Waipa DISTRICT COUNCIL

BUILDING COMPLIANCE
CCC ISSUED

BC / 0773 / 12	PROPERTY ID: P61246 VALUATION NUMBER: 04470/424.02



SCANNED

CODE COMPLIANCE CERTIFICATE SIGNED & ISSUED

Document Set ID: 3528964
Version: 2, Version Date: 30/07/2013

Application for Code Compliance Certificate

Section 92, Building Act 2004

1. THE BUILDING CONSENT

BC Number: 0773/12

Issued by: .....

[Name of the Council / Building Consent Authority (BCA) that granted the building consent]

OFFICE ONLY: Date received:

2. THE OWNER

Name of Owner / Company: Paula Lovegrove
Contact person: S/A
Mailing address: 53 Kakepuku Road R3
Street address / registered office: S/A
Phone number (Landline): 07 871 7675
Mobile: 0274725535 Daytime: .....
After Hours: ..... Facsimile number: .....
Email address: .....
Website: ..... Attention: .....

The following evidence of ownership is attached to this application:

☐ Copy of Certificate of Title ☐ Lease Agreement
☐ Agreement for Sale and Purchase ☐ Other Document

3. AGENT [If application is being made on behalf of the owner]

Name of Agent / Company: .....
Contact person: .....
Mailing address: .....
Street address / registered office: .....
Phone number (Landline): .....
Mobile: ..... Daytime: .....
After Hours: ..... Facsimile number: .....
Email address: .....
Website: ..... Relationship to Owner: .....

FIRST POINT OF CONTACT for communications with the Council / Building Consent Authority [BCA]: ☐ Owner ☐ Agent

INVOICE TO: ☐ Owner ☐ Agent

4. APPLICATION [Tick those boxes that are applicable]

All building work to be carried out under the Building Consent specified on this form was completed on .....*[insert date]*

The licensed building practitioner(s) who carried out or supervised the restricted building work is / are as follows: ☐ Not Applicable as NO restricted building work

Name	**Licensing Class**	**Licensed building practitioner number** (or registration number if treated as being licensed under section 291 of Building Act 2004)	**Particular work carried out or supervised**

[**Note**: continue on another page if necessary]

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The personnel who carried out building work other than restricted building work are as follows:
[list names, addresses, telephone numbers, and (where relevant and if not provided above) licensed building practitioner numbers or Plumbers, Gasfitters, and Drainlayers Board registration numbers]

Name	Address *[contact details must be in New Zealand]*	Phone No. ~~021 44 69 85~~ License / Registration No:
Shannon Banks	11 Brady St Te Awamutu	PH: 021 44 69 85 LBP / Registration No: 111569
Daniel Kaaxxxxxxx	PO Box 1713840 Te Awamutu	PH: 027 79 79 72 LBP / Registration No: 105217
Yowan Miller	Mytchwest electrical 16 leslie street ~~Te Awa~~ Kihikihi	PH: 027 491 67 867 LBP / Registration No: E245825
		PH: LBP / Registration No:
		PH: LBP / Registration No:
		PH: LBP / Registration No:
		PH: LBP / Registration No:
		PH: LBP / Registration No:
		PH: LBP / Registration No:
		PH: LBP / Registration No:
		PH: LBP / Registration No:

[**Note**: continue on another page if necessary]

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5. SPECIFIED SYSTEMS

The following specified systems are contained on the Compliance Schedule for the building and, in the opinion of the personnel who installed them, are capable of performing to the performance standards set out in the Building Consent: *[please tick as appropriate]*

The following specified systems are being altered, added to, or removed in the course of the building work: [Tick those that are applicable]		**Existing** [Tick]	**New or Added** [Tick]	**Altered** [Tick]	**Removed** [Tick]
SS1	Automatic systems for fire suppression (e.g. sprinkler systems)				
SS2	Automatic or manual emergency warning systems for fire or other dangers (other than a warning system for fire that is entirely within a household unit and serves only that unit)		✓		
SS3	Electromagnetic or automatic doors or windows (e.g. ones that close on fire alarm activation)				
SS4	Emergency lighting systems				
SS5	Escape route pressurisation systems				
SS6	Riser mains for use by fire services				
SS7	Automatic back-flow preventers connected to a potable water supply				
SS8	Lifts, escalators, travelators, or other systems for moving people or goods within buildings				
SS9	Mechanical ventilation or air conditioning systems				
SS10	Building maintenance units providing access to exterior and interior walls of buildings		✓		
SS11	Laboratory fume cupboards				
SS12	Audio loops or other assistive listening systems				
SS13	Smoke control systems		✓		
SS14	Emergency power systems for, or signs relating to, a system or feature specified in any of clauses 1 to 13				
SS15	Any or all of the following systems and features, so long as they form part of a building's means of escape from fire, and so long as those means also contain any or all of the systems or features specified in clauses 1 to 6, 9, and 13:				
SS15/1	Systems for communicating spoken information intended to facilitate evacuation				
SS15/2	Final exits				
SS15/3	Fire separations (as defined by the Building Code)				
SS15/4	Signs for communicating information intended to facilitate evacuation				
SS15/5	Smoke separations				
SS16	Cable Cars				

6. REQUEST:

I request that you issue a Code Compliance Certificate for this work under section 95 of the Building Act 2004.
The Code Compliance Certificate should be sent to: *[state which address and whether Owner or Agent]*

☐ Owner ☑ Agent Name of Owner / Agent: .....

Address: PO Box 1713640 .....

Signature of ☐ OWNER or by the ☑ AGENT on behalf of and with the authority of the Owner: *[tick correct one]*

Daniel Kreayvanayv .... 21/06/13 .....

[Print the Name of Person Signing] *[Signature]* *[Date]*

7. ATTACHMENTS *[the following documents are attached to this application]:*

☑ Other documents from the personnel who carried out the work e.g. Producer Statements, As-laid drainage plans.

☑ Memoranda (Records of Building Work) from licensed building practitioner(s) stating what restricted building work they carried out or supervised.

☑ Certificates that relate to the energy work e.g. electrical or gas certificates.

☐ Evidence that specified systems are capable of performing to the performance standards set out in the building consent.

NOTE: If the application is incomplete, processing cannot begin and you will be asked to complete the application and re-submit it.

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Waikato Building Consents

Minor Amendment Application

Building (Minor Variations) Regulations 2009

SCANNED

Working Together

13182805

1. **BUILDING CONSENT NUMBER:** BC 100773/12

OFFICE ONLY
Date received:
RECEIVED
27 MAY 2013
BY:
AMENDMENT NUMBER:

2. **THE BUILDING / PROJECT LOCATION** *[Physical address]*

Street Address: 210 Goodfellow st
Te Awamutu

3. **THE OWNER or AGENT** *[If agent is applying for the amendment]*

Name: FieldCrest Investments - Paula Lovegrove ☑ Owner ☐ Agent

State details of the authorisation from the owner and the designer to make the changes *[Please provide copy of their approval]*

Owner Authorisation: Paula Lovegrove

Designer Authorisation:

4. **APPLICATION**

Changes have been circled on the plans: *[Tick relevant box]* ☑ YES ☐ NO. Description of proposed changes to approved plans:

Move proposed Internal walls & Bracing elements.

[Continue on a separate sheet if necessary]

Amount value of project has increased by: $ N/A

Name: Paula Lovegrove Signature: Date: 27/5/2013
[Print Name]

The signature is that of the ☑ Owner OR the ☐ Agent on behalf of and with the approval of the Owner

5. **RESTRICTED BUILDING WORK:** If the amended building work includes restricted building work, complete the following:

☐ **Certificate(s) of Design Work** have been completed and are attached
Existing *[These should be provided to you by the Licensed Building Practitioner(s) who carried out or supervised any amended design work that is restricted building work]*

☐ **Licensed Building Practitioners details**
N/A If the LBP details have not already been provided to Council for this project, or if any details have changed, the details **must** be supplied to Council **before** the amended building work begins. Please complete and attach the **LBP Notification form** which is available from the Waikato Building Consents website or your local Council.

6. **COMPLIANCE SCHEDULES:** If the amended building work includes Specified Systems, please provide the Compliance Schedule details *[**Note**: If unsure whether your building has specified systems, talk to your Designer or IQP]*
N/A

☐ **Compliance Schedule details.** Please complete and attach the **Compliance Schedule Details Form LG_11** which is available from the Waikato Building Consents website or your local Council.

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OFFICE USE ONLY

Note: Put a line through any of the following sections that your BCA does not use or is not relevant to this project.

1. PROCESSING OF AMENDED DOCUMENTATION - Decision and reason for decision (tick those boxes that are appropriate)

These amendments have been reviewed and are APPROVED for the reason that

☐ The amendments comply with NZBC and relevant NZ standards *and / or*

☐ A Producer Statement has been received and approved

OR

These amendments have been reviewed and are being DECLINED for the reason that:

☐ The amendments do not comply with NZBC and relevant NZ standards

☐ A Code Compliance Certificate has been applied for

☐ They do not comply with Building (Minor Variations) Regulations 2009

Name: ..... Signature: ..... Date: .....
[Print Name of Building Officer]

2. DEPARTMENT Signoff and monitoring

Department	Date Received	Date Approved	Name of Person & Signature [Please Print Name]	Time Spent	Time Entered
Building Officer					
Compliance Officer					
Planning					
Utilities					
Health					
Other					

3. PLEASE STATE IF ANY EXTRA INSPECTIONS ARE REQUIRED:

Inspection	Number	Inspection	Number
Siting, foundation and repile		Post-line - building	
Bond beam, beam, column, tilt slabs		Sanitary sewer and stormwater	
Pre-floor – building & plumbing		Swimming pool fencing	
Structural framing (pre-wrap)		Heater	
Exterior cladding systems		CCC *(Including Commercial / Demolition)*	
Pre-line – building & plumbing		CCC Plumbing & Drainage	
		Total No. of Inspections	

4. AMENDMENT CHARGES	AMOUNT	CHARGE
Charge for actual time spent processing amendments		
LBP check *[If relevant]*		
Inspection Charges		
Photocopy Charges		
Other *[Specify]*		
TOTAL CHARGE		$
Receipt No.:		

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Waipa DISTRICT COUNCIL

Private Bag 2402
101 Bank Street
TE AWAMUTU 3840
0800 – WAIPADC (0800 924 723)
www.waipadc.govt.nz

FILE COPY

21 June 2013

04470/424.02

Field-Grove Investments Ltd
C/- Steve Cranefield & Paula Lovegrove
53 Kakepuku Road
RD 3
Te Awamutu 3873

Dear Sir or Madam

CODE COMPLIANCE CERTIFICATE APPLICATION – CCC/1250/12
CONVERT EXISTING TWO FLATS INTO ONE DWELLING 210 GOODFELLOW STREET TE AWAMUTU 3800 - FIELD-GROVE INVESTMENTS LTD

An inspection for the Code Compliance Certificate has been carried out by Gary McFarlane on 20 June 2013, as requested.

The inspection revealed the following areas of non-compliance:

✓1) Provide completed application for Code Compliance Certificate form
✓2) Provide record of works from the bricklayer
✓3) Provide the electrical certificate

Any documentation requested may be forwarded by e-mail to info@waipadc.govt.nz.

Upon completion or rectification of the above non-complying items, please contact our Customer Support Team on 0800 924 723 to arrange an inspection time.

Yours faithfully

AM°IRoy

21-6-13 :
All items now addressed.
gmcf

Ann McIlroy
REGULATORY ADMINISTRATION OFFICER

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Waipa
DISTRICT COUNCIL

FILE COPY

Building Consent BC/0773/12

Section 51, Building Act 2004

The Building

Street address of building: 210 Goodfellow Street Te Awamutu 3800
Legal description of land where building is located: LOT 9 DPS 443
Property ID: 61246 Rating unit number: 04470/424.02

The Owner

Field-Grove Investments Ltd
C/- Steve Cranefield & Paula Lovegrove
53 Kakepuku Road
RD 3
Te Awamutu 3873

Phone

Landline – 07 871 7675
Daytime – 07 858 3038
Mobile – 027 436 8216
After hours – N/A
Facsimile: N/A
E-Mail: N/A

First Point of Contact

New Vision Architecture Limited
PO Box 171
Te Awamutu 3840

Phone

Landline – N/A
Daytime – N/A
Mobile – 021 805 452
Facsimile: N/A
E-Mail: newvisionarchitecture@xnet.co.nz
Website:

Building Work

The following building work is authorised by this building consent:
Proposed work: Convert Existing Two Flats Into One Dwelling
Intended use: Private Dwelling
Value of work: $ 60,000.00

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

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Important Notices

Other Acts

- 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.

Restricted Building Work

- **This Building Consent involves Restricted Building work that must be undertaken or supervised by a Licensed building Practitioner that holds the appropriate license class.**
- **If you have not already done so, you are required to notify Council on the prescribed form, the name of every Licensed Building Practitioner who is going to be engaged to carry out the Restricted Building work prior to work commencing. The prescribed form can be obtained from a Council office or is available in the Application Forms and Checklists section of www.buildwaikato.co.nz.**
- **You will not be able to book inspections for Restricted Building Work until written notification regarding the Licensed Building Practitioners has been received and approved by Council.**
- **You are required to obtain a Record of Building Work Memorandum from all the Licensed Building Practitioners involved, detailing the Restricted Building Work they have completed. The record of Building Work Memorandum is to be attached to the application for the Code Compliance Certificate.**

Booking Inspections

- Inspections must be booked prior to 4.00pm on the day preceding the day of the required inspection. Please quote the Building Consent number when booking inspections.
- Please arrange the booking of inspections and direct enquires regarding this consent to the Customer Support Centre, contact Te Awamutu 07 872 0030 or Cambridge 07 823 3800.

Section 52 Building Act 2004 'Lapse of Building Consent':

- A building consent lapses and is of no affect if the building work to which it relates, has not commenced within 12 months after the date of issue of the building consent.

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This Building Consent is subject to the Following Conditions and Inspections

Inspections/Conditions

Foundations/Pile Holes (prior to pouring of concrete)
- Boundary pegs are to be located.
- All reinforcing steel is to be completed and tied in place.
- Excavated sites for sand pads are to be inspected by Council Building Control Officer prior to any sand fill being placed.
- If the depth of the sand fill exceeds 600mm the site is to be inspected by a Geotechnical Engineer who must also supervise the sand filing operation and provide a report to Council confirming the sand fill is capable of supporting the proposed building.

Pre-Wrap/Structural Framing
At the completion of the framing and bracing/fixings but prior to the fixing of any wall wrap/cladding or roofing underlay/cladding.

Pre-Lining/Framing
After the building is enclosed but prior to the fixing of any wall or ceiling linings. Wall and ceiling insulation is to be in place. Plumbing waste and water pipes are to be completed. Water pipes are to be under pressure test.

Post Lining (prior to stopping of walls)
Bracing elements to be nailed off

Drainage/Stormwater (prior to back filling drains)
As built drainage plan to be completed and submitted to Council Building Control Officer

Code Compliance Certificate
Following the completion of all building work to be carried out under this Building Consent the owner or his agent must as soon as practicable, apply to the Waipa District Council on the prescribed form for a Code Compliance.

Electrical/Gas Work
This building requires electrical/gas work to be undertaken and any work is to be done by an appropriately qualified person and an energy certificate of compliance is to be provided by that person.

Compliance Schedule Specified Systems
A Compliance Schedule is not required for this building

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Advisory Notes

Details of relevant public utility systems:
The proposed building work is to be sited on land which the Council has identified in its records as being connected to a public water supply owned by Council.

The proposed building work is to be sited on land which the Council has identified in its records as being connected to a public sewerage system owned by Council.

The proposed building work is to be sited on land which Council has identified as having no public utility system for stormwater disposal.

Gary McFarlane
Building Compliance Officer

On behalf of: Waipa District Council
Date building consent issued:

22 NOV 2012

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Application for PIM and/or Building Consent

Section 33 or section 45, Building Act 2004

Waikato Building Consent

Working together

SCANNED

1. THE BUILDING [If item is not applicable put NA in the space]

Street address of building: 210 Goodfellow st, Te Awamutu

Legal description of land where building is located: Lot(s) 9 DP/S 443

Building name: NA

Location of building within site / block number: [Include nearest street access] NA

Number of levels: [Above & below ground] 1 Level / Unit Number: NA

Floor area: Existing 125 (sq m) [Indicate area affected by the building work]

Current, lawfully established, use (e.g. dwelling, office): [Add no. of occupants per level and per use if more than 1]

2 Flats/units

Year first constructed: [Approximate date is acceptable e. g.: c1920s or 1960 - 1970]

OFFICE ONLY:
Consent / PIM No.: BC/0773/12
Document or Parcel No.: 12209017
Valuation No.: PG1246 04470/424-02
Date received:

RECEIVED
25 OCT 2012
BY:

2. OWNER

Name / Company: FIELDGROVE INVESTMENTS

Contact person: STEVE CRAWFIELD / PAULA LOVEGROVE

Mail address: 53 KAKEPUKA RD
RD 7 TE AWAMUTU

Street address / registered office:

Phone No.: Landline: 07 8717675
Mobile: 0274 36 A216
Daytime: 07 8583038
After hours:
Facsimile:

Email:

Website:

THE FOLLOWING EVIDENCE OF OWNERSHIP IS ATTACHED:

- ☑ Certificate of Title To Be ordered By council
- ☐ Lease Agreement
- ☐ Agreement for Sale and Purchase
- ☐ Other document

3. AGENT [If application is being made on behalf of the owner]

Name of Agent: New Vision Architecture Ltd.

Contact person: Jason Kraayvanger

Mail address: PO Box 171
Te Awamutu 3840

Street address / registered office: 130 Cambridge Rd
Te Awamutu.

Phone No.: Landline:
Mobile: 02180545 2
Daytime:
After hours:
Facsimile:

Email: newvisionarchitecture@xnet.co.nz

Website:

Relationship to owner: [State details of the authorisation from the owner to make the application on the owner's behalf] Designer

FIRST POINT OF CONTACT for communications with the Council / Building Consent Authority: ☐ Owner ☑ Agent

INVOICE TO: ☑ Owner ☐ Agent

4. APPLICATION [Tick applicable boxes]

ACCEPTED
29 OCT 2012
By:

I request that you issue:

- ☐ A Project Information Memorandum (PIM) for the building work described in this application.
- ☑ A Building Consent for the building work described in this application. The existing PIM No. is: [If applicable]
- ☐ An Amendment to an existing Building Consent for the building work described in this application. Existing BC No.:

State the reference number if this application involves a National Multiple Use Approval:

Name: STEVE CRAWFIELD Signature: Date: 25/10/12

The Signature is that of the ☑ Owner OR the ☐ Agent on behalf of and with the authority of the owner

WBCG BC FORM2 Version 2012-02-27 Page 1 of 6

OTOROHANGA DISTRICT COUNCIL make the kiwi connection · matamata piako district council · Waikato District Council · Waipa District Council · Hamilton City Council Te kaunihera o Kirikiriroa

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5. THE PROJECT [If more than one project please list on a separate page]

DESCRIPTION OF BUILDING WORK: Provide sufficient information below to enable scope of work to be fully understood; or refer to an attached description. Describe the BUILDING TYPE and what BUILDING WORK you will be doing to it, e.g. Dwelling with Addition of bathroom.

Converting two flats/Dwellings into One Dwelling

Intended use of building e.g. dwelling, shed, office: Dwelling

Will the building work result in a change of use of the building? ☐ Yes ☑ No. If Yes, provide details of the new use of the building:

[E.g. Home to Hostel, implement shed to chemical storage, office to restaurant] NA

Intended life of the building if less than 50 years: NA [Years]

List Building Consents previously issued for this project (if any): [List or attach list of who issued the consent, the date of issue and the consent number]

NA

Estimated value of the building work on which the building levy will be calculated (including goods and services tax):

$ 60,000 [State estimated value as defined in section 7 of the Building Act 2004]

6. RESTRICTED BUILDING WORK: BUILDING PRACTITIONERS INVOLVED IN THIS PROJECT

Will the building work include restricted building work? ☑ Yes ☐ No. If Yes, provide the following details of all licensed building practitioners who will be involved in carrying out or supervising the restricted building work: Name, Licensing class, Licensed Building Practitioner number (or registration number if treated as being licensed under section 291 of Act)

[if these details are unknown at the time of application, they must be supplied before the building work begins]

DESIGNER Name: Jason Kraayvanger Licence Class: Design 2

Registration / Licence No.: BP112425

Address: 130 Cambridge Rd, Te Awamutu

Telephone: Fax: Mobile: 021805452

Email: newvisionarchitecture@xnet.co.nz

ENGINEER Name: Licence Class:

Registration / Licence No.: NA

Address:

Telephone: Fax: Mobile:

Email:

CARPENTER Name: To Be Confirmed. Licence Class:

Registration / Licence No.:

Address:

Telephone: Fax: Mobile:

Email:

ROOFER Name: NA Licence Class:

Registration / Licence No.:

Address:

Telephone: Fax: Mobile:

Email:

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EXTERNAL PLASTERER Name: NA Licence Class: .....

Registration / Licence No.: .....

Address: .....

Telephone: ..... Fax: ..... Mobile: .....

Email: .....

BRICK / BLOCKLAYER Name: To Be Confirmed. Licence Class: .....

Registration / Licence No.: .....

Address: .....

Telephone: ..... Fax: ..... Mobile: .....

Email: .....

FOUNDATION SPECIALIST Name: NA Licence Class: .....

Registration / Licence No.: .....

Address: .....

Telephone: ..... Fax: ..... Mobile: .....

Email: .....

PLUMBER Name: ..... Licence Class: .....

Registration / Licence No.: .....

Address: .....

Telephone: ..... Fax: ..... Mobile: .....

Email: .....

GASFITTER Name: NA Licence Class: .....

Registration / Licence No.: .....

Address: .....

Telephone: ..... Fax: ..... Mobile: .....

Email: .....

7. PROJECT INFORMATION MEMORANDUM [Do not fill in this section if the application is for a building consent only]

The following matters are involved in the project: [Tick the matters relevant to the project]

- ☐ Subdivision
- ☐ Alterations to land contours [E.g. digging out the site for a building platform]
- ☐ New or altered connections to public utilities [Council sewer, storm water or water mains]
- ☐ New or altered locations and/or external dimensions of buildings
- ☐ New or altered access for vehicles
- ☐ Building work over or adjacent to any road or public place
- ☐ Disposal of stormwater and wastewater [E.g. Are you altering domestic sewer or storm water drains]
- ☐ Building work over any existing drains or sewers or in close proximity to wells or water mains
- ☐ Is the site contaminated?
- ☐ Will the building be sited on sloping ground, or near to a bank, a stream or a coastal zone?
- ☐ Other matters known to the applicant that may require authorisations from the Territorial Authority (Council): [Please state below or attach]

.....

.....

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12. COLLECTION OF CONSENTS FOR MATAMATA PIAKO DISTRICT COUNCIL

If your Building Consent is at Matamata Piako District Council, please tick which of your Council offices you wish to collect your Consent from when it is ready: ☐ Te Aroha ☐ Matamata ☐ Morrinsville

OFFICE USE ONLY FEES PAYABLE	AMOUNT ($)
PIM	
Building Consent - Application fee - Approval fee - Inspection fee - Mileage	1301-00
Code Compliance Certificate	
BRANZ levy	60-00
DBH levy	120-60
Photocopying	
Microfilm (A3 / A4) / Scanning	
Certificate of Title	10-00
Street crossing administration	
Structural check	
Amendments to consent	
External consultant check 1	
External consultants check 2	
NZ Fire Service check	
Planning Bond / Resource Consent	
Planning Bond / Resource Consent	
Rural connection	
Fire main	
Water connection	
Water disconnection	
Wastewater / sewerage connection	
Wastewater disconnection	
Backflow inspection	
Stormwater connection - mains	
Stormwater connection - kerb & channel	
Stormwater disconnection	
CCTV survey wastewater	
CCTV survey stormwater	
Cellar indemnity	
Council bonds	
Compliance schedule	
Development Contributions: Water Stormwater Wastewater Transport / roading Community infrastructure	
BCA accreditation	
Total fees (incl. GST)	
Deposit paid – Receipt No.: Date:	
Remainder fees due:	

REFERRALS:
Structural consultant:
Name: Sent: Returned:
Structural consultant:
Name: Sent: Returned:
Other consultant:
Name: Sent: Returned:
Other consultant:
Name: Sent: Returned:
NZ Fire Service:
Name: Sent: Returned:
Historic Places Trust: (Notification):
Date advised:
ADDITIONAL NOTES AND / OR FEES
AUTHORISED BY:
Planning Officer: Date:
Building Officer: Date:
Engineer: Date:
CHECKED BY: Officer: Date:
ISSUED BY: Officer: Date:
Receipt No.:
Receipt No.:

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8. BUILDING CONSENT

The following plans and specifications are attached to this application: [Refer to applicant's checklist]

.....

.....

THE BUILDING WORK WILL COMPLY WITH THE BUILDING CODE AS FOLLOWS:

[If you're not sure which clauses are applicable, talk to the BCA or your architect]

Building Code clause [☑ Tick relevant clause]	**Means of Compliance** [Refer to relevant compliance document(s) or detail of alternative solution in the plans and specifications]	**Waiver / modification required** [State nature of waiver or modification of Building Code required]
☑ B1 Structure	NZS 3604:2011	
☑ B2 Durability	NZS 3604:2011	
☐ C1 Outbreak of fire		
☐ C2 Means of escape		
☐ C3 Spread of fire		
☐ C4 Structural stability during fire		
☐ D1 Access routes		
☐ D2 Mechanical installations for acess		
☐ E1 Surface water		
☑ E2 External moisture	AS1/E2	
☐ E3 Internal moisture		
☐ F1 Hazardous agents on site		
☐ F2 Hazardous building materials		
☐ F3 Hazardous substances and processes		
☐ F4 Safety from falling		
☐ F5 Construction and demolition hazards		
☐ F6 Lighting for emergency		
☐ F7 Warning systems		
☐ F8 Signs		
☐ G1 Personal hygiene		
☐ G2 Laundering		
☐ G3 Food preparation and prevention of contamination		
☑ G4 Ventilation	AS1/G4	
☐ G5 Interior environment		
☐ G6 Airborne and impact sound		
☑ G7 Natural light	AS1/G7	
G8 Artificial light		
☑ G9 Electricity	NZS 6114:2006	
☐ G10 Piped services		
☐ G11 Gas as an energy source		
☐ G12 Water supplies		
☐ G13 Foul water		

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☐ G14 Industrial liquid waste		
☐ G15 Solid waste		
☐ H1 Energy efficiency		
☐ BCH Back country huts		
☐ SH Simple house		

9. COMPLIANCE SCHEDULE [Do not fill in this section if this is an application for a Project Information Memorandum only]

Specified systems are defined in regulations; if you are not sure whether your building has specified systems, talk to the BCA or your architect. ☐ There are no specified systems in the building **OR** ☐ The specified systems for the building are as follows:

Systems that apply [✓Tick]	**The following specified systems are being altered, added to, or removed in the course of the building work:**	**Altered** [✓Tick]	**Added** [✓Tick]	**Removed** [✓Tick]
	1. Automatic systems for fire suppression (e.g. sprinkler systems)			
	2. Automatic or manual emergency warning systems for fire or other dangers (other than a warning system for fire that is entirely within a household unit and serves only that unit)			
	3. Electromagnetic or automatic doors or windows (e.g. ones that close on fire alarm activation)			
	4. Emergency lighting systems			
	5. Escape route pressurisation systems			
	6. Riser mains for use by fire services			
	7. Automatic back-flow preventers connected to a potable water supply			
	8. Lifts, escalators, travelators, or other systems for moving people or goods within buildings			
	9. Mechanical ventilation or air conditioning systems			
	10. Building maintenance units providing access to exterior and interior walls of buildings			
	11. Laboratory fume cupboards			
	12. Audio loops or other assistive listening systems			
	13. Smoke control systems			
	14. Emergency power systems for, or signs relating to, a system or feature specified in any of clauses 1 to 13			
	15. Any or all of the following systems and features, so long as they form part of a building's means of escape from fire, and so long as those means also contain any or all of the systems or features specified in clauses 1 to 6, 9, and 13: (a) Fire separations (as defined by the Building Code) (b) Smoke separations (c) Final exits (d) Systems for communicating spoken information intended to facilitate evacuation (e) Signs for communicating information intended to facilitate evacuation			
	16. Cable Cars			

10. ATTACHMENTS

The following documents are attached to this application: [Tick as applicable or put n/a if there are no attachments]

☑ Plans and specifications ☐ Project Information Memorandum ☐ Development contribution notice

☑ Memoranda (Certificates of Design Work) from licensed building practitioners who carried out or supervised any design work that is restricted building work

☐ Certificate attached to Project Information Memorandum ☐ Other relevant nformation: [Please specify] .....

