disposed of to on-site soakholes.

Cheal Consultants designed and supervised the construction of the Stage I earthworks, subdivision access road, stormwater reticulation plus other services. Associated as-builts and construction documentation is to be provided by Cheal Consultants.

Figure 1 shows the subdivision layout with the trench TR1-04 and scala investigations for each lot following earthworks. The TR1-04 log is presented in Figure 2 with a site sketch plan of ground extension fractures observed in the vicinity of Pond 3 shown in Figure 3. Scala penetrometer soundings carried out by Cheal Consultants are presented in Appendix A.

2. SITE CONDITIONS

2.1 Topography and Site Features

The original topography in the area consisted of a gently sloping terrace (<5° overall slope angle) from RL420m to RL395m between the northern and southern Stage 1 boundaries. The original terrace surface was irregular and hummocky due to surface water erosion. The recent earthworks have smoothed out this hummocky surface with minor cutting and filling.

An inspection of the site prior to earthworks indicated no evidence of active surface or or subsurface erosion features within the Stage 1 area. Discussions with the previous landowner (Mr Bruce Wilson) and earthworks contractors for Stage 1 also indicated that no significant subsurface erosion features are present within the subdivision area.

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2.2 Aerial Photography

The following historic aerial photographs have been viewed:

i. 30 August 1946 – 1:16,000 scale
ii. 23 April 1963 – 1:16,000 scale
iii. 6 November 1996 – 1:8,000 scale

The historic aerial photographs show no significant changes to site landforms over the past 60 years. During this period, grass and scrub cover has protected site soils from surface water erosion.

The aerial photographs show one lineament, described in this report as LnA along the southern boundary of Stage 1 (Figure 1). A lineament represents a "line" on an aerial photograph controlled by geological structure or erosion.

2.3 Stage 1 Development

Stage 1 earthworks has consisted of excavation and construction of the site access road in cut and minor re-shaping of lot areas with shallow cuts and fills. The post subdivision earthworks contours are shown on Figure 1.

3. SITE GEOLOGY AND GROUND CONDITIONS

3.1 Published Geology

The regional published geological map at a scale of 1:250,000 (Grindley, 1960) shows the Stage 1 area to be underlain by Taupo Pumice Alluvium. In this report these soils are described as Taupo Ignimbrite.

Geological publications (Froggatt, P.C. and Lowe, D.J. 1990) indicate that the Taupo area has been subjected to frequent volcanic eruptions with at least seven major events during the past 10,000 years (Holocene time). The Taupo Ignimbrite represents the youngest unit which erupted approximately 1,850 years ago.

The TR1-04 trench investigations show a number of older tephra layers under the Taupo Ignimbrite. These are described on Figure 2.

3.2 Taupo District Council Active Fault Lines

The TDC planning maps show two northeast trending "active fault lines" to the south of Stage 1. The northern most "fault line" is represented by LnA on Figure 1. No aerial photograph or field mapping evidence supports the southern TDC fault trace. The southern fault trace is also remote with respect to the Stage 1 areas and of no direct consequence to development in this area.

The TDC "fault lines" are based on IGNS (Institute of Geological and Nuclear Sciences) studies. Correspondence with IGNS indicates that the fault traces in the Kinloch area were identified from aerial photographs (Fellows, 1988) but were not verified by field mapping.

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PLANS/SPECIFICATIONS

3.3 Ground Conditions

The majority of building foundations for the Stage 1 area are expected to be within Taupo Ignimbrite or structural fill consisting of reworked sandy ignimbrite soils. Ground conditions can be summarised as follows:

i. **Topsoil** – generally 0.2m thick (from scala logs). From discussions with Cheal Consultants and the site observations, topsoil was initially undercut from the Stage 1 area then replaced and grassed following earthworks.

ii. **Structural Fill** – medium dense gravelly sands and sands of variable thickness.

iii. **Taupo Ignimbrite** – loose to medium dense gravelly sands and sands typically 3m thick.

iv. **Deeper Layered Tephra Soils** – See Figure 2.

The scala penetrometer tests have shown that with site earthworks the existing loose Taupo Ignimbrite sands have been reworked to a stronger medium dense condition.

3.4 Groundwater Conditions

Groundwater investigations have been carried out by Earthtech on the property for the associated golf course irrigation supply. From this information the groundwater table is expected to be at least 15m below the existing ground surface.

No groundwater was observed in TR1-04 which extended to 4m depth.

4. GEOTECHNICAL CONSTRAINTS AND DEVELOPMENT RECOMMENDATIONS

4.1 Foundation Conditions

The medium dense natural and fill soils provide favourable foundation conditions for dwellings. In such areas conventional strip and pad footings can be designed for an allowable bearing capacity of 100kPa with a minimum foundation embedment depth of 450mm (below final ground levels).

The scala penetrometer test requirement to achieve an allowable bearing capacity of 100kPa at a founding depth of 450mm in sands is:

Scala Penetrometer Test Standard

Depths	
0 – 400mm	Not relevant as footing founded below 450mm.
400 – 900mm	≥ 2 blows/50mm on scala.

The scala penetrometer tests (Appendix A) show that the above criteria have been met within the fill and natural soils for the majority of the Stage 1 area. However loose soils were identified at A23, A32, A34, B12, B30, B31, C5, C6, C29, C30 and C32 (from

scala blow counts of <2 blows/50mm). The loose soils most likely represent natural Taupo Ignimbrite soils within cut areas.

In order to account for the presence of these loose soils, the following is recommended:

i. Additional scala penetrometer soundings for house foundation areas at the building consent stage.
ii. Where required, over-excavation and recompaction of soils to a minimum 1m depth below foundation areas to achieve the above scala penetrometer test standard or a minimum density of 100% of New Zealand Standard Compactive Effort.

Heavy foundation loads and any pile foundations will require specific design.

4.2 Erosion Control and Stormwater Disposal

The sandy tephra soils are susceptible to surface and subsurface erosion as a result of concentrated surface and groundwater flows.

On-site soakaway systems are proposed for the roof and impervious areas (driveways) associated with each lot. On-site soakage systems are appropriate in view of the permeable site soils and deep groundwater table. These systems are commonly used in the Taupo area. For each lot all on-site soakaways should be specifically detailed to ensure no effects on building foundations or adjacent property.

If any subsurface erosion features are encountered either during site investigations or earthworks, appropriate remedial works should be carried out. On the basis of existing information subsurface erosion features are not expected within Stage 1.

Outside of the impervious areas, gentle site contours allow for diffuse discharge of stormwater.

For the subdivision access road, stormwater is to be piped to overland flow paths and soak holes around the perimeter of the subdivision area. The overland flow paths and soak holes are located on communal land within the Kinloch Golf Resort property. Maintenance of these areas (including grassing of overland flow paths and renovation plus any repairs associated with soak holes) should be a responsibility of the associated Body Corporate.

4.3 Fault Rupture

Of the two "active fault lines" shown on the TDC planning maps, the northerly "fault line" has been described in this report as LnA. The "fault line" to the south is not supported by detailed aerial photograph examination and site mapping. The southern feature is also well outside of the Stage 1 area.

An investigation trench TR1-04 of 28m long x 3 to 4m depth was excavated across LnA. Figure 2 shows that the only evidence of ground disruption within the trench consists of an infilled extension fracture. Similar extension fractures have also been observed in the vicinity of Pond 3 (Figure 3), within other trenches on the Kinloch Golf

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Resort and on other properties in the Kinloch area. The extensional fractures show no evidence of shear movement that would have been expected if they were fault related.

A review of these features has been carried out by Dr Colin Wilson from IGNS (Appendix B). Dr Wilson is considered to be an expert on the Taupo eruption. His review states that these features are primarily related to Taupo volcanism and not active faulting. Since the volcanic risk associated with the Taupo Volcano is accepted in the district, the extensional features have not been considered further.

The above confirms that LnA is not fault related. From landform evidence LnA is due to erosion along a terrace edge which happens to be coincidental to the orientation of active faults in the area.

As LnA is not fault related, no building setbacks are required for adjacent lots in this area.

4.4 Slope Stability

Slope stability is not a constraint to site development due to gentle slope angles and high shear strengths of the site soils.

4.5 Summary

Stage 1 of the Kinloch Golf Resort is considered to be suitable for residential development as proposed providing the above restrictions and recommendations are adopted.

5. REFERENCES

Fellows, D.L. (1988) — Taupo Fault Belt Investigations : Trenching and Mapping Results. NZ Geological Survey EDS Immediate Report 89/7.

Froggatt, P.C. and Lowe, D.J. (1990) — A Review of Later Quaternary Silicic and Some Other Tephra Formations from New Zealand : Their Stratigraphy, Nomenclature, Distribution, Volume and Age. NZJGG Vol. 33 : 89-109.

Grindley, G.W. (1960) — Sheet 8 – Taupo (1st Ed.) Geological Map of New Zealand. 1 : 250,000. DSIR, Wellington.

Report prepared by

P I KELSEY
Senior Engineering Geologist
EARTHTECH CONSULTING LTD

Ref : R1748-3
Date : 2 March 2005

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS



0 100m

Scale 1:2500

LEGEND

- A11 ● Scala Penetrometer Test (April 2004)
- B11 ● Scala Penetrometer Test (May 2004)
- C11 ● Scala Penetrometer Test (November 2004)
- Aerial Photograph Lineament

EARTHTECH

Earthtech Consulting Ltd.
P.O. Box 721
Pukekohe
Phone: 09 238 3669
Fax: 09 238 1828

KINLOCH GOLF RESORT LTD
Stage 1 - Fairway Lots

Geotechnical Investigation Plan

DRAWN	PK	CHECKED	PK	SCALE	1:2500
TRACED	CM	DATE	1 Mar 05		

SHEET FIG. 1

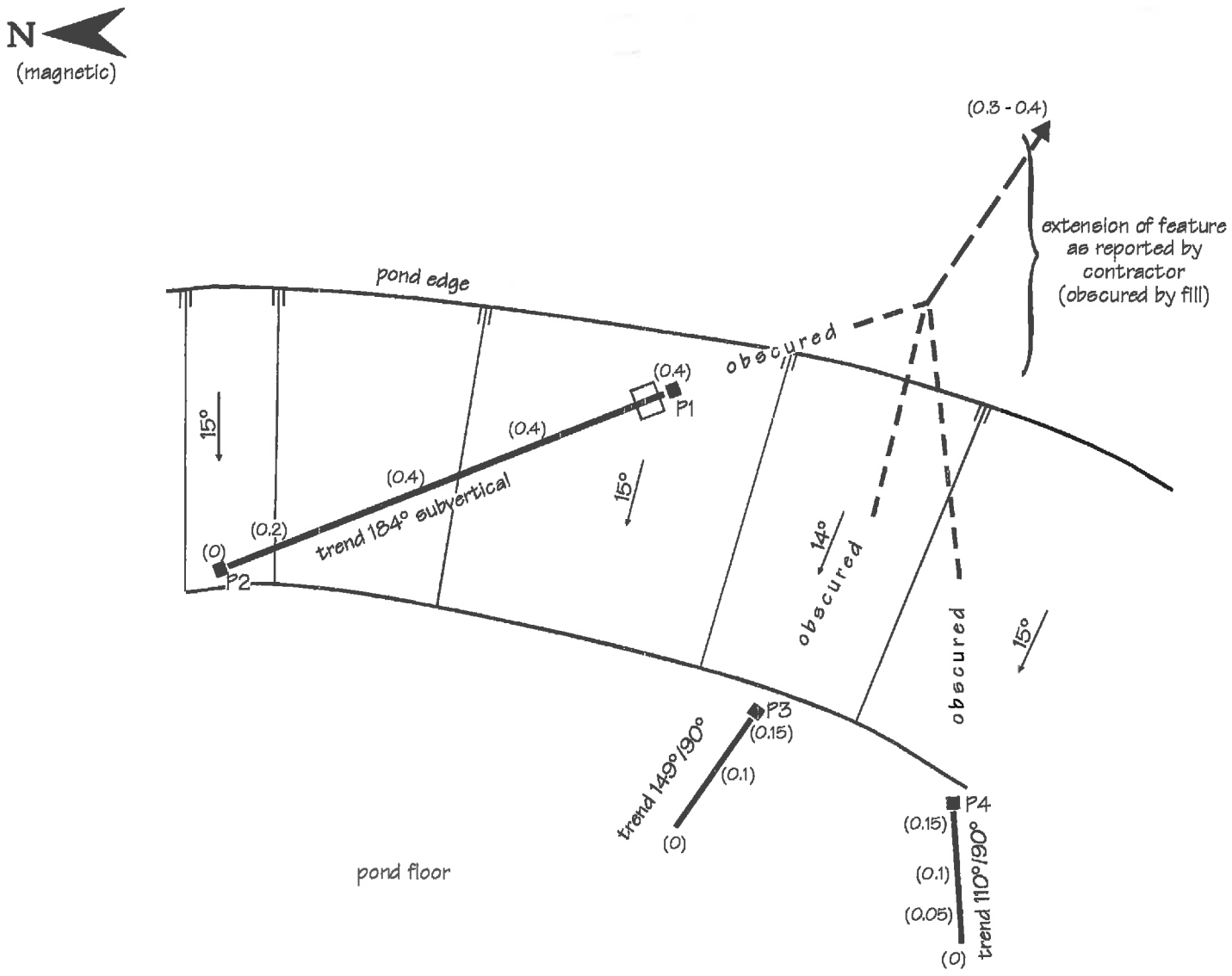
VERSION A

REF 1748

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT PLANS/SPECIFICATIONS



NOTE:

- All extensional fractures below Taupo ignimbrite within tephric loess.
- Trenches extended to end of fractures.
- Pond will require lining due to coarse pumice layers and gravel filled fracture.
- All fractures show no evidence of shear movement.

EARTHTECH
Earthtech Consulting Ltd.
P.O. Box 721
Pukekohe
Phone: 09 232 8500
Fax: 09 232 8500

KINLOCH GOLF RESORT LTD
Stage 1

Pond 3 Sketch Plan

DRAWN	P.K	CHECKED	P.K	SCALE 1:200	SHEET FIG 3
TRACED	C.M	DATE	1 Mar 05		VERSION A
					REF 1748

Cladding Query 22.5.17 - A1948545

From: Clint Bramley <clint.bramley@callplus.net.nz>
Sent: Monday, 22 May 2017 2:09 p.m.
To: Kim Smillie
Subject: RE: 6 The Fairways - BC170355

Kim.
This is my understanding that the materials will comply
with the consent notice.
Is there any news in regards to cozens project, Turangi.
I put in an RC application last week in regards to canopy.

Regards,

Clint

From: Kim Smillie [mailto:ksmillie@taupo.govt.nz]
Sent: Monday, 22 May 2017 10:11 a.m.
To: 'clint.bramley@callplus.net.nz' <clint.bramley@callplus.net.nz>
Subject: 6 The Fairways - BC170355

Hey there Clint,

I am just carrying out the planning assessment for this one. Can you please confirm that the dwelling will comply with the following cladding requirements:

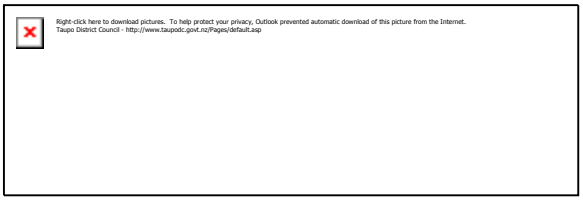
Consent notice requires that exterior surfaces of all house hold units and accessory buildings shall have exterior surfaces including roofs but excluding windows finished in reflective materials not exceeding 37% reflectivity or in natural wood, earth or stone finishes. Consent notice also requires that the exterior cladding and roofs of all dwellings shall be clad in a material or painted in a colour of natural or earth toning to complement the surrounding rural area.

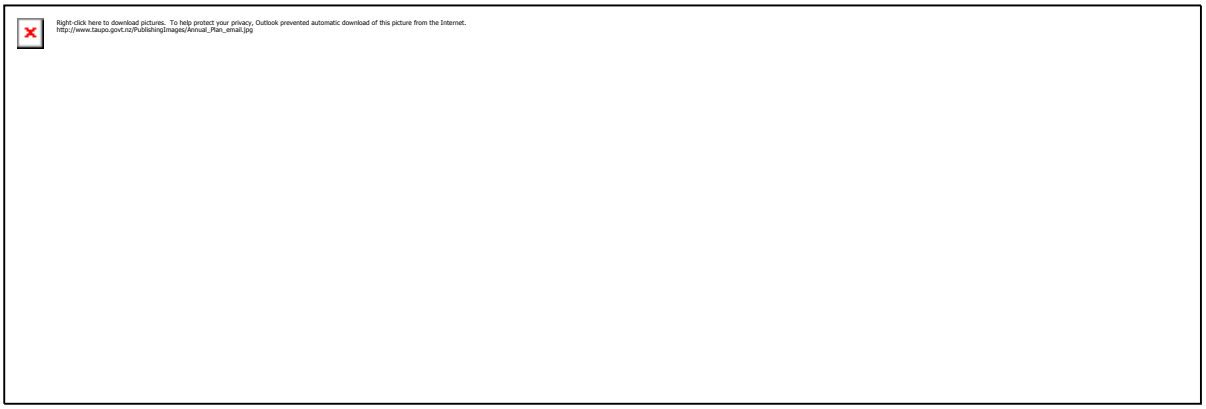
Thanks
Kim

Kim Smillie Development Liaison Advisor

Taupō District Council • 72 Lake Terrace, Taupō 3330
Private Bag 2005 • Taupō Mail Centre • Taupō 3352 • New Zealand

D +64 7 376 0815 **T** +64 7 376 0899 **E** ksmillie@taupo.govt.nz
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Development Levy DCBC170355 - A1948578

GREAT LAKE TAUPŌ
Taupō District Council

Development Contributions Assessment

Consent Reference: **BC170355**

Applicant: **Murray Jones**
Address: **808 Acacia Bay Road**
TAUPO 3330

Development Levy Payable:

	Lot	Valuation	% Used	Total
Development Levy	52	$650,000	0.5%	$3,250
			Subtotal (excl GST)	$3,250

TOTAL (incl GST)	**$3,737.50**

A development levy of 0.5% on the value of the building work is payable in accordance with the consent notice on the title.

On request, an invoice will be issued which will be payable on the 20th of the following month.

For any queries regarding this assessment please contact the Development Contributions Officer on (07) 376 0899.

Assessed by: Kim Smillie

K. M. Smillie

_____
DEVELOPMENT PLANNER

Reviewed by: Scott Devonport

Date: 22.05.17

Project Information Memorandum - A1948724

GREAT LAKE TAUPŌ
Taupō District Council

PROJECT INFORMATION MEMORANDUM

Section 34, Building Act 2004

BC No: 170355

This Project Information Memorandum is not a building consent to build. It is confirmation that the proposed building work may be undertaken once any notices and/or certificates attached to this memorandum have been complied with and any additional authorisations you are required to obtain have been obtained. Commencement of the work is also subject to the provisions of the Building Act 2004 and requires a building consent. ***THIS IS NOT A BUILDING CONSENT.***

Owner Name: Murray Jones
Owner Address: 808 Acacia Bay Road, Taupo 3330
Property Location: 6 The Fairways, Kinloch
Valuation Number: 0738183051
Legal Description: Lot 52 DP 347410
Building Name: Jones Residence
Description of Work: Proposed new residence

Engineering Comment:

Stormwater

- No piped council stormwater system is provided for this site and all runoff from roofs and paving must be disposed of onsite (i.e. to soakholes).
- Silt-laden stormwater runoff from the construction site is not permitted as it damages stormwater systems and adjacent property. Erosion and silt control measures must be put in place and maintained until the site is stable and has been re-grassed.

Wastewater

- There is a connection provided to the Taupo District Council sewerage system for the disposal of all wastewater from the site. Refer to the Taupo District Council services plans.

Water

- There is a connection provided to the Taupo District Council water supply system. Refer to the Taupo District Council services plan. The water toby box lid shall be set at ground level after any site works.
- If the water to the toby is off, the ferrule on the Taupo District Council adjacent main must be turned on. This can be done by Taupo District Council by applying at Taupo District Council and paying the turn-on fee. Alternatively, your plumber may also do this.

Access

- Access to this site is via a private roadway.

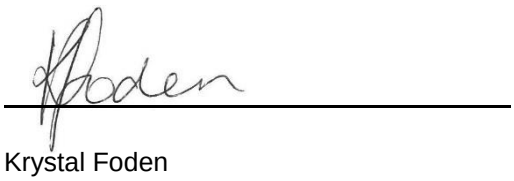
Planning Comment:

- Consent notice requires that exterior surfaces of all house hold units and accessory buildings shall have exterior surfaces including roofs but excluding windows finished in reflective materials not exceeding 37% reflectivity or in natural wood, earth or stone finishes.
- Consent notice also requires that the exterior cladding and roofs of all dwellings shall be clad in a material or painted in a colour of natural or earth toning to complement the surrounding rural area.
- A development levy of 0.5% is payable on the value of the building work in accordance with the consent notice on the title. This will need to be paid prior to Council issuing a CCC for the dwelling.
- The District Plan maps show a fault line running through this property. This was dealt with through the subdivision consent and the Earthtech Consulting Ltd Geotechnical Report dated March 2005. This identified these were not fault lines. The Bulk and Location plan and schedule for these sites that is referred to in the consent notice are based on this information meaning that no resource consent is required.

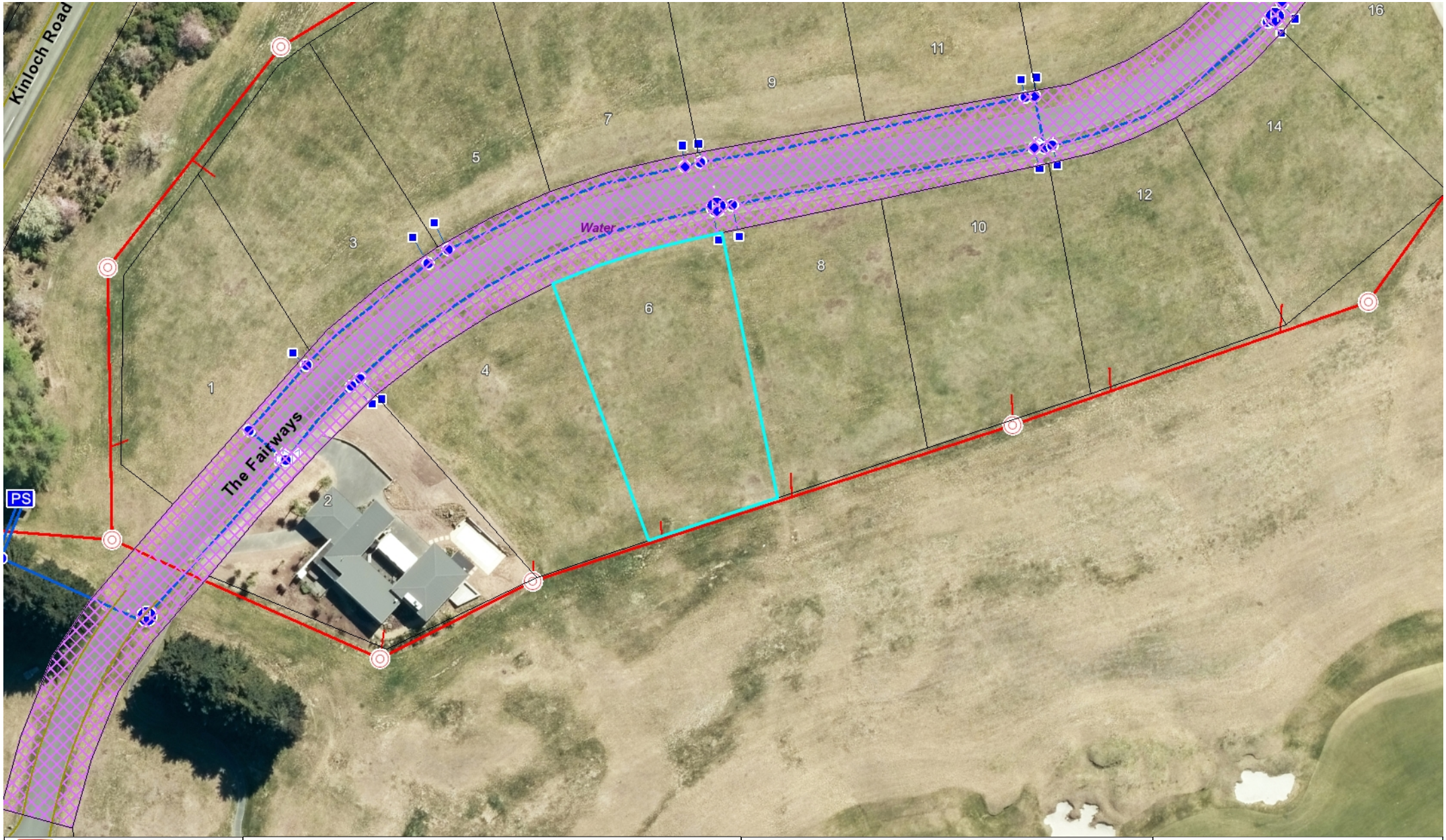
Attachments *(The following attachments are included with this Project Information Memorandum):*

- Services plan
- Certificate of Title
- Consent Notice
- Development Levy

Signed for and on behalf of Taupo District Council



Krystal Foden
Business Support Officer
Date: 22/05/17



GREAT LAKE TAUPŌ
Taupō District Council

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LEGEND:

- Property Boundaries
- Proposed Subdivisions
- Lease Boundaries
- Taupo District Boundary
- TDC Reserves
- DOC Reserves
- Council Owned Land
- Council Easements

SERVICES

Sewer (wastewater)

- Manhole
- Node
- Pump Station
- Sewer pipe

Water

- Water point (valve, fire hydrant)
- Water pipe

Stormwater

- Manhole
- Inlet / cesspit
- Node
- Stormwater pipe

- Fibre Optic Cable (Council)
- Street Lights

MAP PRODUCED FROM GEOCORTEX

52.388 Meters

Scale = 1: 1,000 (A4)

Date Created: 18 May 2017 10:28 a.m.

Author:

N

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

R.W. Muir
Registrar-General
of Land

Guaranteed Search Copy issued under Section 172A of the Land Transfer Act 1952

Identifier **194821**
Land Registration District **South Auckland**
Date Issued 15 July 2005

Prior References
SA58B/560

Estate	Fee Simple
Area	1660 square metres more or less
Legal Description	Lot 52 Deposited Plan 347410

Proprietors
Murray Godfrey Geddes Jones

Interests

Appurtenant hereto is a right to convey water created by Transfer S441040

6496391.1 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 15.7.2005 at 9:00 am

Appurtenant hereto is a right of way created by Easement Instrument 6496391.10 - 15.7.2005 at 9:00 am

The easements created by Easement Instrument 6496391.10 are subject to Section 243 (a) Resource Management Act 1991

6496391.11 Encumbrance to Kinloch Golf Resort Owners Association Incorporated - 15.7.2005 at 9:00 am

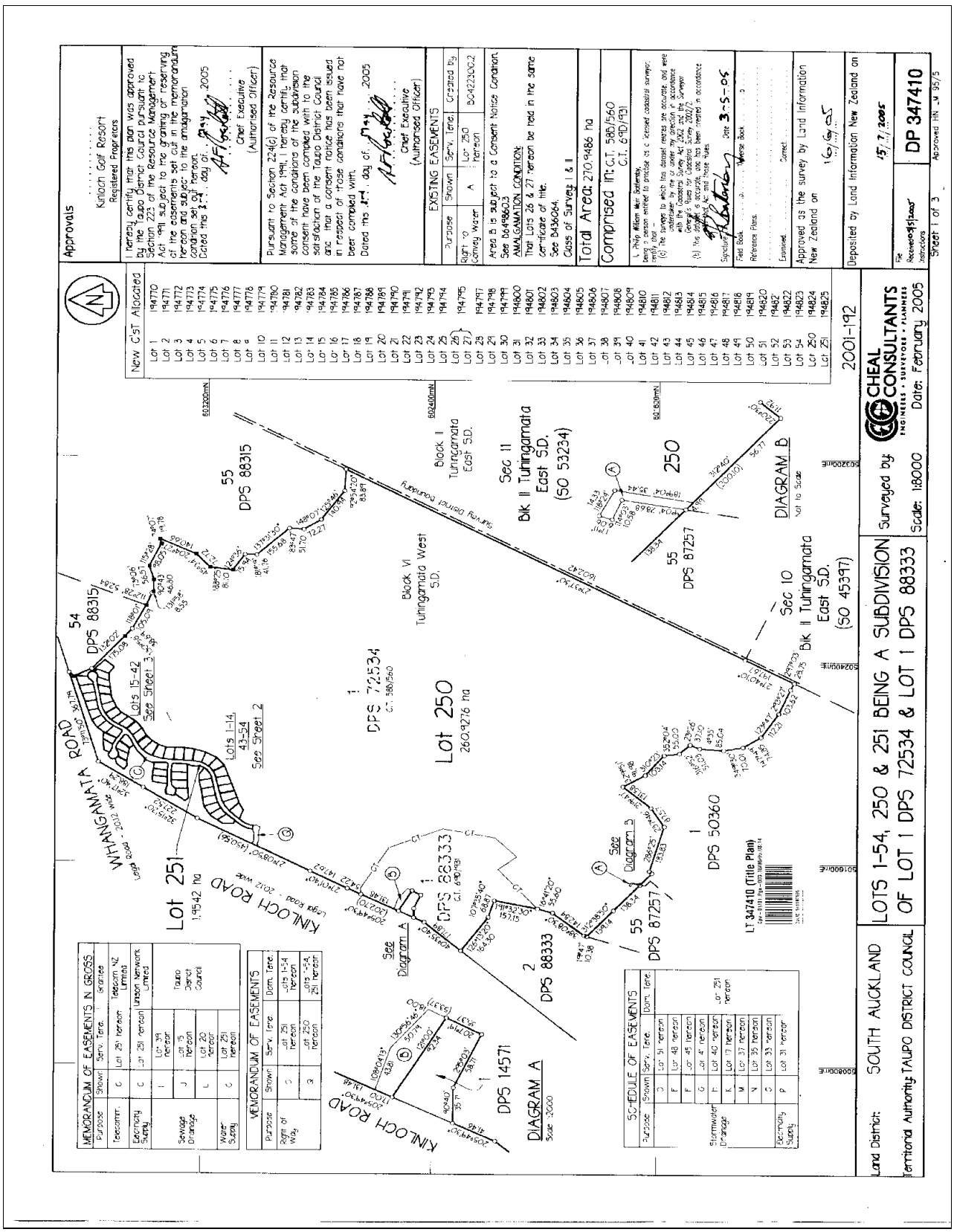
Land Covenant in Deed 6496391.15 - 15.7.2005 at 9:00 am

