



140815086225

BC080258.01



TRIM Record Number

Form 5

Building consent 080258

Section 51, Building Act 2004

The building

Street address of building: 685 DEPOT RD

Legal description of land where building is located: Lot 2 DP 383229

Valuation number: 2154012711

Building name:

Location of building within site/block number:

Level/unit number:

The owner

Name of owner: M MCDOWELL & HERITAG TRUST COMPANY LIMITED

Contact person: MURRAY MCDOWELL

Mailing address: 685 DEPOT ROAD, RD 1, OXFORD

Street address/registered office:

Phone number: Landline:

Mobile: 0274 375275

Daytime: 3123452

After hours: 3123452

Facsimile number:

Email address: BUILDBEST@CLEAR.NET.NZ

Website:

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

As above

Building work

The following building work is authorised by this building consent:

DWELLING WITH ATTACHED GARAGE WITH LOGBURNER WEGJ 2000 YUNCA

RESIDENTIAL

This building consent is issued under section 51 of the Building Act 2004. This building consent does not relieve the owner of the building (or proposed building) of any duty or responsibility under any other Act relating to or affecting the building (or proposed building).

This building consent also does not permit the construction, alteration, demolition, or removal of the building (or proposed building) if that construction, alteration, demolition, or removal would be in breach of any other Act.

This building consent is issued subject to the following conditions:

1. This consent is issued subject to the attached Building Inspection Works Schedule:
2. Please note that the consent fees allow for a single inspection of construction stages of the project as specified in the inspection schedule. Any extra inspections required will be invoiced before a code compliance certificate is issued.
3. Please note that any deviation from the approved documents is subject to a new Building Consent.
4. Any special conditions of consent endorsed on the Building Consent and/or documents MUST be drawn to the attention of the subcontractors.
5. The duplicate copy of the approved consent documents and inspection schedule must remain on site during construction.
6. All construction work and materials used shall comply with the New Zealand Building Code, notwithstanding any inconsistencies which may occur in the drawings and specifications.
7. All electrical work associated with this consent is subject to compliance with the requirements of the Electricity Act 1992. On completion provide a copy of the Electrical Certificate of Compliance.
8. Waste disposal units, or garbage grinders shall not be installed to a septic tank system.
9. Subject to the construction/demolition work being carried out in a manner which ensures the safety of people and the protection of other property in accordance with the New Zealand Building Code clause F5.

Compliance schedule

A compliance schedule is not required for the building.

Attachments

Copies of the following documents are attached to this building consent:

Signature 


Position

On behalf of: Waimakariri District Council

Date: 9/04/08

Please note: The Building Act requires that the owner must apply for a Code Compliance Certificate as soon as practicable after all of the building work under the building consent has been completed.

We will decide whether to issue the Code Compliance Certificate within twenty working days after your application or, if there has been no application, *two years* after the building consent was granted, or agreed extension of that period.

REFERRAL & COSTING INFORMATION

REFERRAL FORM

Client N° **#200815000**

TA: **080258**

PIM prev. issued N°

INFORMATION TO COME & COMMENTS	CONSENT TYPE
	PIM ONLY
	FAST TRACK - P&D only
	FAST TRACK - Nil return
	MINOR WORKS with PIM
	MAJOR WORKS with PIM

N° of Inspections

11

PROCESS REQUIRED	Initial & Date When Complete	
VETTING WITH CLIENT		STANDARD CONDITIONS: 00, 01, 02, 05, 08, 12 19 30 46 -
PRE PROCESSING Site Inspection		PRODUCER STATEMENTS:
LOG IN / ADMIN. PROCEDURES		
B1 - PROCESS	SA	
PDI - PROCESS		SPECIAL CONDITIONS:
EHO - PROCESS		
FIRE REVIEW		
STRUCTURAL REVIEW		
LOG FIRE		
PEER REVIEW/ Other		
Other		
VALIDATION		PIM Requirements
		PIM Requirements
ISSUE		



THE BUILDING

1. Site Address: 685 Depot Road
RDI, Oxford, North Canterbury
(Street / Road / Township)
Rapid Number: _____
(Applies to Rural Properties Only)
2. Legal description:
LOT: 2 DP/RS: 383229
Valuation Roll Number: 215 401 2711

Note: Only complete items here that are applicable to your project.

3. Building Name: _____
(eg: where buildings have Official Names)
4. Location of Building within Site: _____
(Only applicable to multi-development sites)
5. Number of Levels: _____ 6. Level/Unit No: _____
7. Floor Area – Existing: _____ New: 172 Total: _____
8. Current Lawfully Established Use: (eg: Use on any previous consent for the existing building) _____
9. Year Building First Constructed: _____
(Only applicable to existing buildings, approximate date is acceptable, e.g. 1920s or 1960-1970)

THE APPLICANT / OWNER

10. Owner's Name: Murray McDowell
Heritage Trust Company Limited
(Company or organisational name)
11. Contact Person: Murray McDowell
(If Owner is not an Individual)
12. Mailing Address: 685 Depot Road
RDI Oxford
13. Street Address / Registered Office: 685 Depot Road, RDI Oxford, North Canterbury
14. Phone Numbers: Mobile: 0274375275
Daytime: 3123452 After Hours: 3123452
15. Fax: _____
16. Email: buildbest@clear.net.nz
17. Website: _____
18. The following evidence of ownership is attached to this application, eg:
☒ Certificate of Title and / or
☐ Sale and Purchase Agreement

AGENT / CONTACT

Contact Details MUST be in New Zealand)

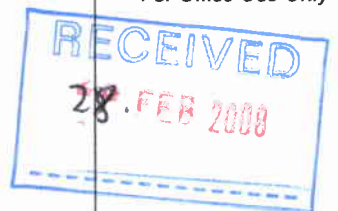
19. Name of Agent: Buildbest Construction Ltd.
20. Contact Person: Murray McDowell
21. Mailing/Billing Address: 685 Depot Road
RDI Oxford, North Canterbury
22. Street Address / Registered Office: Box 43 Oxford
685 Depot Rd, RDI, Oxford, North Canterbury
23. Phone Numbers: Mobile: 0274375275
Daytime: 3123452 After Hours: 3123452
24. Fax: _____
25. Email: buildbest@clear.net.nz
26. Website: _____
27. ☐ Authorisation from Agent Attached.
(Authorisation from the owner confirming authority)
28. Note: The "Agent/Contact" will be the first point of contact for communications with the Council / Building Consent Authority regarding this Application / Building Work and will receive all correspondence including all invoices.

APPLICATION

29. I request that a: (select one)
☒ Project Information Memorandum Only (PIM)
☐ Building Consent for PIM No: _____
☒ Building Consent (including Project Information Memorandum)

be issued for the Building Work Described in this Application.

For Office Use Only



THE PROJECT

080258

30 Type of Building Work: (eg: dwelling, dwelling relocation, commercial, farm shed, garage, demolition, etc., or combination of)

New Home Dwelling, attached Garage
Free standing woodburner Wag. 2000

31 Will the building work result in a change of use of the building: ☐ Yes ☒ No

32 If "Yes", provide details of the new intended use:

(eg: domestic use, shop, implement shed, garage to bedroom)

Will Hazardous Substances be stored in the building?

No

33 Intended life of the building:

☒ Indefinite but not less than 50 years

☐ Or specified as _____ years

34 List Building Consents previously issued for this building (if any) (ie: is this project being constructed in stages? Is this consent for a relocated or transportable building?)

N/A.

35 Estimated Value (inc GST) \$ 238,000.00

(ie: the estimated aggregate of the values of all goods and services to be supplied for the building work and includes GST).

PROJECT INFORMATION MEMORANDUM

*This section must be completed if you are applying for a PIM.
DO NOT complete this section if a PIM has already been issued.*

36 The following matters are involved in the project: (Tick appropriate boxes that apply to your project and attach details)

- | | |
|---|--|
| <input type="checkbox"/> Subdivision | <input type="checkbox"/> Alterations to land contours |
| <input checked="" type="checkbox"/> New or altered connections to public utilities | <input type="checkbox"/> New or altered locations and/or external dimensions of buildings |
| <input checked="" type="checkbox"/> New or altered access for vehicles | <input checked="" type="checkbox"/> Disposal of stormwater and wastewater |
| <input type="checkbox"/> Building work over or adjacent to any road or public place | <input type="checkbox"/> Other matters known to the applicant that may require authorisations from the Territorial Authority |
| <input type="checkbox"/> Building work over any existing drains or in close proximity to wells or water mains | (eg: Planning Approvals, other Licences) |

(specify):

The following documents are attached to this application:

- ☒ Site plan, Floor plans, Elevations for proposed building, Certificate of Title and or Sales and Purchase Agreement
Two copies of all information required. (all plans to be dimensioned, scaled and accurate)
- ☐ Application Fee (per Council Fees and Charges Schedule)

BUILDING CONSENT

(DO NOT complete this section if the Application is for a Project Information Memorandum only)

37 The following documents are attached to this application:

- ☒ 4 copies – building plans (site plans, floor plans, elevation plans)
- ☒ 3 copies of each – specifications, producer statements, truss details
- ☒ 2 copies – Certificate of Title and/or Sale and Purchase Agreement
- All plans to be dimensioned, scaled and accurate – A4 or A3 size
- ☐ Project Information Memorandum
- ☐ Development Contribution Notice (if applicable)
- ☐ Certificate attached to Project Information Memorandum (Resource Management Act)
- ☒ Key personnel – see page 5.

38 ☐ See page 6 for a Schedule confirming the Building Work will comply with the Building Code.

080258

COMPLIANCE SCHEDULE

(DO NOT complete this section if the Application is for a Project Information Memorandum only)

39. ☐ The specified systems for the building are as follows:
- _____
- _____
- _____
40. ☐ The following specified systems are being altered, added to, or removed in the course of the building work:
- _____
- _____
- _____
41. ☐ There are no specified items in the building.
- _____

A

NOTES BY APPLICANT

Other notes or comments which you as the applicant may wish to add, eg Resource Consents

Resource consent for effluent discharge
has been applied for + approved by
environment Canterbury. approval attached

Resource consent for effluent discharge
has been made to Waimakariri
District Council by owner.

An Electrical contractor has been
selected as yet. will come in due course.

APPLICATION INFORMATION

080258

(a) Project Information Memorandum (PIM)

A Project Information Memorandum will be issued within a maximum allowable time of 20 working days provided all the information required has been supplied. Insufficient information will result in your application being returned.

A fee is required to accompany your PIM application. (Per Council's Fees and Charges Schedule.)

(b) Building Consent (BC)

A Building Consent will be processed within a maximum allowable time of 20 working days provided all the information required has been supplied. Processing time is stopped whenever further information is required and starts again when the information is received.

Once the building consent has been processed, you will receive notification, which will include an invoice for the fees payable.

Once the fees are paid in full your Building Consent will be granted.

(c) Combined Project Information Memorandum & Building Consent Applications

Applications for a combined PIM / BC will only be accepted when sufficient information is provided to permit the Building Consent to be processed. If insufficient information is provided then further information will be requested, or your application may be returned to you.

INSPECTIONS

Phone Prime on (03) 311 8240 or 0800 724 2378 for booking inspections.

A minimum of 48 hours notice of commencement of the building work is required to be given to the Building Consent Authority.

During the process of construction, inspections will be necessary to confirm all work complies with your approved Building Consent documentation. The Building Consent Authority requires a minimum of 24 hours notice prior to the Building Consent Authority's Building Officials visit, however this will not guarantee an inspection in 24 hours if inspection bookings are full for that day.

The inspections required will be set out in the Building Consent documentation issued by the Building Consent Authority. Failure to have a prescribed inspection carried out and to be provided with confirmation that the work has been approved by the Inspecting Authority will put the issue of the Code Compliance Certificate for the work at risk.

RESOURCE CONSENTS

Your application will be assessed by the Planning Unit of the Council to determine whether your project complies with the relevant District Plan requirements.

If your application does not comply with District Plan requirements you will need to either amend your proposal to comply or apply for a Resource Consent. A Certificate will be attached to your Project Information Memorandum to notify that a resource consent is required prior to building work commencing. It is recommended that you contact the Planning Unit to determine the process from there.

CODE COMPLIANCE

A building consent is not completed until it has been issued with a Code Compliance Certificate. The Owner is required to complete a separate application form to apply for a Code Compliance Certificate as soon as practicable after the building work is completed but in any event no later than **2 years** after the granting of the Building Consent. A Code Compliance Certificate will be issued within a maximum allowable time of 20 working days provided all the information required has been supplied. Note: Certificates will be required from all trades involved in the project.

In the event that no application for Code Compliance is made, the Building Consent Authority may issue a Notice to Fix, or other action as provided by the Building Act.

CODE COMPLIANCE

080258

Complete as far as possible in all cases

(Give names, addresses, and telephone numbers. Give relevant registration numbers if known)

BUILDER

Name: Buildbest Construction Ltd Reg. N°:
Address: 685 Depot Road, 201, Oxford, 1th Canterbury
Phone N°: 3123452 Fax N°: Email: buildbest@clear.net.nz

DESIGNER(S)

Name: Murray McDowell Reg. N°:
Address: 685 Depot Road, 201, Oxford, 1th Canterbury
Phone N°: 3123452 Fax N°: Email: buildbest@clear.net.nz

REGISTERED DRAINLAYER

Name: KIT Drainage Limited Reg. N°:
Address: Box 20126 Bishopdale, Christchurch
Phone N°: 03 3594463 Fax N°: 03 3594463 Email:

CRAFTSMAN PLUMBER

Name: Peter Dyer Plumbing Ltd Reg. N°:
Address: 144 Maces Road, Banley, Christchurch
Phone N°: 03 3848111 Fax N°: 03 3848748 Email:

CRAFTSMAN GASFITTER

Name: _____ Reg. N°:
Address: _____
Phone N°: _____ Fax N°: _____ Email: _____

REGISTERED ELECTRICIAN

Name: Not yet known Reg. N°:
Address: _____
Phone N°: _____ Fax N°: _____ Email: _____

STRUCTURAL ENGINEER

Name: _____ Reg. N°:
Address: _____
Phone N°: _____ Fax N°: _____ Email: _____

OTHER CONTRACTOR – TYPE: _____

Name: _____ Reg. N°:
Address: _____
Phone N°: _____ Fax N°: _____ Email: _____

Application for project information memorandum and/or building consent

The building work will comply with the building code as follows:

[if you're not sure, which clauses are applicable, consult with your builder, designer or architect.]

Clause [tick relevant clause numbers of building code]	Means of compliance [refer to the relevant compliance document(s) or detail of alternative solution in the plans and specifications; if not applicable put n/a]	Waiver / modification required [state nature of waiver or modification of building code required; if not applicable, put n/a]
<input checked="" type="checkbox"/> B1 Structure	B1 / ASI + U2S 3602	
<input checked="" type="checkbox"/> B2 Durability	B2 / ASI + U2S 3604	
<input type="checkbox"/> C1 Outbreak of fire	n/a	
<input checked="" type="checkbox"/> C2 Means of escape	C2 / ASI	
<input type="checkbox"/> C3 Spread of fire	n/a	
<input type="checkbox"/> C4 Structural stability during fire	n/a	
<input checked="" type="checkbox"/> D1 Access routes	D1 / ASI	
<input checked="" type="checkbox"/> D2 Mechanical installations for access	U2 / ASI	
<input checked="" type="checkbox"/> E1 Surface water	F1 / UMI	
<input checked="" type="checkbox"/> E2 External moisture	F2 / ASI	
<input checked="" type="checkbox"/> E3 Internal moisture	E3 / ASI	
<input type="checkbox"/> F1 Hazardous agents on site	n/a	
<input checked="" type="checkbox"/> F2 Hazardous building materials	F2 / ASI + U2S 4223	
<input type="checkbox"/> F3 Hazardous substances and processes	n/a	
<input type="checkbox"/> F4 Safety from falling	n/a	
<input type="checkbox"/> F5 Construction and demolition hazards	n/a	
<input type="checkbox"/> F6 Lighting for emergency	n/a	
<input checked="" type="checkbox"/> F7 Warning systems	F7 / ASI	
<input type="checkbox"/> F8 Signs	- n/a	
<input type="checkbox"/> G1 Personal hygiene	- n/a	
<input type="checkbox"/> G2 Laundering	- n/a	
<input type="checkbox"/> G3 Food preparation and prevention of contamination	- n/a	
<input checked="" type="checkbox"/> G4 Ventilation	E2 / UMI + G4 / ASI	
<input type="checkbox"/> G5 Interior environment	- n/a	
<input type="checkbox"/> G6 Airborne and impact sound	- n/a	
<input checked="" type="checkbox"/> G7 Natural light	U2S 4223	
<input type="checkbox"/> G8 Artificial light	- n/a	
<input checked="" type="checkbox"/> G9 Electricity	ASI / U2S 3000	
<input checked="" type="checkbox"/> G10 Piped services	G10 / ASI + U2S 5261	
<input type="checkbox"/> G11 Gas as an energy source	- n/a	
<input checked="" type="checkbox"/> G12 Water supplies	G12 / ASI	
<input checked="" type="checkbox"/> G13 Foul water	G13 / ASI + G13 / AS2	
<input type="checkbox"/> G14 Industrial liquid waste	- n/a	
<input type="checkbox"/> G15 Solid waste	- n/a	
<input checked="" type="checkbox"/> H1 Energy efficiency	H1 / UMI AIF 3-1	

All the relevant information on this form is required to be provided under the Building Act and Resource Management Act for the Environmental Services Unit to process your application. Under these Acts this information has to be made available to members of the public. The information contained in this application may be made available to other units of the Council. You have the right to access the personal information held about you by the Council which can be readily retrieved. You can also request that the Council correct any personal information it holds about you.

APPLICANT'S SIGNATURE

Signed by or for and on behalf of the Applicant



Owner



or Agent

Date:

28 Feb 08

Note: if acting "for and on behalf", please read the following declaration before signing: "I hereby declare that I am authorised to act as Agent of the Applicant"

THE BUILDING

1. Site Address: 685 Depot Road
RDI, Oxford, North Canterbury
(Street / Road / Township)

Rapid Number: _____
(Applies to Rural Properties Only)

2. Legal description:
LOT: 2 DP/RS: 393229

3. Valuation Roll Number: 215 401 2711

Note: Only complete items here that are applicable to your project.

3. Building Name: _____

(eg: where buildings have Official Names)

4. Location of Building within Site: _____

(Only applicable to multi-development sites)

5. Number of Levels: _____ 6. Level/Unit No: _____

7. Floor Area – Existing: _____ New: 172 Total: _____

8. Current Lawfully Established Use: (eg: Use on any previous consent for the existing building) _____

9. Year Building First Constructed: _____

(Only applicable to existing buildings, approximate date is acceptable, e.g. 1920s or 1960-1970)

THE APPLICANT / OWNER

10. Owner's Name: Murray McDowell
Heystee Trust Company Limited.
(Company or organisational name)

11. Contact Person: Murray McDowell
(If Owner is not an Individual)

12. Mailing Address: 685 Depot Road
RDI Oxford

13. Street Address / Registered Office: 685 Depot Road, RDI Oxford North Canterbury

14. Phone Numbers: Mobile: 0274375275
Daytime: 3123452 After Hours: 3123452

15. Fax: _____

16. Email: buildbest@clear.net.nz

17. Website: _____

18. The following evidence of ownership is attached to this application, eg:

- ☒ Certificate of Title and / or
☐ Sale and Purchase Agreement

AGENT / CONTACT

Contact Details **MUST** be in New Zealand

19. Name of Agent: Buildbest Construction Ltd.

20. Contact Person: Murray McDowell

21. Mailing/Billing Address: 685 Depot Road
RDI Oxford, North Canterbury

22. Street Address / Registered Office: Box 43 Oxford
685 Depot Rd, RDI, Oxford, North Canterbury

23. Phone Numbers: Mobile: 0274375275
Daytime: 3123452 After Hours: 3123452

24. Fax: _____

25. Email: buildbest@clear.net.nz

26. Website: _____

27. ☐ Authorisation from Agent Attached.

(Authorisation from the owner confirming authority)

28. Note: The "Agent/Contact" will be the first point of contact for communications with the Council / Building Consent Authority regarding this Application / Building Work and will receive all correspondence including all invoices.

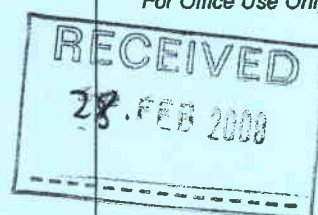
APPLICATION

29. I request that a:
(select one)

- ☒ Project Information Memorandum Only (PIM)
☐ Building Consent for PIM No: _____
☒ Building Consent (including Project Information Memorandum)

be issued for the Building Work Described in this Application.

For Office Use Only



THE PROJECT

30. Type of Building Work: (eg: dwelling, dwelling relocation, commercial, farm shed, garage, demolition, etc., or combination of)

New Home Dwelling, attached garage, free standing woodshed May 2000

31. Will the building work result in a change of use of the building: ☐ Yes ☒ No

32. If "Yes", provide details of the new intended use:

(eg: domestic use, shop, implement shed, garage to bedroom)

Will Hazardous Substances be stored in the building?

No

33. Intended life of the building:

- ☒ Indefinite but not less than 50 years
☐ Or specified as _____ years

34. List Building Consents previously issued for this building (if any) (ie: is this project being constructed in stages? Is this consent for a relocated or transportable building?)

N/A.

35. Estimated Value (inc GST) \$ 238,000.00

(ie: the estimated aggregate of the values of all goods and services to be supplied for the building work and includes GST).

PROJECT INFORMATION MEMORANDUM

*This section must be completed if you are applying for a PIM.
DO NOT complete this section if a PIM has already been issued.*

36. The following matters are involved in the project: (Tick appropriate boxes that apply to your project and attach details)

- | | |
|--|---|
| <input type="checkbox"/> Subdivision
<input checked="" type="checkbox"/> New or altered connections to public utilities
<input checked="" type="checkbox"/> New or altered access for vehicles
<input type="checkbox"/> Building work over or adjacent to any road or public place
<input type="checkbox"/> Building work over any existing drains or in close proximity to wells or water mains | <input type="checkbox"/> Alterations to land contours
<input type="checkbox"/> New or altered locations and/or external dimensions of buildings
<input checked="" type="checkbox"/> Disposal of stormwater and wastewater
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(eg: Planning Approvals, other Licences) |
|--|---|

(specify):

The following documents are attached to this application:

- ☒ Site plan, Floor plans, Elevations for proposed building, Certificate of Title and or Sales and Purchase Agreement
 Two copies of all information required. (all plans to be dimensioned, scaled and accurate)
- ☐ Application Fee (per Council Fees and Charges Schedule)

BUILDING CONSENT

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 All plans to be dimensioned, scaled and accurate – A4 or A3 size
- ☐ Project Information Memorandum
☐ Development Contribution Notice (if applicable)
☐ Certificate attached to Project Information Memorandum (Resource Management Act)
☒ Key personnel – see page 5.

38. ☐ See page 6 for a Schedule confirming the Building Work will comply with the Building Code.

COMPLIANCE SCHEDULE

(DO NOT complete this section if the Application is for a Project Information Memorandum only)

39. ☐ The specified systems for the building are as follows:
- _____
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- _____
- _____
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NOTES BY APPLICANT

Other notes or comments which you as the applicant may wish to add, eg Resource Consents

Resource consent R, effluent discharge
has been applied for + approved by
environment Canterbury. approval attached

Resource consent R, effluent discharge
has been made to Waimakariri
District Council by owner.

An Electrical contractor has been
selected as yet. will come in due course.

APPLICATION INFORMATION

(a) Project Information Memorandum (PIM)

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A fee is required to accompany your PIM application. (Per Council's Fees and Charges Schedule.)

(b) Building Consent (BC)

A Building Consent will be processed within a maximum allowable time of 20 working days provided all the information required has been supplied. Processing time is stopped whenever further information is required and starts again when the information is received.

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Once the fees are paid in full your Building Consent will be granted.

(c) Combined Project Information Memorandum & Building Consent Applications

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RESOURCE CONSENTS

Your application will be assessed by the Planning Unit of the Council to determine whether your project complies with relevant District Plan requirements.

If your application does not comply with District Plan requirements you will need to either amend your proposal to comply or apply for a Resource Consent. A Certificate will be attached to your Project Information Memorandum to notify that a resource consent is required prior to building work commencing. It is recommended that you contact the Planning Unit to determine the process from there.

CODE COMPLIANCE

A building consent is not completed until it has been issued with a Code Compliance Certificate. The Owner is required to complete a separate application form to apply for a Code Compliance Certificate as soon as practicable after the building work is completed but in any event no later than **2 years** after the granting of the Building Consent. A Code Compliance Certificate will be issued within a maximum allowable time of 20 working days provided all the information required has been supplied. Note: Certificates will be required from all trades involved in the project.

In the event that no application for Code Compliance is made, the Building Consent Authority may issue a Notice to Fix, or other action as provided by the Building Act.

CODE COMPLIANCE

Complete as far as possible in all cases

(Give names, addresses, and telephone numbers. Give relevant registration numbers if known)

BUILDER

Name: Buildbest Construction Ltd Reg. N°: _____
Address: 685 Depot Road, 201, Oxford, 17th Canterbury
Phone N°: 3123452 Fax N°: _____ Email: buildbest@clear.net.nz

DESIGNER(S)

Name: Murray McDowell Reg. N°: _____
Address: 685 Depot Road, 201, Oxford, 17th Canterbury
Phone N°: 3123452 Fax N°: _____ Email: buildbest@clear.net.nz

REGISTERED DRAINLAYER

Name: K-T Drainage Limited Reg. N°: _____
Address: Box 20126 Bishopdale, Christchurch
Phone N°: 03 3594463 Fax N°: 03 3594463 Email: _____

CRAFTSMAN PLUMBER

Name: Peter Dyer Plumbing Ltd Reg. N°: _____
Address: 141 Maces Road, Banley, Christchurch
Phone N°: 03 3848111 Fax N°: 03 3848748 Email: _____

CRAFTSMAN GASFITTER

Name: _____ Reg. N°: _____
Address: _____
Phone N°: _____ Fax N°: _____ Email: _____

REGISTERED ELECTRICIAN

Name: Not yet known Reg. N°: _____
Address: _____
Phone N°: _____ Fax N°: _____ Email: _____

STRUCTURAL ENGINEER

Name: _____ Reg. N°: _____
Address: _____
Phone N°: _____ Fax N°: _____ Email: _____

OTHER CONTRACTOR - TYPE: _____

Name: _____ Reg. N°: _____
Address: _____
Phone N°: _____ Fax N°: _____ Email: _____

Application for project information memorandum and/or building consent

The building work will comply with the building code as follows:

[if you're not sure which clauses are applicable, consult with your builder, designer or architect.]

Clause [tick relevant clause numbers of building code]	Means of compliance [refer to the relevant compliance document(s) or detail of alternative solution in the plans and specifications; if not applicable put n/a]	Waiver / modification required [state nature of waiver or modification of building code required; if not applicable, put n/a]
<input checked="" type="checkbox"/> B1 Structure	B1/ASI + NZS 3602	
<input checked="" type="checkbox"/> B2 Durability	B2/ASI + NZS 3604	
<input type="checkbox"/> C1 Outbreak of fire	n/a	
<input checked="" type="checkbox"/> C2 Means of escape	C2/ASI	
<input type="checkbox"/> C3 Spread of fire	n/a	
<input type="checkbox"/> C4 Structural stability during fire	n/a	
<input checked="" type="checkbox"/> D1 Access routes	D1/ASI	
<input checked="" type="checkbox"/> D2 Mechanical installations for access	D2/ASI	
<input checked="" type="checkbox"/> E1 Surface water	E1/UMI	
<input checked="" type="checkbox"/> E2 External moisture	E2/ASI	
<input checked="" type="checkbox"/> E3 Internal moisture	E3/ASI	
<input type="checkbox"/> F1 Hazardous agents on site	n/a	
<input checked="" type="checkbox"/> F2 Hazardous building materials	F2/ASI + NZS 4223	
<input type="checkbox"/> F3 Hazardous substances and processes	n/a	
<input type="checkbox"/> F4 Safety from falling	n/a	
<input type="checkbox"/> F5 Construction and demolition hazards	n/a	
<input type="checkbox"/> F6 Lighting for emergency	n/a	
<input checked="" type="checkbox"/> F7 Warning systems	F7/ASI	
<input type="checkbox"/> F8 Signs	- n/a	
<input type="checkbox"/> G1 Personal hygiene	- n/a	
<input type="checkbox"/> G2 Laundering	- n/a	
<input type="checkbox"/> G3 Food preparation and prevention of contamination	- n/a	
<input checked="" type="checkbox"/> G4 Ventilation	E2/UMI + G4/ASI	
<input type="checkbox"/> G5 Interior environment	- n/a	
<input type="checkbox"/> G6 Airborne and impact sound	- n/a	
<input checked="" type="checkbox"/> G7 Natural light	NZS 4223	
<input type="checkbox"/> G8 Artificial light	- n/a	
<input checked="" type="checkbox"/> G9 Electricity	AS/NZS 3000	
<input checked="" type="checkbox"/> G10 Piped services	G10/ASI + NZS 5261	
<input type="checkbox"/> G11 Gas as an energy source	- n/a	
<input checked="" type="checkbox"/> G12 Water supplies	G12/ASI	
<input checked="" type="checkbox"/> G13 Foul water	G13/ASI + G13/AS2	
<input type="checkbox"/> G14 Industrial liquid waste	- n/a	
<input type="checkbox"/> G15 Solid waste	- n/a	
<input checked="" type="checkbox"/> H1 Energy efficiency	H1/UMI AIF 3.1	

All the relevant information on this form is required to be provided under the Building Act and Resource Management Act for the Environmental Services Unit to process your application. Under these Acts this information has to be made available to members of the public. The information contained in this application may be made available to other units of the Council. You have the right to access the personal information held about you by the Council which can be readily retrieved. You can also request that the Council correct any personal information it holds about you.

APPLICANT'S SIGNATURE

Signed by or for and on behalf of the Applicant



Owner



or Agent

Date:

28 Feb 08

Note: if acting "for and on behalf", please read the following declaration before signing: - "I hereby declare that I am authorised to act as Agent of the Applicant"

Turn up torque using
purpose specific tool

The diagram illustrates the assembly of a light fixture. At the top, a rectangular box labeled "Polycarbonate Lens" is shown. Below it, a bracket labeled "Mounting Bracket" is attached to a wall. Two screws labeled "Mounting Screws" are used to secure the bracket. A plate labeled "Mounting Plate" is also shown, which will be attached to the back of the lens. Finally, a base labeled "Mounting Base" is shown at the bottom, which will be attached to the front of the lens.

Horizontal drain pipe

Vertical stack

Drain pipe should be installed with a slope of 1/4 inch per foot

Stack edge

MANUFACTURE OF POLYESTER
FIBRE AND FILAMENTS

100 mm min. turn-up to flexible flashing

20 mm min. sill turn-up, ensure tight fit against flexible flashing tape and edge of cladding

Refer individual cladding details for joint flashings and sill tray reuse requirements

Sill tray flashing minimum of full width of opening as shown in the window details

50 mm min. lap

Flexible tape full width of opening over wrap

Line of cladding

60 mm min. lap

Where necessary, sill framing chamfered to support sill flashing - chamfer works to sit cladding and window. A sloped sill pocket may also be used

Building wrap turned into opening over framing

NOTE:

- (1) Detailed cladding omitted for clarity, refer to specific claddings.
- (2) Sill flashing shall extend back past the condensation channel of the window.
- (3) Head to be treated similarly with continuous building wrap and flexible tape at corners.
- (4) Openings in cavity walls shall be treated similarly, except the sill flashings shall be omitted.

Diagram illustrating the components of a pipe flashing assembly:

- Pipe
- GFCM flexible cone sleeve
- Malleable flange screw or metal flange and sealed to roofing profile. Flange is twisted to all screw flange
- Flashing used diagonally to roofing profile to minimize leaking of discharge water

100 mm all round

Bulk wrap cut for pipe penetration

100 mm all round

25 mm

Flexible flashing tape backage all round

Slide out square of flexible flashing tape over pipe

080258

Sheet: 14

Of: 14

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[Signature] 203 032

Signed

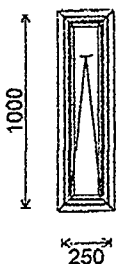
Revised 17/3/08.

080258 Quote No. : -14817- Ver 11
Quote Date: 22/02/2008
Modified Date : 22/02/2008

11

W11 BEDROOM 3

1



FRAME COLOUR : To Be Advised FAB20

FLASHING : NO Flashing

FRAME TYPE : WeatherTight Series

TRIM SIZE : 1030mm x 280mm

WIND ZONE : High

LINER : H3 Clear Pine 25mm

Architraved Mitre Cut

GLASS : Clear Float Double Glazed

HEIGHT FROM FLOOR : 1050

WALL THICKNESS : 170

SILL LINER : TRUE

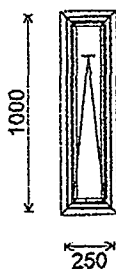
COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

12

W12 BEDROOM 3

1



FRAME COLOUR : To Be Advised FAB20

FLASHING : NO Flashing

FRAME TYPE : WeatherTight Series

TRIM SIZE : 1030mm x 280mm

WIND ZONE : High

LINER : H3 Clear Pine 25mm

Architraved Mitre Cut

GLASS : Clear Float Double Glazed

HEIGHT FROM FLOOR : 1050

WALL THICKNESS : 170

SILL LINER : TRUE

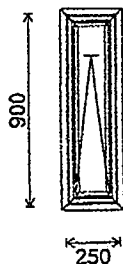
COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

13

W13 ENSUITE CLEAR

1



FRAME COLOUR : To Be Advised FAB20

FLASHING : NO Flashing

FRAME TYPE : WeatherTight Series

TRIM SIZE : 930mm x 280mm

WIND ZONE : High

LINER : H3 Clear Pine 25mm

Architraved Mitre Cut

GLASS : T4F/A4F

HEIGHT FROM FLOOR : 1100

WALL THICKNESS : 170

SILL LINER : TRUE

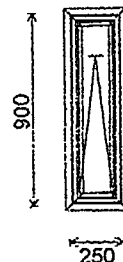
COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

14

W14 ENSUITE CLEAR SAFETY

1



FRAME COLOUR : To Be Advised FAB20

FLASHING : NO Flashing

FRAME TYPE : WeatherTight Series

TRIM SIZE : 930mm x 280mm

WIND ZONE : High

LINER : H3 Clear Pine 25mm

Architraved Mitre Cut

GLASS : T4F/A4F

HEIGHT FROM FLOOR : 1100

WALL THICKNESS : 170

SILL LINER : TRUE

COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

Waimakariri District Council

Plans and specifications APPROVED in
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49 and the Building Regulations 1992,
clause 3.

Signed

[Signature] 28.3.08

GIB® Wall Bracing Calculation Sheet A

single storey

V85A

GIB® EzyBrace™

GIB® Bracing Systems, 2006

Job Details

Name	Buildbest Construction Limited	(BEDROOM BLOCK)
Street and Number	685 Depot Road	
Lot and DP Number	Lot 8 part of Lot 2 DP 59418	
City/Town/District	Oxford	
Designer and date	M D McDowell	17-Mar-08
Company Name	Buildbest Construction	

Building Specification

Location of Storey	single	◆◆	
Floor Loading	2 kPa	◆◆	
Foundation Type	slab	◆◆	
Building Height to Apex (m)	6	◆◆	
Roof Height above Eaves (m)	3	◆◆	
Stud Height (m)	2.4	◆◆	
Cladding Weight (top or single)	heavy	◆◆	
Cladding Weight (lower)	heavy	◆◆	not applicable (single storey building)
Cladding Weight (subfloor)	light	◆◆	not applicable (slab)
Roof Weight	light	◆◆	
Roof Pitch (degrees)	0-25	◆◆	
Room in Roof Space	no	◆◆	
Building Length (m)	10.5		
Building Width (m)	7.3		
Gross Building Plan Area (m2)	72		

Building Location

Wind Zone	High		Earthquake Zone	
Region	R1	◆◆	B	◆◆
Terrain	Inland	◆◆		
Exposure	Exposed	◆◆		
Topography	Moderate	◆◆		

Bracing Units required for Wind


per m	subfloor	walls
W along	n/a	78 BUs/m
W across	n/a	78 BUs/m
Totals	subfloor	walls
W along	n/a	569 BUs
W across	n/a	819 BUs

Bracing Units required for Earthquake

per m2	subfloor	walls
E	n/a	3.9 BUs/m2
Totals	subfloor	walls
E along	n/a	281 BUs
E across	n/a	281 BUs

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GIB® Wall Bracing Calculation Sheet B

single storey

V85A

GIB® EzyBrace™

GIB® Bracing Systems, 2006

Along									
Wall or Bracing Line		Bracing Elements provided						Wind	Earthq.
1	2	3	4	5	7	8	6	9W	10EQ
Line Label	Minimum BUs Req/Ach	Bracing Element No.	Supplier	Bracing Type	Element Length L (m)	Element Height H (m)	Angle to Bracing line (degrees)	BUs Achieved	BUs Achieved
A	enter	1	GIB®	GS1a	2.7	2.4		203	176
		2							
line totals		3							
W	203	4							
EQ	176	5							
B	enter	1	GIB®	GS1a	2.4	2.4		180	156
		2							
line totals		3							
W	180	4							
EQ	156	5							
C	enter	1	GIB®	GS1a	1.8	2.4		117	99
		2							
line totals		3							
W	117	4							
EQ	99	5							
D	enter	1	GIB®	GS1a	1.8	2.4		117	99
		2							
line totals		3							
W	117	4							
EQ	99	5							
E	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
F	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
G	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
H	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
Totals Achieved								617	530
Totals Required (from Sheet A)								569	281

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GIB® Wall Bracing Calculation Sheet B

single storey

V85A


GIB® EzyBrace™

GIB® Bracing Systems, 2006

Across										
Wall or Bracing Line		Bracing Elements provided							Wind	Earthq.
1	2	3	4	5	7	8	6	9W	10EQ	
Line Label	Minimum BUs Req/Ach	Bracing Element No.	Supplier	Bracing Type	Element Length L (m)	Element Height H (m)	Angle to Bracing line (degrees)	BUs Achieved	BUs Achieved	
M	enter	1	GIB®	GS1a	2.3	2.4		150	127	
		2								
line totals		3								
W	150	4								
EQ	127	5								
N	enter	1	GIB®	GS2	3.2	2.4		288	256	
		2								
line totals		3								
W	288	4								
EQ	256	5								
O	enter	1	GIB®	GS1a	1.8	2.4		117	99	
		2								
line totals		3								
W	117	4								
EQ	99	5								
P	enter	1	GIB®	GS2	3.4	2.4		306	272	
		2								
line totals		3								
W	306	4								
EQ	272	5								
Q	enter	1								
		2								
line totals		3								
W		4								
EQ		5								
R	enter	1								
		2								
line totals		3								
W		4								
EQ		5								
S	enter	1								
		2								
line totals		3								
W		4								
EQ		5								
T	enter	1								
		2								
line totals		3								
W		4								
EQ		5								

								Wind	Earthq.	
Totals Achieved								861	754	

								OK	OK	
Totals Required (from Sheet A)								819	281	

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 49 and the Building Regulations 1992,
 clause 3.
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GIB® Wall Bracing Calculation Sheet A

single storey

V85A

GIB® EzyBrace™

GIB® Bracing Systems, 2006

Job Details

Name	Buildbest Construction Limited	(GARAGE BLOCK)
Street and Number	685 Depot Road	
Lot and DP Number	Lot 8 part of Lot 2 DP 59418	
City/Town/District	Oxford	
Designer and date	M D McDowell	17-Mar-08
Company Name	Buildbest Construction	

Building Specification

Location of Storey	single	▲▼	
Floor Loading	2 kPa	▲▼	
Foundation Type	slab	▲▼	
Building Height to Apex (m)	6	▲▼	
Roof Height above Eaves (m)	3	▲▼	
Stud Height (m)	2.4	▲▼	
Cladding Weight (top or single)	heavy	▲▼	
Cladding Weight (lower)	heavy	▲▼	not applicable (single storey building)
Cladding Weight (subfloor)	light	▲▼	not applicable (slab)
Roof Weight	light	▲▼	
Roof Pitch (degrees)	0-25	▲▼	
Room in Roof Space	no	▲▼	
Building Length (m)	14		
Building Width (m)	6.7		
Gross Building Plan Area (m2)	100		

Building Location

Wind Zone	High		Earthquake Zone	
Region	R1	▲▼	B	▲▼
Terrain	Inland	▲▼		
Exposure	Exposed	▲▼		
Topography	Moderate	▲▼		

Bracing Units required for Wind

per m	subfloor	walls
W along	n/a	78 BUs/m
W across	n/a	78 BUs/m
Totals	subfloor	walls
W along	n/a	523 BUs
W across	n/a	1092 BUs

Bracing Units required for Earthquake

per m2	subfloor	walls
E	n/a	3.9 BUs/m2
Totals	subfloor	walls
E along	n/a	390 BUs
E across	n/a	390 BUs

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20.3.08

GIB® Wall Bracing Calculation Sheet B

single storey

V85A

GIB® EzyBrace™

GIB® Bracing Systems, 2006

Along		Bracing Elements provided						Wind	Earthq.
Wall or Bracing Line									
1	2	3	4	5	7	8	6	9W	10EQ
Line Label	Minimum BUs Req/Ach	Bracing Element No.	Supplier	Bracing Type	Element Length L (m)	Element Height H (m)	Angle to Bracing line (degrees)	BUs Achieved	BUs Achieved
A	enter	1	GIB®	GS1a	1.8	2.4		117	99
		2	GIB®	GS1a	2.7	2.4		203	176
line totals		3							
W	320	4							
EQ	275	5							
B	enter	1	GIB®	GS1a	1.8	2.4		117	99
		2							
line totals		3							
W	117	4							
EQ	99	5							
C	enter	1	GIB®	GS1a	1.8	2.4		117	99
		2	GIB®	BL1	0.9	2.4		113	104
line totals		3							
W	230	4							
EQ	203	5							
D	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
E	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
F	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
G	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
H	enter	1							
		2							
line totals		3							
W		4							
EQ		5							

								Wind	Earthq.
Totals Achieved								666	576
Totals Required (from Sheet A)								523	390

Waimakariri District Council

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49 and the Building Regulations 1992,
clause 3.

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080258

GIB® Wall Bracing Calculation Sheet B

single storey

V85A

GIB® EzyBrace™

GIB® Bracing Systems, 2006

Across									
Wall or Bracing Line		Bracing Elements provided						Wind	Earthq.
1	2	3	4	5	7	8	6	9W	10EQ
Line Label	Minimum BUs Req/Ach	Bracing Element No.	Supplier	Bracing Type	Element Length L (m)	Element Height H (m)	Angle to Bracing line (degrees)	BUs Achieved	BUs Achieved
M	enter	1	GIB®	GS1a	1.8	2.4		117	99
		2							
line totals		3							
W	117	4							
EQ	99	5							
N	enter	1	GIB®	BL1	1.1	2.4		138	127
		2	GIB®	GS2	1.6	2.4	45	79	68
line totals		3	GIB®	GS2	1.2	2.4		84	72
W	301	4							
EQ	266	5							
O	enter	1	GIB®	GS2	4.8	2.4		432	384
		2							
line totals		3							
W	432	4							
EQ	384	5							
P	enter	1	GIB®	GS1a	3.6	2.4		270	234
		2							
line totals		3							
W	270	4							
EQ	234	5							
Q	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
R	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
S	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
T	enter	1							
		2							
line totals		3							
W		4							
EQ		5							

								Wind	Earthq.
Totals Achieved								1120	983

								OK	OK
Totals Required (from Sheet A)								1092	390

Waimakariri District Council

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Signed

22.3.08



Memo Pad

PRIME BUILDING COMPLIANCE LTD 211 High Street PO Box 387 Rangiora
Tel: (03) 311 8240 Fax: (03) 313 1645 www.primebc.co.nz

Date: 13/3/08

Job: Mc Dowell

Job Number: BC 080258

Location: 685 Depot Road, Oxford.

Page No	Issues & Queries	Comments
	the PIM is to be issued	
	Wind High 1	
	Storms Low 0	
	Roof/Wall High 3	
	Eaves Medium 1	
	Envelope Medium 1	
	Deck Low 0	
	total 6	
	Vert Corr & Brick Veneer OK	
	The floor heights shown on the details are not consistent. These need to be drawn and dimensioned specifically for this site.	
	For the garage floor detail to be correct the main house floor level will need to be a min 250mm above finished ground level.	
	Concrete floors reinforced with G68 are to have shrinkage control joints @ 3m c/s as they are deemed to be an unreinforced slab in 360c.	
	If G65 mesh is installed the shrinkage control joints can remain as drawn.	

These pages must be kept with the file copy.

Consent Officer: 

Date: _____



Memo Pad

PRIME BUILDING COMPLIANCE LTD 211 High Street PO Box 387 Rangiora
Tel: (03) 311 8240 Fax: (03) 313 1645 www.primebc.co.nz

Date: 13/3/08

Job: McDowell

Job Number: BC 080258

Location: 685 Depot Road, Oxford.

Page No	Issues & Queries	Comments
	It is assumed that the reference to Lintel sizes (190x45 solid 2) means the lintel is made up from two ^{two} pieces of timber to have a 90mm wide lintel. Please clarify.	
	Indicate the type of cladding over W23 & 24. If brick specify brick lintel sizes	
	the bracing calculations need to reflect the mass in both materials and shape factors the bracing may have to be calculated as two separate wings.	
	Roof fixing details are required	
	Roof space access to be indicated.	
	Specify the surface finish to the terrace at the entry to the house.	
	Window & door sill supports to be specified	
	Indicate safety glass to all bathroom windows in schedule.	

These pages must be kept with the file copy.

Consent Officer: [Signature]

Date: _____

Figure 48: Profiled metal cladding
Paragraph 8.4.13, Figure 7



Figure 72: General window opening
Paragraphs 9.1.5 and 9.1.10.2, Figures 78, 81-85, 90, 91, 95, 99, 115, 116, 127 and 128

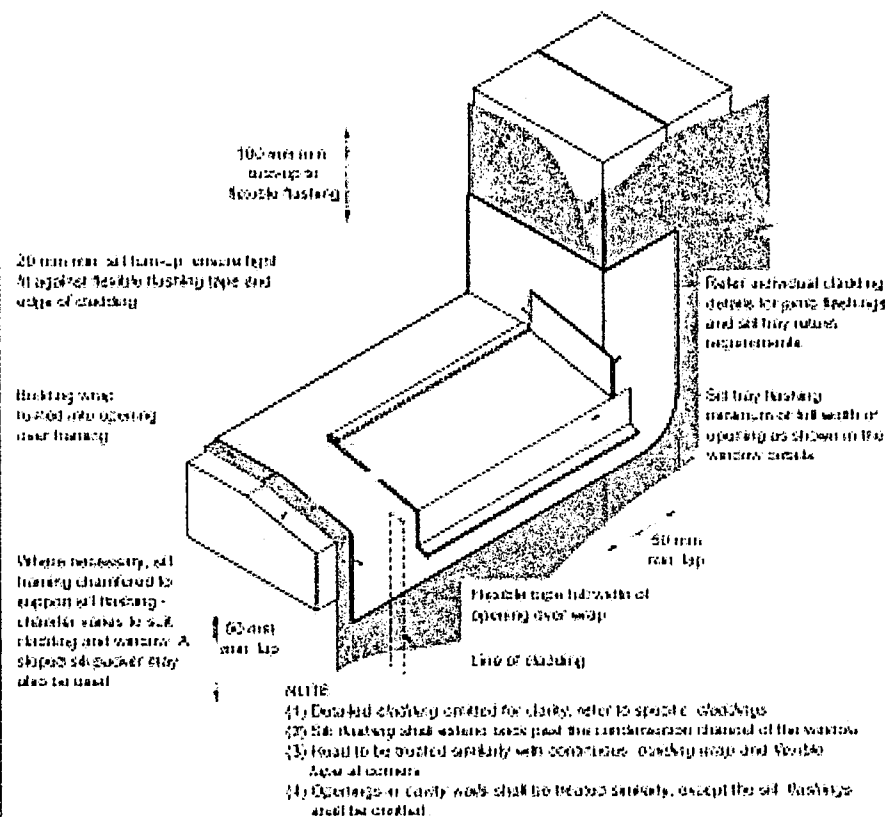


Figure 82: Flashing for small pipes
Paragraphs 8.3.10, 8.4.17 c), 8.8.8.5 and 8.8.9.5

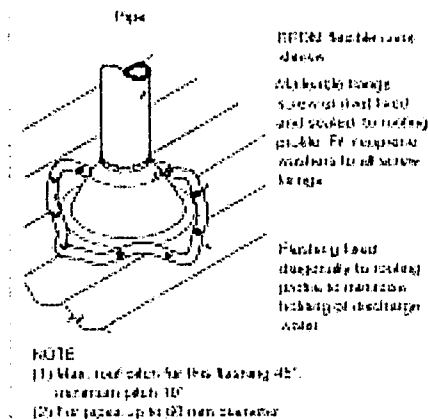
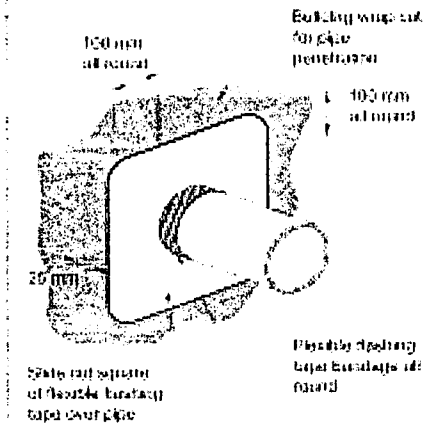


Figure 83: General pipe penetration
Paragraph 9.1.6.3, Figure 125



Typical Wet Area Details – Timber Frame

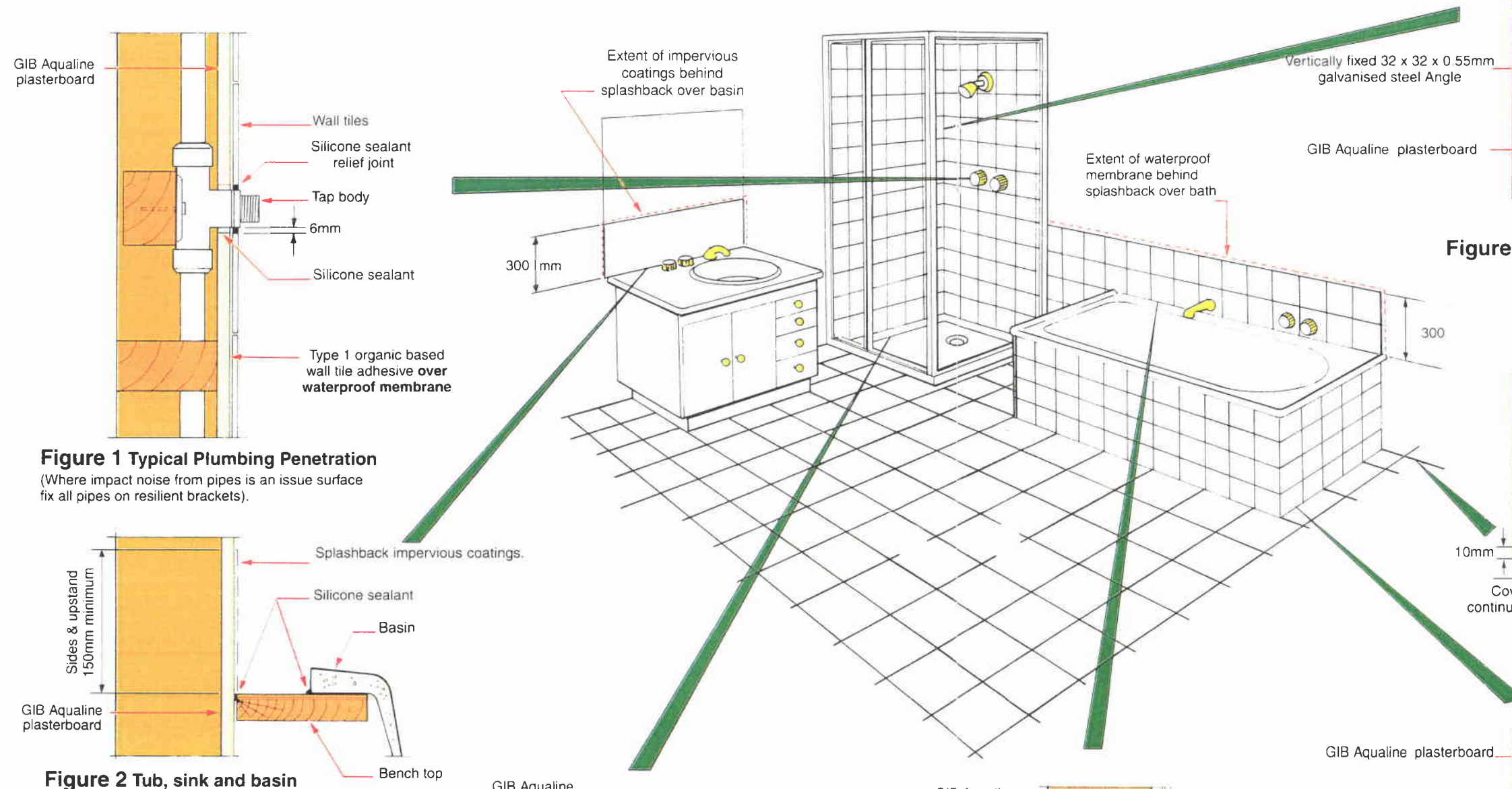


Figure 1 Typical Plumbing Penetration

(Where impact noise from pipes is an issue surface fix all pipes on resilient brackets).