11. CONFIDENTIALITY

This is generally for reasons of building security in commercial or public buildings. If you think this project may require confidentiality, please discuss this with a Building Officer and if they agree, then tick the box and state why it is needed.

☐ Confidentiality required.....

.....

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Clive

Waipa DISTRICT COUNCIL

BUILDING COMPLIANCE JOB RECORD
Building Consent

BC / 0773 / 12	PROJECT LOCATION: 210 Goodfellow St
RESTRICTED BUILDING WORK YES / ~~NO~~	VALUATION NUMBER: 04470/424-02
OWNER: Fieldgrove	PROPERTY ID: P 61246
	DATE RECEIVED : 29-10-2012
CONTACT: Jason 021 805 452	DUE DATE: 26-11-2012
	DATE BC ISSUED: 22 NOV 2012
BCO: GMcF / CATEGORY: 2 / MULTI USE?: ~~YES~~ NO	DATE CCC ISSUED: 21 JUN 2013
	VC / ____ / ____

NATURE OF WORK: Convert Existing Two Flats into One Dwelling

PROCESSING	Officers Name	Date Referred	Date Required	Date Returned	Signature
Building Project Advisor	mGos			30-10-12	

No increase in floor area. Services existing

Planner					

Complies with District Plan? **Yes / No** Section 37 Cert Attached? **Yes / No** LU/____/____

Reg Engineer					

Development Contributions Notice Required? **Yes / No** DC/____/____

Is New Connection Required? **Yes / No** ☐ W ☐ SS ☐ SW Letter Enclosed? **Yes / No**

Potable Water Source : ☐ COUNCIL ☐ ROOF ☐ BORE ☐ NEIGHBOUR/EASEMENT

☐	Letter	Date ___/___/___	Sign:
☐	Suspend	Date ___/___/___	Sign:
☐	Grant / Invoice	Date ___/___/___	Sign:
☑	Issue When Fees Paid	Date 19/11/12	Sign: gmcf

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Waipa DISTRICT COUNCIL

BUILDING COMPLIANCE JOB RECORD
Building Consent

BC / 0773 / 12

Building Compliance Officer	gmcf				

NOTES AND CONDITIONS (Please circle appropriate code for checkboxes)

Conditions:

200-1. a b c d e f g h i j k l m n o p z
201-1. a b c d z
202-1. a z
203-1. a b z
204-1. a b z
205-1. a b z
206-1. a z
207-1. a b z
208-1. a b z

Advisory notes:

209-1. a b c d e f g h i j z
210-1. a b z
211-1. a z
212-1. a b z
213-1. a z
214-1. a b z

FREE TEXT

Document Set ID: 3528964
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FREE TEXT

TRIM No: 12064676

Document Set ID: 3528964
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Waipa DISTRICT COUNCIL

BUILDING COMPLIANCE JOB RECORD
CCC Document Checklist

CCC / 0557 / 13

Please ensure all relevant documentation is enclosed in the Building Consent File prior to issuing the CCC

✶ = Mandatory Documents

DECISION/KEY	
P or ✓	= Document enclosed
F or ×	= Document NOT enclosed (Give reason)
N/A	= Not applicable (Give reason)

DOCUMENT	KEY	COMMENTS/REASONS FOR DECISION
✶ The Building Consent application	✓	
✶ Building consent	✓	
✶ Copy of the Project Information Memorandum	NA	
✶ Code Compliance Certificate/Code Compliance Application	✓	
✶ LBP Memorandum for RBW	✓	
✶ Application Vetting Checklist	✓	
✶ Building consent processing check sheets	✓	
✶ All plans	✓	
As-Laid Drainage Plan	NA	
✶ Specifications	✓	
Design reports, Bracing and structural engineering calculations	NA	
Producer Statements	NA	
Energy Certificates	✓	
Information on specified systems	NA	
Request for additional information	NA	
Records of any decisions made	✓	
Memoranda issued by New Zealand Fire Service Commission (where applicable)	NA	
✶ Inspection records & Checklists	✓	
Photographs and supporting documentation (eg, waterproofing, truss layout, specialist supervision, installation/test certificates)	NA	
Notices to fix and any action considered or taken	NA	
Compliance schedules (where applicable)	NA	
Any complaints made about the building consent authority and how they are dealt with	NA	
Any other information that the BCA considers necessary. (eg, certificates of acceptance, certificates for public use, or information on any waivers or modifications).	NA	

COMMENTS/REASONS FOR DECISIONS:

OUTCOME OF DECISIONS

All Relevant documentation is enclosed in the Building Consent file. Code Compliance Certificate can now be issued.

BCO [signature] Signed [signature] Date: 21-6-13

Document Set ID: 3528964
Version: 2, Version Date: 30/07/2013

Issued

Waikato Building Consent

LBP Notification Form

Section 87, Building Act 2004

SCANNED 1223750 P

Working together

1. THE BUILDING [If item is not applicable put NA in the space]

Street address of building: BC 0773/12.
210 Goodfellow Street.

If a building consent has been granted, state the building consent number.....

OFFICE ONLY: RECEIVED 19 DEC 2012 BY: Sod Date received:

2. OWNER

Name /Company: ..... Contact person .....

Mail address: .....

Phone No.: Landline: ..... Mobile: .....

Daytime: ..... After hours: .....

Facsimile: .....

Email: ..... Website: .....

OWNERS SIGNATURE: .....

3. RESTRICTED BUILDING WORK: BUILDING PRACTITIONERS INVOLVED IN THIS PROJECT

Provide the following details of all licensed building practitioners who will be involved in carrying out or supervising the restricted building work: name, licensing class, licensed building practitioner number (or registration number if treated as being licensed under section 291 of Act) and contact details. [These details must be supplied before the building work begins]

DESIGNER Name: .....Licence Class: .....

Registration / Licence No.: .....

Address: .....

Telephone: .....Fax: ..... Mobile: .....

Email: .....

ENGINEER Name: .....Licence Class: .....

Registration / Licence No.: .....

Address: .....

Telephone: .....Fax: ..... Mobile: .....

Email: .....

CARPENTER Name: Daniel kraayvanger. .....Licence Class: .....

Registration / Licence No.: BCLBP 105217.

Address: Po Box 171 TA.

Telephone: 078715432. Fax: ..... Mobile: 0275797972.

Email: .....

ROOFER Name: .....Licence Class: .....

Registration / Licence No.: .....

Address: .....

Telephone: .....Fax: ..... Mobile: .....

Email: .....

OTOROHANGA DISTRICT COUNCIL · matamata piako district council · Waikato District Council · Waipa District Council · Hamilton City Council Te kaunihera o Kirikiriroa

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EXTERNAL PLASTERER Name: .....Licence Class: .....
Registration / Licence No.: .....
Address: .....
Telephone: .....Fax: ..... Mobile: .....
Email: .....

BRICK / BLOCKLAYER Name: .....Licence Class: .....
Registration / Licence No.: .....
Address: .....
Telephone: .....Fax: ..... Mobile: .....
Email: .....

FOUNDATION SPECIALIST Name: .....Licence Class: .....
Registration / Licence No.: .....
Address: .....
Telephone: .....Fax: ..... Mobile: .....
Email: .....

PLUMBER Name: .....Licence Class: .....
Registration / Licence No.: .....
Address: .....
Telephone: .....Fax: ..... Mobile: .....
Email: .....

GASFITTER Name: .....Licence Class: .....
Registration / Licence No.: .....
Address: .....
Telephone: .....Fax: ..... Mobile: .....
Email: .....

LBP Trade: .....Name: .....Licence Class: .....
Registration / Licence No.: .....
Address: .....
Telephone: .....Fax: ..... Mobile: .....
Email: .....

LBP Trade: .....Name: .....Licence Class: .....
Registration / Licence No.: .....
Address: .....
Telephone: .....Fax: ..... Mobile: .....
Email: .....

[Note: Continue on another page if necessary]

OTOROHANGA DISTRICT COUNCIL make the kiwi connection
matamata piako district council
Waikato DISTRICT COUNCIL
Waipa DISTRICT COUNCIL
Hamilton City Council Te kaunihera o Kirikiriroa
Document Set ID: 3528964
Version: 2, Version Date: 30/07/2013

Memorandum from licensed building practitioner: Record of building work

Section 88, Building Act 2004

THE BUILDING

Street address: 210 Goodfellow Street	
Suburb:	
Town/City: Te Awamutu	Postcode: 3800

THE PROJECT

Building consent number: 0773/12

THE OWNER(S)

Name(s): Paula Lovegrove		
Mailing address: 53 Kakepuku Road		
Suburb: RD3	PO Box/Private Bag:	
Town/City: Te Awamutu	Postcode: 3800	
Phone number: 027 472 8525	Email address:	

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

PRIMARY STRUCTURE

Work that is restricted building work	Description of restricted building work	Carried out or supervised
Tick ✓	If necessary, describe the restricted building work	Tick ✓ whether you carried out the work or supervised someone else.
Foundations and subfloor framing ✓	Put Piles at load bearing Point under beams	○ Carried out ✓ Supervised
Walls ✓	Removed internal walls and replaced them with hyspan beams	○ Carried out ✓ Supervised

PRIMARY STRUCTURE CONT'D

Roof ○	N/A	○ Carried out ○ Supervised
Columns and beams ✓	install x2 2/240x45 SG8 beams + x1 2/240x45 LVL beams where removed walls and to support Roof + Ceilings	○ Carried out ✓ Supervised
Bracing ✓	All bracing as per plan	○ Carried out ✓ Supervised
Other ○	N/A	○ Carried out ○ Supervised

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

EXTERNAL MOISTURE MANAGEMENT SYSTEMS

Damp proofing ○	N/A	○ Carried out ○ Supervised
Roof cladding or roof cladding system ○	N/A	○ Carried out ○ Supervised
Ventilation system (for example, subfloor or cavity) ○	N/A	○ Carried out ○ Supervised

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EXTERNAL MOISTURE MANAGEMENT SYSTEMS CONT'D

Wall cladding or wall cladding system ○	N/A	○ Carried out ○ Supervised
Waterproofing ○	N/A	○ Carried out ○ Supervised
Other ○	N/A	○ Carried out ○ Supervised

ISSUED BY

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

Name: Daniel kraayvanger	LBP number: BP 105217.
Class(es) licensed in: Builder.	
Plumbers, Gasfitters and Drainlayers registration number (if applicable):	
Mailing address (if different from below): Po Box 171 Te Awamutu.	
Street address/Registered office: N/a	
Suburb:	Town/City: Te Awamutu.
PO Box/Private Bag: 171	Postcode: 3840
Phone number: —	Mobile: 0275797972.
After hours: —	Fax: —
Email address: daniel@dkbuilders.co.nz.	Website: —

DECLARATION

I Daniel carried out or supervised the restricted building work recorded on this form.

Signature: Date: 18/06/2013

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Version: 2, Version Date: 30/07/2013

EWRB 551

Electrical Certificate of Compliance

No. 3960589

No. of attachments —

for a low voltage installation if prescribed electrical work has been done on any part of it and the prescribed electrical work involved placing, replacing, or repositioning conductors or fittings attached to conductors.

To be completed whether or not an Inspection is required.

ELECTRICAL WORKERS REGISTRATION BOARD
Safety • Competency

This form is approved by the Electrical Workers Registration Board (PO Box 10-156, Wellington. Freephone 0800 66 1000) for the purposes of the Electricity (Safety) Regulations 2010.

CUSTOMER INFORMATION - PLEASE PRINT CLEARLY

Name of customer [illegible] Phone:

Address of installation Goodfellow St, Te Awamutu

Postal address of customer (if not as above)

DECLARATION OF CONFORMITY (Please tick (✓) appropriate boxes)

In accordance with Regulation 58 of the Electricity (Safety) Regulations 2010, the design of the installation or part of the installation to which this certificate applies

(a) complies with either Part 2 of AS/NZS 3000:2007 ☑ or Part 1 of AS/NZS3000:2007 and Regulation 59 ☐ and

(b) the supply system of the installation or part of the installation to which this certificate applies is 230V/400 V MEN ☑ or attached other system ☐

WORK DETAILS

19 No. of lighting outlets

25 No. of socket outlets

1 No. of ranges

1 No. of water heaters

Was any installation work carried out by the homeowner? Yes ☐ No ☐

Please tick (✓) as appropriate where work includes:

- Mains
- ✓ Main earthing system
- ✓ MEN Switchboard closest to point of supply
- Electric lines

Description of work carried out (If necessary attach any pages with work done)

Rewire house + change switchboard to RCD specs.

CERTIFICATION OF WORK (Please tick (✓) appropriate boxes)

I certify that the completed installation or part of the installation to which this certificate applies

- ☑ has been installed in accordance with the design detailed in the Declaration of Conformity section above
- ☑ has had tests which are required by the Electricity (Safety) Regulations 2010 satisfactorily completed
- ☑ has an earthing system that is correctly rated
- ☑ contains fittings which are safe to connect to a power supply
- ☑ is safe to connect to a power supply

ELECTRICAL WORKER DETAILS

Name [illegible] T. Malcolm

Company Malcolmest Electrical

Signature [signature]

Registration No. E245525

Contact Ph No. 0274967947

Date 09.04.2013

INSPECTION DETAILS

Electrical work requiring inspection by a registered electrical inspector

- ☐ Mains work (mains, MEN switchboards closest to the point of supply, or main earthing systems)
- ☐ Attached other
- ☐ Work carried out in accordance with Part 1 of AS/NZS 3000:2007

I certify that the items identified above are electrically safe and that the inspection has been carried out in accordance with the Electricity (Safety) Regulations 2010.

Name

Signature

Registration No.

Date

Contact Ph No.

CUSTOMER COPY – THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED

Document Set ID: 3528964
Version: 2, Version Date: 30/07/2013

Waikato Building Consent Group — Pre-line Inspection

Applicant's Name: Field-Grove Investments Ltd | Consent No: BC/0773/12

Property Address: 210 Goodfellow Street,Te Awamutu 3800

Restricted Building Work - LBP license check:

Name of LBP: Daniel Kraayvanger | License sighted: ☐ Yes ☑ No

License No: | LBP Onsite: ☐ Yes ☑ No

ITEMS TO BE CHECKED [Checked against the approved Building Consent (BC) documents]

Key:

Decision: [√] or [P] = Pass [X] or [F] = Fail, further inspection required [I] or [—] or [NA] = Not Applicable

Reason for decision: Compliance or non compliance with the approved building consent documents

- ☑ Approved Building consent documents on site
- ☑ Prior inspection passed or instructions addressed

Interior

- ☑ Moisture content = 16 %
- ☑ Ceiling battens: size, spacing
- ☑ Insulation walls / ceiling
- ☑ Roofing / wall underlay
- ☑ Holes and notches in framing / mid-floor
- ☐ Window sash heights above floor
- ☑ Bottom plate fixing
- ☐ Floor nailed off if diaphragm
- ☑ Light / ventilation
- ☑ Air seals
- ☐ Ceiling diaphragm

Plumbing

- ☐ Plumber's name: .....
  Reg. No.: .....
- ☐ Approved type of pipe / identification
- ☐ Water pressure test ☐ 1500kpa ☐ Main ☐ PS4
- ☐ Water pipe size / layout / insulation
- ☐ Venting – drains / waste
- ☐ Pipe work secured and supported
- ☑ Penetrations through building wrap are taped
- ☐ Pipes protected from electrolysis and shape objects
- ☐ Sludge & relief drain pipework
- ☐ Water test on stack systems ☐ Yes ☐ No
- ☐ Backflow prevention (internal only)
- ☐ Check HWC in ceiling
- ☐ Relief pipe to be copper for first metre
- ☐ Firehose reel pipe work to be metal
- ☑ Air conditioning pipe runs to outside

Exterior

- ☐ Roof cladding / flashings
- ☐ Wall cladding / flashings
- ☐ Cladding cavity drained and vented
- ☐ Stairs as per details
- ☐ Window sill flashings / flashings
- ☐ Window glazing / safety glazing

Decks

- ☐ Deck level/ floor level / wall to stringer gap
- ☐ Deck finish / membrane
- ☐ Fall on deck surface
- ☐ Outlets and overflows
- ☐ Barrier heights
- ☑ Deck / parapet flashings

Comments if required:

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.....

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OFFICE ONLY — **OUTCOME OF DECISIONS**

- ☑ Work complies with the approved BC documents
- ☐ Further inspection required ☐ Additional fee
- ☐ LBP Record of Building Work documentation received (for consents approved from 1 March 2012)

Officer: gmcf Date: 19-12-12

☐ Memo / instruction, No.:

Further Inspection:

☐ Work complies with the approved BC documents

Officer: Date:

☐ Notice to Fix, No.:

Waikato Building Consent Group INS-05 Pre-Line Version 2012-02-20

Document Set ID: 3528964
Version: 2, Version Date: 30/07/2013

Waikato Building Consent Group — Cladding Inspection

Applicant's Name: Field-Grove Investments Ltd | Consent No: BC/0773/12

Property Address: 210 Goodfellow Street,Te Awamutu 3800

Restricted Building Work - LBP license check:

Name of LBP: | License sighted: ☐ Yes ☐ No

License No: | LBP Onsite: ☐ Yes ☐ No

ITEMS TO BE CHECKED [Checked against the approved Building Consent (BC) documents]

Key:

Decision: [√] or [P] = Pass [X] or [F] = Fail, further inspection required [I] or [—] or [NA] = Not Applicable

Reason for decision: Compliance or non compliance with the approved building consent documents

- [√] Approved Building consent documents on site
- [√] Prior inspection passed or instructions addressed

Pre-plaster / Flashings/Wrap

- [√] Approved BC documents on site
- [ ] Control Joints
- [ ] Flashings of penetrations
- [ ] Fixings for down pipes, lights etc.
- [ ] Window/Metre box installation
- [ ] Deck & balustrade flashings
- [ ] Stop-end flashings – split gables
- [√] Building wrap
- [ ] Qualified installer, name:

.....

Brick

- [√] Cavity 40 – 75mm / free draining
- [√] Brick ties / battens
- [√] No pipework in cavity
- [√] Wall tie positions / fixings
- [√] Ventilation: top / bottom
- [—] Washouts
- [√] Size of mortar joints 7 – 13mm
- [√] Seating of bottom brick

- [√] Max height veneer
- [—] Lintel bars / fixings
- [√] Flashing detail
- [√] Cavity sealed from roof space
- [√] Slope to sills 15° minimum
- [—] Window support bars fitted
- [√] Vermin proof

Weatherboard / Ply cladding

- [—] Flashing requirements
- [ ] Cladding fixing details
- [ ] Battens (ventilated cavity)
- [√] Weathering at bottom of weatherboards

Pre-Plaster: Substrate / Solid Plaster (mesh)

- [√] Fibre cement sheet / H3 Plywood
- [ ] H3 Diagonal Sheeting
- [ ] Mesh type
- [ ] Reinforcing around openings
- [ ] 6 - 9mm spacers
- [ ] Galvanised
- [ ] Proprietary self-spacing mesh
- [ ] Fixings
- [√] Proprietary joint controls

Monolithic

- [—] Correct type, position & condition of building wrap
- [ ] Fixing detail of backing
- [ ] Sheet joining / sill & jamb flashing detail / head flashing
- [ ] Flashing connection to each other
- [ ] Slope to parapet/sill details
- [ ] Roof/wall & parapet flashing details
- [ ] Ground level clearance
- [ ] Expansion joints horizontal/vertical
- [ ] Spacer spacing & fixing
- [ ] Reinforcement type/fixing
- [ ] Weathering details for barriers / down pipes / weatherboards & penetrations
- [ ] Internal / external angles

Decks

- [ ] Deck level/ floor level / wall to stringer gap
- [ ] Deck finish / membrane
- [ ] Fall on deck surface
- [ ] Outlets and overflows
- [√] Barrier heights
- [√] Deck / parapet flashings

Comments if required:

.....

.....

.....

.....

.....

OFFICE ONLY — **OUTCOME OF DECISIONS**

- [√] Work complies with the approved BC documents
- [ ] Further inspection required ☐ Additional fee
- [√] LBP Record of Building Work documentation received (for consents approved from 1 March 2012)

Officer: [signature] Date: 18-6-13

☐ Memo / instruction, No.:

Further Inspection:

☐ Work complies with the approved BC documents

Officer: Date:

☐ Notice to Fix, No.:

Waikato Building Consent Group INS-07 Version 1 10.05.10

OTOROHANGA DISTRICT COUNCIL — matamata piako district council — Waikato DISTRICT COUNCIL — Waipa DISTRICT COUNCIL — Hamilton City Council Te kaunihera o Kirikiriroa

Document Set ID: 3528964
Version: 2, Version Date: 30/07/2013

Waikato Building Consent Group — Post-line Inspection

Applicant's Name: Field-Grove Investments Ltd | Consent No: BC/0773/12

Property Address: 210 Goodfellow Street, Te Awamutu 3800

Restricted Building Work - LBP license check:

Name of LBP: | License sighted: ☐ Yes ☐ No

License No: | LBP Onsite: ☐ Yes ☐ No

ITEMS TO BE CHECKED [Checked against the approved Building Consent (BC) documents]

Key:

Decision: [√] or [P] = Pass [X] or [F] = Fail, further inspection required [I] or [—] or [NA] = Not Applicable

Reason for decision: Compliance or non compliance with the approved building consent documents

- [x] Approved Building consent documents on site
- [x] Prior inspection passed or instructions addressed

General

- [x] Ceiling Diaphragms
- [x] Holes / penetrations in Bracing/ Fixings
- [x] Wall linings
- [x] Correct nail / screw fixings – bracing
- [x] Correct nail / screw fixing pattern
- [x] Bracing location as per bracing plan

Commercial / industrial / multi unit

- [x] Firerating
- [ ] Stopping of fire rating
- [ ] Penetrations through fire rating
- [ ] Stairs
- [ ] Doorways / corridors
- [ ] Toilets
- [x] Showers
- [ ] STC sound ratings (Multi-units)

Discuss with Builder

- [x] Compliance schedule features
- [ ] Accessible car parks
- [ ] Ramps
- [ ] Entrance
- [ ] Public reception area
- [ ] Lifts
- [ ] Controls (auto doors etc.)
- [ ] Laundering
- [ ] Food preparation
- [ ] Signage
- [x] Surface finishes
- [x] Accessible routes

Comments if required:

21-12-12 : Post line done to living / dining / Bed 4 / kitchen & laundry. These areas comply. gmcf

31-1-13 : Post line now complete.

gmcf

OFFICE ONLY — **OUTCOME OF DECISIONS**

- [x] Work complies with the approved BC documents
- [ ] Further inspection required ☐ Additional fee
- [ ] LBP Record of Building Work documentation received (for consents approved from 1 March 2012)

Officer: gmcf Date: 21-12-12

☐ Memo / instruction, No.:

Further Inspection:

☐ Work complies with the approved BC documents

Officer: Date:

☐ Notice to Fix, No.:

Version 2012-02-20 INS_06 Post-Line Waikato Building Consent Group

Document Set ID: 3528964
Version: 2, Version Date: 30/07/2013

Waikato Building Consent Group — Final Building Inspection (General)

Applicant's Name: Field-Grove Investments Ltd | Consent No: BC/0773/12

Property Address: 210 Goodfellow Street,Te Awamutu 3800

Restricted Building Work - LBP license check:

Name of LBP: | License sighted: ☐ Yes ☐ No

License No: | LBP Onsite: ☐ Yes ☐ No

ITEMS TO BE CHECKED [Checked against the approved Building Consent (BC) documents]

Key:
Decision: [√] or [P] = Pass [X] or [F] = Fail, further inspection required [I] or [—] or [NA] = Not Applicable
Reason for decision: Compliance or non compliance with the approved building consent documents

- ☑ Approved Building consent documents on site
- ☑ Prior inspection passed or instructions addressed

Interior

- ☑ Ceiling insulation is in place / clear of light fittings Correct installation of shower / bath: linings, curtain or screen
- ⊟ Wet area waterproofing certificate received
- ☑ Safety glass installed
- ☑ Wet areas completed: walls, ceilings, timber floors and fixtures sealed
- ☑ Smoke alarms installed and operational
- ☑ Height of window sashes
- ⊟ Heights of barriers and handrails as per approved BC
- ☑ Kitchen completed
- ☑ Ventilation to internal spaces adequate
- ⊟ Mechanical ventilation vented to exterior (Wet areas)
- ☑ Ventilation (timber floor)
- ☑ Subfloor vents

- ☑ All producer statements / other required statements / energy certificates (including gas) have been received
- ⊟ Heater installation completed as per checklist
- ☑ Changes to floor plan / Amended plans have been approved

Exterior

- ☑ Vermin proofing
- ☑ Flashing / sealants completed & in place
- ☑ Ground height comply
- ☑ Brick veneer weep and ventilation holes
- ☑ Weathering and penetrations: Roof and walls (fixings etc.)
- ⊟ Construction of decks / steps / retaining walls / handrails and barriers comply
- ☑ Subfloor access / ponding / ventilation / insulation / fixings comply
- ☑ Exterior decorated with finishings as approved plans
- ☒ ll documentation received

NOTE: Must pass both Final Plumbing and Final Building Inspection before CCC can be issued

Comments if required:

20-6-13: CCC failed. Need documentation only. Refer letter. gmcf

OFFICE ONLY **OUTCOME OF DECISIONS**

- ☑ Work complies with the approved BC documents
- ☐ Further inspection required ☐ Additional fee
- ☒ CP Record of Building Work documentation received (for consents approved from 1 March 2012)

Officer: gmcf Date: 21-6-13

☐ Memo / instruction, No.:

Further Inspection:
☐ Work complies with the approved BC documents

Officer: Date:

☐ Notice to Fix, No.:

INS-09 Version 2012-02-20

Waikato Building Consent Group

OTOROHANGA DISTRICT COUNCIL make the kiwi connection | matamata piako district council | Waikato DISTRICT COUNCIL | Waipa DISTRICT COUNCIL | Hamilton City Council Te kaunihera o Kirikiriroa

Document Set ID: 3528964
Version: 2, Version Date: 30/07/2013

Processing Checklist:

Domestic Dwelling: (Residential 1 & 2) New, Sleep-outs, Alterations & Additions

Waikato Building Consent Group

Processor Name: Gary McFarlane	Building Consent No: BC/0773/12	Building Category: Cat2

KEYS: Decisions: [P] or [Y] or [√] = Pass, [F] or [N] or [X] = Fail,
[NA] or [I] = The item or code clause has been considered but is not applicable to this application because the item, or the clause, is either not part of this design or relevant to this type of building project.