Fencing Covenant in Transfer 7421266.2 - 18.6.2007 at 9:00 am

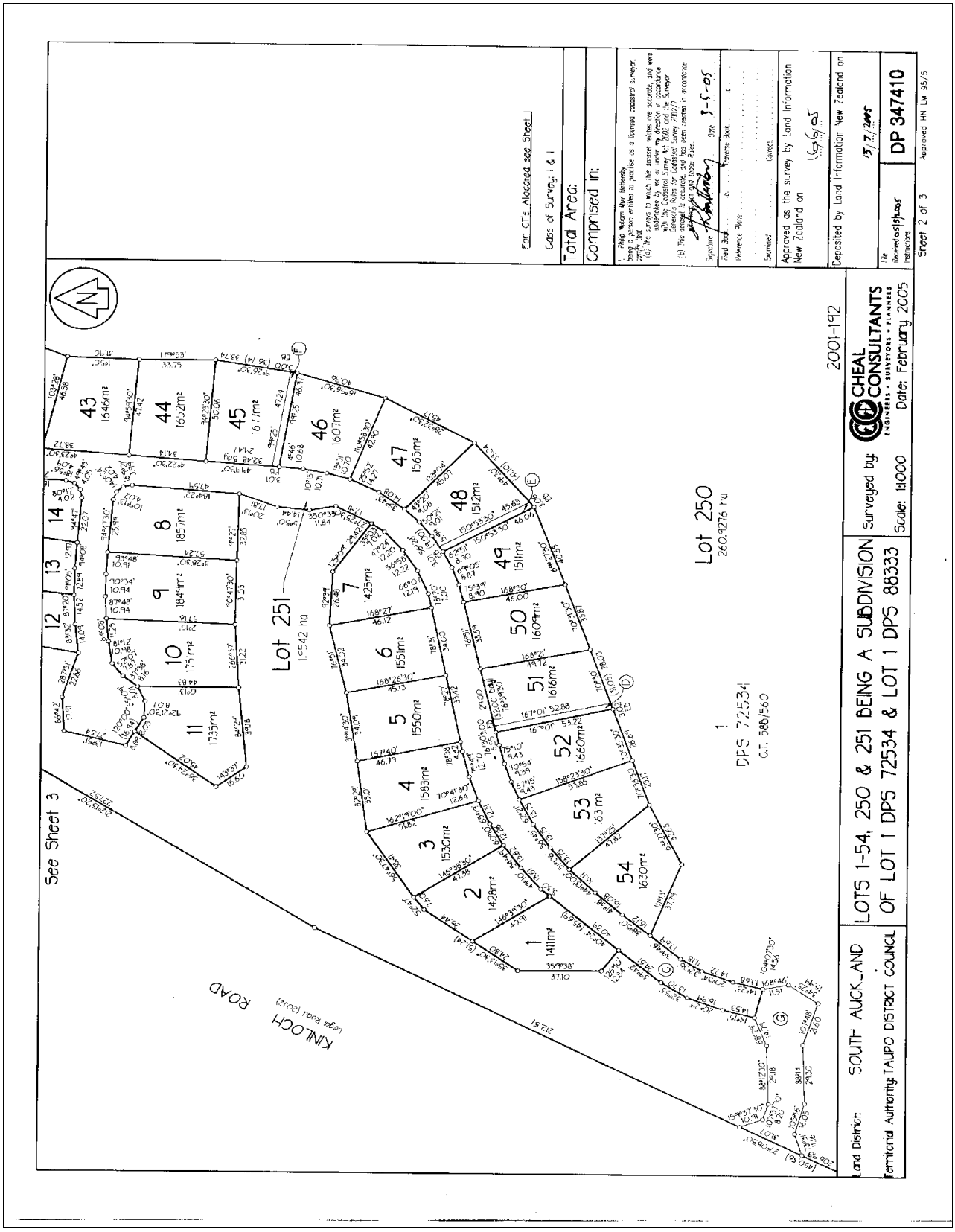
Land Covenant in Transfer 7421266.2 - 18.6.2007 at 9:00 am

10573133.10 Mortgage to Kiwibank Limited - 27.9.2016 at 4:57 pm

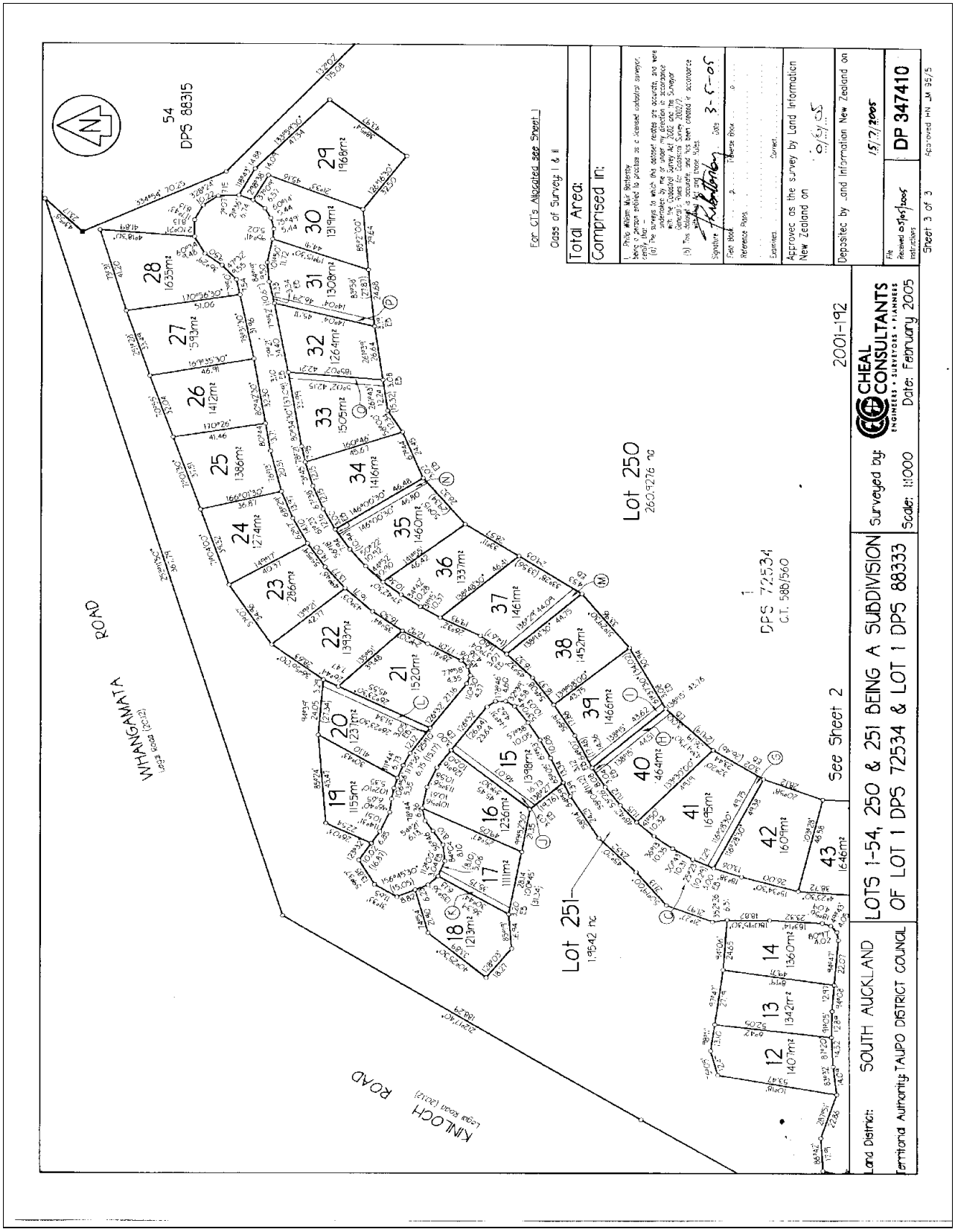
Identifier **194821**



Identifier **194821**



Identifier **194821**



CONO 6496391.1 Consen
Cpy - 01/06, Pgs - 005, 14/07/05, 11:28
DocID: 511248284

TAUPO DISTRICT COUNCIL

CONSENT NOTICE

Section 221 Resource Management Act 1991

Subdivider: Kinloch Golf Resort Limited [2001-192]

Subdivision: *(Legal Description)* Lots 1 to 54, 250 and 251 being a Subdivision of Lot 1 DPS 72534 and Lot 1 DPS 88333

Location: Kinloch Road, Kinloch

Plan No.: DP 347410

TAKE NOTICE that a resource consent [subdivision] has been granted to the subdivider pursuant to Sections 94, 104, 105 and 405[I] of the Resource Management Act 1991 upon condition [inter alia] –

i) That there be registered upon the title to Lots 26 and 27 Deposited Plan 347410 a condition stating that at the time the existing woolshed building is removed from the lots, the existing unformed Whangamata Road entrance to the existing woolshed shall be closed off and the grassed road berm reinstated, and

ii) That there be registered upon the titles of Lots 1 to 54 Deposited Plan 347410 that payment of a development levy to the value of 0.5% of the total value of each of the residential buildings be paid prior to the occupation of each of the houses on those said lots, and

iii) That there be registered against the titles of Lots 1 to 54 Deposited Plan 347410 that development on the abovementioned lots is subject to the building coverages and plot ratios as specified in the Bulk & Location plan 2001-192-901 and schedule 2001-192-015BL attached to plans.

iv) That there be registered upon the titles of Lots 1 to 54 Deposited Plan 347410 the following conditions:

- One single dwelling household unit only may be built on the lots
- The exterior surfaces of all household units and any accessory buildings shall have exterior surfaces including roofs but excluding windows finished in reflective materials not exceeding 37% reflectivity, or in natural wood, earth or stone finishes
- The exterior cladding and roofs of all dwellings shall be clad in a material or painted in a colour of natural or earth toning to complement the surrounding rural area.

v) That there be registered on the certificate of title of Lot 250 Deposited Plan 347410 that the water pumping station servicing Lots 1 to 54 on Deposited Plan 347410 be owned and operated by the owner of said Lot 250 until such time as public supply with suitable pressure is installed.

This consent notice shall be deemed to be the covenant containing such a restriction.

TO: The District Land Registrar
South Auckland Registry

for registration please.

AND TO: Kinloch Golf Resort Limited
P O Box 1198
Auckland 1015

Dated this 3rd day of May 2005.

Signed: _____

Simon Rowbotham
Chief Executive Officer
Taupo District Council

Landonline User ID: ramilliesaslau

LODGING FIRM: Ramillies Agency Services

Address: PO Box105472

Auckland

DX CP21515

Uplifting Box Number: 206

ASSOCIATED FIRM: Claymore Management Ltd

Client Code / Ref: 29-21

HEREWITH

Survey Plan (#)	
Title Plan (#)	
Traverse Sheets (#)	
Field Notes (#)	
Calc Sheets (#)	
Survey Report	
Other (state)	

Dealing / SUD Number (LINZ Use only)

Priority Barcode/Date Stamp (LINZ use only)

Scott Auckland

CONO 6496391.1 Consen

Cpy – 02/06,Pgs – 005,14/07/05,11:28

Copies (inc. original)

DocID: 511248284

Plan Number Pre-Allocated or to be Deposited: Plan 347410

Rejected Dealing Number:

RECEIVED 14 JUL 2005

Priority Order	CT Ref.	Type of Instrument	Names of Parties	DOCUMENT OR SURVEY FEES	MULTI-TITLE FEES		NOTICES		ADVERTISING	NETWORK TITLES		OTHER	RE-SUBMISSION & PRIORITY FEE	FEES $ GST INCLUSIVE
1	58B/560 69D/931	C221	Taupo District Council	50.00	1	$2								$52.00
2	As Above & 40D/874	EI (PSE)	Kinloch Golf Resort Ltd - HS & SD Hancock	50.00	1	$2								$52.00
3	558/560	EI (SE)	Kleg Ltd - Kinloch Golf Resort Ltd	50.00										$50.00
4	58B/560 69D/931 69D/931	PRAG	Waikato Regional Council (H083274)	NIL ~~50.00~~	1	$2								$~~52~~.00
5	As Above	OCT	Kinloch Golf Resort Ltd							55	$5,830			$5,830.00
6	194825	EI	Kinloch Golf Resort Ltd - Telecom NZ Ltd	50.00										$50.00

Land Information New Zealand Lodgement Form

Fees Receipt or Tax Invoice

GST Registered Number 17-022-895

LINZ Form P005

LINZ Form P005 - PDF

Annotations (LINZ use only)

Original Signatures? _____

Subtotal (for this page)	$6,086.00
Total for this dealing	$6,882.00
Less Fees paid on Dealing #	6496-00
Debit my Account for	~~$6,882.00~~

Version 1.7: 28 May 2004

Landonline User ID: ramilliesaslau

LODGING FIRM: Ramillies Agency Services

Dealing / SUD Number: (LINZ Use only) CONO 6496391.1 Consen
Cpy – 03/06,Pgs – 005,14/07/05,11:28

Priority Barcode/Date Stamp (LINZ use only)

Copies (inc. original)

DocID: 511248284

Plan Number Pre-Allocated or Plan Number to be Deposited: Plan 347410

Client Code / Ref: 29-21

Rejected Dealing Number:

[Priority Order]	[CT Ref.]	[Type of Instrument]	[Names of Parties]	DOCUMENT OR SURVEY FEES	MULTI-TITLE FEES		NOTICES		ADVERTISING		NEW TITLES		OTHER	RE-SUBMISSION & PRIORITY FEE	FEES $ GST INCLUSIVE
7	194825	EI	Kinloch Golf Resort Ltd - Unison Networks Ltd	50.00											$50.00
8	194784 194789 194825 194808	EI	Kinloch Golf Resort Ltd - Taupo District Council	50.00	3	$6									$56.00
9	See Schedule	EI	Knloch Golf Resort Ltd - Kinloch Golf Resort Ltd	50.00	10	$20									$70.00
10	See Schedule	EI	Kinloch Golf Resort Ltd - Kinloch Golf Resort Ltd	50.00	54	$108									$158.00
11	194770 -194823	Enc	Kinloch Golf Resort Ltd - Kinloch Golf Resort Owners Asoc	50.00	53	$106									$156.00
12	194825	PDM	Covenant TrusteeCo Ltd	50.00											$50.00
13	194825	PDM	ASB Bank Ltd	50.00											$50.00

Land Information New Zealand Lodgement Form

Fees Receipt and Tax Invoice

GST Registered Number 17-023-895

LINZ Form P005

Annotations (LINZ use only)

Subtotal (for this page) $590.00

Running Total for Page 2 - $796.00

Landonline User ID: ramilliesaslau

LODGING FIRM: Ramillies Agency Services

Dealing / SUD Number: (LINZ Use only)

Priority Barcode/Date Stamp: (LINZ use only)

CONO 6496391.1 Consen
Cpy – 04/08,Pgs – 005,14/07/05,11:28
Copies (inc. original)
DocID: 511248264

Plan Number Pre-Allocated or Plan Number to be Deposited: Plan 347410

Client Code / Ref: 29-21

Rejected Dealing Number:

[Priority Order]	[CT Ref]	[Type of Instrument]	[Names of Parties]	DOCUMENT OR SURVEY FEES	MULTI-TITLE FEES		NOTICES		ADVERTISING		NEW TITLES		OTHER	RE-SUBMISSION & PRIORITY FEE	FEES $ GST INCLUSIVE
14	194770	T	Kinloch Golf Resort Ltd - Kinloch Golf Resortt Owners As	50.00											$50.00
~~12~~	194770-194823 incl	Deed	Kinloch Golf Resort Ltd - Kinloch Golf Resort Owners Inc	50.00	53	~~$106~~									$156.00
9															
10															
11															
12															
13															

Land Information New Zealand Lodgement Form

Fees Receipt and Tax Invoice

Co Registered Number 17-022-895

LINZ Form P005

Annotations (LINZ use only)

Subtotal (for this page) $206.00

Running Total for Page 2 - $590.00

TITLE SCHEDULE

Landonline User ID: ramilliesaslau
LODGING FIRM: Ramillies Agency Services
Client Code / Ref: 29-21

Line Number	CT Ref:
1	
2	
3	
4	

Line Number	CT Ref:
5	
6	
7	
8	

Line Number	CT Ref:
9	194820 194802 194817 194814 194825 194810 194800 194809 194786 194825 194806 194804
10	194770 -194823inc 194824 194825
11	
12	

Line Number	CT Ref:
13	
14	
15	
16	

Line Number	CT Ref:
17	
18	
19	
20	

GREAT LAKE TAUPŌ
Taupō District Council

Development Contributions Assessment

Consent Reference: **BC170355**

Applicant: **Murray Jones**
Address: **808 Acacia Bay Road**
TAUPO 3330

Development Levy Payable:

	Lot	Valuation	% Used	Total
Development Levy	52	$650,000	0.5%	$3,250
			Subtotal (excl GST)	$3,250

TOTAL (incl GST)	**$3,737.50**

A development levy of 0.5% on the value of the building work is payable in accordance with the consent notice on the title.

On request, an invoice will be issued which will be payable on the 20th of the following month.

For any queries regarding this assessment please contact the Development Contributions Officer on (07) 376 0899.

Assessed by: Kim Smillie

K. M. Smillie

_____
DEVELOPMENT PLANNER

Reviewed by: Scott Devonport

Date: 22.05.17

Project Information Memorandum sent to agent/owner 22/05/17 - A1948725

From: Tech Support
Sent: Monday, 22 May 2017 12:19 p.m.
To: 'clint.bramley@callplus.net.nz'
Cc: 'dreamworx@xtra.co.nz'
Subject: Project Information Memorandum
Attachments: Project Information Memorandum.pdf

Good afternoon,

Please find attached the Project Information Memorandum issued for the proposed works at 6 The Fairways, Kinloch.

The cost associated with this will be included in the invoice for the building consent which will follow in due course.

Kind regards

Krystal Foden Business Support Officer

Taupo District Council • 72 Lake Terrace, Taupo 3330

Private Bag 2005 • Taupo Mail Centre • Taupo 3352 • New Zealand

D +64 7 376 0877 **T** +64 7 376 0899 **E** kfoden@taupo.govt.nz or businesssupport@taupo.govt.nz

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www.taupo.govt.nz

GREAT LAKE TAUPŌ
Taupō District Council

PROJECT INFORMATION MEMORANDUM

Section 34, Building Act 2004

BC No: 170355

This Project Information Memorandum is not a building consent to build. It is confirmation that the proposed building work may be undertaken once any notices and/or certificates attached to this memorandum have been complied with and any additional authorisations you are required to obtain have been obtained. Commencement of the work is also subject to the provisions of the Building Act 2004 and requires a building consent. ***THIS IS NOT A BUILDING CONSENT.***

Owner Name: Murray Jones
Owner Address: 808 Acacia Bay Road, Taupo 3330
Property Location: 6 The Fairways, Kinloch
Valuation Number: 0738183051
Legal Description: Lot 52 DP 347410
Building Name: Jones Residence
Description of Work: Proposed new residence

Engineering Comment:

Stormwater

- No piped council stormwater system is provided for this site and all runoff from roofs and paving must be disposed of onsite (i.e. to soakholes).
- Silt-laden stormwater runoff from the construction site is not permitted as it damages stormwater systems and adjacent property. Erosion and silt control measures must be put in place and maintained until the site is stable and has been re-grassed.

Wastewater

- There is a connection provided to the Taupo District Council sewerage system for the disposal of all wastewater from the site. Refer to the Taupo District Council services plans.

Water

- There is a connection provided to the Taupo District Council water supply system. Refer to the Taupo District Council services plan. The water toby box lid shall be set at ground level after any site works.
- If the water to the toby is off, the ferrule on the Taupo District Council adjacent main must be turned on. This can be done by Taupo District Council by applying at Taupo District Council and paying the turn-on fee. Alternatively, your plumber may also do this.

Access

- Access to this site is via a private roadway.

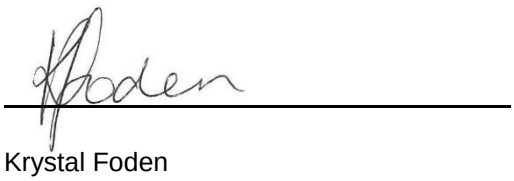
Planning Comment:

- Consent notice requires that exterior surfaces of all house hold units and accessory buildings shall have exterior surfaces including roofs but excluding windows finished in reflective materials not exceeding 37% reflectivity or in natural wood, earth or stone finishes.
- Consent notice also requires that the exterior cladding and roofs of all dwellings shall be clad in a material or painted in a colour of natural or earth toning to complement the surrounding rural area.
- A development levy of 0.5% is payable on the value of the building work in accordance with the consent notice on the title. This will need to be paid prior to Council issuing a CCC for the dwelling.
- The District Plan maps show a fault line running through this property. This was dealt with through the subdivision consent and the Earthtech Consulting Ltd Geotechnical Report dated March 2005. This identified these were not fault lines. The Bulk and Location plan and schedule for these sites that is referred to in the consent notice are based on this information meaning that no resource consent is required.

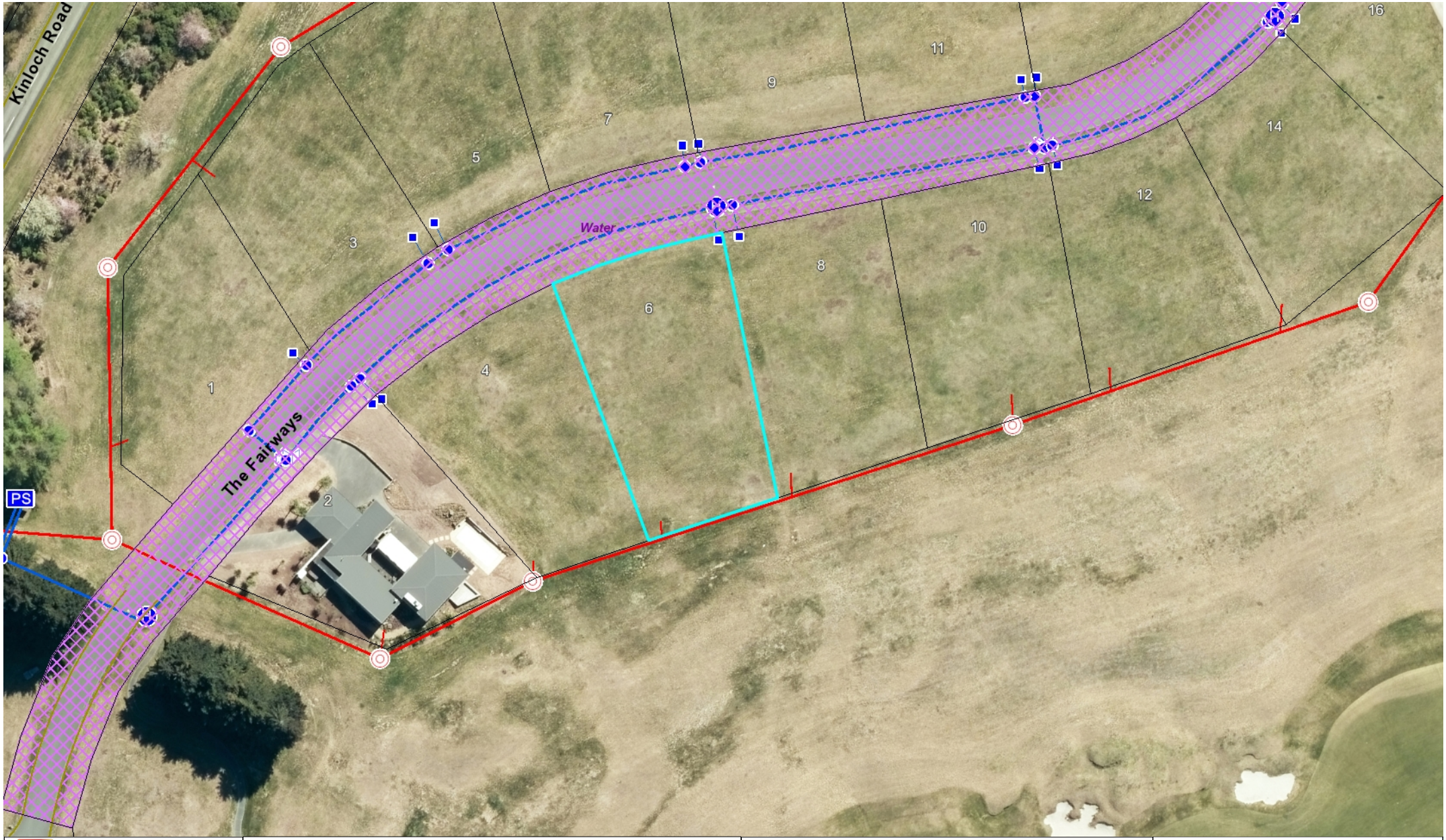
Attachments *(The following attachments are included with this Project Information Memorandum):*

- Services plan
- Certificate of Title
- Consent Notice
- Development Levy

Signed for and on behalf of Taupo District Council



Krystal Foden
Business Support Officer
Date: 22/05/17



GREAT LAKE TAUPŌ
Taupō District Council

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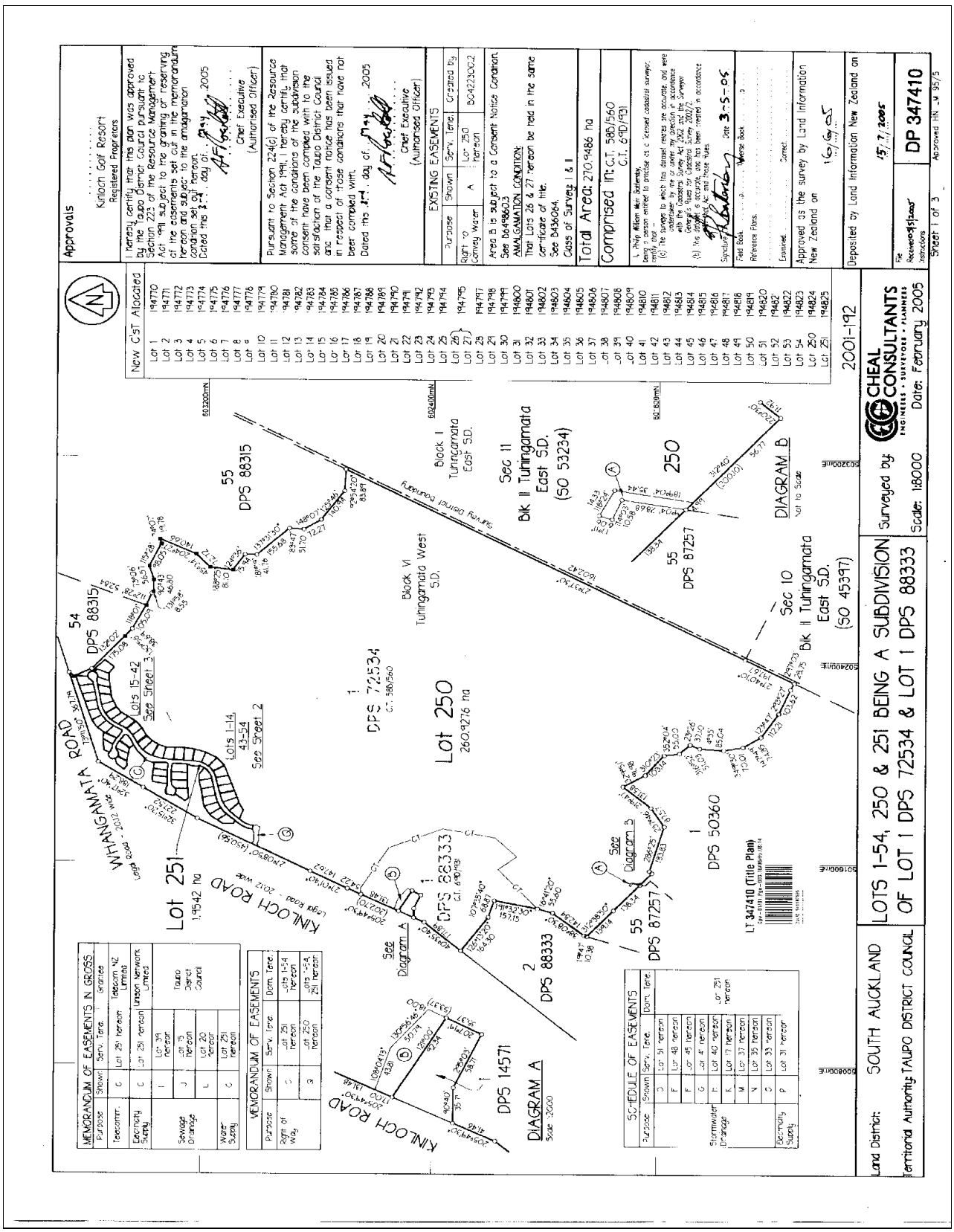
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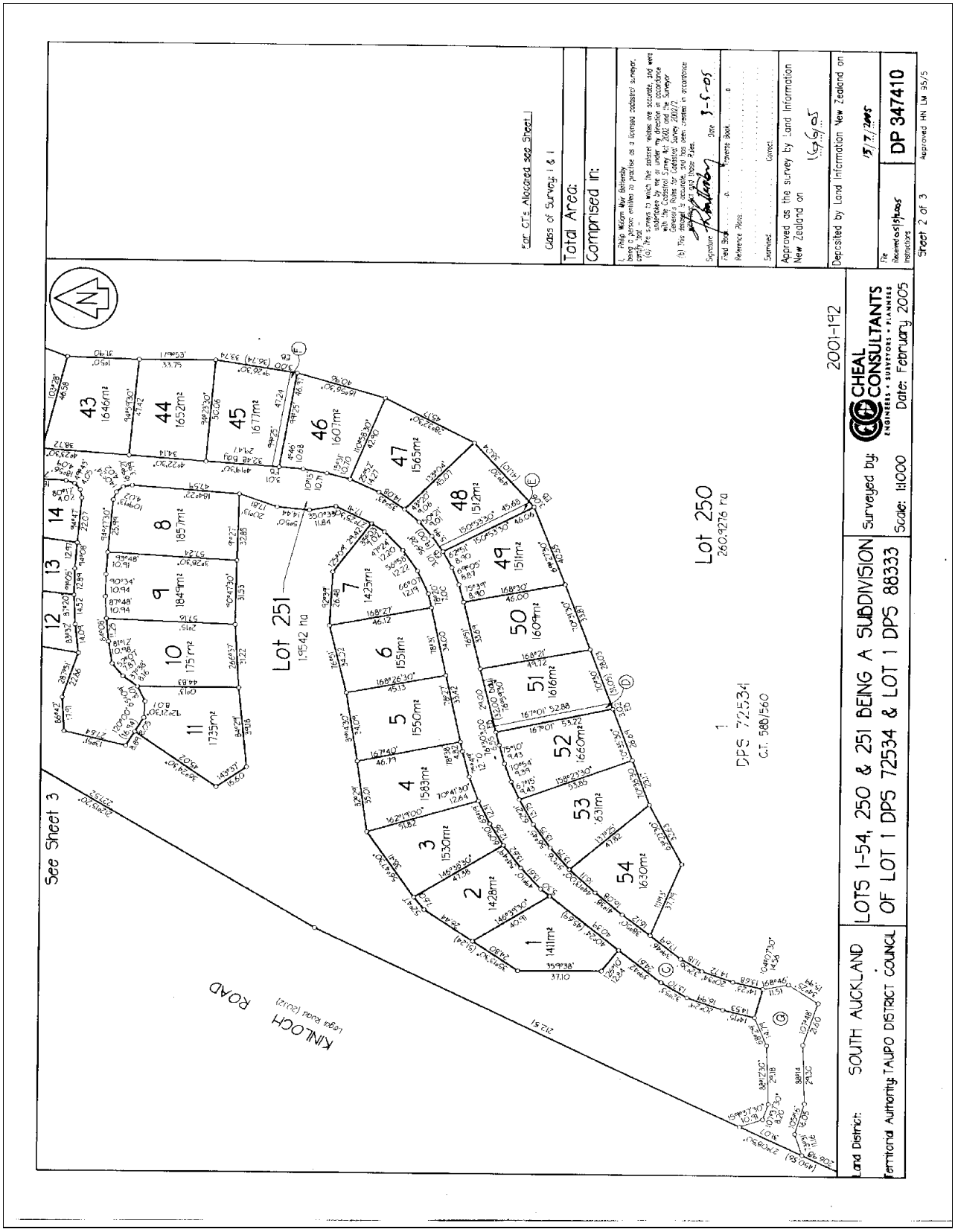
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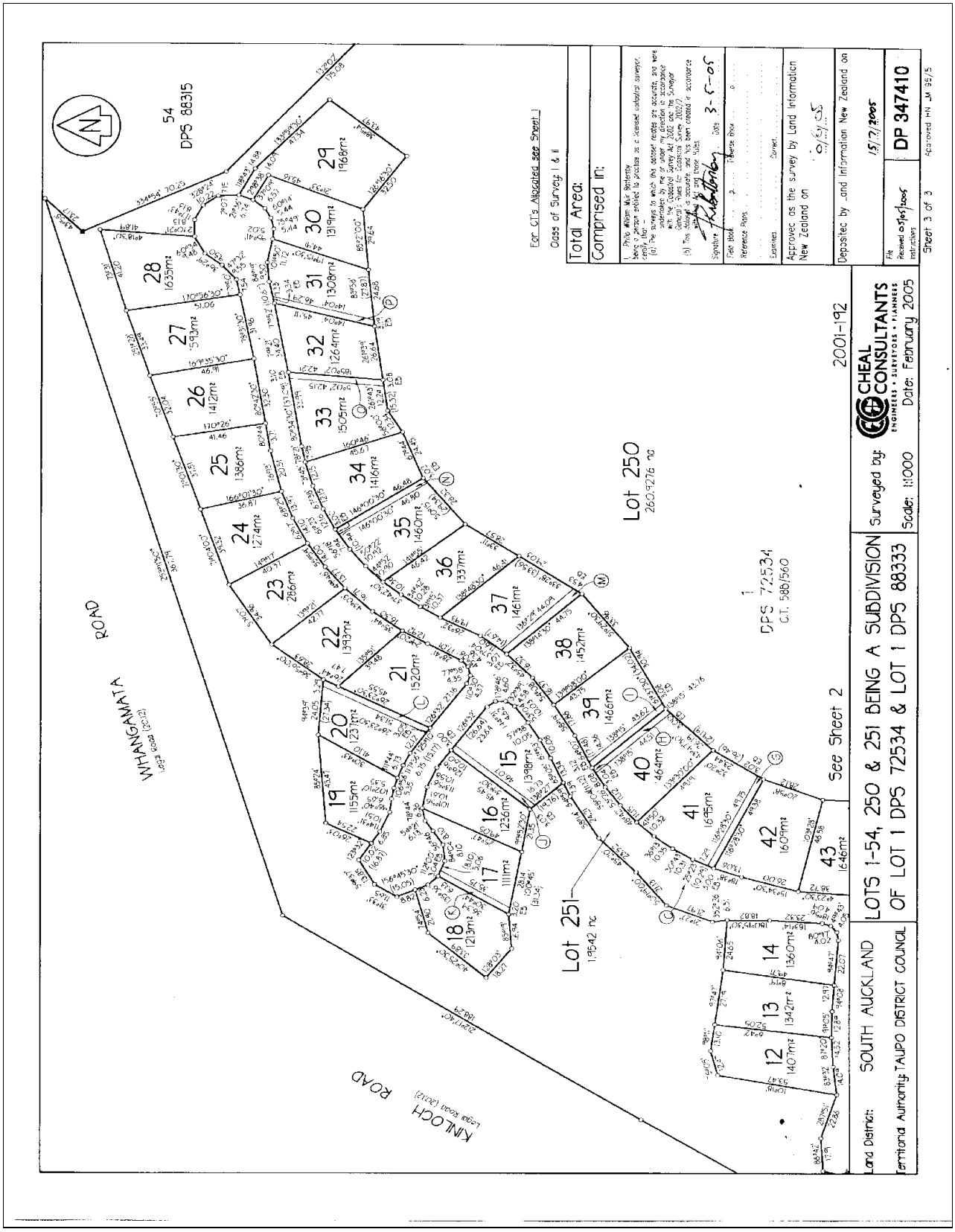
Identifier **194821**



Identifier **194821**



Identifier **194821**



CONO 6496391.1 Consen
Cpy - 01/06, Pgs - 005, 14/07/05, 11:28
DocID: 511248284

TAUPO DISTRICT COUNCIL

CONSENT NOTICE

Section 221 Resource Management Act 1991

Subdivider: Kinloch Golf Resort Limited [2001-192]

Subdivision: *(Legal Description)* Lots 1 to 54, 250 and 251 being a Subdivision of Lot 1 DPS 72534 and Lot 1 DPS 88333

Location: Kinloch Road, Kinloch

Plan No.: DP 347410

TAKE NOTICE that a resource consent [subdivision] has been granted to the subdivider pursuant to Sections 94, 104, 105 and 405[I] of the Resource Management Act 1991 upon condition [inter alia] –

i) That there be registered upon the title to Lots 26 and 27 Deposited Plan 347410 a condition stating that at the time the existing woolshed building is removed from the lots, the existing unformed Whangamata Road entrance to the existing woolshed shall be closed off and the grassed road berm reinstated, and

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v) That there be registered on the certificate of title of Lot 250 Deposited Plan 347410 that the water pumping station servicing Lots 1 to 54 on Deposited Plan 347410 be owned and operated by the owner of said Lot 250 until such time as public supply with suitable pressure is installed.