Figure 2 Tub, sink and basin

- Notes:**
- Silicone sealants shall be of the mould inhibited type.
 - For details on Fire Rated and/or Noise Control systems, refer pages 16, 17.

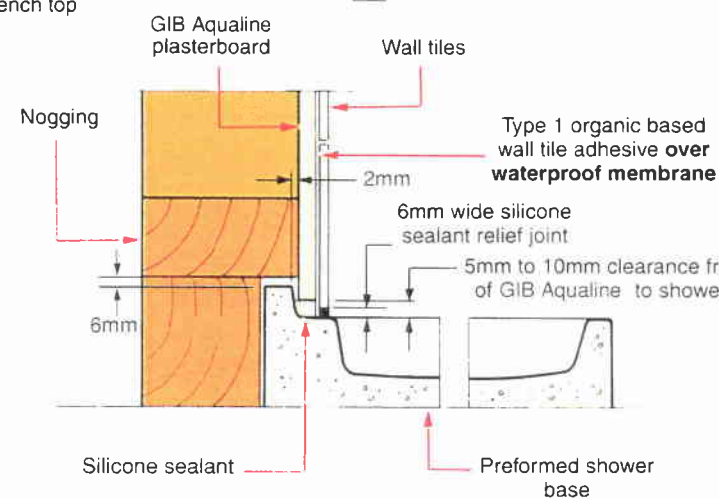


Figure 3 Preformed Shower Base Wall Junction

(Suitable where fire and sound ratings are not critical)

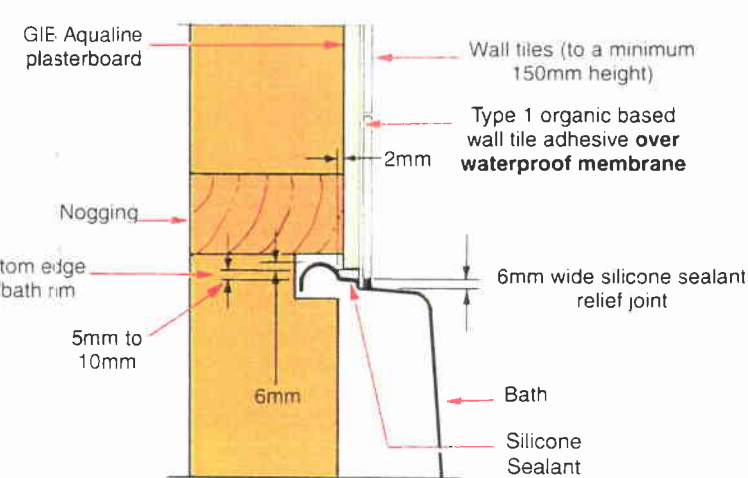


Figure 4 Bath Wall Junction Detail

(This detail is not permitted in Fire Rated or Noise Controlled areas)

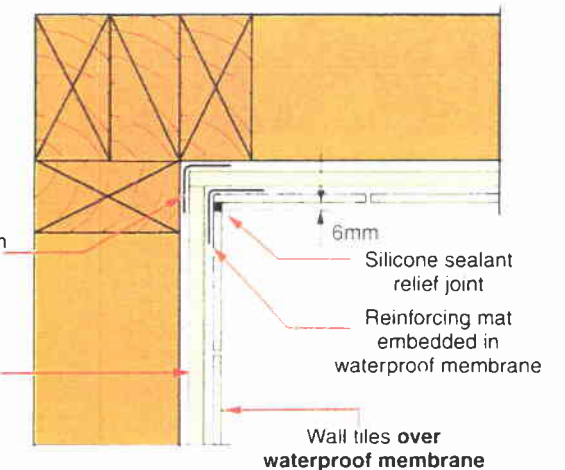
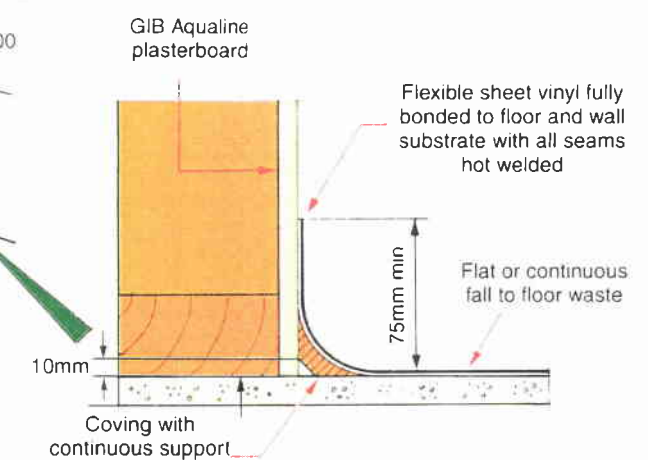
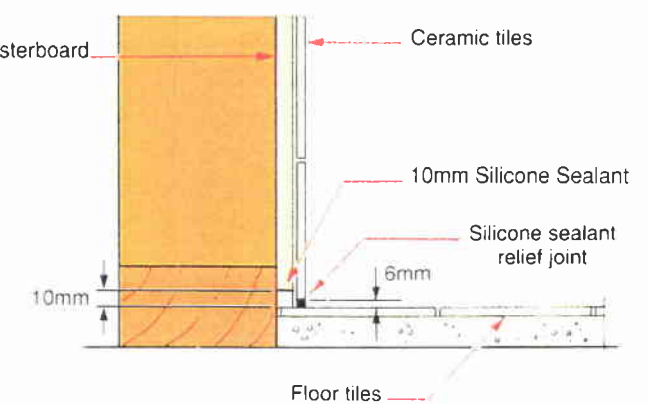


Figure 6 Tiled Shower – Internal Corner Detail



(a) Vinyl floor covering



(b) Ceramic tile covering

Figure 5 Wall to Floor Junctions

Bathrooms, Kitchens and Laundries

CONTENTS

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Approved Application

Plan PIM

080858
13/3/08

Note: The standard text in the technical sections of this specification may have been customised to suit the project being specified.

PROJECT INFORMATION

OWNER

Name: **MURRAY McDOWELL & HERITAGE TRUST COMPANY
LIMITED**

Mailing address: **685 DEPOT ROAD, RD1 OXFORD, NORTH CANTERBURY**

Telephone: **0274 375 275**

CONTRACTOR

Name: **BUILDBEST CONSTRUCTION LIMITED**

Mailing address: **BOX 43 OXFORD, NORTH CANTERBURY**

Telephone: **0274 375 275**

DESIGNER

Name: **M D McDOWELL.. T/A HOMES DIRECT**

Mailing address: **685 DEPOT ROAD, RD 1 OXFORD, NORTH CANTERBURY**

Telephone/Facsimile: **03 312 3452**

PROJECT LOCATION

Street address: **685 DEPOT ROAD OXFORD**

Legal description: **Proposed Lot 8, part Lot 2 DP 383229**

Identifier: **332285**

PROJECT DESCRIPTION

Type: **NEW DWELLING**

Intended use: **Single residential building**

Intended life: **Indefinite but not less than 50 years / ~ years**

DRAWINGS

<u>Drawing number</u>	<u>Drawing Title</u>
<i>1</i>	<i>SITE PLAN</i>
<i>2</i>	<i>FLOOR PLAN</i>
<i>3</i>	<i>ELEVATIONS</i>
<i>4</i>	<i>FOUNDATION PLAN</i>
<i>5</i>	<i>DRAINAGE PLAN</i>
<i>6</i>	<i>ROOF PLAN</i>
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<i>10</i>	<i>CROSS SECTION DETAILS 1</i>
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<i>12</i>	<i>GARAGE & BATHROOM CROSS SECTIONS</i>
<i>13</i>	<i>TERRACE CROSS SECTION</i>
<i>14</i>	<i>MISCELLANEOUS DETAILS</i>

COMPLIANCE INFORMATION

SITE DATA

Soil type:	(280mm Top Soil, 590mm Sandy Gravel, Shingle from 870mm free draining)
Exposure zone:	(EXPOSED)
Wind zone:	(HIGH)
Topographical class:	(ESCARPMENT, MODERATE)
Earthquake zone:	(B)
Snow Loading:	(Zone 4)
Rain water intensity for design	(50mm/h)
Ground soakage rate for design	(>500mm/h)

BUILDING DATA

Building classification:	(V)
Floor live load:	KPa (1.5)
Overall height of building:	4.85M
Risk assessment:	(8 POINTS TOTAL)

PRODUCT INFORMATION

Producer Statements:	BIOCYCLE WASTE WATER TREATMENT SYSTEM. MAINLAND PRENAIL LTD, TRUSS DESIGN
Product Certification:	~
BRANZ Appraisals:	~No. 521 (2006) TWO STOREY BRICK VENEER SYSTEM.
Manufacturers' literature:	YUNCA HEATING, WEGJ 2000 FREE STANDING WOOD BURNER

SELECTIONS

22 PREPARATION

Granular base:	<i>20/40 tailings</i>
Backfill:	<i>EXCAVATED SPOIL</i>

31 CONCRETE

DPC – brand/type:	<i>250mu, 4m WIDE BLACK POLYTHENE</i>
Concrete:	<i>20 MPa</i>
Surface finish:	<i>F4</i>
Insulation – brand/thickness:	<i>N/A</i>

33 CARPENTRY

Timber species, grade and treatment

Exterior wall framing:	<i>PINUS RADIATA, NO1, H3.1</i>
Drained cavity battens:	<i>PINUS RADIATA, NO1, H3.1</i>
Roof framing:	<i>PINUS RADIATA, NO1, H1.2</i>
Exterior exposed timbers:	<i>PINUS RADIATA, NO1, H3.2</i>
Exterior finishing timbers:	<i>PINUS RADIATA, NO1, H3.2</i>
Interior framing:	<i>PINUS RADIATA, NO 1, H1.2</i>
200x35 & 150x35 Top plates:	<i>PINUS RADIATA, NO 1, H1.2</i>

ceiling battens *GIB-RHONDO METAL BATTEN AT 400 CENTRES DIRECT FIXED TO ROOF CEILING FRAMING*

Building wrap - brand/type: *BITUMAC 360 ROOF UNDERLAY TO WALLS, BITUMAC 860 SELF SUPPORTING ROOF UNDERLAY TO ROOF.*

Insulation (brand/type/R value)

- floor:	<i>N/A</i>
- walls:	<i>PINK BATTS R2.2</i>
- ceiling:	<i>PINK BATTS R3.2</i>

41 WALL CLADDING

Building wrap/type: *BITUMAC 360 ROOFING UNDERLAY*

Cladding:

- WALLS:
 - *CORRIGATED ZINCALUM, .40 GAUGE*
 - *70 SERIES CLAY BRICK 230X120*
- finish:
 - *COLOUR COTEL, ZR8*
 - *SHIEFIELD HERITAGE RANGE*

Fixings: metal and frequency to suit cladding, wind zone and exposure zone

Fixings – type/finish: *TO CORRIGATE CLADDING, 12mm Diameter Hot dip gavanized hexagonal head wood screws complete with neoprene washer. Fixed to framing through the pan of cladding to a minimum depth of 25mm every second pan.*

Trims – type/finish: *EX 200X40 PINUS RADIATA H3.2 RS*

Soffit cladding:

- type/thickness: *6mm Hardie soffit.*

- finish: *Smooth.*

Fixings – type/finish: *40mm galvanized clouts as per manufactures specifications.*

Jointers – type/finish: *ProprietaryHardies PVC jointer*

Penetration flashings:

- metal/sealant: *Zincalum, Colourcote, Fosroc-Silaflex MS*

Flashings - metal/finish: *Zincalum, Colourcote, ZR8, 0.55mm*

42 BRICK VENEER CLADDING

Brick brand: *230X120X70 Heritage Range, Canterbury Clay Brick*
type: *Manderville*

Pointing - form: *Racked out , charcoal coloured.10mm thick plus or minus 2mm.*

44 ROOF CLADDING

Roofing underlay: *Bitumac 860 self supporting roofing underlay.*

BMT: *0.4mm*

Roofing;

- type/brand/profile/material: *Corrigated Colourcote, Calder Stewart- Corrigate, Zincalum.*

- finish: *Colorcote. ZR8, 0.40mm*

Penetration flashing:

- metal/sealant: *Zincalum, Colourcoted, Silaflex clear roofing sealant,*

Flashings- metal/finish: *Zincalum, Colourcoted. ZR8 ,0.55mm*

46 RAINWATER SYSTEM

Spoutings:

- brand type/size material: *CONTINUOUS, 1/4 ROUND, 135mmx65mm back.*

- finish: *Colourcote ZR8*

Downpipes:

- type/size material finish: *Zincalum, Colourcote ZR8, 0.55mm, 65mm diameter.*

47 TIMBER WINDOWS AND DOORS

Flashings - metal finish: *Zincalum, Colourcote, ZR8, 0.55mm*

Garage door:

- type/model: *GARADOR, SECTIONAL*

- door controller: *GARADOR*

48 ALUMINIUM WINDOWS AND DOORS

Brand:	NULOOK
- Finish:	POWDER COATED
Jamb liners:	
- type/treatment/finish:	PINUS RADIATA, H3.1, CLEAR
Sashes:	
- type:	NUTECH, WEATHER TIGHT
- stays:	INTALOK
- catches/finish:	COLOUR MATCH
- locks:	N/A
- restrictors:	N/A
Doors:	
- type:	SLIDERS, & OPENING
- hinges (metal):	INTALOK COLOUR MATCH
- latch/locks:	MILTON ARIA LCL 4 POINT KEY/TURN
- handles/finish:	INTALOK, COLOUR MATCH
Glass – type/thickness:	A4F,A5F, & P4WSD

49 GLAZING

Glass types/thickness:	
- doors:	A5F,T4F
- windows:	A4F,P4WSD,A5F,
- shower/bath screens:	ENGLEFIELD, 6mm clear toughened safety glass.
Mirrors – type/thickness:	TRENDY MIRROR, PEM 3636, 4.5mm

51 INTERIOR PARTITIONS AND DOORS

Standard plasterboard brand/thickness/finish level:

- walls: **Winstones. 10mm Standard Gib, level 4 finish**
- ceilings: **Winstones. 10mm Standard Gib, level 4 finish**

Special plasterboard brand/type/thickness/finish level:

- Bracing - walls: **Winstones. 10mm Bracline Gib, level 4 finish**
- Bathroom, Ensuite,&Laundry - walls: **Winstones. 10mm Aqualine Gib, level 4 finish.**
- ceilings: **Winstones. 10mm Aqualine Gib, level 4 finish**

Other special wall lining location/brand/thickness

Bath walls-6mm Hardiglaze to bath walls to full height. Refer to annexed manufacturers instructions for fixing details.

Shower walls-6mm Hardiglaze to bath walls to full height. Refer to annexed manufacturers instructions for fixing details.

Laundry tub splash back- 6mm Hardiglaze to bath walls to full height. Refer to annexed manufacturers instructions for fixing details.

(fix in accordance with 5.1.2 and table 2 of Hardiglaze Technical Specifications) Refer plan30a for jointing details.)

Doors:

- type: *Plyco, Boulevard (v-grooved)*
- latch: *Schlage, lever handle, R10, Rubens, SC*
- handles/finish: *Schlage, lever handle, R10, Rubens, SC*

Finishings - material/dimensions:

- skirtings: *60x12 BE custom wood*
- trim: *55mm gid cove*

52 JOINERY FIXTURES AND FITTINGS

- Carcass – material/finish: *melamine*
- Bench - material: *wilson art laminate*

61 TILING

- Tile - type/brand/code: *PIZARRA*
- Adhesive - brand/type: *Monoflex, flexible adhesive.*
- Grouting - type: *Cemgrout, sanded grout.*
- Tiling selections
- Location Details
- ENTRY AREA* *2m2 AREA INSIDE DOOR*

62 PAINTING AND PAPERHANGING

Exterior painting selections:

- Item Manufacturer /System
- Shadowclad, Cover battens, Fascia, Siffit lining, and Dummy Rafters.* *Wattyl, Forestwood, 'Natural Finish Oil Stain, Rustic Oak.*

Interior painting and paperhanging selections:

- | <u>Room/item</u> | <u>Walls</u> | <u>Ceiling</u> | <u>Trim</u> |
|--|---|---|--|
| <i>All rooms other than below</i> | <i>Taubmans, Living Proof Interior acrylic.</i> | <i>Taubmans, Living Proof Interior acrylic.</i> | <i>Taubmans, Ultra Proof Acrylic Emanel.</i> |
| <i>Bathroom, Ensuite, & Laun dry</i> | <i>Taubmans, Ultra Proof Acrylic Emanel.</i> | <i>Taubmans, Ultra Proof Acrylic Emanel.</i> | <i>Taubmans, Ultra Proof Acrylic Emanel.</i> |

71 WATER SYSTEMS

Pipework - type:	<i>Polybutylene.</i>
Pipework - insulation:	<i>Armaflex, 13mm side wall thickness to hot and cold.</i>
Exposed pipework- type:	<i>chrome plated copper</i>
HWC – brand/type/capacity:	<i>Peter Cocks , 270l low pressure, single element 3kw.</i>
Water Pump	<i>Wallace, Maxi pump MP3000.</i>

Tapware:

<u>Location</u>	<u>Manufacturer/Type</u>
<i>Vanity taps</i>	<i>Englefield, Cabriole, single lever basin mixer.</i>
<i>Bath/shower mixers</i>	<i>Englefield,Dolphis, concealed mixer.</i>
<i>Bath spout</i>	<i>Englefield, Elevation wall mount bath spout.</i>
<i>Shower Roses</i>	<i>Englefield, Elevation Plus Slide Shower.</i>
<i>Kitchen mixer</i>	<i>Englefield, Cabriole Loop mixer.</i>

72 SANITARY PLUMBING, SANITARYWARE AND ACCESSORIES

Sanitaryware and accessories selections:

<u>Location</u>	<u>Manufacturer/Type</u>
<i>Toilets</i>	<i>Englefield, Milano Back to Wall toilet suite.</i>
<i>Shower Enclosure</i>	<i>Englefield, Valencia Quadrant, base-door&return. 6mm Hardiglaze walls to ceiling.</i>
<i>Bath</i>	<i>Englefield,Studio Rectangle Bath, 1800 long.6mm Hardiglaze to walls to ceiling.</i>
<i>Vanities</i>	<i>Englefield, Sapphire, standard 900. Full width mirror to upstand and sealed.</i>
<i>Shower fan/light</i>	<i>Manrose, 150mm Extract-a-lite</i>
<i>Laundry Tub</i>	<i>Robin Hood ST3100. 6mm Hardiglaze splash back and sealed.</i>

Depth to groundwater > 6m

13/10/2006 8:47:16 a.m.

Produced by jerry
Date: 13/10/2006 8:47:19 a.m.

Environment Canterbury
58 Kumare Street
PO Box 345
Christchurch
Ph: (03) 365-3828
Fax: (03) 365-3194

This plot was created using information from Environment Canterbury's records. It is supplied in good faith, and every effort has been made to ensure the accuracy of the information shown. However its accuracy and completeness is not guaranteed. If the information shown is relied on in support of a resource consent application it should be verified independently.

RIVERS MAIN

TO BOUNDARIES

ROADS

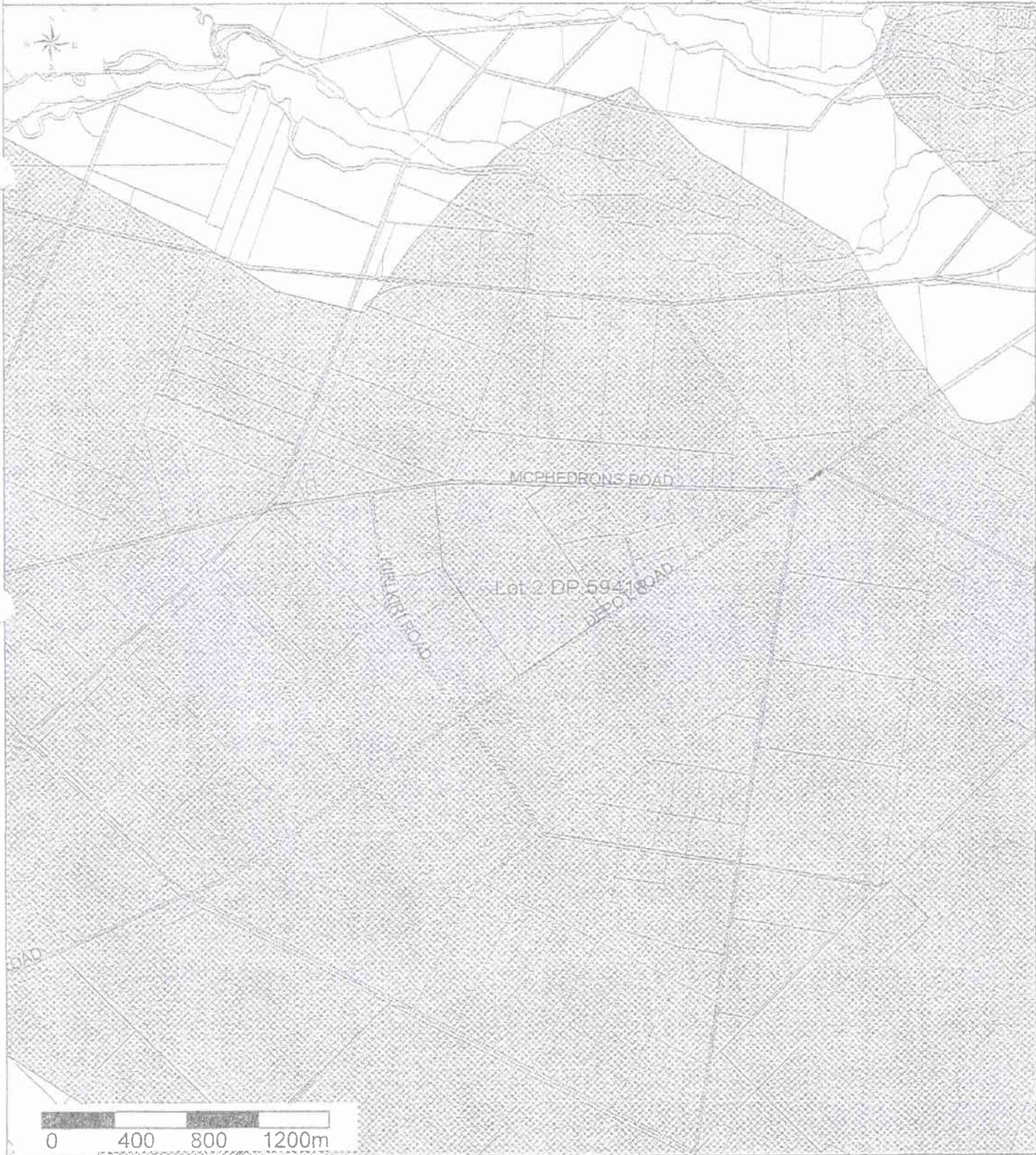
LANDPARCELS

ROAD CENTRELINE

Parcel

DEPTH TO GROUNDWATER > 6m

NOTE: Image Quality is due to condition of Original





22 February 2008

BuildBest Construction
679 Depot Road
Oxford

58 Kilmore Street, PO Box 345, Christchurch

General enquiries: 03 365 3828

Fax: 03 365 3194

Email: ecinfo@ecan.govt.nz

Customer services: 03 353 9007

or: 0800 EC INFO (0800 324 636)

Website: www.ecan.govt.nz

Attention: Murray McDowell

Dear Mr MCDowell

Wastewater Treatment & Disposal System For BuildBest Construction, 685 Depot Road, Oxford, Lot 8 DP 59418.

I am now able to confirm that in my opinion the location and installation of a BioCycle 8000 Series Wastewater Treatment System, and the discharge of sewage effluent from that system via pumped dose to 400m² of Dripline Irrigation, as set out and described in the application dated 21 February 2008, **complies** with the General Authorisation for Sewage Tank Effluent Disposal and with Rule WQL8 set out in Chapter 4 of the Proposed Natural Resources Regional Plan.

Therefore, it is my opinion that, if the wastewater treatment and land application system is constructed and installed in accordance with the details submitted in the application, **the discharge of domestic wastewater at the above location can be considered a permitted activity.**

To ensure that the discharge at the above location maintains its permitted activity status **you must ensure that:**

- The discharge will not result in sewage effluent flowing, seeping, or ponding on the surface of the ground.
- There will be no discharge of sewage effluent directly to surface water or directly into groundwater.
- When the construction of the treatment and land application system or soakage hole is completed:
 - (a) The work will be certified by a suitably qualified and competent person as having been carried out in accordance with the design plans: and
 - (b) A copy of the certificate will be forwarded to Environment Canterbury within twenty working days following completion of the work.
- The treatment and land application system will be operated and maintained in accordance with the system's design specifications for maintenance.

Our Ref: WWPAA042080/CRC083093

Contact: **Chloe Armour**
chloe.armour@ecan.govt.nz

- The primary treatment tank or chamber will:
 - (a) Have an access point or points for inspecting and maintaining the effluent filter, monitoring the accumulation of sludge and desludging the tank or chamber. The access point or points will be accessible for these purposes at all times: and
 - (b) Be inspected at least once a year and the depth of accumulated sludge in the primary treatment tank or chamber measured: and
 - (c) Be deslugged when the accumulated scum and sludge occupy more than two thirds of the volume of the tank or chamber.
- The following information will be recorded, and a copy of these records made available to Environment Canterbury upon request:
 - (a) Maintenance of the treatment and land application system, including inspection, desludging or remedial work: and
 - (b) Dates works are undertaken and the name of the company undertaking the work.

Failure to comply fully with these requirements may result in the requirement for resource consent to authorise the discharge.

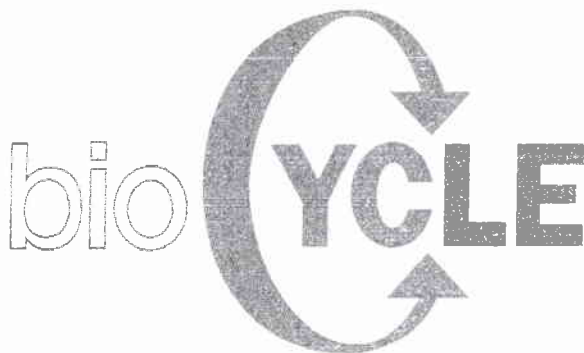
Yours sincerely



Chloe Armour

Environmental Protection Officer

Cc Hamish Dean, Waimakariri District Council
Gordon Kenning, Biocycle South Ltd



WASTE WATER TREATMENT SYSTEMS

SPECIFICATIONS FOR: BuildBest Construction, 685 Depot Road, Oxford
Lot 8. DP59418

TYPE OF SYSTEM: BioCycle 8000 Series Wastewater Treatment System

SOIL TYPE: Test holes revealed:
240mm top soils
460mm sandy gravels
Shingle from 700mm free draining

WELL: There is no well onsite (town supply).

OPEN DRAINS: There are no open drains on site or near.

WATER TABLE: Below 6m

HOUSE SIZE: 4 bedrooms

BOUNDARYS: Effluent disposal is to Ecan boundary requirements.

I have inspected the site and the system and in my opinion are able to meet the requirements of the relevant rules and the operative and proposed regional plan.

Signed Chloe Armon
Date 22 February 2008

BIOCYCLE SOUTH LIMITED

P.O. Box 20126, Bishopdale, Christchurch Phone: (03) 359 4443 Fax: (03) 359 4463

NOTES

- Subdivision proposal plan only.
- Areas and dimensions subject to final survey.
- Plan prepared for the purpose of obtaining a Resource Consent.

Note: Scandlyn Surveying accepts no responsibility for the use of this plan for any other purpose other than that intended (obtaining a Resource Consent).

Note: Lots 6-7, 12-15 have no frontage to a public road.

Over inspected and in my opinion it meets the requirements of the relevant rules in the operative and proposed Resource Consent.

Signed *Chloe Armar*

Date *22 February 2008*

PROPOSED EXCHANGES			
Name	Area (ha)	Area (ha)	Combined Total (ha)
Lot 1 of 10	8	8	16
Lot 11 to 15	10	10	20
Lot 16 to 20	10	10	20
Lot 21 to 25	10	10	20

Approved Application
RC 065655
Plan *IM Paseley 26/6/07*
DISTRICT COUNCIL MANAGER

Proposed staging

- Stage 1: Lot 1 (amended) and Lot 99 (bal. CT)
- Stage 2: Lots 8-10 and Lot 98 (bal. CT)
- Stage 3: Lots 2-5, 15 and Lot 97 (bal. CT)
- Stage 4: Lots 6-14

Proposed house site
50'50 square

120'120 square

Stage 2

Lots 1-15 being subdn of Lot 2 DP518

Waimakariri District Council
Compared In CT 35A/223 81,6500 ha
Original scale 1:5000 Format (A3)

FILE NAME: 2535_Rd_STAGER 1000V08.DWG
Dwg Date: 15/03, 11/10/06
PATH: INACAS.DWG

Prepared by: Scandlyn Surveying Ltd
209B High Street
RANGIORA
Ph 3131272, Fax 3131274

NOTES

- Subdivision proposal plan only.
- Areas and dimensions subject to final survey.
- Plan prepared for the purpose of obtaining a Resource Consent.

Note: Scandlyn Surveying accepts no responsibility for the use of this plan for any other purpose other than that intended (obtaining a Resource Consent).

Note: Lots 6-7, 12-15 have no frontage to a public road.

2
DP316604

1
DP316604

2
DP351748

2
DP317002

McPhedrons
Legal
Road



PROPOSED EASEMENTS			
Notes	Start	End	Control Reference
Right of Way	8	A	Lot 8/10
Right to convey electric power and telephonic communication	9	B	Lot 8/10
Right to convey water	10	C	Lot 8/10
	11	D	Lot 8/10

As inspected and in my opinion are all in accordance with the requirements of the relevant rules and regulations of the operative and proposed resource consent.

Chloe Annan

22 February 2008

Proposed staging

- Stage 1: Lot 1 (amended) and Lot 99 (bal. CT)
- Stage 2: Lots 8-10 and Lot 98 (bal. CT)
- Stage 3: Lots 2-5, 15 and Lot 97 (bal. CT)
- Stage 4: Lots 6-14

Proposed house site
50*50 square

120*120 square

Approved Application

RC 065655

Plan

IM Casey 26/01/07
District Plan Manager

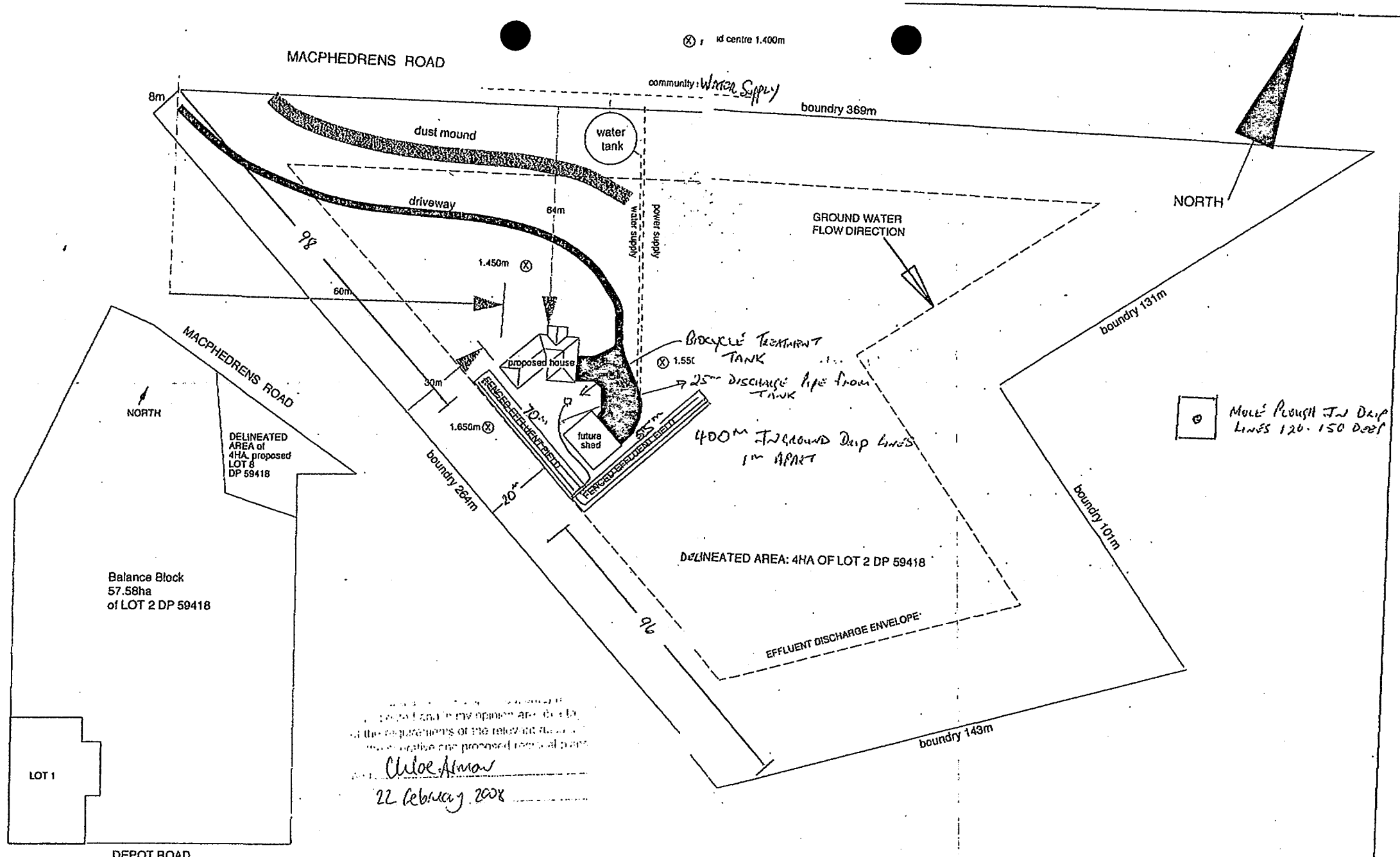
DEPOT ROAD
Legal
Road
16 to Vest as Road
8230 sqm

FILE NAME: E635_R6 10NOV06_ALL.DWG
Dwg Date: 9/05, 11/10/06
PATH: INACAD.DWG

Waimakariri District Council
Comprised in CT 354/223 81.8500 ha
Original scale 1:6000 Format: (A3)

Lots 1-15 being subdn of Lot 2 DP59418

Prepared by: Scandlyn Surveying Ltd
209B High Street
RAINGIORA
Ph 3131272, Fax 3131274
Reference: 2635_R6aH 10 Nov 06



I hereby certify that the information provided to me by the client and in my opinion are true to the requirements of the relevant legislation and the proposed use of the land.
 Chloe Almon
 22 February 2008

HOMES DIRECT P.O.Box 43 OXFORD 0274 375 275	Client: BUILDBEST CONSTRUCTION LIMITED Builder: BUILDBEST CONSTRUCTION LIMITED	Drawing: SITE PLAN Scales: nts Area:	Drawn: MDM Date: 15 feb 08 Designer: MDM	Sheet: 1 Of: 14
--	---	--	--	--------------------

Table 1: Definitions of risk factors			Elevation A
A: Wind zone	Low risk	Low wind zone as described by NZS 3604	
	Medium risk	Medium wind zone as described by NZS 3604	
	<u>High risk</u>	High wind zone as described by NZS 3604	
	Very high risk	Very high wind zone as described by NZS 3604	
B: Number of storeys	<u>Low risk</u>	One storey	
	Medium risk	Two storeys in part	
	High risk	Two storeys	
	Very high risk	More than two storeys	
C: Roof/wall intersection design	Low risk	Roof-to-wall intersection fully protected (e.g. hip and gable roof with eaves)	
	Medium risk	Roof-to-wall intersection partly exposed (e.g. hip and gable roof with no eaves)	
	High risk	Roof-to-wall intersection fully exposed (e.g. parapets, enclosed balustrades or eaves at greater than 90° to vertical with soffit lining)	
	<u>Very high risk</u>	Roof elements finishing within the boundaries formed by the exterior walls (e.g. lower ends of aprons, chimneys, dormers etc)	
D: Eaves width ⁽¹⁾⁽²⁾	Low risk	Greater than 600 mm for single storey	
	<u>Medium risk</u>	451 – 600 mm for single storey, or over 600 mm for two storey	
	High risk	101 – 450 mm for single storey, or 451 – 600 mm for two storey, or greater than 600 mm above two storey	
	Very high risk	0 – 100 mm for single storey, or 0 – 450 mm for two storey, or less than 600 mm above two storey	
E: Envelope complexity	Low risk	Simple rectangular, L, T or boomerang shape, with single cladding type	
	<u>Medium risk</u>	Moderately complex, angular or curved shapes (e.g. Y or arrowhead) with no more than two cladding types	
	High risk	Complex, angular or curved shapes (e.g. Y or arrowhead) with multiple cladding types	
	Very high risk	As for High risk, but with junctions not covered in C or F of this table (e.g. box windows, pergolas, multi-storey re-entrant shapes etc)	
F: Deck design ⁽³⁾	<u>Low risk</u>	None, timber slat deck or porch at ground floor level	
	Medium risk	Fully covered in plan by roof, or timber slat deck attached at first or second floor level	
	High risk	Enclosed deck exposed in plan or cantilevered at first floor level	
	Very high risk	Enclosed deck exposed in plan or cantilevered at second floor level or above	

NOTES:

(1) Eaves width measured horizontally from external face of wall cladding to outer edge of overhang, including gutters and fascias.

(2) Balustrades and parapets count as 0 mm eaves.

(3) The term deck includes balconies, as described in the Definitions.

Amend 2
Jul 2005Amend 2
Jul 2005Amend 2
Jul 2005Amend 2
Jul 2005

Table 2: Building envelope risk factors		Elevation A					
Risk factor	Risk severity						Subtotals for each risk factor
	LOW	Score	MEDIUM	Score	HIGH	Score	
Wind zone (per NZS 3604)	0		0		1	2	1
Number of storeys	0		1		2	4	0
Roof/wall intersection design	0		1		3	5	5
Eaves width	0		1		2	5	1
Envelope complexity	0		1		3	6	1
Deck design	0		2		4	6	0
(Enter the appropriate risk severity score for each risk factor in the score columns. Transfer these figures across to the right-hand column. Finally, add up the figures in the right-hand column to get the total risk score.)						Total risk score:	8

Table 3: Suitable wall claddings		Paragraphs 3.4.2, 3.4.3, 3.4.4, 3.4.5, 3.4.6, 3.4.7, 3.4.8, 3.4.9, 3.4.10, 3.4.11, 3.4.12, 3.4.13, 3.4.14, 3.4.15, 3.4.16, Figure 1	
Risk Score	Suitable wall claddings ⁽¹⁾		
	Direct fixed to framing	Over nominal 20 mm drained cavity	
9 – 6	a) Timber weatherboards – all types b) Fibre cement weatherboards c) Vertical profiled metal ⁽²⁾ – corrugated and symmetrical d) Fibre cement sheet ⁽³⁾ e) Plywood sheet f) EIFS	a) Masonry veneer ⁽⁴⁾ b) Stucco c) Horizontal profiled metal ⁽²⁾ – corrugated and trapezoidal only	
7 – 12	a) Bevel-back timber weatherboards b) Vertical timber board and batten c) Vertical profiled metal ⁽²⁾ – corrugated only	a) Masonry veneer ⁽⁴⁾ b) Stucco c) Horizontal profiled metal – corrugated and trapezoidal only d) Rusticated weatherboards e) Fibre cement weatherboards f) Fibre cement sheet g) Plywood sheet h) EIFS	
13 – 20	a) Vertical profiled metal ⁽²⁾ – corrugated only	a) Masonry veneer ⁽⁴⁾ b) Stucco c) Horizontal profiled metal – corrugated and trapezoidal only d) Rusticated weatherboards e) Fibre cement weatherboards f) Fibre cement sheet g) Plywood sheet h) EIFS i) Bevel-back weatherboards	
Over 20	a) Redesign the building to achieve a lower score, or b) Specific design: <ul style="list-style-type: none"> – The design may need changing to reduce the risk – The building consent authority may require more comprehensive details and documentation providing evidence of weathertightness – The building consent authority, designer or owner may require more inspections – A third party audit of the design may be required. 		

NOTES: (1) The wall claddings in this table are limited to those covered in this Acceptable Solution.
 (2) Traditional masonry veneer as per SNZ HB 4236, with minimum 40 mm cavity.
 (3) Refer Figure 38 for profiles.
 (4) Except stucco over a fibre cement backing.

Table 2 Building envelope risk matrix
Paragraphs 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11, 3.12, 3.13, 3.14, 3.15, 3.16, 3.17, 3.18, 3.19, 3.20, 3.21, 3.22, 3.23, 3.24, 3.25, 3.26, 3.27, 3.28, 3.29, 3.30, 3.31, 3.32, 3.33, 3.34, 3.35, 3.36, 3.37, 3.38, 3.39, 3.40, 3.41, 3.42, 3.43, 3.44, 3.45, 3.46, 3.47, 3.48, 3.49, 3.50, 3.51, 3.52, 3.53, 3.54, 3.55, 3.56, 3.57, 3.58, 3.59, 3.60, 3.61, 3.62, 3.63, 3.64, 3.65, 3.66, 3.67, 3.68, 3.69, 3.70, 3.71, 3.72, 3.73, 3.74, 3.75, 3.76, 3.77, 3.78, 3.79, 3.80, 3.81, 3.82, 3.83, 3.84, 3.85, 3.86, 3.87, 3.88, 3.89, 3.90, 3.91, 3.92, 3.93, 3.94, 3.95, 3.96, 3.97, 3.98, 3.99, 4.00

Exemption B

Risk factor	Risk severity				Subtotals for each risk factor
	LOW	MEDIUM	HIGH	VERY HIGH	
Wind zone (per NZS 3604)	0	0	1	2	100
Number of storeys	0	1	2	4	
Roof/wall intersection design	0	1	3	5	
Eaves width	0	1	2	5	
Envelope complexity	0	1	3	6	
Deck design	0	2	4	6	
Total risk score:					80

(Enter the appropriate risk severity score for each risk factor in the score columns. Transfer these figures across to the right-hand column. Finally, add up the figures in the right-hand column to get the total risk score.)

Table 3 Suitable wall claddings

Paragraphs 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11, 3.12, 3.13, 3.14, 3.15, 3.16, 3.17, 3.18, 3.19, 3.20, 3.21, 3.22, 3.23, 3.24, 3.25, 3.26, 3.27, 3.28, 3.29, 3.30, 3.31, 3.32, 3.33, 3.34, 3.35, 3.36, 3.37, 3.38, 3.39, 3.40, 3.41, 3.42, 3.43, 3.44, 3.45, 3.46, 3.47, 3.48, 3.49, 3.50, 3.51, 3.52, 3.53, 3.54, 3.55, 3.56, 3.57, 3.58, 3.59, 3.60, 3.61, 3.62, 3.63, 3.64, 3.65, 3.66, 3.67, 3.68, 3.69, 3.70, 3.71, 3.72, 3.73, 3.74, 3.75, 3.76, 3.77, 3.78, 3.79, 3.80, 3.81, 3.82, 3.83, 3.84, 3.85, 3.86, 3.87, 3.88, 3.89, 3.90, 3.91, 3.92, 3.93, 3.94, 3.95, 3.96, 3.97, 3.98, 3.99, 4.00

Risk Score

Suitable wall claddings⁽¹⁾

Direct fixed to framing

Over nominal 20 mm drained cavity

- 6 - 5
- a) Timber weatherboards - all types
 - b) Fibre cement weatherboards
 - c) Vertical profiled metal ⁽²⁾ - corrugated and symmetrical
 - d) Fibre cement sheet ⁽⁴⁾
 - e) Plywood sheet
 - f) EIFS

- a) Masonry veneer ⁽²⁾
- b) Stucco
- c) Horizontal profiled metal ⁽²⁾ - corrugated and trapezoidal only

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- 7 - 12
- a) Bevel-back timber weatherboards
 - b) Vertical timber board and batten
 - c) Vertical profiled metal ⁽²⁾ - corrugated only

- a) Masonry veneer ⁽²⁾
- b) Stucco
- c) Horizontal profiled metal - corrugated and trapezoidal only
- d) Rusticated weatherboards
- e) Fibre cement weatherboards
- f) Fibre cement sheet
- g) Plywood sheet
- h) EIFS

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- 13 - 20
- a) Vertical profiled metal ⁽²⁾ - corrugated only

- a) Masonry veneer ⁽²⁾
- b) Stucco
- c) Horizontal profiled metal - corrugated and trapezoidal only
- d) Rusticated weatherboards
- e) Fibre cement weatherboards
- f) Fibre cement sheet
- g) Plywood sheet
- h) EIFS
- i) Bevel-back weatherboards

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- Over 20
- a) Redesign the building to achieve a lower score, or
 - b) Specific design
 - The design may need changing to reduce the risk
 - The building consent authority may require more comprehensive details and documentation providing evidence of weathertightness
 - The building consent authority, designer or owner may require more inspections
 - A third party audit of the design may be required.

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- NOTES: (1) The wall claddings in this table are limited to those covered in this Acceptable Solution.
(2) Traditional masonry veneer as per SNZ HB 4236, with minimum 40 mm cavity.
(3) Refer Figure 33 for profiles.
(4) Except stucco over a fibre cement backing.

Table 1: Distributions of risk		
	Paragraph	Figure
A: Wind zone	Low risk	Low wind zone as described by NZS 3604
	Medium risk	Medium wind zone as described by NZS 3604
	<u>High risk</u>	High wind zone as described by NZS 3604
	Very high risk	Very high wind zone as described by NZS 3604
B: Number of storeys	<u>Low risk</u>	One storey
	Medium risk	Two storeys in part
	High risk	Two storeys
	Very high risk	More than two storeys
C: Roof/wall intersection design	<u>Low risk</u>	Roof-to-wall intersection fully protected (e.g. hip and gable roof with eaves)
	Medium risk	Roof-to-wall intersection partly exposed (e.g. hip and gable roof with no eaves)
	High risk	Roof-to-wall intersection fully exposed (e.g. parapets, enclosed balustrades or eaves at greater than 90° to vertical with soffit lining)
	Very high risk	Roof elements finishing within the boundaries formed by the exterior walls (e.g. lower ends of aprons, chimneys, dormers etc)
D: Eaves width ⁽¹⁾⁽²⁾	Low risk	Greater than 600 mm for single storey
	<u>Medium risk</u>	451 – 600 mm for single storey, or over 600 mm for two storey
	High risk	101 – 450 mm for single storey, or 451 – 600 mm for two storey, or greater than 600 mm above two storey
	Very high risk	0 – 100 mm for single storey, or 0 – 450 mm for two storey, or less than 600 mm above two storey
E: Envelope complexity	Low risk	Simple rectangular, L, T or boomerang shape, with single cladding type
	<u>Medium risk</u>	Moderately complex, angular or curved shapes (e.g. Y or arrowhead) with no more than two cladding types
	High risk	Complex, angular or curved shapes (e.g. Y or arrowhead) with multiple cladding types
	Very high risk	As for High risk, but with junctions not covered in C or F of this table (e.g. box windows, pergolas, multi-storey re-entrant shapes etc)
F: Deck design ⁽³⁾	<u>Low risk</u>	None, timber slat deck or porch at ground floor level
	Medium risk	Fully covered in plan by roof, or timber slat deck attached at first or second floor level
	High risk	Enclosed deck exposed in plan or cantilevered at first floor level
	Very high risk	Enclosed deck exposed in plan or cantilevered at second floor level or above

NOTES:

Amend 2 Jul 2005 | (1) Eaves width measured horizontally from external face of wall cladding to outer edge of overhang, including gutters and fascias.