P/F/NA	Item	P/F/NA	Item
B1 Structure ☐ Not applicable (☑)			(Refer to B1 Compliance Document)
Specific Design/Verification methods			
✓	Ground stability	✓	Plate sizes (top and bottom), bottom plates fixing
✓	Pile size, spacing, ht, footing	✓	Lintel sizes
NA	Sub-floor bracing calculations & design	✓	Lintel sizes ~~and beams~~ & Beams
✓	Pile heights within limits	✓	Beams support and fixing detailed
NA	Concrete foundations & reinforcement	✓	Wall bracing calculations provided
✓	Posts, beams, footing & connections	✓	Wall bracing on plans
NA	Floor slab edge detail and starters provided	NA	Chimneys construction
NA	Hard fill, sand, DPC shown	NA	Tie down of rafters, trusses, plates to studs
NA	Slab thickness & reinforcement mesh	NA	Girder trusses supported
NA	Slab thickenings provided under LB walls	NA	Truss certification (PS)
NA	Bearer size	NA	Roof bracing provided and shown on plans
NA	Joist sizes	NA	Rafter sizes
NA	SED Producer Statement	NA	Purlin sizes
✓	Stud sizes, spacing, and heights		

Reasons for decisions plus any additional comments or RFIs: All new timber framing as per 3604:2011. No concerns.

Subfloor bracing, calculation & design:

B2 Durability ☐Not applicable			(Refer to B2 Compliance Document)
	Define exposure zone (sea spray or zone ☐B ☐C ☐D ☐E)		Timber treatment shown for:
NA	Fixings SS if in sea spray zone / 600mm ground	✓	• External wall framing
	Serviceable items able to be accessed	NA	• Exterior timbers
	DPC provided to piles <300mm high (NZS 3604)	✓	• Piles and in ground contact
	Sub-floor vented and/or ground cover provided	NA	• Roof framing timber
	Geothermal zone	NA	• Wood-based flooring: distance to exposed ground (NZS 3604, S4)
		NA	• Structural steel coatings

Reasons for decisions plus any additional comments or RFIs: Products used have good inservice records. Timber framing H1.2. Complies B2.

For Fire Safety refer to C documents (Compliance Document)

C1 Outbreak of fire	☑ Not applicable	☐ Heater complies – all information provided
Reasons for decisions plus any additional comments or RFIs:		

C2 Means of escape	☐ Not applicable		
✓	Doors to exterior		
Reasons for decisions plus any additional comments or RFIs: 3 doors to exterior. Complies C2.			

C3 Spread of fire	☑ Not applicable		
New Building	☐ Not applicable		
	Walls within 1m of boundary FRR		Eaves FRR, or wall taken to underside of roof
	Fire walls/separations to roof or floor above		Eaves construct within 600mm of boundary, assign fire rating if required
Ancillary Buildings (carports, garages, sheds etc.)		☐ Not applicable	
	Separate from other buildings on same site (exclude domestic ancillary buildings associated with house)		Max FHC 1, Max 40m², no sleeping use
	Open sided buildings (C/AS17.8.8 - 10).		FRR 15/15/15 to wall within 1m of boundary
	• Completely open on at least two sides		If closer than distance above:
	• At least 1m from boundary > 40m		• No venting area within 1m of boundary.
	• At least 0.3m from boundary if < 40m²		• If detached, primary structure FRR 15/-/-.
Reasons for decisions plus any additional comments or RFIs: Existing. No change.			

C4 Structural stability	☑ Not applicable		
	Structural elements FRR to S rating where required for other party (internal & external).		
Reasons for decisions plus any additional comments or RFIs: Existing. No change.			

D1 Access	☑ Not applicable	(Refer D1 Compliance Document)
	Slip resistance	Steps 400 clear of door
	Limited riser openings where children present	Curved stairs comply
	Landings top and bottom of stairs and ramps	Handrails provided to stairs
	Max flight height checked (2.5m and 4m)	Stair pitch, riser & treads suitable for main private, secondary private, minor private
Reasons for decisions plus any additional comments or RFIs: Existing. No change.		

D2 Lifts	☑ Not applicable (Specific Design)	(Refer D2 Compliance Document)
	Specification provided	Producer Statements provided
	Plans and details provided	
Reasons for decisions plus any additional comments or RFIs:		

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E1 Surface Water ☑ Not applicable			(Refer E1 Compliance Document)
	Contours on site plan , levels defined		Stormwater to approved outfall
	Floor level >150mm above ground/street or secondary flow (E1/AS1) Proposed storm water drainage plan		Soakage report for new buildings or additions (1 in 10 yr storm) & soak hole design & calculations
	Internal gutters sized		Cesspits provided to sealed/concrete areas
	Overflows provided to exterior		Drains under building straight with access each end
	Downpipes adequate		

Reasons for decisions plus any additional comments or RFIs: Existing. No change.

E2 External Moisture ☑ Not applicable			(Refer E2 Compliance Document)
Roof Cladding			
	Roof type, profile and pitch comply		Internal gutter capacity & overflow
	Roofing underlay provided (spreaders over concrete tiled roof, requirement for anti ponding bds <17°),		Have details & flashings been provided for the hips, ridges, valleys, aprons & barges?
	Stop end details		Exterior sheathing detailed to acceptable solution
	Roof penetrations		Durability (differing materials are compatible, coatings applicable for corrosion zone)

Reasons for decisions plus any additional comments or RFIs: Existing. No change.

Membrane Roofs/Gutters ☑ Not applicable			
	Membrane type and pitch		Gutter capacity & overflow
	Substrate thickness & treatment		

Reasons for decisions plus any additional comments or RFIs:

Cladding			
N/A	Risk matrix assessment provided	N/A	Alternative solution properly detailed
✓	Type of cladding/ claddings approved system	N/A	Drain filter fabric and DPC protection behind walls
✓	Building wrap / paper specified appropriate & compatible with cladding (air barrier)	N/A	Eaves and gutters weatherproofing detailed
N/A	Construction details for the drained cavity system	N/A	Wall/soffit junctions
N/A	Internal and external corner details are provided	✓	Brick ties, lintels & shelf angle size and treatment
N/A	Have parapets/enclosed deck barrier junctions/flashings been detailed?	N/A	Timber profiles have appropriate weather grooves
N/A	Construction/movement/shrinkage joints been detailed relevant to cladding	N/A	Construction details between different claddings
N/A	Cladding step down provided (NZS 3604)	✓	Joinery details and flashings shown for: • Window/door heads • Jambs • Sill details for windows, doors • Balustrades waterproofed • Other openings penetrations protected

Reasons for decisions plus any additional comments or RFIs: Some small areas of brick infill to be done. Otherwise no change.

Enclosed decks ☑ Not applicable			
	Timber, size span & spacing (2 kpa) *(NZS 3604 and NZS 3602)*		Stormwater drainage & overflow relief
	Substrate and falls *(Refer NZS 3602)*		Membrane/ tanking type and traffic protection
	Threshold/ upstand details		Flashing details for the barrier/wall junction
Reasons for decisions plus any additional comments or RFIs:			

E3 Internal moisture ☑ Not applicable (Refer E3 Compliance Document)			
	Wet area timber floor, (plywood or timber flooring treated as per *NZS 3602)*		Shower type - Tiled: details have been provided for the tiling substrate and waterproofing membrane. Level access: falls required to the floor of a level access shower to the floor drain are to be no less the 1:50. *(NZS 4121 memorandum)*
	Provision made to contain accidental overflow damage to adjoining household units?		
	Ventilation provided to bathrooms/laundry		Flashings detailed for baths/ showers
	Finishes/surfaces impervious, durable and easily cleaned?		Thermal resistance in habitable spaces
Reasons for decisions plus any additional comments or RFIs: Existing. No change.			

F1 Hazardous agents ☑ Not applicable & (Refer F1 Compliance Document)		F2 Hazardous Building Materials ☑ Not applicable (Refer F2 Compliance Document)	
	Contamination etc checked on GIS		Glass type OK, (safety glass) NZS 4223
	Sent to Health		
Reasons for decisions plus any additional comments or RFIs:		Reasons for decisions plus any additional comments or RFIs:	

F3 Hazardous substances and processes ☑ Not applicable (Refer F3 Compliance Document) (Note: Unlikely, but send to DG if found)
Reasons for decisions plus any additional comments or RFIs:

F4 Safety from falling ☑ Not applicable (Refer F4 Compliance Document)			
Stairs, landings, platforms, handrails			
N/A	1m barriers to all decks, stairs, openings etc		Walls (>1m in height)
	Child risk openings <100 mm, no toeholds		Upper storey windows restrictors required where sill height <760 mm
	Retaining on access routes protected		
Pools (Fence and Gate Height) (FSPA 1987, Schedule S1 *link*)			
	At least 1.2 metres above the ground on the outside of the fence	• Complying fence • Complying gate • Access from house • Back wash • Back flow protection	
	Where the fence is constructed of perforated material with a dimension greater than 10mm but no greater then 50mm, the fence shall extend at least 1.8 metres above the ground / projection / object		

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Reasons for decisions plus any additional comments or RFIs: No stairs or pool

F5 Construction/Demolition Hazards ☑ Not applicable (Refer F5 Compliance Document)

Reasons for decisions plus any additional comments or RFIs:

F7 Warning systems ☐ Not applicable (Refer F7 Compliance Document)		**F8 Signage** ☑ Not applicable (Refer F8 Compliance Document)	
✓	Smoke detection provided in all household units		Any special signage requirements identified on plans (Pumps, non-potable water etc.)
Reasons for decisions plus any additional comments or RFIs: Smoke alarms indicated on floor plan.		Reasons for decisions plus any additional comments or RFIs:	

G1 Personal Hygiene ☑ Not applicable (Refer G1 Compliance Document)		**G2 Laundering Facilities** ☑ Not applicable (Refer G2 Compliance Document)	
	WC provided		Provision for laundry
	Shower / bath		Adequate amenity space
	Wash hand basin		
Reasons for decisions plus any additional comments or RFIs: Existing. No change		Reasons for decisions plus any additional comments or RFIs: Existing	

G3 Food Preparation ☐ Not applicable (Refer G3 Compliance Document)			
✓	Kitchen provided	✓	Finishes suitable
✓	Space for cooker / oven, food store/ fridge	N/A	Alternative solution
✓	Preparation bench and sink meet minimum size		
Reasons for decisions plus any additional comments or RFIs: New kitchen layout shown on floor plan. Complies G3			

G4 Ventilation ☑ Not applicable (Refer G4 Compliance Document)			
	Producer Statements if required		WC 's ventilated
	Natural ventilation (5% of room floor area)		Bathrooms ventilated
	Mechanical ventilation		Laundry ventilated
Reasons for decisions plus any additional comments or RFIs: Existing.			

G5 Interior Environment ☑ Not applicable (Refer G5 Compliance Document)

Reasons for decisions plus any additional comments or RFIs:

G6 Sound ☑ Not applicable			(Refer G6 Compliance Document)
	Noise transmission between units addressed		
Reasons for decisions plus any additional comments or RFIs:			

G7 Natural light ☑ Not applicable			(Refer G7 Compliance Document)
	Windows equate to 10% of room floor area		Windows to all habitable spaces for awareness
	Daylight angle or reflectance finishes		Sufficient exterior space for awareness
Reasons for decisions plus any additional comments or RFIs: Existing.			

G8 Artificial Light ☑ Not applicable	(Refer G8 Compliance Document)
Reasons for decisions plus any additional comments or RFIs:	

G9 Electricity ☐ Not applicable (Refer G9 Compliance Document)		G10-G11 Piped surfaces & gas energy ☑ Not applicable (Refer G10 and G11 Compliance Document)	
✓	Advisory note for energy certificate to be supplied prior to CCC, check at inspections		Gas fitter to supply energy certificate prior to CCC
Reasons for decisions plus any additional comments or RFIs: Will be covered by electrical certificate.		Reasons for decisions plus any additional comments or RFIs:	

G12 Water Supplies ☑ Not applicable			(Refer G12 Compliance Document)
	Potable water supply		Are pipe sizes & length of run specified & adequate
	Backflow protected – air gap or backflow valve		Water tanks have overflows
	Hot water heating, all relevant valves / venting requirements provided		HWC / Infinity location, seismic restraint
	Wetback installation		
Reasons for decisions plus any additional comments or RFIs: Existing.			

G13 Foul water ☐ Not applicable			(Refer G13 Compliance Document)
	Schematic provided (2 or more levels)		Drainage pipe size / gradients
	Discharge to approved outfall		Access/ inspection / rodding points or chambers (*entering or exiting under slab*)
	System to G.13/AS1,2		Separate connection for each house
	System to AS 3500		Engineering site investigation provided with design specification & PS1 for system
	Waste pipe size / gradients		
	Waste pipe length / venting (*stacks, multi fixtures to discharge pipe*)		Drainage plan: showing septic tank & effluent disposal system in relation to buildings, boundaries, drives, water bores, water courses, & room to duplicate or extend system
	Correct sewer connection and depth to allow gravity feed		
	ORG or Overflow relief gully provided.		Soil report
	Drainage pipe length / ventilation		
Reasons for decisions plus any additional comments or RFIs: Existing, No change.			

H1 Energy efficiency ☑ Not applicable			(Refer H1 Compliance Document)
	Roof insulated		Glazing
	Walls insulated		Method: schedule / calculations / modelling
	Sub-floor insulated		25mm separation between insulation & underside of skillion roof underlay
	Downlights CA rating		HWC length of run complies with *NZS 4503/H1*
	Building >300sqm complies with NZS4243		Limit heat loss from hot water pipes connected to storage vessels

Reasons for decisions plus any additional comments or RFIs: Internal alterations to existing flats. No issues.

General			(Refer sections of the Building Act 2004)
N/A	31 PIM	N/A	75-77 Building over 2 lots
	36 Development Contribution notice	✓	112 Alterations to existing buildings
	37 Restrict project start (No Resource Consent issued)	✓	113 Intended life of building
	39 Historic Places Trust	N/A	115 Change of use
	68 Waiver or modification	✓	Project value provided and reasonable
	71-74 Natural hazards		

Reasons for decisions plus any additional comments or RFIs: Internal alterations to existing building. No concerns.

RESTRICTED BUILDING WORK (from 1 March 2012)

- ☐ Design CoW received — ☑ Yes ☐ No - If No, stop clock, request CoW
- ☐ Design LBP'S are named & class appropriate — ☑ Yes ☐ No - If No, see Design Supervisor LBP class
- ☐ Design Supervisor LBP is named & class appropriate — ☑ Yes ☐ No - If No, stop clock, request CoW
- ☐ Trade LBP'S named for all categories of RBW — ☐ Yes ☐ No - If No, Inspection Alert activated ☑ Yes

STATEMENTS RECEIVED

☐ **Producer Statement checklist attached to each Producer Statement**

Circle Statement Type: PS 1 – Design PS 2 – Design Review			Comments:			
Category: (*circle*)	PSI	CALCS	SPECS	DRAWINGS	PS2	Producer Statements acceptable.
Structural						
Geotechnical						
Weathertightness						

The following listed and attached checklists have been completed to support justification for issuing the Building Consent:

N/A

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OUTCOME OF DECISIONS

☑ Documentation demonstrates compliance with the Building Code. If there were any requests for further information, these have been addressed and the reasons for these have been recorded in each instance. Building Consent can now be granted and issued on payment of the appropriate fees and levies.

Name: _____ Signature: _____ Date: 19-11-12

☐ Documentation does not demonstrate compliance with the Building Code. Building Consent cannot be granted until requests for further information have been addressed by the Applicant. The application is on hold.

Name: _____ Signature: _____ Date: _____

☐ Documentation does not demonstrate compliance with the Building Code. Building Consent cannot be granted. Requests for further information have not been addressed by the Applicant.

Name: _____ Signature: _____ Date: _____

INTERNAL AUDIT / PEER REVIEW ☐ Not applicable

☐ This assessment has been peer reviewed and the peer reviewer has agreed with the decision made.

Name: _____ Signature: _____ Date: _____

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NZ BRICK & BLOCKLAYERS ASSOCIATION

BBFNZ

THINK BRICK NEW ZEALAND

Memorandum from licensed building practitioner:
Record of building work
Section 88, Building Act 2004 Form 6A

JOB No. INVOICE No. 01284

The Building

Street address of building: 110 Goodfellow st
Te Awamutu

The project

Building consent number: BC 0773/12

The owner

Name: Lovegrove, Paula
Telephone: 027 4726525
Email:

Address: 53 Kakepuku rd
RD3
Te Awamutu.

Record of work that is restricted building work

Work that is restricted building work		Description	Carried out/ supervised
Primary structure			
Foundations and subfloor framing	( )		( ) Carried out ( ) Supervised
Walls	( )		( ) Carried out ( ) Supervised
Columns and beams	( )		( ) Carried out ( ) Supervised
Other	( )		( ) Carried out ( ) Supervised
External moisture management systems			
Damp proofing & Penetrations	( )		( ) Carried out ( ) Supervised
Wall cladding or wall system	(✓)	brickd over gaps	(✓) Carried out ( ) Supervised
Other	( )		( ) Carried out ( ) Supervised

Issued by

Name: Shannon Barber
LBP number: BP 111 569
Class(es) licensed in B1/B2
Mailing address: 11 Brady st Te Awamutu
Street address or registered office:
Telephone: Landline:
Mobile: 021 446985
Daytime:
After hours:
Facsimile:
Email: barberbrickandblocklayers@gmail.com

Declaration

Shannon Barber (name of practitioner)

carried out or supervised the restricted building work recorded on this form.

Signature: SR Barber Date: 21/6/2013

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Memorandum from licensed building practitioner: Certificate of design work

Section 45 and section 30c, Building Act 2004

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

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

THE BUILDING	
Street address: 210 Goodfelllow St	
Suburb:	
Town/City: Te Awamutu	Postcode: 3800

THE OWNER(S)	
Name(s): P Lovegrove	
Mailing address: 53 Kakepuku Road	
Suburb: RD3	PO Box/Private Bag:
Town/City: Te Awamutu	Postcode:
Phone number: 078717675	Email address:

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IDENTIFICATION OF DESIGN WORK THAT IS RESTRICTED BUILDING WORK

I Jason Kraayvanger carried out/supervised the following design work that is restricted building work

PRIMARY STRUCTURE

Design work that is restricted building work	Description of restricted building work	Carried out or supervised	Reference to plans and specifications
Tick ✓	If appropriate, provide details of the restricted building work	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
Foundations and subfloor framing ☑	Timber piles under point loads from ceiling beams	☑ Carried out ○ Supervised	Foundation plan (sheet 02)
Walls ☑	External & internal timber walls	☑ Carried out ○ Supervised	Floor plan (sheets 03)
Roof ☐	n/a	○ Carried out ○ Supervised	
Columns and beams ☑	Ceiling Beams, where existing internal walls being removed	☑ Carried out ○ Supervised	Floor plan (sheets 03)
Bracing ☑	Sheet Bracing	☑ Carried out ○ Supervised	Bracing plan (shhet 04)
Other ☐	n/a	○ Carried out ○ Supervised	

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EXTERNAL MOISTURE MANAGEMENT SYSTEMS			
Design work that is restricted building work	**Description of restricted building work**	**Carried out or supervised**	**Reference to plans and specifications**
Tick ✓	If appropriate, provide details of the restricted building work	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
Damp proofing ☐	n/a	○ Carried out ○ Supervised	
Roof cladding or roof cladding system ☐	n/a	○ Carried out ○ Supervised	
Ventilation system (for example, subfloor or cavity) ☐	n/a	○ Carried out ○ Supervised	
Wall cladding or wall cladding system ☑	Brick veneer over cavity system	✓ Carried out ○ Supervised	Elevations (sheets 05)
Waterproofing ☐	n/a	○ Carried out ○ Supervised	
Other ☐	n/a	○ Carried out ○ Supervised	

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FIRE SAFETY SYSTEMS			
Design work that is restricted building work	**Description of restricted building work**	**Carried out or supervised**	**Reference to plans and specifications**
Tick ✓ if appropriate	If appropriate, provide details of the restricted building work	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
Emergency warning systems ☐ Evacuation and fire-service operation systems Suppression or control systems Other		○ Carried out ○ Supervised	
Note: The design of fire safety systems is only restricted building work when it involves small-to-medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011.			

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WAIVERS AND MODIFICATIONS

Waivers or modifications of the Building Code are required. ○ Yes ◉ No

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

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

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ISSUED BY

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

Name: Jason Kraayvanger	LBP or Registration number: BP112425
The practitioner is a: ◉ Design LBP ○ Registered architect ○ Chartered professional engineer	
Mailing address (if different from below): PO Box 171, Te awamutu, 3840	
Street address/Registered office: 130 Canbridge Road	
Suburb:	Town/City: Te Awamutu
PO Box/Private Bag:	Postcode: 3800
Phone number:	Mobile: 021 805452
After hours:	Fax:
Email address: newvisionarchitecture@xnet.co.nz	Website:

DECLARATION

I Jason Kraayvanger certify that the design work that is restricted building work identified on this form:

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

Signature: [signature]

Date: 23/10/12

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Applicant's Checklist:

Dwellings

Project examples: New dwellings, dwelling alterations and/or additions, change of building use to habitable

Applicants Name: J Krauyvanger **Project Location:** 210 Goodfellow st, Te Awamutu

Only completed Applications can be accepted for lodgement. Key: [√] = Provided [X] = Not Provided [I] or [—] = Not Applicable	PLEASE FILL IN	OFFICE USE ONLY
COMPLETE ALL SECTIONS OF THE APPLICATION FORM		
• All sections of the application form have been completed.	☑	☑
• A copy of the FULL Certificate of Title (up to 2 months old).	☑	☑
• Good quality drawings to an appropriate scale of 1:100 (detail 1:50, site plan 1:200) with metric dimensions.	☑	☑
• **Please provide 2 copies of all plans and specifications.** (Please note Hamilton City Council & Matamata-Piako District Council require 3 sets of plans and specifications).	☑	☑
• Deposit Fee.	☑	—
SITE PLAN		
• Show the legal boundaries of the site, and easements. Show the location and distances of all existing and proposed buildings, including accessory buildings such as sheds or garages, in relation to the boundaries. Use an appropriate metric scale of 1:200 or 1:100 and include a north point.	☐	☐
• Show the layout of existing and proposed sanitary and stormwater drains. Include the location of each drain's connection to the public mains. Provide details of on-site stormwater disposal, e.g. rain tanks, soak holes etc. (Check that kerb connection is acceptable if the site is unsuitable for on-site disposal or a Council stormwater connection is unavailable.) Where a septic tank is used include details of the size and location of tank and of the effluent field and calculations.	☐	☐
• Indicate the top of any banks shown and their gradient contours in relation to the building. Show the height of the bank and the distance from the top of the bank to the building.	☐	☐
• A geotechnical report from an appropriately qualified person may be required.	☐	☐
• If the title is less than five hectares, show the gross floor area of <u>all</u> buildings on the title.	☐	☐
• Show the dimensions of any existing and/or proposed vehicle entranceway and its position along the boundary. For a new entranceway, include a completed application form for a new entrance/crossing.	☐	☐
• If the property is in an urban area, show car parking and vehicle circulation provisions, including on-site manoeuvring. Mark the street names on the site plan.	☐	☐
• **Swimming / Spa Pools** *(if applicable)* – requirement of *Applicant Checklist for Pools* have been met.	☐	☐
FLOOR PLANS		
• Supply a floor plan of each level, including complete floor layout and use of each area. Floor areas and roof areas in square metres should be shown on plans drawn to an appropriate scale, e.g. 1:100 or 1:50. Show the location of all plumbing fittings and all waste and vent pipes.	☑	☑
• Show location and size of windows and doors.	☑	☑
• Show location of smoke alarms.	☑	☑
• **Heaters/Solar Systems** *(if applicable)*: Requirements of the *Applicant Checklist for Heaters/Solar Systems* have been met.	—	—
ELEVATION PLAN		
• Supply an elevation plan of each external wall showing heights from eaves to finished ground level at each external corner, and the existing and proposed land contours. Also show the overall height of the building from ground level to the apex of the roof.	☑	☑

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• Show type of cladding. • Show location of wall and roof bracing and of all opening window sashes. • Show window size and type of glazing.	☑ ☑ ☑	☑ ☑ ☑
FOUNDATION PLAN • For timber floors show the location of piles, pile type, sub floor bracing, foundation perimeter walls and internal piling system where applicable. • Provide sub floor bracing calculations for timber floors. • For concrete floors provide clear CROSS-SECTION DETAILS and show location of slab thickenings and steel. • Attach specific foundation design. A structural engineer-designed foundation is required for buildings on weak soils, sloping sites and pole foundations over 3m high.	☑ ⊟ ⊟ ⊟	☑ ⊟ ⊟ ⊟
STRUCTURAL BRACING CALCULATIONS • Supply bracing calculations in an approved form. Show the location of the pile bracing elements and the wall bracing elements on the floor plan and the roof bracing on the truss plan. (For 1 - 2 room additions the location, type and value of the bracing element will be sufficient).	☑	☑
SPECIFIC CONSTRUCTION DETAILS - Please provide the following specific details where appropriate • Flashing details between roofs and walls. • Flashing and weathering details between upper floor decks and floors. • Fixings for ballustrading to decks. • Post/beam fixings. • Foundation details such as reinforcing size and location.	 ⊟ ⊟ ⊟ ☑ ☑	 ⊟ ⊟ ⊟ ☑ ☐
CROSS-SECTIONAL DETAILS • Provide sufficient scaled cross-section drawings (1:50 or better) through the building to show foundation details, floor systems, wall, ceiling and roof construction. A finalised roof truss/framing plan must be provided with the application. • Show construction details of terraces, steps, stairs (internal and external), barriers and balustrades. • Where the position of beams, supports and connections are not clear, these should be shown with details of connections at a scale of 1:50 or 1:20. • Show the location and type of wall cladding and roof sheathing. For composite systems, that are alternative solutions to the Building Code, these should be designated on the CROSS-SECTION plan and referenced in the SPECIFICATIONS. • Give details of thermal insulation: type and R. value. (For buildings with glazing less than 30% of wall area, use NZS 4218: Schedule method or the calculation or modelling methods. If the glazing area is more than 30% you can not use the schedule method. • Construction details included (e.g. flashings, cladding junctions, wall/soffit junctions etc.)	☑ ⊟ ☑ ☑ ⊟ ☑	☑ ☐ ☑ ☐ ⊟ ☑
FIRE WALL AND FIRE RATING REQUIREMENTS • If using an approved and tested system, provide details and state the particular design type and number here: ..... • If the system is specifically designed by an engineer, then supply the specific design.	⊟ ⊟	⊟ ⊟
PLUMBING • Specify AS/NZS 3500 or G13 plumbing system. Plan must show positions of all fittings and pipe sizes. • For multi-level residential housing provide isometric drawings of the plumbing reticulation including soil and waste system showing positions of all fittings and pipe sizing.	⊟ ⊟	⊟ ⊟
SPECIFICATIONS • The specification should be project specific and appropriate to the building construction. It should be laid out in easily followed sections covering methods and materials that are not included in the building plans, e.g. pipe work materials. • Include manufacturer's specifications of any solid fuel heater or solar system.	☑ ⊟	☑ ⊟

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SPECIFIC DESIGN

- If specific design is used, a structural engineer's Design Producer Statement (PS1), drawings and calculations must be supplied. A peer review may be required, provided by Council's engineering consultants at cost to the applicant.
- An engineer's letter of supervision may be required.
- Any buildings that fall outside the scope of NZS 3604:1.1.2 require specific design. Specific design is also required for structural steel frames, foundations on weak soils, large retaining walls and waste water disposal systems.