This consent notice shall be deemed to be the covenant containing such a restriction.

TO: The District Land Registrar
South Auckland Registry

for registration please.

AND TO: Kinloch Golf Resort Limited
P O Box 1198
Auckland 1015

Dated this 3rd day of May 2005.

Signed: _____

Simon Rowbotham
Chief Executive Officer
Taupo District Council

Landonline User ID: ramilliesaslau

LODGING FIRM: Ramillies Agency Services

Address: PO Box105472

Auckland

DX CP21515

Uplifting Box Number: 206

ASSOCIATED FIRM: Claymore Management Ltd

Client Code / Ref: 29-21

HEREWITH

Survey Plan (#)	
Title Plan (#)	
Traverse Sheets (#)	
Field Notes (#)	
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Other (state)	

Dealing / SUD Number (LINZ Use only)

Priority Barcode/Date Stamp (LINZ use only)

Scott Auckland

CONO 6496391.1 Consen

Cpy – 02/06,Pgs – 005,14/07/05,11:28

Copies (inc. original)

DocID: 511248284

Plan Number Pre-Allocated or to be Deposited: Plan 347410

Rejected Dealing Number:

RECEIVED 14 JUL 2005

Priority Order	CT Ref.	Type of Instrument	Names of Parties	DOCUMENT OR SURVEY FEES	MULTI-TITLE FEES		NOTICES		ADVERTISING	NETWORK TITLES		OTHER	RE-SUBMISSION & PRIORITY FEE	FEES $ GST INCLUSIVE
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GST Registered Number 17-022-895

LINZ Form P005

LINZ Form P005 - PDF

Annotations (LINZ use only)

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Debit my Account for	~~$6,882.00~~

Version 1.7: 28 May 2004

Landonline User ID: ramilliesaslau

LODGING FIRM: Ramillies Agency Services

Dealing / SUD Number: (LINZ Use only) CONO 6496391.1 Consen
Cpy – 03/06,Pgs – 005,14/07/05,11:28

Priority Barcode/Date Stamp (LINZ use only)

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8	194784 194789 194825 194808	EI	Kinloch Golf Resort Ltd - Taupo District Council	50.00	3	$6									$56.00
9	See Schedule	EI	Knloch Golf Resort Ltd - Kinloch Golf Resort Ltd	50.00	10	$20									$70.00
10	See Schedule	EI	Kinloch Golf Resort Ltd - Kinloch Golf Resort Ltd	50.00	54	$108									$158.00
11	194770 -194823	Enc	Kinloch Golf Resort Ltd - Kinloch Golf Resort Owners Asoc	50.00	53	$106									$156.00
12	194825	PDM	Covenant TrusteeCo Ltd	50.00											$50.00
13	194825	PDM	ASB Bank Ltd	50.00											$50.00

Land Information New Zealand Lodgement Form

Fees Receipt and Tax Invoice

GST Registered Number 17-023-895

LINZ Form P005

Annotations (LINZ use only)

Subtotal (for this page) $590.00

Running Total for Page 2 - $796.00

Landonline User ID: ramilliesaslau

LODGING FIRM: Ramillies Agency Services

Dealing / SUD Number: (LINZ Use only)

Priority Barcode/Date Stamp: (LINZ use only)

CONO 6496391.1 Consen
Cpy – 04/08,Pgs – 005,14/07/05,11:28
Copies (inc. original)
DocID: 511248264

Plan Number Pre-Allocated or Plan Number to be Deposited: Plan 347410

Client Code / Ref: 29-21

Rejected Dealing Number:

[Priority Order]	[CT Ref]	[Type of Instrument]	[Names of Parties]	DOCUMENT OR SURVEY FEES	MULTI-TITLE FEES		NOTICES		ADVERTISING		NEW TITLES		OTHER	RE-SUBMISSION & PRIORITY FEE	FEES $ GST INCLUSIVE
14	194770	T	Kinloch Golf Resort Ltd - Kinloch Golf Resortt Owners As	50.00											$50.00
~~12~~	194770-194823 incl	Deed	Kinloch Golf Resort Ltd - Kinloch Golf Resort Owners Inc	50.00	53	~~$106~~									$156.00
9															
10															
11															
12															
13															

Land Information New Zealand Lodgement Form

Fees Receipt and Tax Invoice

Co Registered Number 17-022-895

LINZ Form P005

Annotations (LINZ use only)

Subtotal (for this page) $206.00

Running Total for Page 2 - $590.00

TITLE SCHEDULE

Landonline User ID: ramilliesaslau
LODGING FIRM: Ramillies Agency Services
Client Code / Ref: 29-21

Line Number	CT Ref:
1	
2	
3	
4	

Line Number	CT Ref:
5	
6	
7	
8	

Line Number	CT Ref:
9	194820 194802 194817 194814 194825 194810 194800 194809 194786 194825 194806 194804
10	194770 -194823inc 194824 194825
11	
12	

Line Number	CT Ref:
13	
14	
15	
16	

Line Number	CT Ref:
17	
18	
19	
20	

GREAT LAKE TAUPŌ
Taupō District Council

Development Contributions Assessment

Consent Reference: **BC170355**

Applicant: **Murray Jones**
Address: **808 Acacia Bay Road**
TAUPO 3330

Development Levy Payable:

	Lot	Valuation	% Used	Total
Development Levy	52	$650,000	0.5%	$3,250
			Subtotal (excl GST)	$3,250

TOTAL (incl GST)	**$3,737.50**

A development levy of 0.5% on the value of the building work is payable in accordance with the consent notice on the title.

On request, an invoice will be issued which will be payable on the 20th of the following month.

For any queries regarding this assessment please contact the Development Contributions Officer on (07) 376 0899.

Assessed by: Kim Smillie

K. M. Smillie

_____
DEVELOPMENT PLANNER

Reviewed by: Scott Devonport

Date: 22.05.17

2017-05-30 Request for information - A1965512

GREAT LAKE TAUPŌ
Taupō District Council
72 Lake Terrace, Taupō 3330
Private Bag 2005, Taupo Mail Centre
Taupō 3352, New Zealand
T 07 376 0899
F 07 378 0118
E general@taupo.govt.nz
www.taupo.govt.nz

30 May 2017

Murray Jones
808 Acacia Bay Road
Taupo 3330

BC No: 170355

Dear Sir/Madam

PROCESSING OF BUILDING CONSENT APPLICATION
MURRAY JONES - 6 THE FAIRWAYS, KINLOCH
PROPOSED NEW RESIDENCE

The Building Act 2004 requires a Building Consent Authority to be satisfied on reasonable grounds that the provisions of the Building Act and Regulations will be met if the building work were properly completed in accordance with the plans and specifications that accompany the building consent application.

As a code compliance certificate will be issued against the approved plans and specifications it is imperative that the plans and specifications clearly reflect compliance with the building code.

Having assessed your plans and specifications, we require the following additional information to ensure compliance is properly demonstrated and enables the building consent to be issued:

DESIGN MEMORANDUM

1. **Please alter the Design memorandum descriptions to descriptions rather than references to which plan. Eg. Ribraft floor (which should be supervised), NZS3604 wall framing, rafters & Purlins, etc.**

NZBC B1 - SITE CONDITIONS & GROUND BEARING

2. **The subdivision geotech report mentions that the assumptions of good ground are based on a foundation depth of 450mm below final GL. Please clarify if this is still the requirement for this type of foundation.**

NZBC B1 – SITE DIMENSIONS

3. **You have shown the building envelope and the building within it. Are there any additional dimensions required to help locate the building. Its not clear if the building is parallel to any particular boundary.**

NZBC B1 - FOUNDATIONS

4. **Have the engineer clarify that they have considered the 450mm deep footing requirement below final ground level of the geotech report. They do mention minimum 400deep, but it is uncertain what the meaning of this or if it means 400 from the top of the slab. Engineers detail 1A shows a 600max deep footing but it says above CGL which does not relate to below Final GL**

5. **Please clarify the location of piles and bearers for the decks. Although these are not necessarily a consentable item, because they are required for D1 access and are shown on the floor plan and sections they should be indicated on a foundation layout.**

6. **Please note that the geotech report requires foundations to be founded a minimum of 450mm below final ground level. This should include the deck foundations.**

7. **The deck structure does note require bracing where it is less than 2m wide or no more than 600mm above finished GL. Please ensure this has been accounted for.**

NZBC B2 - FOUNDATIONS

8. **Please clarify the grade of fixings for the deck where exposed and less than 600mm above FGL. Also clearly specify the treatment for members within 150mm of the ground. EG bearers and joists at the entrance.**

NZBC B1- WALL STRUCTURE

9. **Clarify the Stud to top plate fixings that are over and above Table 8.19 on sheet A006. IE the extra fixings as per NZS3604:2011.**

10. **Please check lintel sizes to W15 and the computer cupboard. The internal kitchen wall can't be loadbearing without a slab thickening as per Ribraft specifications. Any other internal loadbearing walls supporting the roof should have slab thickenings also, unless it is specifically included in the engineering design. IE. The engineer would need to note that they have confirmed that the slab thickening is not required. Refer to Ribraft manual Clause 4.4 (first sentence).**

11. **Please provide a calculation for the garage door lintel and check the jamb stud sizes for the 5.4m span.**

NZBC B1- ROOF STRUCTURE

12. **Please provide a clean copy of the truss design.**

13. **Please describe what provisions for sag have been included for the purlin-rafters.**

14. **Please provide a calculation for the roof beam trimming the internal gutter and also a design for the cavity slider lintels that they point load on.**

15. **The internal gutter roof beam point loads may need support at foundation level. We won't know this until the calculation is provided.**

NZBC C2 - PREVNETION OF FIRE OCCURRING

16. **I notice on the fireplace elevations and section that the firebox is shown at floor level, however the isometric shows it elevated. The 1280mm dimension on the cross section is shown to the top of the mantel, however the isometric shows it to the bottom of the mantel. There will be a very specific clearance requirement for the mantel that should be checked. Also the thickness of the mantel may be restricted as a result of the dimension. Mantel clearance dimensions are noted on page 13 of the installation instructions.**

17. **Please show how the chimney cap will be supported and confirm if this will need to be a fire-rated board or not.**

18. **The manufacturer’s specifications note on page 20 that the vertically terminated flue kit is intended for installation in an accessible roof space or accessible chimney construction. "Service access must be provided". Please show how this will be achieved.**

NZBC E2 - CLADDING

19. **Please clarify how the deck to wall junction will be formed.**

NZBC E2 - ROOFING

20. **Please clarify the internal gutter width and depth on Detail 08 page A009 to ensure the rainhead outlet can be installed. Note that you can use the rainhead at each end as the overflow if they are interconnected. It is implied on the Detail 11 but should probably be specifically specified on Detail 08**

NZBC G4

21. **Please show how adequate ventilation of the main roof plane will occur given that the structure is formed with purlins rather than rafters with cross purlins above. Ventilation should occur from the lower soffit to the upper.**

NZBC G12

22. **Please clarify where the hotwater heater will be located. It soul be in close proximity to the sink to satisfy H1. Eg. approx 7m.**

NZBC H1

23. **Please indicate which chimney walls will be insulated. Hint: the internal wall will maximise heat being trapped inside the building and not present a large uninsulated void for heat to escape.**

We appreciate that requests for those items may be frustrating but unless compliance can be clearly demonstrated a building consent cannot be granted. We have suspended processing this building consent until the above information is provided. Please be assured of our earliest attention to completion of processing and issue of building consent on receipt of this information.

Please note that if the requested information is not received within 20 working days of the date of this letter then the application may be refused pursuant to Section 48 (1)(b) of the Building Act 2004.

For further enquiries please contact me on (07) 376 0769.

Yours sincerely,



Jason Rameka
Building Control Officer

Producer Statement Template - Fireplace - A1978104

GREAT LAKE TAUPŌ
Taupō District Council

Producer Statement Construction
Solid fuel heating appliance

All sections of this form must be completed

TO BE COMPLETED BY THE PERSON WHO HAS UNDERTAKEN THE BUILDING WORK

Installer company: _____ BC number: _____

Installer name: _____ Certified installer/registration no: _____

Description of work: _____

_____

Make of fire: _____ Model of fire: _____

Serial number: _____

Legal description: _____

Site address: _____

NZBC clauses *(circle as applicable)*:

B1	B2	C1	E2	G10	G11	G12

I have sighted the above building consent and believe, on reasonable grounds, that the solid fuel heating appliance has been installed as per the above building consent and the heater manufacturer's instructions. On existing chimneys, it has been inspected for cracks and bonding to the brick fascia and any repairs necessary have been made.

I understand that Council will rely upon this producer statement, for the purpose of establishing compliance with the above building consent.

Signature: _____ Date: _____

Installer's contact details:

Address: _____ Postcode: _____

Phone: _____ Fax: _____

Mobile: _____ Email: _____

Producer Statement Template - General construction work - A1978105

GREAT LAKE TAUPŌ
Taupō District Council

Producer Statement Construction (PS3)

General construction work

All sections of this form must be completed

TO BE COMPLETED BY THE PERSON WHO HAS UNDERTAKEN THE BUILDING WORK

Author company: _____ BC number: _____

Author name: _____ Author registration number: _____

Description of work: _____

_____

_____

_____

_____

Legal description: _____

Site address: _____

NZBC clauses *(circle as applicable)*:

B1	B2	C1	C2	C3	C4	C5	C6	C7	D1	D2	E1
E2	E3	F1	F2	F3	F4	F5	F6	F7	F8	G1	G2
G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14
G15	H1										

I have sighted the above building consent and read the attached conditions of consent and confirm that I have undertaken the building work described above in accordance with the consented plans and specifications.

I understand that Council will rely upon this producer statement, for the purpose of establishing compliance with the above building consent.

Signature: _____ Date: _____

Tradesperson's contact details:

Address: _____ Postcode: _____

Phone: _____ Fax: _____

Mobile: _____ Email: _____

Record-of-Building-Work-template - A1978106

Memorandum from licensed building practitioner: Record of building work

Section 88, 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:	
Suburb:	
Town/City:	Postcode:

THE PROJECT
Building consent number:

THE OWNER(S)	
Name(s):	
Mailing address:	
Suburb:	PO Box/Private Bag:
Town/City:	Postcode:
Phone number:	Email address:

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

PRIMARY STRUCTURE

Work that is restricted building work	Description of restricted building work	Carried out or supervised
Tick ✓	If necessary, describe the restricted building work.	Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work.
Foundations and subfloor framing ☐		☐ Carried out ☐ Supervised
Walls ☐		☐ Carried out ☐ Supervised
Roof ☐		☐ Carried out ☐ Supervised
Columns and beams ☐		☐ Carried out ☐ Supervised
Bracing ☐		☐ Carried out ☐ Supervised
Other ☐		☐ Carried out ☐ Supervised

EXTERNAL MOISTURE MANAGEMENT SYSTEMS		
Work that is restricted building work	**Description of restricted building work**	**Carried out or supervised**
Tick ✓	If necessary, describe the restricted building work.	Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work.
Damp proofing ☐		◯ Carried out ◯ Supervised
Roof cladding or roof cladding system ☐		◯ Carried out ◯ Supervised
Ventilation system (for example, subfloor or cavity) ☐		◯ Carried out ◯ Supervised
Wall cladding or wall cladding system ☐		◯ Carried out ◯ Supervised
Waterproofing ☐		◯ Carried out ◯ Supervised
Other ☐		◯ Carried out ◯ Supervised

ISSUED BY

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

Name:	LBP number:
Class(es) licensed in:	
Plumbers, Gasfitters and Drainlayers registration number (if applicable):	
Mailing address (if different from below):	
Street address/Registered office:	
Suburb:	Town/City:
PO Box/Private Bag	Postcode:
Phone number:	Mobile:
After hours:	Fax:
Email address:	Website:

DECLARATION

I _____ carried out or supervised the restricted building work recorded on this form.

Signature: _____

Date: _____

Restricted building work notice - A1978107

GREAT LAKE TAUPŌ
Taupō District Council
72 Lake Terrace, Taupō 3330
Private Bag 2005, Taupo Mail Centre
Taupō 3352, New Zealand
T 07 376 0899
F 07 378 0118
E general@taupo.govt.nz
www.taupo.govt.nz

RESTRICTED BUILDING WORK
LICENSED BUILDING PRACTITIONERS NUMBERS

Due to the implementation of the Licensed Building Practitioners (LBP) scheme under the Building act 2004 in April this year, there were a number of changes to the way work is carried out and the information that is provided to Council. Council now require all LBP license numbers to be supplied prior to the Restricted Building work being undertaken, therefore, in order to ensure this requirement is met, we are now requesting that the LBP number; either be provided at the time of lodging the building consent or at the time of booking inspections.

As of **31 October 2012**, Inspections for Restricted Building work will not be booked without a current LBP number. Licensed Building Practitioner numbers must be submitted for ALL trades Building Act 2004

Building Act 2004
Section 87 Owner must notify names of licensed building practitioners engaged in restricted building work

(1) Before restricted building work commences under a building consent, the owner must give the building consent authority written notice of the name of every licensed building practitioner who –

(a) is engaged to carry out, or supervise, the restricted building work under the building consent; and
(b) was not stated in the application for the building consent under section 45(1)(e).

(2) After any restricted building work commences under a building consent the owner must give the building consent authority a written notice if-

(a) a licensed building practitioner ceases to be engaged to carry out, or supervise , the restricted building work under the building consent; or
(b) another licensed building practitioner is engaged to carry out, or supervise the restricted building work

For inspection bookings please contact Customer services on (07)376 0899

Kelvin Short
Team Leader Building

Required items for building consent - 170355 - A1978121

GREAT LAKE TAUPŌ
Taupō District Council

REQUIRED ITEMS FOR BUILDING CONSENT BC 170355

Inspections Required

The following inspections are required:

1	Prefloor Plumbing and Drainage	(under slab/floor drains and plumbing)
1	Prefloor Building	(polythene, mesh, reinforcement, bracing connections etc)
1	Sanitary Sewer/Drainage	(sewer connection, storm-water, materials, septic tank, falls etc)
1	Framing Inspection	(wall and roof framing, connections and fittings, timber sizes & treatments, bracing and fixings)
1	Pre-Ext Cladding Systems-Building	(cavities, head, jamb, sill flashings & wraps penetrations, cavities fixings etc prior to installation of exterior cladding. Brick veneer at ½ height)
1	Half High Brick	(Eldorado Stone)
1	Preline Plumbing	(internal plumbing and fittings, pressure test)
1	Preline Building	(exterior claddings & joinery, insulation, bracing, timber moisture content, fire protection glazing, building systems etc)
1	Post Lining	(wall bracing, fixings, fire protection, etc)
1	Code Compliance - Building (Single Dwelling Only)	(Surface finishes, access & egress, fire safety features, weathertightness, as per approved plans etc)
10	Total Inspections	

APPROVED CONSENT COPY
THESE PLANS AND SPECIFICATIONS ARE APPROVED SUBJECT TO THE PROVISIONS OF THE BUILDING ACT 2004 AND IT'S REGULATIONS. A FULL (PRINTED) COPY OF DRAWINGS AND SPECIFICATIONS ARE TO BE RETAINED ON SITE IN GOOD ORDER AND PRODUCED UPON REQUEST.

Documentation Required

The following documentation is required:

CCC application form	
Drainage as-built	
Electrical Certificate	
Gas Certificate	
Correct siting form	
Pre-floor plumbing as built	
PS3 General	SEE ADVICE NOTES FOR LIST
PS3 Fireplace	
Truss Manufacturers Asbuilt Plan (B1)	
Water Proofing Certificate - Internal (E3) Tilers membrane	PS3 - ARDEX SUPERFLEX WPM

The above list is an indication only of the inspections that may need to be carried out to ensure the work complies with the building consent. Additional inspections may be required to satisfy the requirements of Section 90 of the Building Act 2004. Persons carrying out building work are to ensure that adequate inspections are carried out to enable the Building Consent Authority to be satisfied the work complies with the consent as required by Section 94(1)(a) of the Building Act 2004.

Please ensure that all relevant components are inspected and 'signed off' by Taupō District Council building control staff before progressing to the next stage and all conditions/notes are complied with.

Inspection Bookings:
*For **Taupō & Mangakino** phone (07) 376 0899*
*For **Turangi** phone (07) 386 7017*

Licensed Building Practitioner Forms Required

The following Restricted Building Work must be carried out or supervised by a registered Licensed Building Practitioner (LBP) and a Record of Building Work form signed by each LBP is required at the completion of the work.

Design 1	Designer - Clint Bramley - LBP 112493
Design 2	Engineer - David Dekker - CPEng 1003026
Carpentry 1	
Foundations 1	
Roofing 1	

Advice Notes

#When all building work authorised by this building consent is complete written application should be made to Taupo District Council for a CODE COMPLIANCE CERTIFICATE. If no application has been made, Taupo District Council must decide whether to issue the CCC after 2 years of the building consent being granted. An application form for this purpose is enclosed.

#Drainage/as built plans including stormwater drains and soakholes, are to be provided, drawn to scale, and all parts clearly identified at the time of inspection. Failure to do this may result in the inspection not being carried out. A recheck will then be required, which will incur further charges.

All AS/NZS3500:2:2: underslab plumbing to be inspected and tested with as-built supplied before pipe work is covered up

#PLEASE NOTE: All external cladding's and internal linings that contribute to B1 - Structure, C3 & C6 - Protection from Fire, E2- External Moisture, E3 - Internal Moisture, & G6 - Acoustic and Impact Sound requirements of the Building Code must be installed in strict accordance with the manufacturers specifications and details except where details have been proposed and approved as alternative solutions as part of this consent.

#Prior to a Code of Compliance Inspection being undertaken, an Energy Works certificate shall be provided to the Taupo District Council to demonstrate compliance with Clause G9 and/or G10 and G11 of the NZBC.

#Prior to a Code of Compliance Inspection being carried out, a PS3 from a suitably qualified person is to be supplied stating the fire place has been installed in accordance with the New Zealand Building Code. An application form for this purpose is enclosed.

#Work site barriers, hoardings, fences and gantries (as required) for the protection of the public are required to be in place before any demolition and construction work begins and for the duration of the construction. Council inspectors will monitor this during construction, however where required an inspection for this should be called for before any work begins.

#As agreed prior to granting of consent, At the completion of the works and prior to the issue of the C.C.C, the applicant shall provide the Taupo District Council the following documentation to assist Council in establishing compliance with the NZBC for (PS3 - ELDORADO STONE VENEER & SUBSTRATE)
- Copy of the applicators approval certificate
- A producers statement from the Applicator
- Copy of Manufacturers' warranty

#As agreed prior to granting of consent, At the completion of the works and prior to the issue of the C.C.C, the applicant shall provide the Taupo District Council the following documentation to assist Council in establishing compliance with the NZBC for (PS3 - ARDEX SUPERFLEX WPM)
- Copy of the applicators approval certificate
- A producers statement from the Applicator
- Copy of Manufacturers' warranty

TAUPO DISTRICT COUNCIL

BC170355

APPROVED CONSENT
PLANS/SPECIFICATIONS

PS4 - Soil Bearing Capacity - 170355 - A1981898

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT
PLANS/SPECIFICATIONS

Building Code Clause(s) B1

PRODUCER STATEMENT – PS4 – CONSTRUCTION REVIEW

(Guidance notes on the use of this form are printed on page 2)

APPROVED CONSENT COPY
THESE PLANS AND SPECIFICATIONS ARE APPROVED SUBJECT TO THE PROVISIONS OF THE BUILDING ACT 2004 AND IT'S REGULATIONS. A FULL (PRINTED) COPY OF DRAWINGS AND SPECIFICATIONS ARE TO BE RETAINED ON SITE IN GOOD ORDER AND PRODUCED UPON REQUEST.

ISSUED BY: CHEAL CONSULTANTS LIMITED
(Construction Review Firm)

TO: Murray Jones
(Owner/Developer)

TO BE SUPPLIED TO: Taupo District Council
(Building Consent Authority)

IN RESPECT OF: Soil Bearing Capacity for RibRaft Foundation
(Description of Building Work)

AT: 6 The Fairways, Kinloch, Taupo
(Address)
LOT 52 **DP** 347410 **SO**

Cheal Consultants Ltd. has been engaged by Murray Jones
(Construction Review Firm)

To provide ☐CM1 ☐CM2 ☐CM3 ☐CM4 ☐CM5 *(Engineering Categories)* or ■ observation as per agreement with owner/developer

or ☐other confirm bearing capacity of soils for construction of RibRaft foundation services
(Extent of Engagement)

in respect of clause(s) B1 of the Building Code for the building work described in documents relating to Building Consent No. BC170355 and those relating to Building Consent Amendment(s) Nos. N/A issued during the course of the works. We have sighted these Building Consents and the conditions of attached to them.

Authorised instructions / variations(s) No. Site Record 01 (20 June 2017) (copies attached)

or by the attached Schedule ■ have been issued during the course of the works.

On by the basis of ■this ☐these review(s) and information supplied by the contractor during the course of the works and **on behalf of the firm** undertaking this Construction Review, **I believe on reasonable grounds** that ☐All ■Part only of the building works have been completed in accordance with the relevant requirements of the Building Consent and Building Consent Amendments identified above, with respect to Clause(s) B1 of the Building Code. I also believe on reasonable grounds that the persons who have undertaken this construction review have the necessary competency to do so.

I, THOMAS BRAND am: ■CPEng No. 1013712
(Name of Construction Review Professional)
☐Reg Arch No. .....

I am a Member of : ■IPENZ ☐NZIA and hold the following qualifications: BSc (Civil), MIPENZ, CPEng, IntPE (NZ)

The Construction Review Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.
The Construction Review Firm is a member of ACENZ : ☐

SIGNED BY THOMAS BRAND **ON BEHALF OF** CHEAL CONSULTANTS LIMITED

Date: 21 June 2017 Signature: 

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

This form is to accompany **Forms 6 or 8 of the Building (Form) Regulations 2004** for the issue of a Code Compliance Certificate.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, IPENZ AND NZIA

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT
PLANS/SPECIFICATIONS

GUIDANCE ON USE OF PRODUCER STATEMENTS

Producer statements were first introduced with the Building Act 1991. The producer statements were developed by a combined task committee consisting of members of the New Zealand Institute of Architects, Institution of Professional engineers New Zealand, Association of Consulting Engineers New Zealand in consultation with the Building Officials Institute of New Zealand. The original suit of producer statements has been revised at the date of this form as a result of enactment of the Building Act (2004) by these organisations to ensure standard use within the industry.

The producer statement system is intended to provide Building Consent Authorities (BCAs) with reasonable grounds for the issue of a Building Consent or a Code Compliance Certificate, without having to duplicate design or construction checking undertaken by others.

PS1 Design Intended for use by a suitably qualified independent design professional in circumstances where the BCA accepts a producer statement for establishing reasonable grounds to issue a Building Consent;

PS2 Design Review Intended for use by a suitably qualified independent design professional where the BCA accepts an independent design professional's review as the basis for establishing reasonable grounds to issue a Building Consent;

PS3 Construction Forms commonly used as a certificate of completion of building work are Schedule 6 of NZS 3910:2013 or Schedules E1/E2 of NZIA's SCC 2011[2]

PS4 Construction Review Intended for use by a suitably qualified independent design professional who undertakes construction monitoring of the building works where the BCA requests a producer statement prior to issuing a Code Compliance Certificate.

This must be accompanied by a statement of completion of building work (Schedule 6).

The following guidelines are provided by ACENZ, IPENZ and NZIA to interpret the Producer Statement.

Competence of Design Professional

This statement is made by a Design Firm that has undertaken a contract of services for the services named, and is signed by a person authorised by that firm to verify the processes within the firm and competence of its designers.

A competent design professional will have a professional qualification and proven current competence through registration on a national competence based register, either as a Chartered Professional Engineer (CPEng) or a Registered Architect.

Membership of a professional body, such as the Institution of Professional Engineers New Zealand (IPENZ) or the New Zealand Institute of Architects (NZIA), provides additional assurance of the designer's standing within the profession. If the design firm is a member of the Association of Consulting Engineers New Zealand (ACENZ), this provides additional assurance about the standing of the firm.

Persons or firms meeting these criteria satisfy the term "suitably qualified independent design professional".