Amend 2 Jul 2005 | (2) Balustrades and parapets count as 0 mm eaves.

Amend 2 Jul 2005 | (3) The term deck includes balconies, as described in the Definitions.

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Table 2 Building envelope risk matrix
Paragraphs 3.4.1-3.4.2 Figure 1

Risk factor	Risk severity				Subtotals for each risk factor
	LOW	MEDIUM	HIGH	VERY HIGH	
Wind zone (per NZS 3604)	0	0	1	2	100
Number of storeys	0	1	2	4	
Roof/wall intersection design	0	1	3	5	
Eaves width	0	1	2	5	
Envelope complexity	0	1	3	6	
Deck design	0	2	4	6	
Total risk score:					3

(Enter the appropriate risk severity score for each risk factor in the score columns. Transfer these figures across to the right-hand column. Finally, add up the figures in the right-hand column to get the total risk score.)

Table 3 Suitable wall claddings

Paragraphs 3.4.2-3.4.4, 3.4.5, 3.4.6, 3.4.7, 3.4.8, 3.4.9, 3.4.10, 3.4.11, 3.4.12, 3.4.13, 3.4.14, 3.4.15, 3.4.16, 3.4.17, 3.4.18, 3.4.19, 3.4.20, 3.4.21, 3.4.22, 3.4.23, 3.4.24, 3.4.25, 3.4.26, 3.4.27, 3.4.28, 3.4.29, 3.4.30, 3.4.31, 3.4.32, 3.4.33, 3.4.34, 3.4.35, 3.4.36, 3.4.37, 3.4.38, 3.4.39, 3.4.40, 3.4.41, 3.4.42, 3.4.43, 3.4.44, 3.4.45, 3.4.46, 3.4.47, 3.4.48, 3.4.49, 3.4.50, 3.4.51, 3.4.52, 3.4.53, 3.4.54, 3.4.55, 3.4.56, 3.4.57, 3.4.58, 3.4.59, 3.4.60, 3.4.61, 3.4.62, 3.4.63, 3.4.64, 3.4.65, 3.4.66, 3.4.67, 3.4.68, 3.4.69, 3.4.70, 3.4.71, 3.4.72, 3.4.73, 3.4.74, 3.4.75, 3.4.76, 3.4.77, 3.4.78, 3.4.79, 3.4.80, 3.4.81, 3.4.82, 3.4.83, 3.4.84, 3.4.85, 3.4.86, 3.4.87, 3.4.88, 3.4.89, 3.4.90, 3.4.91, 3.4.92, 3.4.93, 3.4.94, 3.4.95, 3.4.96, 3.4.97, 3.4.98, 3.4.99, 3.4.100

Risk Score	Suitable wall claddings ⁽¹⁾	
	Direct fixed to framing	Over nominal 20 mm drained cavity
0 - 6	a) Timber weatherboards - all types b) Fibre cement weatherboards c) Vertical profiled metal ⁽²⁾ - corrugated and symmetrical d) Fibre cement sheet ⁽³⁾ e) Plywood sheet f) EIFS	a) Masonry veneer ⁽⁴⁾ b) Stucco c) Horizontal profiled metal ⁽²⁾ - corrugated and trapezoidal only
7 - 12	a) Bevel-back timber weatherboards b) Vertical timber board and batten c) Vertical profiled metal ⁽²⁾ - corrugated only	a) Masonry veneer ⁽⁴⁾ b) Stucco c) Horizontal profiled metal - corrugated and trapezoidal only d) Rusticated weatherboards e) Fibre cement weatherboards f) Fibre cement sheet g) Plywood sheet h) EIFS
13 - 20	a) Vertical profiled metal ⁽²⁾ - corrugated only	a) Masonry veneer ⁽⁴⁾ b) Stucco c) Horizontal profiled metal - corrugated and trapezoidal only d) Rusticated weatherboards e) Fibre cement weatherboards f) Fibre cement sheet g) Plywood sheet h) EIFS i) Bevel-back weatherboards
Over 20	a) Redesign the building to achieve a lower score, or b) Specific design <ul style="list-style-type: none"> - The design may need changing to reduce the risk - The building consent authority may require more comprehensive details and documentation providing evidence of weathertightness - The building consent authority, designer or owner may require more inspections - A third party audit of the design may be required. 	

NOTES: (1) The wall claddings in this table are limited to those covered in this Acceptable Solution.
 (2) Traditional masonry veneer as per SNZ HB 4236, with minimum 40 mm cavity.
 (3) Refer Figure 38 for profiles.
 (4) Except stucco over a fibre cement backing.

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Table 1: Definitions of risk		
	Low risk	Medium risk
A: Wind zone	Low risk	Low wind zone as described by NZS 3604
	Medium risk	Medium wind zone as described by NZS 3604
	High risk	High wind zone as described by NZS 3604
	Very high risk	Very high wind zone as described by NZS 3604
B: Number of storeys	Low risk	One storey
	Medium risk	Two storeys in part
	High risk	Two storeys
	Very high risk	More than two storeys
C: Roof/wall intersection design	Low risk	Roof-to-wall intersection fully protected (e.g. hip and gable roof with eaves)
	Medium risk	Roof-to-wall intersection partly exposed (e.g. hip and gable roof with no eaves)
	High risk	Roof-to-wall intersection fully exposed (e.g. parapets, enclosed balustrades or eaves at greater than 90° to vertical with soffit lining)
	Very high risk	Roof elements finishing within the boundaries formed by the exterior walls (e.g. lower ends of aprons, chimneys, dormers etc)
D: Eaves width ⁽¹⁾⁽²⁾	Low risk	Greater than 600 mm for single storey
	Medium risk	451 – 600 mm for single storey, or over 600 mm for two storey
	High risk	101 – 450 mm for single storey, or 451 – 600 mm for two storey, or greater than 600 mm above two storey
	Very high risk	0 – 100 mm for single storey, or 0 – 450 mm for two storey, or less than 600 mm above two storey
E: Envelope complexity	Low risk	Simple rectangular, L, T or boomerang shape, with single cladding type
	Medium risk	Moderately complex, angular or curved shapes (e.g. Y or arrowhead) with no more than two cladding types
	High risk	Complex, angular or curved shapes (e.g. Y or arrowhead) with multiple cladding types
	Very high risk	As for High risk, but with junctions not covered in C or F of this table (e.g. box windows, pergolas, multi-storey re-entrant shapes etc)
F: Deck design ⁽³⁾	Low risk	None, timber slat deck or porch at ground floor level
	Medium risk	Fully covered in plan by roof, or timber slat deck attached at first or second floor level
	High risk	Enclosed deck exposed in plan or cantilevered at first floor level
	Very high risk	Enclosed deck exposed in plan or cantilevered at second floor level or above

NOTES:

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(1) Eaves width measured horizontally from external face of wall cladding to outer edge of overhang, including gutters and fascias.

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(2) Balustrades and parapets count as 0 mm eaves.

(3) The term deck includes balconies, as described in the Definitions.

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Table 2: Building envelope risk matrix
Paragraphs 5.1.2, 5.1.3, 5.1.4

Risk factor	Risk severity				VERY HIGH	Subtotals for each risk factor
	LOW	MEDIUM	HIGH			
Wind zone (per NZS 3604)	0	0	1	2	1	
Number of storeys	0	1	2	4	0	
Roof/wall intersection design	0	1	3	5	0	
Eaves width	0	1	2	5	0	
Envelope complexity	0	1	3	6	0	
Deck design	0	2	4	6	0	
Total risk score:					3	

(Enter the appropriate risk severity score for each risk factor in the score columns. Transfer these figures across to the right-hand column. Finally, add up the figures in the right-hand column to get the total risk score.)

Table 3: Suitable wall claddings

Paragraphs 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7, 3.1.8, 3.1.9, 3.1.10, 3.1.11, 3.1.12, 3.1.13, 3.1.14, 3.1.15, 3.1.16, 3.1.17, 3.1.18, 3.1.19, 3.1.20, 3.1.21, 3.1.22, 3.1.23, 3.1.24, 3.1.25, 3.1.26, 3.1.27, 3.1.28, 3.1.29, 3.1.30, 3.1.31, 3.1.32, 3.1.33, 3.1.34, 3.1.35, 3.1.36, 3.1.37, 3.1.38, 3.1.39, 3.1.40, 3.1.41, 3.1.42, 3.1.43, 3.1.44, 3.1.45, 3.1.46, 3.1.47, 3.1.48, 3.1.49, 3.1.50, 3.1.51, 3.1.52, 3.1.53, 3.1.54, 3.1.55, 3.1.56, 3.1.57, 3.1.58, 3.1.59, 3.1.60, 3.1.61, 3.1.62, 3.1.63, 3.1.64, 3.1.65, 3.1.66, 3.1.67, 3.1.68, 3.1.69, 3.1.70, 3.1.71, 3.1.72, 3.1.73, 3.1.74, 3.1.75, 3.1.76, 3.1.77, 3.1.78, 3.1.79, 3.1.80, 3.1.81, 3.1.82, 3.1.83, 3.1.84, 3.1.85, 3.1.86, 3.1.87, 3.1.88, 3.1.89, 3.1.90, 3.1.91, 3.1.92, 3.1.93, 3.1.94, 3.1.95, 3.1.96, 3.1.97, 3.1.98, 3.1.99, 3.1.100

Risk
Score

Suitable wall claddings⁽¹⁾

Direct fixed to framing

Over nominal 20 mm drained cavity

0 - 6

- a) Timber weatherboards - all types
- b) Fibre cement weatherboards
- c) Vertical profiled metal ⁽²⁾ - corrugated and symmetrical
- d) Fibre cement sheet ⁽²⁾
- e) Plywood sheet
- f) EIFS

a) Masonry veneer ⁽²⁾

- b) Stucco
- c) Horizontal profiled metal ⁽²⁾ - corrugated and trapezoidal only

7 - 12

- a) Bevel-back timber weatherboards
- b) Vertical timber board and batten
- c) Vertical profiled metal ⁽²⁾ - corrugated only

- a) Masonry veneer ⁽²⁾
- b) Stucco
- c) Horizontal profiled metal - corrugated and trapezoidal only
- d) Rusticated weatherboards
- e) Fibre cement weatherboards
- f) Fibre cement sheet
- g) Plywood sheet
- h) EIFS

13 - 20

- a) Vertical profiled metal ⁽²⁾ - corrugated only

- a) Masonry veneer ⁽²⁾
- b) Stucco
- c) Horizontal profiled metal - corrugated and trapezoidal only
- d) Rusticated weatherboards
- e) Fibre cement weatherboards
- f) Fibre cement sheet
- g) Plywood sheet
- h) EIFS
- i) Bevel-back weatherboards

Over 20

- a) Redesign the building to achieve a lower score, or
- b) Specific design
 - The design may need changing to reduce the risk
 - The building consent authority may require more comprehensive details and documentation providing evidence of weathertightness
 - The building consent authority, designer or owner may require more inspections
 - A third party audit of the design may be required.

NOTES: (1) The wall claddings in this table are limited to those covered in this Acceptable Solution.

(2) Traditional masonry veneer as per SNZ HS 4236, with minimum 40 mm cavity.

(3) Refer Figure 38 for profiles.

(4) Except stucco over a fibre cement backing.

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Table 1: Definitions of risk

A: Wind zone	Low risk	Low wind zone as described by NZS 3604
	Medium risk	Medium wind zone as described by NZS 3604
	<u>High risk</u>	High wind zone as described by NZS 3604
	Very high risk	Very high wind zone as described by NZS 3604
B: Number of storeys	<u>Low risk</u>	One storey
	Medium risk	Two storeys in part
	High risk	Two storeys
	Very high risk	More than two storeys
C: Roof/wall intersection design	<u>Low risk</u>	Roof-to-wall intersection fully protected (e.g. hip and gable roof with eaves)
	Medium risk	Roof-to-wall intersection partly exposed (e.g. hip and gable roof with no eaves)
	High risk	Roof-to-wall intersection fully exposed (e.g. parapets, enclosed balustrades or eaves at greater than 90° to vertical with soffit lining)
	Very high risk	Roof elements finishing within the boundaries formed by the exterior walls (e.g. lower ends of aprons, chimneys, dormers etc)
D: Eaves width ⁽¹⁾⁽²⁾	Low risk	Greater than 600 mm for single storey
	<u>Medium risk</u>	451 – 600 mm for single storey, or over 600 mm for two storey
	High risk	101 – 450 mm for single storey, or 451 – 600 mm for two storey, or greater than 600 mm above two storey
	Very high risk	0 – 100 mm for single storey, or 0 – 450 mm for two storey, or less than 600 mm above two storey
E: Envelope complexity	Low risk	Simple rectangular, L, T or boomerang shape, with single cladding type
	<u>Medium risk</u>	Moderately complex, angular or curved shapes (e.g. Y or arrowhead) with no more than two cladding types
	High risk	Complex, angular or curved shapes (e.g. Y or arrowhead) with multiple cladding types
	Very high risk	As for High risk, but with junctions not covered in C or F of this table (e.g. box windows, pergolas, multi-storey re-entrant shapes etc)
F: Deck design ⁽³⁾	<u>Low risk</u>	None, timber slat deck or porch at ground floor level
	Medium risk	Fully covered in plan by roof, or timber slat deck attached at first or second floor level
	High risk	Enclosed deck exposed in plan or cantilevered at first floor level
	Very high risk	Enclosed deck exposed in plan or cantilevered at second floor level or above

NOTES:

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(1) Eaves width measured horizontally from external face of wall cladding to outer edge of overhang, including gutters and fascias.

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(2) Balustrades and parapets count as 0 mm eaves.

(3) The term deck includes balconies, as described in the Definitions.

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Table 1: Definitions of risk		
A: Wind zone	Low risk	Low <i>wind zone</i> as described by NZS 3604
	Medium risk	Medium <i>wind zone</i> as described by NZS 3604
	<u>High risk</u>	High <i>wind zone</i> as described by NZS 3604
	Very high risk	Very high <i>wind zone</i> as described by NZS 3604
B: Number of storeys	<u>Low risk</u>	One <i>storey</i>
	Medium risk	Two <i>storeys</i> in part
	High risk	Two <i>storeys</i>
	Very high risk	More than two <i>storeys</i>
C: Roof/wall intersection design	Low risk	Roof-to-wall intersection fully protected (e.g. hip and gable roof with <i>eaves</i>)
	Medium risk	Roof-to-wall intersection partly exposed (e.g. hip and gable roof with no <i>eaves</i>)
	High risk	Roof-to-wall intersection fully exposed (e.g. <i>parapets</i> , <i>enclosed balustrades</i> or <i>eaves</i> at greater than 90° to vertical with <i>soffit lining</i>)
	<u>Very high risk</u>	Roof elements finishing within the boundaries formed by the exterior walls (e.g. lower ends of <i>aprons</i> , <i>chimneys</i> , <i>dormers</i> etc)
D: Eaves width ⁽¹⁾⁽²⁾	Low risk	Greater than 600 mm for single <i>storey</i>
	<u>Medium risk</u>	451 – 600 mm for single <i>storey</i> , or over 600 mm for two <i>storey</i>
	High risk	101 – 450 mm for single <i>storey</i> , or 451 – 600 mm for two <i>storey</i> , or greater than 600 mm above two <i>storey</i>
	Very high risk	0 – 100 mm for single <i>storey</i> , or 0 – 450 mm for two <i>storey</i> , or less than 600 mm above two <i>storey</i>
E: Envelope complexity	Low risk	Simple rectangular, L, T or boomerang shape, with single <i>cladding type</i>
	<u>Medium risk</u>	Moderately complex, angular or curved shapes (e.g. Y or arrowhead) with no more than two <i>cladding types</i>
	High risk	Complex, angular or curved shapes (e.g. Y or arrowhead) with multiple <i>cladding types</i>
	Very high risk	As for High risk, but with junctions not covered in C or F of this table (e.g. box windows, pergolas, multi-storey re-entrant shapes etc)
F: Deck design ⁽²⁾	<u>Low risk</u>	None, timber <i>slat deck</i> or porch at ground floor level
	Medium risk	Fully covered in plan by roof, or timber <i>slat deck</i> attached at first or second floor level
	High risk	<i>Enclosed deck</i> exposed in plan or cantilevered at first floor level
	Very high risk	<i>Enclosed deck</i> exposed in plan or cantilevered at second floor level or above

NOTES:

- (1) *Eaves* width measured horizontally from external face of wall *cladding* to outer edge of overhang, including gutters and fascias.
- (2) Balustrades and *parapets* count as 0 mm *eaves*.
- (3) The term *deck* includes balconies, as described in the Definitions.

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Table 2: Building envelope risk matrix
Paragraph 3.1.2, Figure 1

Evaluation

Risk factor	Risk severity				Subtotals for each risk factor
	LOW	MEDIUM	HIGH	VERY HIGH	
Wind zone (per NZS 3604)	0	0	1	2	1
Number of storeys	0	1	2	4	00
Roof/wall intersection design	0	1	3	5	00
Eaves width	0	1	2	5	1
Envelope complexity	0	1	3	6	0
Deck design	0	2	4	6	0
Total risk score:					3

(Enter the appropriate risk severity score for each risk factor in the score columns. Transfer these figures across to the right-hand column. Finally, add up the figures in the right-hand column to get the total risk score.)

Table 3: Suitable wall claddings

Paragraphs 3.1.2, 3.4.1, 3.4.2, 3.4.3, 3.4.4, 3.4.5, 3.4.6, 3.4.7, 3.4.8, 3.4.9, 3.4.10, 3.4.11, 3.4.12, 3.4.13, 3.4.14, 3.4.15, 3.4.16, 3.4.17, 3.4.18, 3.4.19, 3.4.20, 3.4.21, 3.4.22, 3.4.23, 3.4.24, 3.4.25, 3.4.26, 3.4.27, 3.4.28, 3.4.29, 3.4.30, 3.4.31, 3.4.32, 3.4.33, 3.4.34, 3.4.35, 3.4.36, 3.4.37, 3.4.38, 3.4.39, 3.4.40, 3.4.41, 3.4.42, 3.4.43, 3.4.44, 3.4.45, 3.4.46, 3.4.47, 3.4.48, 3.4.49, 3.4.50, 3.4.51, 3.4.52, 3.4.53, 3.4.54, 3.4.55, 3.4.56, 3.4.57, 3.4.58, 3.4.59, 3.4.60, 3.4.61, 3.4.62, 3.4.63, 3.4.64, 3.4.65, 3.4.66, 3.4.67, 3.4.68, 3.4.69, 3.4.70, 3.4.71, 3.4.72, 3.4.73, 3.4.74, 3.4.75, 3.4.76, 3.4.77, 3.4.78, 3.4.79, 3.4.80, 3.4.81, 3.4.82, 3.4.83, 3.4.84, 3.4.85, 3.4.86, 3.4.87, 3.4.88, 3.4.89, 3.4.90, 3.4.91, 3.4.92, 3.4.93, 3.4.94, 3.4.95, 3.4.96, 3.4.97, 3.4.98, 3.4.99, 3.4.100

Risk
Score

Suitable wall claddings⁽¹⁾

Direct fixed to framing

- 0 - 6
- a) Timber weatherboards – all types
 - b) Fibre cement weatherboards
 - c) Vertical profiled metal⁽²⁾ – corrugated and symmetrical
 - d) Fibre cement sheet⁽³⁾
 - e) Plywood sheet
 - f) EIFS

- 7 - 12
- a) Bevel-back timber weatherboards
 - b) Vertical timber board and batten
 - c) Vertical profiled metal⁽²⁾ – corrugated only

- 13 - 20
- a) Vertical profiled metal⁽²⁾ – corrugated only

Over nominal 20 mm drained cavity

- a) Masonry veneer⁽⁴⁾
- b) Stucco
 - c) Horizontal profiled metal⁽²⁾ – corrugated and trapezoidal only

- a) Masonry veneer⁽⁴⁾
- b) Stucco
- c) Horizontal profiled metal – corrugated and trapezoidal only
- d) Rusticated weatherboards
- e) Fibre cement weatherboards
- f) Fibre cement sheet
- g) Plywood sheet
- h) EIFS

- a) Masonry veneer⁽⁴⁾
- b) Stucco
- c) Horizontal profiled metal – corrugated and trapezoidal only
- d) Rusticated weatherboards
- e) Fibre cement weatherboards
- f) Fibre cement sheet
- g) Plywood sheet
- h) EIFS
- i) Bevel-back weatherboards

- Over 20
- a) Redesign the building to achieve a lower score, or
 - b) Specific design

- The design may need changing to reduce the risk
- The building consent authority may require more comprehensive details and documentation providing evidence of weathertightness
- The building consent authority, designer or owner may require more inspections
- A third party audit of the design may be required.

NOTES: (1) The wall claddings in this table are limited to those covered in this Acceptable Solution.

(2) Traditional masonry veneer as per SNZ HB 4236, with minimum 40 mm cavity.

(3) Refer Figure 38 for profiles.

(4) Except stucco over a fibre cement backing.

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Table 1: Definitions of risk
Part 3 of AS/NZS 3604:2009 Figure 1

A: Wind zone	Low risk	Low wind zone as described by NZS 3604
	Medium risk	Medium wind zone as described by NZS 3604
	<u>High risk</u>	High wind zone as described by NZS 3604
	Very high risk	Very high wind zone as described by NZS 3604
B: Number of storeys	<u>Low risk</u>	One storey
	Medium risk	Two storeys in part
	High risk	Two storeys
	Very high risk	More than two storeys
C: Roof/wall intersection design	Low risk	Roof-to-wall intersection fully protected (e.g. hip and gable roof with eaves)
	Medium risk	Roof-to-wall intersection partly exposed (e.g. hip and gable roof with no eaves)
	High risk	Roof-to-wall intersection fully exposed (e.g. parapets, enclosed balustrades or eaves at greater than 90° to vertical with soffit lining)
	<u>Very high risk</u>	Roof elements finishing within the boundaries formed by the exterior walls (e.g. lower ends of aprons, chimneys, dormers etc)
D: Eaves width ⁽¹⁾⁽²⁾	Low risk	Greater than 600 mm for single storey
	<u>Medium risk</u>	451 – 600 mm for single storey, or over 600 mm for two storey
	High risk	101 – 450 mm for single storey, or 451 – 600 mm for two storey, or greater than 600 mm above two storey
	Very high risk	0 – 100 mm for single storey, or 0 – 450 mm for two storey, or less than 600 mm above two storey
E: Envelope complexity	Low risk	Simple rectangular, L, T or boomerang shape, with single cladding type
	<u>Medium risk</u>	Moderately complex, angular or curved shapes (e.g. Y or arrowhead) with no more than two cladding types
	High risk	Complex, angular or curved shapes (e.g. Y or arrowhead) with multiple cladding types
	Very high risk	As for High risk, but with junctions not covered in C or F of this table (e.g. box windows, pergolas, multi-storey re-entrant shapes etc)
F: Deck design ⁽³⁾	<u>Low risk</u>	None, timber slat deck or porch at ground floor level
	Medium risk	Fully covered in plan by roof, or timber slat deck attached at first or second floor level
	High risk	Enclosed deck exposed in plan or cantilevered at first floor level
	Very high risk	Enclosed deck exposed in plan or cantilevered at second floor level or above

NOTES:

Amend 2 Jul 2005 | (1) Eaves width measured horizontally from external face of wall cladding to outer edge of overhang, including gutters and fascias.

(2) Balustrades and parapets count as 0 mm eaves.

Amend 2 Jul 2005 | (3) The term deck includes balconies, as described in the Definitions.

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Table 2: Building envelope risk matrix
Paragraphs 3.1.2, Figure 3

Erection F

Risk factor	Risk severity				Subtotals for each risk factor
	LOW	MEDIUM	HIGH	VERY HIGH	
Wind zone (per NZS 3604)	0	0	1	2	1
Number of storeys	0	1	2	4	0
Roof/wall intersection design	0	1	3	5	5
Eaves width	0	1	2	5	1
Envelope complexity	0	1	3	6	0
Deck design	0	2	4	6	0
Total risk score:					8

(Enter the appropriate risk severity score for each risk factor in the score columns. Transfer these figures across to the right-hand column. Finally, add up the figures in the right-hand column to get the total risk score.)

Table 3: Suitable wall claddings

Paragraphs 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7, 3.1.8, 3.1.9, 3.1.10, 3.1.11, 3.1.12, 3.1.13, 3.1.14, 3.1.15, 3.1.16, 3.1.17, 3.1.18, 3.1.19, 3.1.20, 3.1.21, 3.1.22, 3.1.23, 3.1.24, 3.1.25, 3.1.26, 3.1.27, 3.1.28, 3.1.29, 3.1.30, 3.1.31, 3.1.32, 3.1.33, 3.1.34, 3.1.35, 3.1.36, 3.1.37, 3.1.38, 3.1.39, 3.1.40, 3.1.41, 3.1.42, 3.1.43, 3.1.44, 3.1.45, 3.1.46, 3.1.47, 3.1.48, 3.1.49, 3.1.50, 3.1.51, 3.1.52, 3.1.53, 3.1.54, 3.1.55, 3.1.56, 3.1.57, 3.1.58, 3.1.59, 3.1.60, 3.1.61, 3.1.62, 3.1.63, 3.1.64, 3.1.65, 3.1.66, 3.1.67, 3.1.68, 3.1.69, 3.1.70, 3.1.71, 3.1.72, 3.1.73, 3.1.74, 3.1.75, 3.1.76, 3.1.77, 3.1.78, 3.1.79, 3.1.80, 3.1.81, 3.1.82, 3.1.83, 3.1.84, 3.1.85, 3.1.86, 3.1.87, 3.1.88, 3.1.89, 3.1.90, 3.1.91, 3.1.92, 3.1.93, 3.1.94, 3.1.95, 3.1.96, 3.1.97, 3.1.98, 3.1.99, 3.1.100

Risk Score	Suitable wall claddings ⁽¹⁾	
	Direct fixed to framing	Over nominal 20 mm drained cavity
0 – 6	a) Timber weatherboards – all types b) Fibre cement weatherboards c) Vertical profiled metal ⁽²⁾ – corrugated and symmetrical d) Fibre cement sheet ⁽³⁾ e) Plywood sheet f) EIFS	a) Masonry veneer ⁽⁴⁾ b) Stucco c) Horizontal profiled metal ⁽²⁾ – corrugated and trapezoidal only
7 – 12	a) Bevel-back timber weatherboards b) Vertical timber board and batten c) Vertical profiled metal ⁽²⁾ – corrugated only	a) Masonry veneer ⁽⁴⁾ b) Stucco c) Horizontal profiled metal – corrugated and trapezoidal only d) Rusticated weatherboards e) Fibre cement weatherboards f) Fibre cement sheet g) Plywood sheet h) EIFS
13 – 20	a) Vertical profiled metal ⁽²⁾ – corrugated only	a) Masonry veneer ⁽⁴⁾ b) Stucco c) Horizontal profiled metal – corrugated and trapezoidal only d) Rusticated weatherboards e) Fibre cement weatherboards f) Fibre cement sheet g) Plywood sheet h) EIFS i) Bevel-back weatherboards
Over 20	a) Redesign the building to achieve a lower score, or b) Specific design <ul style="list-style-type: none"> – The design may need changing to reduce the risk – The building consent authority may require more comprehensive details and documentation providing evidence of weathertightness – The building consent authority, designer or owner may require more inspections – A third party audit of the design may be required. 	

NOTES: (1) The wall claddings in this table are limited to those covered in this Acceptable Solution.

- (2) Traditional masonry veneer as per SNZ HB 4236, with minimum 40 mm cavity.
 (3) Refer Figure 38 for profiles.
 (4) Except stucco over a fibre cement backing.

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SPECIFICATION

of work shown on the accompanying drawings

at

Proposed Lot 8 DP 383229
685 DEPOT ROAD
OXFORD

Job number: ***BBCL 2557***

Date: ***7 FEB 2008***

11 GENERAL REQUIREMENTS

11.1 THE WORKS

The works are as described in this specification and shown on the drawings.

11.2 PERSONNEL

Owner: The person defined as "owner" in the New Zealand Building Code.

Contractor: The person contracted by the owner to carry out the contract.

11.3 THE SITE

The site of the works, the site address and the legal description are listed under PROJECT INFORMATION. Confine access and work to the area of site indicated on the drawings.

11.4 SPECIFICATION SECTIONS

Sections are for reference and convenience only and do not constitute individual trade sections or work elements.

Read all sections together and read 11 GENERAL REQUIREMENTS with all other sections.

11.5 INTERPRETATIONS

Required: Required by the documents, or by a statutory authority.

Proprietary: Identifiable by naming the manufacturer, supplier, installer, trade name, brand name, catalogue or reference number.

Approval: Approval in writing.

Direction: Direction in writing.

Notified: Notified in writing.

11.6 INCONSISTENCIES

If there are any inconsistencies, errors or omissions in or between documents, the contractor must seek direction in resolving it. Figured dimensions take precedence over scaled dimensions; drawings to a larger scale take precedence over drawings to a smaller scale and drawings take precedence over specification.

11.7 SUBSTITUTIONS

A substitution may be proposed where specified products are not available, or if substitute products are brought to the attention of and are considered by the owner as equivalent or superior to those specified. Except where a specified product is not available, the owner is not bound to accept any substitutions.

Notify proposed substitution of specified products. Include sufficient information to allow the owner to confirm that the substitution is equivalent or superior to that specified. Advise the owner whether an amendment will or may be required to the Building Consent and the expected costs of such amendment.

11.8 THE WORDS "PROVIDE" OR "FIX"

The words "provide" (or "supply") or "fix" if used separately mean "provide and fix" unless explicitly stated otherwise.

11.9 MANUFACTURERS AND SUPPLIERS

Manufacturers and suppliers requirements, instructions, specifications or details are those issued by them for their particular material, product or component and are the latest edition.

11.10 REFERENCED DOCUMENTS

Reference is made to various New Zealand Building Code (NZBC) acceptable solutions (AS) and verification methods (VM) for criteria and/or methods used to establish compliance with the Building Act 2004. Reference is also made to various Standards produced by Standards New Zealand (NZS, AS/NZS) and to listed Acts, Regulations and various industry codes of practice and practice guides. The latest edition (including amendments and provisional editions) at the date of this specification applies unless stated otherwise. Documents cited both directly and within other cited publications are part of this specification.

11.11 PRECEDENCE OF REFERENCED DOCUMENTS

This specification takes precedence in the event of it being at variance with and requiring a higher standard than, the cited documents. Resolution of any variance must be confirmed in writing and where Building Consent is affected, the change notified to the Building Consent Authority.

11.12 BUILDING CONSENT COMPLIANCE

It is an offence under the Building Act 2004 to carry out any work not in accordance with the Building Consent.

Refer the resolution of matters concerning compliance to the owner for a direction. Where Building Consent is affected refer any change to the Building Consent Authority.

11.13 STATUTORY OBLIGATIONS

Comply with all statutory obligations and regulations of regulatory bodies controlling execution of the works.

11.14 BUILDING CONSENT

Obtain the original or copies of the Building Consent form and documents from the owner and keep on site. Liaise with the Building Consent Authority and/or the building certifier for all required notices and all inspections required during construction to ensure compliance. Return the consent form and documents to the owner on completion.

11.15 INSPECTIONS

Do not proceed with work noted on the Building Consent for inspection until it has been inspected and passed by the Building Consent Authority inspector.

11.16 PRODUCER STATEMENTS

When producer statements verifying construction are required, provide copies to both the Building Consent Authority and the owner. Provide producer statements in the form required by the Building Consent Authority.

11.17 TRADE GUARANTEES AND WARRANTIES

Where specific trade guarantees/warranties are offered covering materials and/or execution of proprietary products or complete installations, provide copies of all guarantees/warranties to the owner.

11.18 SITE ACCOMMODATION

Provide, erect and maintain scaffolding, sheds, toilets, water, power and hoardings. Allow for cartage, craneage, plant hire and storage. Arrange for temporary works and services necessary for the completion of the works.

11.19 HEALTH AND SAFETY

Make the works safe and provide and maintain a safe working environment. Ensure that all those working on or visiting the site are aware of the rules governing site safety, are properly supervised and are not unnecessarily exposed to hazards.

11.20 PROTECT THE WORKS

Protect parts of the work liable to damage until completion of the works. Take all precautions necessary to protect the works from damage by unauthorised entry or inclement weather. Brace and support all parts of the works against damage during construction.

11.21 STORAGE AND PROTECTION

Provide temporary storage areas and protective covers and screens. Fillet stack and protect all framing and structural members from moisture and contamination. Completely protect finishing materials from the weather and damage and store in accordance with the manufacturer's requirements. Protect fabricated elements from the weather and damage, and store in accordance with suppliers requirements.

11.22 ANTIQUITIES AND ITEMS OF VALUE AND INTEREST

Report immediately the finding of any fossils, antiquities, or objects of value. Ensure they remain undisturbed until approval is given for their removal.

11.23 MEANS OF COMMUNICATION

All directions and approvals in writing.

11.24 PROGRAMME

Provide a programme for the contract works, including the work of separate contractors being carried out concurrently with this contract. Form of programme: A dated bar chart, identifying the contract work's critical path and all key dates for the provision of labour, materials and elements. Supply a copy of the programme, and any updates to the owner.

11.25 WORKING HOURS

Work on site is restricted to between 8.00am to 6.00pm, Monday to Friday, excluding statutory holidays. Work outside these hours may be permitted, with prior approval in writing by the owner.

11.26 RESTRICTIONS

Do not:

- smoke on site
- light rubbish fires on the sit

11.27 QUALITY ASSURANCE

Carry out and record regular checks of material quality and accuracy. Provide all necessary materials, equipment, plant, attendances, supervision, inspections and programming to ensure required standards are met.

11.28 DAMAGE AND NUISANCE

Prevent damage and nuisance from water, fire, smoke, vehicles, dust, rubbish, noise and other causes resulting from the contract works. Comply with the requirements of the territorial authority and relevant Acts and Standards.

11.29 SET-OUT AND DATUM

Set out the works to conform with the drawings. Establish a permanent site datum to confirm the existing ground floor level and its relationship to other existing and new building levels.

11.30 EXECUTION OF THE WORK

Conform to the requirements of this specification. Ensure work is level, plumb, and true to line and face. Employ only experienced workers familiar with the materials and techniques specified.

11.31 MATERIALS AND PRODUCTS

Use only new materials and products, unless stated otherwise, of the specified quality and complying with cited documents.

11.32 COMPATIBILITY

Ensure all parts of a construction or finish are compatible and their individual use approved by the manufacturers and suppliers of other parts of the system. Source all parts of a system from a single manufacturer or supplier.

11.33 COMPLETE ALL SERVICES

Ensure completed building services are operational, with temporary labelling removed, required labelling fixed and service instructions provided.

11.34 CLEAR AWAY

Regularly clear away trade debris, unused materials and elements from the site. On completion of the work leave the building clean and ready for occupancy, with all services operating and mechanical parts in good working order. Remove temporary markings, coverings and protective wrappings.

11.35 CLEAN

Clean and wash down external surfaces to remove dirt, debris and marking. Clean interior surfaces including floors, glass, cabinetwork, joinery, sanitary and hardware items.

22 PREPARATION

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

- 22.1 **SITE SAFETY**
Provide proper support for excavations. Cover holes and fence off open trenches and banks.
- 22.2 **EXCAVATION GUIDELINES**
Carry out excavation to the guidelines set in OSH Approved Code of Practice for Safety in Excavation and Shafts for Foundations.
- 22.3 **PROTECT EXISTING**
Protect from damage existing buildings, structures, roads, paving and services nominated on the drawings as being retained, throughout the course of the work.
- 22.4 **PROTECT TREES**
Protect from damage all trees, shrubs, natural site features and existing landscaped areas nominated on the drawings as being retained, throughout the course of the work.
- 22.5 **SURFACE PREPARATION**
Conforming with NZS 3604, 3.5 Site preparation, remove all turf, vegetation, trees, topsoil, stumps and rubbish from the area being built on.
- 22.6 **UNDERGROUND ELEMENTS AND SERVICES**
Break out and remove underground elements and redundant services. Report for instructions when unexpected voids, made-up ground or services are encountered. Seal off the ends of drains or remove to utility operator approval.
- 22.7 **STOCKPILE TOPSOIL**
Stockpile excavated topsoil on site where directed. Keep separate from other excavated materials. Spread and level where directed before completion of the works.
- 22.8 **GENERAL EXCAVATION**
Trim ground to required profiles, batters, falls and levels. Remove loose material. Protect cut faces from collapse. Keep excavations free from water.
- 22.9 **EXCAVATION FOR FOUNDATIONS**
Take foundation excavations to depths shown. Keep trenches plumb and straight, bottoms level and solid, stepped as detailed and clean and free of water.
- 22.10 **INADEQUATE BEARING**
If bearing is inadequate then excavate further and backfill with material as follows:

Below slabs on grade:	Hardfill
Below footings:	10 MPa concrete
Service trenches:	Hardfill

If excavation exceeds the required depths, backfill and compact to the correct level with listed material.
- 22.11 **GRANULAR BASE FOR SLABS**
To NZS 3604, 7.5.3 Granular base. Consolidate with a vibrating roller. Blind the surface with coarse sand or sand/cement and roll ready to receive a dampproof membrane.
- 22.12 **GENERAL BACKFILLING**
Compact backfilling in 150 mm layers, with the last 200 mm in clean topsoil, lightly compacted and neatly finished off

31 CONCRETE

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

- 31.1 **REINFORCEMENT**
Bars to AS/NZS 4671, grade 300 deformed. Welded reinforcing mesh to AS/NZS 4671. Mild drawn steel tying wire not less than 1.2 mm diameter.
- 31.2 **SPACERS AND CHAIRS**
Precast concrete or purpose made moulded PVC. Use concrete spacer blocks only where the concrete surface is not exposed in the finished work.
- 31.3 **CONCRETE**
Strength as selected. Ready-mix normal grade, maximum aggregate size 19 mm to NZS 3104. Site mixed prescribed grade, using either separate batching of sand and coarse aggregate, or builder's mix, to NZS 3104.
- 31.4 **HANDLE AND STORE REINFORCING**
Handle and store reinforcing steel and accessories without damage or contamination. Ensure reinforcement is clean and remains clean and free of contamination that may reduce bonding capacity.
- 31.5 **FALSEWORK AND FORMWORK**
Use falsework and formwork of sufficient strength to retain and support the wet concrete to the required profiles and tolerances. Select formwork finish to produce the specified finished quality.

- 31.6 CUT AND BEND**
Cut and bend bars using proper bending tools to avoid notching and to the requirements of NZS 3109. Do not rebend bars without written approval. Bend main reinforcing bars, stirrups and ties to the former pin diameters as given in NZS 3109, figure 3.1.
- 31.7 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 laid down in NZS 3109, clause 3.3.
- 31.8 LAPPED SPLICES**
Set length of laps, where not dimensioned on the drawings, in accordance with NZS 3109: 3.7. Increase laps of plain round steel by 100%.
- 31.9 COVER**
Minimum cover to reinforcing as shown on the drawings and to NZS 3109, clause 2.7. Fix chairs for top reinforcement in slabs at 1.0 metre centres. Cover tolerances to NZS 3109, clause 3.8.
- 31.10 SURFACE FINISHES**
To comply with NZS 3114, section 105, or as denoted on the drawings. Formwork linings and surface finishes as nominated for both fair face and concealed or exposed surfaces. Surface tolerances to comply with NZS 3114, sections 104 and clause 105.3.2.
- 31.11 DAMPPROOF MEMBRANE**
Apply membrane to prepared basecourse with 150 mm laps between sheets. Tape seal laps and penetrations with 50 mm wide pressure sensitive plastic tape. Refer to drawings for perimeter details.
- 31.12 CASTING IN**
Build in grounds, bolts and fixings for wall plates and bracing elements, holding down bolts, pipes, sleeves and fixings as required. Form pockets, chases and flashing grooves as required. No grounds exceeding 100 mm in length. Minimum cover on conduits 40 mm. Do not encase aluminium items in concrete. Do not paint steel embedded items more than 25 mm into the concrete encasement. Cut back form ties to specified cover and fill the cavities with mortar. Wrap all pipes embedded in concrete with tape to break the bond and to allow for expansion.
- 31.13 CONSTRUCT FLOOR SLABS**
Construct in accordance with NZS 3604, 7.5 Concrete slab-on-ground floors for timber buildings. Lay to true and straight surfaces, screeded, floated and steel (manual or power) trowelled finish. Tolerance on flatness: maximum 3 mm gradual deviation over a 3 metre straight-edge, to the requirements of NZS 3114, section 104.
- 31.14 SAW CUTS**
Pour floor slabs cast on the ground in areas no greater than 25 square metres, with a maximum ratio of length to breadth of 1:2. Cut slabs where indicated on the drawings and as required to control shrinkage cracking. Carry out cutting as soon as possible, without causing tear-out of aggregate and before shrinkage cracking has occurred, generally within 24 hours of pouring. Where saw cuts are made, cut out 100 mm of every second wire of the mesh for a length of 50 mm each side of the saw cut position. Saw cuts: $\frac{1}{3}$ rd slab depth, or 30 mm minimum.
- 31.15 CURING OF CONCRETE**
Keep damp for not less than seven days. Ensure curing of slabs commences as soon as possible after final finishing, by the use of continuous water sprays, or ponding. Alternately, apply a curing membrane. Ensure any membrane used will not affect subsequent applied finishes.
- 31.16 STRIKE FORMWORK**
Strike formwork without damaging or overloading structure.
- 31.17 CLEAN OUT**
Clean out saw cuts. Fill with cement grout where the floor will be covered with carpet or vinyl.

33 CARPENTRY

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

- 33.1 TIMBER FRAMING GENERALLY**
Species, grade and level of treatment to NZS 3602, tables 1 to 3 Requirements for wood-based building components..., and moisture content to NZS 3602, table 4 Allowable moisture content..... Grading to NZS 3631. Mechanical stress grading acceptable as an alternative to visual grading.
- 33.2 TIMBER FRAMING DRY, CHEMICAL FREE, MECHANICALLY STRESS GRADED**
Species and grade to NZS 3602, tables 1 to 3 Requirements for wood-based building components..., with an average moisture content at supply of 16% or less. Machine stress graded to AS/NZS 1748.
- 33.3 TIMBER FRAMING DRY, TREATED**
Species, grade and level of treatment to NZS 3602, tables 1 to 3 Requirements for wood-based building components..., and moisture content to NZS 3602, table 4 Allowable moisture content. Either mechanically stress graded to AS/NZS 1748, or visual grading to NZS 3631.
- 33.4 STRUCTURAL LVL**
Structural laminated veneer lumber (LVL) to AS/NZS 4357 with an average moisture content at supply of 16% or less.
- 33.5 FINISHING TIMBER**
As selected.

- 33.6 INSULATION**
To comply with H1/VM1, zone 3, October 2007 requirements; Refer ALF calculation report annexed for means of code compliance, placement, ratings and performance of chosen insulation.
- 33.7 ACCESSORIES**
Building wrap: Extra Heavy duty Breather type, waterproof Roofing underlay
Damp proof course: 2-ply/3-ply kraft felt strip saturated and coated with bitumen.
Nails, bolts and screws: Steel, stainless steel, galvanized steel of pattern to suit the location and to BRANZ Bulletin 453: Fasteners selection. To NZS 3604, section 4 Durability, for durability.
Nail plates connectors: Stainless steel and/or galvanized steel toothed or nailed plates to the plate manufacturer's design for the particular locations as shown on the drawings and to NZS 3604, section 4 Durability, for durability. Galvanized steel and stainless steel connectors and brackets to the connector manufacturer's design for locations shown on drawings and to NZS 3604, section 4 Durability, for durability.
- 33.8 ATTENDANCE**
Provide and fix blocks, nogs, openings and other items as required by others.
- 33.9 MOISTURE CONTENT**
Maximum allowable moisture content to NZS 3602, table 4 Allowable moisture content..., for framing supporting interior linings:
- Framing at erection 24%
- Framing at enclosure 20%
- Framing at lining 16%
- 33.10 EXECUTION GENERALLY**
To NZS 3604 except as varied in this specification. To include those methods, practices and processes contained in the unit standards for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs). Set out framing in accordance with the requirements of NZS 3604 and as required to support sheet linings and claddings.
- 33.11 INSTALL WALL AND ROOF FRAMING**
Frame walls to required loading and bracing complete with lintels, sills and nogs, all fabricated and fastened to NZS 3604, section 8 Walls. Frame roof to required loading and bracing complete with valley boards, ridge boards and purlins to NZS 3604, section 10 Roof framing. Design and fit roof trusses complete with anchorage. All fabricated and fastened to NZS 3604, section 10 Roof framing.
- 33.12 INSTALL LINING BATTENS**
Fasten ceiling battens in accordance with NZS 3604, section 13 Ceilings.
- 33.13 INSTALL INSULATION**
Fit insulation as detailed, to the insulation manufacturer's requirements, and to the requirements of BRANZ Bulletin 357: Thermal insulation of houses.

41 WALL CLADDING

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

- 41.1 TIMBER FASCIAS AND BARGE BOARDS**
Radiata pine to NZS 3631 for grading and to NZS 3602, table 2 Requirements for wood-based building components ..., for selection and treatment.
- 41.2 EXTERIOR FINISHING TIMBER**
As selected.
- 41.3 ACCESSORIES**
As selected and to the following details:
Building wrap: Extra Heavy duty Breather type, waterproof Roofing underlay.
Nails, screws, fastenings: Metal, size and pattern, to cladding manufacturer's requirements and complying with the relevant aspects of NZS 3604, section 4: Durability.
- 41.4 METAL FLASHINGS**
As selected.
- 41.5 MOISTURE CONTENT**
Maximum allowable moisture content to NZS 3602, table 4 Allowable moisture content....
- 41.6 EXECUTION GENERALLY**
To NZBC E2/AS1 except as varied in this specification. Execution to include those methods, practices and processes contained in the unit standards for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).
- 41.7 INSTALL WALL WRAP**
Fix wall wrap as detailed and to the cladding manufacturer's requirements.
- 41.8 INSTALL EXTERIOR TIMBER FINISHINGS**
Install timber fascias, barge boards, facings, beads, trim and enclosures level, true to line and face, with all end grain sealed and joints mitred.

- 41.9 **INSTALL FLASHINGS**
Install flashings, covers and soakers as detailed on the drawings and to NZBC E2/AS1, 4.0 Flashings.
- 41.10 **USE OF SEALANTS**
Selection and use of sealants to follow BRANZ Bulletin 441: Sealed joints in external claddings - 2. Sealants.
- 41.11 **COMPLETE**
Complete all flashings, finishings and trim so the cladding system is completely weathertight.

42 BRICK VENEER CLADDING

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

- 42.1 **QUALIFICATIONS**
Carry out brickwork with persons competent and experienced in the trade.
- 42.2 **BRICKS**
As selected.
- 42.3 **ACCESSORIES**
- | | |
|------------------|---|
| Lintels: | To NZS 3604, table 11.4 Veneer lintels, for size and NZS 3604, 4.5 Brick veneer ties and lintels, for durability. Design to conform with AS/NZS 2699.3: 2002, as modified by NZBC B1/AS1, 3.1 (NZS 3604). |
| Vermin stop: | Galvanized steel wire netting strip with reinforced edges and galvanized staples for fixing. |
| Dampproofing: | Heavy kraft strip laminates saturated and coated with bitumen, or bituminous brush-applied liquid membrane to suit location and detail. |
| Ties: | To NZS 3604, 4.5 Brick veneer ties and lintels. Design to conform with AS/NZS 2699.1: 2002, as modified by NZBC B1/AS1, 3.1 (NZS 3604). |
| Sand for mortar: | To NZS 3103. Chloride levels to not exceed 0.04% by dry weight of sand. |
| Water: | From local authority supply. |
- 42.4 **MORTAR**
Composed of Portland cement, sand and water with an admixture to the provisions of NZS 4210, clause 2.2. Obtain written approval if intending to use cement mortar as a damp proof course and where or if intending to use hydrated lime in the mortar.
- 42.5 **MORTAR COLOUR**
Add mineral oxide pigment to the requirements of NZS 4210, clause 2.2.2.2 (f).
- 42.6 **STORAGE**
Store bricks and other materials clear of the ground, under cover and well ventilated until placed in the work.
- 42.7 **VENEER WORK GENERALLY**
Comply with NZS 3604, 11.7 masonry veneer wall cladding, NZS 4210:2001, section 2.2 and BRANZ Bulletin 521 (2006): Two Storey Brick Veneer System. Where not otherwise detailed on the drawings or covered in the documents listed, carry out veneer construction to the details required by BRANZ Bulletin 521 (2006): Two Storey Brick Veneer System
- 42.8 **LAYING GENERALLY**
To NZS 4210. Ensure bricks are dry when laid. Use bricks equally off all pallets as work proceeds. Distribute facing bricks of varying colour randomly throughout so no patches or striping appears.
- 42.9 **BOND**
Stretcher bond, single width unless detailed or stated otherwise.
- 42.10 **INSTALLING WALL TIES**
Screw fix to face of studs without otherwise piercing or damaging the building wrap. Ties placed and spaced to NZS 4210, section 2.9, as modified by NZBC B1/AS1, 3.1. Install ties to NZS 3604, 11.7.5, Wall ties, subclause 11.7.5.3.
- 42.11 **MORTARING**
To maximum practical density. Mortar fully laid, firmly placed, correctly cured and not re-tempered. Discard any mortar not used within 1½ hours of mixing. Joint thickness 10 mm plus or minus 2 mm.
- 42.12 **RAKE OUT**
Rake out joints as work proceeds, for pointing as detailed. Maximum depth of rake 6 mm.
- 42.13 **POINTING**
Joints tooled concave after initial stiffening.
- 42.14 **WEEPHOLES**
Rake out every third perpend where weep holes are required, and vent veneer to NZS 3604, 11.7.4 Cavities, subclause 11.7.4.3 and to BRANZ Bulletin 521: (2006) Two Storey Brick Veneer System.
- 42.15 **CO-ORDINATE**
Co-ordinate the building-in of exterior joinery and items required for fitting as the work proceeds. Rake out for or build in flashings as required.
- 42.16 **KEEP CAVITY AND TIES CLEAR**
Keep cavity and ties clear of mortar droppings and clean the brickwork face of any marking as the work proceeds. Repair damage to building wrap immediately it occurs.