EFFLUENT DISPOSAL

- If an on-site effluent disposal system ('septic tank') is required, provide plans for the system, including certification from a suitably qualified person, that the system is suitable for the site and complies with the regional and local rules for waste water disposal.

WEATHERTIGHTNESS

- For all new dwellings and additions, or where alterations impact on the building envelop a weathertightness Risk Matrix Calculation must be provided – refer to NZ Building Code E2.AS1.3.0

WATER, WASTE WATER, STORMWATER CONNECTIONS

- Provide a scaled site plan showing the location of any new stormwater, waste water and/or water connections.
- If residential, show stormwater connections to kerb and channel on the site plan. If no Council stormwater services are available to the property, provide details of on-site disposal, e.g. soak holes.

Waste Water Connection

- If **no** new waste water connection has been installed to service the new dwelling or development, please apply for a connection and pay fees. (Provide site plan for approval).
- If there are no waste water reticulation services available to the property, ensure that details of the size of the septic tank and of the effluent field are included on the site plan and with the specifications.

Water Connection

- If **no** water connection been installed to service the new dwelling or development, please apply for a connection and submit with fees. (Provide site plan for approval).
- Has an identifying marker been placed on the boundary where you require the water connection to be located?
- If there are no Council water reticulation services available to the property, provide details of the source of the existing or proposed water supply.

APPLICANT'S DECLARATION: I have provided all the required information:

J. Kranyvanger ..... *(Applicant)* 23/10/12 *(Date)*

OFFICE USE ONLY

OUTCOME OF DECISIONS

- [x] This application was accepted for lodgement because all required information was supplied
- [ ] This application was not accepted for lodgement because documentation was incomplete
- [ ] Documentation is now complete and the application is accepted for lodgement

Officer..... Date.....

OTOROHANGA make the Kiwi connection

matamata piako district council

Waikato DISTRICT COUNCIL

Waipa DISTRICT COUNCIL

Hamilton City Council Te kaunihera o Kirikiriroa

ACCEPTED
29 OCT 2012
By:

Document Set ID: 3528964
Version: 2, Version Date: 30/07/2013

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**225040**
Land Registration District	**South Auckland**
Date Issued	10 August 2007

Prior References
SA20A/861 SA9A/1122

Estate	Fee Simple
Area	1466 square metres more or less
Legal Description	Lot 2 Deposited Plan 355166 and Lot 9 Deposited Plan South Auckland 443

Proprietors
Field-Grove Investments Limited

Interests
Subject to Section 11 Crown Minerals Act 1991 (affects part formerly CT SA9A/1122)
Subject to Part IV A Conservation Act 1987 (affects part formerly CT SA9A/1122)
Subject to Section 241(2) and Sections 242(1) and (2) Resource Management Act 1991 (affects DP 355166)
7564721.2 Mortgage to ANZ National Bank Limited - 3.10.2007 at 2:57 pm

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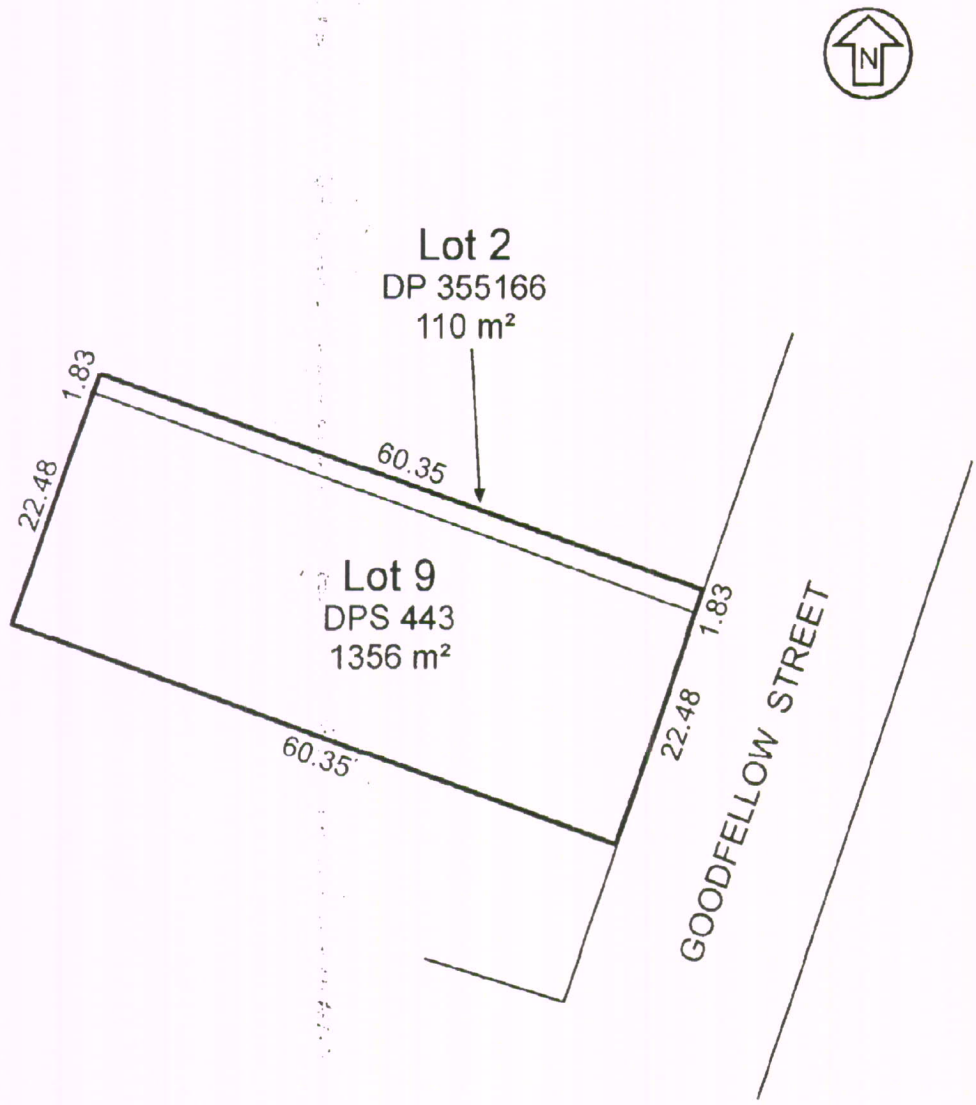
Title Diagram CT 2250

Cpy - 01/01, Pgs - 001, 27/08/07, 07:35

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CT 225040

A2007/0496



TOTAL CT AREA: 1466 m²

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Elephant Plasterboard® QuickBrace™ FP March 2012 V.1.0	Print Date: 27-May-13
Specification Sheet	**NZS3604:2011 Compliant**

Project Details

Project Name:	Lovegrove Alterations REVISED
Street Address:	210 Goodfellow St
Lot and DP Number:	Lot DP
City/Town/District:	Te Awamutu

Designer Name:	Jason Kraayvanger
Company Name:	New Vision Architecture Ltd
Bracing Design Date:	27/05/2013
This Calculation done by:	JK & ABP

Project Specifications

Storey Type:	Single	
Foundation Type	Subfloor	
Floor Loads	1.5 kPA	
Height: Avg Ground to Apex (H)	6.20	m

Roof Specifications

Roof Pitch:	34.0	degrees	34.0
Height (h) above Eaves:	3.00	m	
Roof Type:	Hip Roof		
Roof Cladding Weight:	Heavy		
Roof Length:	15.9	m	
Roof Width:	10.0	m	
Part Storey in Roof Spaces:	No		

Single Storey Specifications

External Wall Height:	2.50	m
Internal Stud Height	2.73	m
Cladding Weight	Heavy	
Building Length	14.7	m
Building Width	8.8	m
Gross Plan Area (GPA)	125.0	m2
Timber Floor Limit: 120 bu's/m	Timber: 120 Bu's/m	

Single Storey

Single Storey

Subfloor Specifications

Subfloor Height	0.70	m
Internal Subfloor Stud Height	0.70	m
Cladding Weight	Heavy	
Subfloor Building Length	14.7	m
Subfloor Building Width	8.8	m
Subfloor Gross Plan Area	125.0	m2
Floor Type Performance Limit	Earth: NZS3604	

Determine Wind Zone

Enter Wind Zone

	Pre Selected
	Pre Selected
	Pre Selected
	Pre Selected
	Pre Selected
	Pre Selected
	Pre Selected
	Pre Selected
	Pre Selected
Enter Wind Zone	High

Determine Earthquake Zone and Subsoil Class.

Earthquake Zone:	1
Subsoil Classification:	C: Shallow
Annual Exceedance Probability:	1/500 yrs - NZS3604:2011 Default

Single B.U's Demand

Alt. Demand Source? No

	PerM/M2	QuickBrace First Principles Demands
Wind Along	44.9	395
Wind Across	51.2	753
Earthquake	8.8	1100

Single Storey

Subfloor B.U's Demand

Alt. Demand Source? No

	PerM/M2	QuickBrace First Principles Demands
Wind Along	80.6	709
Wind Across	86.9	1278
Earthquake	10.8	1348

Approved Waipa District Council
Building Department
0773/12
Subject to conditions of
Building Consent No

Document Set ID: 3528964
Version: 2, Version Date: 30/07/2013

Elephant Plasterboard® QuickBrace™ FP March 2012 V.1.0						Demand Source:		Achieved =	336%	1326	109%	1199
Wall Along		Lovegrove Alterations REVISED				QuickBrace First Principles		Total Demand =		395		1100
Single Storey		210 Goodfellow St				Minimum Bu's on External Lines=			221		221	
						Minimum Bu's on Internal Lines=			100		183	
									Wind		Earthquake	
Line	Element #	Wall Type	Available Wall Length	Wall Angle °	Element Height	System Number	Supplier	Floor Type Max BU's/m or SED	BU/m	Achieved BU's	BU/m	Achieved BU's
A	1 New	External	0.64		2.73	EHMc	Elephant	120 BU's	97	62	98	63
	2 New	External	0.64		2.73	EHMc	Elephant	120 BU's	97	62	98	63
	3 New	External	0.60		2.73	EHMc	Elephant	120 BU's	92	55	97	58
	4 New	External	0.60		2.73	EHMc	Elephant	120 BU's	92	55	97	58
	5											
Min Bu's Req: =		183						A linetotal Achieved:		235		242
B	1 New	Internal	2.00		2.73	EHSc	Elephant	120 BU's	105	211	79	158
	2. Dele	Internal										
	3. New	Internal	3.50		2.73	ENS	Elephant	120 BU's	62	215	57	200
	4 New	Internal	2.20		2.73	EHSc	Elephant	120 BU's	105	232	79	174
	5 Exist	Internal	2.00		2.73	ENS	Elephant	120 BU's	62	123	57	114
Min Bu's Req: =		183						B linetotal Achieved:		782		647
C	1 New	External	1.40		2.73	EHMc	Elephant	120 BU's	105	148	105	148
	2 New	External	1.00		2.73	EHMc	Elephant	120 BU's	105	105	105	105
	3 New	External	0.40		2.73	ENS	Elephant	120 BU's	57	23	57	23
	4 Exist	External	0.60		2.73	ENS	Elephant	120 BU's	57	34	57	34
	5											
Min. Bu's Req=		183						C linetotal Achieved:		310		310
D	1											
	2											
	3											
	4											
	5											
Min. Bu's Req=								D linetotal Achieved:				
E	1											
	2											
	3											
	4											
	5											
Min. Bu's Req=								E linetotal Achieved:				
F	1											
	2											
	3											
	4											
	5											
Min. Bu's Req=								F linetotal Achieved:				
G	1											
	2											
	3											
	4											
	5											
Min. Bu's Req=								G linetotal Achieved:				
H	1											
	2											
	3											
	4											
	5											
Min. Bu's Req=								H linetotal Achieved:				
I	1											
	2											
	3											
	4											
	5											
Min. Bu's Req=								I linetotal Achieved:				
J	1											
	2											
	3											
	4											
	5											
Min. Bu's Req=								J linetotal Achieved:				
User Comments:										Wind		Earthquake
Print Date: 27-May-13		Single Storey		Wall Along				Achieved BU's =	336%	1326	109%	1199
Elephant Plasterboard® QuickBrace™ FP March 2012 V.1.0								Total Demand =		395		1100

Document Set ID: 3528964
Version: 2, Version Date: 30/07/2013

Elephant Plasterboard® QuickBrace™ FP March 2012 V.1.0					Demand Source:		Achieved =	201%	1512	128%	1410
Wall Across	Lovegrove Alterations REVISED				QuickBrace First Principles		Total Demand =		753		1100
Single Storey	210 Goodfellow St				Minimum Bu's on External Lines=			132		132	
					Minimum Bu's on Internal Lines=			100		110	
								Wind		Earthquake	
Line	Element #	Wall Type	Available Wall Length	Wall Angle °	Element Height	System Number	Supplier	Floor Type Max BU's/m or SED	BU/m	Achieved BU's	BU/m	Achieved BU's
M												
	1 New	External	1.27		2.73	ENS	Elephant	120 BU's	62	78	57	73
	2 New	External	2.80		2.73	ENS	Elephant	120 BU's	62	172	57	160
		External										
Min Bu's Req: =		110						M linetotal Achieved:		250		233
N	1 New	Internal	1.83		2.73	ENS	Elephant	120 BU's	62	113	57	105
	2 Exist	Internal	3.60		2.73	ENS	Elephant	120 BU's	62	222	57	206
Min Bu's Req: =		110						N linetotal Achieved:		334		310
O	1 Exist	Internal	3.60		2.73	ENS	Elephant	120 BU's	62	222	57	206
	2 New	Internal	3.08		2.73	ENS	Elephant	120 BU's	62	190	57	176
		Internal										
Min Bu's Req: =		110						O linetotal Achieved:		411		382
P	1 Exist	Internal	2.00		2.73	ENS	Elephant	120 BU's	62	123	57	114
	2 New	Internal	2.00		2.73	ENS	Elephant	120 BU's	62	123	57	114
	3 New	Internal	0.90		2.73	ENS	Elephant	120 BU's	62	55	57	51
	4											
	5											
Min Bu's Req: =		110						P linetotal Achieved:		302		280
Q	1 Exist	External	1.70		2.73	ENS	Elephant	120 BU's	62	105	57	97
	2 Exist	External	0.60		2.73	ENS	Elephant	120 BU's	57	34	57	34
	3 Exist	External	0.65		2.73	ENS	Elephant	120 BU's	58	38	57	37
	4 Exist	External	0.65		2.73	ENS	Elephant	120 BU's	58	38	57	37
	5											
Min Bu's Req: =		110						Q linetotal Achieved:		215		206
R	1											
	2											
	3											
	4											
	5											
Min Bu's Req: =								R linetotal Achieved:				
S	1											
	2											
	3											
	4											
	5											
Min Bu's Req: =								S linetotal Achieved:				
T	1											
	2											
	3											
	4											
	5											
Min Bu's Req: =								T linetotal Achieved:				
U	1											
	2											
	3											
	4											
	5											
Min Bu's Req: =								U linetotal Achieved:				
V	1											
	2											
	3											
	4											
	5											
Min Bu's Req: =								V linetotal Achieved:				
User Comments:										Wind		Earthquake
Print Date: 27-May-13		Single Storey		Wall Across				Achieved BU's =	201%	1512	128%	1410
Elephant Plasterboard® QuickBrace™ FP March 2012 V.1.0								Total Demand =		753		1100

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Waipa
DISTRICT COUNCIL

TAX INVOICE / DEBIT NOTE / CREDIT NOTE

GST Registration No. 52-033-365
WAIPA DISTRICT COUNCIL
Private Bag 2402
Te Awamutu 3840

Date: 20 November 2012
Invoice No. 10901
Application No: BC/0773/12
Assessment No: 04470/424.02
Property ID: 61246

Attention:
Field-Grove Investments Ltd
C/- Steve Cranefield & Paula Lovegrove
53 Kakepuku Road
RD 3
Te Awamutu 3873

Pay At:
101 Bank Street
Te Awamutu 3800 or
23 Wilson Street
Cambridge 3434

FILE COPY

Owners Name: Field-Grove Investments Ltd

Project Address: 210 Goodfellow Street Te Awamutu 3800

Charge Description	Amount
Building Research Assoc Levy	$60.00
Consent - Alterations with Plumbing to 30m2	$1,301.00
Certificate of Title	$10.00
Dept of Building and Housing Levy	$120.60
Tax Invoice Total	$1,491.60
GST Content is $186.73 (Note: Building Research Assoc Levies are Exempt)	
Amount Due	$1,491.60

Invoices may be paid via internet banking to Waipa District Council - ASB - 123122-0084701-01.
Please reference application number and payer name to ensure payment is correctly allocated, and forward remittance advice to info@waipadc.govt.nz

---

REMITTANCE ADVICE
Please detach and return this portion with your cheque.

Waipa District Council
Private Bag 2402
Te Awamutu 3840

Date: 20/11/2012
Invoice No: 10901
Application No: BC/0773/12
Applicant: New Vision Architecture Limited
Amount Due: $1,491.60

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1220902

SCANNED

newvision
architecture

Jason Kraayvanger PH: 021 80 54 52 or 07 871 5452. Email: newvisionarchitecture@xnet.co.nz
130 Cambridge Road. PO Box 171 Te Awamutu

SPECIFICATION
&APPENDIX
DOCUMENTS

PROJECT
ALTERATION

CLIENT
LOVEGROVE

LOCATION
210 GOODFELLOW ST
TE AWAMUTU

Approved Waipa District Council
Building Department
0773/12
Subject to conditions of
Building Consent No

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1220 PROJECT

1. GENERAL

This general section describes the project including:
- A description of the work
- Site description, features and restrictions
- Design parameters for design by contractor
- Archaeological discovery

1.1 READ ALL SECTIONS TOGETHER
Read all general sections together with all other sections.

Description of the work

1.2 SCOPE OF THE WORK
Internal Alteration

Site

1.3 SITE
The site consists of: Slight Sloping, Residenal area
as shown on drawing no. 02

1.4 LEGAL DESCRIPTION
The site of the works, the street address and the legal description are shown on the drawings.

1.5 EXISTING BUILDINGS
Existing buildings consist of: Existing Dwelling/Units
Refer to drawing(s) no(s): 02

1.6 EXISTING SERVICES
The following are the network utility services:
Electrical: Existing
Telecommunication: Existing
Water: Existing
Gas: Existing
Stormwater: Existing
Foul water: Existing

Site environment – Wind

1.7 DESIGN PARAMETERS – NON SPECIFIC DESIGN
The design wind pressures are to NZS 3604, Table 5.4 Determination of wind zone, up to and including Extra High Wind Zone.
Building wind zone Medium (refer to NZS 3604, table 5.4)

Site environment – Durability

1.8 EXPOSURE ZONE
The exposure zone is to NZS 3604, Section 4 Durability, 4.2 Exposure zones.
The site zone is: B

Site environment – Seismic

1.9 EARTHQUAKE ZONE
The zone is to NZS 3604, Section 5 Bracing design, 5.3 Earthquake bracing demand.
The earthquake zone is: 1

Archaeological discovery

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1.10 ANTIQUITIES AND ITEMS OF VALUE

Report the finding of any fossils, antiquities and other items of value, to the Contract Administrator. All to remain undisturbed until approval is given for removal.

Pre-1900, items or evidence of human activity on the site, come under the Historic Places Trust Act 1993. If such items or evidence is discovered work must stop immediately and the Contract Administrator must be notified immediately. The site maybe classified as an Archaeological Site under the Act, and the Contract Administrator or Owner must contact the NZ Historic Places Trust for authority to proceed.

Post-1900 items remain the property of the owner, pre-1900 items may remain the property of the owner or the Crown subject to what is found.

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1233 REFERENCED DOCUMENTS

1. GENERAL

This general section relates to other documents referred to in this specification.

1.1 REFERENCED DOCUMENTS

Throughout this specification, reference is made to various New Zealand Building Code Compliance Documents (NZBC __), acceptable solutions (__ AS_) and verification methods (__ VM_) for criteria and/or methods used to establish compliance with the New Zealand Building Code.

Reference is also made to various standards produced by Standards New Zealand (NZS, AS/NZS, NZS/AS), overseas standards 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.

It is the responsibility of the contractor to be familiar with the materials and expert in the techniques quoted in these publications.

Documents cited both directly and within other cited publications are deemed to form part of this specification. However, this specification takes precedence in the event of it being at variance with the cited documents.

1.2 DOCUMENTS

Documents referred to in the GENERAL sections are:

NZBC F4/AS1	Safety from falling
NZBC F5/AS1	Construction and demolition hazards
AS/NZS 1170.2	Structural design actions - Wind loads
NZS 3109	Concrete construction
NZS 3114	Specification for concrete surface finishes
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 4210	Masonry construction: Materials and workmanship
NZS 6803	Acoustics - Construction Noise

Building Act 2004
Building Regulations 1992
Health and Safety in Employment Act 1992
Health and Safety in Employment Regulations 1995
New Zealand Building Code
Historic Places Act 1993
Resource Management Act 1991
Smoke-free Environments Act 1990

OSH	Guidelines for the provision of facilities and general safety in the construction industry
SARNZ	Best practice guideline for scaffolding in New Zealand

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1234 DOCUMENTATION

1. GENERAL

This general section relates to documentation required by the Territorial Authority/Building Consent Authority for compliance with the New Zealand Building Code. It also includes documentation relating to:

- Substitutions
- Manufacturers documents

Building Consent Authority documentation

1.1 BUILDING CONSENT

Obtain the original or copies of the building consent forms and documents from the owner and keep them on site. Liaise with the BCA for all notices to be given and all inspections required during construction to ensure compliance. Return the consent form and documents to the owner on completion.

1.2 BUILDING CONSENT COMPLIANCE

It is an offence under the Building Act 2004

- to carry out any work not in accordance with the building consent.
- to carry out Restricted Building Work by anyone other than a Licensed Building Practitioner licensed for that type of work.

The resolution of matters concerning building code compliance to be referred to the contract administrator for a direction in writing and then to the BCA for consent.

Where any alteration is requested by the territorial authority or any other authority, do not undertake such alteration until the matter has been referred to the Contract administrator for direction.

1.3 PROJECT PERSONNEL

Provide names and contact detail of the contractor's key personnel and tradespersons who are involved with the project. Provide the names in the form required in the general section of the specification. Review the list once a month and reissue it if changes have been made.

1.4 LICENSED BUILDING PRACTITIONERS

Provide names and contact detail of LBP's. Provide names, LBP numbers, areas of practice and contact information. Provide this information to the BCA before commencing work on the Restricted Building Work. Provide the names in the form required in the general section of the specification. Review the list once a month and reissue it if changes have been made.

Include the following as applicable:

- Site LBP
- Carpenter
- Foundations 2 Concrete or timber pile foundations constructor
- Bricklaying and block laying 1 Brick / masonry veneer
- Bricklaying and block laying 2 Structural masonry - Bricklayer / Blocklayer
- Registered plumber
- Registered gasfitter
- Registered electrician

1.5 PRODUCER STATEMENTS

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

1.6 RECORD OF WORK

Where Restricted Work is carried out by a LBP, on completion provide a Record of Work. Provide copies to both the BCA and the Contract Administrator.

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Compliance information

1.7 DOCUMENTATION REQUIRED FOR CODE COMPLIANCE

Information may be required either as a condition of the contract documents or as a condition of the building consent may include the following: -

- Applicators approval certificate from the manufacturer / importer / distributor
- Manufacturer's, importer's or distributors warranty
- Installer / applicator's warranty
- LBP Record of Work
- Producer Statement - Construction from the applicator / installer
  Producer Statement - Construction review from an acceptable suitably qualified person

Refer to the general sections for the requirements for compliance information to be provided by the contractor.

Refer to the building consent for the requirements for compliance information to be provided by the contractor.

Obtain required documents from the relevant parties for delivery to the contract administrator after the final inspection has been carried out by the Building Consent Authority.

Substitutions

1.8 ACCEPTABLE PRODUCT/MATERIAL SUPPLIERS

Where a product or material supplier is named in SELECTIONS, the product/material must be provided by the named supplier. Where more than one named supplier, any one of the named suppliers will be acceptable.

1.9 NO SUBSTITUTIONS

Where specifically stated in a section, substitutions are not permitted to any of the specified systems, components and associated products listed in that section.

1.10 PROPOSED SUBSTITUTIONS

A substitution may be proposed where specified products are not reasonably available. A substitution may also be proposed by the Contractor where the Contractor considers a proposed substitution to be an alternative to the specified product. Except where a specified product is not available, the Contract administrator is not bound to accept any substitutions. Where branded work sections are included in this specification, substitution of those products or systems will not be allowed.

1.11 NOTIFICATION OF SUBSTITUTIONS

Notify proposed substitution of specified products. Notification to include but not be limited to:

- Product identification
- Manufacturer's name, address, telephone and facsimile numbers, website and email address
- Detailed comparison between the properties and characteristics of the specified product and the proposed substitution
- Statement of NZBC compliance including durability
- Details of manufacturer warranties

plus an assessment of

- Any changes required to the programme including any extension of time required
- Any consequential effects of the proposed substitution
- Allowance for time and cost for re-design and documentation (if applicable)
- Allowance for time and cost for obtaining an amendment to the Building Consent (if applicable)
- Any change in cost associated with the proposed substitution

and if requested

- All current manufacturer's literature on the product
- Accreditations and appraisals available

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- Reference standards
- Product limitations
- Samples
- List of existing installations in the vicinity of the project

1.12 ACCEPTANCE OF SUBSTITUTIONS
The Contract administrator must advise of acceptance of substitutions in writing.

Amendment to issued Building Consent

1.13 CONTRACTOR AMENDMENTS TO BUILDING CONSENT
Where the contactor has sought acceptance of a substitution or a variation which is for the contractor's own convenience and the substitution or variation requires an amendment to the Building Consent, the contractor must apply for and obtain the required amendment.