*Professional Indemnity Insurance

As part of membership requirements, ACENZ requires all member firms to hold Professional Indemnity Insurance to a minimum level.

The PI Insurance minimum stated on the front of this form reflects standard, small projects. If the parties deem this inappropriate for large projects the minimum may be up to $500,000.

Professional Services during Construction Phase

There are several levels of service which a Design Firm may provide during the construction phase of a project (CM1-CM5 for Engineers[3]). The Building Consent Authority is encouraged to require that the service to be provided by the Design Firm is appropriate for the project concerned.

Requirement to provide Producer Statement PS4

Building Consent Authorities should ensure that the applicant is aware of any requirement for producer statements for the construction phase of building work at the time the building consent is issued as no design professional should be expected to provide a producer statement unless such a requirement forms part of the Design firm's engagement.

Attached Particulars

Attached particulars referred to in this producer statement refer to supplementary information appended to the producer statement.

Refer Also:

1 Conditions of Contract for Building & Civil Engineering Construction NZS 3910: 2013

2 NZIA Standard Conditions of Contract SCC 2011

3 Guideline on the Briefing & Engagement for Consulting Engineering Services (ACENZ/IPENZ 2004)

4 PN Guidelines on Producer Statements

www.acenz.org.nz
www.ipenz.org.nz
www.nzia.co.nz

TAUPO DISTRICT COUNCIL
BC170355
APPROVED CONSENT
PLANS/SPECIFICATIONS

SITE RECORD 01

Date & Time	20 June 2017 : 7.45am	***Job No.***	17340
Client Name	ScottBuilt Construction NZ Ltd.		
Project	Confirm Bearing Capacity for RibRaft Foundation		
Present	-		
Weather	Fine		
Plant Onsite	-		
Personnel Onsite	Maddison Forde (Cheal), Scott Hadland (ScottBuilt NZ)		
Subcontractors	-		

Item	***Report***	***Action***
1.	**Scala Penetrometer Testing** Cheal Consultants Ltd (Cheal) attended site to carry out Scala Penetrometer Testing (Scalas) on a newly cut/fill building platform (fill less than 600mm thick). The purpose of the Scalas was to confirm bearing capacity of the soils are suitable for construction of a RibRaft foundation. Four Scalas were undertaken over the footprint of the dwelling as per NZS3604:2011. Results for the house are consistent and typically in excess of 5 blows per 100mm. S01 was carried out beneath the proposed garage and returned an average result of 2 blows per 100mm over the top 1.0m of soil tested. A test location plan is included as Figure 1 and test results are attached to this Site Record for reference. A standard Firth RibRaft foundation for a lightweight, single storey residential property requires a minimum of 2 blows per 100mm when tested with a Scala. Therefore, we consider the soils on site suitable for construction of a RibRaft foundation. An extract of the Firth Ribraft Technical Manual is included as Figure 2 for reference.	***No further action required***

MADDISON FORDE
CIVIL/GEOTECHNICAL ENGINEER
CHEAL CONSULTANTS LIMITED

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Photo 1 – Site overview

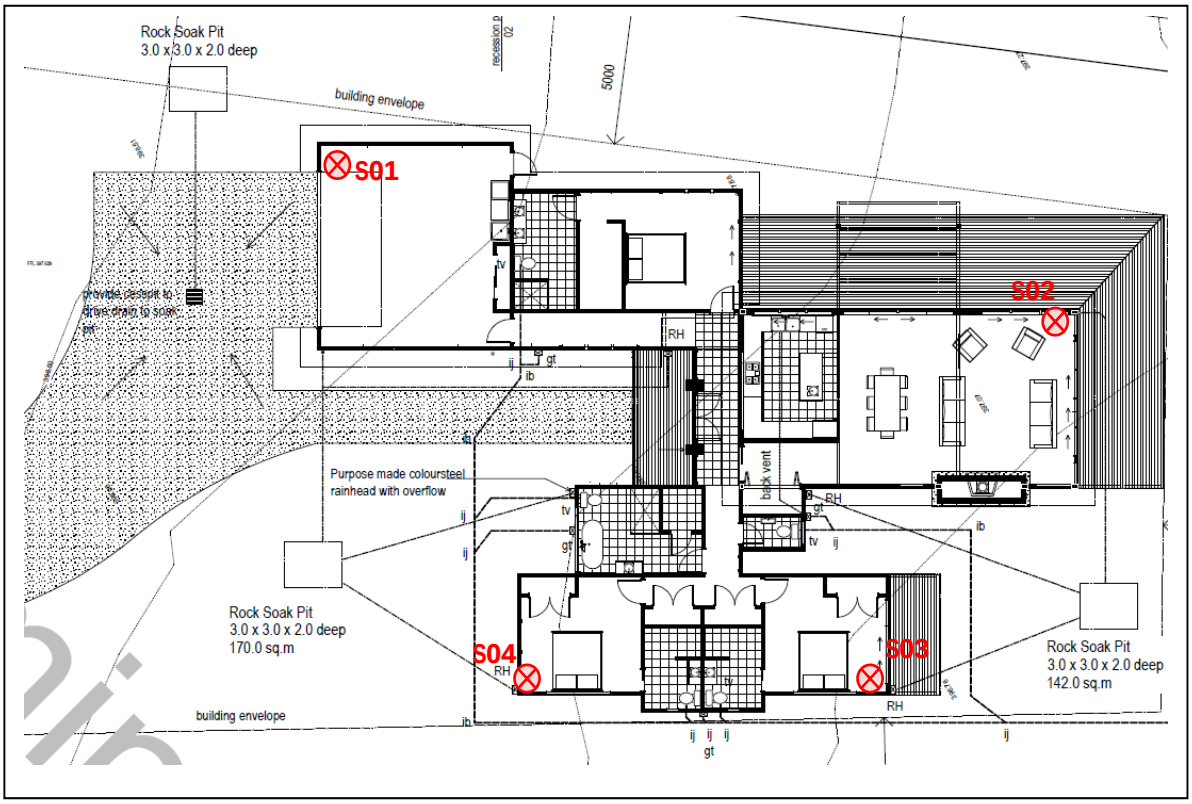


Photo 2 – Cut slope to the north of site



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Figure 1 – Test Location Plan



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Figure 2 - Firth RibRaft Technical Manual Extract

3.2 Live Loading

The live loading cases of structures covered by these designs are:

- 1.5kPa and 3.0kPa as per NZS 3604:2011 "Timber Framed Buildings".
- 13kN concentrated load in garage over area of 0.3 x 0.3m (vehicle limited to 2500kg gross).

3.3 Dead Loading For Use With This Manual

The dead load cases of structures covered by these designs are:

- Light external walls with total mass not exceeding 60kg/m²– e.g. timber framing with weather boards and interior wall linings.
- Heavy external walls with total mass greater than 60kg/m² but not exceeding 290kg/m² – e.g. timber framing with masonry veneer or partially filled 20 series masonry blocks.
- Internal walls with total mass not exceeding 45kg/m² – e.g. timber framing and linings.
- Light roofs with total mass not exceeding 45kg/m² – e.g. ceiling linings and metal roof, including framing.
- Heavy roofs with total mass greater than 45kg/m² but not exceeding 85kg/m² – e.g. ceiling lining and concrete tiles or slates, including framing.
- Mid-floors with total mass not exceeding 60kg/m² – e.g. timber framing and flooring, including ceiling linings.
- Heavy internal walls and/or load bearing internal walls supported on a load bearing rib.

3.4 Building Types

The designs given in this Manual are limited to where the system supports Building Types A to D as described in Table 1. The classification of wall weights is as detailed in Clause 3.3 of this Section. Single and two storey shall be as defined in NZS 3604:2011.

Table 1 *Building Identifier*

Building Type	Description	Ground Floor External Walls	Second Storey External Walls
A	Single Storey	Light	
B	Single Storey	Heavy	
C	Two Storey	Light	Light
D	Two Storey	Heavy	Light

3.5 Foundation Soils

The system may be used when the supporting ground meets the definitions of "good ground" given in Section 3 of NZS 3604:2011: (as modified by B1 of the Building Compliance Documents). In addition, the system shall not be used for damp sites i.e. where it can be reasonably expected that the ground water level could come within 600mm of the underside of the system. The acceptability of the ground shall be verified in accordance with Clause 3.1.3 of NZS 3604:2011.

Where the ultimate bearing capacity required of the supporting ground is verified by Scala Penetrometer testing in accordance with Clause 3.3 of NZS 3604:2011. The bearing capacity shall be considered adequate when the number of blows per 300mm depth of penetration below the underside of the system at each test site, exceeds the values given in Table 2 below. For RibRaft foundations compliance with Table 2 allows ultimate bearing capacities of less than 300kPa. However, with the exception of bearing capacity all other requirements in NZS3604:2011 for "good ground" shall be complied with.

Table 2 *Scala Penetrometer Blows Required For Determining Ultimate Bearing Capacity*

Building Type	Min. blows per 300mm depth
A	6
B	7
C	8
D	9

3.6 Flow Diagrams

The flow diagrams on the following pages (adapted from NZS 3604:2011) will help in determining whether the non-specific details for the system can be used for the purposes of the concrete floor slab construction. There are two checks in the process. The first is to determine whether the proposed building complies with the requirements set out in this Manual (Building Check), and the second is to determine whether the site complies with the requirements set out in this Manual (Site Check).

TAUPO DISTRICT COUNCIL
cheal
BC170355
APPROVED CONSENT
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SCALA PENETROMETER TEST SHEET

CLIENT: Scott Built Construction NZ Ltd.
SITE ADDRESS: 6 The Fairways, Kinloch
JOB DESCRIPTION: Check B.C. for RibRaft

JOB REF: 17340
DATE: 20.06.2017
TEST BY: M.F.

DEPTH: Millimetres Below Ground Level (BGL)	TEST No. / Approximate surface RL								
	S1	S2	S3	S4					
0 - 100	2	3	3	2					
100 - 200	6	5	5	3					
200 - 300	6	5	8	8					
300 - 400	2	5	9	6					
400 - 500	2	6	9	8					
500 - 600	2	4	12	6					
600 - 700	2	3	8	3					
700 - 800	2	4	6	4					
800 - 900	2	4	6	3					
900 - 1000	2	3	8	3					
1000 - 1100	3	1	2	3					
1100 - 1200	4	2	2	6					
1200 - 1300	7	6	2	8					
1300 - 1400	7	6	4	6					
1400 - 1500	6	10	6	8					
1500 - 1600	7	8	6	7					
1600 - 1700	6	5	6	7					
1700 - 1800	7	6	7	7					
1800 - 1900	5	5	6	7					
1900 - 2000	6	6	6	5					
2000 - 2100									
2100 - 2200									
2200 - 2300									
2300 - 2400									
2400 - 2500									
2500 - 2600									
2600 - 2700									
2700 - 2800									
2800 - 2900									
2900 - 3000									
3000 - 3100									
3100 - 3200									
3200 - 3300									
3300 - 3400									
3400 - 3500									
3500 - 3600									
3600 - 3700									
3700 - 3800									
3800 - 3900									
3900 - 4000									

Notes:

Minimum Test Depth as per NZS 3604.....1.0m (1000mm) or 2x width of footing below bottom of footing
Blow count for Good Ground as per NZS 3604.....5 blows/100mm to a depth of 1.0m or 2x width of footing (whichever is the greater)
Blow count for Good Ground as per NZS 3604.....3 blows/100mm below the above depths
Blow count for 100kPa Allowable Bearing Pressure.....4 blows/100mm

Works Order Application - A1982087

GREAT LAKE TAUPŌ
Taupō District Council

WORKS ORDER APPLICATION FOR:
WATER CONNECTION

Date: 22 June 2017

Works Order No: _____ **Code No:** _____

BC No: 170355

Owner Name: Murray Jones **Phone No:** _____

Owner's Address: 808 Acacia Bay Road, Taupo 3330, ,

Property Address: 6 The Fairways, Kinloch

Legal Description: Lot 52 DP 347410

Fee Paid: $140.00 **Receipt No:** _____

Dimensions: Toby Turn On

Assigned Department: Mel Montesa **Target Date:** ASAP

Assigned By: Steph Henson

SKETCH WHERE REQUIRED *(Attach Sheets For Sketch If Required)*

RETURN CHIT (FILL IN WHEN WORK COMPLETE)

Works Order No: _____

Date Work Started: _____ **Date Completed:** _____

Action Taken: _____

Is additional work or further action needed? Yes ☐ No ☐

Describe additional work or action: _____

Signature: _____ **Date:** _____

*BC170355 items to send to applicant - A1982110

From: Jason Rameka
Sent: Thursday, 22 June 2017 1:04 p.m.
To: Tech Support
Subject: Items to send to Applicant - BC170355
Attachments: ObjRef.obr

Categories: Steph Henson

Hi all,

Can this invoice be sent to the applicant and the owner please.
Also the owner has asked to have the documents put onto a USB for the builder to come and pick up. Can this be done as well.

Thanks,

Jason Rameka has sent you links to the following 12 documents from Objective:

"Building plans - 170355" (A1935545)
"Correct siting of building - 170355" (A1978102)
"Drainage As-Laid-Plan - 170355" (A1978103)
"Earthtech Consulting Ltd Geotechnical Report Mar 2005 - 170355" (A1948541)
"Producer Statement Template - Fireplace" (A1978104)
"Producer Statement Template - General construction work" (A1978105)
"PS4 - Soil Bearing Capacity - 170355" (A1981898)
"Record-of-Building-Work-template" (A1978106)
"Required items for building consent - 170355" (A1978121)
"Restricted building work notice" (A1978107)
"Specifications - 170355" (A1935549)
"Specifications - Project specific - 170355" (A1935550)

Open in Navigator
Double click on the attachment

Open in ECM for Browser
Building plans - 170355
https://objective.taupodc.govt.nz:8443/executive/#query=id:A1935545
Correct siting of building - 170355
https://objective.taupodc.govt.nz:8443/executive/#query=id:A1978102
Drainage As-Laid-Plan - 170355
https://objective.taupodc.govt.nz:8443/executive/#query=id:A1978103
Earthtech Consulting Ltd Geotechnical Report Mar 2005 - 170355
https://objective.taupodc.govt.nz:8443/executive/#query=id:A1948541
Producer Statement Template - Fireplace
https://objective.taupodc.govt.nz:8443/executive/#query=id:A1978104
Producer Statement Template - General construction work
https://objective.taupodc.govt.nz:8443/executive/#query=id:A1978105

PS4 - Soil Bearing Capacity - 170355
https://objective.taupodc.govt.nz:8443/executive/#query=id:A1981898
Record-of-Building-Work-template
https://objective.taupodc.govt.nz:8443/executive/#query=id:A1978106
Required items for building consent - 170355
https://objective.taupodc.govt.nz:8443/executive/#query=id:A1978121
Restricted building work notice
https://objective.taupodc.govt.nz:8443/executive/#query=id:A1978107
Specifications - 170355
https://objective.taupodc.govt.nz:8443/executive/#query=id:A1935549
Specifications - Project specific - 170355
https://objective.taupodc.govt.nz:8443/executive/#query=id:A1935550

Open in Your Browser
Building plans - 170355
Latest: https://objective.taupodc.govt.nz/id:A1935545/document/versions/latest
Published: https://objective.taupodc.govt.nz/id:A1935545/document/versions/published
Correct siting of building - 170355
Latest: https://objective.taupodc.govt.nz/id:A1978102/document/versions/latest
Published: https://objective.taupodc.govt.nz/id:A1978102/document/versions/published
Drainage As-Laid-Plan - 170355
Latest: https://objective.taupodc.govt.nz/id:A1978103/document/versions/latest
Published: https://objective.taupodc.govt.nz/id:A1978103/document/versions/published
Earthtech Consulting Ltd Geotechnical Report Mar 2005 - 170355
Latest: https://objective.taupodc.govt.nz/id:A1948541/document/versions/latest
Published: https://objective.taupodc.govt.nz/id:A1948541/document/versions/published
Producer Statement Template - Fireplace
Latest: https://objective.taupodc.govt.nz/id:A1978104/document/versions/latest
Published: https://objective.taupodc.govt.nz/id:A1978104/document/versions/published
Producer Statement Template - General construction work
Latest: https://objective.taupodc.govt.nz/id:A1978105/document/versions/latest
Published: https://objective.taupodc.govt.nz/id:A1978105/document/versions/published
PS4 - Soil Bearing Capacity - 170355
Latest: https://objective.taupodc.govt.nz/id:A1981898/document/versions/latest
Published: https://objective.taupodc.govt.nz/id:A1981898/document/versions/published
Record-of-Building-Work-template
Latest: https://objective.taupodc.govt.nz/id:A1978106/document/versions/latest
Published: https://objective.taupodc.govt.nz/id:A1978106/document/versions/published
Required items for building consent - 170355
Latest: https://objective.taupodc.govt.nz/id:A1978121/document/versions/latest
Published: https://objective.taupodc.govt.nz/id:A1978121/document/versions/published
Restricted building work notice
Latest: https://objective.taupodc.govt.nz/id:A1978107/document/versions/latest
Published: https://objective.taupodc.govt.nz/id:A1978107/document/versions/published
Specifications - 170355
Latest: https://objective.taupodc.govt.nz/id:A1935549/document/versions/latest
Published: https://objective.taupodc.govt.nz/id:A1935549/document/versions/published
Specifications - Project specific - 170355
Latest: https://objective.taupodc.govt.nz/id:A1935550/document/versions/latest
Published: https://objective.taupodc.govt.nz/id:A1935550/document/versions/published

A1935545
A1978102
A1978103
A1948541
A1978104
A1978105
A1981898
A1978106
A1978121
A1978107
A1935549
A1935550

Application for Code Compliance Certificate - A1982678

GREAT LAKE TAUPŌ
Taupō District Council

Application for Code Compliance Certificate

Section 92, Building Act 2004

Please check all owner details and consent information contained in this document are correct and all fields are completed <u>BEFORE</u> submitting this application. Insufficient information will result in the application being placed on hold until the required information is provided.

AN INSPECTION MUST BE BOOKED PRIOR TO SUBMITTING THIS APPLICATION WITH COUNCIL

An inspection has been booked: Date: _____ Time slot: _____

Please record details of booked inspection here

1. The Building Consent

Building consent number: **170355**

Street address of building: 6 The Fairways, Kinloch

Building work undertaken: Proposed new residence

Issued by: Taupo District Council

2. The Owner

Name of owner: Murray Jones

Contact person:

Mailing address: 808 Acacia Bay Road, Taupo 3330

Street address/registered office:

Phone number: Landline: _____ Mobile: 0274 574923

Daytime: _____ After hours: _____

Facsimile number:

Email address: dreamworx@xtra.co.nz

Website:

The following evidence of ownership is attached to this application: *[copy of certificate of title, lease, agreement for sale and purchase, or other document showing full name of legal owner(s) of the building]*

3. The Agent

Name of agent: Murray Jones

Contact person:

Mailing address: 808 Acacia Bay Road, Taupo 3330

Street address/registered office:

Phone number: Landline: _____ Mobile: 0274 574923

Daytime: _____ After hours: _____

Facsimile number:

Email address: dreamworx@xtra.co.nz

Website:

Relationship to owner:

4. First point of contact for communications with the council/building consent authority:

Full Name: Clint Bramley, Urbanform
Mailing Address: PO Box 1604, Taupo
Phones:: 021 544780
Email: clint.bramley@callplus.net.nz

5. Application

All building work to be carried out under the above building consent was completed on: _____

(Date)

The personnel who carried out the building work are as follows ***(where applicable include registration number)***:

Builder: _____

Designer: _____

Drainlayer: _____

Plumber: _____

Electrician: _____

Structural Engineer: _____

6. Compliance Schedule

The following specified systems are contained on the compliance schedule for the building and, in the opinion of the personnel who installed them, are capable of performing to the performance standards set out in the building consent:

_____

_____

_____

_____

_____

7. Signature

I request that you issue a code compliance certificate for this work under section 95 of the Building Act 2004.

The code compliance certificate should be sent to:

☐ Email: _____

☐ Posted: _____

_____

_____

Name of person signing: _____

Signature: _____ Date: _____

of owner/agent on behalf of and with the authority of the owner

8. Attachments

The following documents are attached to this application *(if applicable)*:

☐ Certificates from the personnel who carried out the work

☐ Certificates that related to the energy work

☐ Evidence that specified systems are capable of performing to the performance standards set out in the building consent

Building Consent - A1982682

GREAT LAKE TAUPŌ
Taupō District Council

Building Consent

Section 51, Building Act 2004

BC No: 170355

The Building

Street address of building: 6 The Fairways, Kinloch

Legal description of land where building is located: Lot 52 DP 347410

Valuation number: 0738183051

Building name: Jones Residence

Location of building within site/block number: 6 The Fairways, Kinloch

Level/unit number: N/A

The Owner

Name of owner: Murray Jones

Contact person: Murray Jones

Mailing address: 808 Acacia Bay Road, Taupo 3330

Street address/registered office: Unknown

Phone number: **Landline**: Unknown **Mobile**: 0274 574923

Daytime: Unknown **After hours**: Unknown

Facsimile number: Unknown

Email address: dreamworx@xtra.co.nz

Website: Unknown

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

Full Name: Clint Bramley, Urbanform

Mailing Address: PO Box 1604, Taupo

Phones: 021 544780

Email: clint.bramley@callplus.net.nz

Building Work

The following building work is authorised by this building consent:

Proposed new residence

This building consent:

- Is issued under section 51 of the Building Act 2004.
- Does not relieve the owner of the building (or proposed building) of any duty or responsibility under any other Act relating to or affecting the building (or proposed building).

- Also does not permit the construction, alteration, demolition, or removal of the building (or proposed building) if that construction, alteration, demolition, or removal would be in breach of any other Act.

This building consent is issued subject to the following conditions and advice notes:

1. Condition: It is a condition of this consent that agents authorized by the building consent authority for the purposes of section 90 of the Building Act 2004 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.

2. **Drainage/as built plans including stormwater drains and soakholes, are to be provided, drawn to scale, and all parts clearly identified at the time of inspection. Failure to do this may result in the inspection not being carried out. A recheck will then be required, which will incur further charges. All AS/NZS3500:2:2: underslab plumbing to be inspected and tested with as-built supplied before pipe work is covered up**
3. **PLEASE NOTE: All external cladding"s and internal linings that contribute to B1 - Structure, C3 & C6 - Protection from Fire, E2- External Moisture, E3 - Internal Moisture, & G6 - Acoustic and Impact Sound requirements of the Building Code must be installed in strict accordance with the manufacturers specifications and details except where details have been proposed and approved as alternative solutions as part of this consent.**
4. **Prior to a Code of Compliance Inspection being undertaken, an Energy Works certificate shall be provided to the Taupo District Council to demonstrate compliance with Clause G9 and/or G10 and G11 of the NZBC.**
5. **Prior to a Code of Compliance Inspection being carried out, a PS3 from a suitably qualified person is to be supplied stating the fire place has been installed in accordance with the New Zealand Building Code. An application form for this purpose is enclosed.**
6. **Work site barriers, hoardings, fences and gantries (as required) for the protection of the public are required to be in place before any demolition and construction work begins and for the duration of the construction. Council inspectors will monitor this during construction, however where required an inspection for this should be called for before any work begins.**
7. **As agreed prior to granting of consent, At the completion of the works and prior to the issue of the C.C.C, the applicant shall provide the Taupo District Council the following documentation to assist Council in establishing compliance with the NZBC for (PS3 - ELDORADO STONE VENEER & SUBSTRATE) - Copy of the applicators approval certificate - A producers statement from the Applicator - Copy of Manufacturers" warranty**
8. **As agreed prior to granting of consent, At the completion of the works and prior to the issue of the C.C.C, the applicant shall provide the Taupo District Council the following documentation to assist Council in establishing compliance with the NZBC for (PS3 - ARDEX SUPERFLEX WPM) - Copy of the applicators approval certificate - A producers statement from the Applicator - Copy of Manufacturers" warranty**

When all building work authorised by the Building Consent Authority is complete, written application should be made to Taupo District Council for a CODE COMPLIANCE CERTIFICATE. If no application has been made, Taupo District Council must decide whether to issue the CCC after 2 years of the building consent being granted. An application form for this purpose is enclosed.

Compliance Schedule

A compliance schedule is not required for the building.

Attachments

Copies of the following documents are attached to this building consent:

- Approved Plans and Specifications
- Required items sheet attached to front of plans including a list of the inspections required *(Section 90)*
- Application for Code Compliance Certificate
- Project Information Memorandum

Signature: 

Kelvin Short – **Building Manager**

On behalf of: Taupo District Council

Date: 23 June 2017

Consent granted 23/06/2017 - A1982796

From: buildingconsents@taupodc.govt.nz
Sent: Friday, 23 June 2017 1:03 p.m.
To: clint.bramley@callplus.net.nz; clint.bramley@callplus.net.nz; Tech Support; buildingconsents
Subject: Building Consent granted for 6 The Fairways, Kinloch

REF170506714

This email is to advise that the consent for the proposed works has been granted for 6 The Fairways, Kinloch and are now ready for collection from the Taupo District Council's Taupo Office at 72 Lake Terrace, Taupo. Opening hours are **Monday to Friday, 8.00am to 5.00pm**

Please note that the granted consent documents have also been uploaded to your application online but are only able to be accessed via the below link by the person who submitted the application.

Click Here to access the online portal. Select the 'My Account' tab and enter your log in details. Then in the 'Submitted Applications' section, select the application you wish to view. The granted building consent documents are located in the 'Files' section of your application summary screen.

A copy of the approved plans and documents are **required to be onsite for all inspections**, please ensure that the plans are printed to the originally drawn scale, failure to do so will result in a failed inspection.

Please be sure to save a copy of these approved documents as they may not always be available through the online portal.

Kind regards,
Taupō District Council Building Consent Team

2017-07-25 Audit Report - G3 - A2008267

GoGet Audit Report

Consent No: **170355**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Prefloor Plumbing and Drainage**
Inspection Status: **PassNC**
Inspected By: **Richard Jones**
Inspection Date: **25 July 2017 1:40 p.m.**

Inspection Element	Status
General	Pass
Approved building consent documents or as-laid plan on site?	Pass
Conditions of consent (if any) are met and consent documents on site	Pass
Appropriate materials being used **Marley PVC**	Pass
Drainage	PassNC
Correct location, type, sizes, cover, and gradients	Pass
Adequate support and protection where required	Pass
Under test water or air **Water test one run**	Pass
On Site Wastewater System **Separate contract**	PassNC
Plumbing	Pass
Adequate support and protection where required	Pass
Correct fittings used	Pass
Outcome of Inspection	Pass
Approved **Met Gary on site**	Pass
Further Inspection Required (Recheck Required)	N/A
Required documents not yet received	N/A

Documentation

Pre-floor plumbing as built	Accepted



rodding point left of photo
Taken at 1:36 PM on Tuesday 25/07/2017



Taken at 1:36 PM on Tuesday 25/07/2017



Taken at 1:36 PM on Tuesday 25/07/2017



Taken at 1:37 PM on Tuesday 25/07/2017



Taken at 1:37 PM on Tuesday 25/07/2017



Taken at 1:38 PM on Tuesday 25/07/2017

2017-07-25 Site Notice - A2008271

Taupo District Council
72 Lake Terrace
Taupo
Phone 07 376 0899
buildingconsents@taupo.govt.nz

SITE NOTICE

Consent No: **170355** Date Printed: **25 July 2017**

Applicant: **Murray Jones**

Valuation Ref: **0738183051**

Site Address: **6 The Fairways, Kinloch**

Work Type: **Proposed new residence**

Inspection Type: **Prefloor Plumbing and Drainage**

Inspection Status: **PassNC**

Inspected By: **Richard Jones**

Inspection Date: **25 July 2017**

Passed Items

General	
Approved building consent documents or as-laid plan on site?	
Conditions of consent (if any) are met and consent documents on site	
Appropriate materials being used	**Marley PVC**
Drainage	
Correct location, type, sizes, cover, and gradients	
Adequate support and protection where required	
Under test water or air	**Water test one run**
Plumbing	
Adequate support and protection where required	
Correct fittings used	
Outcome of Inspection	
Approved	**Met Gary on site**

Pass With Non-Compliant Items

Drainage	
On Site Wastewater System	**Separate contract**

Documentation	Status
Pre-floor plumbing as built	Accepted
CCC application form	Required
Drainage as-built	Required
Electrical Certificate	Required
Gas Certificate	Required
Correct siting form	Required
PS3 General **SEE ADVICE NOTES FOR LIST**	Required
PS3 Fireplace	Required
Truss Manufacturers Asbuilt Plan (B1)	Required
Water Proofing Certificate - Internal (E3) Tilers membrane **PS3 - ARDEX SUPERFLEX WPM**	Required

KEEP ON SITE FOR RECHECK

Licensed Building Practitioners	Status
Carpentry 1	Required
Foundations 1	Required
Roofing 1	Required

Pre-floor as-laid plan - 170355 - A2008537

GREAT LAKE TAUPŌ
Taupō District Council

72 Lake Terrace, Taupo 3330
Private Bag 2005, Taupo Mail Centre, Taupo 3352
Ph: 07 376 0899
techsupport@taupo.govt.nz
www.taupo.govt.nz

SERVICES AS LAID PLAN

☑ Prefloor ☐ Drainage ☐ Soakholes

Please select the items covered in this document

TAUPO DISTRICT COUNCIL
25 JUL 2017
RECEIVED

Building Consent No: 170355

Owners Name: Jones

Property Address: 6 The Fairways, Kinloch, Taupo

Plumber: — —
Name/s *Address* *Contact Phone No.*

Registration No. —

Drainlayer: Coe Plumbing and Drainage Ltd 56 Ngamotu rd 027 7100056
Name/s *Address* *Contact Phone No.*

Registration No. 18886

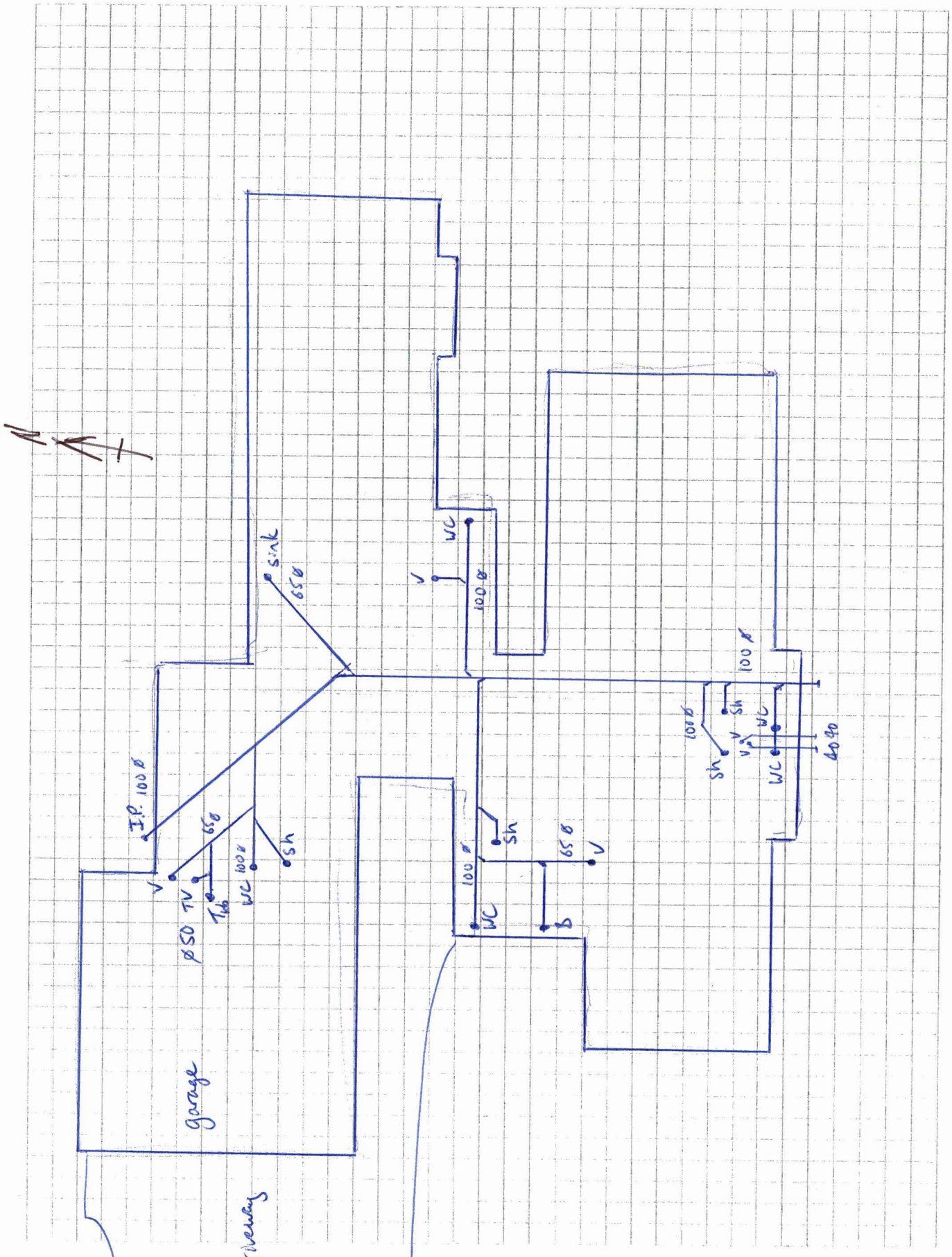
DRAW PLAN IN BLACK BALLPOINT ON GRAPH OPPOSITE

Plan is to show:

- ☐ All drains in correct position relative to building and boundaries
- ☐ The road frontage
- ☐ Depth of drains at connection points
- ☐ All foul water and stormwater drains
- ☐ All inspection openings, accurately dimensioned
- ☐ All buildings and boundaries
- ☐ Outside water lines and the source of supply
- ☐ The type, location and size of all on site sewage disposal systems
- ☐ Size and position of soak holes

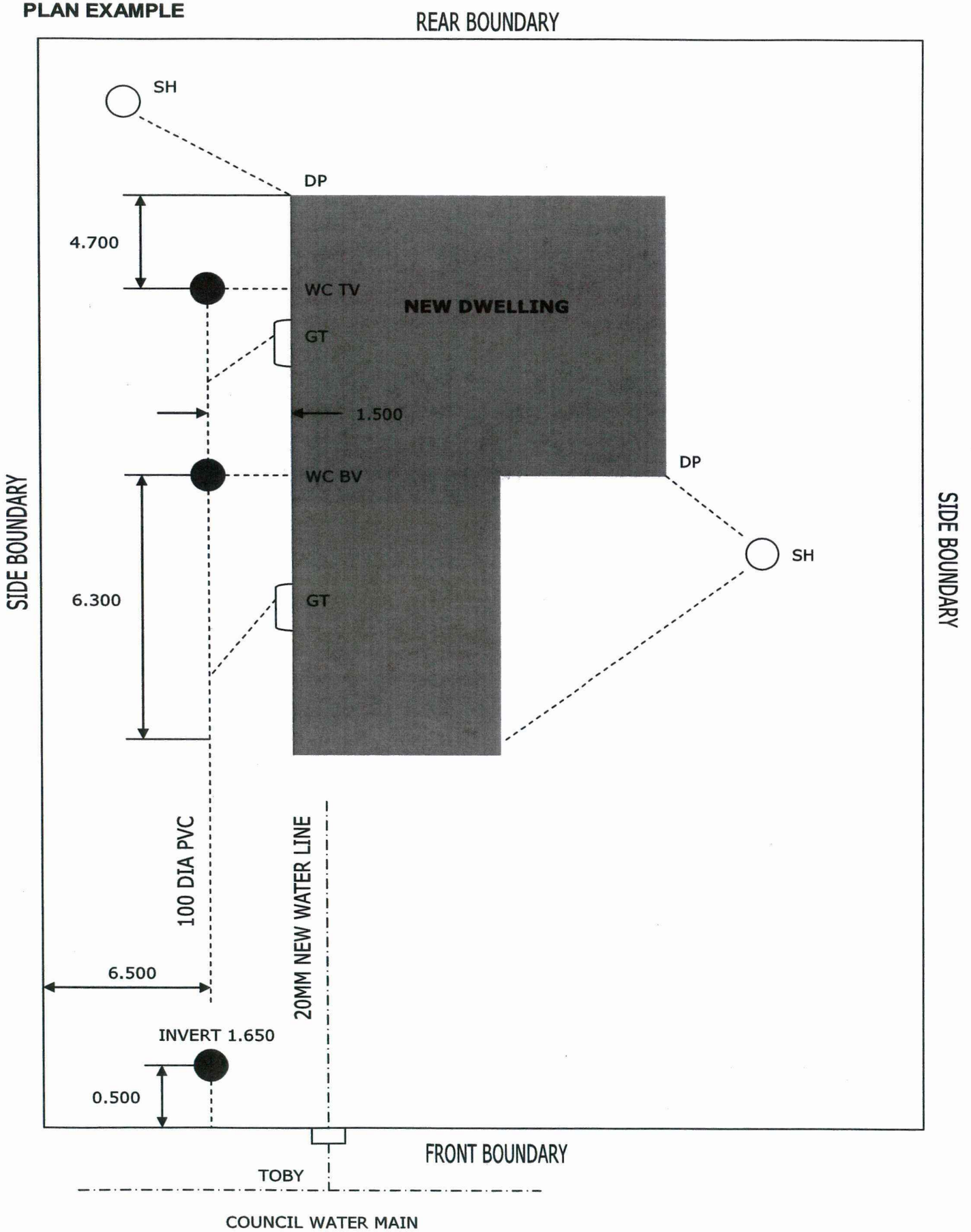
REFER TO EXAMPLE ON LAST PAGE

NOTE: If the inspector cannot be satisfied of compliance and/or the drain layout differs from the approved building consented documents, an amendment to the consent may be requested.



CHECKED BY:

PLAN EXAMPLE



2017-08-01 Audit Report - G2 - A2011749

GoGet Audit Report

Consent No: **170355**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Prefloor Building**
Inspection Status: **Fail**
Inspected By: **Peter Shepherd**
Inspection Date: **1 August 2017 1:18 p.m.**

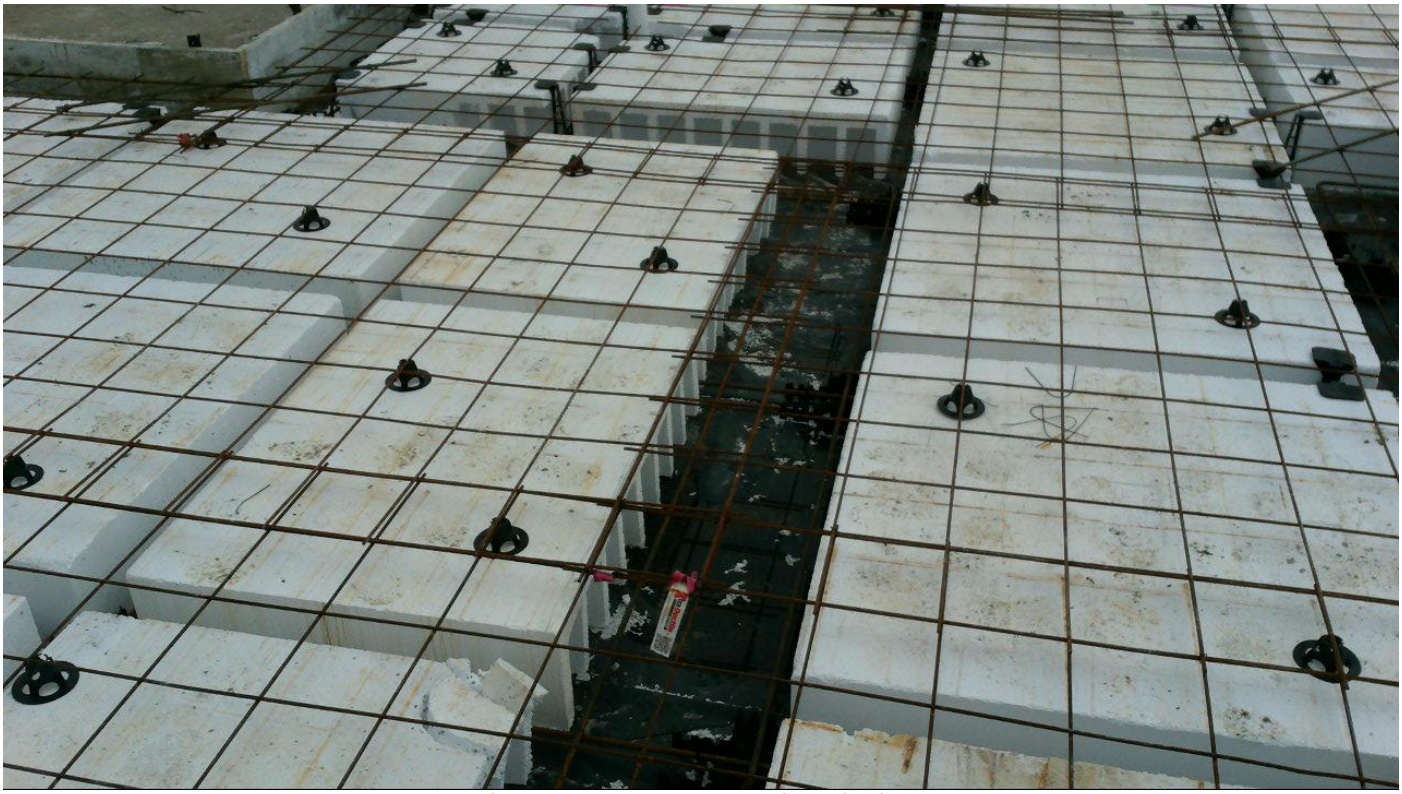
Inspection Element	Status
General	Pass
As per the approved plans	Pass
Approved building consent documents on site	Pass
Proposed floor level correct	Pass
Slab on Ground or Suspended Concrete	Pass
Appropriate materials being used	Pass
Correct location, type, sizes, cover, laps etc of reinforcing	Pass
Steel and mesh is clean and tied	Pass
Compaction for base	Pass
Proposed floor level correct	Pass
Engineer inspected (if required)	N/A
Damp Proof Membrane	Pass
Timber Floor	N/A
Outcome of Inspection	Fail
Work appears to be being done in accordance with the approved plans and /or the performance requirements of the NZBC. Ok to proceed when steel is completed as discussed on site.	
Approved	Pass
Further Inspection Required (Recheck Required)	Pass
Required documents not yet received	Fail
Siting form required	



Taken at 1:10 PM on Tuesday 1/08/2017



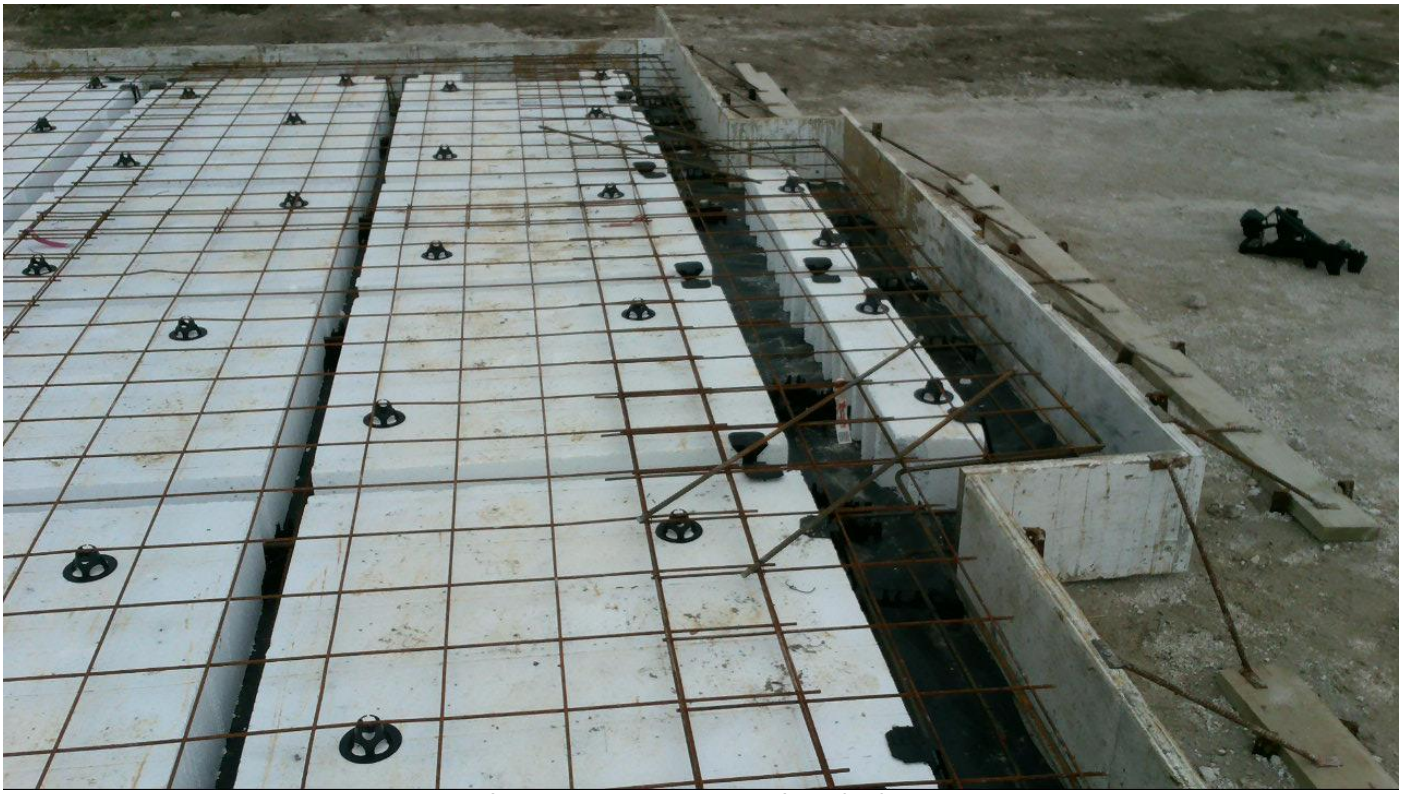
Taken at 1:11 PM on Tuesday 1/08/2017



Taken at 1:11 PM on Tuesday 1/08/2017



Taken at 1:11 PM on Tuesday 1/08/2017



Taken at 1:12 PM on Tuesday 1/08/2017



Taken at 1:13 PM on Tuesday 1/08/2017



Taken at 1:14 PM on Tuesday 1/08/2017

2017-08-01 Site Notice - A2011756

Taupo District Council
72 Lake Terrace
Taupo
Phone 07 376 0899
buildingconsents@taupo.govt.nz

SITE NOTICE

Consent No: **170355** Date Printed: **1 August 2017**

Applicant: **Murray Jones**

Valuation Ref: **0738183051**

Site Address: **6 The Fairways, Kinloch**

Work Type: **Proposed new residence**

Inspection Type: **Prefloor Building**

Inspection Status: **Fail**

Inspected By: **Peter Shepherd**

Inspection Date: **1 August 2017**

Passed Items

General

- As per the approved plans
- Approved building consent documents on site
- Proposed floor level correct

Slab on Ground or Suspended Concrete

- Appropriate materials being used
- Correct location, type, sizes, cover, laps etc of reinforcing
- Steel and mesh is clean and tied
- Compaction for base
- Proposed floor level correct
- Damp Proof Membrane

Outcome of Inspection: **Work appears to be being done in accordance with the approved plans and /or the performance requirements of the NZBC. Ok to proceed when steel is completed as discussed on site.**

- Approved
- Further Inspection Required (Recheck Required)

Failed Items

Outcome of Inspection: **Work appears to be being done in accordance with the approved plans and /or the performance requirements of the NZBC. Ok to proceed when steel is completed as discussed on site.**

- Required documents not yet received: **Siting form required**

Documentation	Status
CCC application form	Required
Drainage as-built	Required
Electrical Certificate	Required
Gas Certificate	Required
Correct siting form	Required
PS3 General **SEE ADVICE NOTES FOR LIST**	Required
PS3 Fireplace	Required

KEEP ON SITE FOR RECHECK

Truss Manufacturers Asbuilt Plan (B1)	Required
Water Proofing Certificate - Internal (E3) Tilers membrane **PS3 - ARDEX SUPERFLEX WPM**	Required

Licensed Building Practitioners	Status
Carpentry 1	Required
Foundations 1	Required
Roofing 1	Required

2017-10-17 Audit Report - G16 - A2061622

GoGet Audit Report

Consent No: **170355**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Framing Inspection**
Inspection Status: **Pass**
Inspected By: **Peter Kay**
Inspection Date: **17 October 2017 1:26 p.m.**

Inspection Element	Status
General	Pass
Approved building consent documents on site	Pass
Conditions of consent (if any) are met	Pass
Floor plan as per the approved plans	Pass
Shrinkage control joints	Pass
Wall Framing	Pass
As per the approved plans	Pass
Appropriate timber treatment for use	Pass
Bracing as per design	Pass
General Fixings (nailing, proprietary fixings for uplift, bracing, top plate etc)	Pass
Lintel sizes and fixing	Pass
Top plate packer as required	Pass
Support for proposed cladding	Pass
Support for point loads	Pass
Roof Framing	Pass
As per the approved design & plans	Pass
Rafter and/or Truss Fixings (top plate, ridge beam, girder truss etc)	Pass
Roof bracing	Pass
Appropriate timber treatment for use	Pass
Subfloor Framing	N/A
Outcome of Inspection	Pass
Approved	Pass
Work appears correct as approved consented documents and truss manufacturers as-built plan. Ok to proceed.	
Further Inspection Required (Recheck Required)	N/A
Required documents not yet received	N/A



Taken at 1:18 PM on Tuesday 17/10/2017



Taken at 1:19 PM on Tuesday 17/10/2017



Taken at 1:19 PM on Tuesday 17/10/2017



Taken at 1:19 PM on Tuesday 17/10/2017



Taken at 1:19 PM on Tuesday 17/10/2017

2017-10-17 Site Notice - A2061631

Taupo District Council
72 Lake Terrace
Taupo
Phone 07 376 0899
buildingconsents@taupo.govt.nz

SITE NOTICE

Consent No: **170355** Date Printed: **17 October 2017**

Applicant: **Murray Jones**

Valuation Ref: **0738183051**

Site Address: **6 The Fairways, Kinloch**

Work Type: **Proposed new residence**

Inspection Type: **Framing Inspection**

Inspection Status: **Pass**

Inspected By: **Peter Kay**

Inspection Date: **17 October 2017**

Passed Items

General

- Approved building consent documents on site
- Conditions of consent (if any) are met
- Floor plan as per the approved plans
- Shrinkage control joints

Wall Framing

- As per the approved plans
- Appropriate timber treatment for use
- Bracing as per design
- General Fixings (nailing, proprietary fixings for uplift, bracing, top plate etc)
- Lintel sizes and fixing
- Top plate packer as required
- Support for proposed cladding
- Support for point loads

Roof Framing

- As per the approved design & plans
- Rafter and/or Truss Fixings (top plate, ridge beam, girder truss etc)
- Roof bracing
- Appropriate timber treatment for use

Outcome of Inspection

Approved	**Work appears correct as approved consented documents and truss manufacturers as-built plan. Ok to proceed.**

Documentation	Status
CCC application form	Required
Drainage as-built	Required
Electrical Certificate	Required
Gas Certificate	Required
Correct siting form	Required
PS3 General	Required

SEE ADVICE NOTES FOR LIST

PS3 Fireplace	Required
Truss Manufacturers Asbuilt Plan (B1)	Required
Water Proofing Certificate - Internal (E3) Tilers membrane	Required

PS3 - ARDEX SUPERFLEX WPM

Licensed Building Practitioners	Status
Carpentry 1	Required
Foundations 1	Required
Roofing 1	Required

2017-11-17 Audit Report - G11 - A2083579

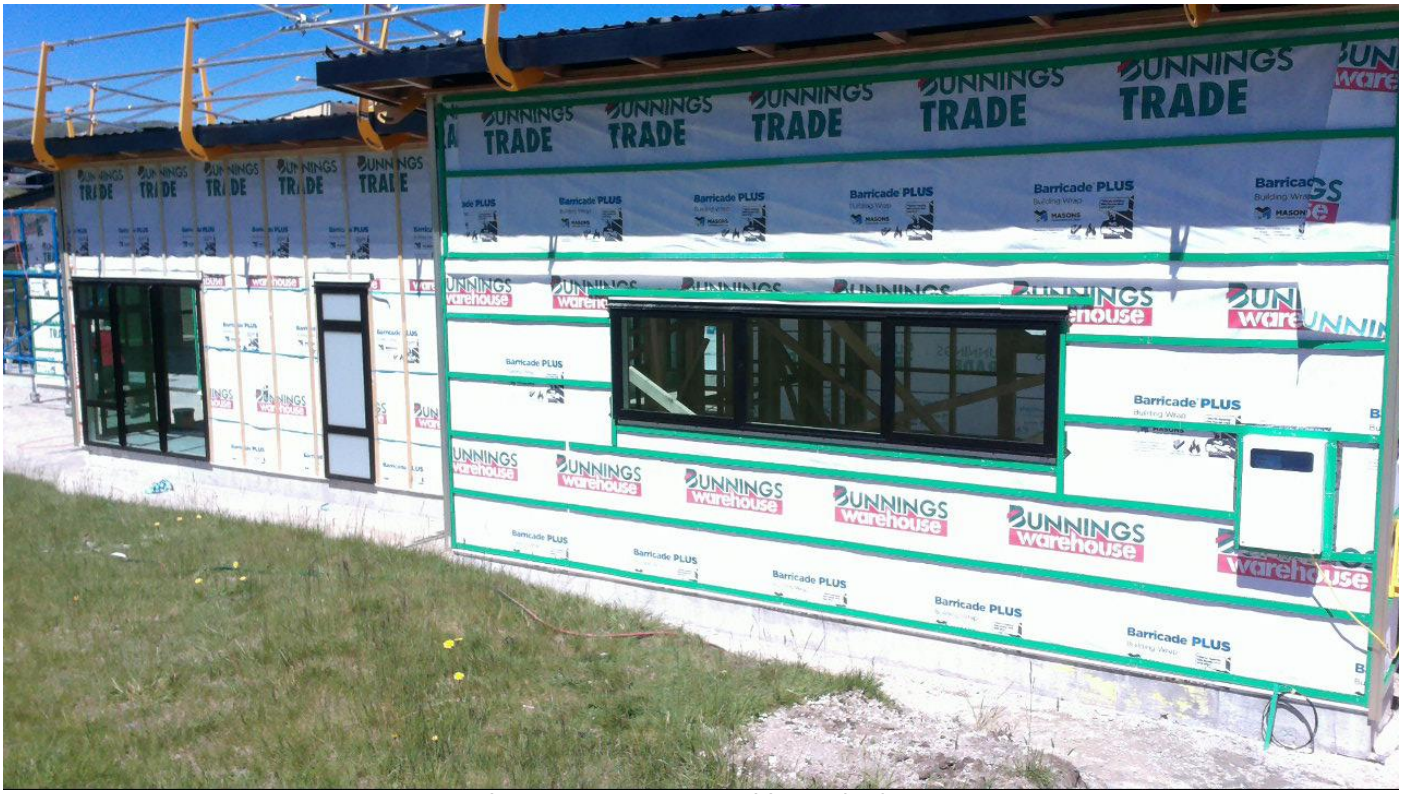
GoGet Audit Report

Consent No: **170355**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Pre-Ext Cladding Systems-Building**
Inspection Status: **Fail**
Inspected By: **Martyn Trainor**
Inspection Date: **17 November 2017 11:19 a.m.**

Precladding inspection for new dwelling.

Inspection Element	Status
General	Pass
Approved building consent documents on site	Pass
Conditions of consent (if any) are met	Pass
As per the approved plans	Pass
Walls	Pass
Cladding type(s) **Linea oblique 300 weather board and vertical cedar on cavity system. Also hard as rock stone veneer on cavity system.**	Pass
Appropriate materials used (e.g. timber treatment & grade, approved/appraised)	Pass
Flashing details & materials	Pass
Internal & external corners & junctions	Pass
Battens (cavity system) and/or ventilation	Pass
Tanking to foundations for brickwork	N/A
Proprietary fixings (metal tie down straps/connection etc for trusses/bracing etc)	Pass
Building wrap (Correct type/installation)	Pass
Penetrations	Pass
Deck Flashings	N/A
Roof	Fail
Roof type(s) **5rib colour steel roof.**	Pass
Correct installation and materials	Pass
Flashings **Parapet cap flashings still to complete.**	Fail
Outcome of Inspection **The work was proceeding as the approved plan to meet the performance requirement E2 of NZBC.** **The building wrap, sill flashing tapes, roof and flashings appeared to be done.** **Ok to proceed on reasonable grounds.**	Fail
Approved	Pass
Further Inspection Required (Recheck Required) **For parapit csp flashings when completed.**	Fail
Required documents not yet received	N/A



Taken at 11:25 AM on Friday 17/11/2017



Taken at 11:25 AM on Friday 17/11/2017



Taken at 11:26 AM on Friday 17/11/2017



Taken at 11:26 AM on Friday 17/11/2017

2017-11-17 Site Notice - A2083583

Taupo District Council
72 Lake Terrace
Taupo
Phone 07 376 0899
buildingconsents@taupo.govt.nz

SITE NOTICE

Consent No: **170355** Date Printed: **17 November 2017**

Applicant: **Murray Jones**

Valuation Ref: **0738183051**

Site Address: **6 The Fairways, Kinloch**

Work Type: **Proposed new residence**

Inspection Type: **Pre-Ext Cladding Systems-Building**

Inspection Status: **Fail**

Inspected By: **Martyn Trainor**

Inspection Date: **17 November 2017**

Precladding inspection for new dwelling.

Passed Items

General

- Approved building consent documents on site
- Conditions of consent (if any) are met
- As per the approved plans

Walls

Cladding type(s)	**Linea oblique 300 weather board and vertical cedar on cavity system. Also hard as rock stone veneer on cavity system.**
Appropriate materials used (e.g. timber treatment & grade, approved/appraised)	
Flashing details & materials	
Internal & external corners & junctions	
Battens (cavity system) and/or ventilation	
Proprietary fixings (metal tie down straps/connection etc for trusses/bracing etc)	
Building wrap (Correct type/installation)	
Penetrations	

Roof

Roof type(s)	**5rib colour steel roof.**
Correct installation and materials	
Outcome of Inspection	**The work was proceeding as the approved plan to meet the performance requirement E2 of NZBC. The building wrap, sill flashing tapes, roof and flashings appeared to be done. Ok to proceed on reasonable grounds.**

- Approved

Failed Items

Roof

Flashings	**Parapet cap flashings still to complete.**
Outcome of Inspection	**The work was proceeding as the approved plan to meet the performance requirement E2 of NZBC. The building wrap, sill flashing tapes, roof and flashings appeared to be done.**

	Ok to proceed on reasonable grounds.
Further Inspection Required (Recheck Required)	**For parapit csp flashings when completed.**

Documentation	**Status**
CCC application form	Required
Drainage as-built	Required
Electrical Certificate	Required
Gas Certificate	Required
Correct siting form	Required
PS3 General **SEE ADVICE NOTES FOR LIST**	Required
PS3 Fireplace	Required
Truss Manufacturers Asbuilt Plan (B1)	Required
Water Proofing Certificate - Internal (E3) Tilers membrane **PS3 - ARDEX SUPERFLEX WPM**	Required

Licensed Building Practitioners	**Status**
Carpentry 1	Required
Foundations 1	Required
Roofing 1	Required

2017-12-21 Audit Report - G4 - A2109321

GoGet Audit Report

Consent No: **170355**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Preline Plumbing**
Inspection Status: **Fail**
Inspected By: **Martyn Trainor**
Inspection Date: **21 December 2017 12:20 p.m.**

Preline plumbing inspection for new dwelling.

Inspection Element	Status
General	Pass
Approved building consent documents on site	Pass
Conditions of consent (if any) are met	Pass
As per the approved plans	Pass
Plumbing	Fail
Appropriate materials being used	Pass
Adequate support and protection where required **Water pipes in garage ceiling to be lagged**	Fail
Integrity of framing (notches, holes etc) **Studs and top plate where plumbing pipes penetrate on wall at rear of garage. Also aircon pipe through top plate in garage will require stiffening bracket. These will require a recheck before lining thes walls.**	Fail
Sealing of penetrations **Terminal vent pipe to be flashed.**	Fail
Position of HWC, (roof space etc.)	Pass
Soil and waste pipes as per AS/NZ 3500/G10 & G13	Pass
Pressure test of entire system	Pass
Outcome of Inspection **The work was proceeding as the approved plan to meet the performance requirements of AS/NZS3500 and G12 of NZBC. The water pipes were on water pressure test. Terminal vent pipe was in place. Ok to preceed on reasonable grounds.**	Fail
Approved	Pass
Further Inspection Required (Recheck Required) **A further inspection required to sign off the failed items.**	Fail
Required documents not yet received	N/A

2017-12-21 Audit Report - G7 - A2109322

GoGet Audit Report

Consent No: **170355**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Preline Building**
Inspection Status: **Fail**
Inspected By: **Martyn Trainor**
Inspection Date: **21 December 2017 12:31 p.m.**

Preline building inspection for new dwelling.

Inspection Element	Status
General	Pass
Approved building consent documents on site	Pass
Conditions of consent (if any) are met	Pass
Floor plan as per the approved plans	Pass
Walls	Pass
Appropriate materials being used	Pass
Airseals in place at window and door	Pass
Wall bracing (internal)	Pass
Fixings (nailing, proprietary fixings for uplift, bracing etc)	Pass
Moisture content (specify) % **15%**	Pass
Roof	Fail
Roof penetrations & flashings **Roof flashings and terminal vent flashing to complete. Also the airconditioning unit has been hung off the trusses in the walk n wardrobe. This will either need to be supported over load bearing wall and rechecked or have the truss manufacture certify in writing the trusses are designed to take the additional loads.**	Fail
Roof underlay	Pass
Insulation	Pass
Correct installation	Pass
Outcome of Inspection **The work was proceeding as the approved plan. The brace element hold down fixings, insulation and foam air seals appeared to be done. The moisture content of framing timbers was compliant for linings to be installed. Ok to proceed on reasonable grounds. However a check is required to sign off the failed item.**	Fail
Approved	Pass
Further Inspection Required (Recheck Required)	Fail
Required documents not yet received	Fail

2017-12-21 Site Notice - A2109328

Taupo District Council
72 Lake Terrace
Taupo
Phone 07 376 0899
buildingconsents@taupo.govt.nz

SITE NOTICE

Consent No: **170355** Date Printed: **21 December 2017**

Applicant: **Murray Jones**

Valuation Ref: **0738183051**

Site Address: **6 The Fairways, Kinloch**

Work Type: **Proposed new residence**

Inspection Type: **Preline Plumbing**

Inspection Status: **Fail**

Inspected By: **Martyn Trainor**

Inspection Date: **21 December 2017**

Preline plumbing inspection for new dwelling.

Passed Items

General

- Approved building consent documents on site
- Conditions of consent (if any) are met
- As per the approved plans

Plumbing

- Appropriate materials being used
- Position of HWC, (roof space etc.)
- Soil and waste pipes as per AS/NZ 3500/G10 & G13
- Pressure test of entire system

Outcome of Inspection: **The work was proceeding as the approved plan to meet the performance requirements of AS/NZS3500 and G12 of NZBC. The water pipes were on water pressure test. Terminal vent pipe was in place. Ok to preceed on reasonable grounds.**

Approved

Failed Items

Plumbing

Adequate support and protection where required	**Water pipes in garage ceiling to be lagged**
Integrity of framing (notches, holes etc)	**Studs and top plate where plumbing pipes penetrate on wall at rear of garage. Also aircon pipe through top plate in garage will require stiffening bracket. These will require a recheck before lining thes walls.**
Sealing of penetrations	**Terminal vent pipe to be flashed.**
Outcome of Inspection	**The work was proceeding as the approved plan to meet the performance requirements of AS/NZS3500 and G12 of NZBC. The water pipes were on water pressure test. Terminal vent pipe was in place. Ok to preceed on reasonable grounds.**
Further Inspection Required (Recheck Required)	**A further inspection required to sign off the failed items.**

Inspection Type: **Preline Building**

Inspection Status: **Fail**

Inspected By: **Martyn Trainor**

Inspection Date: **21 December 2017**

Preline building inspection for new dwelling.