42.17 BASE OF CAVITY

Flaunch base of cavity and either:

- apply bituminous brush-on liquid applied membrane as a primer and 2 coats, or
- lay bitumen laminate sheet, lapped and adhered, to drain water effectively out of the cavity.

42.18 CLEAN DOWN

Clean down brickwork to remove stains. Remove efflorescence with a stiff bristle broom, blot with a damp sponge and wash walls with a plentiful supply of clean water during fine weather

44 ROOF CLADDING

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

44.1 QUALIFICATIONS

Use experienced competent roofers familiar with the materials and techniques specified.

44.2 WIND AND EARTHQUAKE LOADINGS

Use fixings and methods capable of sustaining the loads appropriate to the area as set out in NZS 3604, section 5 Bracing design, and confirmed under COMPLIANCE INFORMATION.

44.3 PROFILED METAL

Profile, metal and finish as selected. Accessories, cappings, flashings and fixings to match and to the roofing manufacturer's requirements.

44.6 ACCESSORIES

Roof underlays: As selected.

Nails, screws, fastenings: Metal, size and pattern, to roofing manufacturer's requirements and complying with the relevant aspects of NZS 3604, section 4 Durability.

Flashings: As selected.

44.7 STORAGE

Stack roofing and accessories on clean, level areas of the site. Cover and protect from damage and from weather until ready to fix in place.

44.8 SET-OUT

Set out the planned layout before fixing commences, to ensure true lines and the correct relationship to module, grid and roof features. Overlaps to face away from prevailing wind direction.

44.9 LAY ROOF UNDERLAY

Lay and fix to NZBC E2/AS1, 8.1.5 Underlays, and to NZS 3604, 11.2 Roof cladding underlays.

44.10 TAKE CARE

Take care to avoid damaging pre-finished roofing both during and after fixing. Mark only with chalk or spirit-based pen. Wear only soft-soled shoes on the finished surface. Remove metal filings daily.

44.11 INSTALL PROFILED METAL

Use cutting tools recommended by the roofing manufacturer. Fold ends and seal cut edges to the roofing manufacturer's requirements. Fix complete with matching accessories, flashed to roof features and penetrations; all in accordance with the New Zealand Metal Roofing Manufacturers Inc. publication "NZ metal roof and wall cladding code of practice".

44.16 FIXINGS AND SEALANTS

Refer to the roofing manufacturer's literature for fixing details and to NZS 3604 for fixings durability requirements. Select and use sealants only as recommended by the roofing manufacturer.

44.17 INSTALL COVERS AND FLASHINGS

Provide apron, verge and ridge flashings. Install and fix as detailed and to the roofing manufacturer's details and to comply with NZBC E2/AS1, 4.0 Flashings, 5.0 Roof/wall junctions, and 6.0 Parapets.

44.18 PENETRATIONS

Flash and overflash penetrations through the roof. Fit proprietary boots to pipework penetrations.

44.19 COMPLETE

Ensure the work is complete with flashings, undercloaks, valleys, ridges and hips properly installed so the finished roof is completely weathertight.

44.20 CLEAR

Clear trade debris and unused materials from the roof and surrounds regularly during the work and at completion. Sweep down the completed roof and flush out spoutings, gutters and rainwater pipes.

46 RAINWATER SYSTEM

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

46.6 ALUMINIUM/ZINC ALLOY PRE-PAINTED SHEET STEEL

0.55 mm sheet steel, aluminium/zinc alloy coated, pre-painted.

- 46.7 ALUMINIUM/ZINC ALLOY COATED PRE-PAINTED STEEL SPOUTING**
Profile, jointing, brackets and fittings brand matched and complete to the spouting manufacturer's specifications.
- 46.8 ALUMINIUM/ZINC ALLOY COATED PRE-PAINTED STEEL DOWNPIPES**
Seam jointed and complete with stand-off brackets, galvanized screw fixed.
- 46.13 FLASHINGS GENERALLY**
Aluminium/zinc coated steel, copperised pure lead, 0.5 mm copper sheet, or proprietary rubberised perforated aluminium strip, all to location, compatibility and requirements NZBC E2/AS1, 4.0 Flashings.
- 46.15 ELECTROLYTIC ACTION**
Avoid electrolytic action by eliminating contact or continuity of water between dissimilar metals.
- 46.16 LIAISON**
Ensure liaison with associated installations to ensure material selections are compatible and required flashing work is completed.
- 46.19 INSTALL ALUMINIUM/ZINC ALLOY COATED STEEL PRE-PAINTED SPOUTING AND DOWNPIPES**
Screw fix brackets, set to falls to outlets, with spouting joints silicone sealed and pop-riveted to the spouting manufacturer's requirements. Screw fix stand off brackets, set pipes plumb and clear of the wall, with joints silicone sealed. Discharge into stormwater bends.
- 46.21 INSTALL FLASHINGS**
Scribe fit, fold, lap, seam, or run solder as required by the metal, to flash all roof penetrations, roofing and exterior joinery to prevent weather penetration. Except at expansion joints, allow for 2 rows of rivets to overlapping sheet joints. Install and fix flashings and flashing joints to NZBC E2/AS1, 4.0 Flashings.
- 46.24 ENSURE**
Ensure rainwater services are operational, flashings complete and the building weathertight.

47 TIMBER DOORS

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

- 47.1 COMPLIANCE**
External frames, sashes and doors to comply with the performance requirements of NZBC E2/VM1 and the listed site data.
- 47.2 TIMBER**
As selected and to NZS 3602.
- 47.9 FLASHINGS**
As selected or as detailed.
- 47.10 CONFIRM OPENINGS**
Confirm framing openings on site for dimension, plumb and straightness prior to fabrication or ordering of timber joinery.
- 47.11 EXECUTION GENERALLY**
To include those methods, practices and processes contained in the unit standards for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).
- 47.12 OPENING PREPARATION**
Confirm framing openings on site for dimension, plumb and straightness prior to fabrication.
- 47.14 INSTALL GARAGE DOORS**
Check that the trimmed and lined openings are formed and constructed to suit the required door units. Do not proceed until openings are properly formed. Install and fix the garage door installations, complete with specified operating systems and hardware, all strictly in accordance with the door manufacturer's requirements and installation instructions.

48 ALUMINIUM WINDOWS AND DOORS

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

- 48.1 CERTIFICATION**
Provide a certificate from a laboratory accredited by International Accreditation of New Zealand that the windows and doors offered comply with the performance requirements of NZBC E2/VM1 and the listed project site data. Fabrication by a member of the Window Association of New Zealand.
- 48.2 WINDOWS AND DOORS**
Brand, finish and type as selected.
- 48.3 WINDOW AND DOOR REVEALS**
As selected with timber jamb liners to NZS 3602.
- 48.4 GLASS**
As selected, with glass details to 47 GLAZING and complying with NZS 4223.
- 48.5 FLASHINGS**
As selected.

- 48.6 ORGANIC POWDER COATING FINISH**
To the Window Association of New Zealand's "Specification for powder coatings on architectural aluminium products". All finished surfaces to show uniformity of gloss and colour (to match sample) free of all coating defects.
- 48.7 HARDWARE**
As selected.
- 48.8 SEALANT, GLAZING TAPE AND GASKETS**
To the window manufacturer's requirements.
- 48.9 FIXINGS**
Ensure fixings and bracketing are compatible with aluminium. Do not use electroplated zinc fasteners or brass fastenings.
- 48.10 OPENING PREPARATION**
Confirm framing openings on site for dimension, plumb and straightness prior to fabrication or ordering of aluminium joinery. Prepare and trim to WANZ WIST™ Pre Cladding Trim Preparation requirements.
- 48.11 EXECUTION GENERALLY**
To NZBC E2/VM1, WANZ "Aluminium Window Handbook" and "Installation code for aluminium joinery products". Install to WANZ WIST™ Window installation System requirements.
- 48.12 HANDLING**
Avoid distortion of elements during transit, handling and storage. Prevent pre-finished surfaces from rubbing together. Prevent contact with mud, plaster and cement. Do not deliver to site any elements which cannot be immediately unloaded into suitable conditions of storage.
- 48.13 CORROSION PROTECTION**
Seal or suitably coat cut ends and holes drilled in aluminium before the frames are installed. Before fixing, apply bituminous coatings, slips or underlays between dissimilar metals in contact, or aluminium in contact with concrete.
- 48.14 FIX FRAMES**
Fix frames rigidly in place without distortion, to the window manufacturer's and the Window Association of New Zealand's "Aluminium Window Handbook" requirements, plumb, true to line and face, weathertight and with all openings operating freely.
- 48.15 DRAINAGE**
Anti-condensation channels to sills. All sills to sashes and fixed lights to incorporate positive drainage to the exterior.
- 48.16 GLAZING INSTALLATION**
All glass held in aluminium beads and black PVC gaskets.
- 48.17 SAFETY GLASS INSTALLATION**
Use in doors, sidelight panels, low level windows and all other locations to comply with NZS 4223, part 3, as modified by NZBC F2/AS1, 1.0 Glazing.
- 48.18 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 on head and cill flashings to match window finish.
- 48.19 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.
- 48.20 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. Permanent manifestations to comply with NZS 4223, part 3, 303.1.
- 48.21 CLEAN GLASS AND FRAMES**
Clean off or remove glass indicators at completion of the building. Clean glass inside and out to a shining finish. Clean down both sides of window and door frames using the methods required by the window and door manufacturer.

49 GLAZING

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

- 49.2 GLASS THICKNESS**
As selected and to NZS 4223, parts 1 and 3.
- 49.3 FLOAT GLASS**
To NZS 4223, part 1, clause 101.2.2.2: Glazing quality (selection G). Thickness as required by NZS 4223, part 1.
- 49.5 LAMINATED GLASS**
Grade A safety glazing material with PVB or CIP resin interlayer.
- 49.6 TOUGHENED GLASS**
Grade A safety glazing material.
- 49.9 SETTING BLOCKS**
Neoprene, 80-90 Shore A hardness, set at quarter points or to detail, at the base of glass panes.

- 49.11 MIRROR GLASS**
Float plate mirror glass to NZS 4223, part 1, clause 101.2.2.2: Silvering quality (selection S), with silver and copper plating and 2 coats of protective paint.
- 49.12 MIRROR ADHESIVE**
Use both mirror-mastic adhesive and double-sided adhesive tape.
- 49.13 EXECUTION GENERALLY**
To NZS 4223, part 1, and for human impact safety glazing to NZS 4223, part 3.
- 49.15 INSTALL GLASS, EXTERIOR TIMBER DOORS**
Remove temporarily pinned beads; prime, clear seal rebates and beads, back putty, sprig in glass, front putty and neatly replace beads.
- 49.17 SAFETY GLASS INSTALLATION**
Use in doors, sidelight panels, low level windows and all other locations to comply with NZS 4223, part 3, as modified by NZBC F2/AS1, 1.0 Glazing.
- 49.18 MIRRORS, SCREW FIXED**
Fix with proprietary zinc-plated steel countersunk-head screws, fitted with black neoprene washers with fine-threaded upstands to receive chrome plated dome screw covers.
- 49.21 INSTALL MIRROR DE-MISTER**
Installed to the de-mister manufacturer's requirements.
- 49.23 SAFETY**
Indicate the presence of transparent glasses, with whiting, tape or signs compatible with the glass type. Do not apply indicators other than whiting to the glass surface. Permanent manifestations to comply with NZS 4223, part 3, 303.1.
- 49.24 CLEAN**
Clean off or remove indicators at completion of the building. Clean glass inside and out to a shining finish.

51 INTERIOR PARTITIONS AND DOORS

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

- 51.1 FRAMING MOISTURE CONTENT**
Maximum allowable moisture content to NZS 3602, table 4 Allowable moisture content....
- 51.2 PROTECT**
Protect joinery, fittings and finishes already in place from water staining or damage from lining installation. Ensure building is weatherproof before lining work commences.
- 51.3 PLASTERBOARD**
As selected. Gypsum plaster core encased in a durable face and backing paper formed for standard use, bracing use, fire rated use and water resistance use.
- 51.4 GALVANIZED STEEL CEILING BATTENS**
As selected.
- 51.5 PLASTERBOARD ACCESSORIES**
- | | |
|---------------------------------|--|
| External angles: | Slim type 0.5 mm galvanized steel. |
| Casing bead: | Slim type 0.5 mm galvanized steel or PVC. |
| Cornice: | Plasterboard scotia type. |
| Nails: | Galvanized clouts 40 mm x 2.5 mm. |
| Screws: | 40 mm x 6 gauge zinc electro-plated bugle head gypsum drywall screws |
| Jointing compound & paper tape: | To the board manufacturer's requirements. |
| Adhesive: | Multi-purpose water based wallboard adhesive. |
- 51.6 TIMBER BOARDING**
As selected and to NZS 3602, table 3 Requirements for wood-based building components....
- 51.11 DOORS GENERALLY**
As selected.
- 51.14 INTERIOR CAVITY SLIDERS**
Hollow core door within a proprietary cavity slider frame, with brand-matched sliding door gear.
- 51.15 DOOR HINGES**
- | | |
|-----------|-----------------------------|
| Type: | loose-pin zinc-plated steel |
| Size: | 89 mm |
| Material: | zinc-plated steel |
| Number: | 3 hinges per door |
- 51.16 INTERIOR SLIDING DOOR GEAR**
To suit door size and weight and as detailed.
- 51.18 DOOR HARDWARE**
As selected.
- 51.19 NAILS**
Zinc-plated steel, stainless steel and galvanized steel of pattern to suit location and to BRANZ Bulletin 453: Fasteners selection.

- 51.20 INTERIOR FINISHING TRIM**
Timber selection to NZS 3602, table 3 Requirements for wood-based building components.... Profile as detailed, or to match existing. Jointer profiles to suit location.
- 51.21 INTERNAL JOINERY FRAMES**
Fabricate as detailed. Wedge and rigidly fix in place without distortion, plumb, and true to line and face.
- 51.23 INTERNAL DOOR LINERS**
Heads and jambs finished minimum 18 mm, with 10 mm planted door stops. Width to match width of lined walls. Hang doors on hinges, sliding, or sliding-folding gear to the door manufacturer's requirements and to operate freely.
- 51.25 INTERNAL CAVITY SLIDERS**
Install in accordance with the door manufacturer's requirements.
- 51.26 SUBSTRATE**
To NZS 3604, section 8 Walls, section 10 Roof framing, section 12 Interior linings, section 13 Ceilings, and the standard required by the lining manufacturer's requirements. Ensure moisture content of timber framing is at or below specified levels.
- 51.27 CONFIRM LEVELS OF FINISH**
Before commencing work, confirm the surface finish assessment procedures necessary to ensure the specified levels of finish will be obtained. Provide levels of finish as laid down in AS/NZS 2589.
- 51.28 LINE PLASTERBOARD CEILINGS AND WALLS**
Line ceilings with plasterboard sheets, fastened to the plasterboard manufacturer's requirements. Line walls that are up to 2400 mm high by the horizontal method and walls above 2400 mm high by the vertical method, with plasterboard sheets.
- 51.29 SPECIAL PLASTERBOARD LININGS**
Line bathroom, ensuite, & laundry walls with water resistant plasterboard sheets using adhesive and nail fixing to studs at centres to suit the surface finish. Form bracing panels using high density plasterboard sheets fixed with clout-washers and clouts and to conform to NZS 3604, 5.5 Wall bracing design.
- 51.31 FIX PLASTERBOARD CORNICE**
Fix with adhesive and with joints scribe-fitted to the plasterboard manufacturer's requirements.
- 51.32 PLASTERBOARD JOINTING AND STOPPING**
Fill joint recess with bedding compound, centre the paper tape, apply second coat of bedding compound followed by a coat of finishing compound. Allow to dry and lightly sand off. Fill nail holes and flush up external angles with two successive coats of bedding compound followed by a coat of finishing compound. Allow to dry and lightly sand off. All to the plasterboard manufacturer's requirements.
- 51.33 LEVELS OF FINISH**
Provide levels of finish to standards laid down by AS/NZS 2589 as follows:
Level 4: surfaces receiving light texture or wall covering finishes
Level 5: surfaces receiving thin coating finishes.
- 51.37 INSTALL TRIM**
Scribe and fit reveal linings to exterior timber joinery, architraves to interior joinery, skirtings to walls and timber beads to wall/ceiling junctions.
- 51.38 FIT HARDWARE**
Fit hardware selected and provided, all in accordance with the hardware manufacturer's requirements.
- 51.39 CHECK**
Check and adjust operation of doors sets, hardware and furniture.

52 JOINERY FIXTURES AND FITTINGS

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

- 52.1 TIMBER BOARDS AND FRAMES**
As selected. Carefully sawn to minimise the inherent warping, twisting and bowing of the selected species and to give a finish suitable for clear finishing.

61 TILING

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

- 61.1 QUALIFICATIONS**
Use tilers experienced with the materials and techniques specified.
- 61.2 ADHESIVES COMPATIBILITY**
On proprietary substrates or waterproof membranes use only adhesives with documented compatibility approval from the respective manufacturers.
- 61.3 SLIP RESISTANCE**
Slip resistance to NZBC D1/AS1, 2.1 Slip resistance.
- 61.4 TILES**
As selected.

- 61.5 ACCESSORIES**
Underlays, waterproofing membranes: Not required
Cement-based screed: Mix of 3:1 Portland cement, wash-mix sand, gauged with liquid polymer additive to the tile manufacturer's requirements.
Tile adhesive: To the tile manufacturer's requirements.
Grout: Cement based, compressible and to suit the particular location and use.
Control joint sealant: To BRANZ Good practice guide: Tiling, section 5.0.
- 61.6 HANDLING AND STORAGE**
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. Reject all damaged tiles.
- 61.7 SUBSTRATE**
Ensure all services and accessories are in place, located to suit the tile layout, with the substrate required for tiling work.
- 61.8 TEMPERATURE**
Do not carry out tiling where the ambient temperature is below 5°C, or onto a substrate with a temperature higher than 40°C.
- 61.9 LAYOUT**
Obtain confirmation of the proposed layout of tiles, expansion joints and other visual considerations.
- 61.10 EXECUTION GENERALLY**
Prepare surfaces and carry out the tiling work in accordance with **BRANZ Good practice guide: Tiling.**
- 61.11 SURFACE PREPARATION**
To BRANZ Good practice guide: Tiling, section 4.0.
- 61.12 LAY CEMENT SCREED**
Apply a proprietary cement slurry bond coat over the whole of the floor. Mix and place a 40 mm thick mortar bed over the bond coat and firmly tamp, screed and compact to the required level. In waterproofed areas where the cement screed has been laid over the waterproofing membrane, prepare the screed surface by applying a further waterproof coating before laying tiles.
- 61.16 TILE FIXING, CONCRETE, CEMENT-BASED ADHESIVE**
Apply and float thin (thick) bed cement-based adhesive to a minimum 3 mm (6 mm) bed thickness to the tile manufacturer's requirements. Rib surface with a notched trowel, press the tile and beat it into place with 3 mm joints, and to obtain required coverage of adhesive on the back of each tile.
- 61.19 GROUTING**
Remove spacers. Prepare joints, mix and apply proprietary grout and finish off the grout uniform in colour, smooth and without voids, pinholes or low spots.
- 61.21 CLEAN**
Upon completion of setting and grouting, thoroughly sponge and wash the tiles to leave clean and free of blemish. Finally polish tiles with a clean, dry cloth.

62 PAINTING AND PAPERHANGING

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

- 62.1 QUALIFICATIONS**
Carry out work using competent and experienced painters and paperhangers.
- 62.2 HEALTH AND SAFETY**
Refer to the requirements of the Health and Safety in Employment Act 1992 and if elimination or isolation is not possible, then minimise the hazards in this work. Refer to OSH publication, Repainting lead based paints, for the required procedures and precautions when treating or removing lead based paint, burning or sanding off paint, or using solvent based paint removers.
- 62.3 PAINT**
As selected and to the paint manufacturer's standards for exterior and/or interior primers, undercoats, sealers, stains, clear coatings, solvent-borne and water-borne paints.
- 62.4 GAP FILLERS**
Linseed oil, putty, plastic wood, wood filler or plastic filler, to suit and to match the surface being prepared.
- 62.5 INSPECT SURFACES**
Inspect surfaces being painted and report to the owner any that will not, after the preparatory work laid down by the paint manufacturer, allow work of the required standard. Confirm that all areas have adequate lighting and are sufficiently free of other construction activities to enable painting and/or paperhanging work to proceed.
- 62.6 PROTECT**
Cover up adjoining surfaces and areas liable to damage or over-painting.
- 62.7 REMOVE HARDWARE**
Remove hardware and door/window furniture and replace on completion. Do not paint over permanently attached hinges, or any hardware items which cannot be removed.
- 62.8 PRIMING AND SEALING**
Ensure that priming and sealing work needed before or during construction is carried out when required.

62.9 ENVIRONMENTAL CONDITIONS

Carry out work within acceptable temperature and humidity limits, with timber dry, all to the requirements of the paint manufacturer.

62.10 SELECTIONS

Confirm all selections, colours and finishes for both paint and wallpaper with the owner.

62.11 SHARP EDGES, CRACKS AND HOLES

Repair as required by the paint manufacturer.

62.12 PREPARE SURFACES

Prepare surfaces as required by the paint manufacturer. Make good all damage and defects.

62.13 PAINT APPLICATION

Apply paint by brush and/or roller to suit the location of the coating and to the paint manufacturer's requirements. Do not spray on site without express permission.

62.14 MANUFACTURER'S MANUALS

Refer to the paint manufacturers' manuals and follow their preparation, sequence and application requirements applying to each system. Ensure all paint coats in any system are supplied by the same manufacturer.

62.15 SCUFF BETWEEN COATS

Scuff between all coats to remove any dust pick-up, protruding fibres and coarse particles.

62.16 FINISHED PAINT SURFACES

Finished paint surfaces to show uniformity of gloss and colour, with the correct thickness for each coat, and freedom from painting defects. Ensure finished work is clean and free of any disfigurement.

62.19 CLEAN

Clean adjoining surfaces, glass and fittings of any paint contamination.

62.20 REPLACE

Replace hardware without damage to the hardware or the adjoining surfaces.

71 WATER SYSTEMS

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

71.1 QUALIFICATIONS

Carry out work by or under the direct supervision of a person registered under the Plumbers, Gasfitters and Drainlayers Act 1976.

71.3 POLYBUTYLENE WATER PIPE

Polybutylene tubing complete with fittings and accessories brand-matched.

71.5 INSULATION FOR HOT WATER PIPES

As selected.

71.6 EXPOSED PIPES

As selected and to the following details:

- chrome plated copper pipe with chrome plated brass nuts and fittings
- pipework finish to include escutcheon plates and bends and elbows protruding from walls or fittings.

71.7 GATE VALVES

De-zincified brass with screwed ends.

71.9 ELECTRIC HOT WATER CYLINDER, LOW PRESSURE

Copper thermal storage cylinder insulated and complete with pressure reducing valve and fittings required for installation by the manufacturer.

71.11 VALVES, TAPS AND FAUCETS

As selected.

71.12 ELECTROLYTIC ACTION

Avoid electrolytic action by eliminating contact or continuity of water between dissimilar metals.

71.13 EXECUTION GENERALLY

Generally carry out the whole of this work and tests to NZBC G12/AS1.

71.15 INSTALL POLYBUTYLENE/POLYETHYLENE WATER SUPPLY

Size the piping layout to eliminate loss of pressure at any point by simultaneous draw-off. Run pipes complete with all fittings, support and fixing, and jointed to the pipe manufacturer's specifications, all to NZBC G12/AS1, 5.0 Water supply. Conceal pipework and pressure test before wall linings are fixed.

71.16 OUTLET LOCATIONS

Ensure wall outlets for exposed pipes are level and centred on the fixture to ensure the neat installation of exposed pipework.

71.17 INSTALL HOT WATER PIPE INSULATION

Insulate hot water pipes in accordance with the insulation manufacturer's instructions. Cut insulation sections tight between timber framing and tight between the webs of steel studs.

71.18 INSTALL ELECTRIC HOT WATER CYLINDERS AND BOILING CYLINDERS

Install where shown complete with all the necessary fittings to the cylinder manufacturer's requirements and NZBC G12/AS1, 6.10 Water heater installation.

71.19 PENETRATIONS

Provide and fit collars and escutcheon plates to match pipework at penetrations through constructions.

71.20 INSTALL TAPWARE

Install tapware in accordance with the tap manufacturer's requirements. Flush out on completion. Check that washers or ceramic discs are operating correctly.

71.21 COMPLETION

Pressure test to ensure no leakage and leave in proper working order. Clean tapware and fittings.

72 SANITARY PLUMBING, SANITARYWARE AND ACCESSORIES

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

72.1 QUALIFICATIONS

Carry out work by or under the direct supervision of a person registered under the Plumbers, Gasfitters and Drainlayers Act 1976.

72.3 UPVC WASTE, SOIL AND VENT PIPES

uPVC pipe, complete with fittings brand-matched to the pipe manufacturer's requirements.

72.4 EXPOSED PIPES AND TRAPS

As selected and to the following details:

- chrome plate on copper pipes and associated copper and brass fitting.

72.5 SANITARYWARE

As selected.

72.6 SANITARY ACCESSORIES

As selected.

72.7 EXECUTION GENERALLY

Carry out this work and complete all tests to NZBC G13/AS1

72.8 ELECTROLYTIC ACTION

Avoid electrolytic action by eliminating actual contact or continuity of water between dissimilar metals.

72.9 INSTALL SANITARYWARE

Fit and install sanitaryware and associated screens, elements and hardware, plumb, true to line and rigid, to the fixture manufacturer's requirements. Supply standard chrome plated brass wastes and plastic plugs on chrome plated chains with all basins, tubs and baths.

72.10 INSTALL TRAPS, WASTE AND VENT PIPES

Connect waste outlets to traps and run waste pipes and back vents concealed, sized and fixed to NZBC G13/AS1. Discharge wastes into the drainage system stack, soil pipe, or gully trap as shown. Bird proof mesh to roof vents and vermin proof mesh to untrapped waste pipes.

72.11 PENETRATIONS

At penetrations through constructions provide and fit collars and escutcheon plates to match pipework.

72.12 INSTALL SANITARY ACCESSORIES

Install the selected sanitary accessories.

72.13 TEST

Test soil and waste disposal systems to ensure no leakage exists and leave in working order.

72.14 ENSURE

Ensure all sanitary plumbing fittings and pipework are complete and operational.

74 DRAINAGE

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

74.1 QUALIFICATIONS

Carry out work by or under the direct supervision of a person registered under the Plumbers, Gasfitters and Drainlayers Act 1976.

74.2 MATERIALS

Concrete:	17.5 MPa prescribed grade.
Reinforcement:	Grade 300 deformed bars.
uPVC pipes:	uPVC pipes bends, junctions, fittings and joints.
<u>Drainage/filling materials</u>	
Granular fill:	Clean gravel or crushed stone or a blend of these. Particle size from minimum 7 mm to maximum 20 mm.
Selected fill:	Fine grain soil or granular material suitable for bedding, excluding topsoil.
Ordinary fill:	Top soil or other excavated materials.

74.3 FITTINGS

Gully traps: To NZBC G13/AS2, 3.3 Gully traps, complete with grating.

74.4 EXCAVATE

Excavate for drains to a firm even base with correct gradients set in straight runs.

74.5 MANUFACTURER'S REQUIREMENTS

All drainage installations to the pipe and fitting manufacturer's requirements.

74.6 EXCAVATION GENERALLY

Carry out drainage work to NZBC G13/AS1 (sanitary plumbing and drainage) and G13/AS1 (stormwater drainage) as modified by NZBC B1/AS1, 6.0 Drains.

74.7 LAY WASTEWATER DRAINS

Lay drains in straight runs to correct gradients, to discharge into the septic tank waste water treatment plant. Set inspection fittings on a concrete base.

74.8 INSTALL GULLY TRAPS

Set on concrete 50 mm above surrounding ground or paving and brought up to protect the top of the fitting. Trowel off.

74.9 LAY STORMWATER DRAINS

Confirm the required location of downpipes and finished ground levels before commencing pipework. Set downpipe bends in concrete brought up to protect the top of the bend from damage. Lay drains in straight runs to correct gradients to discharge into onsite soak holes. Soak Holes to be as drawn in plans attached.

74.10 SOAK PITS

Calculations for soak hole sizing to be in accordance with NZBC E1/VM1 section 9, fig 13.

74.15 FIELD TEST

Field test drains for watertightness to the satisfaction of the Building Consent Authority inspector.

74.16 BACKFILL

Backfill drain lines in 150 mm layers, well tamped but without disturbing the drains. Finish off with 150 mm of topsoil, slightly mounded above the finished ground line.

74.17 AS-BUILT DRAWINGS

Supply a 1:100 as-built drawing to the Building Consent Authority and the owner on completion.

75 ELECTRICAL

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

75.1 COMPLY

Comply with the Electricity Regulations 1997, AS/NZS 3000 and the New Zealand Electrical Codes 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.

75.2 QUALIFICATIONS

Carry out work by or under the direct supervision of a holder of a practising certificate under the Electricity Regulations 1997.

75.3 CERTIFICATE OF COMPLIANCE

Supply a certificate of compliance to the owner, as required by the Electricity Regulations 1997. Allow the network utility operator to view before the meter installation, listed work inspection, polarity check and livening of supply.

75.4 METER BOARD / DISTRIBUTION BOARD / SUB BOARD

Proprietary manufactured meter board complete with flashing kit. Proprietary manufactured distribution board, zinc plated powder coated, or heavy duty plastic, fire resistant enclosed construction, complete with neutral and earth busbars, MCB's, RCD's and main switch. All protective devices: 6kA MCB's of the appropriate rating. Fit to board manufacturer's requirements where detailed. Recess into wall and ensure fire containment properties of the enclosure are maintained.

75.5 CABLES

Tough plastic sheathed copper conductors. Minimum sizes are indicated below. Increase these as necessary due to method of installation, cable length or load.

Lighting circuits:	1.5 mm ² on 16 amp MCBs.
Power circuits:	1.5 mm ² on 16 amp MCBs for domestic construction
Power circuits:	2.5 mm ² on 16 amp MCBs for domestic insulated construction

75.6 ELECTRICAL ACCESSORIES

As selected and to the following details:

Wall boxes:	Standard size in plastic, with 2 or more gang size in metal, all screw fixed.
Switch units:	16 amp, 230 volt flush polycarbonate units. For number of switches per unit, dimmer units, neon (indicator or toggle) units, locator units and 2-way units refer to the electrical drawings.
Hot water system switch:	One way 20 amp switch complete with clamp for flexible PVC conduit.
Switched socket units:	10 amp, 230 volt flush polycarbonate 3 pin combined switch units.
Ceiling roses:	White plastic mounting base with screwed cover. Terminal type.
Batten holders:	Standard white plastic bayonet cap, with cap angled where wall mounted. Brass liners.

75.7 LIGHT FITTINGS/ ELECTRIC-POWERED FITTINGS AND EQUIPMENT

As selected.

75.9 CABLING

Install with a maximum of 10 light outlet units or 6 switched socket units on any circuit. Separate circuits for all electric heating appliances. 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.

75.10 INSTALL SWITCH AND SOCKET UNITS

Fit single and double switch units and socket units level and plumb where shown on the drawings. Install at the following heights (to the centre of the unit) unless shown otherwise on the drawings.

Switch Units: 1000 mm.

Socket Units: 150 mm above work benches. 400 mm elsewhere.

Mount switches vertically and socket units horizontally. Label switch units which control electrical equipment by engraving on the rocker switch.

75.11 INSTALL LIGHT FITTINGS

Install selected light fittings in the locations and heights shown on the drawings and in accordance with the fitting manufacturer's requirements.

75.12 ELECTRIC HOT WATER SYSTEM

Wire as a separate circuit through a wall-mounted isolating switch, with the cable from switch to element encased in flexible PVC conduit, clamp fixed at each end.

75.15 WIRE FOR PLUMBING FITTINGS

Wire for fittings to the Electricity Regulations 1997 and to the fitting manufacturer's requirements.

75.16 INSTALL SMOKE DETECTORS

Install detectors to NZBC F7/AS1, 3.3 Location of smoke alarms, and to manufacturer's requirements, fitted neatly and without damage to the surrounding finish.

75.17 ELECTRIC POWERED FITTINGS AND EQUIPMENT

Install and wire selected fittings and equipment to the Electricity Regulations 1997 and the individual fittings and equipment manufacturer's requirements. Refer to the drawings for required layouts and locations for equipment.

75.18 COMPLETION

Leave all fittings, lamps and tubes operational, with equipment and diffusers clean.

ADDITIONAL ITEMS

Refer to SELECTIONS/drawings for specific product, material, accessories and finish selections.

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ALF Calculation Report

Project Description

Project: BUILDBEST HOME 1

Current Design: BBCL HOME 1 MACS RD
NEW HOME OFF MACPHEDRENS ROAD

Date: 25 FEB 2008

Designed by: MURRAY MCDOWELL

Address:

Owner Name: BUILDBEST CONSTRUCTION LIMITED
Street: 685 DEPOT ROAD, OXFORD
City: NORTH CANTERBURY
Phone No.: 3123452
Lot No.: Proposed Lot 8 of Lot 2
DP No.: 383229

NZ Building Code Compliance

In order to comply with the Energy Efficiency Clause H1 (2000) of the New Zealand Building Code a building has to have a BPI of less than 0.13 kWh/m²/Degree Days if it is in a warm location and less than 0.12 kWh/m²/Degree Days if it is in a cool location. Warm locations are locations with an average number of winter (May to August) degree days of less than 920. Cool locations are locations with 920 degree days or more. The currently selected location (Rangiora) is a cool location. The target BPI is therefore 0.12.

Alternatively, the building complies if it is built to NZS 4218:1996. This standard has three different methods to show compliance: the Schedule Method, the Calculation Method and the Modeling Method.

ALF checks the designed building for a BPI and for the NZS 4218:1996 Schedule and Calculation Methods.

The currently selected NZS 4218 target R-values are for a "non-solid construction".

The current design rates are:

BPI = 0.106	H1 pass
NZS 4218 (Schedule)	H1 pass
NZS 4218 (Calculation)	H1 pass

The current building design complies with Clause H1 of the NZBC because it complies with at least one of the H1 compliance methods. However, in order to comply with the NZBC it also has to comply with Clause E3 (Moisture) of the NZBC.

The acceptable solution of Clause E3 of the NZBC requires that R-values for walls, roofs and ceilings shall be no less than:

- a) For light timber frame wall or other framed wall constructions with cavities, 1.5.
- b) For single skin normal weight masonry based wall construction without a cavity, 0.6.
- c) For solid timber wall systems no less than 60 mm thick, 0.6.
- d) For roof and ceilings of any construction, 1.5.

Details of H1 Compliance

BPI Maximum: 0.12 Achieved: 0.106

NZS 4218 (Schedule)

	Minimum	Minimum achieved
Floor:	1.3	1.33 (excl. carpet)
Wall:	1.9	2.00
Roof:	2.5	3.35

NZS 4218 (Calculation)

Maximum acceptable heat loss:	399 W/°C
Achieved heat loss:	393 W/°C

For the individual components also applies that the average R-values must also be larger than 60% of those in the Schedule:

	Minimum	Average achieved	
Floor:	0.8	1.33	(excl. carpet)
Wall:	1.1	2.00	
Roof:	1.5	3.35	

Copyright of the standard is property of Standards New Zealand and is protected as described in the NZS 4218:1996 document.

Energy

This section gives you an overview of all the heat flows in and out of the designed building. It allows you to evaluate the importance of the thermal performance of individual building components - for example, of particular windows.

	Area m ²	Loss kWh/ % year		Gain kWh/ % year		Net Gain kWh/ year
• Slab Floor:	128.0m ²	1679	11.3%			
• Wall A(NW):	17.7m ²	155	1.0%			
• Window A0:	3.7m ²	431	2.9%	842	15.0%	412
• Window A1:	1.0m ²	120	0.8%	234	4.2%	114
• Window A2:	1.0m ²	120	0.8%	234	4.2%	114
• Window A3:	1.1m ²	126	0.9%	246	4.4%	120
• Wall B(NE):	19.9m ²	174	1.2%			
• Window B0:	1.6m ²	191	1.3%	201	3.6%	10
• Window B1:	1.9m ²	219	1.5%	230	4.1%	11
• Window B2:	0.5m ²	63	0.4%	66	1.2%	3
• Wall C(E):	21.5m ²	188	1.3%			
• Window C0:	0.5m ²	30	0.2%	36	0.6%	6
• Window C1:	1.8m ²	124	0.8%	149	2.6%	24
• Window C2:	0.5m ²	30	0.2%	36	0.6%	6
• Window C3:	0.2m ²	15	0.1%	18	0.3%	3
• Window C4:	0.2m ²	15	0.1%	18	0.3%	3
• Wall D(SE):	17.4m ²	152	1.0%			
• Window D0:	1.8m ²	215	1.5%	146	2.6%	-69
• Wall E(S):	17.8m ²	156	1.1%			
• Window E0:	0.3m ²	29	0.2%	18	0.3%	-11
• Window E1:	0.3m ²	29	0.2%	18	0.3%	-11
• Window E2:	0.2m ²	15	0.1%	14	0.3%	-1
• Window E3:	0.2m ²	15	0.1%	14	0.3%	-1
• Window E4:	0.2m ²	15	0.1%	14	0.3%	-1
• Wall F(W):	22.6m ²	198	1.3%			
• Window F1:	1.0m ²	120	0.8%	171	3.0%	52
• Window F2:	2.1m ²	242	1.6%	346	6.2%	105
• Window F3:	2.1m ²	242	1.6%	346	6.2%	105
• Window F4:	3.7m ²	431	2.9%	617	11.0%	187
• Wall G(SW):	15.7m ²	138	0.9%			
• Window G0:	1.4m ²	158	1.1%	124	2.2%	-34
• Window G1:	0.9m ²	107	0.7%	84	1.5%	-23
• Roof A:	15.1m ²	79	0.5%			
• Roof C:	71.1m ²	371	2.5%			
• Roof D:	94.8m ²	495	3.3%			
• Air Leakage:	307.2m ²	1135	7.7%			
• Warm-up:		6796	45.9%			
• Internal Gain:				1399	24.9%	
Total:		14818	100.0%	5626	100.0%	

Floor Loss:	1679 kWh/year
Wall Loss:	1161 kWh/year
Window Loss:	3101 kWh/year
Roof Loss:	946 kWh/year
Air Leakage:	1135 kWh/year
Warm-up:	6796 kWh/year
<u>Total Load:</u>	<u>14818 kWh/year</u>

Solar Gain:	4227 kWh/year
Internal Gain:	1399 kWh/year (4 occupants)
<u>Total Gain:</u>	<u>5626 kWh/year</u>

Gain Load Ratio: 38%

Effective Thermal Mass Density (per m₂ total floor area): 3.03 W/m₂ °C

Specific Heat Loss Density (per m₂ total floor area): 3.6 W/m₂ °C

Usefulness of Gains: 73%

Useful Gains: 4115 kWh/year

Required Heating Energy: 10703 kWh/year

Economic Analysis

This section shows the results of the comparison between the current design and the base design.

Current Design: BBCL HOME 1 MACS RD

NEW HOME OFF MACPHEDRENS ROAD

Base Design: NZS 4218 (default)

Areas of floors, walls and roofs are the same as in the current building design.

Total window area as in the current design (including the skylights); however, one eighth of the total window area is facing each of the 8 major compass orientations (no skylights). The R-value is 0.19, the SHGC 0.83 (clear single glazing) and the Shading is 20%.

R-values: floors:R 1.33, walls:R 2.00, roofs:R 3.35 and windows:R 0.2 (single glazed windows with aluminum frames).

Local Air Leakage Rate: 1ac/h.

Carpeted floors, external and internal walls: lightweight timber. Ceiling and furniture thermal mass as in the current design.

Internal gains as for the current design.

The same climate and heating conditions apply as in the current design.

Analysis period: 30 years

Average mortgage rate: 8 %

Modification cost between the base design and the current design: \$0

Marginal heating energy cost: 9 c/kWh

Result:

The current design ('BBCL HOME 1 MACS RD') uses **450 kWh/year less** heating energy than the base design ('NZS 4218 (default)'), and its cost over a lifetime of 30 years is **\$626 less** than the cost of the base design. This includes the cost of the modification to achieve the energy savings.

Modeling Assumptions

This section lists the modeling assumptions concerning the building design, climate and heating.

Building Design

General:

Total Floor Area: 128 m²
Number of Occupants: 4

Slab Floor:

Floor Area: 128 m²
Perimeter Length: 63 m
External Wall Thickness: 0.21 m
Soil Conductivity: 1.2 W/m°C
Under Floor R-value: 0 m²°C/W
Edge Insulation Width: 0 m
Slab and Ground R-value: 1.333743 m²°C/W
Floor Covering R-value: 0 m²°C/W
Total Slab Floor R-value: 1.33 m²°C/W

Walls:

Type 1:

Timber Framed Wall, Brick/Block Veneer, Insulation Within Framing - 100 mm Framing
2 Dwgangs, Studs 600 mm ctr., Blanket and Segment Insulants
Insulation R-value: 2.2 m²°C/W
Construction R-value: 2 m²°C/W

<i>Name</i>	<i>Orientation</i>	<i>Length</i>	<i>Height</i>	<i>Net</i>	<i>Window</i>
		<i>m</i>	<i>m</i>	<i>Area</i>	<i>Area</i>
		<i>m</i>		<i>m²</i>	<i>m²</i>
Wall A	Northwest	10.2	2.4	17.7	6.82
Wall B	Northeast	10	2.4	19.9	4.061
Wall C	East	10.3	2.4	21.5	3.195
Wall D	Southeast	7.7	2.5	17.4	1.845
Wall E	South	7.9	2.4	17.8	1.175
Wall F	West	13.1	2.4	22.6	8.855
Wall G	Southwest	7.2	2.5	15.7	2.27

Roofs:

Type 1:

Pitched Timber Framed Roof, Metal Clad, Flat Ceiling
Truss 94x47 900ctr., Batten 35x69 <600ctr., Blanket and Segment Insulants*
Insulation R-value: 3.2 m²°C/W
Construction R-value: 3.35 m²°C/W

<i>Name</i>	<i>Length</i>	<i>Width</i>	<i>Net</i>	<i>Window</i>
			<i>Area</i>	<i>Area</i>
	<i>m</i>	<i>m</i>	<i>m²</i>	<i>m²</i>
Roof A	2.8	5.4	15.1	0
Roof B	0	0	0.0	0
Roof C	7.9	9	71.1	0
Roof D	7.9	12	94.8	0

Windows and Skylights:

Type 1:

Glass: Single, clear

Frame: Aluminum frame (no thermal break)

R-value: 0.15 m²°C/W

Solar Heat Gain Coefficient: 70 %

Number	Wall/ Roof	Orientation	Width	Height	Net Area	Shading
			m	m	m ²	%
Wind. 1	Wall A	Northwest	1.8	2.05	3.69	0
Wind. 2	Wall A	Northwest	0.5	2.05	1.025	0
Wind. 3	Wall A	Northwest	0.5	2.05	1.025	0
Wind. 4	Wall A	Northwest	1.2	0.9	1.08	0
Wind. 1	Wall B	Northeast	0.8	2.05	1.64	0
Wind. 2	Wall B	Northeast	0.9	2.09	1.881	0
Wind. 3	Wall B	Northeast	0.6	0.9	0.54	0
Wind. 4	Wall B	Northeast	0	0	0	0
Wind. 1	Wall D	Southeast	0.9	2.05	1.845	0
Wind. 1	Wall E	South	0.25	1	0.25	0
Wind. 2	Wall E	South	0.25	1	0.25	0
Wind. 1	Wall F	West	0	0	0	0
Wind. 2	Wall F	West	0.5	2.05	1.025	0
Wind. 3	Wall F	West	1.8	1.15	2.07	0
Wind. 4	Wall F	West	1.8	1.15	2.07	0
Wind. 5	Wall F	West	1.8	2.05	3.69	0
Wind. 1	Wall G	Southwest	1.5	0.9	1.35	0
Wind. 2	Wall G	Southwest	0.8	1.15	0.92	0

Type 2:

Glass: Double, clear

Frame: Aluminum frame (no thermal break)

R-value: 0.26 m²°C/W

Solar Heat Gain Coefficient: 61 %

Number	Wall/ Roof	Orientation	Width	Height	Net Area	Shading
			m	m	m ²	%
Wind. 1	Wall C	East	0.5	0.9	0.45	0
Wind. 2	Wall C	East	0.9	2.05	1.845	0
Wind. 3	Wall C	East	0.5	0.9	0.45	0
Wind. 4	Wall C	East	0.25	0.9	0.225	0
Wind. 5	Wall C	East	0.25	0.9	0.225	0
Wind. 3	Wall E	South	0.25	0.9	0.225	0
Wind. 4	Wall E	South	0.25	0.9	0.225	0
Wind. 5	Wall E	South	0.25	0.9	0.225	0

Air Leakage:

Basic Air tightness: airtight

No. of Open Fires without Flue Restrictors: 0

No. of Open Fires with Flue Restrictors: 1

Area of Large Gaps: 53021 mm²

The house has no passive vents.

The location-independent Air Leakage Rate is 0.62 ac/h.

Site Exposure: exposed

Wind Zone Factor: 0.8

Local Air Leakage Rate: 0.64 ac/h

House Volume: 307 m³

Thermal Mass:

Timber Floor: .0 m₂, Carpet and underlay (Wh/m₂°C)

Thermal Mass: 0 kWh/°C

Concrete Floor: 128.0 m₂, without insulation (300 Wh/m₂°C)

Thermal Mass: 38400 kWh/°C

External Walls: 133.0 m₂, any internally lined construction (9 Wh/m₂°C)

Thermal Mass: 1197 kWh/°C

Internal Walls: .0 m₂, Timber or steel frame (Wh/m₂°C)

Thermal Mass: 0 kWh/°C

Total Floor Area (used for Furniture and Ceiling): 128.0 m₂ (4.5 Wh/m₂°C + 2.5 Wh/m₂°C)

Thermal Mass: 896 kWh/°C

Total Thermal Mass: 40493 kWh/°C

Effective Thermal Mass: 388.4 W/°C

Climate

Location: Rangiora in the Upper South Island

Heating Season: May to October

Annual Loss Factor: 17.5

Annual Gain Factors:

N	NE	E	SE	S	SW	W	NW	H
282	175	132	113	105	131	239	326	252

Internal Gain Multiplier: 1.46

Wind Zone Factor: 0.8

H1 Climate Location: cool , BPI Target: 0.12

NZS 4218:1996 Climate Zone: 3

Heating

Heating Schedule : Morning and Evening Heating (7:00-9:00 and 17:00-23:00)

Heating Level: 20°C

Calculation Date: 26 February 2008, 3:43 PM

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GIB® Wall Bracing Calculation Sheet A

single storey

V85A

GIB® EzyBrace™

GIB® Bracing Systems, 2006

Job Details

Name	Buildbest Construction Limited
Street and Number	685 Depot Road
Lot and DP Number	Lot 8 part of Lot 2 DP 59418
City/Town/District	Oxford
Designer and date	M D McDowell 12-Feb-08
Company Name	Buildbest Construction

Building Specification

Location of Storey	single	◆◆	
Floor Loading	2 kPa	◆◆	
Foundation Type	slab	◆◆	
Building Height to Apex (m)	5	◆◆	eaves 2 m or less from ground
Roof Height above Eaves (m)	3	◆◆	not a valid building scope
Stud Height (m)	2.4	◆◆	
Cladding Weight (top or single)	heavy	◆◆	
Cladding Weight (lower)	heavy	◆◆	not applicable (single storey building)
Cladding Weight (subfloor)	heavy	◆◆	not applicable (slab)
Roof Weight	light	◆◆	
Roof Pitch (degrees)	0-25	◆◆	
Room in Roof Space	no	◆◆	
Building Length (m)	19.4		
Building Width (m)	13.4		
Gross Building Plan Area (m2)	172		

Building Location

Wind Zone	High		Earthquake Zone	
Region	R1	◆◆	B	◆◆
Terrain	Inland	◆◆		
Exposure	Exposed	◆◆		
Topography	Moderate	◆◆		

Bracing Units required for Wind

per m	subfloor	walls
W along	n/a	78 BUs/m
W across	n/a	78 BUs/m
Totals	subfloor	walls
W along	n/a	1045 BUs
W across	n/a	1513 BUs

Bracing Units required for Earthquake

per m2	subfloor	walls
E	n/a	3.9 BUs/m2
Totals	subfloor	walls
E along	n/a	671 BUs
E across	n/a	671 BUs

V85A

GIB® Bracing Systems, 2006

Across								Wind	Earthq.
Wall or Bracing Line		Bracing Elements provided						9W	10EQ
1	2	3	4	5	7	8	6		
Line Label	Minimum BUs Req/Ach	Bracing Element No.	Supplier	Bracing Type	Element Length L (m)	Element Height H (m)	Angle to Bracing line (degrees)	BUs Achieved	BUs Achieved
M	enter	1	GIB®	GS1a	2.3	2.4		150	127
		2							
line totals		3							
W	150	4							
EQ	127	5							
N	enter	1	GIB®	GS2	3.2	2.4		288	256
		2			1.8				
line totals		3							
W	288	4							
EQ	256	5							
O	enter	1							
		2							
line totals		3	GIB®	GS1a	1.8	2.4		117	99
W	117	4							
EQ	99	5							
P	enter	1	GIB®	GS2	3.4	2.4		306	272
		2							
line totals		3	GIB®	GS1a	2.7	2.4	45	143	124
W	840	4	GIB®	GS1a	3.6	2.4	45	191	165
EQ	562	5							
Q	enter	1							
		2							
line totals		3	GIB®	BL1	0.9	2.4	45	80	73
W	80	4							
EQ	73	5							
R	enter	1	GIB®	GS1a	1.8	2.4	45	83	70
		2							
line totals		3	GIB®	GS1a	2.4	2.4	45	127	110
W	210	4							
EQ	180	5							
S	enter	1	GIB®	GS1a	1.8	2.4	45	83	70
		2	GIB®	GS1a	1.8	2.4	45	83	70
line totals		3							
W	165	4							
EQ	140	5							
T	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
								Wind	Earthq.
Totals Achieved								1650	1437
								OK	OK
Totals Required (from Sheet A)								1513	671

GIB® Bracing Systems, 2006

*For full construction details see literature
GIB® Bracing Systems, 2006*

Supplier	System	Minimum Length (m)	BU's W/m	BU's EQ/m
	none			
GIB®	GS1a	1.8	65	55
		2.4	75	65
GIB®	GS2	1.2	70	60
		1.8	80	70
		2.4	90	80
GIB®	BL1	0.4	120	115
		0.6	125	115
GIB®	BL1a	1.8	130	115
GIB®	BLP	0.6	145	135
		0.9	145	145
GIB®	BLG	0.6	145	130
		1.2	150	130
Custom	Custom			
Custom	Custom			
Custom	Custom			
Custom	Custom			
Custom	Custom			
Custom	Custom			
Custom	Custom			
Custom	Custom			
Custom	Custom			
Custom	Custom			
Custom	Custom			

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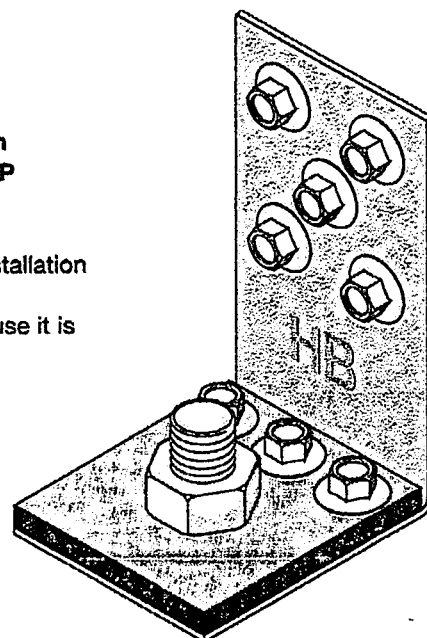
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GIB® HandiBrac™

Panel Hold-Down Bracket

Developed in conjunction with MiTek™, the GIB® HandiBrac™ has been designed and tested for use as a hold-down bracket in GIB® BL and UP bracing elements.