The contractor must:
- Obtain approval for substitutions from the Contract administrator.
- Prepare and provide to the BCA all documentation required for the amendment.
- Pay all fees and other costs associated with this amendment.
- Where the amendment affects other approved plans, also amend those plans.

1.14 PRINCIPALS AMENDMENTS TO BUILDING CONSENT
Where the principal is proposing a substitution or a variation which requires an amendment to the Building Consent, the contractor must provide to the principal information that the contractor has that is required for the amendment.

The principal will:
- Prepare and provide to the BCA all documentation required for the amendment.
- Pay all fees and other costs associated with this amendment.
- Where the amendment affects other approved plans, also amend those plans.

Manufacturer's documents

1.15 BRANDED WORK SECTIONS
Branded sections may be included in this specification relating to specific products and systems to be installed as part of the contract works. Where branded sections are included, substitutions to the branded products and systems will not be allowed.

1.16 CROSS REFERENCED WORK SECTIONS
If any related work is cross referenced to a generic work section, but only the equivalent branded section is included in the specification, use that branded section. Confirm with the Contract administrator if there is any doubt.

1.17 MANUFACTURER'S AND SUPPLIER'S REQUIREMENTS
Manufacturers and supplier's requirements, instructions, specifications or details mean those issued by them for their particular material, product or component and are the latest edition.

1.18 MANUFACTURER'S AND SUPPLIER'S DOCUMENTS
Refer to individual sections for a detailed list of manufacturer's and supplier's documents relating to work on this project. Retain current copies of the documents listed, and all other relevant manufacturer's technical literature, on site. Make this information available to all personnel and ensure they are familiar with requirements for handling, storing, preparing for, fixing and finishing all products before commencing work. Provide a copy of all listed manufacturer's literature to the Contract administrator.

1.19 ONGOING MAINTENANCE REQUIREMENTS
Refer to individual sections for details of manufacturer's and supplier's requirements for ongoing maintenance necessary to ensure continuing compliance with the durability requirements of the NZBC. Provide a copy of literature detailing ongoing maintenance and inspection requirements to the Contract administrator.

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Shop drawings

1.20 PROVIDE SHOP DRAWINGS FOR REVIEW
Where specified in the work sections provide shop drawings for review by the contract administrator. Allow in the program for the shop drawing and review process. Do not proceed with manufacture of the items until the Contract administrator gives a direction to proceed.

As built drawings

1.21 PROVIDE AS BUILT DRAWINGS
Provide as built drawings where specified in the work sections and as required by the BCA.

Operation and maintenance

1.22 PROVIDE OPERATION AND MAINTENANCE INFORMATION
Unless addressed elsewhere in this specification provide operation and maintenance documentation necessary for the principal to operate and maintain the works. Provide documentation no later then the date of practical completion or the date on which the principal takes occupation of the works. This documentation is to include: -

- A complete list of subcontractors' names, addresses and telephone numbers noting which portions of the contract each provided
- A complete list of equipment and appliances including serial numbers, manufacturer's names and sources of supply
- Copies of all manufacturer's product literature containing maintenance requirements/instructions
- Final As-Built drawings (as required by the work sections)
- Originals of all warranties and guarantees properly executed.

Submit in final form in a hard cover, "clear view" loose-leaf binder, with contents index, contractor's name, date of practical completion and titled on the binding edge "Operation and maintenance information for (project name)".

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1237 WARRANTIES

1. GENERAL

This general section refers to the requirements for warranties as listed, either in this work section and/or in specific work sections. It includes: -

- Warranties for parts of the work required by the Principal in a required form
- Installer/applicator warranties for parts of the work in the installer/applicator's standard form
- Manufacturer/supplier warranties provided with products, appliances and the like in the suppliers standard form
- Guarantees provided by contractors in the contractor's standard form

Warranties

1.1 PROVIDE WARRANTIES

Provide executed warranties in favour of the principal in respect of, but not limited to, materials, components, service, application, installation and finishing called for in that specified section of work. The terms and conditions of the warranty in no case negate the minimum remedies available under common law as if no warranty had been offered. Failure to provide the warranty does not reduce liability under the terms of the warranty called for in that specified section of work.

- Conform to the 1237WA WARRANTY AGREEMENT form included in the specification/conditions of contract.
- Commence warranties from the date of practical completion of the contract works (unless otherwise stated).
- Maintain their effectiveness for the times stated.
- Provide executed warranties prior to practical completion.

1.2 WEATHERTIGHTNESS AND WATERTIGHTNESS WARRANTY

A warranty is required from the contractor for a minimum period of 2 years, covering the weathertightness of the complete building envelope and the watertightness of all liquid supply and disposal systems and fittings. This general warranty is in addition to any specific warranties required.

1.3 WARRANTIES – INSTALLER/APPLICATOR

Where installer/applicator warranties are offered covering execution and materials of proprietary products or complete installations, provide such warranties to the contract administrator. These warranties may be provided in lieu of the warranties that are otherwise required provided that these warranties are subject to similar conditions and periods.

Provide warranties in favour of the principal. The terms and conditions of such warranties in no case negate the minimum remedies available under common law as if no warranty had been offered. Failure to provide the warranty does not reduce liability for execution and materials for that part of the work.

- Conform to the installer/applicator standard form. Where the installer/applicator does not have a standard form, use the 1237WA WARRANTY AGREEMENT included in the contract documents.
- Commence the warranties from the date normally applicable for the work.
- Maintain their effectiveness for the times stated.

1.4 WARRANTIES – MANUFACTURER/SUPPLIER

Where warranties are offered covering materials, equipment, appliances or proprietary products, provide all such warranties to the contract administrator.

Provide warranties in favour of the principal. The terms and conditions of such warranties in no case negate the minimum remedies available under common law as if no warranty

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had been offered. Failure to provide the warranty does not reduce liability for execution and materials for that part of the work.

- Conform to the manufacturer/suppliers standard form.
- Commence the warranties from the date normally applicable.
- Maintain their effectiveness for the times stated.

Submissions

1.5 REVIEW BY CONTRACTOR
Obtain the warranties from the installers and suppliers at the earliest possible date and review to ensure that they are correctly filled out and executed. Where warranties are executed as a deed, ensure that a duplicate copy is provided for execution by the Principal/Owner. Keep safe and secure until required for submission.

1.6 WARRANTIES - REQUIRED BY BUILDING CONSENT AUTHORITY
Obtain copies of warranties required for submission to the BCA as a condition of the Building Consent. Keep safe and secure until required at the time of the BCA final inspection and Code Compliance Certificate. Provide to the BCA in the form they require.

1.7 WARRANTIES - REQUIRED BY CONTRACT
Obtain copies of warranties listed in the contract documents for submission to the Contract Administrator/Owner. Provide all warranties at the same time. Present the warranties to the Contract Administrator in a "clear view" document book suitably labelled with the project name and details. If the project has an operations and maintenance documentation provision, present the warranties with the operations and maintenance information.

1.8 TIME FOR SUBMISSION
Refer to the contract conditions for any requirement relating to the time for submission for warranties

NZIA SCC Contracts	Submit all warranties no later than the date of the contractors advice of achieving practical completion.
NZS 3910 Contracts	Submit all warranties before the end of the defects liability period.
NZS 3915 Contracts	Submit all warranties before the end of the defects liability period.

Guarantees – Contractor

1.9 MASTER BUILD SERVICES LTD 7 YEAR GUARANTEE
Provide a Master Build New Homes Alterations & Additions Guarantee including all costs in the contract price and covering loss of deposit, non-completion and defects in materials and workmanship and structural defects under the terms of the guarantee offered by Master Build Services Ltd. Execute with all three signatories: owner, registered master builder and Master Build Services Ltd, before commencing the contract works.

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1240 ESTABLISHMENT

1. GENERAL

This general section relates to site establishment including: -
- Notices and approvals
- Inspections
- Site preparation
- Signage
- Temporary construction

Notices and approvals

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

1.2 BUILDING CONSENT AUTHORITY AND NETWORK UTILITY APPROVALS
Attend on Building Consent Authority officers, statutory and network utility inspectors, as necessary to obtain approvals (in addition to building consent approval) for and the satisfactory completion of, the works.

1.3 NOTIFY NETWORK UTILITY OPERATORS
Notify all network utility operators of proposed works before commencing site operations. Ascertain location of services or confirm that none exist in the vicinity of the works. Take all necessary precautions to avoid damage to existing services.

Site preparation

1.4 SITE AND SOIL SURVEYS
Carry out all investigations necessary and peruse all information available to determine ground conditions and likely ground performance both on the site and adjacent to it. Also refer to the territorial authority project information memorandum (PIM).

1.5 GROUND CONDITIONS
Refer to the soils investigation report included with this specification.

Existing buildings

1.6 ALTERATIONS
Control access and working areas within existing buildings. Liaise with building owner to establish site limitations.

1.7 TEMPORARY ACCESS
Liaise with the building owner to arrange access to areas of the existing building which are not normally part of the contract.

Signage

1.8 SITE SIGN
Obtain approval for, provide and erect a timber framed sign board ~mm x ~mm fully painted and displaying:
- Title of contract
- Principal's name
- Contractor's name
- Consultants as listed in general section 1222 PROJECT PERSONNEL
- If the contractor wishes, names of contractor and subcontractors.

Temporary construction

1.9 TEMPORARY ROADS
Provide as necessary all temporary roads, tracks, crossings and hard standing required for the efficient execution of the works and maintain to approval.

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1.10 TEMPORARY BUILDINGS

Provide as necessary temporary sheds, offices, lunch rooms, sanitary accommodation and other temporary buildings required for storage, management of the works, for the use of workers while on site and as required by Acts and Regulations.

1.11 CONSULTANTS TEMPORARY SITE OFFICE

Provide temporary accommodation and facilities for site meetings and for use by consultants while on site.

1.12 HOARDINGS, GANTRIES, LIGHTING

Provide temporary fencing, hoardings, planked footways, guard rails, gantries and lighting as necessary to protect the public and others, for the proper execution of the works and to meet the requirements of territorial or other authority.

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1250 TEMPORARY WORKS & SERVICES

1. GENERAL

This general section relates to temporary works and services required for the construction of the contract works. It includes:
- Temporary works and services including temporary fencing and hoardings
- Scaffolding and shoring
- General care and protection

Temporary works

1.1 COMPLY WITH NEW ZEALAND BUILDING CODE

Refer to New Zealand Building Code clauses and approved document paragraphs for the criteria and/or methods that must be used in this section to establish compliance with the code.

1.2 COSTS RELATING TO TEMPORARY WORKS

Pay all rates/fees in respect of temporary works.

1.3 MAINTENANCE OF TEMPORARY WORKS

Maintain alter, adapt and move temporary works and services as necessary. Clear away when no longer required and make good.

1.4 SAFEGUARD THE SITE, THE WORKS AND MATERIALS

Take all precautions to prevent unauthorised access, including access outside working hours, to the site, the works and adjoining property. Safeguard the site, the works, materials and plant from damage and theft.

1.5 SITE HOARDINGS

Provide and maintain hoardings, 2 metres high from ground level on the side accessible to the public. Construct to comply with NZBC F5/AS1 Construction and demolition hazards. Construct as required for public areas and as shown on the drawings.
Construct hoardings with continuous cladding of:
- close butted timber at least 19mm thick; or
- 6mm exterior grade plywood on studs at 600mm centres maximum; or
- 9mm exterior grade plywood on studs at 1 metre centres maximum; or
- continuous metal cladding suitably supported to provide strength and rigidity

1.6 SITE FENCING – NON PUBLIC AREAS

Provide and maintain a 1 metre high site fence to non public areas. Construct using:
- warratah stakes at 1.5 metre centres fitted with safety caps
- plastic safety mesh

1.7 PROVIDE SEDIMENT AND SILT RUN OFF PROTECTION

Provide appropriate measures to prevent or minimise sediment generation and silt run off. Comply with territorial and other authority requirements relating to carrying out earthworks.

Prevent silt run off by:
- exposing only as much ground as required at any time
- providing run off channels, contour drains or earth bunds to divert clean water away from the site on to stable sealed or grassed ground
- capture silt by the use of silt fences, vegetation buffer strips, sediment ponds or earth bunds.

Provide sediment control by:
- earth bunds constructed across the slope to control and detain run off
- silt fences constructed using filter fabric stretched between posts at a maximum of 1 metre spacing.

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Pump water from trenches and other areas of the site using methods to prevent sediment entering any drain or watercourse. Filter dirty water before discharging into drainage system.

1.8 PROVIDE CONCRETE WASHWATER RUN OFF PROTECTION

Provide appropriate measures to prevent cement/concrete washwater or slurry run off to; drains or waterways, landscaped areas new or remaining and adjoining public or private properties. Comply with territorial and other authority requirements relating to cement/concrete washwater.

Control run off from:
- Cement/concrete based material production, placing and finishing.
- Hosing down and cleaning of, tools and equipment, fresh material, and spilt or surplus material, pumps and mixers etc.
- Wet cutting or grinding.
- Slab watering etc.
- Water cleaning of new concrete elements, fresh used formwork etc.

Small project with relatively large exposed ground areas - prevent run off by:
- directing small amounts of washwater onto the area of ground closest to the work.
- for larger amounts provide run off channels, and small soak pits
- very small amounts of washwater with no aggregate and only a small amount of sand may be spread over existing lawns.

Large project and those without suitable ground area - prevent run off by:
- plan and implement washwater control measures based on the expected volumes, allow for the timely removal and safe disposal of liquids and solids.
- control the volumes of water used for washing down, the more water used the bigger the problem.
- Control the flow of washwater so that it is directed to proper catchments.
- providing watertight bunds, pits or tanks, filtered washwater is not to be discharged to drains.

Spilt or surplus material:
- if possible allow to set and either use or dispose of as hardfill.
- pre-made concrete items, either use or dispose of as hardfill.

Pump washwater away from drains, waterways and adjoining property.

Temporary works – Existing Buildings

1.9 OCCUPIED BUILDINGS

Buildings which remain occupied during the construction must have temporary works agreed with the occupier/owner in advance.

1.10 PARTITIONS

Provide and maintain full height temporary partitions, dust sealed and with appropriate access doors, as shown on the drawings.
Construct the partitions from;
- timber or steel stud framing to suit the height
- 17mm CD plywood screw fixed to occupied side of wall only
- paint plywood white, occupied side only

1.11 SCREENS

Provide and maintain 2.0m high temporary screens with appropriate access doors, as shown on the drawings.
Construct the screens from;
- timber or steel stud framing
- 17mm CD plywood screw fixed to occupied side of wall only
- paint plywood white, occupied side only

1.12 DUST SCREENS

Provide and maintain full height temporary dust screens as shown on the drawings.

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Construct the screens from;
- flexible membrane with taped joints
- timber battens for fixing membrane to edges of building fabric
- paint plywood white, occupied side only

Temporary services

1.13 WATER
Provide clean, fresh water for the works and make arrangements for distributing about the site.

1.14 ELECTRICITY
Nominate the person to install and be responsible for the complete temporary electrical installation. The name and designation of the person responsible is to be displayed prominently and close to the main switch or circuit breaker.

Inspect and overhaul the installation at such intervals as are prescribed by the network utility operator but not exceeding three monthly intervals.

1.15 TELEPHONE
Provide on site temporary telephone facilities.

1.16 FACSIMILE
Provide on site temporary facsimile facilities.

1.17 COMPUTER
Provide on-site temporary computer facilities complete with an email and internet connection capable of sending, receiving and printing site communications.

Scaffolding and shoring

1.18 GENERAL SCAFFOLDING
Provide as necessary general scaffolding for the efficient execution of the works. Placement, erection and structure to be by certified suppliers/erectors and approved by the Labour Department OSH inspectors before being used. Comply with the SARNZ publication: "Best practice guidelines for scaffolding in New Zealand."

Care and protection

1.19 PROTECT EXISTING BUILDINGS
Protect existing buildings and other designated features which are to remain in position during the execution of the works.

1.20 PROTECT ACCESS ROUTES
Protect access routes through the building and areas adjacent to the work area that are to remain in place. These include lifts and stairs. Comply with all fire egress requirements at all times.

1.21 PROTECT EXISTING SERVICES
Protect existing services and parts of service systems that are to remain in place during the execution of the works. Provide temporary caps or covers to prevent the ingress of dust and other contaminants into the systems, ducts, pipes etc.

1.22 MAKE GOOD EXISTING SERVICES
Make good all damage to existing roads, footpaths, grounds, sewers or other services, caused in carrying out the contract works.

1.23 CONSTRUCTION KEYING AND SECURITY
Provide locksets with temporary keying, or install with the cylinders removed.

1.24 TEMPORARY STORAGE
Provide temporary storage areas and protective covers and screens. Fillet stack and protect all framing and structural members from moisture and contamination. Completely

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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.

1.25 PERIODIC SITE CLEANING

Carry out periodic site cleaning during the contract period. Place waste material in appropriate storage pending removal from the site.

1.26 PERIODIC RUBBISH REMOVAL

Maintain on site appropriate means for the storage and removal of construction waste material. Where required or appropriate provide for the separate storage of recyclable waste and other materials requiring special disposal. Keep food waste separate from construction waste.

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1260 PROJECT MANAGEMENT

1. GENERAL

This general section relates to project management requirements including:
- Health and safety

Health and safety

1.1 HEALTH AND SAFETY

Refer to the requirements of the Health and Safety in Employment Act 1992. Comply with all relevant New Zealand safety legislation.

Take all practical steps to make the site and the contract works safe and to 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.

Identify any significant hazards.

Maintain proper procedures for dealing with any emergencies that may arise. Immediately investigate accidents, identify their cause and maintain a register of accidents and serious harm. Provide a copy of any report which the contractor is required to make to a public authority on any accident which is associated with carrying out the contract works and results in serious harm to any person.

Refer to individual work sections for detailed requirements on this project.

1.2 SUSPENSION OF HAZARDOUS WORK

On the request of the contract administrator, acting on reasonable grounds, suspend any identified hazardous activities and proceed to eliminate, isolate or minimise them in order to comply with the Act, without prejudice to any other rights of the principal under the contract.

1.3 SITE SAFETY PERSON

Appoint a suitably qualified site safety person to co-ordinate site safety and to attend all site meetings.

1.4 HEALTH AND SAFETY PLAN

Prepare and submit to the contract administrator before commencing work on site a health and safety plan. Include in that plan all people on site and the general public, as well as the following items and any other necessary item:
- identification of existing and potential construction hazards and risks
- safety procedures to eliminate, isolate or minimise construction hazards
- the equipment to be used to minimise the hazards
- the maintenance of a register of hazards for the site
- the name and qualifications of the site safety person
- emergency procedures
- first aid facilities and safety equipment
- the methodology for notifying, recording and investigating accidents and injuries.

Keep a copy of the plan in the site office

1.5 COMPLY WITH SITE SAFETY PLAN

Carry out all construction operations in accordance with the submitted health and safety plan.

1.6 INFORM EMPLOYEES OF HAZARDS

Inform employees and others on the site of:
- hazards they may be exposed to while working
- hazards they may create while working which could harm others
- how these hazards may be minimised
- emergency procedures

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- the location of first aid facilities and safety equipment.

1.7 HEALTH AND SAFETY REGULATIONS, CODES AND GUIDES

Comply with:

- Relevant New Zealand safety legislation including "Health and Safety in Employment Regulations 1995".
- OSH publications including "Guidelines for the provision of facilities for general safety in the construction industry".
- Relevant codes of practice, guides, guidelines and standards.

Until further regulations are made under the Health and Safety in Employment Act 1992 to cover them, the enactments repealed by the Act continue in force until revoked.

1.8 EXPLOSIVES

Do not use explosives except with the written approval of the territorial authority/office of OSH. Comply with their safety requirements and use construction blasters holding a current certificate of competence issued under the Health and Safety in Employment Regulations 1995.

1.9 POWDER-ACTUATED FASTENING TOOLS

Powder-actuated fastening tools to be used only by workers holding current certificates of competence in their name, issued under the requirements of the Health and Safety in Employment Regulations 1995.

1.10 SMOKE FREE REQUIREMENTS

Do not smoke on site except in a designated location, in accordance with the Smoke Free Environments Act 1990. This location to be determined by the contractor with the agreement of the contract administrator.

1.11 RESTRICTIONS

Do not:

- light rubbish fires on the site
- bring dogs on to or near the site
- bring radios/audio players on to the site.

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1270 CONSTRUCTION

1. GENERAL

This GENERAL section relates to common requirements for construction issues including: -

- Quality assurance
- Noise and nuisance
- Set out
- Common execution requirements
- Common materials requirements
- Supply of spare materials
- Common requirements for samples and tests
- Final presentation and cleaning
- Commissioning

Quality control and assurance

1.1 QUALITY ASSURANCE

Carry out and record regular checks of material quality and accuracy, including:

- Concrete quality and finish.
- Dimensional accuracy of structural column locations (following completion of foundations).
- All perimeter columns and frames for plumb.
- Levels of all floors relative to the site datum.
- Framing timber moisture content.

Where any material, quality or dimension falls outside specified or required tolerances, obtain written direction from the contract administrator. Where building consent approval is affected, confirm remedial action with the Building Consent Authority.

Provide all materials, plant, attendances, supervision, inspections and programming to ensure the required quality standards are met by all project personnel.

Noise and nuisance

1.2 LIMIT CONSTRUCTION NOISE

Minimise the effects of noise generation by including in the planning of the work such factors as placing of plant, programming the sequence of operations and other management functions. Limit construction noise to comply with the requirements of NZS 6803, the requirements of the Resource Management Act sections 326, 327 and 328 and the Health and Safety in Employment Regulations clause 11.

1.3 ACCEPTABLE NOISE LEVELS

Refer to NZS 6803 Tables 2 and NZS 6803, tables 3 for the upper limits of construction work noise in residential and industrial areas over the various time periods, particularly 0730 to 1800 hours. Note also the allowed adjustments and exemptions in NZS 6803, 6. Do not exceed these limits.

1.4 PROVIDE INFORMATION TO NEIGHBOURS

Provide information to neighbours of any noise generation from the site liable to constitute a problem. Explain to them the means being used to minimise excessive noise and establish with them the timings most suitable for the noise generating work to be carried on.

Discuss with any complainant the measures being used to minimise noise. Where possible modify these measures to accommodate particular circumstances. Finally, determine the sound level at the location under discussion using methods and observation reporting as laid down in NZS 6803. If the noise level is above the upper limits of NZS 6803, tables 2 and NZS 6803, tables 3, cease the noise generating operation and remedy the problem.

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1.5 INCONVENIENCE TO OTHERS
When the works are to be carried out in or around occupied premises, ascertain the nature and times of occupation and use. Carry out the works in a manner to minimise inconvenience, nuisance and danger to occupants and users.

1.6 DIRT AND DROPPINGS
Remove dirt and droppings deposited on public or private thoroughfares from vehicles servicing the site to the satisfaction of the appropriate authorities and the contract administrator.

1.7 DAMAGE AND NUISANCE
Take all precautions to prevent damage and nuisance from water, fire, smoke, dust, rubbish and all other causes resulting from the construction works.

Set-out and tolerances

1.8 SURVEY INFORMATION
Locate and verify survey marks and datum points required to set out the works. Record and maintain their position. Re-establish and replace disturbed or obliterated marks.

1.9 SET-OUT AND DATUM
Set out the work to conform with the drawings. Establish a permanent site datum to confirm the proposed building ground floor level and its relationship to all other existing and new building levels.

1.10 SET-OUT BY LICENSED CADASTRAL SURVEYOR
Before commencing construction provide the contract administrator with a certificate prepared by a licensed cadastral surveyor that the set-out is complete and that the building is accurately placed on the site.

During construction provide the contract administrator with a certificate, prepared by the same licensed cadastral surveyor confirming the set-out of the foundations and grid lines. Necessary adjustments are to be determined and agreed to by the contract administrator before proceeding further.

1.11 CONFIRM HEIGHT IN RELATION TO BOUNDARY
Provide a certificate prepared by a licensed cadastral surveyor that the building has been constructed within the allowed height in relation to boundary. Provide the certificate to the local authority. Provide a copy of the certificate to the contract administrator

1.12 USE OF SET-OUT INSTRUMENTS
Permit without charge, the use of instruments already on site for checking, setting out and levels.

1.13 CHECK DIMENSIONS
Check all dimensions both on drawings and site, particularly the correlation between components and work in place. Take all dimensions on drawings to be between structural elements before linings or finishes, unless clearly stated otherwise.

1.14 TOLERANCES
All work to be level, plumb, and true to line and face. Unless otherwise specified in specific work sections of this specification, tolerances for structural work shall comply with the following:

Concrete construction:	To NZS 3109 Concrete construction Clause 3.9 Tolerances for reinforcement Table 5.1 Tolerance for precast components Table 5.2 Tolerance for in situ construction To NZS 3114 Concrete surface finishes
Masonry construction:	To NZS 4210 Masonry construction: Materials and workmanship Clause 2.6.5 Tolerances Table 2.2 Maximum tolerances

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Timber framing:	To NZS 3604 Timber-framed buildings Clause 2.2 Tolerances Table 2.1 Timber framing tolerances

Refer to work sections for tolerance requirements for finishes.

Execution

1.15 EXAMINE PREVIOUS WORK
Before commencing any part of the work carefully examine the previous work on which it may depend. Report in writing to the contract administrator defects that may affect the quality of the proposed work and obtain instructions. Commencing work on any part means that previous work is accepted as being satisfactory for work of the required standard.

1.16 WORKER QUALIFICATIONS
All work to be level, plumb, and true to line and face. Employ only experienced workers familiar with the materials and techniques specified.

1.17 MINIMISE DELAYS DUE TO WEATHER
Use appropriate techniques and methods to prevent damage and minimise delays due to weather.

Materials

1.18 NEW PRODUCTS AND MATERIALS
Materials and products to be new unless stated otherwise, of the specified, and complying with all cited documents.

1.19 COMPATIBILITY OF MATERIALS AND FINISHES
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.

1.20 STORING PRODUCTS AND MATERIALS
Take delivery of and store products, materials and components in accordance with codes of practice and the product manufacturer's or supplier's stated requirements. Maintain the proper condition of any protective packaging, wrappings or supports during delivery, unloading and storage.

1.21 HANDLING PRODUCTS AND MATERIALS
Handle products, materials and components in accordance with codes of practice and the manufacturer's or supplier's stated guidelines. Avoid distortion and any contact with potentially damaging surfaces or conditions.

1.22 SUBSTRATE CONDITIONS
Ensure substrate conditions are within the manufacturer's or supplier's stated guidelines both before and during the installation of any material, product or system. Obtain written instructions on the necessary action to rectify unsatisfactory conditions.

1.23 INSTALLING PRODUCTS AND MATERIALS
Install in accordance with the manufacturer's or supplier's technical literature. Ensure that all installers are familiar with the required substrate conditions and the manufacturer's or supplier's specified preparation, fixing and finishing techniques.

1.24 COMPLY WITH STANDARDS
Comply with the relevant and/or cited Standard for any material or component. Obtain certificates of compliance when requested by the contract administrator.

1.25 CONDITION OF MATERIALS AND COMPONENTS
To be in perfect condition when incorporated into the work.

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1.26 INCOMPATIBLE MATERIALS AND METALS
Separate incompatible materials and metals with separation layers, sleeves or gaskets of plastic film, bituminous felt or mastic or paint coatings, installed so that none are visible on exposed surfaces.