Passed Items

General

- Approved building consent documents on site
- Conditions of consent (if any) are met
- Floor plan as per the approved plans

Walls

- Appropriate materials being used
- Airseals in place at window and door
- Wall bracing (internal)
- Fixings (nailing, proprietary fixings for uplift, bracing etc)
- Moisture content (specify) % — **15%**

Roof

- Roof underlay

Insulation

- Correct installation

Outcome of Inspection — **The work was proceeding as the approved plan.**
The brace element hold down fixings, insulation and foam air seals appeared to be done.
The moisture content of framing timbers was compliant for linings to be installed.
Ok to proceed on reasonable grounds.
However a check is required to sign off the failed item.

- Approved

Failed Items

Roof

- Roof penetrations & flashings — **Roof flashings and terminal vent flashing to complete.**
Also the airconditioning unit has been hung off the trusses in the walk n wardrobe.
This will either need to be supported over load bearing wall and rechecked or have the truss manufacture certify in writing the trusses are designed to take the additional loads.

Outcome of Inspection — **The work was proceeding as the approved plan.**
The brace element hold down fixings, insulation and foam air seals appeared to be done.
The moisture content of framing timbers was compliant for linings to be installed.
Ok to proceed on reasonable grounds.
However a check is required to sign off the failed item.

- Further Inspection Required (Recheck Required)
- Required documents not yet received

Documentation	Status
CCC application form	Required
Drainage as-built	Required
Electrical Certificate	Required
Gas Certificate	Required
Correct siting form	Required
PS3 General	Required

SEE ADVICE NOTES FOR LIST

PS3 Fireplace	Required
Truss Manufacturers Asbuilt Plan (B1)	Required
Water Proofing Certificate - Internal (E3) Tilers membrane	Required

PS3 - ARDEX SUPERFLEX WPM

Licensed Building Practitioners	Status
Carpentry 1	Required
Foundations 1	Required
Roofing 1	Required

2018-01-09 Audit Report - G2 - A2115847

GoGet Audit Report

Consent No: **170355**

Applicant: **Murray Jones**

Valuation Ref: **0738183051**

Site Address: **6 The Fairways, Kinloch**

Work Type: **Proposed new residence**

Inspection Type: **Prefloor Building**

Inspection Status: **Pass**

Inspected By: **Peter Kay**

Inspection Date: **9 January 2018 1:26 p.m.**

Inspection Element	Status
Outcome of Inspection	Pass
Work appears to be being done in accordance with the approved plans and /or the performance requirements of the NZBC. Ok to proceed when steel is completed as discussed on site.	
Required documents not yet received	Pass
Siting form received	

Documentation

Correct siting form	Accepted

2018-01-09 Audit Report - G8 - A2115848

GoGet Audit Report

Consent No: **170355**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Post Lining**
Inspection Status: **Pass**
Inspected By: **Peter Kay**
Inspection Date: **9 January 2018 1:29 p.m.**

Inspection Element	Status
General	Pass
Approved building consent documents on site	Pass
Conditions of consent (if any) are met	Pass
As per the approved plans	Pass
Linings	Pass
Appropriate materials used **GIB system used**	Pass
Wall Bracing **Inplace**	Pass
Fixings **Inplace**	Pass
Fire Resistant Ratings	N/A
Accoustic Noise Ratings	N/A
Outcome of Inspection	Pass
Approved **Work appears correct as per approved consented documents and manufacturers guidelines, ok to proceed.**	Pass
Further Inspection Required (Recheck Required)	N/A
Required documents not yet received	N/A

Documentation

Correct siting form	Accepted

2018-01-09 Audit Report - G4 - A2115849

GoGet Audit Report

Consent No: **170355**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Preline Plumbing**
Inspection Status: **Fail**
Inspected By: **Peter Kay**
Inspection Date: **9 January 2018 1:28 p.m.**

Preline plumbing inspection for new dwelling.

Inspection Element	Status
Plumbing	Fail
Adequate support and protection where required **Water pipes in garage ceiling now lagged.**	Pass
Integrity of framing (notches, holes etc)	Pass
Outcome of Inspection **The work was proceeding as the approved plan to meet the performance requirements of AS/NZS3500 and G12 of NZBC. The water pipes were on water pressure test. Terminal vent pipe was in place. Ok to preceed on reasonable grounds.**	Pass
Further Inspection Required (Recheck Required)	N/A

Documentation

Correct siting form	Accepted

2018-01-09 Site Notice - A2115853

Taupo District Council
72 Lake Terrace
Taupo
Phone 07 376 0899
buildingconsents@taupo.govt.nz

SITE NOTICE

Consent No: **170355** Date Printed: **9 January 2018**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Prefloor Building**
Inspection Status: **Pass**
Inspected By: **Peter Kay**
Inspection Date: **9 January 2018**

Passed Items

Outcome of Inspection	**Work appears to be being done in accordance with the approved plans and /or the performance requirements of the NZBC. Ok to proceed when steel is completed as discussed on site.**
Required documents not yet received	**Siting form received**

Inspection Type: **Preline Plumbing**
Inspection Status: **Fail**
Inspected By: **Peter Kay**
Inspection Date: **9 January 2018**

Preline plumbing inspection for new dwelling.

Passed Items

Plumbing

Adequate support and protection where required	**Water pipes in garage ceiling now lagged.**
Integrity of framing (notches, holes etc)	
Outcome of Inspection	**The work was proceeding as the approved plan to meet the performance requirements of AS/NZS3500 and G12 of NZBC. The water pipes were on water pressure test. Terminal vent pipe was in place. Ok to preceed on reasonable grounds.**

Failed Items

Plumbing

Inspection Type: **Post Lining**
Inspection Status: **Pass**
Inspected By: **Peter Kay**
Inspection Date: **9 January 2018**

Passed Items

General

- Approved building consent documents on site
- Conditions of consent (if any) are met
- As per the approved plans

Linings

Appropriate materials used	**GIB system used**
Wall Bracing	**Inplace**
Fixings	**Inplace**
Outcome of Inspection	
Approved	**Work appears correct as per approved consented documents and manufacturers guidelines, ok to proceed.**

Documentation	**Status**
Correct siting form	Accepted
CCC application form	Required
Drainage as-built	Required
Electrical Certificate	Required
Gas Certificate	Required
PS3 General **SEE ADVICE NOTES FOR LIST**	Required
PS3 Fireplace	Required
Truss Manufacturers Asbuilt Plan (B1)	Required
Water Proofing Certificate - Internal (E3) Tilers membrane **PS3 - ARDEX SUPERFLEX WPM**	Required

Licensed Building Practitioners	**Status**
Carpentry 1	Required
Foundations 1	Required
Roofing 1	Required

Correct siting of building - 170355 - A2123656

GREAT LAKE TAUPŌ
Taupō District Council

UNDERTAKING AS TO CORRECT SITING OF BUILDING

Building Act 2004

This form must be completed and be available for collection by the Building Management Officer when the first inspection is carried out or at such other time as agreed. A Code Compliance Certificate will not be issued until such time as this form is received and correctly filled out.

BC No: 170355

I hereby certify that the building work currently being carried out at

SCOTT HADLAND C/ Scottbuilt Construction NZ Ltd

(Address of Property)

is positioned in accordance with, and is the same size, as shown on the approved plans of the Building Consent.

Name of Builder/Owner: _____

(Delete that which does not apply)

Signature: _____ Date: 09-01-2018

Taupo District Council
72 Lake Terrace, Private Bag 2005, Taupo Mail Centre, Taupo 3352
Phone: 07 3760899 Email: general@taupo.govt.nz Website: www.taupo.govt.nz

Producer statement - Truss Design 170355 - A2127811

BC 170355

MiTek New Zealand Limited

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.miteknz.co.nz

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

ISSUED BY: **MiTek New Zealand Limited**

TO: **Capital Precut Solutions**

IN RESPECT OF: **MiTek® Truss Designs**

This producer statement covers the MiTek 20/20® truss design and the structural performance of the GANG-NAIL® connector plate for the job reference **70139** and may be used by a Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

The MiTek 20/20® truss design program has been developed by MiTek New Zealand Limited for the design of MiTek® timber roof, floor and attic trusses in New Zealand. The truss designs computed by MiTek 20/20 ® are prepared using sound and widely accepted engineering principles, and in accordance with compliance documents of the New Zealand Building Code and Verification Method B1/VM1; and internationally accepted standard ANSI/TPI 1 - 2002 as an alternative solution, to satisfy the requirements of Clauses B1 and B2 of the New Zealand Building Code.

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

i) All proprietary products meeting their performance specification requirements
ii) The provision of adequate roof bracing and overall building stability
iii) Correct selection and placement of GANG-NAIL connector plates
iv) Correct input of Truss Design Data as shown in the Fabricator Design Statement for this job
v) The design being undertaken by the accredited fabricator under the terms of the software licence
vi) Timber is graded to the requirements of NZS 3603:1993
vii) Minimum timber treatment for these MiTek® trusses shall be in accordance with B2/AS1 Table 1A and the relevant sections of NZS 3602:2003

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

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

On behalf of MiTek New Zealand Limited, **Date: Wednesday, 13 September 2017**

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

Job: 70139 Client: A Customer Site: Jones Residence
Phone: 6 The Fairways
Kinloch
Description:
Building Consent No.: Phone:

MITEK FABRICATOR DESIGN STATEMENT

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

MiTek 20/20® TRUSS DESIGN DATA

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

Job Details

Roof Truss

Timber Group:	TRUSS	Pitch:	8.000 deg	Nominal Overhang:	600 mm
Roof		**Ceiling**		**Wind**	
Material:	Light	Material:	Gib Board 13mm	Area:	High (44.0 m/s)
Dead Load:	0.250 kPa	Dead Load:	0.260 kPa	Pressure Coeff:	Cpe = varies; Cpi = -0.30, 0.20
Restraints:	900 mm centres	Restraints:	1200 mm centres		
Live Load:	Qur = 0.250 kPa Qc = 1.100 kN	Live Load:	Qc = 1.400 kN		

Importance Level : 2

Design Working Life : 50 years

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

MiTek® Truss List

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

Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
ET02	1	4200	8.000	900	*R12	8	1517	8.000	817	T10	1	3585	3.000	900
ET03	1	1620	8.000	900	*R14	1	969	0.000	900	T11	4	6357	3.000	900
*R01	1	4730	0.000	900	T01	7	7200	8.000	900	T12	3	6384	3.000	900
*R02	1	4800	8.000	900	T02	1	5043	8.000	900	T13	3	1702	3.000	900
*R03	1	2220	8.000	900	T03	1	5379	8.000	900	T14	6	465	3.000	900
*R04	1	8400	8.000	900	T04	6	5580	8.000	900	T15	1	3192	-3.000	900
*R05	11	1455	0.000	836	T04A	1	5580	8.000	900	*T16	1	5119	0.000	900
*R06	4	1455	0.000	725	T05	6	2160	3.000	900	*T17	1	1920	0.000	900
*R07	7	1455	0.000	778	T06	1	2305	-2.811	900	*T18	1	2200	0.000	900
R08	2	2980	8.000	900	T07	1	4730	0.000	900	T19	1	3090	8.000	900
R09	12	2310	0.000	900	T08	1	1390	0.000	900					
*R11	8	1500	8.000	817	T09	8	3612	3.000	900					

Total quantity : 114

Live load 120 Kg's

The computer design input has been carried out by:

Signed: ..... Date: ...Wednesday, 13 September 2017....

Name of Detailer: Michael McKenna Qualifications and Title:

On behalf of: Capital Precut Solutions

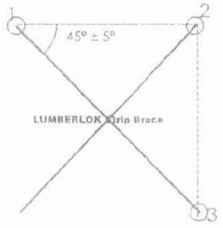
Truss Fixings

- D - Pair of LUMBERLOK Wire Dogs
- X - LUMBERLOK JH47x90 Joist Hanger
- Z - LUMBERLOK JH47x120 Joist Hanger
- P - LUMBERLOK JH47x190 Joist Hanger
- E - LUMBERLOK JH95x165 Joist Hanger
- O - Pair of LUMBERLOK CT200 Ceiling Ties
- H - LUMBERLOK CT400 Cyclone Tie
- B - LUMBERLOK CT600 Cyclone Tie
- M - Pair of LUMBERLOK Multi Grips
- NP - LUMBERLOK Nailon Plate
- N - LUMBERLOK N21 Diagonal Cleat
- W - Pair of LUMBERLOK CPC40 Cleats
- K - LUMBERLOK TTP 16kN Truss to Top Plate set

Roof Bracing

Refer to:
LUMBERLOK Roof Bracing Specifications brochure 08/2006 for end fixing details.

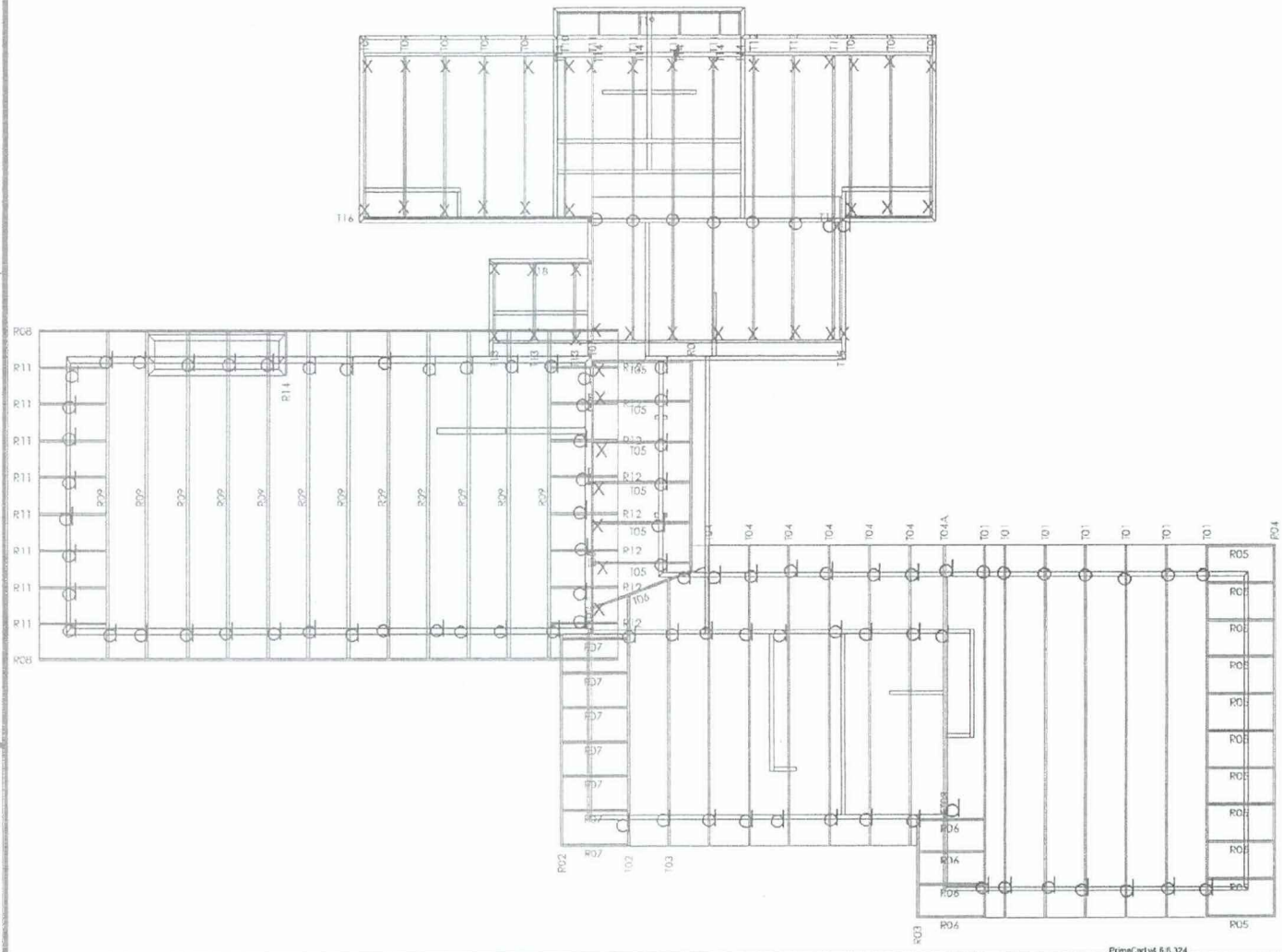
The brace must be located such that it forms an angle of 45° ± 5° to the wall



NOTES:

All other areas must have a minimum of a pair of 90mm skew nails for truss to top plate connections.
Refer to:
LUMBERLOK Timber Connectors Characteristic Loadings Data brochure 03/4

Fix ribbon boards T07, T08, T16, T17, T18, T19 to studs with 2 purlins srews.



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

Site Address :
Jones Residence
6 The Fairways
Kinloch

Sheet Title :
For Building Consent
Truss Fixings & Roof Bracing

Date : 15 Aug 2017 | Drawn : Tom Garrah
Scale : 1: 100 | System : MiTek 20/20

Job Details:
Roof Pitch : 8.00deg
Roof Material : Light
Ceiling Material : Gib Board 13mm
Wind Zone : High
Roof Snow Load : 0.000kPa

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

PrimeCad v4.6.6.324

Job Title :
70139
Sheet
1
Revision Number :

Job: 70139 Client: A Customer Site: Jones Residence
Phone: 6 The Fairways
Kinloch

Description:
Building Consent No.: Phone:

MANUFACTURER STATEMENT

This statement is issued by **Capital Precut Solutions** 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.
The MiTek® trusses for the job reference **70139** have been fabricated in accordance with the MiTek 20/20® truss design, truss layout and shop drawing output and the specifications for timber defined therein, and are covered by the Producer Statement issued by MiTek New Zealand Limited and the MiTek Fabricator Design Statement.

Summary of fabricated MiTek® trusses in accordance with MiTek 20/20® output
These MiTek® trusses must be erected in accordance with the Truss Layout. Proper erection bracing must be installed to hold the trusses true and plumb and in a safe condition until permanent bracing is fixed. All permanent bracing and fixing must be installed before any loads are applied.

Job Details

Importance Level : 2

Design Working Life : 50 years

Roof
Material: Light
Dead Load: 0.250 kPa
Restraints: 900 mm centres
Live Load: Qur = 0.250 kPa
Qc = 1.100 kN

Ceiling
Material: Gib Board 13mm
Dead Load: 0.260 kPa
Restraints: 1200 mm centres
Live Load: Qc = 1.400 kN

Wind
Area: High (44.0 m/s)
Pressure Coeff: Cpe = varies; Cpi = -0.30, 0.20

MiTek® Truss List
Legend: * = detail only, ? = input only, ~~Txx~~ = failed design, Ø = non certified, Unmarked trusses = designed successfully. LB = lateral bracing required GB = gable brace required, 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)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
ET02	1	4200	8.000	900	*R14	1	969	0.000	900	T11	4	6357	3.000	900
ET03	1	1620	8.000	900	T01	7	7200	8.000	900	T12	3	6384	3.000	900
*R01	1	4730	0.000	900	T02	1	5043	8.000	900	T13	3	1702	3.000	900
*R02	1	4800	8.000	900	T03	1	5379	8.000	900	T14	6	465	3.000	900
*R03	1	2220	8.000	900	T04	6	5580	8.000	900	T15	1	3192	-3.000	900
*R04	1	8400	8.000	900	T04A	1	5580	8.000	900	*T16	1	5119	0.000	900
*R05	11	1455	0.000	836	T05	6	2160	3.000	900	*T17	1	1920	0.000	900
*R06	4	1455	0.000	725	T06	1	2305	-2.811	900	*T18	1	2200	0.000	900
*R07	7	1455	0.000	778	*T07	1	4730	0.000	900	*T19	1	4090	0.000	900
*R08	2	12980	8.000	900	*T08	1	1380	0.000	900					
*R11	8	1500	8.000	817	T09	8	3612	3.000	900					
*R12	8	1517	8.000	817	T10	1	3585	3.000	900					

Treatment: Top Chords - H3.1 Bottom Chords - H1.2 Webs - H1.2

Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
R09	12	7310	0.000	900

Roof Truss quantity : 114

Total quantity : 114

The MiTek® trusses are fabricated under the supervision of:

Signed: ..... Date: 13/9/17

Name of Supervisor: ..... On behalf of : **Capital Precut Solutions**

Job: 70139 Client: A Customer Site: Jones Residence
Phone: 6 The Fairways
Kinloch
Description:
Building Consent No.: Phone:

TRUSS FIXING SELECTION REPORT - Characteristic Loads

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

MiTek® Truss List

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

Truss	Qty	Span (mm)	Joint	Down (kN)	Uplift (kN)	Bearing	Fixing Qty	Fixing Selected
ET02	1	4200	P			Wide		No fixing selected
ET03	1	1620	E			Wide		No fixing selected
*R01	1	4730						Refer NZS3604:2011 Tables 10.1 & 10.14
*R02	1	4800						Refer NZS3604:2011 Tables 10.1 & 10.14
*R03	1	2220						Refer NZS3604:2011 Tables 10.1 & 10.14
*R04	1	8400						Refer NZS3604:2011 Tables 10.1 & 10.14
*R05	11	1455						Refer NZS3604:2011 Tables 10.1 & 10.14
*R06	4	1455						Refer NZS3604:2011 Tables 10.1 & 10.14
*R07	7	1455						Refer NZS3604:2011 Tables 10.1 & 10.14
*R08	2	12980						Refer NZS3604:2011 Tables 10.1 & 10.14
R09	12	7310	B	4.324	2.858	Cross	12	Pair of Wire Dog Staples
			C	4.324	2.858	Cross	12	Pair of Wire Dog Staples
*R11	8	1500						Refer NZS3604:2011 Tables 10.1 & 10.14
*R12	8	1517						Refer NZS3604:2011 Tables 10.1 & 10.14
*R14	1	969						Refer NZS3604:2011 Tables 10.1 & 10.14
T01	7	7200	K	5.064	3.343	Cross	7	CT200 pair
			S	5.863	3.061	Cross	7	Pair of Wire Dog Staples
T02	1	5043	L	3.653	1.766	Cross	1	Pair of Wire Dog Staples
			H	4.066	1.646	Cross	1	Pair of Wire Dog Staples
~~T03~~	~~1~~	~~5379~~	~~M~~	~~3.564~~	~~1.606~~	~~Cross~~	~~1~~	~~Pair of Wire Dog Staples~~
			I	4.618	1.595	Cross	1	Pair of Wire Dog Staples
T04	6	5580	I	2.208	1.128	Cross	6	Pair of Wire Dog Staples
			N	3.602	1.639	Cross	6	Pair of Wire Dog Staples
			J	4.375	3.020	Cross	6	Pair of Wire Dog Staples
T04A	1	5580	H	4.023	2.611	Cross	1	Pair of Wire Dog Staples
			L	4.221	2.308	Cross	1	Pair of Wire Dog Staples
T05	6	2160	A	1.396	0.993	Cross	6	Pair of Wire Dog Staples
			E	1.942	0.946	Butt	6	JH 47x90
T06	1	2305	E	1.609	0.928	Butt	1	JH 47x90
			G	1.700	0.963	Cross	1	Pair of Wire Dog Staples
~~T07~~	~~1~~	~~1720~~						~~Refer NZS3604:2011 Tables 10.1 & 10.14~~
~~T08~~	~~1~~	~~1585~~						~~Refer NZS3604:2011 Tables 10.1 & 10.14~~
~~T09~~	~~8~~	~~3612~~	~~E~~	~~2.333~~	~~1.670~~	~~Butt~~	~~8~~	~~JH 47x90~~
			H	2.588	1.554	Butt	8	JH 47x90
T10	1	3585	E	2.316	1.658	Butt	1	JH 47x90
			H	2.570	1.541	Butt	1	JH 47x90
T11	4	6357	G	1.851	1.320	Butt	4	JH 47x90
			M	1.016	0.725	Butt	4	Pair of 3.15d Nails
			J	5.566	3.809	Cross	4	CT200 pair
T12	3	6384	G	1.865	1.330	Butt	3	JH 47x90
			M	1.007	0.718	Butt	3	Pair of 3.15d Nails
			J	5.586	3.830	Cross	3	CT200 pair
T13	3	1702	C	1.234	0.730	Butt	3	Pair of 3.15d Nails
			D	1.291	0.707	Butt	3	JH 47x90
T14	6	465	C	0.436	0.160	Butt	6	Pair of 3.15d Nails
			D	0.452	0.154	Butt	6	Pair of 3.15d Nails
T15	1	3192	H	1.712	1.191	Butt	1	JH 47x90
			F	2.787	0.981	Cross	1	Pair of Wire Dog Staples
*T16	1	5119						Refer NZS3604:2011 Tables 10.1 & 10.14
*T17	1	1920						Refer NZS3604:2011 Tables 10.1 & 10.14
*T18	1	2200						Refer NZS3604:2011 Tables 10.1 & 10.14
*T19	1	4090						Refer NZS3604:2011 Tables 10.1 & 10.14

Fixing List

Qty	Selected Fixing
63	Pair of Wire Dog Staples
14	CT200 pair
36	JH 47x90
22	Pair of 3.15d Nails
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.

2018-04-18 Audit Report - G5 - A2197485

GoGet Audit Report

Consent No: **170355**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Sanitary Sewer/Drainage**
Inspection Status: **Pass**
Inspected By: **Peter Kay**
Inspection Date: **18 April 2018 9:36 a.m.**

Inspection Element	Status
General	Pass
Approved building consent documents or as-built plan on site o	Pass
Conditions of consent (if any) are met	Pass
As per the approved plans	Pass
Sanitary Drainage	Pass
Appropriate materials being used	Pass
Adequate support and protection where required	Pass
Correct location, type, sizes, cover, and gradients of drains **100mm Marley PVC, fall appears adequate**	Pass
G13 or AS/NZS3500 **3500**	Pass
Test of entire system **On water test**	Pass
Stormwater	Pass
To approved disposal system (onsite or reticulated system) **To soak pits**	Pass
Disposal system adequate	Pass
As built provided	Pass
On Site Wastewater System	N/A
Outcome of Inspection	Pass
Approved **Work appears correct as per approved consented documents ok to proceed.**	Pass
Further Inspection Required (Recheck Required)	N/A
Required documents not yet received	Pass

Documentation

Drainage as-built	Accepted
Stormwater as- built	Accepted
PS3 for stormwater drainage (soakhole/ soakpit)	Accepted



Taken at 9:34 AM on Wednesday 18/04/2018



Taken at 9:34 AM on Wednesday 18/04/2018

2018-04-18 Site Notice - A2197490

Taupo District Council
72 Lake Terrace
Taupo
Phone 07 376 0899
buildingconsents@taupo.govt.nz

SITE NOTICE

Consent No: **170355** Date Printed: **18 April 2018**

Applicant: **Murray Jones**

Valuation Ref: **0738183051**

Site Address: **6 The Fairways, Kinloch**

Work Type: **Proposed new residence**

Inspection Type: **Sanitary Sewer/Drainage**

Inspection Status: **Pass**

Inspected By: **Peter Kay**

Inspection Date: **18 April 2018**

Passed Items

General	
Approved building consent documents or as-built plan on site o	
Conditions of consent (if any) are met	
As per the approved plans	
Sanitary Drainage	
Appropriate materials being used	
Adequate support and protection where required	
Correct location, type, sizes, cover, and gradients of drains	**100mm Marley PVC, fall appears adequate**
G13 or AS/NZS3500	**3500**
Test of entire system	**On water test**
Stormwater	
To approved disposal system (onsite or reticulated system)	**To soak pits**
Disposal system adequate	
As built provided	
Outcome of Inspection	
Approved	**Work appears correct as per approved consented documents ok to proceed.**
Required documents not yet received	

Documentation	Status
Drainage as-built	Accepted
Stormwater as- built	Accepted
PS3 for stormwater drainage (soakhole/ soakpit)	Accepted
CCC application form	Required
Electrical Certificate	Required
Gas Certificate	Required
PS3 General **SEE ADVICE NOTES FOR LIST**	Required
PS3 Fireplace	Required
Truss Manufacturers Asbuilt Plan (B1)	Required

KEEP ON SITE FOR RECHECK

Water Proofing Certificate - Internal (E3) Tilers membrane **PS3 - ARDEX SUPERFLEX WPM**	Required

Licensed Building Practitioners	**Status**
Carpentry 1	Required
Foundations 1	Required
Roofing 1	Required

Drainage as laid plan 170355 - A2201466

GREAT LAKE TAUPŌ
Taupō District Council

72 Lake Terrace, Taupo 3330
Private Bag 2005, Taupo Mail Centre, Taupo 3352
Ph: 07 376 0899
techsupport@taupo.govt.nz
www.taupo.govt.nz

BC170355

SERVICES AS LAID PLAN

☐ Prefloor ☑ Drainage ☑ Soakholes

Please select the items covered in this document

Building Consent No: # 170355

Owners Name: Murray Jones.

Property Address: 6 The Fairways Kinloch.

Plumber:

Name/s *Address* *Contact Phone No.*

Registration No.

E. & J. CONTRACTORS
1/491 Rakanui Road
P.O. Box 1357
Taupo 3351
Ph 07 378-6067
admin@eandj.co.nz

Drainlayer:

Name/s *Address* *Contact Phone No.*

Registration No. 12000

DRAW PLAN IN BLACK BALLPOINT ON GRAPH OPPOSITE
Plan is to show:
☐ All drains in correct position relative to building and boundaries
☐ The road frontage
☐ Depth of drains at connection points
☐ All foul water and stormwater drains
☐ All inspection openings, accurately dimensioned
☐ All buildings and boundaries
☐ Outside water lines and the source of supply
☐ The type, location and size of all on site sewage disposal systems
☐ Size and position of soak holes
REFER TO EXAMPLE ON LAST PAGE

NOTE: If the inspector cannot be satisfied of compliance and/or the drain layout differs from the approved building consented documents, an amendment to the consent may be requested.

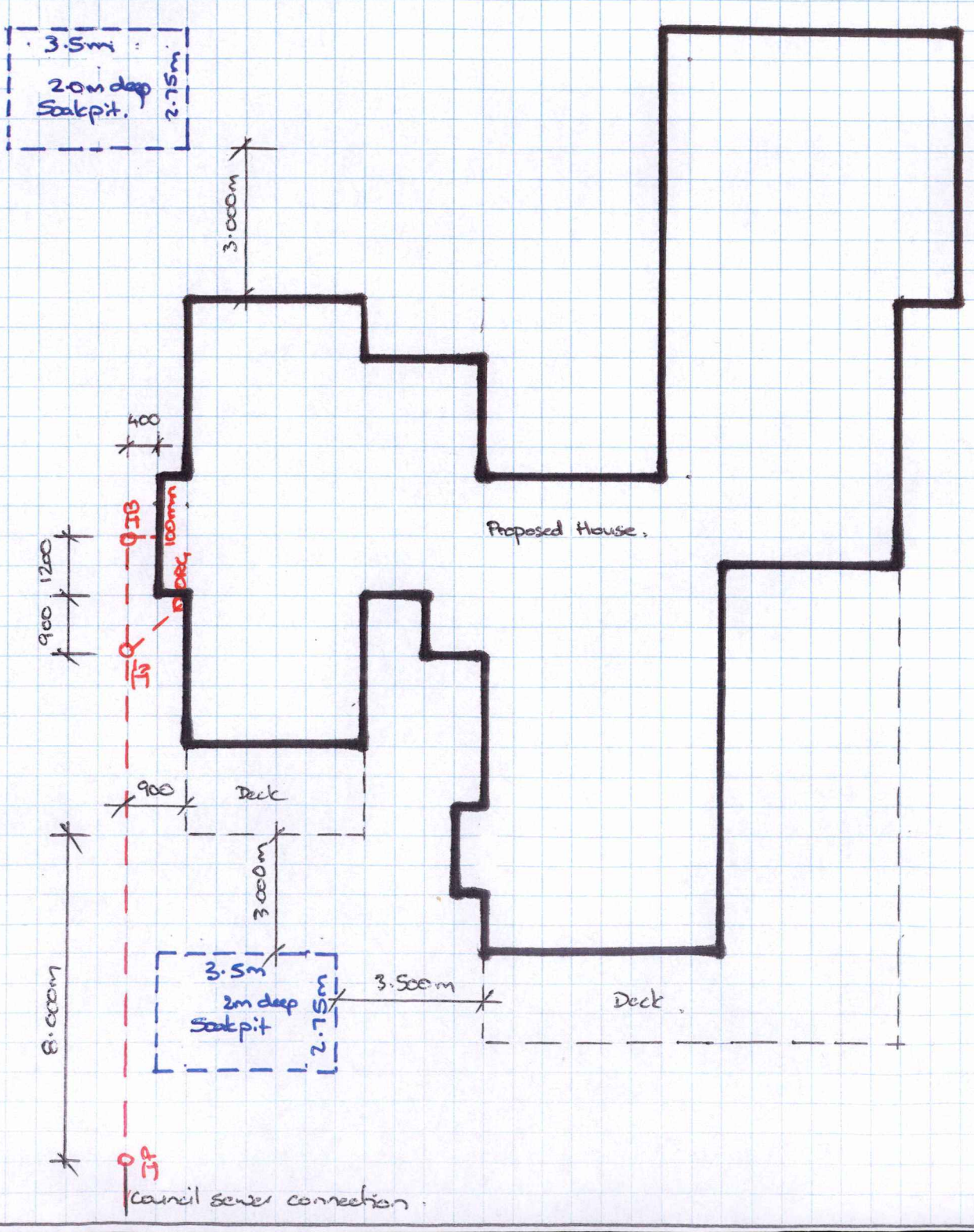
GORMACK GRAPH PAPERS ®

The Fairways 5 mm cross section

Murray Jones
6 The Fairways
Kinloch.