- The GIB® HandiBrac™ registered design provides for quick and easy installation
- The GIB® HandiBrac™ provides a flush surface for the wall linings because it is fitted inside the framing. There is no need to check in the framing as recommended with conventional straps
- The GIB® HandiBrac™ is suitable for both new and retrofit construction
- The design also allows for installation and inspection at any stage prior to fitting internal linings



Components

GIB® HandiBrac™ is available in boxes of 10, each containing 5 pairs.

Components per paired pack include:

- 2 x GIB® HandiBrac™ Brackets
- 2 x Washers
- 16 x Tek Screws (8mm AF)

NB: Bolt purchased separately

GIB® Bracing Elements

The GIB® HandiBrac™ is a proprietary product that has been tested in, and is suitable only for the following GIB® Bracing systems; GIB Braceline® bracing elements (BL1, BL1a, BLP, BLG) and GIB Ultraline® PLUS Lining Systems bracing elements (UP1, UP1a, UPP, UP2) all have panel hold-down connections at each end of the bracing element.

GIB® Bracing Panel Hold-down Fixings

Panel hold-down fixings are required at both ends of the following bracing elements.

- GIB® Bracing Systems 2006; Bracing elements BL1, BL1a, BLP, BLG
- GIB Ultraline® PLUS Lining System 2006; Bracing elements UP1, UP1a, UPP, UP2.
- The washer is an integral part of the GIB® HandiBrac™ design and is supplied as part of the pack. It does not need to be acquired separately.

Fixing to timber framed floors

Bolt fixing to a timber framed floor is with a 150 mm long by 12 mm diameter galvanised coach screw installed in accordance with NZS 3603:1993, Clause 4.5.

Fixing to concrete slabs

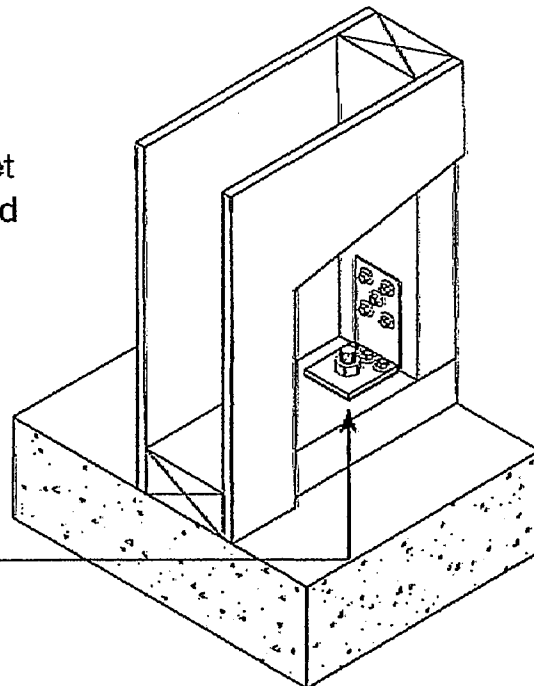
The bottom plate at both ends of the bracing element is fixed using an M12 galvanised bolt set not less than 75 mm into concrete and projecting sufficiently to allow a fully threaded nut above the washer. Alternatively, a proprietary fixing with equivalent capacity may be used.

Concrete Floor - Internal Wall

Bottom plate is fixed using M12 galvanised bolt set not less than 75mm into concrete and projecting sufficiently to allow for the washer and fully-threaded nut above the timber.

Locate the GIB®
HandiBrac™ bracket
centrally on the stud

GIB®
HandiBrac™
bracket

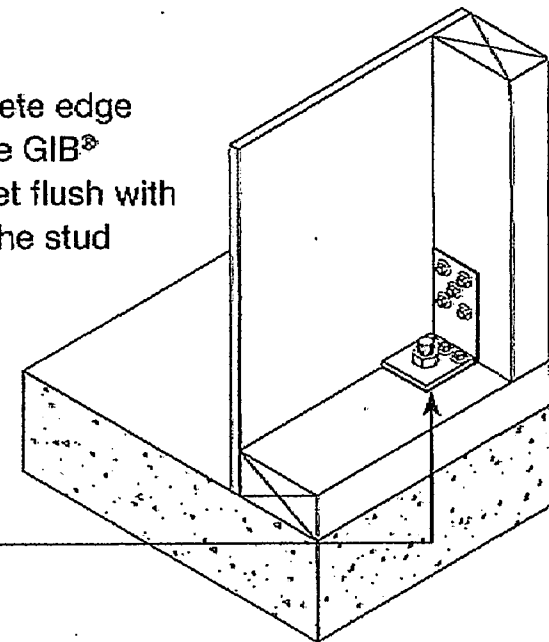


Concrete Floor - External Wall

Bottom plate is fixed using M12 galvanised bolt set not less than 75mm into concrete and projecting sufficiently to allow for the washer and fully-threaded nut above the timber.

To maximise concrete edge distance,
locate the GIB®
HandiBrac™ bracket flush with
the inside face of the stud

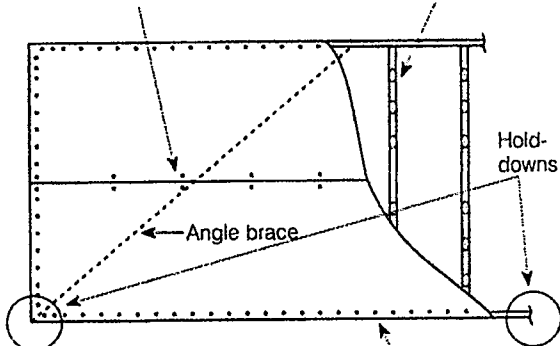
GIB®
HandiBrac™
bracket



Fastener Layouts – GIB® Braceline® Bracing Elements MARCH 2006

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

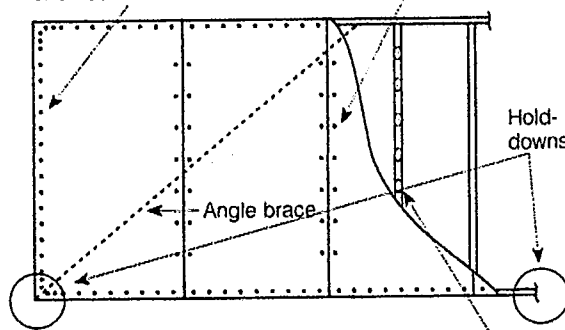
32mm x 6g GIB® Grabber® Drywall Screws or 30mm GIB® Nails where sheets cross studs
Daub of GIBFix® adhesive at 300mm centres to intermediate studs



**BL1a (lined one side)
(Horizontal Fixing)**

32mm GIB® Braceline® screws or 35mm GIB® Braceline® nails at 150mm centres to perimeter of braced element

32mm GIB® Braceline® Screws or 35mm GIB® Braceline® Nails at 150mm centres to perimeter of braced element

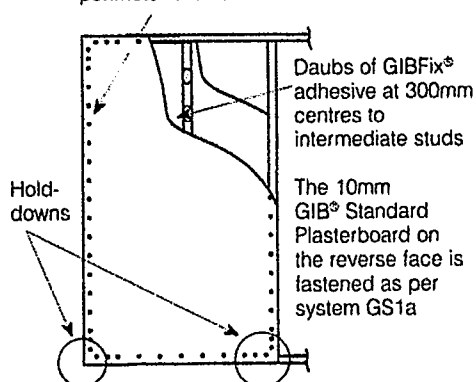


**BL1a (lined one side)
(Vertical Fixing)**

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

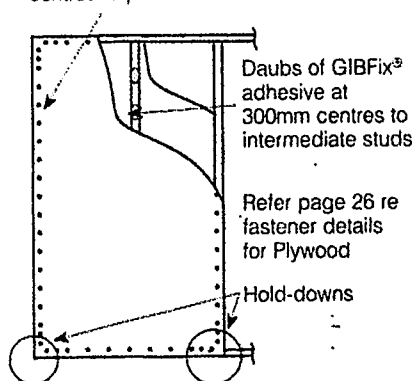
Daub of GIBFix® adhesive at 300mm centres to intermediate studs and nogs

32mm GIB® Braceline® Screws or 35mm GIB® Braceline® Nails at 150mm centres to perimeter of braced element



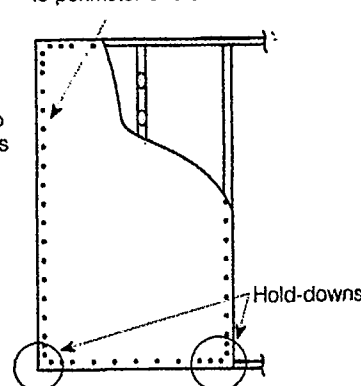
BLG (lined both sides)

32mm GIB® Braceline® Screws or 35mm GIB® Braceline® Nails at 150mm centres to perimeter of braced element



BLP (lined both sides)

32mm GIB® Braceline® Screws or 35mm GIB® Braceline® Nails at 150mm centres to perimeter of braced element



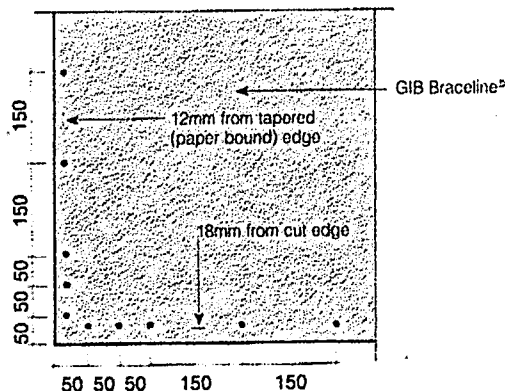
BL1 (lined one side)

Fixing the perimeter of a GIB® Braceline® bracing element

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

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

Fastening pattern for GIB® Braceline® bracing elements



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow system specifications.

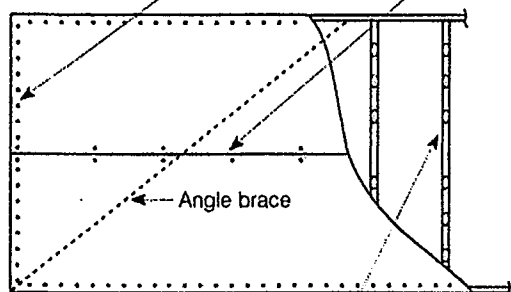
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For 10mm GIB® Standard Plasterboard and any other 10mm and 13mm GIB® plasterboard

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

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

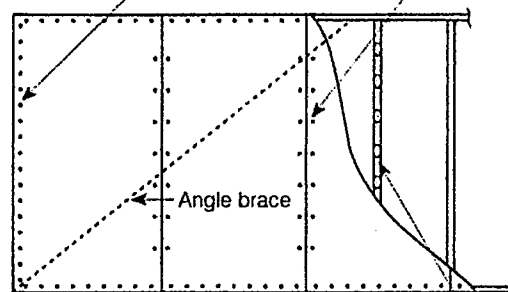


**GS1a (lined one side)
(Horizontal Fixing)**

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

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

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

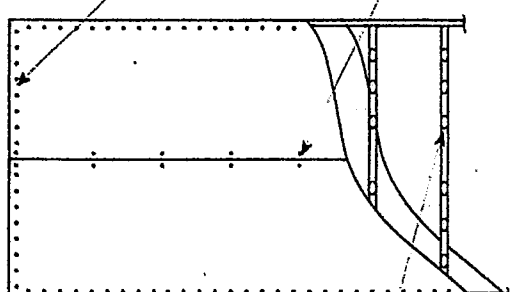


**GS1a (lined one side)
(Vertical Fixing)**

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

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

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

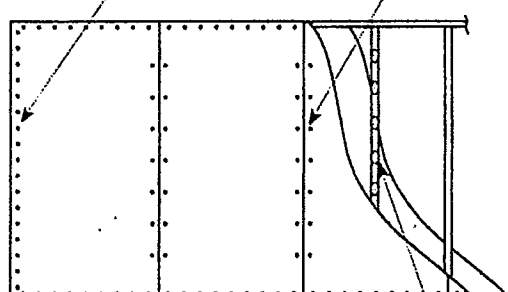


**GS2 (lined both sides)
(Horizontal Fixing)**

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

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

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



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

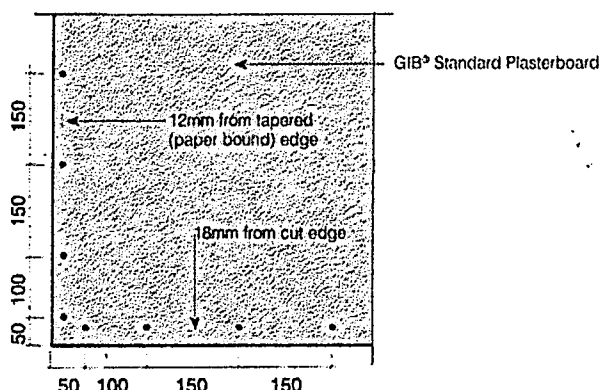
Daub of GIBFix® adhesive at 300mm centres to intermediate studs and nogs

Fixing the perimeter of a GIB® Standard Plasterboard bracing element

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

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

Fastening pattern for GIB® Standard bracing elements



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow system specifications.

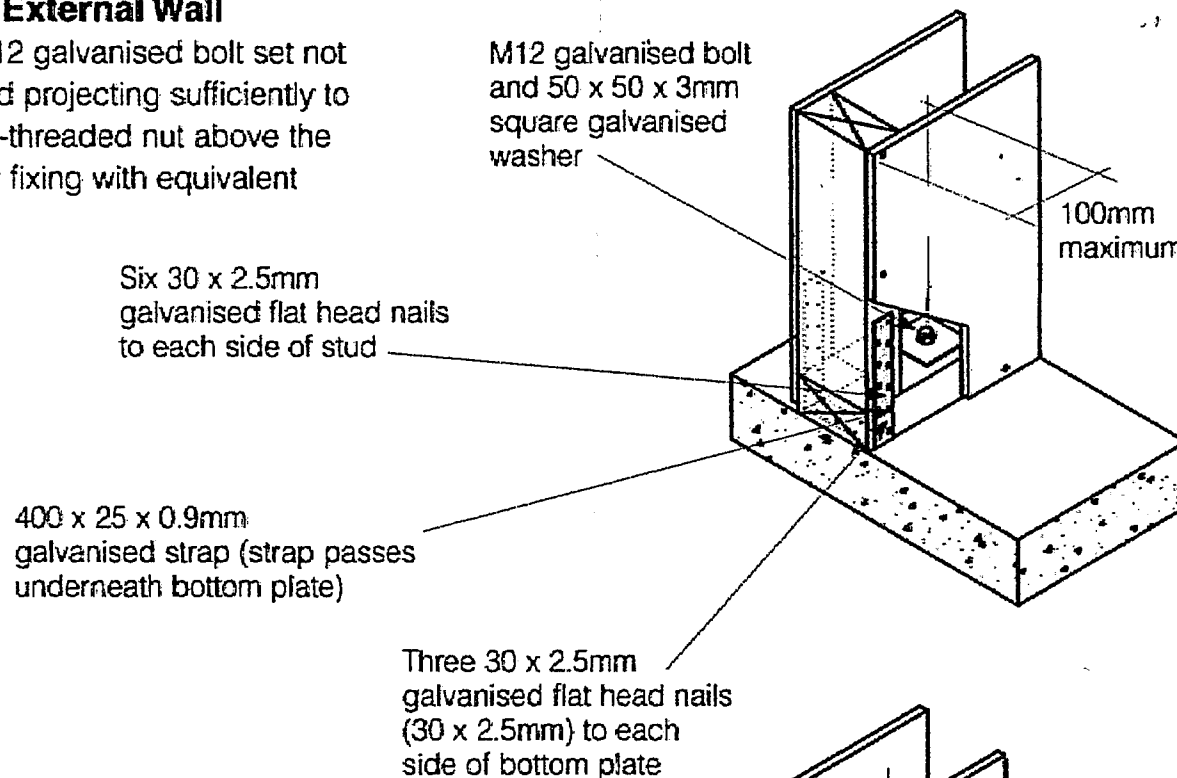
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GIB® BRACING SYSTEMS – CONSTRUCTION

	Panel Hold-down Details	MARCH 2006
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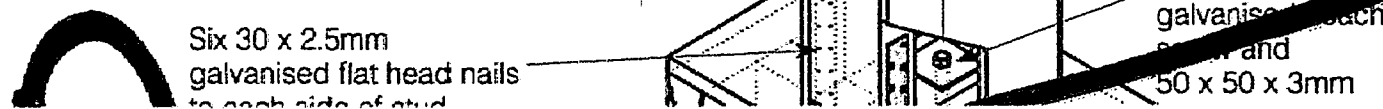
Concrete Floor – Internal / External Wall

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



Timber Floor – Internal Wall

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



Introduction

GIB Aqualine® is an internal lining material designed for use in wet areas such as bathrooms, kitchens, laundries and toilets.

When installed in wet areas, directly exposed to liquid water, that is a shower cubicle or shower over bath situation, the GIB Aqualine® must be faced with ceramic tiles complete with a waterproof membrane.

Alternatively, GIB Aqualine® may be clad with a suitable flexible sheet vinyl, fully bonded and with all seams heat welded.

Outside of areas directly exposed to liquid water, GIB Aqualine® is ideal for the application of paint and wallpaper finishes.

Product Description

GIB Aqualine® features a wax modified water resistant core. The board resists both water vapour penetrating to the cavity of the wall and moisture travelling up the core.

The board is manufactured with tapered edges allowing conventional jointing techniques.

Compliance with the New Zealand Building Code (NZBC)

Structure – Clause B1

The design and material specification for steel and timber framing used in GIB Aqualine® systems must be in accordance with the performance requirements of NZBC Clause B1 (Structure).

NZBC Clauses B1 (Structure) and B2 (Durability) require that bracing elements have a durability of 50 years. GIB® Bracing Systems must not be specified in areas where a 15 year durability applies and where linings are subject to direct water pressure. Examples are a shower cubicle or shower over bath situations. Otherwise GIB Aqualine® may be used as a substitute for the equivalent thickness GIB® Standard plasterboard in bracing systems GIB1, 2, 3, 10 and 11.

Durability – Clause B2

When installed and maintained in accordance with this literature, GIB Aqualine® tiled or vinyl covered systems have a serviceable life of at least 15 years. They comply with the requirements of NZBC Clause B2 (Durability), for use in wet areas directly exposed to liquid water, e.g. showers, showers over baths and splash backs.

When used as a general wet area lining, and maintained under normal dry internal conditions, GIB Aqualine® systems have a serviceable life of at least 50 years and comply with NZBC Clause B2 (Durability) for use within toilets, kitchens, bathrooms and laundries not directly exposed to liquid water.

Spread of Fire – Clause C3

GIB® Fire Rated Systems provide passive fire protection in accordance with the requirements of NZBC Clause C3 (Spread of Fire). When GIB Aqualine® is substituted into fire rated systems in place of the equivalent thickness GIB Fyrelite®, the Fire Resistance Rating (FRR) of that system will be maintained.

Internal Moisture – Clause E3

When installed in accordance with this literature, tiled or vinyl covered GIB Aqualine® systems may be used in areas directly exposed to liquid water such as showers to provide an impervious and easily cleaned wall surface. These systems comply with the requirements of NZBC Clause E3 (Internal Moisture).

Hazardous Building Materials – Clause F2

At no stage during handling, installation, or serviceable life does GIB Aqualine® constitute a health hazard. It therefore meets the provisions of NZBC Clause F2 (Hazardous Building Materials). Dust resulting from the sanding of stopping compounds may be a respiratory irritant and the use of a suitable facemask is recommended.

Ventilation – Clause G4

NZBC Clause G4 (Ventilation) requires buildings to have a means of collecting or otherwise removing steam generated from laundering, utensil washing, bathing or showering. To prolong the life of interior linings and surface finishes, and to minimise the risk of moisture related problems such as condensation and mould growth, GIB® recommends that adequate heating and mechanical ventilation is provided in kitchens, bathrooms and laundries.

Airborne and Impact sound – Clause G6

GIB Noise Control® Systems can be used to provide ratings for Sound Transmission Class (STC) and Impact Insulation Class (IIC) in accordance with the requirements of NZBC Clause G6 (Airborne and Impact Sound). When GIB Aqualine® is substituted into GIB Noise Control® systems in place of the equivalent thickness GIB® Standard or GIB Fyrelite®, the STC and IIC rating of that system will be maintained. When GIB Aqualine® is substituted in place of the equivalent thickness GIB Noiseline®, a small performance loss may occur. For further information contact the GIB® Helpline 0800 100 442.

Framing and Lining Installation – Paint and Wallpaper Finishes

Walls - Paint and Wallpaper Finishes Outside of Shower Areas

(Refer to associated GIB® Publications for Fire Rated or Noise Control Construction)

Framing

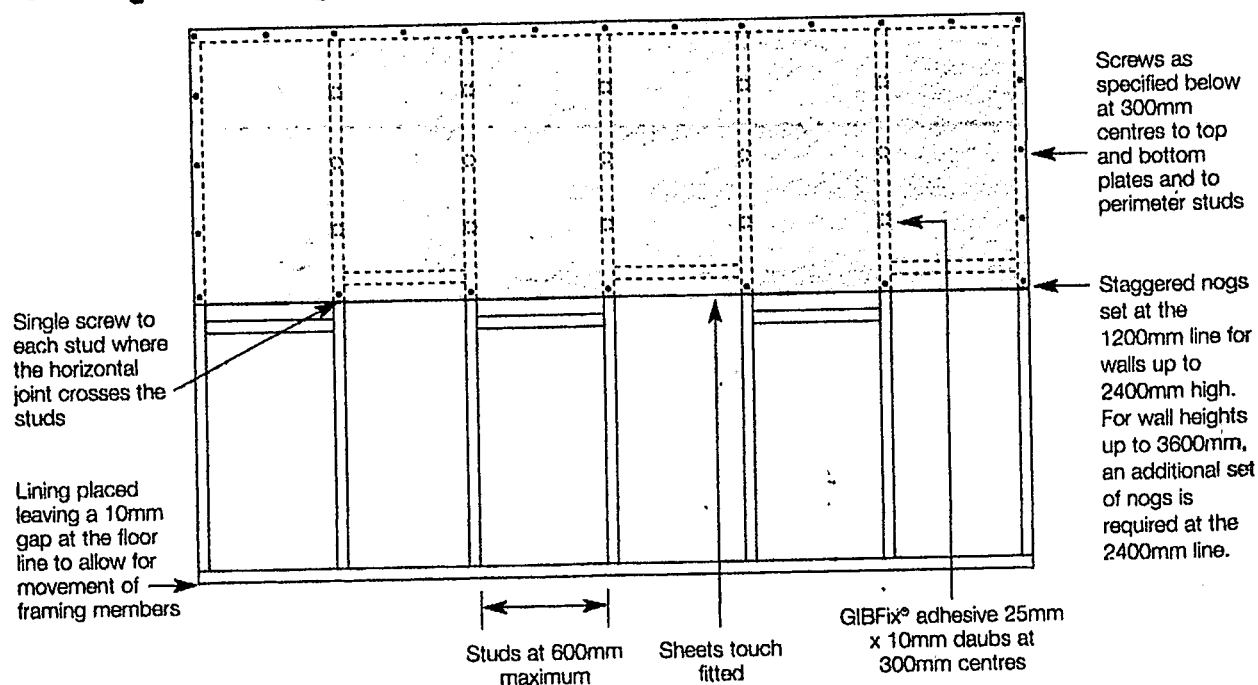
The moisture content of timber framing shall be between 12-16% at the time of lining.

- Studs shall be spaced at 600mm centres maximum.
- Nogs
 - For wall heights up to 2400mm, staggered nogs are to be set alternately 150mm above and below the 1200mm line.
 - For wall heights up to 3600mm an additional set of nogs is required at the 2400mm line.
- Steel stud systems do not generally incorporate nogs except as required below.

Note: Additional nogs are required as follows:-

- Adjacent to each pipe penetration
- Between all studs above bath flanges and preformed shower bases
- Behind sink and tub flashings
- To support towel rails, grab rails and wall basin brackets

Fastening and Jointing the Linings – Horizontal Fixing*



* For vertical fixing, two evenly spaced rows of nogs are required.

Fasteners

- 10mm GIB Aqualine® – 25mm x 6g GIB® Grabber™ High Thread Drywall screws
- 13mm GIB Aqualine® – 32mm x 6g screws as above

Fastener Centres

- 300mm centres to top and bottom plates and to perimeter studs

Lining

- Single screws to each stud where the horizontal joint crosses the studs
- 25mm x 10mm daubs of GIBFix® adhesive at 300mm centres to intermediate studs
- Lay the sheets horizontally leaving a 10mm gap at the floor line to allow for movement of framing members. Sheets to be touch fitted.

Jointing

- Jointing shall be carried out in accordance with instructions contained in the publication "GIB Living Solutions® Site Guide"

Note: The above specification also applies to flexible sheet vinyl finishes, except that the lining gap at the floor should be reduced to 5mm when a pencil cove detail is used. See "Flexible Sheet Vinyl", Page 8.

Framing and Lining Installation – Tiled Walls

Tiled Walls – Showers and Other Wet Areas

(Refer to associated GIB® Publications for Fire Rated or Noise Control construction)

Framing

- The moisture content of timber framing shall be between 12-16% at the time of lining.
- **10mm GIB Aqualine® faced with ceramic tiles (tile weight up to 12.5kg/m²)** studs shall be spaced at 600mm centres with nogs set at 600mm centres. (Centre row of nogs can be staggered 150mm either side of the centre line for horizontal fixing).
Note: Where double layer linings occur, the studs may be set at 600mm centres.
- **13mm GIB Aqualine® faced with ceramic tiles (tile weight up to 32kg/m²)** studs shall be spaced at 600mm centres maximum.
Nogs
 - For wall heights up to 2400mm, staggered nogs are to be set alternately 150mm above and below the 1200mm line
 - For wall heights up to 3600mm an additional set of nogs is required at 2400mm line
- Prior to lining in tiled areas (shower cubicles and shower over bath only) the internal corners shall be reinforced with a minimum 32 x 32 x 0.55mm galvanised metal angle. Each side of the angle shall be fastened to the framing with 30mm galvanised clouts at 300mm centres (see illustrations, page 11, 13)
- Steel stud systems do not generally incorporate nogs except as required below.
- Additional nogs are required as follows:-
 - Adjacent to each pipe penetration
 - Between all studs above bath flanges and preformed shower bases
 - Behind sink and tub flashings
 - To support towel rails, grab rails and wall basin brackets.

Fasteners - 10mm GIB Aqualine®, tile weight up to 12.5kg/m²

25mm x 6g GIB® Grabber™ High Thread Drywall screws at 150mm centres to studs, top and bottom plates and single screws to the centre of each nog

- 13mm GIB Aqualine®, tile weight up to 32kg/m²

32mm x 6g screws as above at 100mm centres to studs, nogs and top and bottom plates

Note: Adhesive fixing is not permitted in tiled areas

Lining

- Lay the sheets horizontally leaving a 10mm gap at the floor line to allow for movement of framing members.
Provide a 5-10mm gap between the bottom edge of the lining and the bath rim, any upstand or the preformed shower base (allows placement of sealant)
Sheets shall be touch fitted

Jointing

- Jointing shall be carried out in accordance with instructions contained in the publication "GIB Living Solutions® Site Guide"

Do not use topping compound in tiled areas

Use only chemical setting compounds such as GIB Tradeset® or GIB® Bedding compound, flushed out and reinforced only with paper tape.

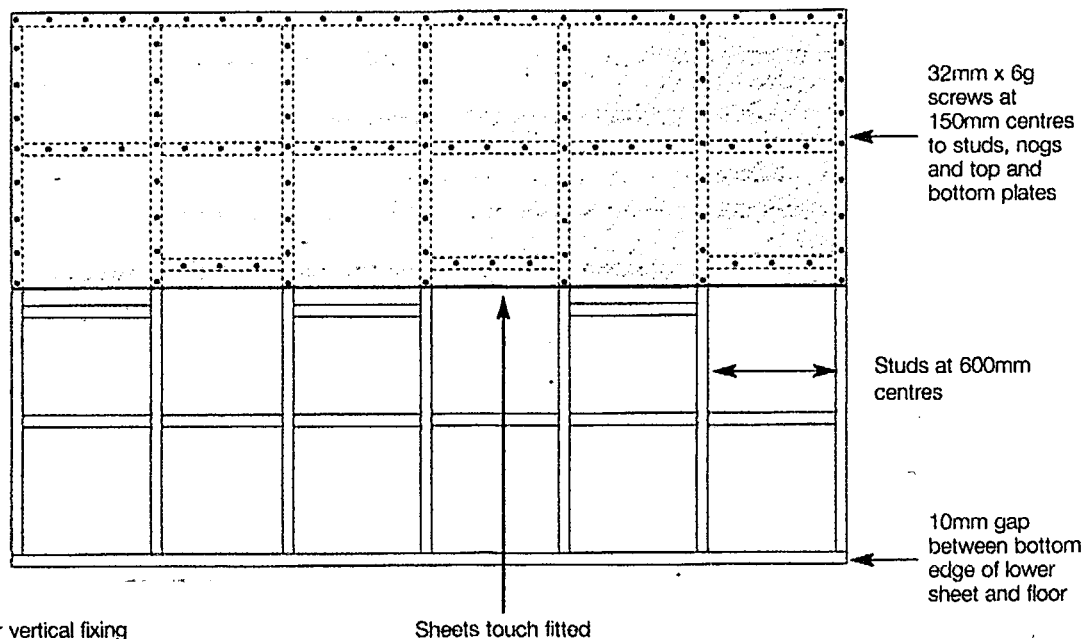
Notes

- Where the framing or fastener centres required for tiled GIB Aqualine® are closer than those specified for GIB® FRR and Noise Control Systems, the GIB Aqualine® specification shall prevail.
- Where single layer linings occur on steel framing the minimum lining thickness shall be 13mm.
- See "Waterproof Membranes" page 9 re tiled finishes in shower areas.

Framing and Lining Installation – Tiled Walls

Fastening and Jointing the Lining in Tiled Areas – Horizontal Fixing*

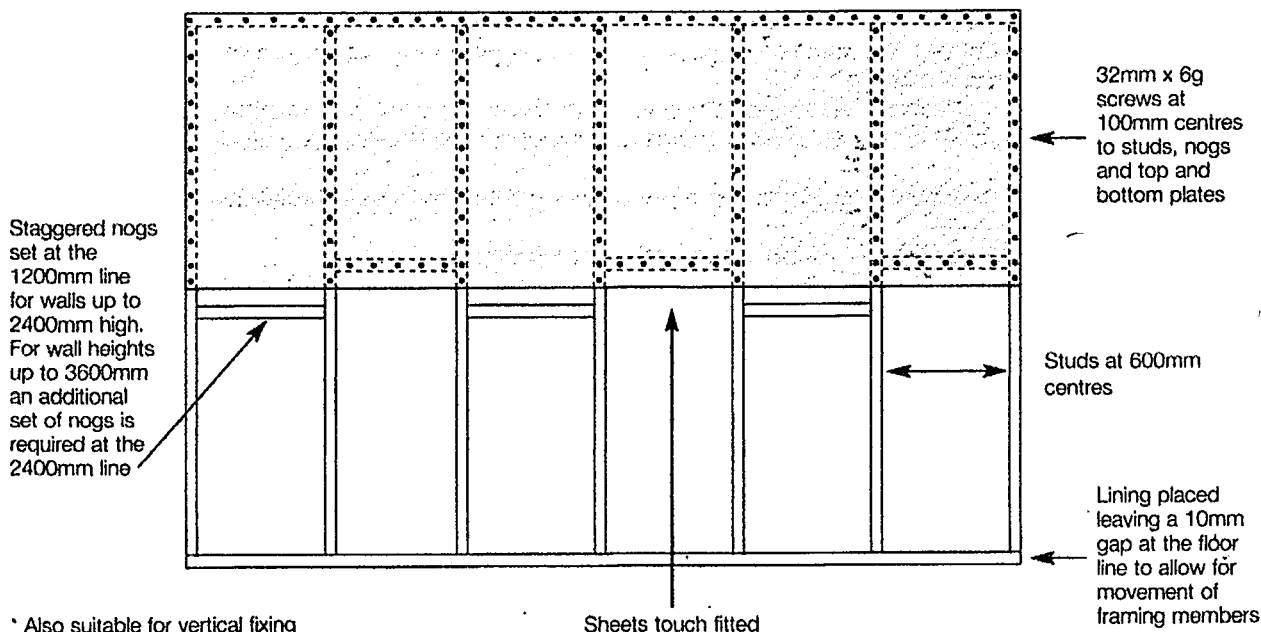
10mm GIB Aqualine® – Tiles up to 12.5kg/m²



* Also suitable for vertical fixing

Fastening and Jointing the Lining in Tiled Areas – Horizontal Fixing*

13mm GIB Aqualine® – Tiles up to 32kg/m²



* Also suitable for vertical fixing

Ceilings

Battens or ceiling joists shall be spaced at 450mm centres maximum for 10mm GIB Aqualine® and 600mm centres maximum for 13mm board.

Fixing and jointing as for standard GIB® detailed in the publication "GIB Living Solutions® Site Guide".

Tiling is not recommended on GIB® Plasterboard soffits and ceilings.

NU-LOOK CANTERBURY

Phone : (03) 389 6466

Fax : (03) 389 6076

11 HENRY ST
P.O. Box 33321
Christchurch

Contact : **PAUL**
Mobile : 029 982-5162
E-Mail :

E-mail : nulook@paradise.net.nz

TRADE

Project Title : **MURRAY McDOWELL
NEW HOUSE OXFORD**

Site Contact :

Deliver to : **685 DEPOT OXFORD ROAD**

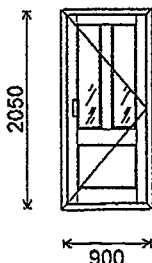
Mobile :

Phone :

Fax :

Items :

Item	Description	Quantity
1	W1 ENTRY DOOR FRAME FRAME COLOUR : To Be Advised FAB20 FRAME TYPE : WeatherTight Series WIND ZONE : High LINER : H3 Clear Pine 25mm Architraved Mitre Cut GLASS : Clear Float Double Glazed OPEN : OPENIN HEIGHT FROM FLOOR : 0 WALL THICKNESS : 170 SILL LINER : TRUE	1



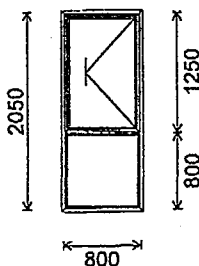
COMMENTS:

1 x Comp30 2 B Aria LCL 4-point short-throw K/T -

- 1.1 INCLUDING STELLAR SR10 DOOR.
STANDARD POWDER COAT COLOUR ONLY WITH CLEAR FLOAT DOUBLE GLAZING.

1

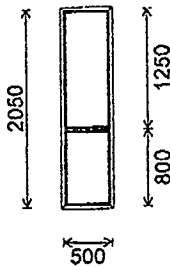
2	W2 LOUNGE FRAME COLOUR : To Be Advised FAB20 FRAME TYPE : WeatherTight Series WIND ZONE : High LINER : H3 Clear Pine 25mm Architraved Mitre Cut GLASS : Clear Float Double Glazed HEIGHT FROM FLOOR : 0 WALL THICKNESS : 170 SILL LINER : TRUE	1
---	---	---



COMMENTS:

2 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

3



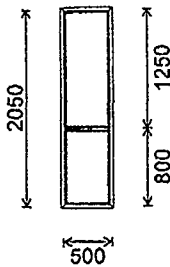
W3 LOUNGE

FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
LINER : H3 Clear Pine 25mm Architraved Mitre Cut
GLASS : Clear Float Double Glazed
HEIGHT FROM FLOOR : 0
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : 71mm Head Flashing
TRIM SIZE : 2080mm x 530mm

COMMENTS:

4



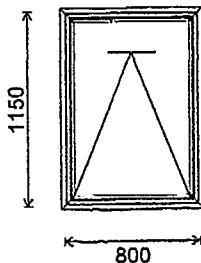
W4 LOUNGE

FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
LINER : H3 Clear Pine 25mm Architraved Mitre Cut
GLASS : Clear Float Double Glazed
HEIGHT FROM FLOOR : 0
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : 71mm Head Flashing
TRIM SIZE : 2080mm x 530mm

COMMENTS:

5



W5 LOUNGE

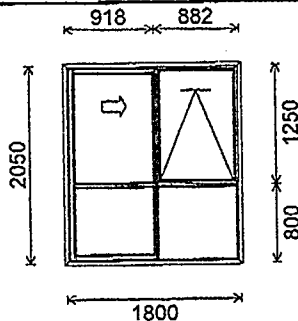
FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
LINER : H3 Clear Pine 25mm Architraved Mitre Cut
GLASS : Clear Float Double Glazed
HEIGHT FROM FLOOR : 900
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : NO Flashing
TRIM SIZE : 1180mm x 830mm

COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -
 1 x Comp30 2 B Aria Wedgeless High Profile Face Fix LH -

6



W6 LIVING SLIDER

FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
LINER : H3 Clear Pine 25mm Architraved Mitre Cut
GLASS : Clear Float Double Glazed
BEADED PANEL : TRUE
HEIGHT FROM FLOOR : 0
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : NO Flashing
TRIM SIZE : 2080mm x 1830mm

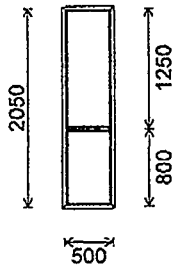
COMMENTS:

1 x Comp30 2 B Aria Wedgeless Low Profile Face Fix RH -
 1 x Comp30 2 B Aria Wedgeless Low Profile Face Fix LH -
 1 x Comp30 2 B ALBANY LOCKING COLOURS

7

W7 LIVING

1



FRAME COLOUR : To Be Advised FAB20

FLASHING : NO Flashing

FRAME TYPE : WeatherTight Series

TRIM SIZE : 2080mm x 530mm

WIND ZONE : High

LINER : H3 Clear Pine 25mm

Architraved Mitre Cut

GLASS : Clear Float Double Glazed

HEIGHT FROM FLOOR : 0

WALL THICKNESS : 170

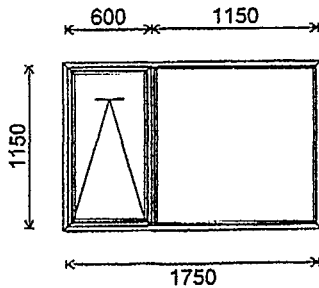
SILL LINER : TRUE

COMMENTS:

8

W8 BEDROOM 1

1



FRAME COLOUR : To Be Advised FAB20

FLASHING : NO Flashing

FRAME TYPE : WeatherTight Series

TRIM SIZE : 1180mm x 1780mm

WIND ZONE : High

LINER : H3 Clear Pine 25mm

Architraved Mitre Cut

GLASS : Clear Float Double Glazed

HEIGHT FROM FLOOR : 900

WALL THICKNESS : 170

SILL LINER : TRUE

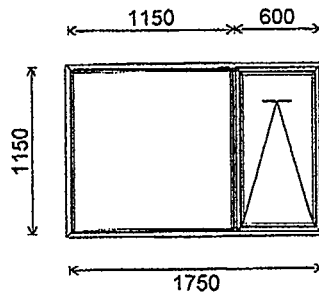
COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

9

W9 BEDROOM 2

1



FRAME COLOUR : To Be Advised FAB20

FLASHING : NO Flashing

FRAME TYPE : WeatherTight Series

TRIM SIZE : 1180mm x 1780mm

WIND ZONE : High

LINER : H3 Clear Pine 25mm

Architraved Mitre Cut

GLASS : Clear Float Double Glazed

HEIGHT FROM FLOOR : 900

WALL THICKNESS : 170

SILL LINER : TRUE

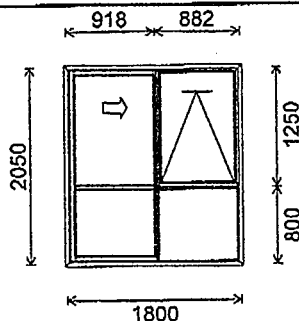
COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

10

W10 BEDROOM 3

1



FRAME COLOUR : To Be Advised FAB20

FLASHING : NO Flashing

FRAME TYPE : WeatherTight Series

TRIM SIZE : 2080mm x 1830mm

WIND ZONE : High

LINER : H3 Clear Pine 25mm

Architraved Mitre Cut

GLASS : Clear Float Double Glazed

BEADED PANEL : TRUE

HEIGHT FROM FLOOR : 0

WALL THICKNESS : 170

SILL LINER : TRUE

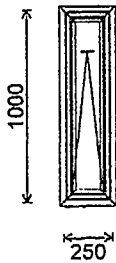
COMMENTS:

1 x Comp30 2 B Aria Wedgeless Low Profile Face Fix RH -
 1 x Comp30 2 B Aria Wedgeless Low Profile Face Fix LH -
 1 x Comp30 2 B ALBANY LOCKING COLOURS

11

W11 BEDROOM 3

1



FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
GLASS : Clear Float Double Glazed
HEIGHT FROM FLOOR : 1050
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : NO Flashing
TRIM SIZE : 1030mm x 280mm

LINER : H3 Clear Pine 25mm Architraved Mitre Cut

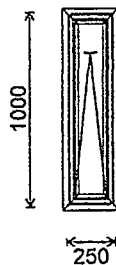
COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

12

W12 BEDROOM 3

1



FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
GLASS : Clear Float Double Glazed
HEIGHT FROM FLOOR : 1050
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : NO Flashing
TRIM SIZE : 1030mm x 280mm

LINER : H3 Clear Pine 25mm Architraved Mitre Cut

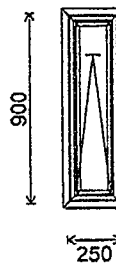
COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

13

W13 ENSUITE CLEAR

1



FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
GLASS : T4F/A4F
HEIGHT FROM FLOOR : 1100
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : NO Flashing
TRIM SIZE : 930mm x 280mm

LINER : H3 Clear Pine 25mm Architraved Mitre Cut

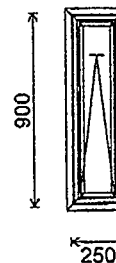
COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

14

W14 ENSUITE CLEAR SAFETY

1



FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
GLASS : T4F/A4F
HEIGHT FROM FLOOR : 1100
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : NO Flashing
TRIM SIZE : 930mm x 280mm

LINER : H3 Clear Pine 25mm Architraved Mitre Cut

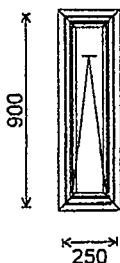
COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

15

W15 WIR

1



FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
GLASS : Clear Float Double Glazed
HEIGHT FROM FLOOR : 1100
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : NO Flashing
TRIM SIZE : 930mm x 280mm
LINER : H3 Clear Pine 25mm Architraved Mitre Cut

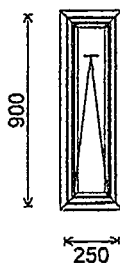
COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

16

W16 BATHROOM CLEAR SAFETY

1



FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
GLASS : T4F/A4F
HEIGHT FROM FLOOR : 1100
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : NO Flashing
TRIM SIZE : 930mm x 280mm
LINER : H3 Clear Pine 25mm Architraved Mitre Cut

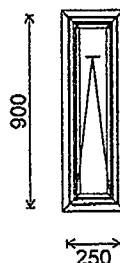
COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

17

W17 CLEAR SAFETY.

1



FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
GLASS : T4F/A4F
HEIGHT FROM FLOOR : 1100
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : NO Flashing
TRIM SIZE : 930mm x 280mm
LINER : H3 Clear Pine 25mm Architraved Mitre Cut

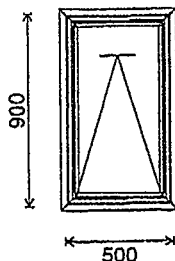
COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

18

W18 WC CLEAR SAFETY

1



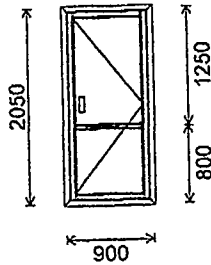
FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
GLASS : T4F/A4F
HEIGHT FROM FLOOR : 1100
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : NO Flashing
TRIM SIZE : 930mm x 530mm
LINER : H3 Clear Pine 25mm Architraved Mitre Cut

COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

19



LAUNDRY DOOR

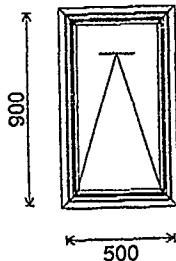
FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
LINER : H3 Clear Pine 25mm Architraved Mitre Cut
GLASS : Clear Float Double Glazed
OPEN : OPENIN
HEIGHT FROM FLOOR : 0
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : NO Flashing
TRIM SIZE : 2080mm x 930mm

COMMENTS:

1 x Comp30 2 B Aria LCL 4-point short-throw K/T -

20



W20 LAUNDRY

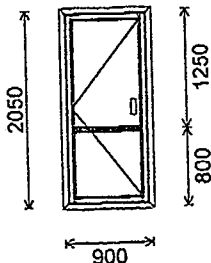
FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
LINER : H3 Clear Pine 25mm Architraved Mitre Cut
GLASS : Clear Float Double Glazed
HEIGHT FROM FLOOR : 1100
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : NO Flashing
TRIM SIZE : 930mm x 530mm

COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

21



W21 GARAGE DOOR SINGLE

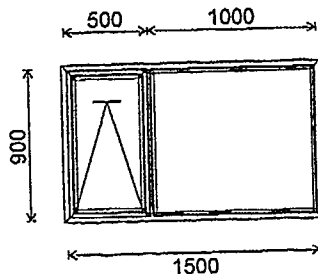
FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
LINER : H3 Clear Pine 25mm Architraved Mitre Cut
GLASS : A5F, T4F
OPEN : OPENIN
HEIGHT FROM FLOOR : 0
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : NO Flashing
TRIM SIZE : 2080mm x 930mm

COMMENTS:

1 x Comp30 2 B Aria LCL 4-point short-throw K/T -

22



W22 GARAGE SINGLE GLAZED

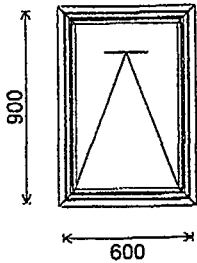
FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
LINER : H3 Clear Pine 25mm Architraved Mitre Cut
GLASS : Clear Float
HEIGHT FROM FLOOR : 1200
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : NO Flashing
TRIM SIZE : 930mm x 1530mm

COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

23



W23 KITCHEN

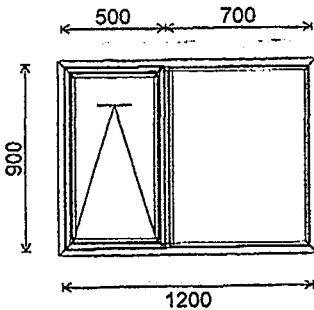
FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
LINER : H3 Clear Pine 25mm Architraved Mitre Cut
GLASS : Clear Float Double Glazed
HEIGHT FROM FLOOR : 1200
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : NO Flashing
TRIM SIZE : 930mm x 630mm

COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

24



W24 KITCHEN

FRAME COLOUR : To Be Advised FAB20
FRAME TYPE : WeatherTight Series
WIND ZONE : High
LINER : H3 Clear Pine 25mm Architraved Mitre Cut
GLASS : Clear Float Double Glazed
HEIGHT FROM FLOOR : 1100
WALL THICKNESS : 170
SILL LINER : TRUE

FLASHING : NO Flashing
TRIM SIZE : 930mm x 1230mm

COMMENTS:

1 x Comp30 2 B Aria Wedgeless High Profile Face Fix RH -

25

DELIVERY.
ONE DELIVERY TRIP ONLY INCLUDED.

26

INSTALLATION.
NO INSTALLATION OR FLASHINGS INCLUDED. NO WANZ PANS, CAVITY CLOSER OR SUPPORT BARS INCLUDED.

27

COLOUR.
STANDARD POWDER COAT COLOUR ONLY WITH MATCHING COLOURED HARDWARE.

28

REVEALS.
25 mm GROOVED PAINT GRADE REVEALS.

29

GLAZING.-
ALL CLEAR DOUBLE GLAZED EXCEPT GARAGE CLEAR SINGLE GLAZED.

Quote Comments

Number of Units = 24

I hereby accept this quotation for Aluminium Joinery as detailed above. I agree that the joinery is subject to the Conditions of sale which are printed on the reverse of this quotation and that these Terms & Conditions form the basis of the contract for supply between you and us. I also agree to settle my account in full.

THIS QUOTATION IS PROVIDED UNDER THE TERMS OF THE CONSTRUCTION CONTRACTS DELIVERY OR BY PRIOR ARRANGEMENT. PLEASE CHECK CAREFULLY. PRICE SUBJECT TO CLEAN ONLY. TIMBER PANELS ALL CARE NO RESPONSIBILITY.

Signed _____ Dated: ____/____/____

All Units are viewed from the outside.