Samples and tests

1.27 SAMPLES AND PROTOTYPES
Where specified in the work sections, submit samples, prepare sample panels, and construct prototypes for review as to appearance, form and conformance with the drawings and specifications. Submit all information required to assist the review process, including technical data, manufacturer's literature, independent appraisals and producer statements.

Timing for the provision and review of samples, sample panels and prototypes to be included in the contract programme. Allow a minimum of 10 working days for each review. Proceed only after instructions to proceed have been issued in writing by the contract administrator.

In situ work may be incorporated in the finished work if so confirmed, otherwise allow to remove completely and replace.

1.28 CONTROL STANDARD
Obtain the contract administrator's confirmation of material, component and work samples which then become the quality control standard. Remove from the site any rejected samples. Retain confirmed samples with care on site for comparison throughout the contract. Remove from the site when no longer required.

Spares

1.29 SPARES
Collect, protect and store safely all spare materials required under the contract. Give the contract administrator an inventory of all spares.

Final presentation and cleaning

1.30 REMOVE TEMPORARY PROTECTION
Remove all temporary markings, coverings, labels and protective wrappings unless instructed otherwise.

1.31 REPLACE DAMAGED MATERIALS
Replace all materials or component damaged during the works to the standard of and integral with the original.

1.32 COMPLETE ALL SERVICES
Ensure all services are complete and operational, with all temporary labelling removed, required labelling fixed and service instructions provided.

1.33 CLEANING BY CONTRACTOR
Clear the contract works of all construction materials, waste, dirt and debris. Clean the contract works including:

- Wipe all surfaces to remove construction dust
- Clean out service ducts and accessible concealed spaces
- Clean out all gutters and rainwater heads
- Wipe dust from both sides of glass. Take particular care when removing paint or cementitious materials to not damage the glass.
- Remove adhesive residue left by labels and other temporary protection/markings
- Clean out the interior of all cabinetry
- Wash down external concrete including driveways and concrete masonry. Take care when waterblasting to not cause damage to the surface or allow water to enter the building.

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- Remove rubbish and building material from the area immediately adjacent to the contract works

1.34 CLEANING BY COMMERCIAL CLEANER

Use a commercial cleaning firm to clean the whole of the interior of the building, including all appliances, equipment, fittings, surfaces and finishes to leave it without any blemish. Cleaning to include:

- Clean and wash down all external surfaces to remove dirt, debris and marking.
- Clean all interior surfaces including cabinetwork, joinery, sanitary and hardware items.
- Vacuum or polish all floor finishes.
- Clean and polish all glass, both sides.

Commissioning

1.35 MOVING PARTS

Adjust, ease and lubricate all doors, windows, drawers, hardware, appliances, controls and all moving parts to give easy and efficient operation.

1.36 SECURITY AT COMPLETION

Remove any temporary lock cylinders and complete final keying prior to handing over keys to the principal on completion of the works. Leave the works secure with all accesses locked. Account for all keys/cards/codes and hand to the principal along with an itemised schedule, retaining a duplicate schedule signed by the principal as a receipt.

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2110 DEMOLITION MINOR

1. GENERAL

This section relates to the demolition of existing buildings and structures in whole or in part, to the extent necessary to carry out the new work.

1.1 DOCUMENTS

Documents referred to in this section are:

NZBC F5/AS1	Construction and demolition hazards
NZS 6803	Acoustics - Construction noise
OSH	Approved code of practice for demolition
OSH	Guidelines for the management and removal of asbestos

Health and Safety in Employment Act 1992

1.2 QUALIFICATION

Carry out demolition only under the supervision of a suitably experienced person and using only experienced operators and drivers. Use only experienced, certified, construction blasters for explosives demolition.

1.3 NOISE

Refer to NZS 6803, tables 2 and 3 for the allowable upper limits of construction work noise in residential, commercial and industrial areas over the various time periods. Use silenced and noise insulated plant to ensure compliance with these requirements.

1.4 NUISANCE

Take all precautions necessary to minimise nuisance caused by dust, dirt, rubbish and water.

1.5 HEALTH AND SAFETY

Comply with the Health and Safety in Employment Act in general, NZBC F5/AS1 and OSH Approved code of practice for demolition, section 1.2.

1.6 BUILDING CONSENT REQUIREMENTS

Demolition work to be carried out to building consent requirements

1.7 INSPECTIONS

Inspection of the demolition work to take place at each of the stages as scheduled in the building consent. Confirm a written programme to facilitate these inspections, including notification when each stage of the work is ready for inspection. Allow 48 hours advanced notice for the inspections.

Obtain and pay for any required inspections which are additional to the building consent.

1.8 SURVEY

Before commencing work, carry out a thorough survey and examination of all buildings or structures to be demolished in order to ensure the extent, sequence, technique and method of demolition proposed can be safely and efficiently carried out.

Take photographs of the works, adjacent buildings and sites, before commencing work. Provide a set of these photographs as a record of existing condition.

1.9 SERVICES

Before commencing demolition, arrange with all utility network operators to disconnect services and remove fittings and equipment. Pay all fees and charges for this work.

1.10 MATERIAL

Material from the demolition becomes the property of the contractor except where expressly provided otherwise. Remove redundant materials from the site as work proceeds.

1.11 SALVAGE

Designated items remain the property of the owner.

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1.12 BURNING OF MATERIALS
Burning of materials is not permitted on site.

2. PRODUCTS

2.1 ELEMENTS FOR SALVAGE OR RE-USE
Carefully dismantle, remove and store on site where directed. Protect from damage and weather until required.

3. EXECUTION

3.1 DEMOLITION GENERALLY
Comply with the requirements of the OSH publication: Approved code of practice for demolition. Submit a written demolition plan to the requirements of clause 4.8, Demolition plan (method statement).

3.2 ADJOINING PROPERTY
Support and protect adjoining property. Survey adjoining properties and take all precautionary measures necessary to avoid damage or nuisance. Copy of the survey results to be sent to adjoining property owners.

3.3 PROTECT
Protect retained parts of existing buildings, the site and site structures, trees and shrubs. Take care in the cutting away and stripping out to reduce the amount of making good.

3.4 SUPPORT
Support and brace the existing structure during the cutting of new openings or the replacement of structural parts. Prevent debris from overloading any part of the structure. Do not remove supports until the new work is strong enough to support the existing structure. Ensure all work remains structurally stable and sound.

3.5 TEMPORARY SCREENS
Erect approved screens wherever penetration of weather, dust and dirt needs to be prevented. Adjust screens as work proceeds.

3.6 SITE SAFETY
Prevent access by unauthorised persons. Illuminate and protect all holes, unsafe buildings and other hazards. Leave site and buildings safe at the close of each day's work.

3.7 FLAMMABLE OR EXPLOSIVE CONDITIONS
Prevent fire or explosion and arrange to alert the appropriate authority where any danger exists.

3.8 DEMOLISH
Demolish buildings and structures down to the existing finished ground level. Do not remove support to adjacent properties or buildings.

3.9 DEMOLITION, ASBESTOS
Where demolition work includes contact with or removal of material containing asbestos, comply with the OSH publication: Guidelines for the management and removal of asbestos.

3.10 DIG OUT
Dig out foundations, footings, basements, floor slabs, paths, drains, cesspits and manholes that are part of or service the demolished building. Do not backfill the resulting voids.

3.11 SALVAGE
Carefully dismantle and store safely all salvage items where directed; for removal, use on the site, or until completion of the works.

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3.12 REINSTATE AND MAKE GOOD

Reinstate and make good demolition damage to adjoining properties, existing work, services, or property.

3.13 TAKE AWAY

Take away from the site all plant and equipment, temporary access works and demolished materials and elements. Leave the site completely clean and tidy.

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3820 CARPENTRY

1. GENERAL

This section relates to the supply and erection of light timber framing and decking.

1.1 RELATED WORK
Refer to 4161 UNDERLAYS, FOIL AND DPC for underlays, foils and DPC.

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

NZBC B2/AS1	Durability
AS/NZS 1328.1	Glued laminated structural timber - Performance requirements and minimum production requirements
AS/NZS 1860.1	Particleboard flooring - Specifications
AS/NZS 2269.0	Plywood - Structural - Specification
AS/NZS 2904	Damp-proof courses and flashings
AS/NZS 2918	Domestic solid fuel burning appliances - Installation
NZS 3602	Timber and wood-based products for use in building
NZS 3603	Timber structures standard
NZS 3604	Timber-framed buildings
NZS 3622	Verification of timber properties
NZS 3640	Chemical preservation of round and sawn timber
AS/NZS 4347	Damp-proof courses and flashings - Methods of test
FTMA	Frame and Truss Manufacturers Association of New Zealand Inc - Code of Practice

***A copy of** NZS 3604 **Timber-framed buildings, must be held on site.**

1.3 SAMPLES
Provide samples of the following for review prior to ordering:
- Boarding for exterior decks

1.4 DIMENSIONS
All timber sizes except for battens are actual minimum dried sizes.

2. PRODUCTS

2.1 TIMBER FRAMING, TREATED
Species, grade and in service moisture content to NZS 3602, NZBC B2/AS1 and treatment to NZS 3640, NZBC B2/AS1. Structural grade (SG) to NZS 3604, NZS 3622 with properties to NZS 3603.

2.2 TIMBER FRAMING, CHEMICAL FREE
Species, grade and moisture content in service as set out in NZS 3602, NZBC B2/AS1.

2.3 LAMINATED TIMBER
Radiata pine laminations to AS/NZS 1328.1; treated as required by NZS 3602, NZBC B2/AS1, to the requirements of NZBC B2/AS1, NZS 3640, with special attention to Appendix B "Specification advisory notes". Supply weather resistant sealed.

2.4 PLYWOOD
Structural plywood to AS/NZS 2269.0 for bracing, bracketing, sarking and floors.

2.5 HARDWOOD SPACED BOARDING FOR EXTERIOR DECKS
Plantation-grown hardwood. Dressed four sides and with arrises removed.

2.6 NAILS
Type to NZS 3604, section 4, **Durability**, and of the size and number for each particular types of joint as laid down in the nailing schedules of NZS 3604, sections 6-10.

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2.7 BOLTS AND SCREWS

Bolts and screws of engineering and/or coach type complete with washers, to the requirements of NZS 3604, section 4, **Durability**, and of the number and form required for each particular junction to NZS 3604, sections 6-10.

2.8 NAIL PLATES

Comply with the requirements of NZS 3604, section 4, **Durability**, and of the number and form required for each particular junction to NZS 3604, sections 6-10. Plates to the plate manufacturer's design for the particular locations as shown on the drawings.

2.9 CONNECTORS

Comply with the requirements of NZS 3604, section 4, **Durability**, and of the number and form required for each particular junction to NZS 3604, sections 6-10. Connectors and structural brackets to the connector manufacturer's design for particular locations shown on drawings.

2.10 CORROSION RISKS

Use stainless steel fixings, connectors, etc in all zones, with the timber treatments CuAz (Preservative code 58) and ACQ (Preservative code 90).

2.11 DPC

Refer to 4161 UNDERLAYS, FOIL AND DPC section

3. EXECUTION

3.1 EXECUTION GENERALLY

To NZS 3603 and NZS 3604 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).

3.2 SEPARATION

Separate all timber framing timbers from concrete, masonry and brick by: -
- a full length bituminous damp-proof membrane overlapping timber by at least 6mm; or
- a 12mm minimum free draining air space

3.3 ATTENDANCE

Provide and fix blocks, nogs, openings and other items as required by other trades.

3.4 MOISTURE CONTENT

Maximum allowable equilibrium moisture content (EMC) for non air-conditioned or centrally heated buildings for framing to which linings are attached.

Framing at erection:	24% maximum
Framing at enclosure:	20% maximum
Framing at lining:	16% maximum
Timber strip flooring:	10% at time of laying

3.5 SET-OUT

Set out framing in accordance with the requirements of NZS 3604 and as required to support sheet linings and claddings.

3.6 FRAMING SUB-FLOOR

Frame up off foundation walls and piles, all fabricated, fastened and braced to NZS 3604, section 6.10, **Framed subfloor walls**.

3.7 FRAMING FLOORS

Framed and fastened to NZS 3604, section 7, **Floors**.

3.8 FRAMING WALLS

Frame to required loading and bracing complete with lintels, sills and nogs, all fabricated and fastened to NZS 3604, section 8, **Walls**.

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3.9 FRAMING ROOFS

Frame to required loading and bracing complete with valley boards, ridge boards and purlins. Design and fit roof trusses complete with anchorage. All fabricated and fastened to NZS 3604, section 9, **Posts** and 10, **Roof framing**.

3.10 FRAMING CEILINGS

Frame to required loading and bracing complete with runners and battens set out to support ceiling lining. All fabricated and fastened to NZS 3604, section 13, **Ceilings**. Trim for openings in ceilings and hatches to NZS 3604 section 13.3, **Openings in ceilings**. Provide blocking for water tanks located in the ceiling space to NZS 3604, section 13.4, **Water tanks in roof space**.

3.11 INSTALLING WALL UNDERLAYS

Refer to 4161 UNDERLAYS, FOIL AND DPC section

3.12 FIT JAMB BATTENS

For walls with direct fix cladding, fit and fix 20mm jamb battens over the wall underlay, to the jambs of window and door rough openings, to NZBC E2/AS1, fig 17A. Cut around sill flashings.

3.13 FIT CAVITY BATTENS

Fit and fix 20mm cavity battens over wall underlay or rigid air barrier, fully nail to timber studs to the requirements of the manufacturer or to NZS 3604. Fit and fix related flashings. Fit and fix cavity closers to base of walls, open horizontal (or raking) junctions and over openings (windows, meters etc).

3.14 INSTALLING DECK UNDERLAY

Lay and secure in accordance with the Building Code.

3.15 LAYING TIMBER SPACED BOARDING FOR EXTERIOR DECKS

Confirm whether the grooved side of the boards are face up or face down. Avoid excessively short or long lengths, drill for all fixings, stagger end joints and space boards a maximum of 2mm apart in general conditions, or maximum 3mm apart if boards are likely to swell after fixing. Fix using annular grooved galvanized jolt head nails, heads driven flush with the board surface.

3.16 DPC TO LOSP TREATED TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section.

3.17 DPC TO TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section.

4. SELECTIONS

4.1 EXTERIOR WALL FRAMING

Member	Species	Grade	Treatment
Exterior walls:	Radiata pine	SG8	H1.2
	Douglas fir	SG8	H1.2
Enclosed decks and balconies:	Radiata pine	SG8	H1.2
Cantilevered joists enclosed decks and balconies:	Radiata pine	SG8	H3.2
Wall battens:	Radiata pine	Merchantable	H3.1
Jamb battens:	Radiata Pine	Merchantable	H3.1

4.2 ROOF FRAMING

Member	Species	Grade	Treatment
Ceiling joists and battens:	Radiata pine	SG8	H1.2
	Douglas fir	SG8	H1.2

4.3 EXTERIOR EXPOSED TIMBERS

Member	Species	Grade	Treatment
Posts:	Radiata pine	SG8	H3.2

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Joists:	Radiata pine	SG8	H3.2
Softwood decking:	Radiata pine	Premium	H3.2
Hardwood decking:	~		
Exterior stairs and steps:	Radiata pine	SG8	H3.2
Pergola:	Radiata pine	SG8	H3.2
Ground contact members	Radiata pine	SG8	H5

4.4 EXTERIOR FINISHING TIMBERS

Member	Species	Grade	Treatment
Fascia/barge/cover boards:	Radiata pine	Dressing	H3.1
Exterior trim:	Radiata pine	Dressing	H3.1

4.5 INTERIOR FRAMING

Member	Species	Grade	Treatment
Non structural walls:	Radiata pine	SG8	H1.2
	Douglas fir	SG8	H1.2
Structural and braced walls:	Radiata pine	SG8	H1.2
	Douglas fir	SG8	H1.2

4.6 INTERIOR FINISHING TIMBERS

Member	Species	Grade
Architraves:	Radiata pine	Dressing
Skirtings:	Radiata pine	Dressing
Cornices:	Radiata pine	Dressing

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4161M TEKTON WEATHERIZATION SYSTEM

1. GENERAL

This section relates to the application of **Marshall Waterproofing Ltd Tekton®** **Weatherization System** which consists of:
- **Tekton® Building Wrap** (also called **Tekton HouseWrap)**
- **Tekton® Seam Tape**
- **Protecto Wrap One Piece Sill Tape** or
- **Protecto Sill System** (flexible flashing tapes)
- **TRADE-SEAL** (penetration seal)

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

The following definitions apply specifically to this section:
Wall underlay — the same meaning as defined in NZBC E2/AS1, covering kraft based and synthetic wall underlays, sometimes called, wall wraps, building wraps or building papers.

Documents

1.2 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:
NZBC B2/AS1 Durability
NZBC E2/AS1 External moisture

1.3 MANUFACTURER/SUPPLIER DOCUMENTS
Manufacturer's and supplier's documents relating to this part of the work:
Specification for **Tekton® Weatherization System**
Specification for **Tekton® Building Wrap**
Brochure for **Tekton® HouseWrap**
Specification for **Protecto Sill System**
Brochure for **Protecto Sill System**
Specification for **One Piece Sill Tape**
Brochure for **One Piece Sill Tape**
Specification for **TRADE-SEAL**
Brochure for **TRADE-SEAL**
BRANZ Appraisal 621 - The Tekton® Weatherization System
BRANZ Appraisal 548 - Tekton® Building Wrap
BRANZ Appraisal 591 - One Piece Sill Tape Flexible Flashing
BRANZ Appraisal 444 - Protecto Sill

Manufacturer/supplier contact details
Company: **Marshall Waterproofing Ltd**
Web: www.mwnz.com
Email: info@mwnz.com
Telephone: 0800 776 9727

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER
Provide a material manufacturer/supplier warranty:
15 years: For **Tekton® Building Wrap**
15 years: For **Tekton® Seam Tape**
15 years: For **Protecto Wrap One Piece Sill Tape**
15 years: For **Protecto Sill System**
15 years: For **TRADE-SEAL**

- Provide this warranty on the manufacturer/supplier standard form.

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- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5 QUALIFICATIONS
Work to be carried out by tradespeople experienced, competent and familiar with the **Marshall Waterproofing Ltd** materials and techniques specified.

1.6 NO SUBSTITUTIONS
Substitutions are not permitted to any of the specified **Marshall Waterproofing Ltd** systems, components and associated products listed in this section.

2. PRODUCTS

Materials

2.1 TEKTON BUILDING WRAP
Tekton® Building Wrap, a synthetic breather-type wall underlay, as a coated spun-bonded polypropylene product approximately 0.6mm thick. Supplied in rolls 2740mm x 37m and 1370mm x 37m.

2.2 TEKTON SEAM TAPE
Tekton® Seam Tape, a white polypropylene film coated with a cold weather acrylic adhesive.

2.3 TRADE-SEAL
TRADE-SEAL, a one piece self adhesive EPDM collar for pipes and conduits that penetrate the cladding/wrap/underlay. Provides secondary protection air and moisture seal, and is available in sizes to suit penetration diameters from 8mm to 220mm.

2.4 ONE PIECE SILL TAPE
Protecto Wrap One Piece Sill Tape, a wall opening flexible flashing system, a polyethylene faced, modified SBS rubberized asphalt, self adhesive membrane. Covered on the underside by a paper backing and the upper face by white polyethylene sheeting in two parts, printed with Protecto Wrap, 1.0mm thick supplied in rolls150mm wide and 20m long.

2.5 SILL SYSTEM
The **Protecto Sill System** combining:
- **Protecto Wrap Detail Tape,** a 1mm thick conformable tape that can be stretched and moulded to any shape. Available in a 150mm wide x 15m long rolls.
- **Sill Tape**, a 0.5mm thick polyethylene backed asphalt adhesive tape. Available in 150mm and 200mm wide x 30m long rolls.
- **Protecto Tak**, a light blue spray on primer/adhesive used to prepare the surface for the application of the tapes. Available in a 369g can.
- **Head Flashing Tape,** a 0.5mm thick polyethylene backed asphalt adhesive tape. Available in 50mm wide x 30m long rolls.

Accessories

2.6 FIXINGS
Staples, clouts or other temporary fixings to attach the wall underlay to the framing.

2.7 BUILDING WRAP/WALL UNDERLAY RESTRAINTS
Galvanized wire or mesh, or polypropylene tape to NZBC E2/AS1, clause 9.1.8.5, **Wall framing behind cavities**, for intermediate restraining of the building wrap/wall underlay from bulging into the drained cavity where stud spacings are greater than 450mm.

3. EXECUTION

Conditions

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3.1 GENERAL REQUIREMENTS

To NZBC E2/AS1 Table 23 Properties of Roof Underlays and Building Wraps (wall underlays); and manufacturers technical literature.
Note: Care should be taken not to expose the underlay to continuous wet and windy conditions.

3.2 STORAGE

Store all products under clean dry conditions that ensure no deterioration or damage. Store rolls in an upright position on a smooth floor and protected from sunlight, UV radiation and moisture. Rolls of **Tekton® Building Wrap** to be to be stored on end.

3.3 PRE-INSTALLATION REQUIREMENTS

Before starting work, check that the framing will allow work of the required standard. The framing must be free from any sharp protrusions that may damage the wrap/underlay. Carry out remedial work identified before the installation of **Tekton® Weatherization System**.

Installation - generally

3.4 STANDARDS AND TOLERANCES

To NZBC B2/AS1 and NZBC E2/AS1. Refer to the general section 1270 CONSTRUCTION for general requirements.

Installation - Tekton® Building Wrap

3.5 WRAP/UNDERLAY GENERALLY

To comply with **Marshall Waterproofing Ltd** specification for **Tekton® Weatherization System**, BRANZ Appraisal 621 - The **Tekton® Weatherization System** and BRANZ Appraisal 548 - Tekton® Building Wrap.

Face branded side of the wrap/underlay away from the framing. Run horizontally and extend from upper side of the top plate to the underside of bearers or wall plates supporting ground floor joists, or below bottom plates on concrete slabs.

Ensure horizontal laps no less than 75mm with the direction of the lap ensuring that water is shed to the outside. End laps to be made over framing and be no less than 150mm wide.

3.6 FIXINGS

Fix the wrap/underlay into place using 6mm to 8mm zinc plated staples, hot dip galvanised large head clouts, tek screws or proprietary wrap/underlay fixings. Care to be taken when fixing in windy conditions, due to large sail area created by roll widths.

3.7 POSITION ROLL

Position roll against the framing with a short length of wrap/underlay free of the roll. Align the guide marks printed on the **Tekton® Building Wrap** with visible studs and nail/staple to the framing.

3.8 FIX TO FRAMING

Unroll wrap/underlay across framing and fix to all framing members at a maximum of 300mm centres. Keep straight and taught over framing. Unroll wrap/underlay across framing and fix to all framing members at a maximum of 300mm centres. Keep straight and taut over framing.

3.9 WRAP/UNDERLAY OVER OPENINGS

Run wrap/underlay over any openings and leave covered until windows and doors are ready to be installed.

3.10 FORM OPENINGS

Form openings by cutting wrap/underlay at a 45 degree diagonal in from each corner. Fold and staple wrap/underlay to the inside of the framed opening and trim excess wrap/underlay to finish flush with internal face of framing.

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3.11 APPLY SEAM TAPE

Apply **Tekton® Seam Tape** to all horizontal and vertical building wrap/underlay joints. Lap joint to sit halfway under the tape width. Press all tape firmly into position to enhance adhesion. Use **Tekton® Seam Tape** to repair small rips, punctures or tears in the building wrap/underlay and tape into place. Ensure overlapping material extends at least 150mm beyond the damaged area.

3.12 INSTALL PENETRATION SEAL

For pipe and conduit penetrations of the cladding/wrap/underlay use the appropriate sized **TRADE-SEAL**, to ensure a tight fit around the pipe. Install the **TRADE-SEAL** to **Marshall Waterproofing Ltd** requirements. Push back the collar to fit the cavity width. Ensure the **TRADE-SEAL** exposure to weather and UV does not exceed 90 days.

Installation - One Piece Sill Tape

3.13 SILL TAPE GENERALLY

To comply with **Marshall Waterproofing Ltd** specification for **Tekton® Weatherization System**, BRANZ Appraisal 621 - The **Tekton® Weatherization System** and BRANZ Appraisal 591 - One Piece Sill Tape

3.14 PREPARATION

Ensure all surfaces are clean, dry and free of any dust or sharp protrusions. When used in conjunction with LOSP treated timber, the solvent must be allowed to evaporate prior to installation of the tape. Do not install when temperature is below 5 degrees.

3.15 PRIMER/ADHESIVE

Warm **One Piece Sill Tape** in cooler conditions before applying. In extreme conditions use **Protecto Tak Primer** to enhance adhesion.

3.16 SILL AREA

Measure and mark 150mm up from the left hand side bottom corner of opening. Measure sill length. Measure and cut a length of **One Piece Sill Tape** 300 mm longer than sill length. Roll up the cut length with branded face to inside of the roll. Peel back 50mm of backing paper to expose black adhesive. Align **One Piece Sill Tape** with 150mm mark on jamb and flush with inside edge of the opening. Apply tape down frame and into corner. Ensure divided side of tape faces to the outside of the opening.

When the sill jamb junction is reached ensure tape is pressed firmly into corner. Continue removing backing paper and sticking **One Piece Sill Tape** across the length of the sill and up the other jamb. Keep tape flush with inside edge of opening.

Fold the upper front piece of branded flap back into opening to expose lower section of combination tape. Starting at one end, remove release film and fold flexible membrane around onto the face of opening (Do not overstretch membrane). For ease of installation, adhere middle and ends of membrane onto face of opening before removing release film. Fold the branded flap forward and cut at corners. Fold branded flap over the top of the exposed membrane.

3.17 TOP CORNERS

Cut a 300mm length of **One Piece Sill Tape**. Remove the backing paper and fold tape in half, keeping adhesive membrane to the outside of fold. Position tape into corner. Adhere tape down side, then across top of opening. Press tape firmly into corner. The divided side of tape must face to the outside of opening.

Fold branded flap back into opening to expose lower section of combination tape. Remove release film and fold flexible membrane onto face of opening. (Do not overstretch membrane). For ease of installation adhere ends of membrane onto the face of opening before removing release film.

Fold branded flap forward and cut at corners. Fold branded flap over top of exposed membrane.

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When correctly installed to top corners, the tape should extend 150mm down the jamb and 150mm across the lintel and be folded 50mm approx. out onto face of opening.

After installation of **One Piece Sill Tape** firmly smooth all tape to ensure maximum adhesion and ensure it is covered within 4 weeks. Adhesion increases after tape has been in place for a period of time.

3.18 HEAD FLASHING
For the taping of head flashings use **Protecto Wrap Head Flashing Tape** with **Protecto Tak** primer.

3.19 REPAIRS
Repair **One Piece Sill Tape** by covering with a second piece of tape that extends 50mm beyond the damaged area. Ensure tape surface is clean and dry before overlaying. Should air become trapped behind membrane at any stage of installation, roll trapped air to the outside of the tape.

Installation - Sill System

3.20 SILL SYSTEM GENERALLY
To comply with **Marshall Waterproofing Ltd** specification for **Tekton® Weatherization system**, BRANZ Appraisal 621 - The **Tekton® Weatherization System** and BRANZ Appraisal 444 - Protecto Sill system.