BC# 170355

E. & J. CONTRACTORS
65 Matai Street
P.O. Box 1357
Taupo 3351
Ph. 07 378-6067
admin@eandj.nz



Producer statement - Construction (PS3) 170355 - A2201478

GREAT LAKE TAUPŌ
Taupō District Council

Producer Statement Construction (PS3)
Drainage

All sections of this form must be completed

TO BE COMPLETED BY THE PERSON WHO HAS UNDERTAKEN THE DRAINAGE WORK

Author company: EJ Contractors BC number: 170 355

Author name: Kevin Joyce

Description of drainage work: constructed soakpits in accordance with Taupo District Councils Stormwater Disposal specs. 3x3x2m and 3x3x2m. for house only.

Legal description: Lot 52 DP 347410

Site address: 6 the Fairways Kinloch.

I have sighted the above building consent and read the attached conditions of consent and confirm that the drainage pipe work and fittings have been selected and constructed to comply with the consented plans to the extent required by the above building consent and comply with clauses E1 and G13 of the Building Regulations 1992.

I hereby certify that the storm water disposal system that has been constructed in accordance with the approved plans for the above building consent and/or the details as shown on the 'as built' plans supplied with this statement.

I hereby certify that I have personally tested the drainage system by the method indicated below:

- ☐ NZ Building Code E1/VM1 air test in accordance with paragraph 8.3; or
- ☐ AS/NZS3500.2.2:2003 air test in accordance with clause 12.3.2; or
- ☐ NZS7643 water test in accordance with section 11.

I understand that the Council will rely upon this producer statement, for the purposes of establishing compliance with the above building consent.

Signature: Date: 17/4/18.

Certifying drainlayer's registration number: 12000

Drainlayer's contact details:

Address: E. & J. CONTRACTORS Postcode:
65 Matai Street
P.O. Box 1357
Taupo 3351
Ph. 07 378-6067
admin@eandj.co.nz

Phone: Fax:

Mobile: Email:

No code compliance certificate application received yet - A2456157

1 May 2019

GREAT LAKE TAUPŌ
Taupō District Council

46 Horomatangi Street, Taupō 3330
Private Bag 2005, Taupō Mail Centre
Taupō 3352, New Zealand
T 07 376 0899
F 07 378 0118
E info@taupo.govt.nz
www.taupo.govt.nz

Murray Jones
808 Acacia Bay Road
Taupo 3330

Dear Sir / Madam

Building Consent Number: 170355
Address of work: 6 The Fairways, Kinloch
Description of work: Proposed new residence
Legal Description: Lot 52 DP 347410
Building Consent Granted Date: 23 June 2017

A check of our records has shown that we have not yet issued a Code Compliance Certificate for the above project.

Section 92 of The Building Act 2004 requires an owner to, as soon as practicable, to advise the Territorial Authority that the building work has been completed to the extent required by the building consent. Furthermore, section 93 of this Act requires Council to decide whether to issue a Code Compliance Certificate if no application for a code compliance certificate is received within two years from the date on which the building consent was granted. To enable you to meet your obligations, an online application form for Code of Compliance Certificate can be found at www.taupodc.govt.nz

As it is nearing two years from the date of the grant of your Building Consent, Council needs to make a decision to either issue or refuse the Code Compliance Certificate or to extend the timeframe to allow you to finish the work. If you have completed the work you can apply online for a Code of Compliance Certificate, providing all necessary paperwork and once the application has been accepted, you may arrange for an Inspection to be carried out immediately by contacting **Customer Services** on **07 376 0899.** This will enable a decision to be made as to whether or not a Code Compliance Certificate can be issued. If we do not hear from you we will be forced to make a decision on the Code Compliance Certificate, which will likely be to refuse it.

You are also advised that should a Code Compliance Certificate not be obtained for the work this may have significant implications regarding durability of the structure. You should also consider the effect that the absence of a Code Compliance Certificate for all the work originally consented may have with your ability to insure, draw down mortgage finance or sell the building (where it is likely that a Code Compliance Certificate for all the work will be required by a prospective purchaser).

Yours faithfully

Building Management Team
Taupo District Council

CCC Refused Letter - A2515351

GREAT LAKE TAUPŌ
Taupō District Council
46 Horomatangi Street, Taupō 3330
Private Bag 2005, Taupo Mail Centre
Taupō 3352, New Zealand
T 07 376 0899
F 07 378 0118
E info@taupo.govt.nz
www.taupo.govt.nz

22 July 2019

Murray Jones
808 Acacia Bay Road
Taupo 3330

Dear Sir/Madam

Building Consent Number: 170355
Address of work: 6 The Fairways, Kinloch
Description of work: Proposed new residence
Legal Description: Lot 52 DP 347410
Building Consent Issue Date: 23 June 2017

Further to our letter dated 1/05/2019, Council has not received an application for a Code Compliance Certificate for the above project

As a result of this, Council has been forced to make a decision in accordance with Section 95A of the Building Act 2004 to refuse to issue the Code Compliance Certificate for this project.

Your building consent file will be updated to reflect this decision and all of the information relating to the building will remain on your property file.

Yours faithfully

Kelvin Short
Building Consents Manager

Memo from LBP - Builder - A2605197

LICENSED BUILDING PRACTITIONERS

Form 6A Memorandum from Licensed Building Practitioner: Record of building work Section 88, Building Act 2004

THE BUILDING

Street address: 6 The Fairways

Suburb:

Town / City: Kinloch

Postcode:

THE PROJECT

Building consent number: 170355

THE OWNER(S)

Name(s): Murray Jones

Mailing Address: 808 Acacia Bay Rd

Suburb:

PO Box / Private Bag:

Town / City: Taupo

Postcode: 3330

Phone Number: 0274574923

Email:

Work that is restricted building work	Description	Carried out/Supervised
PRIMARY STRUCTURE		
Foundations and subfloor framing		Carried out and supervised
Walls		Carried out and supervised
Roof		Supervised
Columns and beams		Carried out and supervised
Bracing		Carried out and supervised
EXTERNAL MOISTURE MANAGEMENT SYSTEM		
No record added		

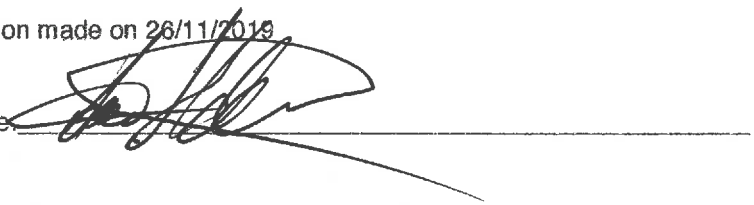
ISSUED BY

Name: Scott Hadland	
LBP number: BP124094	
Class(es) licensed in: Carpentry	
Plumbers, gasfitters and drainlayers registration number (if applicable):	
Mailing Address: 26 Sunset St	
Street Address: 26 Sunset St, Taupo, 3330	
Suburb:	
Town/City: Taupo	
PO Box/Private bag:	Postcode: 3330
Phone number:	Mobile: 0272484269
After hours:	Fax:
Email: scottbuiltnz@gmail.com	
Website:	
Register link: https://lbp.ewr.govt.nz/PublicRegister/View.aspx?lbpid=BP124094	

DECLARATION

I, Scott Hadland LBP carried out and supervised the restricted building work recorded on this form.

Declaration made on 26/11/2019

Signature 

Memo from LBP - Roofer - A2605199

LICENSED BUILDING PRACTITIONERS

Form 6A Memorandum from Licensed Building Practitioner:
Record of building work
Section 88, Building Act 2004

THE BUILDING

Street address: 6 the fairways

Suburb: Kinloch

Town / City: Taupo

Postcode:

THE PROJECT

Building consent number: 170355

THE OWNER(S)

Name(s): Murry jones

Mailing Address: 6 the fairways

Suburb: Kinloch

PO Box / Private Bag:

Town / City: Taupo

Postcode:

Phone Number: 0274574923

Email: dreamworx@xtra.co.nz

Work that is restricted building work	Description	Carried out/Supervised
PRIMARY STRUCTURE		
No record added		
EXTERNAL MOISTURE MANAGEMENT SYSTEM		
Roof cladding or roof cladding system	Install new metal roofing flashings to suit	Carried out and supervised

ISSUED BY

Name: Michael Griffin

LBP number: BP123734

Class(es) licensed in: Roofing

Plumbers, gasfitters and drainlayers registration number (if applicable):

Mailing Address: 9 kauri drive

Street Address: 9 kauri drive, Taupo, 3330

Suburb:

Town/City: Taupo

PO Box/Private bag:	Postcode: 3330
Phone number: 0220838754	Mobile: 0220838754
After hours: 0220838754	Fax:

Email: info@magroofing.co.nz

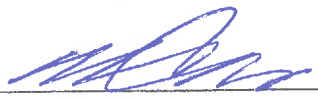
Website:

Register link: https://lbp.ewr.govt.nz/PublicRegister/View.aspx?lbpid=BP123734

DECLARATION

I, Michael Griffin LBP carried out and supervised the restricted building work recorded on this form.

Declaration made on 25/11/2019

Signature: 

Application to re activate building consent - A2646130

GREAT LAKE TAUPŌ
Taupō District Council

Re-Activate Building Consent

Application to re-activate a building consent that has previously been refused
Section 93, Building Act 2004

OFFICE USE ONLY	
Application No.	
Date Received	
Date Issued	

TAUPO DISTRICT COUNCIL
14 FEB 2020
RECEIVED

NOTE: *The re-activating of this building consent may be subject to a modification to the building consent to the effect of B2.3.1 of the New Zealand Building Code. The modification of B2.3.1 maybe back dated to a satisfactory date, (determined by the inspector at the time of inspection) not from the time of issue of the code compliance certificate.*

Original BC number: 70355.

1. The Building

Street address of building *(for structures that do not have a street address, state the nearest street intersection and the distance and direction from that intersection)*: 6 THE FAIRWAYS KINLOCH.

Legal description of land where building is located:

Valuation No: _____ Lot No: _____ DP/S No: _____

Section: _____ Block: _____ Survey District: _____

2. The Project

Overall scope of work (in specific detail): _____

Describe the work that is left to complete: The Builder Scottburt had an argument with the roofer over costs. The Roofer refused to sign Completion form. This has now been done.

Please state the reason(s) why the original consent was cancelled/refused: _____

3. The Owner (must be completed in full)

Contact person: MURRAY GODFREY GEDDES. Jones

Mailing address: 808 ACACIA BAY RD TAUPO

Street address/registered office: _____

Phone numbers: Landline: _____ Mobile: 0274574973.

Daytime: _____ After hours: _____

Fax: _____ Email address: dreamworx@xtra.co.nz

Website: _____

4. Signature of Owner

NOTE: It is the owner who is liable for payment of any fees or charges, all invoices and refunds will be in the owner's name.

Name of Owner *(please print)*: M G G JONES

Signature of Owner: _____ Date: 14/2/2020

5. The Agent (if applicable – only required if application is being made on behalf of the owner)

Name of agent/business: _____

Contact person: _____

Mailing address: _____

_____

Street address/registered office: _____

Phone numbers: Landline: _____ Mobile: _____

Daytime: _____ After hours: _____

Fax: _____ Email address: _____

Website: _____

Relationship to owner *(state details of the authorisation from the owner to make the application on the owner's behalf)*:

_____

6. Signature of Agent (if applicable)

Please attach proof of authority from owner.

Name of Agent *(please print)*: _____

Signature of Agent: _____ Date: _____

On behalf of and with the authority of the Owner

7. First point of contact for communications with the council (All correspondence (including further information requests and enquiries) will be directed to this contact in the first instance.)

☐ Owner ☐ Agent ☐ Other *(please complete details below)*

Name of contact person: _____

Mailing address: _____

_____

Phone numbers: Landline: _____ Mobile: _____

Daytime: _____ After hours: _____

Fax: _____ Email address: _____

8. Attachments

The following documents are attached to this application *(tick all that apply)*:

- ☐ Plans – Copy of a full set of original approved building consented plans - specifications
- ☐ Energy Works Certificates
- ☐ Producer Statement/s
- ☐ Application for Code Compliance Certificate
- ☐ Any other documents relevant to the works proposed

Council Use

_____

_____

_____

_____

_____

Electrical certificate - A2646146

ELECTRICAL CERTIFICATE OF COMPLIANCE & ELECTRICAL SAFETY CERTIFICATE

REFERENCE/CERTIFICATE ID NO.: 6

This form has been designed to be used by licensed electrical workers to certify that installations or Part installations under **Part 1 or Part 2 of AS/NZS 3000** are safe to be connected to the specified system of electrical supply.

Location Details: 6 The Fairways, Kinloch

Contact Details: (Name and address) Murry Jones

Name of Electrical worker: Kris Deere

Registration/Practising licence number: E253155

Phone & email: info@streamelectrical.co.nz

Name and registration number of person(s) supervised:

Certificate of Compliance

Type of work: ☐ Addition ☐ Alteration ☑ New work

The prescribed electrical work is: ☐ Low risk ☑ General ☐ High-risk (Specify):

Means of compliance: ☐ Part 1 of AS/NZS 3000 ☑ Part 2 of AS/NZS 3000

Additional Standards or electrical code of practice were required: ☑ No ☐ Yes (specify):

Date or range of dates that prescribed electrical work undertaken: Oct 2017 - May 2018

Contains fittings that are safe to connect to a power supply? ☑ Yes ☐ No

Specify type of supply system: 230 V MEN System

The installation has an earthing system that is correctly rated (where applicable) ☐ Yes ☐ No

Parts of the installation to which this certificate relates that are safe to connect to a power supply?

☑ All ☐ Parts (specify)

The work relies on manufacturers instructions: ☑ Yes ☐ No

If yes – identify the instruction manual including name, date and version. Also attach a copy of manufacturer's instructions to this certificate.
(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:
Link:

The work has been done in accordance with a certified design: ☐ Yes ☐ No

If yes – identify the certified design including name, date and version. Also attach a copy of the certified design to this certificate.
(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:
Link:

The work relies on a Supplier Declaration of Conformity (SDoC): ☐ Yes ☐ No

If yes - identify the SDoC including name, date and version OR EESS registration. Also attach a copy of the SDoC to this certificate.
(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:
Link:

The installation has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010 ☐ No ☑ Yes

Description of Work:

Pre-wire and fit out new home as per plans & specifications

Test Results (provide values)	
Polarity (Independent earth):	✓
Insulation resistance:	>500M Ohms
Earth Continuity:	0.1Ω Ohms
Bonding:	0.1Ω Ohms
Fault Loop impedance	0.53 Ohms
Other (specify):	PSC 439 A

By signing this document I certify that the completed prescribed electrical work to which this Certificate of Compliance applies has been done lawfully and safely, and the information in the certificate is correct.

Certifier's signature: [signature] **Date:** 15/2/2018

Electrical Safety Certificate

By signing this document I certify that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.

Certifier's name: Kris Deere

Registration/Practising licence number: E253155

Certifier's signature: [signature]

Certificate Issue Date: 21/2/18

Connection Date: 15/2/18

CUSTOMER COPY – THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS

This Electrical Safety Certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1)(e) of the Building Act 2004.

PS3 for tiler - A2646147

PRODUCER STATEMENT

APPLICATOR NAME : SHAYNE FULLER

APPLICATOR COMPANY : FLOORZ LTD

APPLICATOR NUMBER : ARDEX 5074

ADDRESS OF WORK DONE : 6 The Fairways, Kinloch, Taupo

BUILDING CONSENT NUMBER : BC170355

CUSTOMER NAME : Murray Jones

LOCATION ON SITE : 3 ensuites and main bathroom shower

PRODUCT USED : ARDEX WPM 155 RAPID

I confirm that :

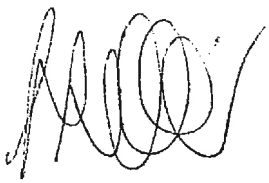
- The waterproof membrane has been applied in accordance with the manufacturers specifications and technical requirements.
- all work has been carried out in accordance with the building consent and complies with code clause E3 internal waterproofing.

APPLICATOR CONTACT DETAILS : SHAYNE FULLER, FLOORZ LTD

ADDRESS : 6B WEKA ROAD, TAUPO 3330

PHONE : 0275330407

SIGNATURE : DATE : 15/1/2019



FORM OF PRODUCER STATEMENT PS3 – CONSTRUCTION
At project completion, this form shall be completed by the building contractor and supplied to the Engineer.

ISSUED BY: Scottbuilt Construction NZ Ltd
(Building Contractor)

TO: Murray Jones
(Owner/Principal)

IN RESPECT OF: Ardex Superflex WPM
(Description of Contract Works)

AT: 6 The Fairways, Kinloch
(Address)

T/A: Taupo District Council **BUILDING CONSENT No:** 170355
(Territorial Authority / Building Consent Authority)

The above Building Contractor has contracted to the above Owner/Principal to carry out and complete certain building works in accordance with the contract, titled

The Fairways ("the contract")
(Title of building contract)

I Scott Hadland a duly authorised representative of the
(Builder's Authorised Agent)

above building contractor, believe on reasonable grounds that the above building contractor has carried out and completed

☑ All ☐ Part only as specified in the attached particulars

of the building works in accordance with the contract.

.....
(Signature of Authorised Agent on behalf of the Building Contractor)

15/01/2020
(Date)

67 Raywood Cres
Taupo
(Address)

This producer statement is confirmation by the builder(s) that they have carried out the building work in accordance with the drawings, specifications (and site amendments) that are part of the contract / building consent documents.

Work covered by this statement should have been supervised and checked by suitably qualified trades-persons.

The Engineer requires this producer statement and a copy of the T/A's building consent conditions, to confirm that items of the contract that he has not personally examined, have in fact been built according to the documents, so that the Engineer may issue appropriate documents to the T/A for it to release the Code Compliance Certificate.

Reactivated consent APPROVED - advice to owner to obtain CCC - A2655668

Date:	Mon, 9 Mar 2020 8:58:00 PM (UTC)
Sent:	Mon, 9 Mar 2020 8:58:48 PM (UTC)
Subject:	Reactivate BC 170355, 6 The Fairways, Kinloch
From:	buildingconsents
To:	dreamworx@xtra.co.nz;
CC:	Jade Haere <jhaere@taupo.govt.nz>;
Attachments:	2017-12-21 Site Notice.pdf; 2018-01-09 Site Notice.pdf; 2017-11-17 Site Notice.pdf; Outstanding Items Report 170355.pdf

Good morning Murray,

The reactivation process of BC170355 is now complete – you're welcome to continue forward with this building consent working towards Code Compliance Certificate.
Please find attached a copy of the failed site inspections to-date, which will need to rectified prior to CCC.

When all building work is complete and before the final CCC site inspection can take please – please make an online Application for Code Compliance Certificate https://online.taupo.govt.nz/ an upload the outstanding documents into Step 4 before submitting.
Attached is a report of documents outstanding to-date.

Kind regards,

Steph Massey Building Control Officer

Taupō District Council • 46 Horomatangi Street, Taupō 3330
Private Bag 2005 • Taupō Mail Centre • Taupō 3352 • New Zealand

D +64 7 376 0618 **T** +64 7 376 0899 **E** smassey@taupo.govt.nz
Follow us on **Facebook** and **Twitter**
www.taupo.govt.nz

Taupo District Council
72 Lake Terrace
Taupo
Phone 07 376 0899
buildingconsents@taupo.govt.nz

SITE NOTICE

Consent No: **170355** Date Printed: **21 December 2017**

Applicant: **Murray Jones**

Valuation Ref: **0738183051**

Site Address: **6 The Fairways, Kinloch**

Work Type: **Proposed new residence**

Inspection Type: **Preline Plumbing**

Inspection Status: **Fail**

Inspected By: **Martyn Trainor**

Inspection Date: **21 December 2017**

Preline plumbing inspection for new dwelling.

Passed Items

General

- Approved building consent documents on site
- Conditions of consent (if any) are met
- As per the approved plans

Plumbing

- Appropriate materials being used
- Position of HWC, (roof space etc.)
- Soil and waste pipes as per AS/NZ 3500/G10 & G13
- Pressure test of entire system

Outcome of Inspection: **The work was proceeding as the approved plan to meet the performance requirements of AS/NZS3500 and G12 of NZBC. The water pipes were on water pressure test. Terminal vent pipe was in place. Ok to preceed on reasonable grounds.**

Approved

Failed Items

Plumbing

Adequate support and protection where required	**Water pipes in garage ceiling to be lagged**
Integrity of framing (notches, holes etc)	**Studs and top plate where plumbing pipes penetrate on wall at rear of garage. Also aircon pipe through top plate in garage will require stiffening bracket. These will require a recheck before lining thes walls.**
Sealing of penetrations	**Terminal vent pipe to be flashed.**
Outcome of Inspection	**The work was proceeding as the approved plan to meet the performance requirements of AS/NZS3500 and G12 of NZBC. The water pipes were on water pressure test. Terminal vent pipe was in place. Ok to preceed on reasonable grounds.**
Further Inspection Required (Recheck Required)	**A further inspection required to sign off the failed items.**

Inspection Type: **Preline Building**

Inspection Status: **Fail**

Inspected By: **Martyn Trainor**

Inspection Date: **21 December 2017**

Preline building inspection for new dwelling.

Passed Items

General

- Approved building consent documents on site
- Conditions of consent (if any) are met
- Floor plan as per the approved plans

Walls

- Appropriate materials being used
- Airseals in place at window and door
- Wall bracing (internal)
- Fixings (nailing, proprietary fixings for uplift, bracing etc)
- Moisture content (specify) % — **15%**

Roof

- Roof underlay

Insulation

- Correct installation

Outcome of Inspection — **The work was proceeding as the approved plan.**
The brace element hold down fixings, insulation and foam air seals appeared to be done.
The moisture content of framing timbers was compliant for linings to be installed.
Ok to proceed on reasonable grounds.
However a check is required to sign off the failed item.

- Approved

Failed Items

Roof

- Roof penetrations & flashings — **Roof flashings and terminal vent flashing to complete.**
Also the airconditioning unit has been hung off the trusses in the walk n wardrobe.
This will either need to be supported over load bearing wall and rechecked or have the truss manufacture certify in writing the trusses are designed to take the additional loads.

Outcome of Inspection — **The work was proceeding as the approved plan.**
The brace element hold down fixings, insulation and foam air seals appeared to be done.
The moisture content of framing timbers was compliant for linings to be installed.
Ok to proceed on reasonable grounds.
However a check is required to sign off the failed item.

- Further Inspection Required (Recheck Required)
- Required documents not yet received

Documentation	Status
CCC application form	Required
Drainage as-built	Required
Electrical Certificate	Required
Gas Certificate	Required
Correct siting form	Required
PS3 General	Required

SEE ADVICE NOTES FOR LIST

PS3 Fireplace	Required
Truss Manufacturers Asbuilt Plan (B1)	Required
Water Proofing Certificate - Internal (E3) Tilers membrane	Required

PS3 - ARDEX SUPERFLEX WPM

Licensed Building Practitioners	Status
Carpentry 1	Required
Foundations 1	Required
Roofing 1	Required

Taupo District Council
72 Lake Terrace
Taupo
Phone 07 376 0899
buildingconsents@taupo.govt.nz

SITE NOTICE

Consent No: **170355** Date Printed: **9 January 2018**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Prefloor Building**
Inspection Status: **Pass**
Inspected By: **Peter Kay**
Inspection Date: **9 January 2018**

Passed Items

Outcome of Inspection	**Work appears to be being done in accordance with the approved plans and /or the performance requirements of the NZBC. Ok to proceed when steel is completed as discussed on site.**
Required documents not yet received	**Siting form received**

Inspection Type: **Preline Plumbing**
Inspection Status: **Fail**
Inspected By: **Peter Kay**
Inspection Date: **9 January 2018**

Preline plumbing inspection for new dwelling.

Passed Items

Plumbing

Adequate support and protection where required	**Water pipes in garage ceiling now lagged.**
Integrity of framing (notches, holes etc)	
Outcome of Inspection	**The work was proceeding as the approved plan to meet the performance requirements of AS/NZS3500 and G12 of NZBC. The water pipes were on water pressure test. Terminal vent pipe was in place. Ok to preceed on reasonable grounds.**

Failed Items

Plumbing

Inspection Type: **Post Lining**
Inspection Status: **Pass**
Inspected By: **Peter Kay**
Inspection Date: **9 January 2018**

Passed Items

General

- Approved building consent documents on site
- Conditions of consent (if any) are met
- As per the approved plans

Linings

Appropriate materials used	**GIB system used**
Wall Bracing	**Inplace**
Fixings	**Inplace**
Outcome of Inspection	
Approved	**Work appears correct as per approved consented documents and manufacturers guidelines, ok to proceed.**

Documentation	**Status**
Correct siting form	Accepted
CCC application form	Required
Drainage as-built	Required
Electrical Certificate	Required
Gas Certificate	Required
PS3 General **SEE ADVICE NOTES FOR LIST**	Required
PS3 Fireplace	Required
Truss Manufacturers Asbuilt Plan (B1)	Required
Water Proofing Certificate - Internal (E3) Tilers membrane **PS3 - ARDEX SUPERFLEX WPM**	Required

Licensed Building Practitioners	**Status**
Carpentry 1	Required
Foundations 1	Required
Roofing 1	Required

Taupo District Council
72 Lake Terrace
Taupo
Phone 07 376 0899
buildingconsents@taupo.govt.nz

SITE NOTICE

Consent No: **170355** Date Printed: **17 November 2017**

Applicant: **Murray Jones**

Valuation Ref: **0738183051**

Site Address: **6 The Fairways, Kinloch**

Work Type: **Proposed new residence**

Inspection Type: **Pre-Ext Cladding Systems-Building**

Inspection Status: **Fail**

Inspected By: **Martyn Trainor**

Inspection Date: **17 November 2017**

Precladding inspection for new dwelling.

Passed Items

General

- Approved building consent documents on site
- Conditions of consent (if any) are met
- As per the approved plans

Walls

Cladding type(s)	**Linea oblique 300 weather board and vertical cedar on cavity system. Also hard as rock stone veneer on cavity system.**
Appropriate materials used (e.g. timber treatment & grade, approved/appraised)	
Flashing details & materials	
Internal & external corners & junctions	
Battens (cavity system) and/or ventilation	
Proprietary fixings (metal tie down straps/connection etc for trusses/bracing etc)	
Building wrap (Correct type/installation)	
Penetrations	

Roof

Roof type(s)	**5rib colour steel roof.**
Correct installation and materials	
Outcome of Inspection	**The work was proceeding as the approved plan to meet the performance requirement E2 of NZBC. The building wrap, sill flashing tapes, roof and flashings appeared to be done. Ok to proceed on reasonable grounds.**

- Approved

Failed Items

Roof

Flashings	**Parapet cap flashings still to complete.**
Outcome of Inspection	**The work was proceeding as the approved plan to meet the performance requirement E2 of NZBC. The building wrap, sill flashing tapes, roof and flashings appeared to be done.**

	Ok to proceed on reasonable grounds.
Further Inspection Required (Recheck Required)	**For parapit csp flashings when completed.**

Documentation	**Status**
CCC application form	Required
Drainage as-built	Required
Electrical Certificate	Required
Gas Certificate	Required
Correct siting form	Required
PS3 General **SEE ADVICE NOTES FOR LIST**	Required
PS3 Fireplace	Required
Truss Manufacturers Asbuilt Plan (B1)	Required
Water Proofing Certificate - Internal (E3) Tilers membrane **PS3 - ARDEX SUPERFLEX WPM**	Required

Licensed Building Practitioners	**Status**
Carpentry 1	Required
Foundations 1	Required
Roofing 1	Required

TAUPO DISTRICT COUNCIL

Consent No: 170355 Building Category: Residential Level 1

Site Address: 6 The Fairways, Kinloch

Owner/Agent: Murray Jones

Documentation

The following documentation is outstanding:

CCC application form (online)	Go to https://online.taupo.govt.nz and click on "Code Compliance Certificate"
Gas Certificate	
PS3 General	SEE ADVICE NOTES FOR LIST
PS3 Fireplace	
Truss Manufacturers As-built Plan (B1)	The airconditioning unit has been hung off the trusses in the walk n wardrobe. This will either need to be supported over load bearing wall and rechecked or have the truss manufacture certify in writing the trusses are designed to take the additional loads.

Application for code of compliance certificate - BC170355 - A2660792

GREAT LAKE TAUPŌ
Taupō District Council

Application for Code Compliance Certificate

Reference number: REF200324100 **Submitted on:** 16/03/2020 08:16 a.m.

The Building Consent

Building consent number:	BC 170355
Issued by:	Taupō District Council
Valuation number:	0738183051
Property address:	6 The Fairways, Kinloch
Legal description:	LOT 52 DP 347410

The Owner

Name of owner:	Murray Jones
Contact person:	Clint Bramley
Mailing address::	PO Box 1604, Taupo 3351
Street address/registered office:	PO Box 1604
Landline:	
Mobile:	021544780
Daytime:	
After hours:	
Fax:	
Email address:	urbanformarchitecture@gmail.com
Website:	PO Box 1604

The Agent

Is there an agent working on behalf of the applicant?	Yes
Name of agent/business:	urbanformarchitecture@gmail.com
Contact person:	Clint Bramley
Mailing address::	PO Box 1604, Taupo 3351
Street address/registered office:	PO Box 1604
Landline:	021544780
Mobile:	021544780
Daytime:	
After hours:	
Fax:	
Email address:	urbanformarchitecture@gmail.com
Website:	
Relationship to owner:	designer

First Point of Contact

First point of contact for communication with Council: Agent

The Application

All building work to be carried out under the building consent specified on this form was completed on: 09/01/2018

Building work undertaken: New Residence

The personnel who carried out building work are as follows:

Type of practitioner: Plumber

Name: Marc Sinclair

Company name: Sinclair Plumbing and Gas Ltd

Address: 7 Beachman Grove, Hilltop, Taupo 3330

Landline:

Mobile: 021746411

Email address:

Specified systems: There are no specified systems in the building

I request that you issue a code compliance certificate for this work under section 95 of the Building Act 2004.