This quotation is valid until 24 March 2008

MAINLAND PRENAIL LTD

PO BOX 16-323
16 YUKON PLACE
HORNBY, CHRISTCHURCH
PH-(03) 349 4354
FAX-(03) 349-4354
EMAIL-mainlandprenail@extra.co.nz

DATE: 13/2/08

JOB NAME: 685 Depot Road (mp 71101)

BUILDING CONCENT NO: _____
(Provided by relevant Consenting Authority at time of Consents application).

Attention: Territorial Authority
Environmental Services Unit

We have been engaged to provide the trusses and /or frames for the above project. To allow completion of the consent application we have supplied the following information:

- (a) Truss layout and Producer Statement.
- (b) Any slab thickening requirements detailed.
- (c) All truss loaded lintels that are either inside or outside the requirements of NZS3604:1999
- (d) All roof bracing details as required by NZS3604:1999.

On advice from the building project owner, the structure will be designed under the following parameters:

Wind Zone Very high Snow Load 0.575 kpa (ZONE 4)

Earthquake Zone Oxford Roof Material - _____

Treatment Definition: External Walls H1-2 msgr Roof Trusses CF msgr
Internal Walls H1-2 msgr Bottom plates 90x45x13 msgr.

We can advise that the following will be provided at the time of truss manufacture to both the building owner and your office;

- (1) A Full "as built" layout and producer statement
- (2) Specific truss/truss fixing done as per NZS3604:1999, Clause 10.2.2.6.1
- (3) Specific top plate to stud fixing that comply with NZS3604:1999, table 8.18
- (4) Specific lintel fixing outside NZS3604:1999.

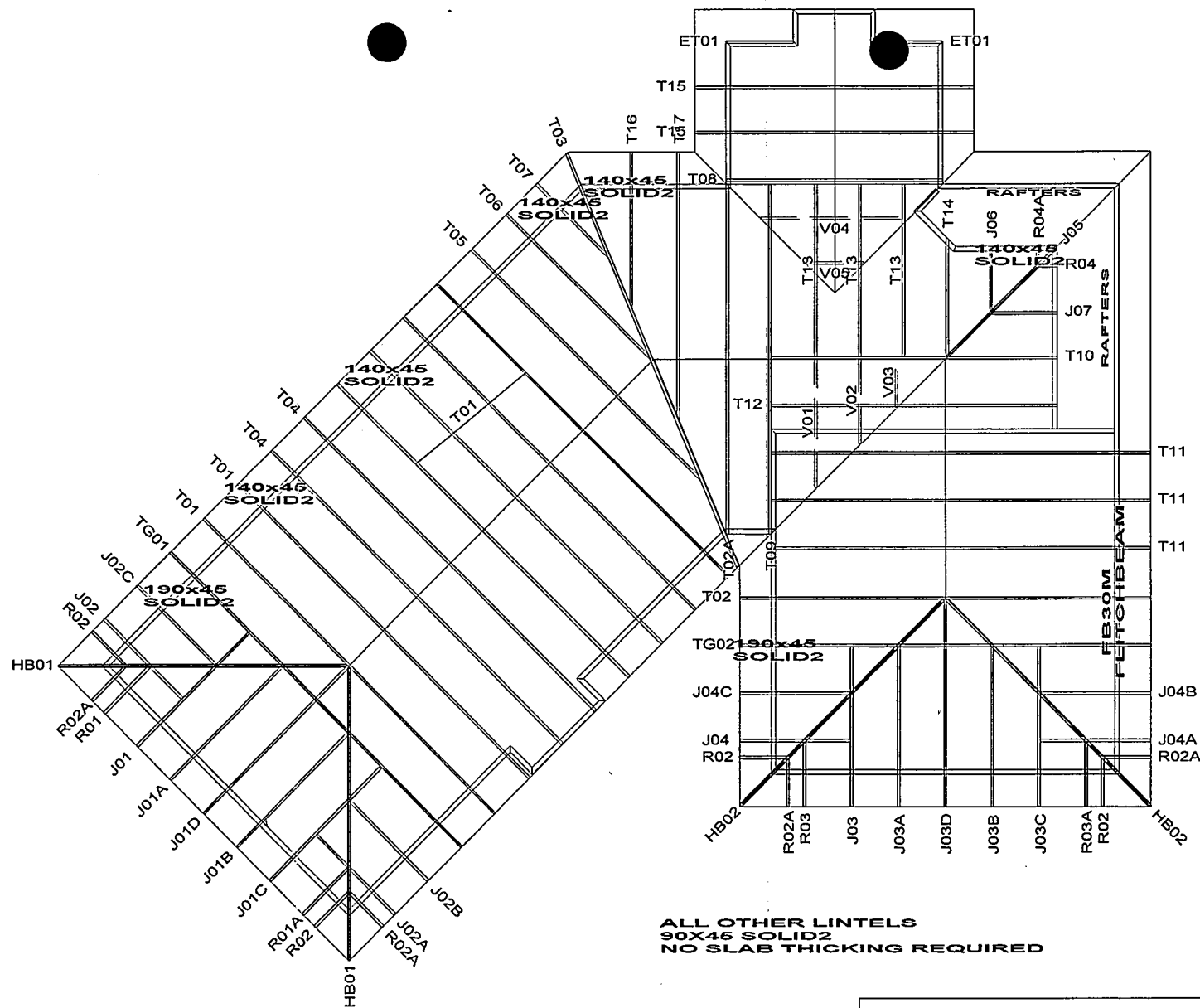
It should be noted that the details provided have been designed to comply with the Building Code and the relevant Standards. Any increase above these standards is only at the preference and request of the building owner.

Acknowledgement of this letter, along with the Building Consent number, is required by our company as soon as available.

Yours Faithfully



A. Orange
MAINLAND PRENAIL MANAGER



ALL OTHER LINTELS
90X45 SOLID2
NO SLAB THICKING REQUIRED

Mainland Prenail Ltd

16 Yukon Place
Hornby
Christchurch
New Zealand
Telephone: Ph: 03 349 4354
Fax:

Name: Buildbest Constuction
Address: 685 Depot Rd
Oxford

Telephone:

Job: Building Consent No.:
MP71101

File location: C:\Mile_Bu52\Jobs\MP71101\

Scale: 1 : 120

Date: 28/01/2008

Drawn By: Richard Cane

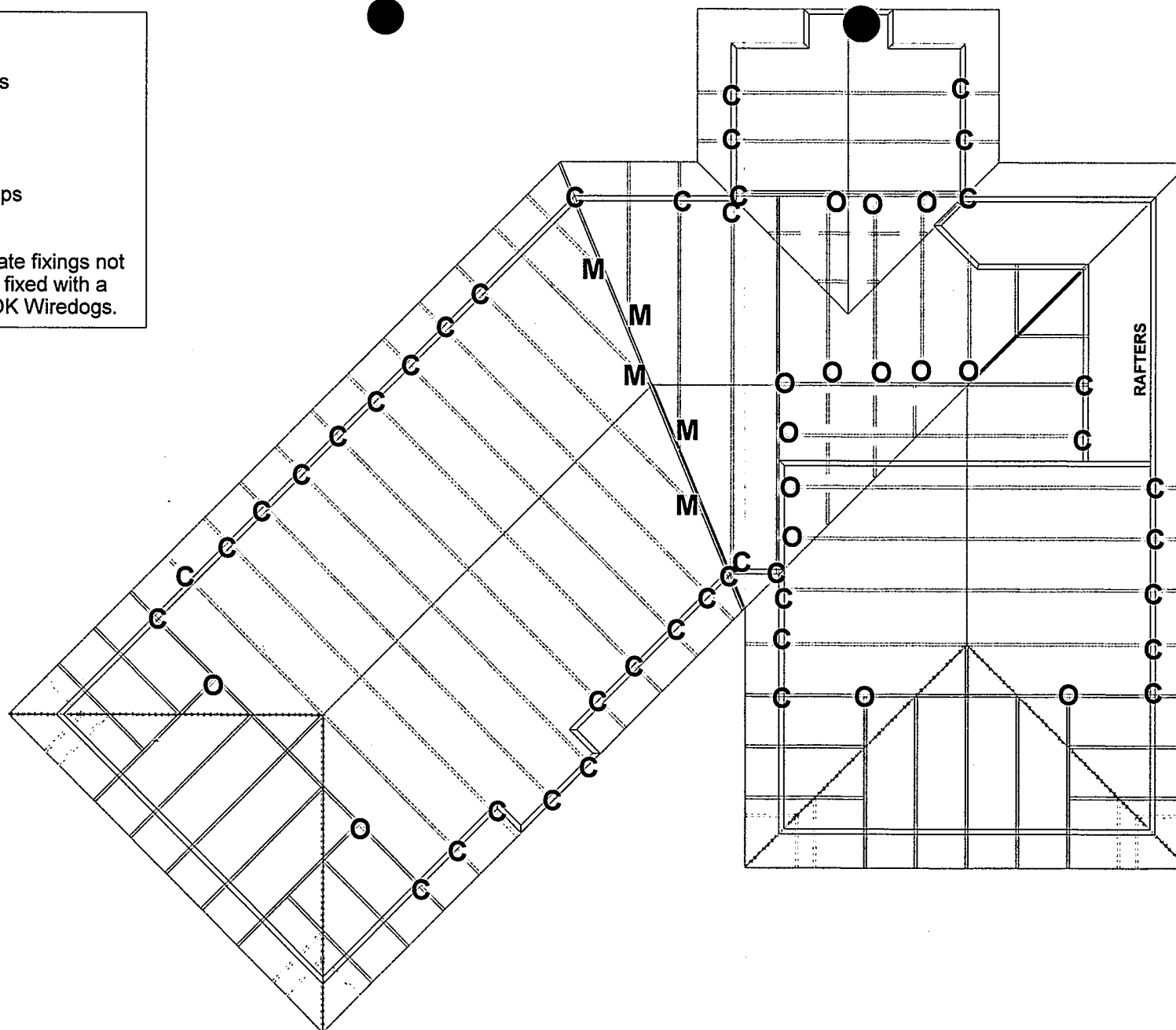
Job Details:

Snow Zone:	Zone 4	Snow Altitude:	110 m
Wind Area:	Very High	Design Wind Speed:	50.0 m/s
TC Restraints:	900 mm	BC Restraints:	400 mm
Roof Material:	Galv Iron .5mm	Ceiling Material:	Standard
Roof Live Load:	0.250 kPa	Snow Load:	0.575 kPa
Roof Pitch:	27.500 deg	Truss Centres:	900 mm

Key

C - Pair of CT200's
 \ - CT600
 O - JH 47 x 90
 V - JH 47 x 120
 # - JH 95 x 165
 M - Pair of Multigrips
 X - Pair CPC80s

All Truss to Top Plate fixings not indicated are to be fixed with a pair of LUMBERLOK Wiredogs.



A4

Mainland Prenail
 16 Yukon Pl
 Hornby
 Christchurch
 Ph 03 349 4354

Job Title :

685 Depot Rd Oxford

Sheet Title :

Truss Fixing

Date : 13-2-08

Designed RC

Checked :

Scale : NTS

Drawn RC

Certified :

PrimeCAD V4.3

Drawing Number :

MP71101

Sheet :

1/1

Job: MP71101

Client: Buildbest Construction
Phone:Site: Broken River Trust
685 Depot Rd
OxfordDescription:
Building Consent No.:
MiTek 20/20 - Engineering 4.4 Gamma1.5 (build 1597-53)

Phone:

Printed: 12/28/06 12 Feb 2008

PRODUCER STATEMENT**MiTek 20/20™ TRUSS DESIGN PROGRAM****Certification of MiTek 20/20™ Truss Design Program**

The MiTek 20/20™ truss design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL timber roof, floor and attic trusses in New Zealand. The truss designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents of the New Zealand Building Code to satisfy the requirements of the Building Regulations 1992: Clause B1 - Structure. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

Summary of MiTek 20/20™ Truss Design Data and Output

The MiTek 20/20™ computer design output for this job titled and located at the site identified on the top of this page is based on the following parameters entered into the program. The owner must ensure that the following job details below are current and relevant to the project before fabrication and erection of the GANG-NAIL trusses.

Job Details

Roof Truss			
Timber Group:	MSGx45	Pitch:	27.500 deg
Roof		Ceiling	
Material:	Galv Iron .5mm	Material:	Standard
Dead Load:	0.210 kPa	Dead Load:	0.200 kPa
Restraints:	900 mm centres	Restraints:	400 mm centres
Live Load:	Q _r = 0.250 kPa		
	Q _c = 1.000 kN		
		Std Overhang:	600 mm
		Wind	
		Area:	Very High (50.0 m/s)
		Pressure Coeff:	C _{pe} = varies; C _{pi} = -0.30, 0.20
		Snow	
		Location:	Zone 4 at 110 m
		Open Ground Load:	0.575 kPa
		Basic Roof Load:	0.575 kPa

These trusses must be fabricated and erected in accordance with the GANG-NAIL manual. Proper erection bracing must be installed to hold the components 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. The specifications for timber shall be as shown on the output. The timber shall be standard gauged and treated to the requirements of NZS 3640:2003. Unless otherwise noted, this design assumes that the steel fixings and timber connectors are situated in a closed environment, as defined by NZS3604:1999 Section 4.

Truss List

Legend: * = detail only, ? = input only, ~~FX~~ = failed design, Unmarked trusses = designed successfully, LB = lateral bracing 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)
J05	1	2974	20.208	900	J01B	1	2428	27.500	900	R04A	1	363	27.499	900
T01	6	6700	27.500	900	J01C	1	2428	27.500	900	T06	1	3308	27.500	900
T02	1	6680	27.500	900	J01D	1	2428	27.500	900	T07	1	1366	27.500	900
T02A	1	6680	27.500	900	J02	1	1528	27.500	900	T13	3	3295	27.500	839
T03	1	7233	25.685	900	J02A	1	1528	27.500	900	T14	1	2293	27.500	839
T04	2	6592	27.500	900	J02B	1	1528	27.500	900	T16	1	2393	27.500	900
T05	1	5635	27.500	900	J02C	1	1528	27.500	900	V01	1	2456	27.500	900
T08	1D	4160	27.500	900	J03	1	2417	27.500	900	V02	1	1617	27.500	900
T09	1	6680	27.500	900	J03A	1	2417	27.500	900	V03	1	913	27.500	900
T10	1	5488	27.500	900	J03B	1	2417	27.500	900	V04	1	2810	27.500	900
T11	3	6680	27.500	910	J03C	1	2417	27.500	900	V05	1	1100	27.500	900
T12	1	5488	27.500	910	J03D	1	2417	27.500	900	*HB01	2	5554	20.208	900
T15	2	4160	27.500	855	J04	1	1517	27.500	900	*HB02	2	5540	20.208	900
T17	1	4566	27.500	900	J04A	1	1517	27.500	900	*R01	1	1241	27.500	900
TG01	1	6700	27.500	900	J04B	1	1517	27.500	900	*R01A	1	1241	27.500	900
TG02	1	6680	27.500	900	J04C	1	1517	27.500	900	*R02	4	913	27.500	900
ET01	2	1290	27.500	900	J06	1	1263	27.500	900	*R02A	4	913	27.500	900
J01	1	2428	27.500	900	J07	1	1261	27.500	900	*R03	1	1230	27.500	900
J01A	1	2428	27.500	900	R04	1	361	27.500	900	*R03A	1	1230	27.500	900

Total quantity : 77

Phone:

Printed: 12:28:05 12 Feb 2008

Signed: Date:
Name: Company:



A division of Terry Young Ltd , New Zealand

INSTALLATION INSTRUCTIONS for WEGJ 2000 FREESTANDING WOODBURNER

APRIL 2007

TESTED in compliance with AS/NZS 2918: 2001

- A. Yunca recommends that competent trades persons carry out all installations (e.g. NZHHA Registered Installer), to obtain maximum performance and safe, efficient heating.
- B. A permit is required and we suggest you check with local building inspectors as by-laws do vary from area to area.
Also notify your Insurance Company that a solid fuel heater has been installed.

C. Floor Protector –

1. Must extend a minimum of 300mm in front of the door aperture.
2. Must extend at least 100mm from each side of the heater.
3. Ash Floor Protector must be constructed of non-combustible materials, with a minimum thickness of 12mm.

- D. Seismic restraint – Heater must be restrained from seismic movement as required by NZS 7421, 10mm diameter bolting holes in the rear corners allow restraint.

- E. Manufacturers recommended tested minimum clearances from combustible walls.

Tested to AS/NZS 2918 : 2001 by APPLIED RESEARCH SERVICES		Clearance
Rear Clearance (with YUNCA flue shield fitted)		100mm
Side Clearance (with YUNCA flue shield fitted)		200mm
Corner Clearance (with YUNCA flue shield fitted)		30mm
Rear Clearance (without YUNCA flue shield)		350mm
Side Clearance (without YUNCA flue shield)		200mm
Corner Clearance (without YUNCA flue shield)		140mm

F. YUNCA Flue Kit (Tested to AS/NZS 2918:2001 Appendix F): FIG A, B & E

1. 4.2m x 150mm stainless steel flue.
2. 2.4m x 250mm galvanised liner.
3. 1 x ceiling tile.
4. 1 x insulation boundary shield.
5. 3 x spider brackets.
6. 1 x weather cap & cowl.

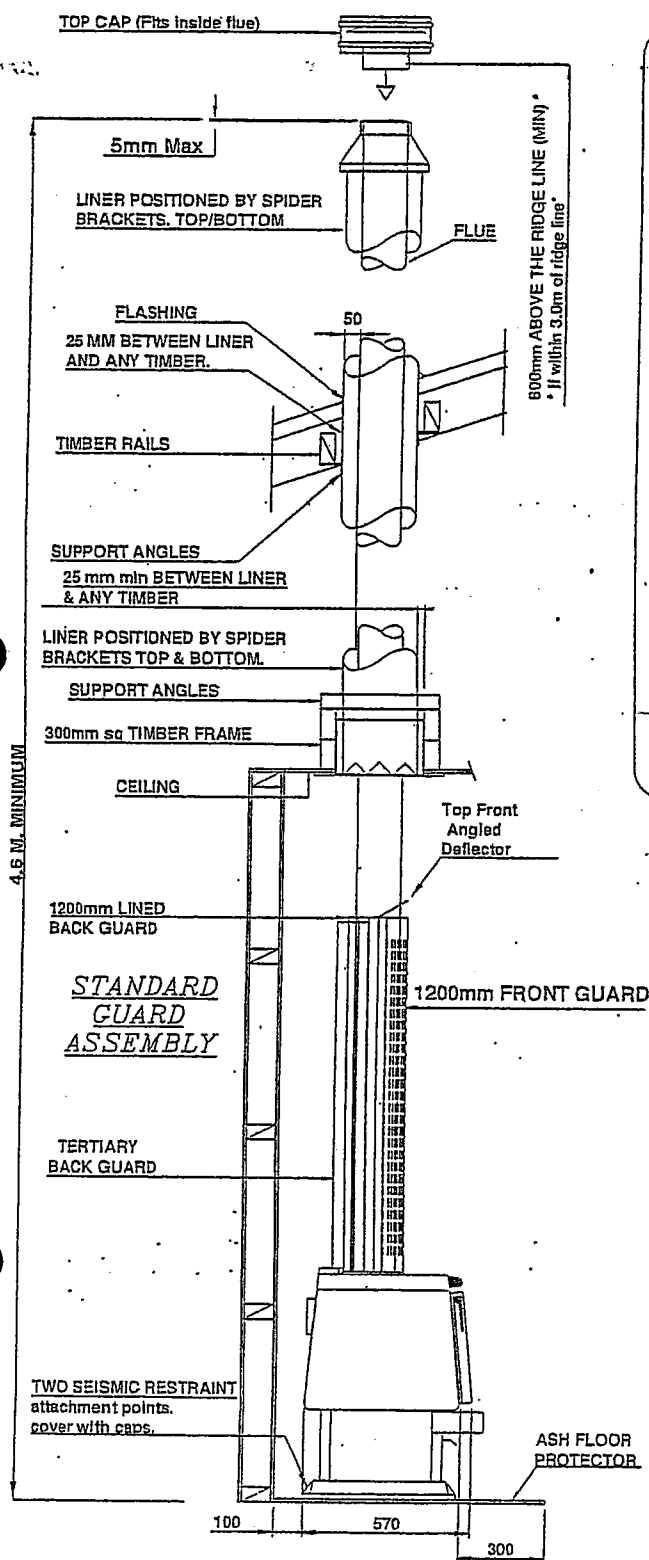
Please Note: All joints must be sealed with flue sealing compound. Use stainless steel screws or rivets to join the flue pipe (three equally spaced places at each joint). The first length of flue pipe must be screwed to flue spigot. The required minimum flue termination height is 4.6 m above the floor protector.

G. WEGJ Flue Mounted Shield (Flue Guard) Kit (Tested to AS/NZS 2918:2001): FIG A

- 1 x 1200mm length lined back guard, plus an optional adjustable 900mm extension.
- 1 x 1200mm length perforated front guard.
- 1 x 1200mm length tertiary back guard with spacers.
- 1 x top front deflector shield (half round shaped, angled when installed).

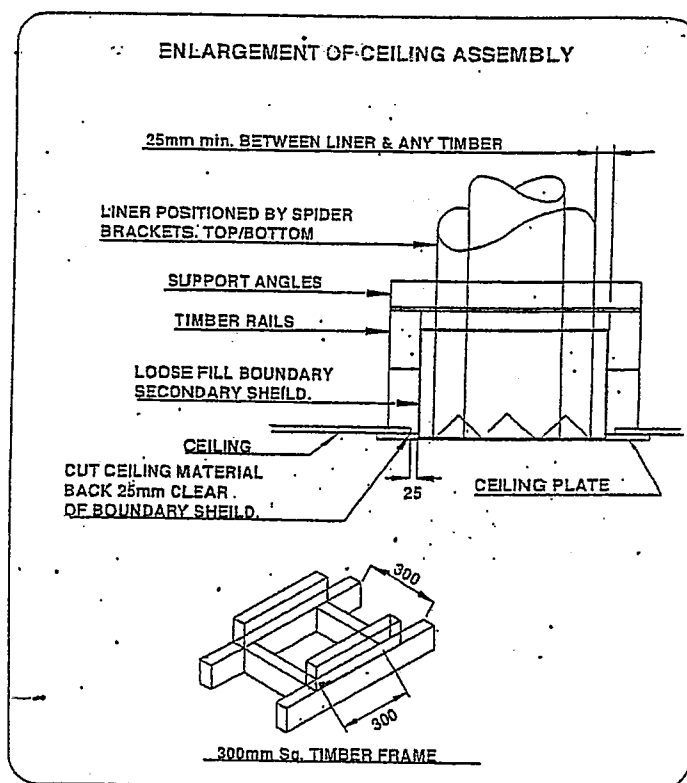
Please Note: The minimum Flue Guard Height is 1200mm.

WEGJ – TYPICAL FLUE INSTALLATION (drawings on the following pages are not to scale)
FIG A



Note: All Dimensions are in millimetres.

FIG B



CONDITIONS FOR FLUES (Refer Fig. E)

1. The FLUE shall extend to:

Not less than 600mm above the highest point on the roof if within 3.0m of that point.

Not less than 1000mm above the intersection point with the roof and not lower than any point of the roof within 3.0m.

In any case the length of the flue shall not be less than 4.6m from the ash floor protector.

In some situations the Local Council may vary the above requirements.

2. All parts of the chimney exposed to the outside air shall be suitably insulated in accordance with the manufacturers' recommendations.

When loose-fill insulation is used in the adjacent ceiling space, maintain clearance between the secondary shield and the loose-fill insulation by provision of a boundary extending 200mm above the ceiling top surface.

This non-combustible boundary shield shall be capable of preventing accidental migration of the loose-fill by any action of wind or by persons moving in the ceiling space.

FIG.C: WEGJ HEATER DIMENSIONS AND WATER BOOSTER POSITIONS (not to scale)

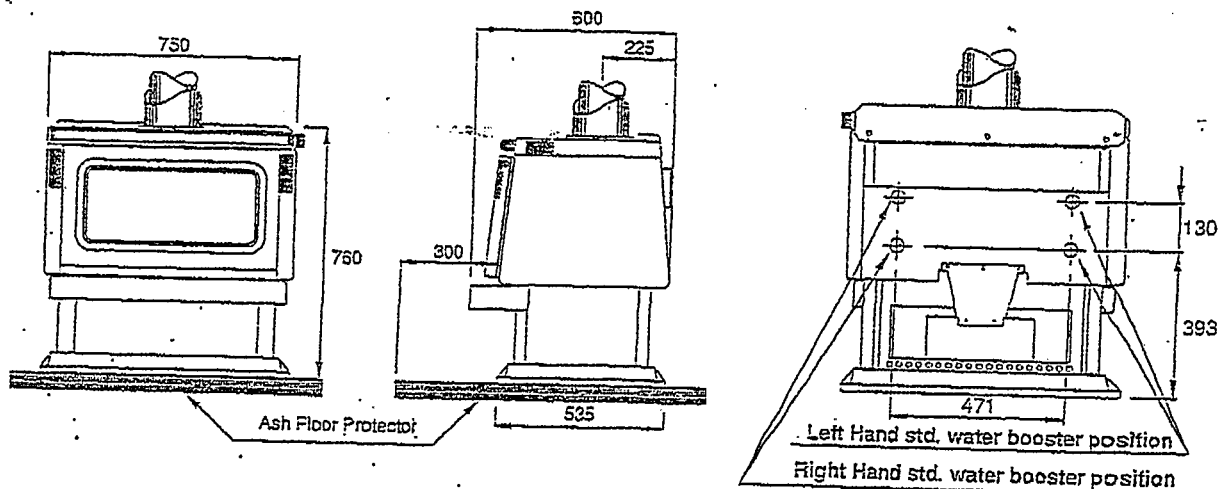
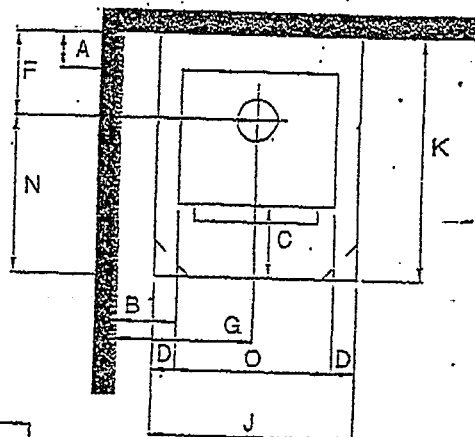
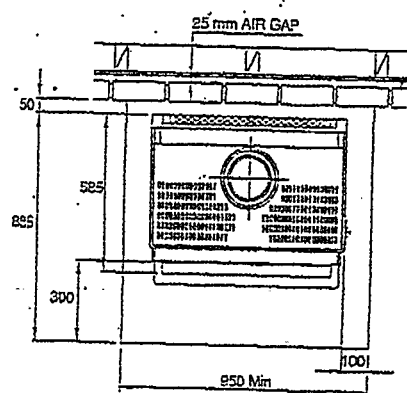


FIG.D: HEATER POSITION (not to scale)



Above: Non combustible wall clearances. Brick lining from floor to within 25mm of ceiling. Leave air vents at the bottom to allow airflow in the cavity. If Yunca flue mounted shield is fitted, brickwork may be 1200mm high as long as all vertical joints in top and bottom of brickwork are left out to allow airflow when brickwork is capped.

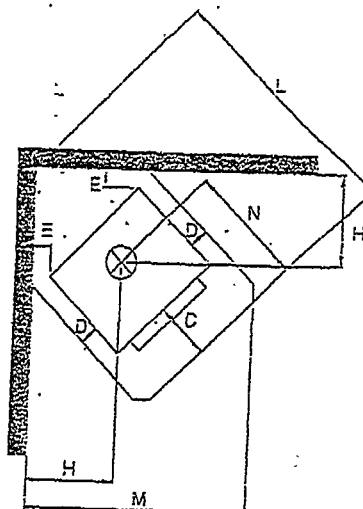
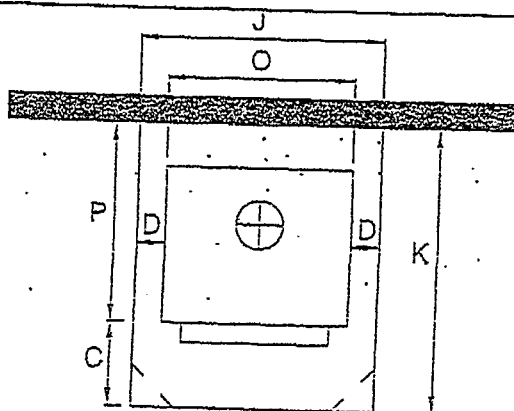


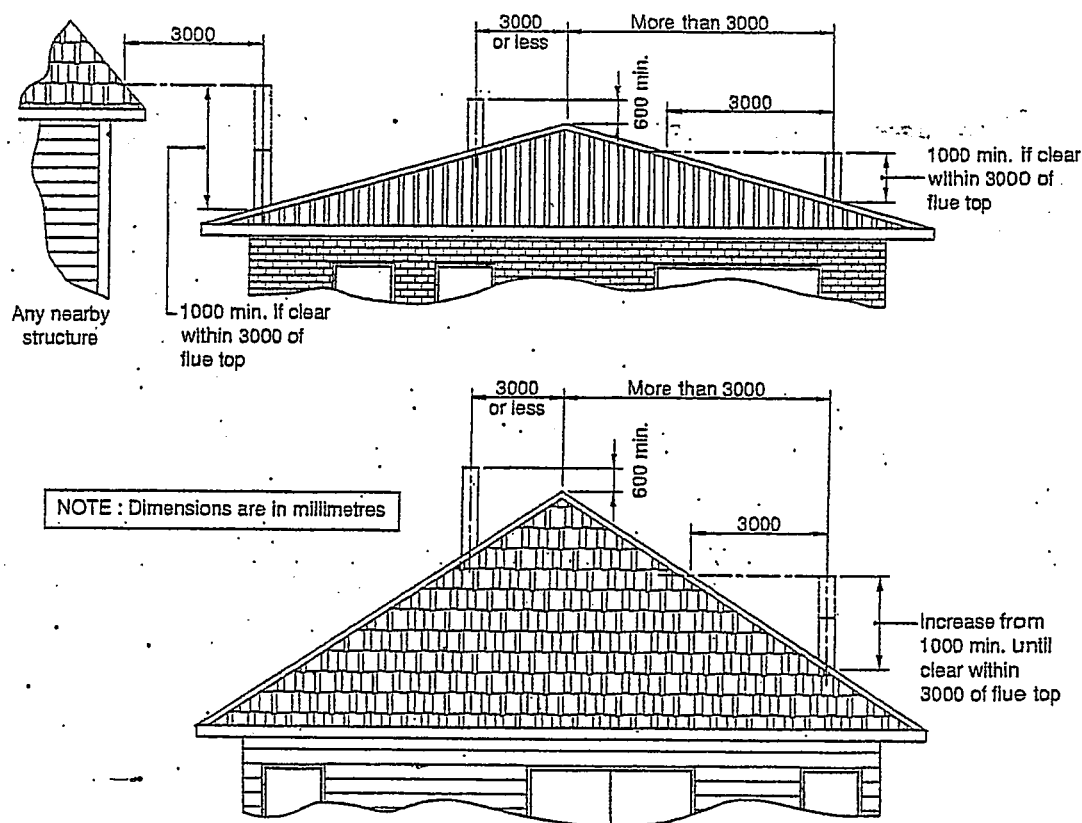
FIG D: MINIMUM FIRE TO COMBUSTABLE WALL CLEARANCES - WEGJ (WITH YUNCA FLUE MOUNTED SHIELD FITTED). Measurements in millimetres.

A	B	E	F	G	H
100	200	30	325	575	454

FIG D: MINIMUM FLOOR PROTECTION MEASUREMENTS (WITH YUNCA FLUE MOUNTED SHIELD FITTED). Measurements in millimetres.

C	D	J	K	L	M	N	O	P
300	100	950	935	1247	1147	610	750	635

FIG E: FLUE SYSTEM REQUIREMENTS (not to scale)



MINIMUM HEIGHT OF FLUE SYSTEM EXIT

IMPORTANT INFORMATION

- A. The appliance and flue system shall be installed in compliance with AS/NZS 2918 and the appropriate requirements of the relevant building code or codes.
- B. Appliances installed in accordance with this standard shall comply with the requirements of AS/NZS 4013 where required by the regulatory authority i.e. the appliance shall be identifiable by a compliance plate with the marking "TESTED TO AS/NZS 4013"
- C. Any modification of the appliance that has not been approved in writing by the testing authority is considered to be in breach of the approval granted for compliance with AS/NZS 4013
- D. Mixing of appliance or flue system components from different sources or modifying the dimensional specification of components may result in hazardous conditions. Where such action is considered, the manufacturer should be consulted in the first instance.
- E. Cracked and broken components e.g. glass panels or fire bricks, may render the installation unsafe.

IF A WATERBOOSTER IS FITTED:

Note: A water booster cannot be fitted in some Clean Air zones (check local council regulations)

- A. Do not connect to an unvented hot water system
- B. Install in accordance with AS 3500.4.1 or NZS 4603 and the appropriate requirements of the relevant building codes.

Seismic Restraint

Secure the heater base to the hearth or sub-framing with Dynabolts or similar.
Follow local Council's Specifications.

TWO STORY BRICK VENEER SYSTEM TECHNICAL SPECIFICATION

Approved Application

Plan PIM

080258
13/3/08

BRANZ
Appraisal
Certificate
No. 521
(2006)

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1.0 General Information

1.1 Introduction

The Two Storey Brick Veneer System is a 70, 76, 80 or 90 mm natural clay brick veneer external wall cladding system for two storey residential and light commercial type buildings where domestic construction techniques are used.

The Two Storey Brick Veneer System allows brick veneer cladding to be erected to a height greater than that specified by NZS 3604 by incorporating a slip joint system that effectively structurally separates the veneer at an intermediate height. This separation then allows the top and bottom panels to move independently should a major earthquake event occur, thereby minimising the likelihood of structural damage to the veneer.

This technical specification gives guidance to designers on how to construct two storey brick veneer houses without having to consult a structural engineer for a specific design.

1.2 BRANZ Appraisal

The Two Storey Brick Veneer System has been appraised by BRANZ. Refer to Appraisal Certificate No. 521 (2006).

GALINTEL[®]

New Multi-Ribbed Section Angle

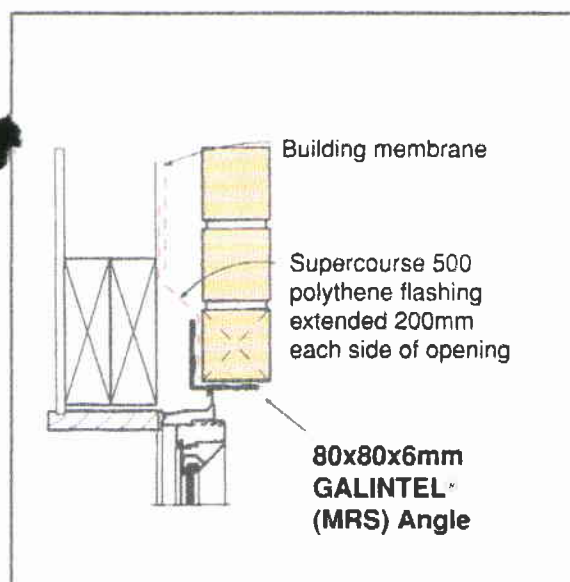
Galintel[®] PTY LTD has developed a New Multi-Ribbed Section (MRS) Angle suitable for door and window openings. This new light weight, structurally superior lintel provides an excellent surface for rendering. A wide range of spans are available.

Features & Benefits

- Cost effective and light weight
- Easy and quick to install
- Life long protection against corrosion
- Superior strength through composite action
- Unique Multi-Ribbed section bonding to brick and mortar mix.

Superior Structural Rigidity

The ribs on the upper side of the Galintel[®] MRS Angle, the mortar and brickwork above, bond to form a composite beam of superior structural rigidity.



Fully Hot Dip Galvanised

Each Galintel[®] MRS Angle is hot-dip galvanised to Australian/New Zealand Standard AS/NZS 4680-1999 to ensure that all surfaces of the lintel are fully protected.

Compliance with Building Codes

Galintel[®] MRS Angles have been thoroughly tested for strength and structural adequacy to ensure compliance with all relevant Australian and New Zealand building codes by Unisearch Limited, the research and development company of the University of New South Wales, Australia.

Propping

Galintel[®] MRS Angles must be propped until the mortar is cured to ensure level alignment in accordance with common practice.

Guaranteed

All Galintel[®] MRS Angles are guaranteed to be free from defects in material and workmanship.

GALINTEL MRS Angles 80x80x6

THICKNESS OF BRICK VENEER (mm)

Maximum Lintel span (mm) up to	Maximum height of veneer supported (mm)					
	70			90		
	350	700	2000	350	700	2000
2000	80x80x6	80x80x6	80x80x6	80x80x6	80x80x6	80x80x6
2200	80x80x6	80x80x6	80x80x6	80x80x6	80x80x6	100x100x6
2400	80x80x6	80x80x6	100x100x6	80x80x6	80x80x6	100x100x6
2800	80x80x6	80x80x6	N/A	80x80x6	80x80x6	N/A
3000	80x80x6	80x80x6	N/A	80x80x6	100x100x6	N/A
3600	80x80x6	100x100x6	N/A	100x100x6	N/A	N/A

NOTE: Seating each side. Span less than 1000mm - 100mm
(End bearing) Span more than 1000mm - 150mm



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 Christchurch NZ 8002
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 Free Phone 0508 447 284

1.3 Approved Clay Bricks

The Two Storey Brick Veneer System uses natural clay bricks from the following manufacturers:

Austral Brick Company Pty. Ltd:

- Type A - 230 x 76 x 70 mm
- Type B - 230 x 119 x 70 mm
- Type C - 230 x 162 x 70 mm
- Type D - 290 x 162 x 70 mm
- Type E - 230 x 110 x 76 mm
- Type F - 290 x 162 x 90 mm

Canterbury Clay Bricks:

- Type A - 230 x 76 x 70 mm
- Type B - 230 x 115 x 70 mm
- Type C - 230 x 156 x 70 mm
- Type D - 290 x 160 x 76 mm

Clay Bricks Ltd:

- Type A - 230 x 78 x 70 mm
- Type B - 230 x 156 x 70 mm
- Type C - 350 x 200 x 70 mm
- Type D - 350 x 156 x 70 mm
- Type E - 350 x 78 x 70 mm
- Type F - 350 x 78 x 80 mm
- Type G - 350 x 156 x 80 mm
- Type H - 350 x 200 x 80 mm

Midland Brick Company:

- Type A - 230 x 76 x 70 mm
- Type B - 230 x 112 x 70 mm
- Type C - 230 x 119 x 70 mm
- Type D - 230 x 162 x 70 mm
- Type E - 290 x 119 x 90 mm
- Type F - 290 x 162 x 90 mm
- Type G - 305 x 162 x 70 mm
- Type H - 305 x 162 x 90 mm

South Tile Limited:

- Type A - 230 x 76 x 70 mm
- Type B - 230 x 152 x 70 mm
- Type C - 230 x 162 x 70 mm
- Type D - 230 x 76 x 90 mm
- Type E - 230 x 119 x 90 mm
- Type F - 230 x 162 x 90 mm

Note: If brick product other than listed above is to be used, this technical specification and the BRANZ Appraisal become null and void.

Building Consent documents must clearly be marked with the selected brick veneer when specifying the Two Storey Brick Veneer Systems.

1.4 Veneer Weights

The approximate weights for the various veneer depths are as follows:

- | | |
|--|--|
| ■ 70 mm veneer - 140 kg/m ² | ■ 76 mm veneer - 152 kg/m ² |
| ■ 80 mm veneer - 160 kg/m ² | ■ 90 mm veneer - 180 kg/m ² |

1.5 Packaging, Handling and Storage

Bricks are either packaged in plastic and delivered on pallets or delivered as strapped packs.

They must be handled with care to avoid physical damage, particularly to corners and edges, and must be stored so that they are protected from the weather.

Components such as brick ties, lintels and shelf angles must be handled so as to avoid damage. They must also be stored in dry locations protected from the weather.

2.0 Design Information

2.1 Design Responsibility

The Specifier for the project must ensure that the details in this literature are suitable for the intended application and that additional detailing is provided for specific design or any areas that fall outside the scope and specifications of this literature.

2.2 Scope

This technical specification covers the use of the Two Storey Brick Veneer System as an external wall cladding for buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1 Paragraph 1.1 in terms of floor area, and with a maximum of two stories; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1 Table 2; and,
- with timber framing constructed on slab-on-ground in accordance with NZS 3604 and/or concrete masonry constructed in accordance with NZS 4229; and,
- with a maximum veneer height of 7 m above the supporting foundation, except that at gable ends this height is measured to the mid-point of the gable, and a maximum height of 2.4 m above a roof line; and,
- with a depth of cavity of between 40 mm and 60 mm; and,
- with a minimum plan veneer length of 300 mm; and,
- situated in NZS 3604 Building Wind Zones up to and including 'Very High'.

The Two Storey Brick Veneer System must only be installed on vertical surfaces.

The Two Storey Brick Veneer System is appraised for use with aluminium window and door joinery that is installed with vertical jambs and horizontal heads and sills. *(The Two Storey Brick Veneer System relies on the joinery meeting the requirements of NZS 4211 for the relevant Building Wind Zone).*

For applications which are outside the scope of this literature and details which are not in this literature the specifier must ensure that the design meets the relevant performance requirements of the NZBC.

It is recommended that professional design advice is sought in these circumstances.

2.3 Building Regulations

The Two Storey Brick Veneer System if designed, used and installed in accordance with the statements and conditions of this literature and the supporting BRANZ Appraisal, will meet the following provisions of the New Zealand Building Code:

- Clause B1 Structure
- Clause B2 Durability
- Clause C3 Spread of Fire
- Clause E2 External Moisture
- Clause F2 Hazardous Building Materials

2.4 Foundations

Foundations supporting the Two Storey Brick Veneer System shall consist of concrete slab-on-ground systems complying with either NZS 3604 or NZS 4229, or be to specific design in accordance with NZS 4203.

The foundation recess shall have a minimum depth of 50 mm. The width of the ledge on which the brick veneer sits shall be minimum 110 mm for 70 mm bricks and minimum 130 mm for 80 and 90 mm bricks to permit a minimum 40 mm cavity between the veneer and the wall frame. Where required, bricks may overhang the face of the foundation by 10 mm maximum.

Refer to Detail No. 1 for further guidance on the installation of the Two Storey Brick Veneer System at foundation level.

2.5 Structure and Framing

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 NZS 4203. Where specific design is required, the framing must be of at least equivalent stiffness to the framing provisions of NZS 3604. Use of timber framing must be in accordance with framing manufacturer's specifications.

All timber framing, including studs, floor joists and lintels must be kiln dried to a maximum of 18% moisture content and must be treated to a minimum of H1.2 as defined in NZS 3602:2003 Timber and wood-based products for use in building.

Walls to which the veneer is attached must be constructed from actual minimum dried size 90 x 45 mm, VSG8 or MSG8, or better, timber framing. Studs must be at maximum 400 mm centres.

Note: *Ensure that timber framing is kept as dry as possible during all stages of the construction. Water should not be allowed to pond on floors for any length of time.*

2.5.1 Structural Beams

Where the Two Storey Brick Veneer System is not continuous down to the foundation and is supported on a structural beam, a Chartered Professional Engineer shall specifically design the beam. It is recommended that for beam spans of more than 1 metre, the beam is designed in steel to reduce creep deflections. Long term deflections of the beam shall be limited to span/500.

2.6 Framing Tolerances

In order to achieve an acceptable wall finish, it is imperative that framing is straight and true. Framing tolerances must comply with the requirements of NZS 3604:1999.

2.7 Veneer Lintel Angles

Veneer lintel angles are required wherever the Two Storey Brick Veneer System continues above an opening in the exterior wall, e.g. a window or door.

Veneer lintel angles must comply with the durability requirements of AS/NZS 2699.3:2002

Built-in components for masonry construction - Lintels and shelf angles (durability requirements).

Lintel angles shall be sized in accordance with Tables 1, 2, 3 and 4. Tables 1 and 2 shall be used where there is continuous clay brick veneer above an opening, and Tables 3 and 4 shall be used where there are openings in the veneer over a lower opening.

Note: The maximum height of clay brick veneer above a lintel opening is 3 m.

Table 1: Veneer lintel angles for 70 mm bricks where the brick over the opening is continuous

Max clear width between brick – lintel span	Size of lintel	Maximum height supported
<1.8m	60 x 60 x 6	3.0m
<2.4m	80 x 80 x 6	3.0m
<3.0m	125 x 75 x 8	3.0m
>3.0m	SED	-

Note: The 125 x 75 x 8 lintel shall be installed with the long leg vertical.

SED = Specific Engineering Design

Table 2: Veneer lintel angles for 90 mm bricks where the brick over the opening is continuous

Max clear width between brick – lintel span	Size of lintel	Maximum height supported
<1.6m	60 x 60 x 6	3.0m
<2.2m	80 x 80 x 6	3.0m
<3.0m	125 x 75 x 8	3.0m
>3.0m	SED	-

Note: The 125 x 75 x 8 lintel shall be installed with the long leg vertical.

SED = Specific Engineering Design

Table 3: Veneer lintel angles for 70 mm bricks where the brick over the opening is NOT continuous

Max clear width between brick – lintel span	Size of lintel	Maximum height supported
<1.2m	60 x 60 x 6	3.0m
<2.0m	80 x 80 x 6	3.0m
<2.5m	125 x 75 x 8	3.0m
<2.8m	125 x 75 x 8	2.4m
<3.0m	125 x 75 x 8	2.0m

Note: The 125 x 75 x 8 lintel shall be installed with the long leg vertical.

Table 4: Veneer lintel angles for 90 mm bricks where the brick over the opening is NOT continuous

Max clear width between brick – lintel span	Size of lintel	Maximum height supported
<1.2m	60 x 60 x 6	2.4m
<2.0m	80 x 80 x 6	2.4m
<2.5m	125 x 75 x 8	3.0m
<2.8m	125 x 75 x 8	2.4m
<3.0m	125 x 75 x 8	2.0m

Note: The 125 x 75 x 8 lintel shall be installed with the long leg vertical.

The seating of veneer lintel angles for the Two Storey Brick Veneer System shall be in accordance with Table 5.

Table 5: Lintel angle seating

Span of opening	Seating mm
≤ 2m	100mm
> 2m	200mm

2.8 Shelf Angles

Where the Two Storey Brick Veneer System continues above a roof line (as will typically occur in two storey construction), they will either be supported on a horizontal shelf angle with a skirt roof below, or on a sloping shelf angle adjacent to the sloping roof plane (Refer to Detail No's. 2, 3, 4 and 5).

Other situations where a shelf angle will be required include:

- Veneer being supported above a large opening outside the scope of Tables 1, 2, 3 and 4

Shelf angles must comply with the durability requirements of AS/NZS 2699.3:2002. *Built-in components for masonry construction - Lintels and shelf angles (durability requirements).*

The maximum allowable height of brick veneer with a mass of 140 kg/m² above a shelf angle is 2.4 m. The maximum allowable height of brick veneer with a mass of 180 kg/m² above a shelf angle is 1.8 m when the studs are at 400 mm centres, or 2.4 m when the studs are at 300 mm centres.

Shelf angles shall be sized in accordance with Table 6 and shall be fixed to the timber framing studs with 90 x 10 mm galvanised or stainless steel coach screws (depending on the durability requirements) to each stud.

Holes drilled in the shelf angles for the coach screw fixings shall be 11 mm in diameter and be located 25 mm down from the top of the angle to the centre of the hole. Where the coach screw is required to penetrate through plywood sheathing or similar, the length of the screw shall be increased by the thickness of the sheathing. It is recommended that the holes drilled through the shelf angle are coated with metal primer or cold galvanising paint.

Where wall framing supporting brick veneer above shelf angles is not directly supported by walls on foundations or slab thickenings, a Chartered Professional Engineer shall specifically design the support structure to carry the load of the clay brick veneer. It is recommended that for beam spans of more than 1 metre, the beam is designed in steel to reduce creep deflections. Long term deflections of the beam shall be limited to span/500.

Note: The maximum height of clay brick veneer above a shelf angle is 2.4 m.

Table 6: Shelf angles

Brick Veneer	Shelf Angle Size
70 mm	100 x 75 x 8 mm
90 mm	125 x 75 x 8 mm

2.9 Brick Ties and Fixings

Brick ties and fixings shall be Lumberlock or Eagle (minimum EM Classification) screw ties complying with AS/NZS 2699.1 for 70 or 90 series bricks as appropriate. Ties shall be either hot-dip galvanised or Grade 316 stainless steel to comply with the durability requirements of NZS 4210 Table 2.E1. Screws shall be either hot-dip galvanised or Grade 316 stainless steel, 35 mm x 12g Type 17 hex head screws for timber.

Brick ties may be 'dry bonded', i.e. they may be laid on the top of the brick and then covered with mortar. There is no requirement for the ties to be laid in the middle of the mortar course as required by NZS 3604:1999 Timber Framed Buildings.

Brick ties shall be installed with a 5° down slope away from the wall frame to the brick veneer.

2.9.1 Brick Tie Spacing

Brick ties shall comply with the requirements of NZS 4230:2004. *Design of reinforced concrete masonry structures, NZS 4210:2001 Masonry Construction: Materials and workmanship, AS/NZS 2699.1:2000 Built-in components for masonry construction - Wall ties*, and as noted below. Specific criteria for the maximum spacings of wall ties for the various situations of brick are:

2.9.1.1 Clay Brick Veneer up to 4 m in Height

For veneer up to 4 m in height above the foundation, ties shall be located at evenly distributed centres such that the contributory face area of wall to each tie does not exceed 0.2 m². Ties shall be located at stud spacings and number of courses as specified in Table 7.

Table 7: Brick tie spacing for a uniform wall of brick veneer for heights of veneer up to 4m

Vertical dimension of Brick	Height of Brick Veneer Wall	Brick Tie Location
76 mm	< 4m	Every fourth course
119 mm	< 4m	Every third course
162 mm	< 4m	Every second course

2.9.1.2 Clay Brick Veneer Above 4m Height

For veneer above 4 m in height above the foundation, ties shall be located at evenly distributed centres such that the contributory face area of wall to each tie does not exceed 0.1 m². Ties shall be located at stud spacings and number of courses as specified in Table 8.