3.21 PREPARATION
Ensure all surfaces are clean, dry and free of any foreign matter that may adversely affect adhesion. Install tapes between 10°C and 32°C. When used in conjunction with LOSP treated timber, allow to breathe for a minimum of 7 days prior to application. Extend building wrap/underlay over opening and cut on a 45° angle away from each corner. Fold flaps into opening and secure to the interior face of framing.

3.22 PRIMER/ADHESIVE
Spray a light film of **Protecto Tak Primer/Adhesive** to all surfaces receiving **Protecto Sill System** tapes. Allow sufficient time to cure. Spray must not pull away from surface when touched. Apply tape soon after application to avoid contamination of prepared surface.

3.23 APPLY DETAIL TAPE
Install **Detail Tape** to all corners. Cut 300mm length of tape. Remove backing paper and fold length in half with exposed membrane to outside. Position into corner and smooth the first half of tape onto jamb. Keep tape flush with inside edge of framing.

Fold remaining 150mm of tape across lintel or sill and press firmly into place, particularly into corner junction. Pinch corner of tape and pull away to free corner of release film. Remove release film. Fan fingers across tape surface and using thumb take hold of each direction of tape. Gently pull tape forward and around into face of opening. Smooth tape firmly into place to enhance adhesion. Do not overstretch tape. The corner will form as tape is folded onto face of opening. Do not allow detail tape to come in contact with itself. Repeat for all corners of the opening.

3.24 APPLY SILL TAPE
Install **Sill Tape** in separate pieces across sill and 300mm up jambs.

3.25 INSTALL SILL TAPE - SILL INSTALLATION
After priming cut a length of **Sill Tape** slightly shorter than the length of sill. Roll up length of **Sill Tape** keeping backing paper to outside of roll. Peel back 100mm of backing paper.

Align tape with inside edge of framing, keeping overhang to the outside.
Press exposed end of tape into sill - jamb junction, adhere **Sill Tape** to top of the already installed **Detail Tape**. Continue removing backing paper and adhering **Sill Tape** along the entire length of the sill. Starting in the centre of tape, fold the overhang of **Sill Tape** onto the face of opening.

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3.26 INSTALL SILL TAPE - JAMB INSTALLATION

Cut 300mm length of **Sill Tape**. Remove backing paper. Align length of **Sill Tape** with inside edge of framing and starting at the jamb - sill junction, smooth the tape onto jamb. Fold overhang of **Sill Tape** onto face of the opening. Smooth all tape firmly into place to enhance adhesion.

3.27 HEAD FLASHING TAPE

To fit head flashing do not cut the building wrap/underlay but fix head flashing directly over the top of building wrap/underlay.

After priming cut a length of **Head Flashing Tape** 100mm longer than head flashing. Begin applying **Head Flashing Tape** 50mm from end of the installed head flashing. Apply tape so that it adheres 25mm onto head flashing and 25mm the building wrap/underlay. The **Head Flashing Tape** should run past each end of head flashing by 50mm. Smooth tape firmly into place to enhance adhesion.

3.28 REPAIRS

When air becomes trapped under tapes at any stage of installation, smooth trapped air to the outside of tape. If minor damage occurs then another piece of tape can be used for repair as long as it extends at least 100mm beyond the damaged area. If the damage is more than minor then installed tape must be replaced.

Completion

3.29 ROUTINE CLEANING

Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused materials and elements from the site.

3.30 DEFECTIVE OR DAMAGED WORK

Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Adjust operation of equipment and moving parts not working correctly. Leave work to the standard required for following procedures.

4. SELECTIONS

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

Materials

4.1 TEKTON WEATHERIZATION SYSTEM

Location:	All
Wrap/underlay:	**Tekton® Building Wrap**
Seam tape:	**Tekton® Seam Tape**
Penetration seal:	**TRADE-SEAL**

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4161T THERMAKRAFT UNDERLAYS, FOILS AND DPC - RESIDENTIAL

1. GENERAL

This section relates to the application of **Thermakraft** Industries (NZ) Ltd, DPC, DPM, underfloor foil insulation, wall underlays and roofing underlays:
- for use in residential applications

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

The following abbreviations apply specifically to this section:

NZMRM	New Zealand Metal Roofing Manufacturers Inc.

The following definitions apply specifically to this section:

Wall underlay	the same meaning as defined in NZBC E2/AS1, covering kraft based and synthetic wall underlays, sometimes called, wall wraps, building wraps or building papers.

Documents

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

NZBC E2/AS1	External moisture
NZS/AS 1530.2	Methods for fire tests on building materials, components and structures - Test for flammability of materials
NZS 2295	Pliable, permeable building underlays
AS/NZS 2904	Damp-proof courses and flashings
NZS 3604	Timber-framed buildings
AS/NZS 4389	Safety Mesh
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
NZMRM	NZ Metal Roof and Wall Cladding - Code of Practice

1.3 MANUFACTURER/SUPPLIER DOCUMENTS
Thermakraft documents relating to this part of the work:
Thermakraft product manual and technical data sheets.
BRANZ Appraisal 329 - **Supercourse 500** Damp-Proof Course and Concealed Flashing
BRANZ Appraisal 710 - Thermakraft Covertek 403 Absorbent Breathable Roof Underlay Wall Underlay

Manufacturer/supplier contact details

Web:	www.thermakraft.co.nz
Telephone:	0800 806 595

1.4 MANUFACTURER'S WARRANTY
Warrant this work under normal environmental and use conditions against failure of materials and execution. Thermakraft Industries Ltd warrant performance of products if design and installation complies with relevant technical literature, NZBC, and recognised industry Codes of Practice. Copy of Thermakraft Product Warranty available on request.

Requirements

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

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1.6 INSTALLATION SKILL LEVELS
Installers to be experienced in the installation of **Thermakraft** products and familiar with **Thermakraft** Industries technical literature and the related documents listed in this design i.e. NZMRM NZ Metal Roof and Wall Cladding - Code of Practice.

2. PRODUCTS

Materials

DPM

2.1 DAMP-PROOF MEMBRANE - MEDIUM DUTY
Thermathene Black™, a minimum of 250 microns polyethylene film, which compiles to NZS 3604, 7.5.4, **Damp-proof Membrane**, to NZBC E2/AS1. Refer to SELECTIONS for type of jointing tape.

DPC

2.2 EMBOSSED POLYETHYLENE
Supercourse 500, hi-impact polyethylene film to AS/NZS 2904 and embossed on both sides. Thickness 500 microns minimum, manufactured for use as a damp-proof course and concealed flashings around doors and windows and to BRANZ Appraisal 329.

2.3 PERIMETER DPC
Thermakraft Perimeter DPC, a heavy kraft impregnated with high grade bitumen.

Roofing underlay

2.4 BITUMINOUS SELF-SUPPORTING ROOFING UNDERLAY
Thermakraft 215™, bituminous self-supporting roofing underlay to NZS 2295.

Accessories

2.5 AIR SEAL BACKING ROD
P.E.F. Thermakraft WindowWorm Backing Rod, a cylindrical flexible closed cell polyethylene material available in various diameters and used in conjunction with foam sealants. Refer to SELECTIONS for sizes.

2.6 WIRE NETTING
75mm galvanized hexagonal wire netting to AS/NZS 4534.

2.7 AUSMESH
Ausmesh 300, 2mm x 150 x 300mm galvanized or PVC coated safety mesh to AS/NZS 4389.

2.8 GUTTER AND UNDER FLASHINGS
Thermakraft 215™, bituminous breather type underlay cut to width for use under valley, apron flashing and internal gutters.

Soffit liner cut to width from **Thermakraft 210™** bituminous breather type underlay. Refer to SELECTIONS.

2.9 TAPE
Thermakraft tapes to compliment the underlay. Pressure sensitive aluminium foil tapes for joining foil insulation and vapour barriers. **Thermakraft Aluband™ Window Sealing Tape** can be used to repair damaged bituminous underlays.

3. EXECUTION

Conditions

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3.1 GENERAL REQUIREMENTS
Design application and installation of **Thermakraft** Building products to NZBC E2/AS1, BRANZ Appraisals, **Thermakraft** Technical Literature and Industry Codes of Practice.

3.2 STORAGE
Store building underlays and accessory materials, under conditions that ensure no deterioration or damage. Store rolls in an upright position on a smooth floor and protected from sunlight, UV radiation and moisture.

3.3 INSPECTION
Before starting work, check that the building construction phase will allow work of the required standard. Carry out remedial work identified before laying underlay.

Application - DPC/ DPM

3.4 DPC TO LOSP TREATED TIMBER
Lay Supercourse 500 / MirraBlack DPC under LOSP or CCA treated bottom plate of all timber framed walls on concrete, in a single layer with 50mm overlaps at joints to provide a waterproof barrier.

3.5 DPC TO MASONRY AND BRICK VENEER
Lay DPC along based of cavity and fix top edge to studs with galvanized clouts. Turn DPC out over concrete rebate under bottom course of veneer.

3.6 DPM TO CONCRETE FLOOR
Lay DPM under concrete floor substrate over sand binding, in a single layer with 150mm overlaps at joints to provide a waterproof barrier. Refer to SELECTIONS for type.

Application - Roofing underlay

3.7 WIRE NETTING
Lay 75mm galvanized wire netting at right angles across the purlins and drawn taunt before fixing. Tie edges of netting together with galvanized wire clips.

3.8 ROOF UNDERLAY
Lay vertically over purlins on wire netting with a 150mm side lap. Fix securely to purlins with galvanized fixing clips. Lay underlay to avoid excessive dishing between purlins. When used vertically limit individual runs to 10 metres for bituminous based underlays. Do not lay vertically on roof pitches under 10°.

Lay horizontally across the rafter/trusses starting at the gutter line with succeeding sheets in true alignment and lapping 150mm. Scribe around and fit neatly to all penetrations. Avoid prolong exposure by installing the roof immediately. Installation to comply with NZBC E2/AS1 8.1.5.1, **Underlay support** and NZMRM Code of Practice.

3.9 GUTTER AND UNDER FLASHINGS
Lay **Thermakraft 215™** bituminous breather type underlay cut to width by manufacturer for use as an underlay to valley, apron flashings, and internal gutters. Lap under flashings with adjoining underlays. Fix **Thermakraft 210™** bituminous breather type underlay soffit liner from top plate down 150mm past ribbon plate.

Completion

3.10 CLEAN UP
Clean up as the work proceeds.

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

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

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4261 BRICK VENEER CLADDING

1. GENERAL

This section relates to clay brickwork as a veneer cladding.
It includes:
- Standard brick veneer cladding

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

The following definitions apply specifically to this section:
Two Storey Brick Veneer System — Proprietary system for two storey clay brick veneer construction as contained in BRANZ Appraisal 690 - Two Storey Brick Veneer System.

Documents

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

NZBC E2/AS1	External moisture
NZBC B1/AS3	Structure
AS/NZS 1170	Structural design actions
AS/NZS 1170.2	Structural design actions - Wind actions
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 2699.1	Built-in components for masonry construction - Wall ties
AS/NZS 2699.3	Built-in components for masonry construction - Lintels and shelf angles (durability requirements)
NZS 3103	Sands for mortars and plasters
NZS 3604	Timber-framed buildings
SNZ HB 4236	Masonry veneer wall cladding
BRANZ	Good practice guide: Masonry veneer

BRANZ Appraisal 690 - Two Storey Brick Veneer System

Requirements

1.3 QUALIFICATIONS
Bricklayers to be experienced, competent and familiar with the materials and the techniques specified.

1.4 NO SUBSTITUTIONS
Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

1.5 SAMPLES
Refer to the general section 1270 CONSTRUCTION for details of how samples will be reviewed.

Provide the following samples for review by the Contract Administrator:
clay bricks

Compliance information

1.6 INFORMATION REQUIRED FOR CODE COMPLIANCE
Provide the following compliance documentation:
- Producer Statement - Construction from the installer of Two Storey Brick Veneer System.
- Other information required by the BCA in the Building Consent Approval documents.

Performance

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1.7 DESIGN PARAMETERS - NON SPECIFIC DESIGN
Design the installation to the seismic parameters of NZS 4210 Masonry construction: materials and workmanship.
Refer to SELECTIONS for details.

1.8 DESIGN PARAMETERS - SPECIFIC DESIGN
Design the installation to the seismic parameters of NZS 1170.5.
Refer to SELECTIONS for details.

1.9 COMPLIANCE
Brickwork to comply with SNZ HB 4236 Masonry veneer wall cladding.

1.10 COMPLIANCE - TWO STOREY BRICK VENEER SYSTEM
Brickwork to comply with BRANZ Appraisal 690 - Two storey brick veneer system

2. PRODUCTS

Materials

2.1 CLAY BRICKS
To AS/NZS 4455.

2.2 SILL TILES
Refer to SELECTIONS for type.

2.3 STEEL LINTELS
To AS/NZS 2699.3.

2.4 VERMIN STOP
Galvanized hexagon 10mm mesh of 1mm diameter steel wire 100mm wide, complete with galvanized steel staples.

2.5 DAMP-PROOF MEMBRANE
Heavy kraft, strip laminates saturated and coated with bitumen, butyl rubber sheet with adhesive, or equivalent.

2.6 DAMP-PROOF COURSE
Polyethylene based strip used as a damp-proof course and flashing, also for slip joints between brick courses.

Components - standard brick veneer

2.7 WALL TIES
To AS/NZS 2699.1. Veneer ties screw fixed to framing.

2.8 REINFORCEMENT
Galvanised wire joint reinforcement

Components - two storey brick veneer system

2.9 TIMBER SUPPORT PLATE
To BRANZ Appraisal 690 Two Storey Brick Veneer System clauses 8.16 - 8.18, H3.2 treated.

2.10 METAL TIES
To AS/NZS 2699.1. Veneer metal ties screw fixed to framing.

2.11 REINFORCEMENT
Galvanised wire joint reinforcement.

Accessories

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2.12 SAND FOR MORTAR
To NZS 3103. Chloride levels to not exceed 0.04% by dry weight of sand.

2.13 MORTAR
Composed of Portland cement, sand and water with an admixture to the provisions of NZS 4210: 2.2 Mortar. Obtain written approval of admixture being used. Obtain written approval if intending to use hydrated lime in the mortar.

2.14 MORTAR COLOUR
Add mineral oxide pigment conforming to requirements of NZS 4210, clause 2.2.2.2(f).

2.15 ADMIXTURES
To NZS 4210.

2.16 WATER
Clean, fresh and free from excess alkali, salt, silt and organic materials.

3. EXECUTION

Conditions

3.1 TOLERANCES
To NZS 4210, table 2.2 Maximum tolerances.

3.2 HANDLING AND STORAGE OF MATERIALS
To NZS 4210 for aggregates, cement, bricks and reinforcement.

3.3 CONCRETE BASE
Check vertical and horizontal alignment. Any discrepancies exceeding the permitted tolerances shall be corrected before units are laid.

3.4 TIMBER FRAMING
Check timber framing stud spacing is in accordance with NZS 3604.

3.5 PENETRATIONS
Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the brick veneer. Required preparatory work includes the following:
- brick veneer wall underlay to openings finished and dressed off ready for the installation of window and door frames and other penetrations
- brick veneer neatly finished off to all sides of openings
- installation of flashings (those required to be installed prior to installation of penetrating elements).

3.6 MEASURE MATERIALS
Measure materials for mortar accurately by weight or volume using suitably calibrated equipment.

3.7 WET WEATHER
Keep bricks dry at all times prior to laying. Protect the top row of uncompleted brick walls. Protect freshly laid brickwork during interruption through rain and at completion of each day's work. Protect brickwork for a minimum of 6 hours.

3.8 COLD WEATHER CONSTRUCTION
When air temperature is below 5°C take the precautions required by NZS 4210: 2.18 Cold weather construction.

3.9 HOT WEATHER CONSTRUCTION
When air temperature is above 25°C or there is a drying wind, or lower temperatures, take the precautions required by NZS 4210: 2.19 Hot weather construction.

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3.10 KEEP FACE WORK CLEAN
Keep clean during erection and until completion of the contract works. Turn back scaffold boards at night and during heavy rain. Do not rub face work to remove stains.

Installation - general

3.11 COLOUR MIXING
Check all bricks delivered to site for colour variation, prior to commencing work. Ensure bricks are thoroughly blended from several pallets to ensure an even colour spread throughout the work.

3.12 UNIFORMITY
Carry up work with no portion more than 1500mm above another at any time, raking back between levels.

3.13 BONDING
Lay bricks to the required bonding in the various locations. Refer to SELECTIONS/drawings.

3.14 PROVIDE WEEPHOLES
Provide weepholes at the bottom of cavities and cells to SNZ HB 4236 and NZBC E2/AS1, 9.2.6, **Cavities**, and as necessary to drain moisture to the outside air. Provide vent gap at the top of the veneer.

3.15 INSTALL VERMIN STOP
Fold and staple one edge of the mesh to the substrate and with the mesh sloping outwards, set the other edge half the thickness of the veneer or 50mm, whichever is less, into the mortar joint.

3.16 CAVITY VENTILATION
Ventilate to outside air with top and bottom openings to the requirements of SNZ HB 4236 and NZBC E2/AS1, 9.2.6, **Cavities**. Seal cavity off from roof space.

3.17 CAVITY BRICKWORK BELOW GROUND
Fill all cavities below finished grade with concrete. Place a continuous damp-proof course within the first three mortar joints above ground. Seal the face of all brickwork below ground.

3.18 FORM OPENINGS
Unless detailed otherwise form openings to typical details from BRANZ Masonry veneer - Good practice guide.

3.19 SEPARATION JOINTS
Provide for wall movements of veneer with control joints to NZS 4210: 2.10 Methods of controlling wall movements. Weatherproof as necessary.

3.20 FORM REVEALS
Form lintels, jambs and sills as detailed complete with flashings and all ready for following work.

3.21 HEAD FLASHINGS
Provide a flexible flashing extending 200mm beyond ends of the opening and sloping to weepholes over all openings in cavity walls, in accordance with E2/AS1, 9.2.4, **Flashings**.

3.22 JAMB FLASHINGS
Provide a flexible flashing to jambs of openings in cavity walls, fully lapped with horizontal damp-proof courses at head and sill, in accordance with E2/AS1, 9.2.4, **Flashings**.

3.23 SILL FLASHINGS
Provide a flexible flashing under jointed sills, turned up at back and ends, in accordance with E2/AS1, 9.2.4, **Flashings**.

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3.24 REBATE DAMP PROOFING
Provide damp-proof course to stepped rebates supporting brick veneer in accordance with E2/AS1, 9.2.5, **Foundation support and damp-proofing**.

Installation - standard brick veneer

3.25 INSTALL LINTELS
Fit angle lintels to openings, sized to NZBC E2/AS1, 9.2.9, **Openings in masonry veneer** Table 18E and placed to NZBC E2/AS1, 9.2.9, **Openings in masonry veneer**.

3.26 CAVITY WIDTH
No cavity width less than 40mm or more than 75mm.

3.27 PLACE TIES
Place ties to: -
- NZS 4210: 2.9.5 Tie anchorage, cover and fixing; and
- NZS 4210: 2.9.6 Placing of ties
- NZS 4210: 2.9.7 Tie classification and spacing
- NZBC E2/AS1, 9.2.7, **Wall ties**, Tables 18A, 18B and 18C, screw fixings to the Table 18C.

At unsupported edges and at all openings through veneered walls or non-grouted cavity walls, wall ties to be provided:
At the top and bottom of the opening:
- Not more than 300mm or 2 courses, whichever is the smaller

At the sides of the opening or at an unsupported edge:
- Not more than 300mm
- Where the veneer wall continues above or is interrupted by a damp-proof course or waterproof membrane, wall ties shall be provided in each of the first two courses above the membrane.

Completion

3.28 ROUTINE CLEANING
Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused and temporary materials and elements from the site.

3.29 EFFLORESCENCE, WATER CLEANING
To remove deposits, brush with a stiff-bristle broom and take away brushings from the locality. Remove remaining deposit with a damp sponge. Wash wall thoroughly with a plentiful supply of clean water. Repeat this process every 4 weeks from appearance through to the completion of the contract works.

3.30 DEFECTIVE OR DAMAGED WORK
Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Leave work to the standard required for following procedures.

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4521 ALUMINIUM WINDOWS AND DOORS

1. GENERAL

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

1.1 RELATED WORK
Refer to glazing sections for glass types

1.2 ABBREVIATIONS AND TERMS

PVF²	Polyvinylidene Fluoride
SLS	Serviceability limit state
ULS	Ultimate limit state
WANZ	Windows Association of Zealand
PQAS	Powder Coating Quality Assurance System

Documents

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

NZBC E2/AS1	External moisture
NZBC F4/AS1	Safety from falling
NZBC H1/VM1	Energy efficiency
NZBC H1/AS1	Energy efficiency
AS/NZ 1580	Methods of test for paints and related materials - Determination of dry film thickness on metallic substrates - Non destructive methods
AS/NZS 1170.2	Structural design actions - Wind loads
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 1734	Aluminium and aluminium alloys - flat sheets, coiled sheet and plate
AS/NZS 1866	Aluminium and aluminium alloys - Extruded rod, bar, solid and hollow shapes
NZS 3604	Timber-framed buildings
AS 3715	Metal finishing - Thermoset powder coatings for architectural applications
BS 3900	Methods of tests for paints, Part C5: Determination of film thickness
NZS 4211	Performance of windows
NZS 4223.3	Glazing in buildings - Human impact safety requirements
AS/NZS 4680	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
WANZ	Window installation system - An Alternative Solution for the installation of windows and doors
WANZ	Powder Coating Quality Assurance System (PQAS)
WANZ	SFA 3503-03:2005 Anodising Standard
BRANZ BU 337	Protecting Window Glass from Surface Damage
AAMA 2604.05	Performance requirements and test procedures for high performance organic coatings on aluminium extrusions and panels

US Federal Specification

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

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

1.5 WARRANTY - MANUFACTURER/SUPPLIER
Provide a material manufacturer/supplier warranty:
5 years: For fabrication

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

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

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

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

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

1.9 SHOP DRAWINGS AND INSTALLATION DETAILS
Shop drawings to show the general arrangement of the aluminium joining including, but not be limited to:
Construction details (minimum scale 1:5) showing the interface between joinery elements and the building structure including: -
- Jointing details and method of fixing between individual elements and between this installation and adjacent work
- Interaction between claddings and linings
- Flashing details
- Sealants and air seals
- Non standard fixing details including bracketing

And where required the following:
- Design calculations
- Producer Statement in the form PS1 Producer Statement Design
- Rebate sizes
- Dimensions of all typical elements and of any special sizes and shapes
- Provision for the exclusion and/or drainage of moisture
- Provision for adjustment of fixings to ensure true alignment of windows and doors
- Sealant types and full size sections of all sealants and backing rods
- Provision for thermal movement
- Provision for seismic movement and movement under wind loads
- Sequence of installation
- Glazing specification and details

Where requested provide the following additional information
- Information of Professional Indemnity Insurance held by the person proving the shop drawings

Refer to the general section 1235 SHOP DRAWINGS for the requirements for submission and review and the provision of final shop drawings.

Complete shop drawing review before commencing fabrication.

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1.10 SEISMIC SUB-FRAMES
Where required units to have seismic sub-frames. Refer to NZS 1170.5. Refer to SELECTIONS for requirements

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

Performance

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

Refer to SELECTIONS.

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

Performance – Wind (design by contractor)

1.14 DESIGN PARAMETERS – NON SPECIFIC DESIGN
Design the installation to the wind zone parameters of NZS 3604, table 5.1.
Refer to SELECTIONS for wind zone.

1.15 DESIGN PARAMETERS – SPECIFIC DESIGN
Design the installation to the wind pressure parameters of AS/NZS 1170.2 Refer to SELECTIONS for ULS and SLS

Finishes

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

2. PRODUCTS

Materials

2.1 WINDOWS
Refer to SELECTIONS for type and finish.

2.2 DOORS
Refer to SELECTIONS for type and finish.

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

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

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

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

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

2.8 REVEALS - ALUMINIUM
Aluminium reveals fitted to frame via thermal break.

2.9 REVEALS - PVC
Prefinished PVC reveals grooved for wall linings.

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

Materials - overhead glazing

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

Components - for direct fix systems

2.12 SILL PAN FLASHING
To NZBC E2/AS1, 9.1.10.5 Window and Door Sills. Flashing for direct fix claddings to collect and drain water that may penetrate through the window or door unit. Size to extend from the inner most point of the aluminium frame out over the external face of the cladding.

2.13 WANZ SUPPORT ANGLE
Support angle, for use below the sill pan, for deeper claddings to transfer the weight of the window back to the frame. Size to suit cladding thickness.

Components - for cavity systems

2.14 WANZ CAVITY CLOSER
Flashing device (unperforated) to close the cavity above the window or door unit to direct water that occasionally penetrates the wall cladding into the cavity spaces adjacent to the window.

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

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

Components

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

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

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

Sealants

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

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

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

Finishes

2.23 ANODISED ALUMINIUM
To WANZ SFA 3503-03. Refer to SELECTIONS for thickness and colour.

2.24 POWDER COATED ALUMINIUM
Polyester powder organic coating in accordance with WANZ Powder Coating Quality Assurance System and AS 3715.

2.25 POWDER COATED ALUMINIUM - HIGH PERFORMANCE
PVF² fluoropolymer powder coating in accordance with AAMA 2604.05 and WANZ Powder Coating Quality Assurance System.

3. EXECUTION

Conditions - generally

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

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

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

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

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

3.6 PROTECTIVE COVERINGS
Retain protective coverings and coatings to BRANZ BU 337 and keep in place during the fixing process. Provide protective coverings and coatings where required to prevent

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marking of surfaces visible in the completed work and to protect aluminium joinery from following trades. Remove protection on completion.

3.7 ADDITIONAL PROTECTION
Supply and fix additional protection as necessary to prevent marking of surfaces which will be visible on completed work.

Conditions - fixings and fastenings

3.8 SUPPLY OF FIXINGS
Use only fixings and fastenings recommended by the manufacturer of the component being fixed and to comply with the ULS wind pressure stated in SELECTIONS. Ensure fixings and fastenings exposed to the weather are of aluminium, or Type 316 stainless steel or if not exposed to the weather may they be hot-dip galvanized steel with a coating weight of 610 g/m² complying with AS/NZS 4680.

3.9 INSTALLATION FIXING
To NZBC E2/AS1, 9.1.10.8, **Attachments for windows and doors**. Fix windows/doors through reveal to frame with a pair of 75 x 3.15mm minimum galvanised jolt head nails or a pair of 8 gauge x 65mm minimum stainless steel screws. Fix at a maximum of 450 centres along all reveals and a maximum of 150mm from reveal ends. Ensure fixings do not penetrate metal flashings.
Install packers between reveals and framing at fixing points, except at the head.

Assembly

3.10 FABRICATION
Fabricate frames as detailed on shop drawings. Install glazing, hinges, stays and running gear as scheduled. Provide temporary bracing and protection. Temporarily secure all opening elements for transportation.

3.11 TIMBER / PVC REVEALS
Before fixing to aluminium frames, ensure that timber reveals which are being painted have been primed on all surfaces.