The code compliance certificate should be sent to: Agent

Attachments

certificate_18613-168.pdf

Gmail - FW_ Truss Load.pdf

Name of person completing this Code Compliance Certificate application: Clint Bramley

Relationship to owner (if not owner): Designer

Gasfitting certificate - BC170355 - A2660793

GASFITTING CERTIFICATE OF COMPLIANCE

GAS SAFETY CERTIFICATE

Pursuant to the Gas Act 1992 and the Gas (Safety and Measurement) Regulations 2010

ENERGY WORK CERTIFICATE

(Pursuant to the Building Act 2004)

This certificate is not transferable

www.certsonline.co.nz
Sinclair Plumbing and Gas Ltd
ph 021746411
7 Beachman Grove,
Hilltop,Taupo,
Taupo,3330,NZ

Consumer:	Murray Jones	**Certificate Number:**	**18613-168**	**Test Result:**	15 min Duration
Installation Address:	6 The Fairways	**Gas Supplier:**			3.4kPa test pressure
		Category:	Gasfitters		0kPa Loss / Gain
	Kinloch	**Installation Type:**	New		2.75kPa Working pressure
Vehicle Registration:		**Gas Type:**	LPG	**Risk Category:**	General
Vessel Registration:		**Certification Date:**	24-07-2018	**Installation Date:**	04-07-2018

DESCRIPTION OF GASFITTING TO WHICH THIS CERTIFICATE APPLIES

[Y] Includes Pipework Installation
[Y] Includes work on an appliance or fitting, imported or manufactured, for consumers own use
[Y] This certificate relates to the whole of the gas installation or [N] Just to specified parts of it

ADDITIONAL INFORMATION (include install dates - references)

Additional Information: Ran all new prelude gas pipe work from bottle location to appliance locations. Installed and fitted off appliances. Set up auto change over valve for two 45kg bottles with condensate trap and test point. Tested and commissioned.

Qty	Item Type	Item Location	Make/Model	Input Rate	Flue Type	Flue Location	Vent Type	Vent Location
1	Water heater continuous flow	External	Rheem mod. 871624lfz	188mj/h	Fan Assisted Flue (Common)	External	Mechanical	
1	Water heater continuous flow	External	Rheem mod. 874627lpz	199mj/h	Fan Assisted Flue (Common)	External	Mechanical	
1	Decorative fires	Lounge	Escea dl850	33 mj/h	Fan Assisted Flue (Common)	Through roof	Mechanical	
1	Hob	Kitchen	Fisher&paykel	47 mj/h	Unflued		Adventitious	

I CERTIFY THAT:

[Y] I Certify that all appliances and fittings worked on by me or by persons working under my supervision are safe to connect to a gas supply and that all work carried out was in accordance with all applicable requirements of the Gas Act 1992 and Gas (Safety and Measurement) Regulations 2010 & all information entered in this certificate is correct.

[N] I Certify that work required complies with standards in addition to AS/NZS 5601.1 or AS/NZS 5601.2 (as applicable), and are referenced in the Additional Information text.

[Y] I Certify that all Gasfitting Work has been done in accordance with sections 3 to 6 of AS/NZS 5601.1

[N] I Certify that all Gasfitting Work has been done in accordance with sections 3 to 9 of AS/NZS 5601.2.

[N] I Certify that all Gasfitting Work has been done in accordance with the certified design [Y] manufacturer's instructions [N] for the gas installation or part installation and the manufacturer's and/or certified design compliance documents are attached, or an electronic location referenced on this Certficate.

[Y] The gasfitting work has been done lawfully & safely and is connected to a gas supply & is safe to use. All information entered in this certificate is correct.

Installer(s) supervised by certifier
Name: Marc Sinclair (18613)

Gas Connection Made By
Name: Marc Sinclair
Registration No: 18613
Connection Date:04-07-2018
Signed:



Certifier
Name: Marc Sinclair(18613)
Employer License No:
Signed:



Truss load - BC170355 - A2660794

Gmail **Clint Bramley <urbanformarchitecture@gmail.com>**

FW: Truss Load

1 message

Murray Jones <dreamworx@xtra.co.nz> Thu, Mar 12, 2020 at 3:23 PM
To: Clint Bramley <urbanformarchitecture@gmail.com>

From: ScottBuilt Construction NZ Ltd <scottbuiltnz@gmail.com>
Sent: Tuesday, 10 March 2020 10:19 a.m.
To: Murray Jones <dreamworx@xtra.co.nz>
Subject: Fwd: Truss Load

---------- Forwarded message ---------
From: **Anthony** <anthony@truss.co.nz>
Date: Fri, 22 Dec 2017 at 10:03
Subject: Truss Load
To: ScottBuilt Construction NZ Ltd <scottbuiltnz@gmail.com>

Hi Scott

Trusses are designed to carry 120 KG live load so this will cover the 28Kg air-conditioning unit sitting between trusses T04 on your job 6 Fairway Kinloch Taupo

Yours sincerely

Anthony Morris

021922412

Capital Precut Solutions Ltd

06 370 1390

12 Papawai Place

MASTERTON 5810

--

Kind regards

Scott

Scottbuilt Construction NZ Ltd

www.scottbuilt.co.nz

2020-03-16 Audit Report - G3 - A2661478

GoGet Inspection Audit Report

Consent No: **170355**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Prefloor/Subfloor Plumbing & Drainage**
Inspection Outcome: **Pass**
Inspected By: **Stephanie Massey**
Inspection Date: **16 March 2020 1:36 p.m.**
Duration: **0 minutes**

Inspection Element	Status
Drainage	Pass
On Site Wastewater System **Separate contract**	Pass

2020-03-16 Audit Report - G7 - A2661479

GoGet Inspection Audit Report

Consent No: **170355**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Preline Building**
Inspection Outcome: **Fail**
Inspected By: **Stephanie Massey**
Inspection Date: **16 March 2020 1:36 p.m.**
Duration: **0 minutes**

Preline building inspection for new dwelling.

Inspection Element	Status
Roof	Fail
Roof penetrations & flashings	Fail
Roof flashings and terminal vent flashing to complete.	
Roof underlay	Pass

2020-03-16 Site Notice - A2661480

Taupo District Council
72 Lake Terrace
Taupo
Phone 07 376 0899
buildingconsents@taupo.govt.nz

SITE NOTICE

Consent No: **170355**
Date Printed: **16 March 2020**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**
Building Category: **Residential Level 1**

Inspection Type: **Prefloor/Subfloor Plumbing & Drainage**
Inspection Outcome: **Pass**
Inspected By: **Stephanie Massey**
Inspection Date: **16 March 2020**

Passed Items

Drainage

On Site Wastewater System — **Separate contract**

Inspection Type: **Preline Building**
Inspection Outcome: **Fail**
Inspected By: **Stephanie Massey**
Inspection Date: **16 March 2020**

Preline building inspection for new dwelling.

Failed Items

Roof

Roof penetrations & flashings — **Roof flashings and terminal vent flashing to complete.**

Outcome of Inspection — **The work was proceeding as the approved plan.
The brace element hold down fixings, insulation and foam air seals appeared to be done.
The moisture content of framing timbers was compliant for linings to be installed.
Ok to proceed on reasonable grounds.
However a check is required to sign off the failed item.**

Further Inspection Required (Recheck Required)

Required documents not yet received

Passed Items

Roof

Roof underlay

CCC Review for Murray Jones BC170355 - A2661486

Date: Mon, 16 Mar 2020 12:40:00 AM (UTC)
Sent: Mon, 16 Mar 2020 12:40:45 AM (UTC)
Subject: CCC Review for Murray Jones BC170355
From: Steph Massey
To: 'urbanformarchitecture@gmail.com' <urbanformarchitecture@gmail.com>;

Hi Clint, I've reviewed and approved Murray's CCC application. He can book a final site inspection when ready.

Thanks,

Steph Massey Building Control Officer

Taupō District Council • 46 Horomatangi Street, Taupō 3330
Private Bag 2005 • Taupō Mail Centre • Taupō 3352 • New Zealand

D +64 7 376 0618 **T** +64 7 376 0899 **E** smassey@taupo.govt.nz
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www.taupo.govt.nz

2020-03-19 Audit Report - G11 - A2664539

GoGet Inspection Audit Report

Consent No: **170355**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Pre-Ext Cladding Systems**
Inspection Outcome: **Pass**
Inspected By: **Peter Kay**
Inspection Date: **19 March 2020 3:15 p.m.**
Duration: **0 minutes**

Precladding inspection for new dwelling.

Inspection Element	Status
Roof	Pass
Flashings	Pass
Parapet cap flashings now complete.	
Outcome of Inspection	Pass
Further Inspection Required (Recheck Required)	N/A

2020-03-19 Audit Report - G4 - A2664541

GoGet Inspection Audit Report

Consent No: **170355**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Preline Plumbing**
Inspection Outcome: **Pass**
Inspected By: **Peter Kay**
Inspection Date: **19 March 2020 3:15 p.m.**
Duration: **0 minutes**

Preline plumbing inspection for new dwelling.

Inspection Element	Status
Plumbing	Pass
Sealing of penetrations	Pass

Terminal vent pipe now flashed.

2020-03-19 Audit Report - G7 - A2664542

GoGet Inspection Audit Report

Consent No: **170355**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Preline Building**
Inspection Outcome: **Pass**
Inspected By: **Peter Kay**
Inspection Date: **19 March 2020 3:15 p.m.**
Duration: **0 minutes**

Preline building inspection for new dwelling.

Inspection Element	Status
Roof	Pass
Roof penetrations & flashings	Pass
Outcome of Inspection	Pass
Further Inspection Required (Recheck Required)	N/A
Required documents not yet received	N/A

2020-03-19 Audit Report - G9 - A2664543

GoGet Inspection Audit Report

Consent No: **170355**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Code Compliance - Building (Single Dwelling Only)**
Inspection Outcome: **Fail**
Inspected By: **Peter Kay**
Inspection Date: **19 March 2020 3:40 p.m.**
Duration: **60 minutes**

Inspection Element	Status
General	Pass
Previous inspections	Pass
Approved building consent documents on site	Pass
Conditions of consent (if any) are met	Pass
As per the approved plans	Pass
Shrinkage control joints	N/A
Application for Code Compliance Certificate	Pass
Potable water as per Clause G12	N/A
Section 75 confirmation	N/A
Warnings / Bans	N/A
Exterior	Pass
External envelope complete & weatherproof	Pass
Claddings completed in accordance with standards/specifications	Pass
Correct protective coating/paint systems as required	Pass
Wall and roof penetrations sealed/flashed	Pass
Access to building	Pass
Barriers as required completed and compliant	Pass
Subfloor access as required	N/A
Ground levels/paving heights	Pass
Stormwater disposed of appropriately	Pass
Retaining walls	N/A
Vehicle and footpath damage	Pass
Interior	Fail
Ceiling and wall insulation in place	Pass
Fire ratings stopped	N/A
Installation of shower / bath linings, splash boards etc	Pass
Safety glass in bath / shower screens and adjacent windows	Pass
Wet areas (walls, ceilings, floors)	Pass
Tempering valve installed	N/A
Mechanical ventilation extraction to exterior	Pass
Catches on low windows (safety from falling)	Pass
Barrier heights and handrails	N/A
Lighting to access routes / stairs	N/A
Smoke alarms fitted and working **To be installed**	Fail
Visual awareness	Pass

Barriers for residential pools	N/A
Covers for small heated pools	N/A
Fireplace	N/A
Outcome of Inspection	Fail
Further Inspection Required (Recheck Required)	N/A
Have all documents been received, checked and Goget documentation updated?	Pass

Documentation checked by TDC staff prior to inspection being booked

Approved	Fail

Ok to issue CCC once photos of smoke alarms and pergola framing has been repaired. Send photos to pkay@taupo.govt.nz



Taken at 1:01 PM on Thursday 19/03/2020



Taken at 1:01 PM on Thursday 19/03/2020



Taken at 1:01 PM on Thursday 19/03/2020



Taken at 1:06 PM on Thursday 19/03/2020



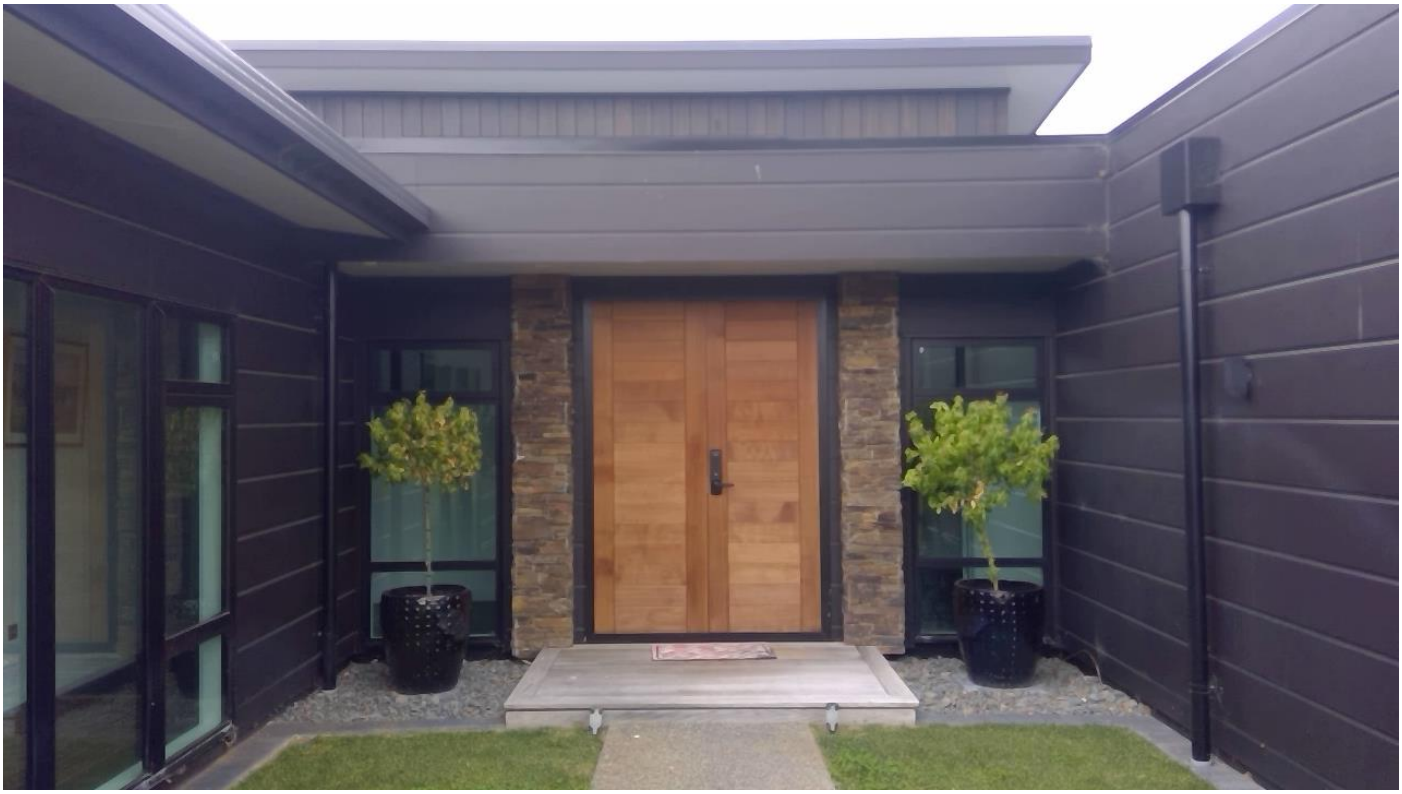
Taken at 1:06 PM on Thursday 19/03/2020



Taken at 1:07 PM on Thursday 19/03/2020



Taken at 1:08 PM on Thursday 19/03/2020



Taken at 1:09 PM on Thursday 19/03/2020



Taken at 1:09 PM on Thursday 19/03/2020



Taken at 1:10 PM on Thursday 19/03/2020



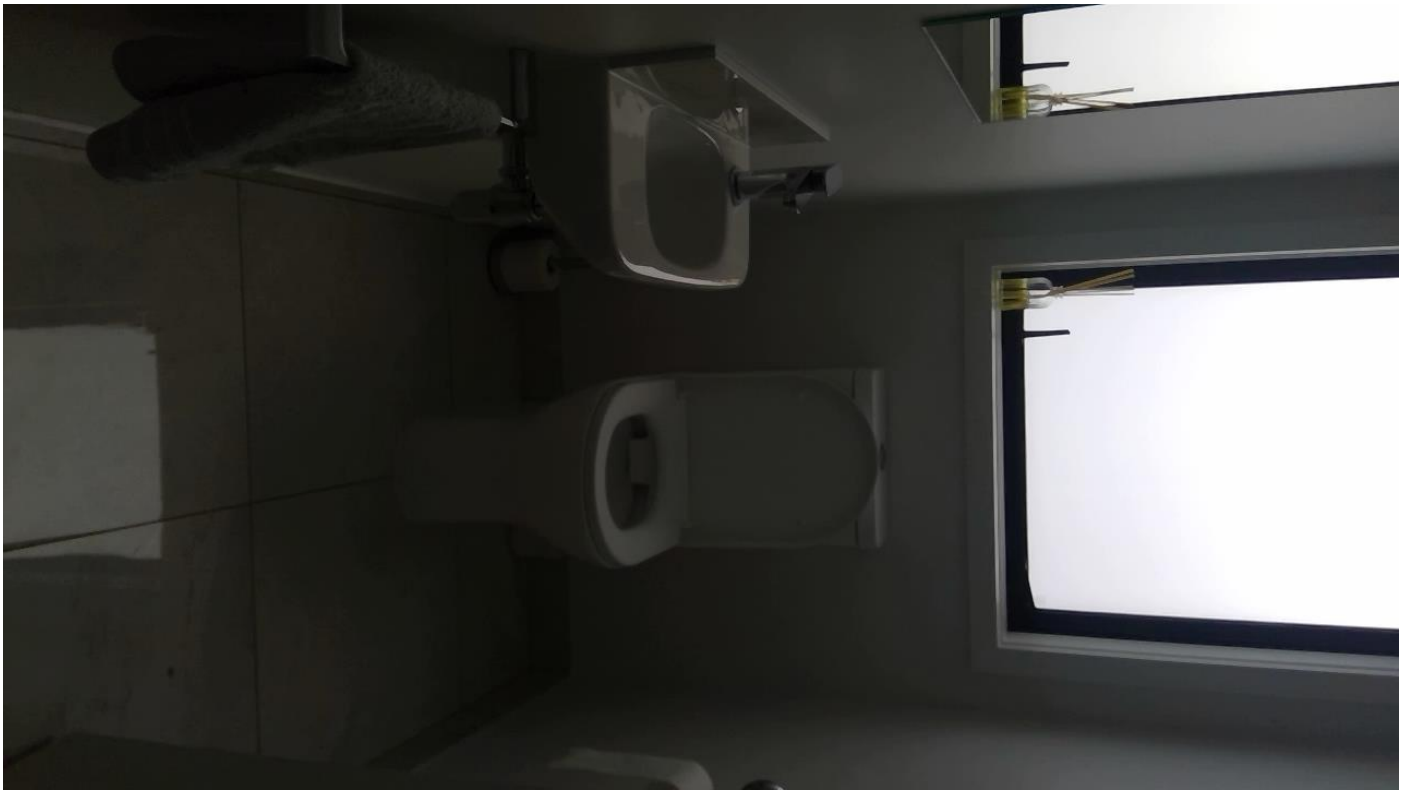
Taken at 1:10 PM on Thursday 19/03/2020



Taken at 1:13 PM on Thursday 19/03/2020



Taken at 1:14 PM on Thursday 19/03/2020



Taken at 1:14 PM on Thursday 19/03/2020

2020-03-19 Site Notice - A2664552

Taupo District Council
72 Lake Terrace
Taupo
Phone 07 376 0899
buildingconsents@taupo.govt.nz

SITE NOTICE

Consent No: **170355**
Date Printed: **19 March 2020**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**
Building Category: **Residential Level 1**

Inspection Type: **Pre-Ext Cladding Systems**
Inspection Outcome: **Pass**
Inspected By: **Peter Kay**
Inspection Date: **19 March 2020**

Precladding inspection for new dwelling.

Passed Items

Roof

Flashings — **Parapet cap flashings now complete.**

Outcome of Inspection

Inspection Type: **Preline Plumbing**
Inspection Outcome: **Pass**
Inspected By: **Peter Kay**
Inspection Date: **19 March 2020**

Preline plumbing inspection for new dwelling.

Passed Items

Plumbing

Sealing of penetrations — **Terminal vent pipe now flashed.**

Inspection Type: **Preline Building**
Inspection Outcome: **Pass**
Inspected By: **Peter Kay**
Inspection Date: **19 March 2020**

Preline building inspection for new dwelling.

Passed Items

Roof

Roof penetrations & flashings

Outcome of Inspection

Inspection Type: **Code Compliance - Building (Single Dwelling Only)**
Inspection Outcome: **Fail**
Inspected By: **Peter Kay**
Inspection Date: **19 March 2020**

Failed Items

Interior

Smoke alarms fitted and working — **To be installed**

Outcome of Inspection

Approved	**Ok to issue CCC once photos of smoke alarms and pergola framing has been repaired. Send photos to pkay@taupo.govt.nz**

Passed Items

General

- Previous inspections
- Approved building consent documents on site
- Conditions of consent (if any) are met
- As per the approved plans
- Application for Code Compliance Certificate

Exterior

- External envelope complete & weatherproof
- Claddings completed in accordance with standards/specifications
- Correct protective coating/paint systems as required
- Wall and roof penetrations sealed/flashed
- Access to building
- Barriers as required completed and compliant
- Ground levels/paving heights
- Stormwater disposed of appropriately
- Vehicle and footpath damage

Interior

- Ceiling and wall insulation in place
- Installation of shower / bath linings, splash boards etc
- Safety glass in bath / shower screens and adjacent windows
- Wet areas (walls, ceilings, floors)
- Mechanical ventilation extraction to exterior
- Catches on low windows (safety from falling)
- Visual awareness

Outcome of Inspection

Have all documents been received, checked and Goget documentation updated?	**Documentation checked by TDC staff prior to inspection being booked**

Documentation	Status
CCC application form (online)	Accepted
Wastewater Drainage As-built	Accepted
Stormwater As-built	Accepted
PS3 Stormwater Drainage (soakholes/soakpits) incl. photos	Accepted
Electrical Certificate	Accepted
Gas Certificate **includes fireplace**	Accepted
Correct siting form	Accepted
Pre-floor/Subfoor Plumbing As-built	Accepted
PS4 (Geotechnical) (B1) - Engineer **PS4 for Building Platform provided and on file.**	Accepted
Truss Manufacturers As-built Plan (B1) **The airconditioning unit has been hung off the trusses in the walk n wardrobe.** **This will either need to be supported over load bearing wall and rechecked or have the truss manufacture certify in writing the trusses are designed to take the additional loads.**	Accepted

PS3 Water Proofing Certificate - Internal (E3) Tilers Membrane **PS3 - ARDEX SUPERFLEX WPM**	Accepted

Licensed Building Practitioners	Status
Design 2 **Engineer - David Dekker - CPEng 1003026**	Accepted
Design 1 **Designer - Clint Bramley - LBP 112493**	Accepted
Carpentry 1 **Scott Hadland**	Accepted
Foundations 1 **Scott Hadland**	Accepted
Roofing 1 **Michael Griffin**	Accepted

FW: CCC Review for Murray Jones BC170355 - A2715934

Date: Thu, 2 Jul 2020 9:15:00 PM (UTC)
Sent: Thu, 2 Jul 2020 9:15:43 PM (UTC)
Subject: FW: CCC Review for Murray Jones BC170355
From: Steph Massey
To: Murray Jones <dreamworx@xtra.co.nz>;

Hi Murray, We sent notification back on 16th March to Clint (copy of email below) – as requested by the CCC application. Re-confirming, you're able to book in for the final inspection now.


First Point of Contact

First point of contact for communication with Council: Agent

The Application

Thanks,

Steph Massey Building Control Officer

Taupō District Council • 46 Horomatangi Street, Taupō 3330
Private Bag 2005 • Taupō Mail Centre • Taupō 3352 • New Zealand

D +64 7 376 0618 **T** +64 7 376 0899 **E** smassey@taupo.govt.nz
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www.taupo.govt.nz

From: Steph Massey
Sent: Monday, 16 March 2020 1:41 PM
To: 'urbanformarchitecture@gmail.com' <urbanformarchitecture@gmail.com>
Subject: CCC Review for Murray Jones BC170355

Hi Clint, I've reviewed and approved Murray's CCC application. He can book a final site inspection when ready.
Thanks,
Steph Massey Building Control Officer

Taupō District Council • 46 Horomatangi Street, Taupō 3330
Private Bag 2005 • Taupō Mail Centre • Taupō 3352 • New Zealand

D +64 7 376 0618 **T** +64 7 376 0899 **E** smassey@taupo.govt.nz
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2020-07-13 Audit Report - G9 - A2722421

GoGet Inspection Audit Report

Consent No: **170355**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**

Inspection Type: **Code Compliance - Building (Single Dwelling Only)**
Inspection Outcome: **Pass**
Inspected By: **Peter Kay**
Inspection Date: **13 July 2020 2:29 PM**
Duration: **0 minutes**

Inspection Element	Status
Interior	Pass
Smoke alarms fitted and working	Pass
Photos received	
Outcome of Inspection	Pass
Approved	Pass
Filed items from previous inspection have been addressed, ok to issue CCC on reasonable grounds	

2020-07-13 Site Notice - A2722452

Taupo District Council
72 Lake Terrace
Taupo
Phone 07 376 0899
buildingconsents@taupo.govt.nz

SITE NOTICE

Consent No: **170355**
Date Printed: **13 July 2020**
Applicant: **Murray Jones**
Valuation Ref: **0738183051**
Site Address: **6 The Fairways, Kinloch**
Work Type: **Proposed new residence**
Building Category: **Residential Level 1**

Inspection Type: **Code Compliance - Building (Single Dwelling Only)**
Inspection Outcome: **Pass**
Inspected By: **Peter Kay**
Inspection Date: **13 July 2020**

Passed Items

Interior

Smoke alarms fitted and working	**Photos received**

Outcome of Inspection

Approved	**Filed items from previous inspection have been addressed, ok to issue CCC on reasonable grounds**

Documentation	Status
CCC application form (online)	Accepted
Wastewater Drainage As-built	Accepted
Stormwater As-built	Accepted
PS3 Stormwater Drainage (soakholes/soakpits) incl. photos	Accepted
Electrical Certificate	Accepted
Gas Certificate **includes fireplace**	Accepted
Correct siting form	Accepted
Pre-floor/Subfloor Plumbing As-built	Accepted
PS4 (Geotechnical) (B1) - Engineer **PS4 for Building Platform provided and on file.**	Accepted
Truss Manufacturers As-built Plan (B1) **The airconditioning unit has been hung off the trusses in the walk n wardrobe. This will either need to be supported over load bearing wall and rechecked or have the truss manufacture certify in writing the trusses are designed to take the additional loads.**	Accepted
PS3 Water Proofing Certificate - Internal (E3) Membrane **PS3 - ARDEX SUPERFLEX WPM**	Accepted

Licensed Building Practitioners	Status
Design 2 **Engineer - David Dekker - CPEng 1003026**	Accepted
Design 1 **Designer - Clint Bramley - LBP 112493**	Accepted
Carpentry 1 **Scott Hadland**	Accepted
Foundations 1 **Scott Hadland**	Accepted
Roofing 1	Accepted

Michael Griffin

2020-07-14 Statement of compliance - A2722543

GREAT LAKE TAUPŌ
Taupō District Council

Statement of Compliance with the NZ Building Code

Consent No: 170355

ISSUED BY: **Taupo District Council**

PROJECT

Site Address:	6 The Fairways, Kinloch
Legal Description:	Lot 52 DP 347410
Work Description:	Proposed new residence
Building Category:	Residential Level 1

OWNER

Name(s): Murray Jones
Address: 808 Acacia Bay Road,Taupo

[P] Application for CCC Received, Signed, Dated and have correct details
[P] Check all Inspections required and completed with reasons identified
[P] Records and Notes of Required Standard, Legible and Authors identifiable
[P] All Consent Conditions Complied With, Checked and no outstanding Conditions
[P] All records in file complete including Plans, Specifications, Inspection Notes, Certificate and Notices
[P] Application form for BC, Amendments and all letters and correspondence (refer to NCS system & Objective)
[P] All checks been completed as per Systems and Policy Manual 3.10.1 and 12.2 and a CCC for this consent can be issued

NOTES:
Inspections Prepaid: 10
Inspections Done: 9
Total Inspections Chargeable: 9
CCC Backdating of Durability Requirements: n/a
Current Lawful Established Use: Detached Dwelling
Year First Built: 2020

LICENSED BUILDING PRACTITIONERS:

Design 1	BP112493	Designer - Clint Bramley - LBP 112493
Design 2	CPENG1003026	Engineer - David Dekker - CPEng 1003026
Carpentry 1	BP124094	Scott Hadland
Foundations 1	BP124094	Scott Hadland
Roofing 1	BP123734	Michael Griffin

Taupo District Council confirms that work done in relation to this project has been completed in accordance with the Building Consent and the New Zealand Building Code.

Signed: Date: 14 July 2020
Name: Stephanie Massey
Position: Building Officer

CCC granted 11/08/2020 - A2746697

Date: Tue, 11 Aug 2020 3:15:42 AM (UTC)

Sent: Tue, 11 Aug 2020 3:15:30 AM (UTC)

Subject: Online application for 6 The Fairways, Kinloch

From: buildingconsents <buildingconsents@taupo.govt.nz>

To: urbanformarchitecture@gmail.com; urbanformarchitecture@gmail.com; Tech Support <businesssupport@taupo.govt.nz>;

This email is to advise that the processing of your online application (REF200324100) for 6 The Fairways, Kinloch has completed.

Please follow https://online.taupo.govt.nz/online-services/REF200324100/online-services/REF200324100 to access the documents.

You can access the documents by selecting the ‘My Account’ tab and enter your login details, if prompted. Then in the ‘Submitted Applications’ section, select the above mentioned Reference Number. The documents are located in the ‘Files’ section of your application summary screen.

Kind regards,
Taupō District Council Building Consent Team

Code of Compliance Certificate - A2746698

GREAT LAKE TAUPŌ
Taupō District Council

Form 7

Code Compliance Certificate

Section 95, Building Act 2004

BC No: 170355

The Building

Street address of building: 6 The Fairways, Kinloch

Legal description of land where building is located: Lot 52 DP 347410

Valuation number: 0738183051

Building name: Jones Residence

Location of building within site/block number: 6 The Fairways, Kinloch

Level/unit number: N/A

Current, lawfully established, use: Detached dwelling

Year first constructed: 2020

The Owner

Name of owner: Jones Murray Godfrey Geddes

Contact person: Clint Bramley

Mailing address: PO Box 1604, Taupo 3351

Street address/registered office: PO Box 1604

Phone number: Landline: Unknown **Mobile:** 021 544780 **Daytime:** Unknown **After hours:** Unknown

Email address: urbanformarchitecture@gmail.com

Website: N/A

First point of contact for communications with the council/building consent authority

Full Name: Clint Bramley, Urbanform Architecture

Mailing Address: PO Box 1604, Taupo

Phone: 021 544780

Email: urbanformarchitecture@gmail.com

Building Work

Issued by: Taupo District Council

Description of work: Proposed new residence

Intended Use: Detached dwelling **Intended Life:** Specified as 50 years

Code Compliance

The building consent authority named below is satisfied, on reasonable grounds, that:

a) The building work complies with the building consent;

Signature: _____

Dean Southey
Building Inspections and Processing Mananger
On behalf of: Taupo District Council
Date: 11/08/20

GREAT LAKE TAUPŌ
Taupō District Council
46 Horomatangi Street, Taupō 3330
Private Bag 2005, Taupo Mail Centre
Taupō 3352, New Zealand
T 07 376 0899
F 07 378 0118
E info@taupo.govt.nz
www.taupo.govt.nz

11 August 2020

Jones Murray Godfrey Geddes
808 Acacia Bay Road
Taupo 3330

Dear Sir/Madam

Code Compliance Certificate in relation to BC170355
6 The Fairways, Kinloch - Proposed new residence

Please find enclosed the Code Compliance Certificate for the above Building Consent.

If you require further information, please contact this office on 07 376 0899 or email techsupport@taupo.govt.nz.

Yours sincerely

Mariah Anderson
Business Support Officer