Table 8: Brick tie spacing for a uniform wall of brick veneer for heights of veneer greater than 4m

Vertical dimension of Brick	Height of Brick Veneer Wall	Brick Tie Location
76 mm	> 4m	Every third course
119 mm	> 4m	Every second course
162 mm	> 4m	Every course

2.9.2 Openings

Brick ties shall be located at not more than one course from the top and bottom of any opening. Ties shall be located immediately adjacent to the sides of an opening.

2.9.3 Corners, Ends, Edges

Ties shall be located immediately adjacent to corners and ends of walls.

2.9.4 Gables

In gable areas the brick tie spacing shall be decreased to one half the standard spacing for a raking band width of 800 mm following the top of the veneer.

2.10 Weepholes and Ventilation

Clay brick veneer by its nature permits the entry of water into the cavity behind the veneer. Weepholes shall therefore be installed at the bottom of all veneer cavities to allow water to drain. Weepholes shall be installed to provide a minimum 1000 mm² per lineal metre of wall. This equates to approximately one 75 mm high by 10 mm wide perpendicular every 800 mm of wall. The top of the brick veneer wall requires ventilation openings to allow air movement within the cavity to assist the removal of moisture. Sufficient ventilation openings shall be created to provide a minimum of 1000 mm² per lineal metre of wall.

2.11 Slip Joints

The 2 Storey Brick Veneer System incorporates slip joints along a course of the brick to create a weak point to allow for movement in the event of an earthquake. The slip joint should continue at a constant height around the building.

Slip joints in the Two Storey Brick Veneer System are required at the intermediate floor level and/or 3.0 m in height, whichever is lower.

For gable end walls, more than one slip joint may be required. Where required, the additional slip joint in gable end walls should be located in line with the start of the rake.

Refer to Detail No. 6 for requirements for the construction of slip joints.

2.12 Mortar Joints

The mortar used with the Two Storey Brick Veneer System must comply with NZS 4210:2001 *Masonry Construction: Materials and Workmanship*, Section 2.2.

Mortar joints shall be completely filled with mortar, raked out and tooled smooth to a depth of up to but not exceeding 6 mm.

2.13 Wall Bracing

Bracing may be calculated using the prescribed tables in NZS 3604:1999 *Timber framed buildings* for installation where the veneer height does not exceed 4 m. For installations with veneer height greater than 4 m, wall bracing for seismic loads shall be calculated in accordance with Table 9.

Minimum values of bracing demand per metre of exterior clay brick veneer wall length shall be calculated in accordance with Table 10.

Table 9: Wall bracing for 2kPa floor load and Clay Brick Veneer wall cladding

Roof Cladding	Roof Pitch (Degrees)	Minimum number of bracing units per square metre for the structure set out below in earthquake zones A, B & C					
		TWO STOREY BUILDINGS					
		Bottom Storey Earthquake Zone			Top Storey Earthquake Zone		
		A	B	C	A	B	C
Light	0-25	22.6	17.0	11.3	13.3	10.0	6.6
	26-45	23.3	17.5	11.7	14.1	10.6	7.1
	46-60	24.6	18.5	12.3	15.7	11.8	7.8
Heavy	0-25	25.5	19.1	12.8	16.7	12.5	8.4
	26-45	27.1	20.3	13.5	18.4	13.8	9.2
	46-60	29.9	22.5	15.0	21.6	16.2	10.8

Table 10: Minimum bracing demand / m of wall length

Height of veneer	Min BU/m length of wall
<3m	10 BU/m
<4m	12 BU/m
<5m	14 BU/m
<6m	16 BU/m

2.14 Fire Resistance

The Two Storey Brick Veneer System has been tested and shown to have a fire resistance rating of greater than 30/30/30 when the internal face of the wall is lined with 13 mm Standard Gib Plasterboard. For further information, contact your brick company.

The Two Storey Brick Veneer System is suitable for use as an external wall cladding on all buildings in accordance with NZBC Acceptable Solution C/AS1 Part 7, Paragraph 7.11.2(a).

2.15 Control Joints

Vertical movement control joints are unnecessary under normal building conditions when using the Two Storey Brick Veneer System. However, there may be situations where vertical control joints are recommended. These are:

- Where the building under consideration is to be built on expansive soils as defined by AS 2870.
- Where the geometry of the brick veneer wall and/or loading pattern onto the house structure may result in differential movement.

In either case the advice of a Chartered Professional Engineer should be obtained.

2.16 Window and Door Joinery Flashings

The head of all window and door joinery shall be flashed with powder coated aluminium head flashings as supplied by the joinery manufacturer or contractor. The head flashing shall span the cavity, be installed with a 15° slope to the exterior and shall overhang the aluminium joinery profile by minimum 10 mm.

Where a steel lintel is being used to support the bricks above the joinery, an additional 200 mm wide flexible flashing shall be installed spanning from the framing across the cavity into the back of the angle. The flashing shall extend 200 mm either side of the opening.

The jambs of all window and door joinery shall be flashed using a 200 mm wide polyethylene flashing. The flashing is to be tucked around and into the edge of the aluminium joinery profile to protect the timber wall frame. The flashing shall be fixed to the timber frame with clouts.

Refer to Details 7, 8 and 9.

2.17 Pipe Penetrations

Pipes and other services may pass across the cavity and through the brick veneer. They are not however, permitted to travel horizontally along the length of the cavity. Pipes and other services should be installed on a 5° down slope towards the veneer and where they penetrate the veneer a flexible sealant is to be installed between the penetration and the brick. Penetrations through the veneer must be kept to a minimum.

Refer to Detail 11.

2.18 Other System Components and Accessories

2.18.1 Building Wrap

The 2 Storey Brick Veneer System must be installed over building paper or wrap complying with NZBC Acceptable Solution E2/AS1, Table 23, or other BRANZ Appraised breather-type membranes.

All buildings must have barriers to airflow in the form of interior linings with all joints stopped, or alternatively unlined gables and walls must incorporate a rigid sheathing or an air barrier fixed to the framing, which meets the requirements of NZBC Acceptable Solution E2/AS1, Table 23. Non-rigid air barriers must have an air resistance of $\geq 0.1 \text{ MN s/m}^3$. Where rigid sheathings are used, the brick tie fixing length must be increased by a minimum of the thickness of the sheathing.

2.18.2 Flexible Flashing Tapes

Flexible sill and jamb flashing tapes shall be installed around all penetration openings in the structural frame. Flexible flashing tapes shall comply with NZBC Acceptable Solution E2/AS1 Paragraph 4.3.11, or be covered by a valid BRANZ Appraisal Certificate for use around window and door joinery openings.

2.18.3 Airseals

Air seals shall be installed in the gap between the joinery reveal and the opening framing. The air seal shall comply with NZBC Acceptable Solution E2/AS1 Paragraph 9.1.6, or be a self-expanding, moisture cure polyurethane foam air seal covered by a valid BRANZ Appraisal Certificate for use around window, door and other wall penetration openings.

2.18.4 Sealant

Where shown in the installation details, gaps between penetrations and the brick veneer shall be sealed with a sealant complying with NZBC Acceptable Solution E2/AS1, or a sealant covered by a valid BRANZ Appraisal Certificate for use as a weather sealing sealant for exterior use. Correct sealant joint principles must be followed.

3.0 Installation Information

3.1 System Installation

This section of the specification should be read in conjunction with the installation details.

3.1.1 Building Wrap and Flashing Tapes

The selected building wrap and flexible sill and jamb tape system must be installed in accordance with the manufacturer's instructions. The building wrap must be installed horizontally and be continuous around corners. Wrap must be lapped 75 mm minimum at horizontal joints and 150 mm minimum over studs at vertical joints. Particular attention must be paid to the installation of the building wrap and sill and jamb tapes around window and door openings to ensure a continuous seal is achieved and all exposed timber wall framing in the opening is protected. All penetrations through the building wrap must be sealed and joints sealed or lapped 150 mm.

3.1.1 Aluminium Joinery Installation

Aluminium joinery and associated head flashings must be installed in accordance with the window manufacturer's instructions. 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 in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.6 after the joinery has been secured in place.

3.1.2 Brick Veneer System Installation

If possible, bricks should be of one single batch. If this is not possible, bricks from two batches should be thoroughly mixed to avoid obvious colour variations. It is recommended that bricks be selected from at least 3 different pallets or packs simultaneously.

Pallets or packs should always be kept covered so that bricks are laid dry. If rain is likely during construction, the top course and cavity should be covered to reduce the likelihood of efflorescence occurring on the surface of the bricks.

Brickwork should be cleaned thoroughly as construction progresses, as mortar stains can be difficult to remove later. If acid is used for cleaning, industry guidelines must be followed with respect to methods of use and disposal.

Mortar joints should be between 7 and 13 mm thick, with the recommended thickness being 10 mm. Joints can be raked 6 mm and should be tooled to provide a hard smooth surface to reduce water absorption.

3.1.3 Over-Roof Support Installation

The shelf angles should not be fixed to the framing until the veneer below has reached its full height so that the shelf angle can be correctly aligned with the veneer.

Where the shelf angle is fixed above a roof, it is recommended that temporary timber blocks are cut to the slope of the roof below and the correct height to provide temporary support until the steel angle is permanently fixed.

Where the shelf angle is installed on a slope, bricks must be cut to the angle at which the angle slopes, and be laid on a 10 mm thick mortar bed.

Where shelf angles are required, they should be ordered from the fabricator and clearly marked with a marking pen so that their location according to the construction documents is uniquely identified.

Holes should be drilled 11 mm diameter at 25 mm down from the top of the vertical flange, sharp edges filed, and bare metal surfaces painted as soon as possible with 2 coats of zinc rich primer if the angle is hot dip galvanised. To ensure quality is maintained, drilling and painting is best carried out in a fabricator's workshop.

When fixing shelf angles to the timber framing, 6 mm pilot holes must first be drilled into the studs to take the coach screws.

3.1.4 Slip Joint Installation

The slip joint material must be laid directly on to the brickwork at heights specified in Section 2.11.

The slip joint material must then be covered with mortar, and the brick laying continued above the joint.

3.1.5 General

During and after the brick veneer installation it is recommended that internal linings be attached to timber frames by screwing rather than nailing in order to avoid vibration to the veneer that could produce hairline cracks in the mortar.

3.1.6 Points to Note:

During installation of the Two Storey Brick Veneer System, be aware of the following as the weathertightness performance of the system may be affected if any of the following is ignored:

- Do not cover or block ventilation openings and/or drainage paths (weep holes); and,
- Do not allow mortar droppings to build up in the base of the cavity. Ensure all mortar droppings are cleaned out prior to completion of the job; and,
- Do not allow mortar joints to protrude more than 5 mm into the veneer cavity; and,
- Do not puncture the building wrap (notify the builder if the wrap does get inadvertently punctured during installation of the veneer and do not proceed further until it has been repaired); and,
- Ensure the brick ties slope away from the building wrap.

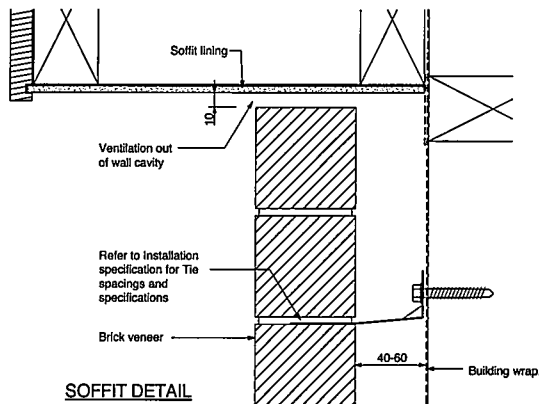
4.0 Maintenance

Building owners are responsible for the maintenance of the Two Storey Brick Veneer System.

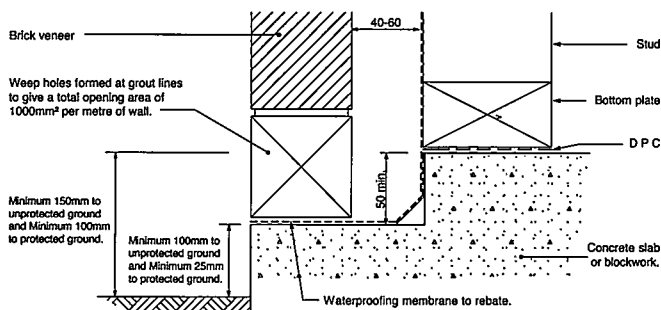
Annual inspections must be made to ensure that all aspects of the cladding system, including flashings remain in a weatherproof condition. Any damaged areas or areas showing signs of deterioration which would allow water ingress, must be repaired immediately. Weep holes must be kept clear of dust, dirt, spider webs and the like to ensure that moisture can continue to drain from the cavity.

5.0 Health & Safety

Cutting of clay bricks with power tools should be carried out in well ventilated areas. A dust mask and eye protection should be worn.

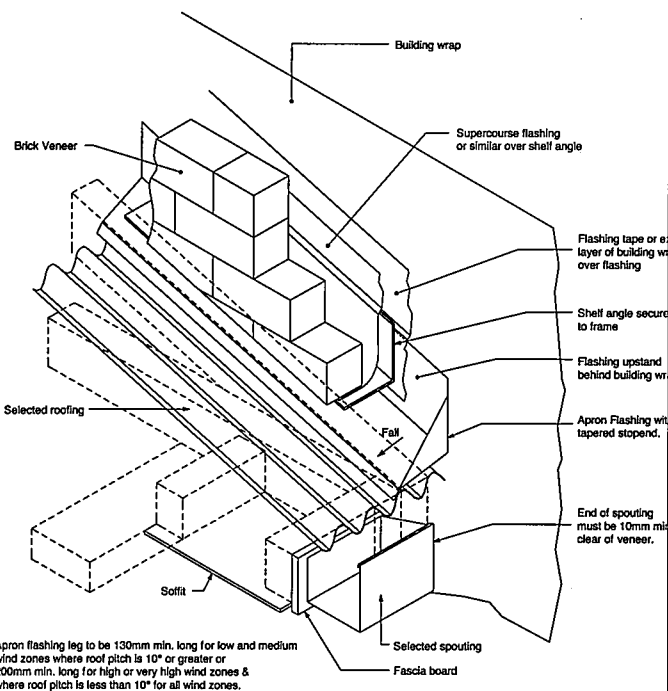


SOFFIT DETAIL



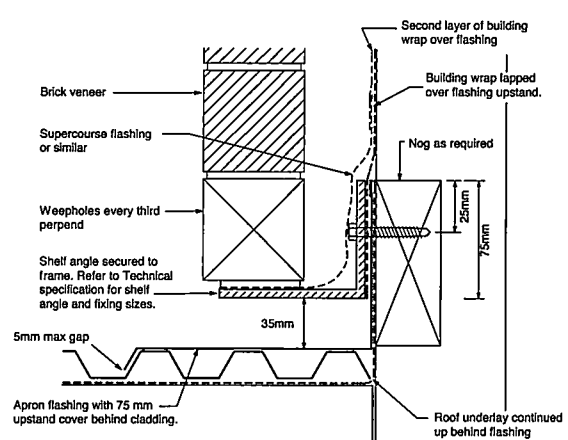
FOUNDATION DETAIL

Brick veneer details
Detail No. 1
Date 8 August 2006



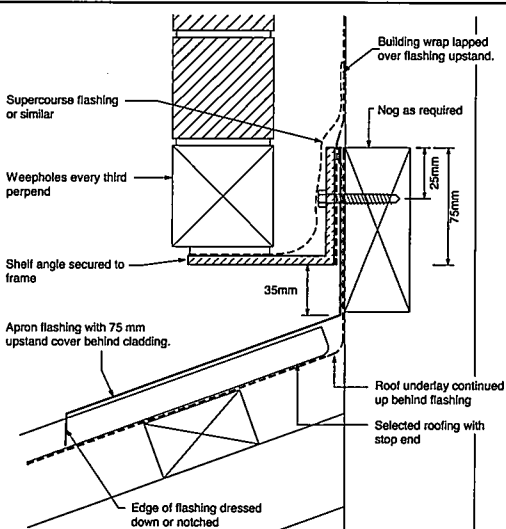
GUTTER / WALL JUNCTION

Brick veneer details
Detail No. 4
Date 8 August 2006



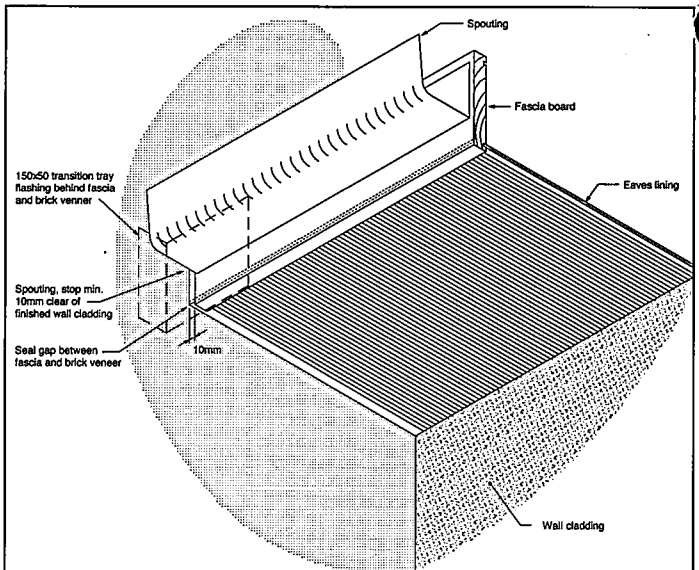
METAL SHELF ANGLE

Brick veneer details
Detail No. 2
Date 8 August 2006



METAL SHELF ANGLE

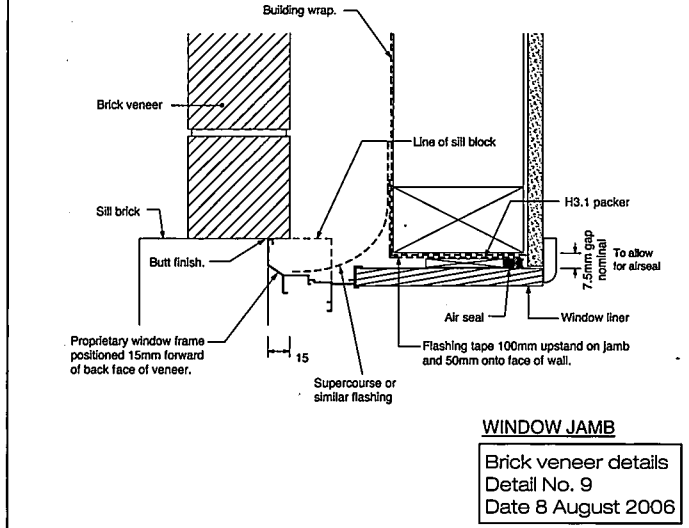
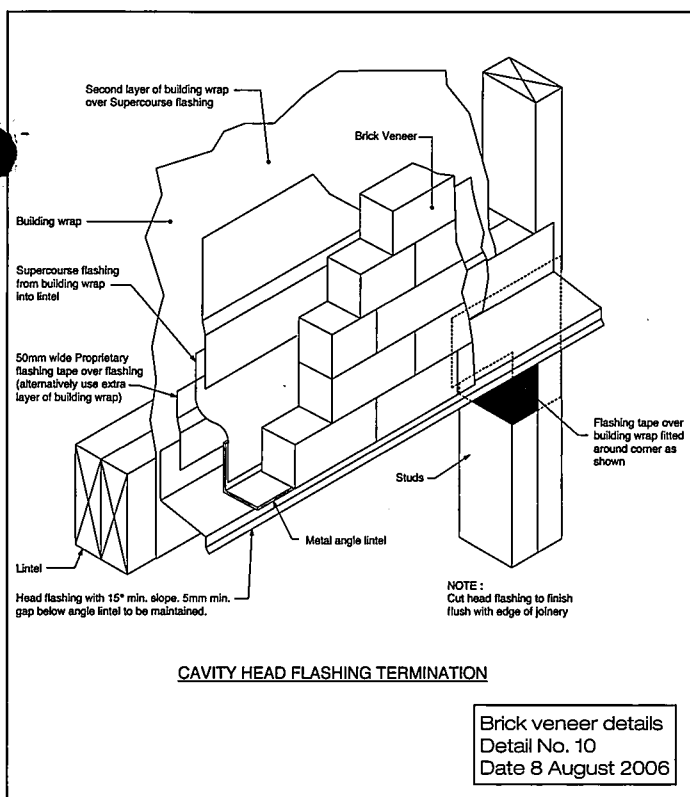
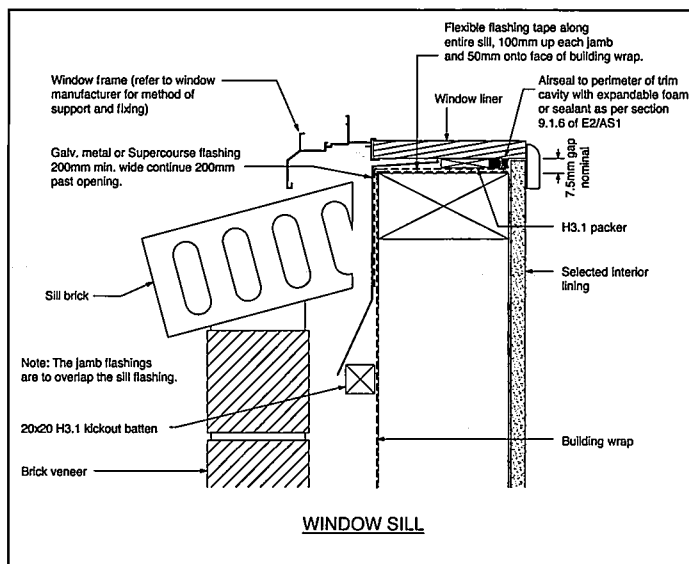
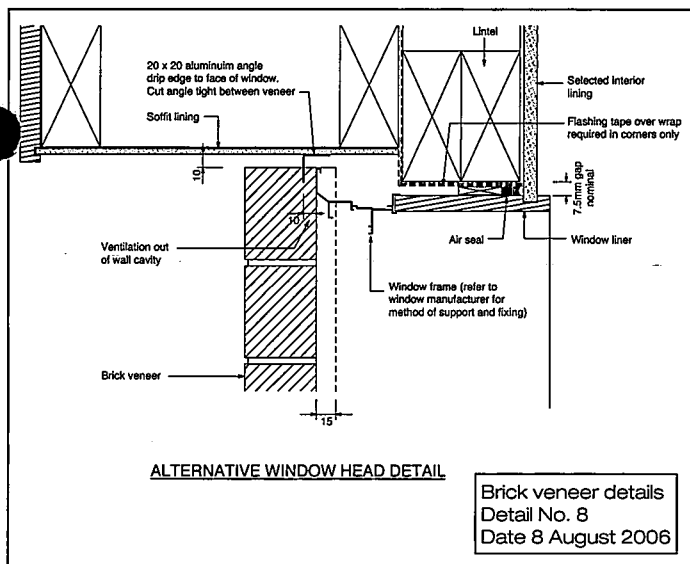
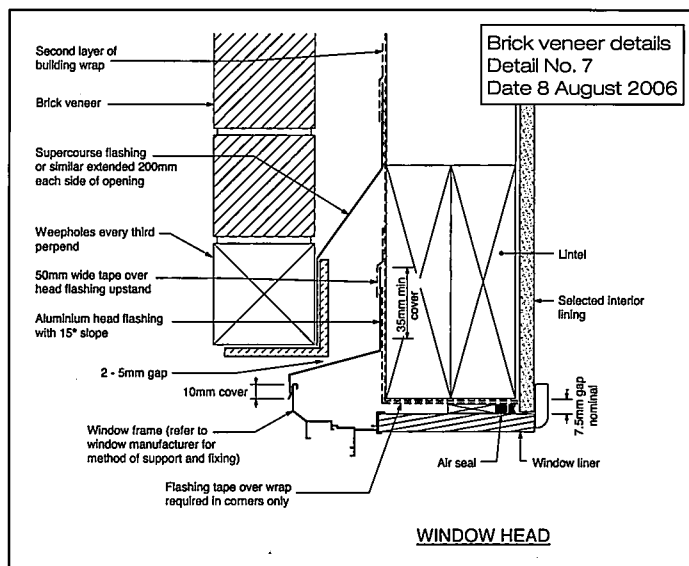
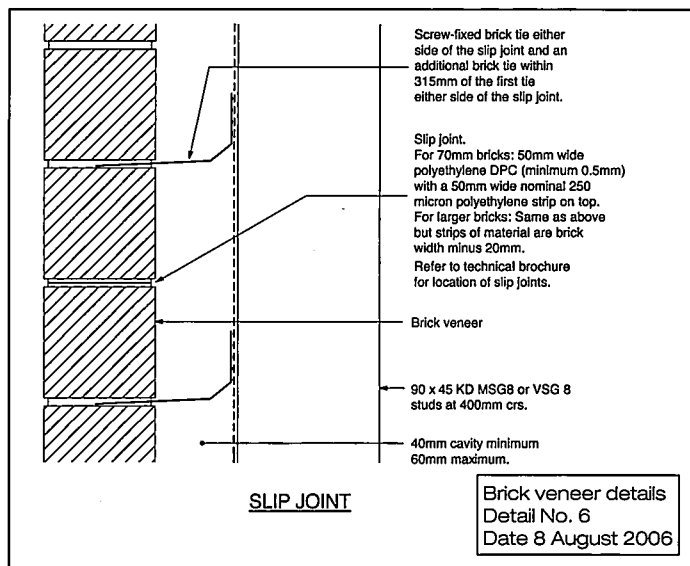
Brick veneer details
Detail No. 3
Date 8 August 2006

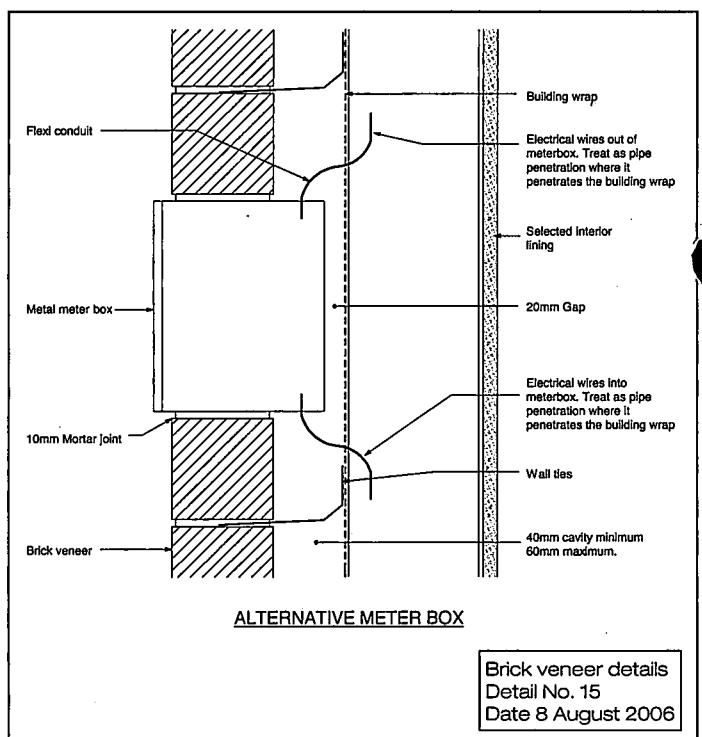
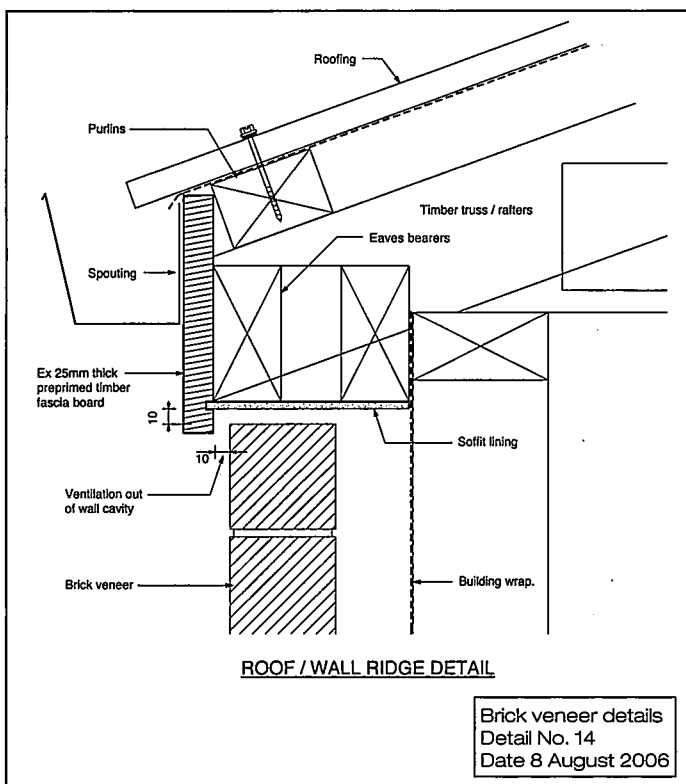
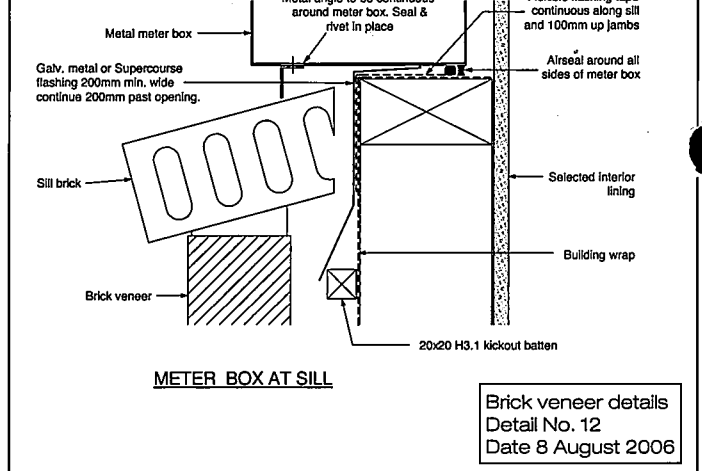
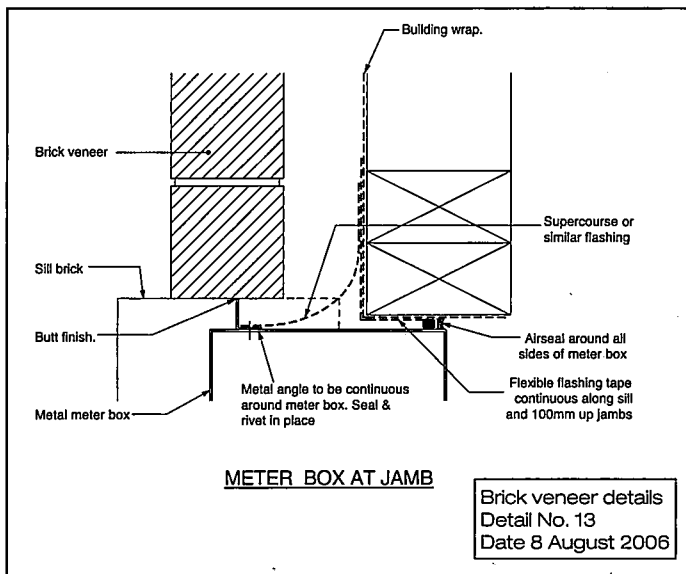
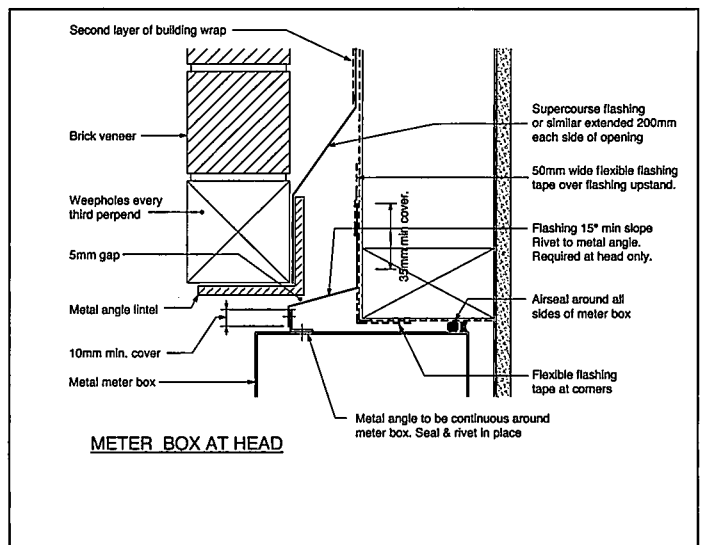
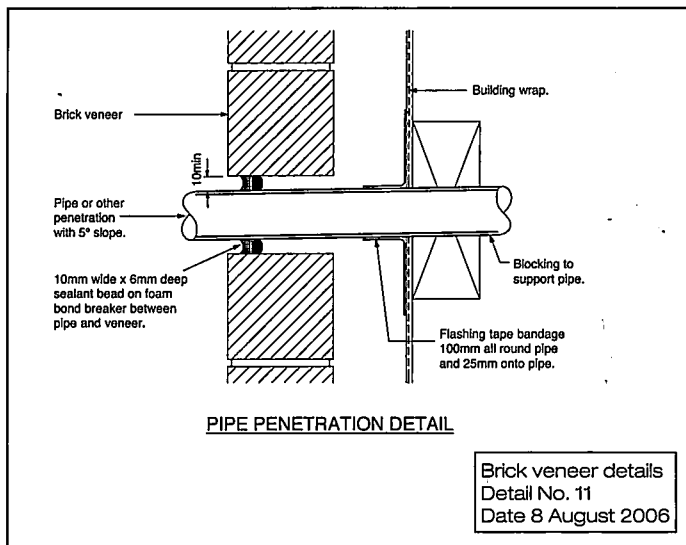


GUTTER / WALL JUNCTION

VIEW FROM BELOW

Brick veneer details
Detail No. 5
Date 8 August 2006







**SPECIFY WITH
CONFIDENCE**

**BRANZ
APPRAISAL
CERTIFICATE
No.521 (2006)**

**TWO STOREY
BRICK VENEER
SYSTEM**

www.branz.co.nz



Readers are advised to check the validity of this Certificate by referring to the Valid Certificates listing on the BRANZ website, or by contacting BRANZ.

For further information,
please contact any of the following companies:



Midland Brick Company,

Tel: 0508 MIDLAND (0508 643 5263)
www.midlandbrick.co.nz



Southtile Limited, 654 North Road,
Waikiwi, Invercargill

Tel: 03 215 9179 Fax: 03 215 9178



Austral Bricks, Unit 1-99 Sawyers Arms Road,
Papanui, Christchurch

Tel: 0800 287 8725 Fax: 03 354 0226



Clay Bricks Ltd, 50 Tregoweth Lane, Huntly

Tel: 07 828 9919 Fax: 07 828 9913



Canterbury Clay Bricks

Canterbury Clay Bricks, Main West Road, Darfield

Tel: 03 318 8203 Fax: 03 318 8171

PROJECT INFORMATION MEMORANDUM CHECKLIST

Application Number: 080258 Date: 07/3/08

Valuation Number: 21540-127-11 Proposed Lot 8 of RC 065655

Legal Description: lot 2 DP 383229 (C/T) or S&P (Please Circle) Strg 2

Address: 685 Depot Road

Project: NEW Dwelling with attached garage & log burner

Floor Area: 172m²

Value: \$ 238K

PIM Fee: \$ 170

PROCESSED IN TRIM

Information to be included on PIM:

BP (Y) / N REC Y / (N) CT (Y) / N COV (Y) / N
Ecan Consent (Y/N) Consent Number: CRC 08 3093 Well No: _____ Septics: Reqd. B.

Wind Zone: M (H) SD (Please circle)

Snow: 150m 250m (SD) (Please circle)

Earthquake Zone: A / (B)

Public Drain: Y / (N)

Ground Instability: Y / (N)

Hazards: Y / (N)

Natural Depression/Water courses: Y / N

Historic Building: Y / (N)

Protected Trees: Y / (N)

Designation: Y / (N)

Limited Access: Y / (N)

Fill: Y / (N)

Liquefaction: Y / (N)

Silent File Area: Y / (N)

Dev Contributions: Y / (N)

WQL8: Y / (N)

Easements: Y / (N) - no title for new lot.

CCC Existing? Y / (N) CCC Original building (if addition)?

Zone: Rural

Land Area: 4ha

R/Plane: Comply / Non-Comply / (N/A)

Site Coverage: N/A

New: 172m²

Existing: /

ROW: Yes / Part of Sub DW.

Total: 172m²

Setbacks: Comply / Non-Comply / N/A

Water: Oxford Not Rural

Sewer: Septic's

Stormwater: Ground Soakage

Water Race: Y / (N)

Vehicle Crossing: Required (Not Required)

Solar Heating: Y / (N)

Fire type: _____

River: Y / (N)

Y / (N)

Resource Consents/Authorisations:

rc. 065655 = Dec Only
065372 - 224 Issued

Authorisations Required:

Septic = RC 065619 = NO Decision to date

Resource Consent Advice Notes:

~~Financial Cont~~
Services = water / crossing - done in Ags with Sub Div.
Conditions.

Swimming Pool:

WQL3/Ecan Y / ☒ N
 Registration Form Y / ☒ N
 Fencing Y / ☒ N
 Backflow Preventer Y / ☒ N

Commercial Project:

Car Parking: Y / ☒ N
 Signage: Y / ☒ N
 Noise: Y / ☒ N
 Access: Y / ☒ N
 Other: _____

Section 363 Y / ☒ N
 Fire/Evacuation Sch Y / ☒ N

Misc items to be addressed on PIM:

Dev OR Financial Contributions not req'd for this lot
as own delineated area - No other buildings - confirmed by Jamie

Planning Dept Check List:

Plans accepted: ☒ / N*

Dwelling:

"dwellinghouse" definition (single kitchen) Existing occupied structure, Second Dwelling ☒ / N / FI
 Compliant and legal lot size (delineated area?) ☒ / N
 Consent Notices/special SD conditions ☒ / N

General:

Zone/Special rules/further consents? Y / ☒ N
 Setbacks (road, ROW, open drain, Zones boundary, Other): Y / ☒ N
 Vehicle crossing compliance: Y / ☒ N
 (Width, separations, intersections, sightlines)

Residential:

Recession Plane: Y / N Effluent Spreading database check ☒ / N
 Coverage: Y / N Other: Noise contours ☒ / N

Rural:**Commercial:**

Permitted Activity Y / N
 Staffing Level Y / N Car Parking provision
 Hours of Operation Y / N Required
 Retail Definition Y / N Shown
 Other: Noise Y / N

Planning items to be address on PIM:***RC Required for:****Advice Notes:**

PIM authorised for issue:	
Customer Services Officer PIM	
Date:	07/3/08
Eiffelby	
Planning Department	
Date:	12/3/08
UP/ing	



**COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952**

Search Copy



R.W. Mair
Registrar-General
of Land

Identifier 332285
Land Registration District Canterbury
Date Issued 01 June 2007

Prior References
CB35A/223

Estate Fee Simple
Area 57.5850 hectares more or less
Legal Description Lot 2 Deposited Plan 383229

Proprietors
Murray David McDowell and Heritage Trustee Company Limited

Interests
7420919.2 Mortgage to ANZ National Bank Limited - 6.7.2007 at 10:44 am

NOTES

- Subdivision proposal plan only.
- Areas and dimensions subject to final survey.
- Plan prepared for the purpose of obtaining a Resource Consent.

Note : Scandlyn Surveying accepts no responsibility for the use of this plan for any other purpose other than that intended (obtaining a Resource Consent).

Note : Lots 6-7,12-15 have no frontage to a public road.

2
DP316604

1
DP316604

2
DP351748

2
DP317002

2
45.5 ha

6
DP365002

DP365002

4
DP365002

DP365002

4
DP365002

1
DP365002

Proposed house site
50*50 square

120*120 square

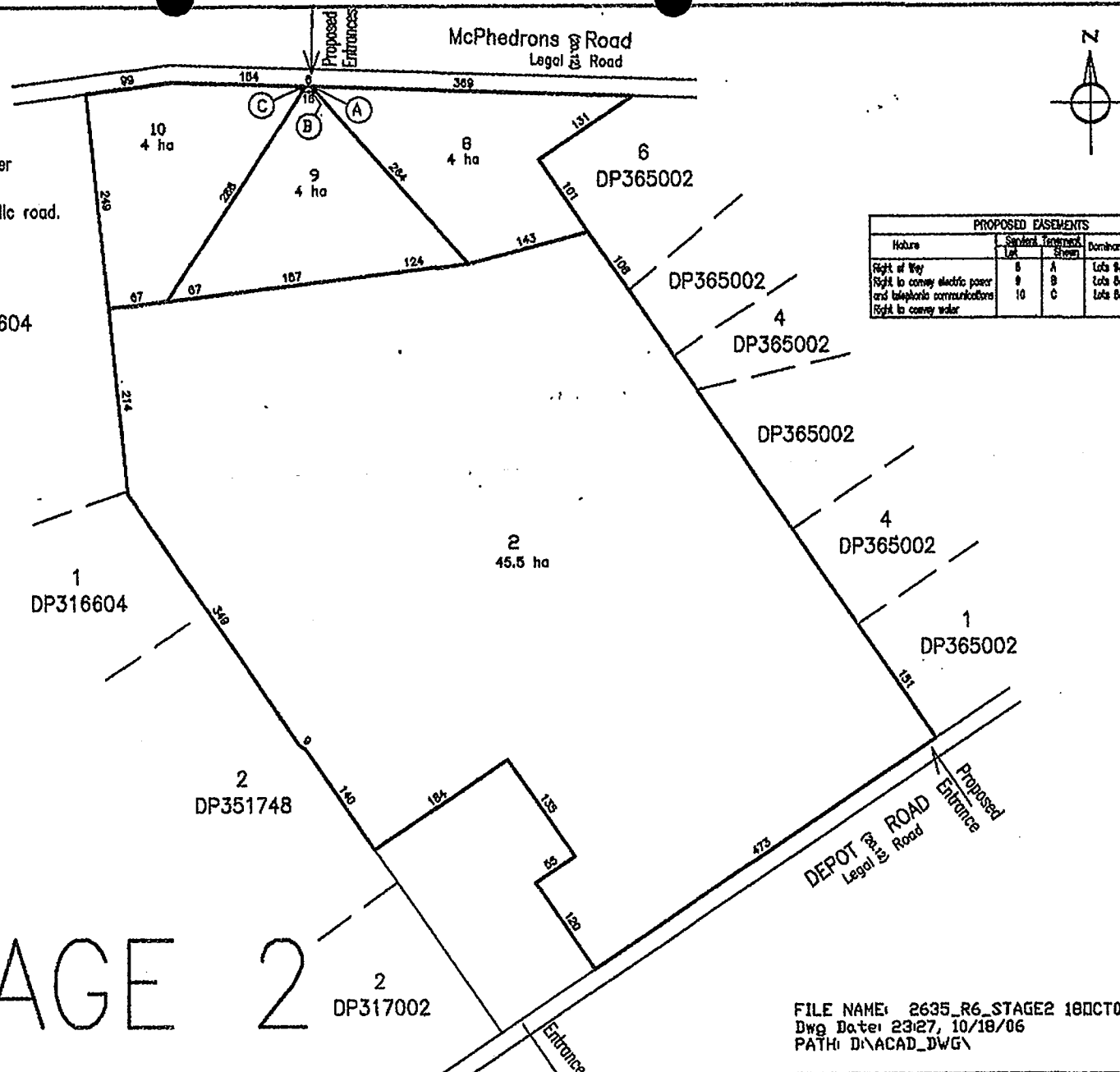
STAGE 2

Waimakariri District Council
Comprised in CT 35A/223 61.6500 ha
Original scale 1:5000 Format (A3)

Lots 1-15 being subdn of Lot 2 DP59418

Prepared by: Scandlyn Surveying Ltd
209B High Street
RANGIORA
Ph 3131272, Fax 3131274
Reference: 2635_R3 10 Aug 06

FILE NAME: 2635_R6_STAGE2 18OCT06.DWG
Dwg Date: 23/27, 10/18/06
PATH: D:\ACAD_DWG\



7 March 2008

Our Reference: "PIM Number : 080258P "

M MCDOWELL & HERITAG TRUST COMPANY LIMITED
685 DEPOT ROAD
RD 1
OXFORD

Dear Sir/Madam

PROJECT INFORMATION MEMORANDUM

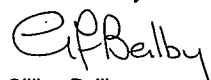
Please find enclosed your Project Information Memorandum in respect of the proposed work at 685 DEPOT RD.

Prior to **commencing building work**, the applicant must ensure that a Building Consent has been applied for and issued and that any "authorisations" have been obtained and any conditions of the PIM have been verified.
These include:

- Resource Consent approval is currently being sought to install and operate a non reticulated land based domestic effluent disposal system (septic tank) under Resource Consent application 065619.
- Drainage details showing the type, location and operation of a domestic effluent disposal system (septic tank) is in strict compliance with conditions set out in the Resource Consent (to be approved), and the Environment Canterbury's (Canterbury Regional Council) new regulations (proposed Natural Resources Regional Plan – Chapter 4.5 water takes, sewage and stormwater discharges) notified 3rd July 2004, and General Authority, will need to be forwarded for building consent approval.
- The applicant is advised that as Lot 8 is being created from Stage 2 of a 15 Lot Sub Division under Resource Consent 065655, all conditions within the Resource Consent must be adhered to prior to the Code Compliance Certificate being issued or the on-selling of the proposed dwelling.

The approval plan along with any Development Contribution notification or Resource Consent Certificate (where applicable) attached to this Project Information Memorandum must be included with the Building Consent for the project (when issued). Any significant departure from the original plans may require that a new Project Information Memorandum be issued.

Yours faithfully


Gillian Beilby
PIMs Officer

215 High Street
Private Bag 1005
RANGIORA 7440
New Zealand

Phone (03) 313 6136
or (03) 327 6834
Fax (03) 313 4432

Website: www.waimakariri.govt.nz

PROCESSED IN TRIM

COPY

Project Information Memorandum

Sections 30-39, Building Act 2004

Application

M MCDOWELL & HERITAG TRUST COMPANY LIMITED 685 DEPOT ROAD RD 1 OXFORD	No. 080258P Issue date 7/03/08 Application date 28/02/08
--	--

Project

Description	New (& prebuilt) House, Unit, Bach, Crib, Town House etc. Being Stage 1 of an intended 1 Stages DWELLING WITH ATTACHED GARAGE WITH LOGBURNER WEGJ 2000 YUNCA
Intended Life	Indefinite, but not less than 50 years
Intended Use	RESIDENTIAL
Estimated Value	\$238,000
Location	685 DEPOT RD
Legal Description	Lot 2 DP 383229
Valuation No.	2154012711

This project information memorandum is confirmation that the proposed building work may be undertaken, subject to the provisions of the Building Act 2004, and any requirements of the building consent.

This project information memorandum includes:

- ___ Information identifying special features of the land concerned
- ___ Information about the land or building concerned notified to the Council by any statutory organisation having the power to classify land or buildings
- ___ Details of relevant utility systems
- ___ Details of authorisations which have been granted
- ___ Notification of any other authorisations which must be obtained before the proposed building work may be undertaken
- ___ Important information

All boundary survey pegs are to be located by discovery or redefinition and flagged before work is commenced.

The certificate of title may make reference to land covenants - a copy of which should be submitted with the Building Consent application.

A current copy of the certificate of title is to be submitted with the building consent application.

This project Information Memorandum does not purport to be a full report on every aspect of the property which is likely to be relevant to the building works proposed. It is information that is known to the Council at the date of the issue of this memorandum. It is issued pursuant to Sections 30-39 of the Building Act 2004.

INFORMATION IDENTIFYING RELEVANT SPECIAL FEATURES OF THE LAND

Wind Zone High

Snow Load Zone 4

This property is situated in an area that is above 250m (amsl) = This requires Specific Engineering Design for the Snow loadings.

Earthquake Zone B

Comments:

Building Line Setback – a 10m building line setback is applicable from any open drain, stream or natural watercourse.

Attachments:

Nil

INFORMATION ABOUT THE LAND OR BUILDINGS NOTIFIED TO THE COUNCIL BY ANY STATUTORY ORGANISATION HAVING THE POWER TO CLASSIFY LAND OR BUILDINGS

Environment Canterbury (Canterbury Regional Council)

Comments:

Compliance with New Environment Canterbury (Canterbury Regional Council) Water Quality Rules

The applicant will need to consult with Environment Canterbury (Canterbury Regional Council) to provide verification that their proposed land based domestic effluent disposal system (septic tank) and effluent disposal field, and stormwater discharge complies with Environment Canterbury's (Canterbury Regional Council) new regulations (Proposed Natural Resources Regional Plan – chapter 4.5, water takes, sewage and stormwater discharges (notified 3rd July 2004).

Attachments:

Nil

DETAILS OF RELEVANT UTILITY SYSTEMS (administered by the Waimakariri District Council)

Sewer

Is a connection to a public sewer scheme available? No

Comments:

Domestic effluent disposal system (septic tank)

Resource Consent approval is currently being sought to install and operate a non reticulated land based domestic effluent disposal system (septic tank) under Resource Consent application 065619. Drainage details showing the type, location and operation of a domestic effluent disposal system (septic tank) is in strict compliance with conditions set out in the Resource Consent (to be approved), and the Environment Canterbury's (Canterbury Regional Council) new regulations (proposed Natural Resources Regional Plan – Chapter 4.5 water takes, sewage and stormwater discharges) notified 3rd July 2004, and General Authority, will need to be forwarded for building consent approval.

Notes:

Sewer connections must be installed by registered drainlayers. It is the property owner's responsibility to arrange connections. New connections to sewer mains must be inspected and approved by the Council prior to backfilling.

A trench opening permit is required to open a footpath or street.

A Capital charge is payable where the property has not previously paid sewer rates.

Water

Is a connection to a public water supply available?

Yes

If yes, which public water supply?

Oxford No 1 Rural

Is the property already connected?

No

What size connection is in existence?

Connection Fee

\$****

Capital Charge

\$****

Comments:

Connect to the service lateral provided in compliance with conditions of the Resource Consent for this development.

COPY

Notes:

Water connections to property boundaries are installed by the Council after the receipt of charges payable.

A capital charge is payable where the property has not previously paid water rates.

Stormwater

Is a connection to a public drainage system available?

No

Is the property already connected?

No

Discharge point: Ground Soakage

Connection Fee

\$****

Capital Charge

\$****

Inspection Fee

\$****

Comments:

Stormwater disposal to approved ground soakage.

Notes:

Stormwater connections must be installed by registered drainlayers. It is the property owner's responsibility to arrange connection. New connections to drainage systems must be inspected and approved by the Council prior to backfilling.

A trench opening permit is required if crossing a footpath.

A Capital charge is payable where the property has not previously paid urban drainage rates.

Attachments

Nil

DETAILS OF AUTHORISATIONS THAT HAVE BEEN GRANTED

Resource Consent

Comments:

Resource Consent 065655 – 15 Lot Rural Sub Division – Stage 2

Attachments:

Resource Consent 065655 – Decision and approved plan. – to date 223 or 224 have not been applied for.

DETAILS OF AUTHORISATIONS THAT MUST BE OBTAINED BEFORE BUILDING CAN

COMMENCE:

Resource Consent - domestic effluent disposal system (septic tank)

Comments:

Resource Consent approval is currently being sought to install and operate a non reticulated land based domestic effluent disposal system (septic tank) under Resource Consent application 065619. Drainage details showing the type, location and operation of a domestic effluent disposal system (septic tank) is in strict compliance with conditions set out in the Resource Consent (to be approved), and the Environment Canterbury's (Canterbury Regional Council) new regulations (proposed Natural Resources Regional Plan – Chapter 4.5 water takes, sewage and stormwater discharges) notified 3rd July 2004, and General Authority, will need to be forwarded for building consent approval.

Attachments:

Nil

DETAILS OF VEHICLE CROSSING (ENTRANCEWAY), TYPE OF FRONTAGE AND TRENCH OPENING PERMIT**Vehicle Crossing (Entranceway)**

Is formation of a vehicle crossing from road edge to property boundary required? No

The vehicle crossing access is to be done as part of the Sub Division conditions and access is to be via McPhedrons Road only via the right of way access.

Advice Notes

The applicant is advised that as Lot 8 is being created from Stage 2 of a 15 Lot Sub Division under Resource Consent 065655, all conditions within the Resource Consent must be adhered to prior to the Code Compliance Certificate being issued or the on-selling of the proposed dwelling.

This project information memorandum is confirmation that the proposed building work may be undertaken subject to the provisions of the Building Act 2004 and any requirements of the building consent not yet approved.

Signed for and on behalf of the Council:

Name: E. P. Beilby Date: 07/3/08

COPY

Form 4

Certificate attached to project information memorandum 070756

Section 37, Building Act 2004

Restrictions on commencing building work under the Resource Management Act 1991

The building work referred to in the attached project information memorandum is also required to have the following resource consents under the Resource Management Act 1991:

- Resource Consent approval is currently being sought to install and operate a non reticulated land based domestic effluent disposal system (septic tank) under Resource Consent application 065619.
- Drainage details showing the type, location and operation of a domestic effluent disposal system (septic tank) is in strict compliance with conditions set out in the Resource Consent (to be approved), and the Environment Canterbury's (Canterbury Regional Council) new regulations (proposed Natural Resources Regional Plan – Chapter 4.5 water takes, sewage and stormwater discharges) notified 3rd July 2004, and General Authority, will need to be forwarded for building consent approval.

As these resource consents will or may materially affect the building work to which the attached project information memorandum relates, until they have been granted 070756

Failure to comply with the requirements of this notice may result in legal action being taken against you under the Resource Management Act 1991.

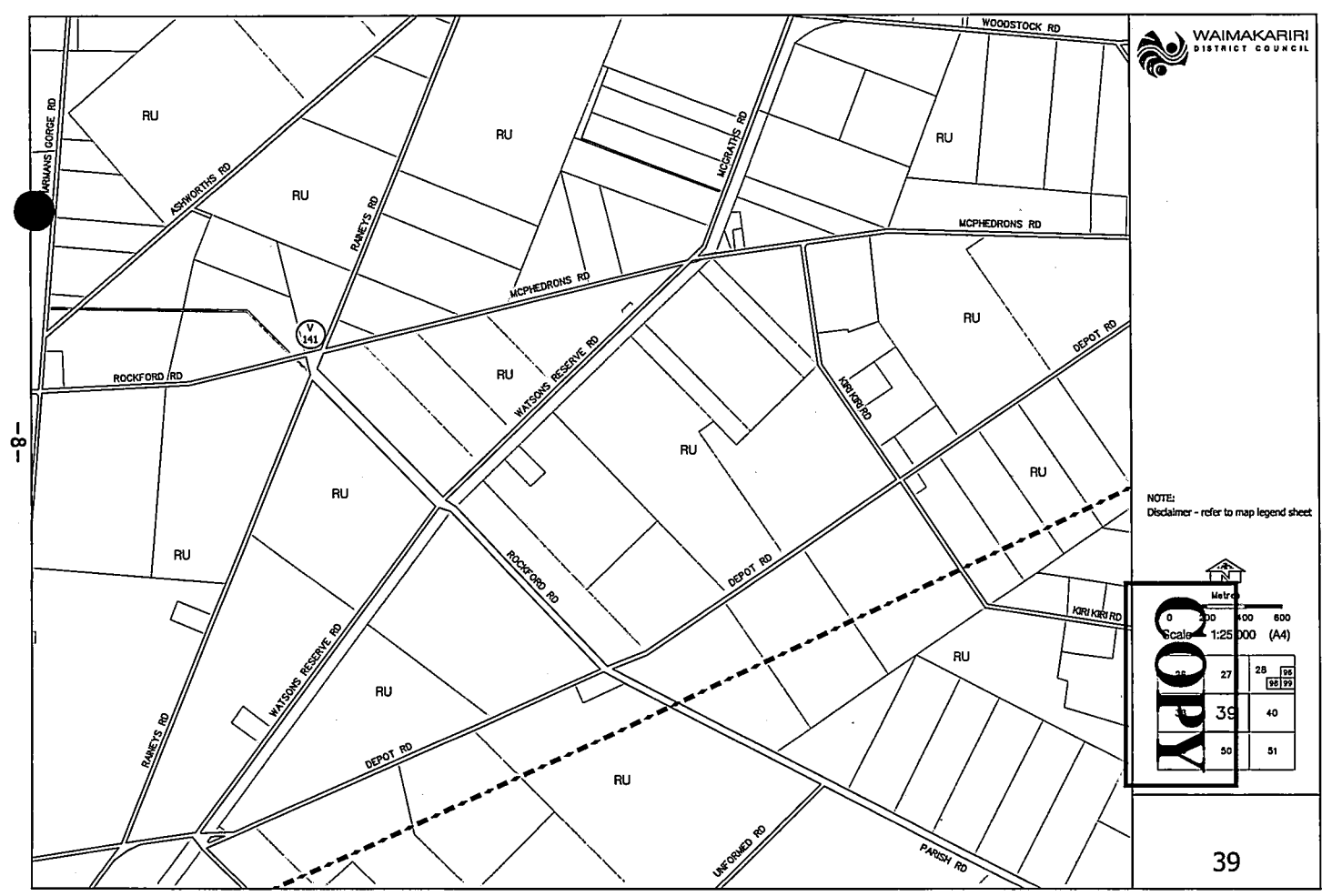
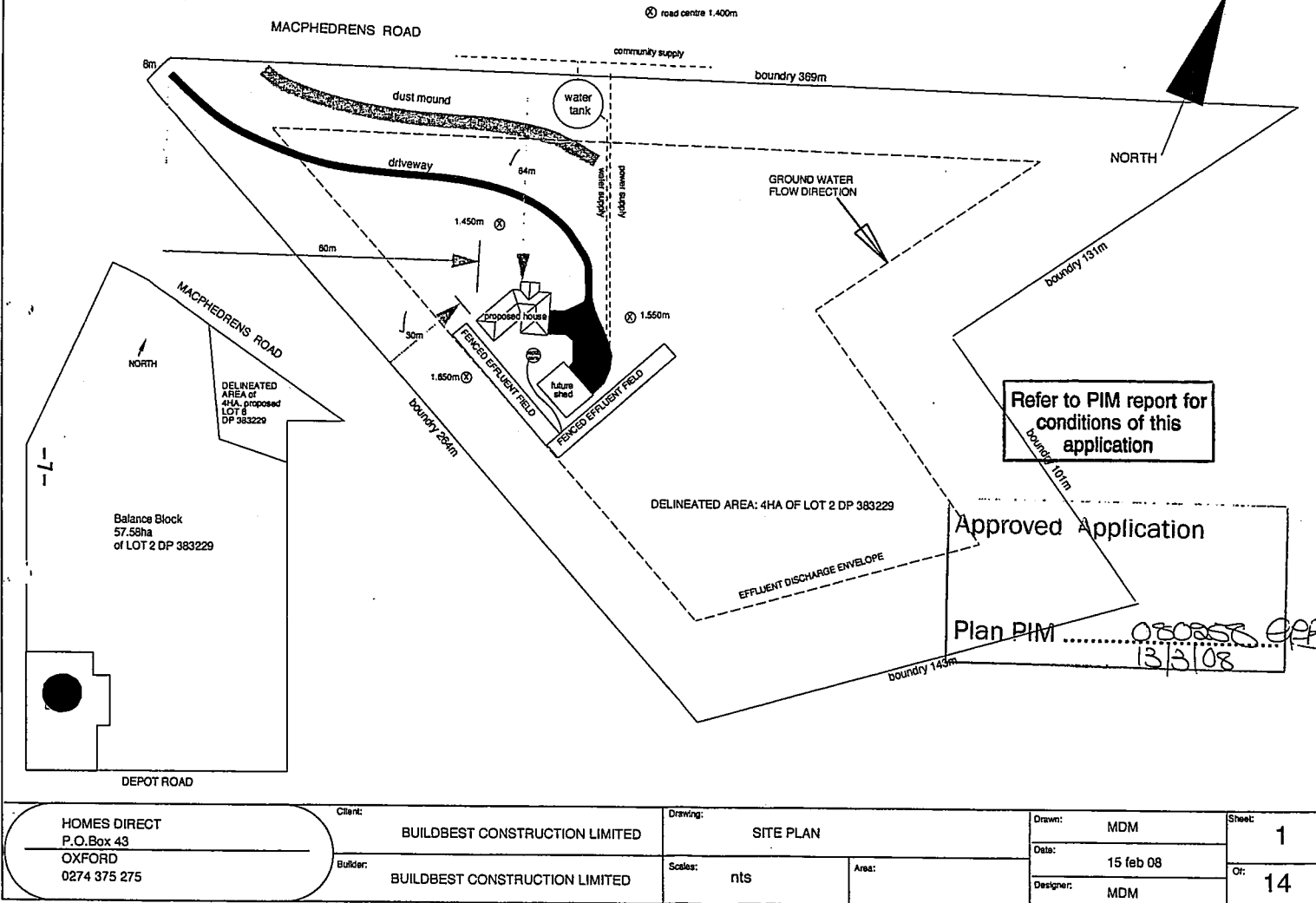
E. P. Beilby
Signature

Pims Officer

Position

On behalf of: Waimakariri District Council

Date: 7/03/08



RURAL LEGEND (Sheets 1 to 76)

Zone Business 2
 Zone Rural
 Subdivision Constraint
 Localised Flooding Area
 Outstanding Landscape - Ashley Gorge
 Outstanding Landscape - Core
 Outstanding Landscape - Buffer
 Prominent Ridges
 Goat control area

Note: See Rule 23.1.1.16 for goat control (includes Outstanding Landscape areas)

 Transit New Zealand Designation
 Transit Rail Designation

Designations
 Heritage Sites
 Vegetation and Habitat Sites
 Notable Plant Sites
 Archaeological Sites
 Waahi Tapu / Waahi Tonga

Note: These notations do not necessarily indicate the precise position of the Site, nor relate to the size of any Site.

 Vegetation & Habitat Site: - V159 Oxford Conservation Area
 Vegetation & Habitat Site: - V160 Mt Thomas Forest
 Vegetation & Habitat Site: - V161 Puketeraki Forest

***** River Reaches subject to esplanade provisions

▲▲▲ Limited Access Road

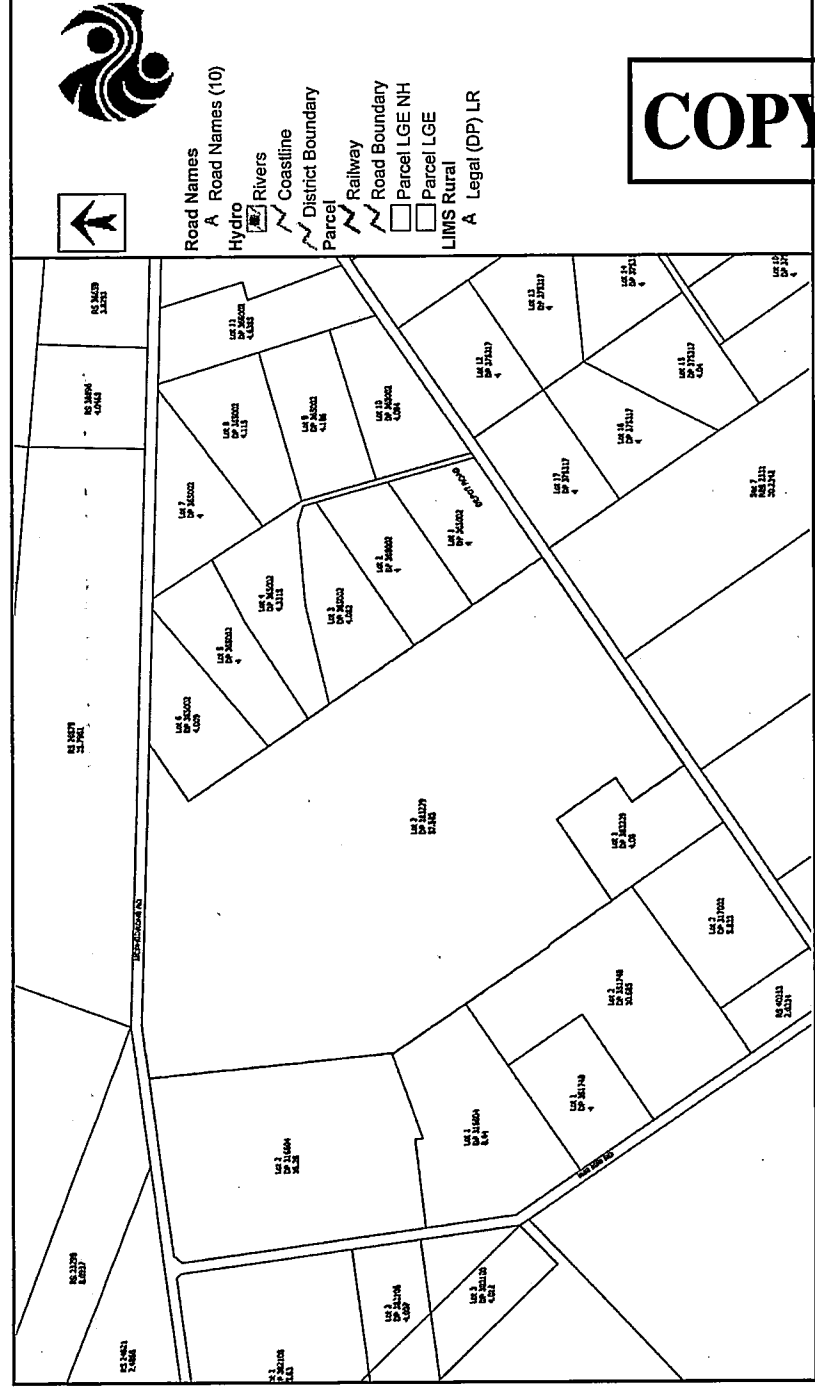
----- Coastal Marine Area boundary

----- Average Noise Exposure Contours; Christchurch International Airport

50 Noise Level in dBA Ldn

Waimakariri District boundary

SEE Area Covered by 1:7,500 scale



The user of the information has the responsibility to pothole and confirm the exact location of the service. When excavating in the vicinity of any Council service, the contractor will be held responsible for all damage to Council property.

The accuracy of the plan is not guaranteed. Measurements shown are subject to reasonable tolerance and have been provided from the Council records. Photocopying will alter scale measurements. The Council does not guarantee the existence of service laterals to vacant lots, regardless of whether a lateral is shown on this plan.

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on 7/03/2008



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The user of the Information has the responsibility to pothole and confirm the exact location of the service. When excavating in the vicinity of any Council service, the contractor will be held responsible for all damage to Council property.

The accuracy of the plan is not guaranteed. Measurements shown are subject to reasonable tolerance and have been provided from the Council records. Photocopying will alter scale measurements. The Council does not guarantee the existence of service laterals to vacant lots, regardless of whether a lateral is shown on this plan.

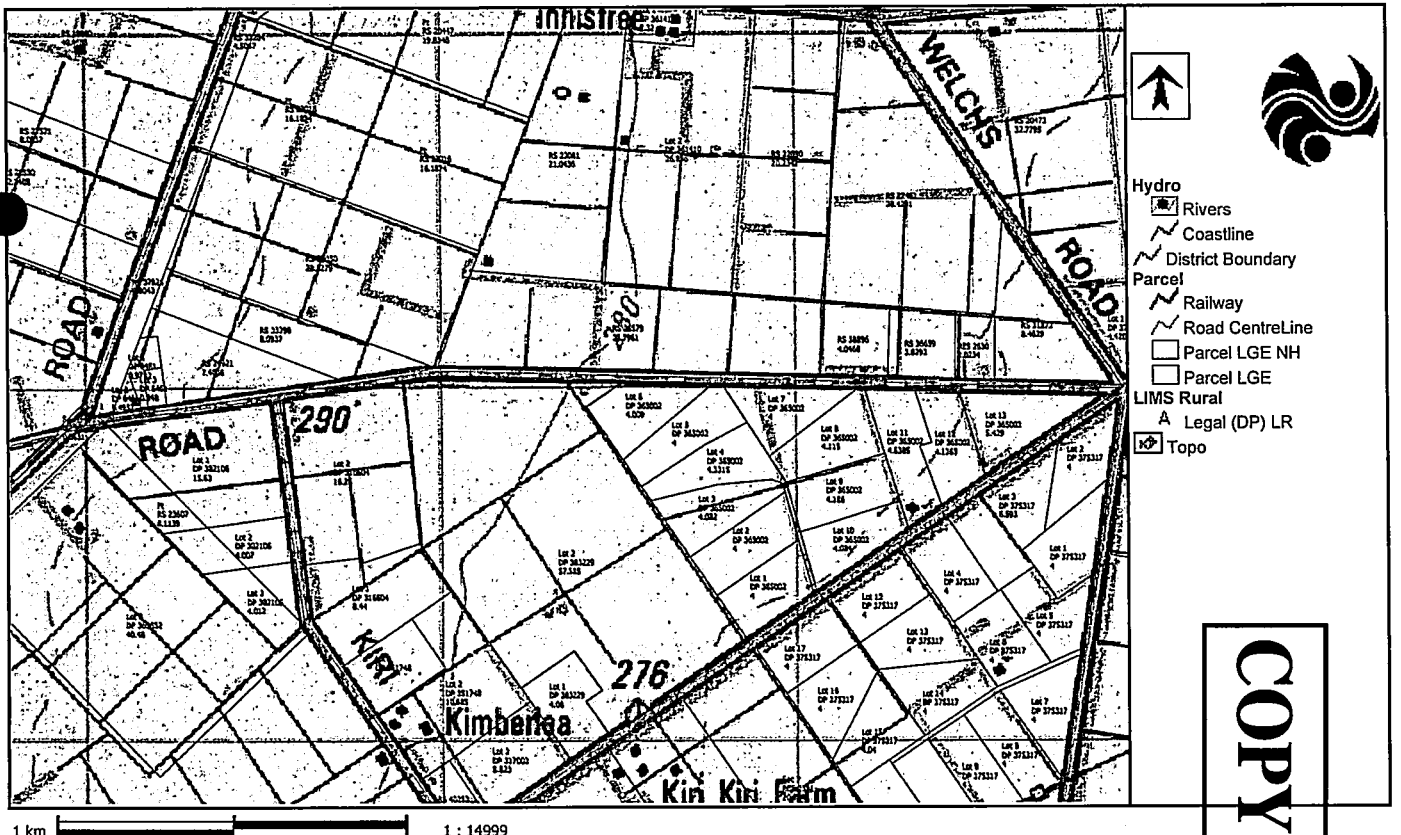
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on 7/03/2008

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7/03/2008

Print Preview

Page 1 of 1



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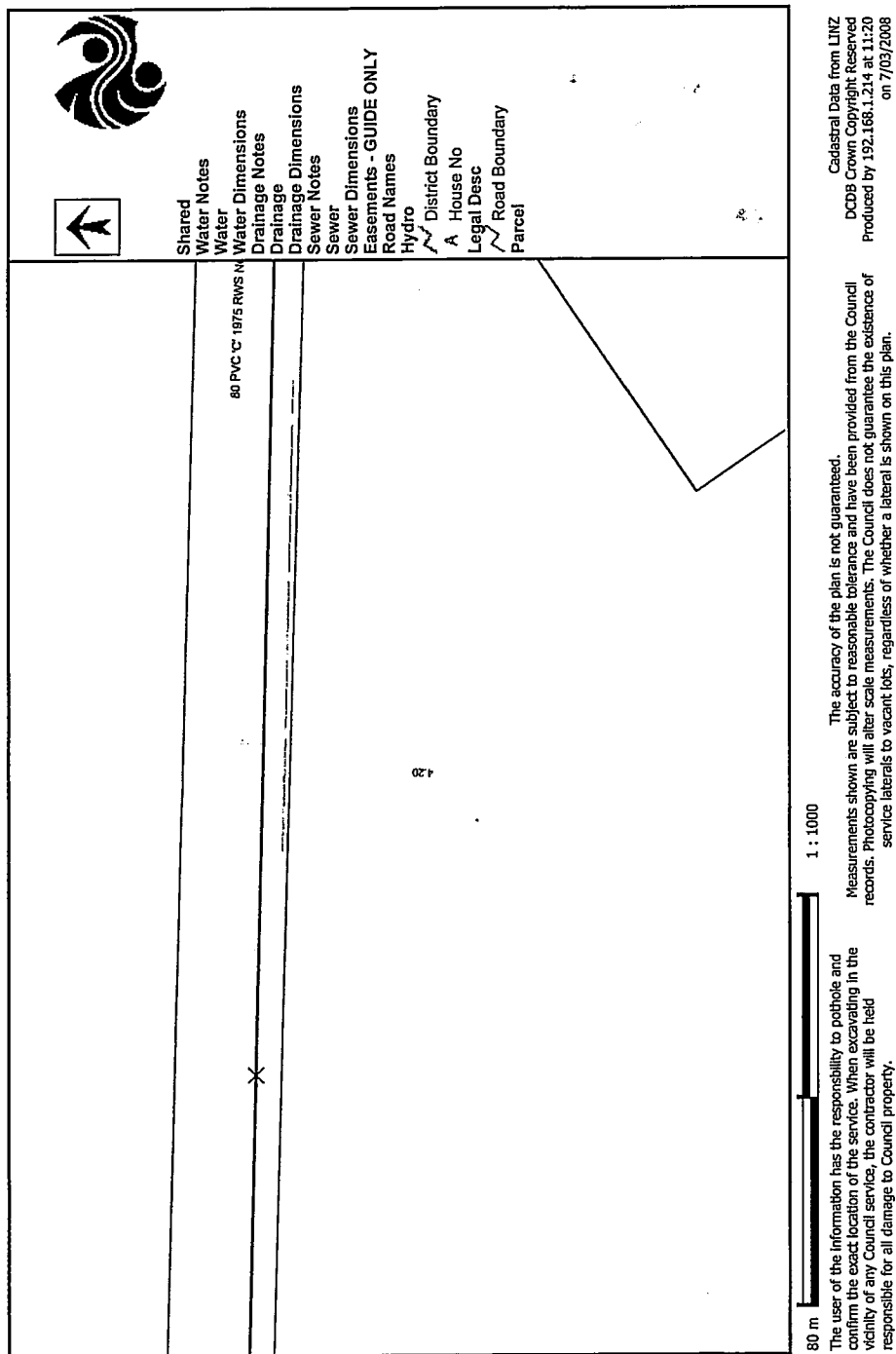
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The accuracy of the plan is not guaranteed. Measurements shown are subject to reasonable tolerance and have been provided from the Council records. Photocopying will alter scale measurements. The Council does not guarantee the existence of service laterals to vacant lots, regardless of whether a lateral is shown on this plan.

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7/03/2008



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7/03/2008

COPY

RC065655
RC065372

CERTIFICATE ISSUED PURSUANT TO THE RESOURCE MANAGEMENT ACT 1991

In the matter of the Land Transfer Plan 383229 and pursuant to Section 224(c) of the Resource Management Act 1991, I hereby certify that some of the conditions of the subdivision consent (Lots 1 & 2 being subdivision of Lot 2 DP 59418~~7~~) have been complied with to the satisfaction of the Waimakariri District Council, and a bond agreement has been entered into in respect of the condition that have not been complied with.

Dated at Rangiora this 3rd day of May 2007

B. J. Chambers
Authorised Officer

Land Registration District

Canterbury

Plan Number

LT 383229

Territorial Authority (the Council)

Waimakariri District Council

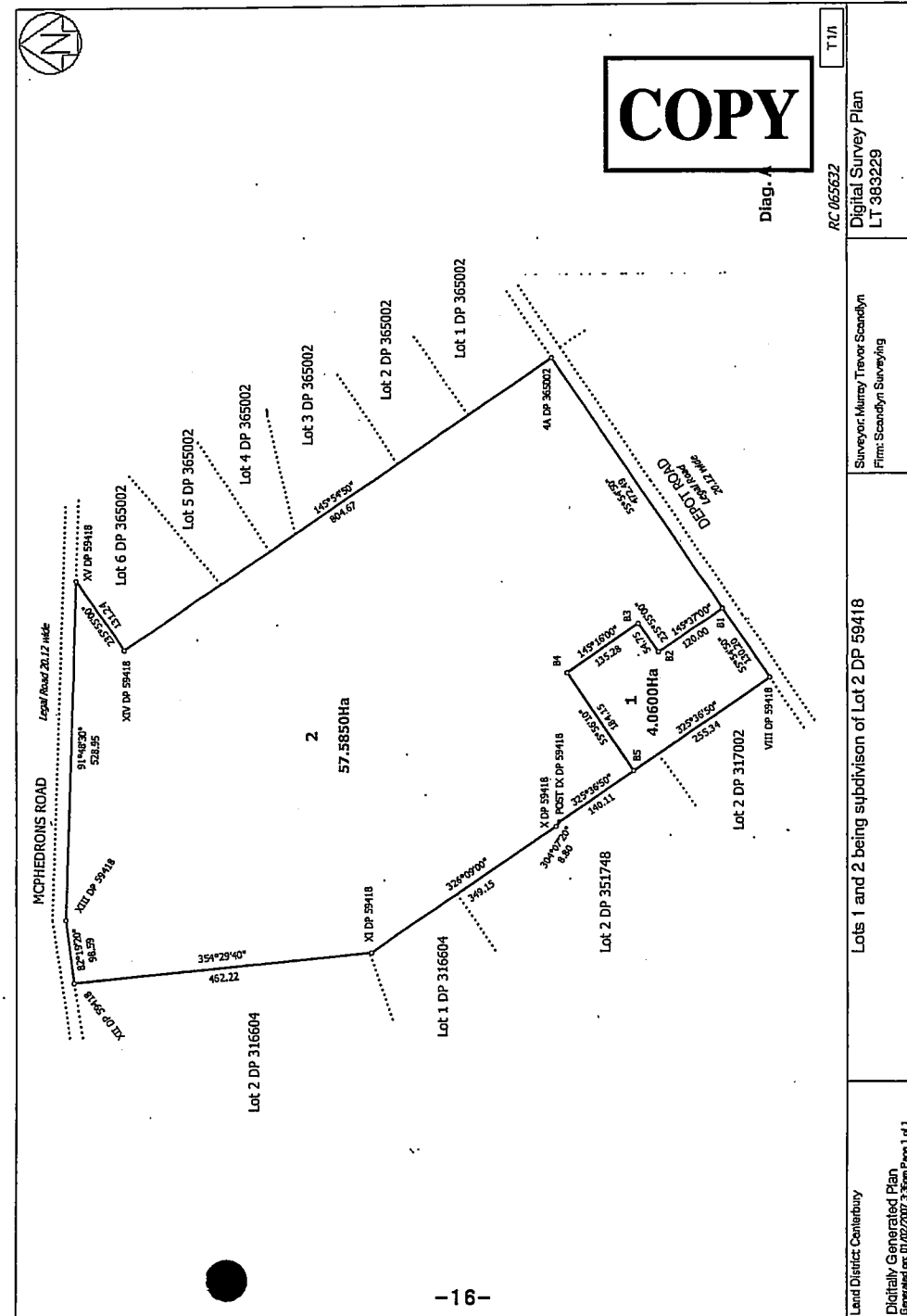
Certifications under the Resource Management Act 1991

Pursuant to the Resource Management Act 1991 I hereby certify that:

☐ the above plan was approved by the Council pursuant to section 223 of the Resource Management Act 1991

Dated this 15th day of February 2007

[Signature]
Principal Administrative Officer/Authorised Officer



WAIMAKARIRI DISTRICT COUNCIL

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of an application lodged by **Buildbest Construction Ltd** for a resource consent under Section 88 of the aforementioned Act.

APPLICATION

The applicants sought a resource consent to staged subdivision of 61.65 ha into 15 lots of 4.0ha, with reticulated water and road to vest.

DECISION

The District Plan Manager, on the 26th January 2007, approved:

Subdivision

THAT pursuant to Section 104C of the Resource Management Act 1991, consent be granted to subdivide Lot 2 DP 59418, comprising 61.65 hectares into Lots 1 to 15, of 4.0 hectares each without the ability to connect to reticulated sewer, and Lot 16 (9230m² to vest as road) at 679 Depot Road, Oxford as a restricted discretionary activity subject to the following conditions which are imposed under Section 108 of the Act:

1. The activity shall be carried out in accordance with the attached approved application plans. Lots 1-15 shall be a minimum of 4.0ha in area.
2. **Standards**
 - 2.1 All stages of design and construction shall be in accordance with the Waimakariri District Council Engineering Code of Practice.
3. **Easements**
 - 3.1 All services, including open drains and access ways, water pipelines, serving more than one lot or traversing lots other than those being served and not situated within a public road or proposed public road, shall be protected by easements. All such easements shall be granted and reserved.
4. **Power and Telephone**
 - 4.1 The subdivider shall provide evidence in writing from the relevant utility providers that existing electrical and telephone reticulation has the capacity to

provide a service connection to proposed Lots 1 - 15.

COPY

5. Water Supply

- 5.1 The subdivider shall provide an adequate and secure domestic water supply to Lots 1 - 15 of at least 2.0 m3/day.
- 5.2 The subdivider shall purchase additional units of water from the scheme to supply a minimum of 2 units to Lots 1 -15, including pipework, fittings and storage tanks with a minimum capacity of 4500 litres, in accordance with the Waimakariri District Council Rural Water Bylaw 1992. This is a flow restricted supply.
- 5.3 The subdivider at his expense shall install a 63 mm diameter PE 80 B PN16 water main along the north berm of Depot Road, running from the existing 63 mm diameter main in the north berm of Depot Road to a point 1.0 metre west of the eastern boundary of Lot 1.
- 5.4 The subdivider at his expense shall install a 63 mm diameter PE 80 B PN16 water main along the north berm of the road to vest running from the 63mm diameter main in the north berm of Depot Road, to be installed under condition 5.3, to a point 1.0 metre south of the common boundary of Lots 14 and 15.
- 5.5 The subdivider shall provide a 15 mm supply to Lots 1-7 and Lots 11-15 from the mains installed under 5.3 and 5.4 complete with toby valves, valve boxes and restrictors at the road boundary. The laterals shall terminate a minimum 1.0 metre inside the main body of the lots.
- 5.6 The subdivider shall provide a 15 mm diameter supply to Lots 8, 9 and 10 off the existing 80 mm diameter main running along McPhedrons Road, complete with toby valves, valve boxes and restrictors at the road boundary. The lateral shall terminate a minimum of 1.0 metre inside the main body of the lots.
- 5.7 The Council, at the subdivider's expense, shall carry out all connections to the existing public water supply.
- 5.8 Where any pipeline or service crosses any other lot or private property such piping shall be protected by easement.

6. Water Network Financial Contributions

- 6.1 The subdivider shall contribute to the cost of reticulation upgrading works required to provide the additional 18 units of water. The cost of the upgrading has been established as \$570.37 including GST/unit. The subdivider's contribution shall be **\$10,266.66 including GST.**

7. Access

7.1 The existing access to Lot 1 off Depot Road shall be upgraded and sealed to accord with the requirements of Waimakariri District Council Standard Drawing 600-217 (issue c).

7.2 The access to Lots 8, 9 and 10 off McPhedrons Road shall be formed to accord with the requirements of Waimakariri District Council Standard Drawing 600-217 issue c at the locations shown on the approved application plan.

8. Roading

8.1 The subdivider shall construct all roading to service the subdivision in accordance with the approved plans and specifications and the requirements of the Waimakariri District Council Engineering Code of Practice, in particular Standard Drawing 600-270 (issue c).

8.2 The intersection of the new road onto Depot Road shall be installed and constructed in accordance with Waimakariri District Council Standard Drawing 600-260C Type A, which is a modified version of the Standard Tee Intersection Plan (600-260 issue c).

8.3 The road to vest shall include the provision of a Type A cul de sac turning area as detailed on Waimakariri District Council Standard Drawing 600-275 (issue B). The surfacing shall be 30mm asphaltic concrete.

8.4 The subdivider shall be required to carry out Benkelman Beam tests or other approved in situ formation bearing tests following completion of the base course layer and prior to sealing.

8.5 The new road shall be sealed comprising a two wet coat seal system (grade 6 chip over grade 4 chip) over the entire carriageway surface, except for cul-de-sac heads, which shall be surfaced with asphaltic concrete over a waterproofing single coat chip seal.

9. Road to Vest

9.1 Lot 16 shall vest in the Council as road.

10. Development Contributions

10.1 Pursuant to section 198 of the Local Government Act 2002, the consent holder shall pay **\$80,581.50 including GST**, this amount is based on the following contributions:

Description	Units/ Lots	Factor (excluding GST) Per Unit/Lot \$	Amount (excluding GST) Total \$	Amount (Inclusive GST) Total \$
Reserves	14	2,481.00	34,734.00	39,075.75

Water	18	568.00	10,224.00	11,502.00
Roading	14	1,731.00	24,234.00	27,263.25
Community Infrastructure	14	174.00	2,436.00	2,740.50
Total		4,954.00	71,894.00	80,581.50

COPY

11. Roading Upgrading Financial Contributions

11.1 The subdivider shall pay a financial contribution of **\$86,069.65 (GST incl)** towards the upgrading and sealing of McPhedrons Road from the intersection with Welchs Road to the western boundary of the subdivision. The total cost of the works is estimated at \$425,035.36 + GST. The subdivider's share based on expected traffic flows has been assessed at 18.0%.

11.2 The financial contribution shall be subject to inflation adjustment using the CPI index.

12. Maintenance

12.1 The subdivider shall be responsible for the maintenance of all subdivision works for a period of six months following the date of issue of the Council's 'Condition Certificate'. A bond equal to 5% of the cost of construction works shall be lodged with Council for the same period

Maintenance shall include:

- Repair of any damage or defects in any of the works or services associated with the development of the subdivision as consented to.

13. As Built Plans

13.1 The subdivider shall provide daily site sealing records from the Sealing Contractor as part of the As Built record, to enable accurate RAMM records to be established for the new road construction.

13.2 The subdivider shall provide the Council with copies of the Benkelman Beam tests.

13.3 "As Built" plans setting out in detail the location of all services shall be provided to the Council immediately following completion of the works and shall be available at the time of the Condition Certificate inspection. Two sets of plans shall be provided at a scale of 1:1000 and 1: 250. In addition to the plans a practising registered professional civil engineer or registered surveyor shall provide a separate certificate stating that the As-built plans are a true and accurate record of all services. Furthermore, where plans have been prepared using computer aided draughting techniques a copy of the file shall be made available to the Council in either of the following format - Microstation (.DGN), Autocad (.DWG), or (.DXF).

14. **Plans and Specifications**

- 14.1 Three copies of plans and specifications of all works shall be submitted to the Council for approval. Approval of complying documents shall be given in writing and work should not commence until this has been received from the Council.
- 14.2 The subdivider shall forward with the engineering plans and specifications, copies of any other consents granted in respect of this subdivision.
- 14.3 Any subsequent amendments to the plans and specifications shall be submitted to Council for approval prior to the commencement of work associated with the amendment.

15. **Supervision and Setting Out**

- 15.1 A practising Registered Civil Engineer or Registered Professional Surveyor, who shall be engaged prior to commencement of any works, shall supervise all engineering works and setting out.
- 15.2 The supervising engineer/surveyor shall supply a certificate to the Council, stating that all works have been designed in accordance with the appropriate standards and sound engineering practice.
- 15.3 The supervising engineer/surveyor shall submit a programme of inspection intended to meet the requirements of conditions at the time of submitting the engineering plans and specifications.
- 15.4 The supervising engineer/surveyor shall supply to Council a certificate stating that all works and services associated with the subdivision have been installed in accordance with the approved plans and specifications and that the "As Built" plans are a true and accurate record of all works and services as constructed. This certificate shall be supplied at the time of requesting the Section 224c Certificate.
- 15.5 The supervising engineer/surveyor shall forward copies of site inspection notes for all Supervision site visits to the Council. These shall be forwarded within five working days of the date of that site visit.

16. **Road Opening/Trenching**

- 16.1 All works involving trenching/road opening shall meet the requirements of the Council's Standard conditions for Trenching. No excavation shall commence within a public road reserve without the prior receipt of a Road Opening Permit from the Waimakariri District Council. In the event of any works on trenching being required across the frontage of adjacent properties the subdivider shall inform the affected occupiers of those properties, 48 hours prior to the commencement of any work.

17. **Street Names**

- 17.1 The subdivider shall provide three options of a street name for the approval of the Council, and shall provide and install the street name signs and poles at each intersection to the Council's standard.

18. **Traffic Management**

- 18.1 The subdivider shall submit for approval a comprehensive Traffic Management Plan (*format attached*) detailing traffic control works (including sketch layout and control signs). This plan shall be submitted at the time of engineering plan approval and shall be submitted prior to work commencing on or in the road reserves off Depot Road or McPhedrons Road. Traffic Management shall be to Level 1, as described in the TNZ Code of Practice for Temporary Traffic Management.

19. **Staging**

- 19.1 The subdivision may be undertaken in four stages where:

- Lot 1 (4.0ha) and 99 (balance) makes up stage one;
- Lots 8 –10 (4ha) and 98 (balance) make up stage two;
- Lots 2-5 (4ha), 15 (4ha) and 97 (balance) make up stage 3;
- Lots 6-14 (4ha) make up stage 4;

provided all the conditions that apply to each stage have been met.

20. **Conditions Auditing**

- 20.1 The Council will audit compliance with the conditions of consent by both site inspections and checking of associated documentation to the extent necessary to ensure the work is completed in accordance with the approved plans and specifications and to the Council's standards. The Council will undertake inspections and checking. The subdivider, or their authorised agent, shall notify Council at least one working day prior to commencing various stages of the works. This is to enable audit inspections required by the consent to be performed.

The minimum level of inspection shall be as follows:

Water

- Following completion of required works.

Rights of Way/Accesses

- Following excavation to subgrade and prior to backfilling
- Prior to final surfacing

Roading

- Following shaping of roading sub-grade prior to placement of sub base material.
- Following compaction of base course prior to sealing. This surface is to be tested with a Benkelman Beam and the results submitted to Council for approval.

Whole Works

- Prior to issue of the certificate under section 224 (c) of the Resource Management Act.

Where repeat inspections are required because of faulty workmanship or work not being ready contrary to the receipt of a notification, such inspections will be carried out at the current hourly rate for staff time and vehicle running costs for kilometres travelled.

21. Works Conditions

- 21.1 That a certificate under Section 224(c) of the Resource Management Act 1991 will not be issued until conditions 1 to 20 above have been met to the satisfaction of the Waimakariri District Council, at the expense of the subdivider.

ADVICE NOTES

- a) The requirements and conditions listed are a statement of the Council's minimum standards. Where the subdivider proposes higher standards or more aesthetically acceptable alternatives these shall be submitted to the Council for approval.
- b) The requirement for power and telephone to be confirmed as having capacity to service the subdivision does not guarantee that power or telephone connections are provided to potential house sites. On rural lots, the service authorities will not install submains to individual lots until the location of the house site is determined. Prospective purchasers of these lots should be

advised to contact the relevant service authorities to ascertain the likely costs of servicing any specific lots to the purchaser's requirements.

- c) In relation to condition 17, Street Names, the subdivider's attention is drawn to the Council's road naming policy.


COPY

REASONS FOR THE DECISION

Pursuant to Section 113 of the Act the Council was satisfied that:

- No person is deemed to be adversely affected by the proposal.
- The environmental effects will be no more than minor.
- The proposal is in accordance with the District Plan.

DATED at Rangiora this 13th day of February 2007


SIGNED by Garry Blay
PLANNING OFFICER

NOTES

Subdivision proposal plan only.
Areas and dimensions subject to final survey.
Plan prepared for the purpose of obtaining a Resource Consent.

Note : Scandlyn Surveying accepts no responsibility for the use of this plan for any other purpose other than that intended (obtaining a Resource Consent).

Note : Lots 6-7,12-15 have no frontage to a public road.

2
DP316604

-25-

Proposed staging

Stage 1: Lot 1 (amended) and Lot 99 (bal.CT)

Stage 2: Lots 8-10 and Lot 98 (bal.CT)

Stage 3: Lots 2-5, 15 and Lot 97 (bal.CT)

Stage 4: Lots 6-14

Proposed house site
50*50 square

120*120 square

Approved Application

RC065655

Plan

IM Casey 26/01/07
DISTRICT PLAN MANAGER

2
DP351748

2
DP317002

PROPOSED EASEMENTS				
Notes	Lot	Section	Transfer	Discharge
Right of Way	8	A	Lot 8A10	
Right to carry electric power and telegraphic communications	9	B	Lot 8A10	
Right to carry water	10	C	Lot 8A8	
	11	D	Lot 6,7,12,13,14	

FILE NAME: 2635_R6 10NOV06_ALL.DWG
Dwg Date: 9/05, 11/10/06
PATH: I:\ACAD_DWG\

Waimakariri District Council
Comprised in CT 35A/223 61,6500 ha
Original scale 1:5000 Format (A3)

Lots 1-15 being subdn of Lot 2 DP59418

Prepared by: Scandlyn Surveying Ltd
209B High Street
RANGIORA
Ph 3131272, Fax 3131274
Reference: 2635_R6all 10 Nov 06

NOTES

Subdivision proposal plan only.
Areas and dimensions subject to final survey.
Plan prepared for the purpose of obtaining a Resource Consent.

Note : Scandlyn Surveying accepts no responsibility for the use of this plan for any other purpose other than that intended (obtaining a Resource Consent).

Note : Lots 6-7,11-15 have no frontage to a public road.

2
DP316604

Approved Application

RC065655

Plan

IM Casey 26/01/07
DISTRICT PLAN MANAGER

Proposed house site
50*50 square

120*120 square

Proposed staging

Stage 1: Lot 1 and Lot 99 (bal.CT)

Stage 2: Lots 8-10 and Lot 98 (bal.CT)

Stage 3: Lots 2-5, 15 and Lot 97 (bal.CT)

Stage 4: Lots 6-14

Stage 1

2
DP351748

2
DP317002

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Waimakariri District Council
Comprised in CT 35A/223 61,6500 ha
Original scale 1:5000 Format (A3)

Lots 1-15 being subdn of Lot 2 DP59418

Prepared by: Scandlyn Surveying Ltd
209B High Street
RANGIORA
Ph 3131272, Fax 3131274
Reference: 2635_R6 Stage1 10 Nov 06

COPY

Note : Lots 6-7,12-15 have no frontage to a public road.

Plan UM Casey → 26/01/07.
DISTRICT PLAN MANAGER

Stage 1: Lot 1 (amended) and Lot 99 (bal.CT)
 Stage 2: Lots 8-10 and Lot 98 (bal.CT)
 Stage 3: Lots 2-5, 15 and Lot 97 (bal.CT)
 Stage 4: Lots 6-14

Proposed house site
50'50 square

120*120 square

Stage 2

Waimakariri District Council
Comprised in CT 35A/223 61.6500 ha
Original scale 1:5000 Format (A3)

Lots 1-15 being subdn of Lot 2 DP59418

FILE NAME: 2635_R6_STAGE2 10NDV06.DWG
Dwg Date: 10/31, 11/10/06
PATH: I:\ACAD.DWG\

Prepared by: Scandlyn Surveying Ltd
209B High Street
RANGIORA
Ph 3131272, Fax 3131274
Reference: 2635_R6 Stage 2 10 Nov 06

PROPOSED EASEMENTS			
Nature	Servient Tenement		Dominant Tenement
	Lot	Shore	
Right of Way	8	A	Lots 8&10
Right to carry electric power and telephonic communications	8	B	Lots 8&10
Right to convey water	10	C	Lot 3&5

Note : Lots 6-7,12-15 have no frontage to a public road.

Plan UM Caseley 26/01/07.
DISTRICT PLAN MANAGER

Stage 1: Lot 1 (amended) and Lot 99 (bal.CT)
 Stage 2: Lots 8-10 and Lot 98 (bal.CT)
 Stage 3: Lots 2-5, 15 and Lot 97 (bal.CT)
 Stage 4: Lots 6-14

Proposed house site
50'50 square

120'120 square

Stage 3

Waimakariri District Council
Comprised in CT 35A/223 61.6500 ha
Original scale 1:5000 Format (A3)

Lots 1-15 being subdn of Lot 2 DP59418

FILE NAME: 2635_R6_STAGE3 IONIV06.DWG
Dwg Date: 10/03, 11/10/06
PATH: L:\ACAD_DWG\

Prepared by: Scandlyn Surveying Ltd
209B High Street
RANGIORA
Ph 3131272, Fax 3131274
Reference: 2635_R6 Stage3 10 Nov 06

COPY

NOTES

- Subdivision proposal plan only
- Areas and dimensions subject to final survey.
- Plan prepared for the purpose of obtaining a Resource Consent.
- Note : Scandlyn Surveying accepts no responsibility for the use of this plan for any other purpose other than that intended (obtaining a Resource Consent).
- Note : Lots 6-7,12-15 have no frontage to a public road.

2
DP316804

Approved Application

AC065655

Plan M. Pasley 25/01/07
District Planning

Proposed staging

- Stage 1: Lot 1 (amended) and Lot 99 (bal.ct)
- Stage 2: Lots 8-10 and Lot 98 (bal.ct)
- Stage 3: Lots 2-5, 15 and Lot 97 (bal.ct)
- Stage 4: Lots 6-14

Proposed house site
50x50 square

120x120 square

Stage 4

Waimakariri District Council
Comprised in CT 35X/223 61.6500 ha
Original scale 1:5000 Format (A3)

Lots 1-15 being subdn of Lot 2 DP59418

Prepared by: Scandlyn Surveying Ltd
209B High Street
RANGIORA
Ph 3131272 Fax 3131274
Reference: 2635_R6 Stage4 10 Nov 06

FILE NAME: RES-15-STAGE4-15NOV06
DRAWN BY: JACOB 11/10/06
PMP 2006/000000

History	Proposed Easements	Surveyed Easements	Deemed Easements
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
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9	9	9	9
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100	100	100	100



McPhedrons Road
Legal S Road

DEPT RD
Legal S Road

2
DP317002

2
DP351748

1
DP316804

1
DP365002

2
DP365002

3
DP365002

4
DP365002

5
DP365002

6
DP365002

Network Ref: 7415
COPY

17 April 2007

Scandlyn Surveying
P O Box 454
Rangiora

Attention: Murray Scandlyn

Fax 03 312 1273

Dear Murray Scandlyn

Re. Power Connection for Proposed Subdivision of Lot 2 DP 59418 Depot Road, Oxford

MainPower confirms that the 11kV power lines on Depot Road have the capacity to supply the proposed subdivision.

Please do not hesitate to contact me on 03 311 8316 if you have any questions.

Yours faithfully

Greg O'Sullivan
Planning & Design



COPY

Telecom New Zealand Limited
Telecom House
109 Hereford Street
PO Box 1473
Christchurch
Telephone: 03 353 3267
Facsimile: 03 379 1257

Telecom Ref: TPM2949
Your Ref: 2635

Date: 17th April 2007

Scandlyn Surveying Ltd
PO Box 454
RANGIORA

Attn: Murray Scandlyn

RE: Proposed Subdivision Section Lots 1&2 DP59418 Buildbest Construction
Ltd 679 Depot Road Oxford

TELEPHONE NETWORK PROVISIONING

Thank you for your letter and Scheme plan for the above subdivision.

Telephone reticulation to the above subdivision can be provided through Telecom's network, within standard provisioning guidelines. Telecom reserves the right to defer or decline provisioning in exceptional cases, particularly where network growth is, in Telecom's assessment, deemed uneconomic or cannot be accommodated for other reasons.

Connection to the Telecom network, including provision of service lead-ins, can be arranged at the request of the end customer. To arrange for connection, customers should phone 123 then select option 3 then option 1, Telecom Residential Sales and Service.

Adjustments to the telephone network may result in a delay in providing service, particularly if substantial adjustments or additions to the network are required.

Telecom standard new connection charges, and Network Extension charges where applicable, will apply to any new connection made to this subdivision. Please contact Telecom Residential Sales and Service, by phoning 123, then select option 3 then option 1, for an assessment of these fees.

Yours faithfully

Linda Fitch
Network Deployment Administrator

Form 4

Certificate attached to project information memorandum 070756

Section 37, Building Act 2004

Restrictions on commencing building work under the Resource Management Act 1991

The building work referred to in the attached project information memorandum is also required to have the following resource consents under the Resource Management Act 1991:

- Resource Consent approval is currently being sought to install and operate a non reticulated land based domestic effluent disposal system (septic tank) under Resource Consent application 065619.
- Drainage details showing the type, location and operation of a domestic effluent disposal system (septic tank) is in strict compliance with conditions set out in the Resource Consent (to be approved), and the Environment Canterbury's (Canterbury Regional Council) new regulations (proposed Natural Resources Regional Plan – Chapter 4.5 water takes, sewage and stormwater discharges) notified 3rd July 2004, and General Authority, will need to be forwarded for building consent approval.

As these resource consents will or may materially affect the building work to which the attached project information memorandum relates, until they have been granted 070756

Failure to comply with the requirements of this notice may result in legal action being taken against you under the Resource Management Act 1991.

Signature

Pims Officer

Position

On behalf of: Waimakariri District Council

Date: 7/03/08