3.12 HARDWARE GENERALLY
Factory fit all required and scheduled hardware. Account for all keys and deliver separately to the site manager.

3.13 SAFETY STAYS
Factory fit safety stays to all windows scheduled for safety stays and to all windows where safety stays are required to comply with NZBC F4/AS1 4.0, Opening windows.

Installation - windows and doors

3.14 CORROSION PROTECTION
Before fixing, apply suitable barriers of bituminous coatings, stops or underlays between dissimilar metals in contact, or between aluminium in contact with concrete.

3.15 CONFIRM PREPARATION OF EXTERIOR WALL OPENINGS
Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames. Do not proceed with the window and door installation until required preparatory work has been completed.

Required preparatory work includes the following:
- wall underlay/building wrap to openings finished and dressed off ready for the installation of window and door frames to NZBC E2/AS1:9.1.5 **Wall underlays to wall openings**.
- Full height 20mm jamb battens to NZBC E2/AS1 figure 72A (direct fix only)
- claddings neatly finished off to all sides of openings
- installation of flashings (those which are required to be installed prior to frames).

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3.16 INSTALLATION
Fix to comply with the reviewed shop drawings and installation details including flashings and bedding compounds, pointing sealants and weathering sealants.

3.17 INSTALLATION DIRECT FIX
Install to window manufacturers details and drawings including sill pans to window and door units.

3.18 INSTALLATION CAVITY CONSTRUCTION
Install to WANZ Installation System details and drawings including WANZ cavity closers, sill support bars and support angles

3.19 INSTALL FLASHINGS
Install flashings to heads, jambs and sills of frames as supplied and required by the window manufacturer and as detailed on the drawings. Finish head flashings to match window finish.

Place all flashings so that the head flashing weathers the jamb flashings, which in turn weathers over the upstand of the sill flashing. Ensure that sill flashings drain to the outside air.

Except where window/door frames are recessed, ensure that head flashings over-sail unit by 30mm minimum at each end.

3.20 COMPLETE AIR SEAL
To NZBC E2/AS1:9.1.6 Air seals. Form an air-tight seal by means of a proprietary expanding foam or sealants used with backing rods, applied between the window / door reveal and structural framing to a depth of 10 - 20mm, to provide a continuous air tight seal to the perimeter of the window or door.

3.21 FIX HARDWARE
Fix all sash and door hardware and furniture as scheduled.

Application - jointing and sealing

3.22 SEAL FRAMES ON SITE
Seal frames to each other and to adjoining structure and finishes, all as required by the window manufacturer and to make the installation weathertight. In very high and extra high or greater wind zones, seal between the window head and the head flashing. Do not seal the junction between the sill member and the cladding or sill flashing which must remain open.

3.23 PREPARE JOINTS
Ensure joints are dry. Remove loose material, dust and grease. Prepare joints in accordance with the sealant manufacturer's requirements, using required solvents and primers where necessary. Mask adjoining surfaces which would be difficult to clean if smeared with sealant.

3.24 BACK UP
When using back-up materials do not reduce depth of joint for sealant to less than the minimum required by the manufacturer of the sealant. Insert polyethylene rod or tape back-up behind joints being pointed with sealant.

3.25 SEALANT FINISH
Tool sealant to form a smooth fillet with a profile and dimensions required by the sealant manufacturer. Remove excess sealant from adjoining surfaces, using the cleaning materials nominated by the sealant manufacturer and leave clean.

Completion - cleaning

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3.26 REMOVE TRADE DEBRIS
Remove trade debris by appropriate means on a floor by floor basis as each floor is completed and again before any work is covered up by others. Arrange for general removal.

3.27 TRADE CLEAN
Trade clean window frames, operable windows and doors, glass and other related surfaces inside and out at the time of installation to remove marks, dust and dirt, to enable a visual inspection of all surfaces.

Completion

3.28 PROTECTIVE COVERINGS
Retain protective coverings and coatings and keep in place during the fixing process. Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades.

3.29 SAFETY
Indicate the presence of transparent glasses for the remainder of the contract period, with whiting, tape or signs compatible with the glass type. Indicators other than whiting must not be applied to the glass surface. Masking tape must not be used for this purpose.

3.30 IN SITU TOUCH-UP TO POWDER COATED ALUMINIUM
In situ touch-up of polyester or fluoropolymer coated aluminium is only permitted only to minor surface scratching. Otherwise replace all damaged material.

3.31 REMOVE
At the appropriate stage of the project, remove safety indicators and protective coverings and wipe down all joinery thoroughly.

3.32 REPLACE
Replace damaged, cracked or marked elements.

3.33 MANIFESTATIONS
Apply manifestations to comply with NZS 4223.3, 303.1 Manifestations.

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4610 GLAZING RESIDENTIAL

1. GENERAL

This section relates to the supply and fixing of glass products for external and internal joinery in residential type buildings and includes:
- windows and doors

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

The following abbreviations apply specifically to this section:

PVB	Polyvinyl Butyral
CIP	Cast in place

Documents

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

NZBC B1/AS1	Structure
NZBC F2/AS1	Hazardous building materials
NZBC F4/AS1	Safety from falling
NZBC H1/AS1	Energy Efficiency
NZS 3604	Timber-framed buildings
NZS 4211	Performance of windows
NZS 4218	Thermal insulation - Housing and Small Buildings
NZS 4223.1	Glazing in buildings - Glass selection and glazing
NZS 4223.Supp1	Glazing in buildings - Supplement 1 to NZS 4223.1:2008 and NZS 4223.4:2008
NZS 4223.3	Glazing in buildings - Human impact safety requirements
NZS 4223.4	Glazing in buildings - Wind, dead, snow and live action
AS/NZS 2208	Safety glazing materials in buildings
AS/NZS 4666	Insulating glass units
BRANZ BU 337	Protecting window glass from damage

Warranties

1.3 MANUFACTURERS WARRANTY
Warrant glass under normal environmental and use conditions against failure of materials.

10 years:	for insulating glass units
10 years:	for laminated glass
10 years:	for toughened glass

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

Requirements

1.4 SAMPLES
Submit samples of selected glass for review if required.

Performance

1.5 ENERGY EFFICIENCY
Provide glazing to meet the energy requirements of NZS 4218 and NZBC H1/AS1 for housing small buildings.
Refer to SELECTIONS and schedules for location and type of glazing.

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2. PRODUCTS

Materials

2.1 CLEAR FLOAT GLASS
Clear ordinary annealed transparent float glass for general window glazing. Thickness to NZS 4223.1 and NZS 4223. Supp 1.

2.2 TOUGHENED GLASS
Grade A Safety Glass to AS/NZS 2208.

2.3 TINTED FLOAT GLASS
Body tinted float glass.

2.4 INSULATING GLASS UNITS (IGU'S)
To AS/NZS 4666 and the IGU Manufacturers Association (IGUMA) requirements.

Components, general

2.5 JOINTING, PUTTY AND SEALING MATERIALS
Ensure jointing, putty and sealing materials are compatible with glass substrates. Confirm compatibility with laminated glass, IGUs and coatings.

Components, aluminium and uPVC glazing

2.6 GLAZING TAPE AND GASKETS
Single/double sided pressure sensitive self-adhesive low/medium/high density foam tapes/butyl tapes selected to suit the glazing detail to window manufacturers' requirements.

2.7 SETTING BLOCKS
Santoprene/Neoprene, 80-90 Shore A hardness, set at quarter points or to detail, to support the weight of glass panes.

3. EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS
To NZS 4223.1, NZS 4223.3, NZS 4223.4 and NZBC B1/AS1, 7.0 **Glazing**. All external glazing to be wind and watertight on completion.

3.2 DELIVERY
Keep glass dry and clean during delivery and bring on to site when ready to glaze directly into place. Comply also with the storage requirements set out in BRANZ BU 337.

3.3 GLASS CONDITION
All glass to have undamaged edges and surfaces.

3.4 GLASS THICKNESS
If not specifically stated in the glazing schedule determine the minimum thickness of glass for each sheet as required by NZS 4223.1, NZS 4223.3, NZS 4223.4 and NZS 4223. Supp 1.

Determine the final glass thickness based on whether wind loading or human impact considerations govern.

3.5 REBATE DIMENSIONS
Provide rebates for glazing to the widths and depths necessary for each situation including minimum glass edge cover to NZS 4223.1, Section 4 Glazing.

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Conditions - human impact safety requirements

3.6 SAFETY GLAZING, GENERAL REQUIREMENTS
Glazing of doors, side panels, low level and window seat glazing, shower doors and screens, bath enclosures, stairwell landings and similar locations, to NZS 4223.3 and NZBC B1/AS1, 7.0 **Glazing**, in respect of, thickness, maximum areas of panel Grade A Safety Glass.

3.7 SAFETY GLAZING MATERIAL
Use only materials from NZS 4223.3, Appendix 3.A Schedule of safety glazing materials that also comply with the relevant requirements of AS/NZS 2208. Ensure material is permanently marked and if cut by the distributor or installer mark each piece to NZS 4223.3, clause 303.7 Identification of safety glazing materials.

3.8 CONTAINMENT
Edge cover to comply with NZS 4223.1, Section 4 Glazing, table 5. Otherwise to NZS 4223.3, clause 303.2 Containment.

Assembly

3.9 WORKING OF GLASS
All working of glass as required in NZS 4223.1.

3.10 EDGE WORK AND BEVELLING
Edgework other than a clean cut. Refer to SELECTIONS/drawings for type.

3.11 SURFACE TREATMENT
Refer to SELECTIONS/drawings for finish.

3.12 SURFACE CUTTING
Refer to SELECTIONS/drawings for finish.

Application aluminium

3.13 INSTALL GLASS TO ALUMINIUM FRAMES
Install glass to NZS4223.1.
- Bead glaze to Section 4 Glazing.
- Channel glaze to Section 4 Glazing, and Section 5 for Framed, Unframed, Partly Framed Glass Assemblies.

3.14 INSTALL SAFETY GLASS
To NZS 4223.3, as modified by NZBC F2/AS1 and NZBC B1/AS1, 7.0 **Glazing**.

Finishing

3.15 SAFETY
Indicate the presence of transparent glass for the remainder of the construction period, with whiting, tape or signs compatible with the glass type.

3.16 MANIFESTATIONS
To NZS 4223.3, clause 303.1 Manifestation (making glass visible).

Completion

3.17 TRADE CLEAN
Clean off or remove safety indicators at completion of the building.

3.18 REPLACE
Replace damaged, cracked or marked glass.

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

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3.20 REMOVE

Remove debris, unused materials and elements from the site.

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5113E ELEPHANT PLASTERBOARD LININGS

1. GENERAL

This section relates to the supply, fixing and jointing of **Elephant** plasterboard linings and accessories to timber and steel framed walls and ceilings to form:
- general systems
- bracing systems
- wet area systems
- superior finish quality systems
- plasterboard ceiling tiles
- minor related fire and sound rating

1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

FRR	Fire resistance rating
STC	Sound transmission class
AWCINZ	Association of Wall and Ceiling Industries of New Zealand Inc

Documents

1.2 DOCUMENTS

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

AS/NZS 1170	Structural design actions
AS 1397	Steel sheet and strip - hot-dip, zinc-coated, or aluminium/zinc- coated
AS/NZS 2588	Gypsum plasterboard
AS/NZS 2589	Gypsum linings - Application and finishing
NZS 3404 (1997)	Steel Structures Standard
NZS 3604	Timber-framed buildings
AS/NZS 4600	Cold-formed steel structures

BRANZ technical paper P21: A wall bracing test and evaluation procedure

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:
Elephant Plasterboard:
- Installation manual
- Fire and noise spec sheets
- Elephant Quickbrace Systems Supplementary Document May 2011
- Water resistant systems

Manufacturer/supplier contact details

Company:	Elephant Plasterboard NZ Ltd
Telephone:	0800 ELEPHANT (0800 353 742)
Web:	www.elephantplasterboard.co.nz

Requirements

1.4 NO SUBSTITUTIONS

Substitutions are not permitted to any specified **Elephant** Plasterboard systems, sheets or associated products, components or accessories.

1.5 QUALIFICATIONS AND INSTALLATION WORK SKILLS

Elephant plasterboard fixers and plasterers to be experienced competent workers, familiar with materials and techniques specified. Submit evidence of experience on request. Acceptable evidence of experience includes:
- National Certificate of Interior Systems
- Contractor membership of the AWCINZ

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Performance

1.6 INSPECTIONS AND ACCEPTANCE
Inspect the finished surface of the installed plasterboard:
- before applying sealer and
- before applying finish coatings or decorative papers,
so that after assessment of the type and/or angle of illumination and its effect on the completed decorative treatment, group approval and acceptance of the surface can be given.

1.7 BRACING REQUIREMENTS
Provide braced wall systems using **Elephant Quickbrace** Systems Supplementary Document May 2011 to meet the requirements of NZS 3604 when tested in accordance with BRANZ technical Paper P21.

2. PRODUCTS

Materials

2.1 ELEPHANT PLASTERBOARD
Gypsum plaster core encased in a durable face and backing paper formed for standard and specialised use to AS/NZS 2588.

Elephant Standard-Plus Plasterboard:	High quality surface plasterboard
Elephant Horizontal - 1200 and 1350mm:	High quality surface plasterboard
Elephant Aquaboard:	Wet area plasterboard
Elephant Multiboard:	Bracing plasterboard
	Fire resistant plasterboard
	Noise control plasterboard
	Impact resisting plasterboard

2.2 CEILING TILES
10mm and 13mm, 600mm x 1200mm **Elephant** "White Sand" tiles as listed in SELECTIONS.

2.3 CORNICE
55mm, 75mm and 90mm cornice as listed in SELECTIONS.

Components

2.4 COMPONENTS
All components to AS/NZS2589.

2.5 CEILING BATTENS
Galvanized steel (zinc coating) battens and matching perimeter channels for use with plasterboard and gypsum ceiling and wall linings.

2.6 SCREWS
Drywall screws.

2.7 NAILS
Gold passivated drywall clout 30mm, 40mm.

2.8 METAL ANGLE TRIMS
Form from galvanized steel of a coating class not less than ZM275 to AS 1397.

2.9 CONTROL JOINT
Proprietary control joints.

2.10 TAPE ON TRIMS AND EDGES
Tape-on paper tape and galvanized steel trims and edges.

Accessories

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2.11 ACCESSORIES
All accessories to AS/NZS 2589.

2.12 ADHESIVE

Timber frame:	Drywall adhesive - water based
Timber frame LOSP Treated:	Drywall adhesive - solvent based
Steel frame:	Drywall adhesive - solvent based

2.13 JOINTING COMPOUNDS
Bedding compound
Finishing compound
Cornice Cement

2.14 JOINTING TAPE
Paper jointing tape.

2.15 EDGE OR CORNER TRIMS
Proprietary edge and corner trims, tape on or metal for non-standard edges and corners.

2.16 ACOUSTIC SEALANT
Water based highly flexible acoustic sealant.

2.17 GAP FILLER
Multi-purpose acrylic flexible filler

2.18 MOULD RESISTANT SEALANT
Mould resistant water based silicone sealant

3. EXECUTION

Conditions

3.1 HANDLING AND STORE
Handle and store **Elephant** Plasterboard sheets and accessories in dry conditions stored indoors out of direct sunlight in neat flat stacks clear of the floor with no sagging and avoiding damage to ends, edges and surfaces. Reject damaged sheets. Refer to Elephant Plasterboard Installation Manual.

3.2 LEVELS OF FINISH
Provide the scheduled plasterboard surfaces to the levels of finish specified in AS/NZS 2589.

3.3 LEVELS OF FINISH ACCEPTANCE
Before commencing work, agree in writing upon the surface finish assessment procedure necessary to ensure that the levels of finish specified, along with the effect of the type and/or angle of illumination on them, are obtained and are acceptable.

3.4 SUBSTRATE
Do not commence work until the substrate is plumb, level and to the standard required by AS/NZS 2589. Refer to **Elephant** Plasterboard Installation Manual.

3.5 TIMBER FRAME MOISTURE CONTENT
Allowable moisture content for:

Framing at lining:	12% - 18% for plasterboard linings
Ceiling - Timber Battens:	12% - 16% for plasterboard linings

3.6 METAL FRAMING
Metal framing, to which gypsum lining is fixed, shall comply with AS 1397, AS/NZS 1170, AS/NZS 3404 or AS/NZS 4600, as applicable. When adhesion of gypsum linings is required, surfaces shall be free of oil, grease, dust and other foreign materials. Refer to the metal framing manufacturers specifications where high density gypsum linings (>800 kg/m^3) such as Elephant Multiboard are specified for fixing to light gauge steel.

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3.7 PROTECT
Protect surfaces, cabinetwork, fittings, equipment and finishes already in place from the possibility of water staining and stopping damage.

Application - fixing

3.8 INSTALL CEILING BATTENS
Install in accordance with the metal batten manufacturer's requirements.

3.9 LINE CEILINGS AND WALLS
Line ceilings and walls with the various sheets and fix to the **Elephant** Plasterboard Installation Manuals details and requirements, ensure bulk insulation thickness does not exceed that of the wall framing.

3.10 END BUTT JOINTS, CEILINGS
When end butt joints are unavoidable, locate staggered off the framing, back block, fix and stop to the **Elephant** Plasterboard details and requirements.

3.11 BRACING SYSTEMS
Form to Elephant Quickbrace Systems Supplementary Document May 2011.

3.12 WET AREA SYSTEMS
Line walls in accordance with the **Elephant** Plasterboard requirements.

3.13 INSTALL CORNICE
Install cornice, refer to SELECTIONS.

3.14 INSTALL TAPE ON TRIMS
Install tape to **Elephant** Plasterboard requirements.

3.15 INSTALL EDGE OR CORNER TRIMS
Install proprietary edge and corner trims to manufacturer's requirements.

Finishing

3.16 FINISHING GENERALLY
To **Elephant** Plasterboard Installation manual and AS/NZS 2589.

Completion

3.17 REPLACE
Replace or repair damaged sheets or elements.

3.18 CLEAN DOWN
Clean down completed surfaces to remove irregularities and finally sand down with fine paper to the sheet manufacturer's requirements, to leave completely smooth and clean to the standard required for following trades.

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

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

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6700D DULUX PAINTING GENERAL

1. GENERAL

This section relates to the general matters related to painting work.

1.1 RELATED WORK

Refer to 6711D DULUX PAINTING EXTERIOR for exterior paint systems.
Refer to 6721D DULUX PAINTING INTERIOR for interior paint systems.
Refer to 6711DE DULUX ENVIRONMENTAL PAINTING EXTERIOR for environmental exterior paint systems.
Refer to 6721DE DULUX ENVIRONMENTAL PAINTING INTERIOR for environmental interior paint systems.

1.2 ABBREVIATIONS

The following abbreviations are used throughout this part of the specification:

APAS	Australian Paint Approval Scheme
MPNZA	Master Painters New Zealand Association Inc.
VOC	Volatile organic compound

Documents

1.3 DOCUMENTS

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

AS/NZS 2311	Guide to the painting of buildings
AS/NZS 2312	Guide to the protection of structural steel against exterior atmospheric corrosion by the use of protective coatings
AS/NZS ISO 9001	Quality management systems - Requirements
OSH	Guidelines for the provision of facilities and general safety in the construction industry
OSH	Guidelines for the management of lead-based paint
MPNZA	Specification manual
MPNZA	Painters hazard handbook

Health and Safety in Employment Act 1992

1.4 MANUFACTURER'S DOCUMENTS

Manufacturer's and supplier's documents relating to work in this section are:
Dulux DuSpec specification sheets and product data sheets

Copies of relevant literature are available from **Dulux**

Web:	www.duspec.co.nz
Email:	specifier@dulux.co.nz
Telephone:	0800 800 424
Facsimile:	0800 801 424

Warranties

1.5 WARRANTY

Warrant this work under normal environmental and use conditions against failure of materials and execution.

Product warranty: Products must be applied in accordance with application and preparation procedures according to **Dulux** Duspec Specifications and Product Data Sheets.

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

Requirements

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

1.7 QUALIFICATIONS
Painters to be a member of MPNZA and experienced competent workers, familiar with the materials and the techniques specified.

1.8 CONTROL SAMPLES
Prepare samples of the finished work as scheduled, including preparation and colour as specified. Obtain written approval of the appearance before proceeding. Refer to SELECTIONS for requirements.

Use the **Dulux** Architectural Brushouts as a basis of standard where appropriate. Fax requests through to **Dulux.**

1.9 HEALTH AND SAFETY
Refer to the requirements of the Health and Safety in Employment Act and OSH: Guidelines for the provision of facilities and general safety in the construction industry. If the elimination or isolation of potential hazards is not possible then minimise hazards in this work on site by using the proper equipment and techniques as required in the MPNZA Painters hazard handbook. Supply protective clothing and equipment. Inform employees and others on site of the hazards and put in place procedures for dealing with emergencies.

Refer to OSH: Guidelines for the management of lead-based paint for the required procedures and precautions when:
- treating/removing lead-based paint
- burning off paint
- sanding off paint
- using solvent based paint removers.

1.10 MATERIAL SAFETY DATA SHEETS
Refer to **Dulux** for the material safety data sheets for every applicable product and comply with the safety procedures listed. Keep sheets on the site.

Performance

1.11 DULUX INSPECTION
Permit representatives of **Dulux** to inspect the work in progress and take samples of their products from site if requested.

1.12 INSPECTION OF THE WORK
Inspection of the whole of the work at each of the stages set out in SELECTIONS may be made. Agree a programme that will facilitate such inspection, including notification when each part and stage of the work is ready for inspection.

2. PRODUCTS

Materials

2.1 PAINT TYPES
Use the manufacturer's complete system and only the products specified.

2.2 MATERIALS GENERALLY
Use only **Dulux** products which are guaranteed for their consistency and performance under ISO 9001 and APAS approval, prepared, mixed and applied as directed in the **Dulux** Duspec specification sheets, specification manuals and product data sheets.

2.3 THINNERS/ADDITIVES
Use only if and when expressly directed by **Dulux** for their particular product in a particular application.

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Accessories

2.4 FILLERS
For recommendations on; fillers, stopping, paint strippers, cleaning agents, etching solutions, mould inhibitors, rust inhibitors, knotting and other commodities used for the surface preparation, refer to the manufacturer of the specified coating.

2.5 GYPSUM FILLER - INTERIOR
Finishing compound to match the plasterboard stopping system and finishing grade gypsum plaster to match the fibrous plaster system. For interior surfaces such as paper faced plasterboard use **Dulux** Professional Ultra 5 Surface Prep & Finish as an aid to achieving a Level 5 finish.

3. EXECUTION

Conditions

3.1 EXECUTION
To conform to manufacturer's requirements and those methods, practices and techniques contained in AS/NZS 2311, the MPNZA Specification manual, and OSH Guidelines for the provision of facilities and general safety in the construction industry.

3.2 PREPARE
Prepare surfaces to the coating manufacturer's requirements.

3.3 COATED SURFACES
Ensure that substrate surfaces are able to achieve the specified finish.

3.4 PRE-PRIMED SURFACES
Sand down any breakdown or damage of the primer to a sound surface and immediately re-prime.

3.5 BRUSH DOWN
Brush down surfaces immediately before application, to remove dust, dirt and loose material.

3.6 COMPATIBILITY
Check that materials are as required by the paint manufacturers for the particular surface and conditions of exposure, and that they are compatible with each other. Use paint from the same manufacturer for each paint system. If not compatible, obtain instructions before proceeding.

3.7 TREATED SURFACES
Where surfaces have been treated with preservatives or fire retardants, check with the treatment manufacturer that coating materials are compatible with the treatment and do not inhibit its performance. If they are not compatible, obtain instructions before proceeding.

3.8 ANCILLARY SURFACES
The coatings listed in schedules and elsewhere are of necessity simplified. Coat ancillary exposed surfaces to match similar or adjacent materials or areas, except where a fair-faced natural finish is required or items are completely prefinished. In cases of doubt obtain instructions before proceeding.

3.9 LEAD-BASED PAINT, ASBESTOS
Handle cautiously lead-based paint and asbestos, if present, as required in the MPNZA Painters hazard handbook and OSH Guidelines for the management of lead-based paint.

3.10 HARDWARE
Do not paint hinges or hardware that cannot be removed. If items can be removed, carefully remove hardware, fixtures and fittings before commencing work. Set aside where they cannot be damaged or misplaced and replace on completion.

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3.11 PROTECTION
Use dropsheets, coverings and masking necessary to protect adjoining fixtures, fittings and spaces from paint drops, spots, spray and damage.

Preparation - unpainted and pre-primed timber and wood based products

3.12 MOISTURE CONTENT
Ensure moisture content at the time of application is near to the equilibrium moisture content pertaining to the particular locality in which the timber is used, without any excessive moisture content gradient between core and surface.

3.13 PREPARING DRESSED TIMBER
Ensure dressed timber is smooth, free from raised or woolly grain, planing burrs or other machining defects. Slightly round or ease sharp edges to ensure they can be properly coated. Sand timber to bring up to a smooth finish along the direction of the grain. Sand timber back to new condition timber that has been weathered.

3.14 PREPARING ROUGH SAWN TIMBER
Thoroughly brush along the direction of the grain to remove dust and dirt.

3.15 PREPARING PRE-PRIMED TIMBER
Check pre-prime coat for damage, powdering, weathering or loss of adhesion. Where primer is sound, thoroughly brush along the direction of the grain to remove dust and dirt. If there is doubt, sand back and re-prime.

3.16 TIMBER SPECIES
Check that the preparation and paint system is suitable for the timber species.

3.17 PREPARING DAMAGE AND DEFECTS
Scrape clean loose or soft material holes, depressions, resin or gum pockets, knot holes, surface splits, checks, or any localised decay. Apply primer and/or sealer specified and fill these areas with linseed oil putty or other appropriate filler.

3.18 FIXINGS
Take timber fixings below the painted or clear finished surface. Leave corrosion resistant timber fixings flush with clear finished surfaces.

3.19 CLEANING
Remove grease and oil by wiping down with solvent or water-based degreasing agent. Remove resin by wiping down with solvent or water-based degreasing agent or heating and scraping. Remove sanding dust. Bad staining may be untreatable and require replacement of timber, discuss with paint manufacturer and main contractor.

Preparation - unpainted metal

3.20 PREPARING STEEL
Remove loose rust and mill scale by hand-tool or power-tool cleaning. Remove more adherent rust and scale by abrasive blast cleaning or pickling. Use chemical pre-treatment to remove the last traces of rust and to inhibit rust formation.

In wet/damp areas follow the requirements of AS/NZS 2312 for surface preparation treatments.

3.21 PREPARING ZINC AND ALUMINIUM-ZINC ALLOY COATED STEEL
Remove grease, oil and other solvent soluble contaminants by wiping and/or brushing with mineral turpentine or white spirit. Wipe with a clean solvent. Allow to dry and proceed immediately with the next operation.

3.22 PREPARING ALUMINIUM
Remove grease, oil and dust by wiping and/or brushing with mineral turpentine or white spirit. Wash thoroughly using water with a few drops of detergent, then wash with clean water. Allow to dry and proceed immediately with the next operation.

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Preparation - unpainted masonry

3.23 PREPARING BRICKS

Remove loose dirt, sand, aggregate and mortar by brushing down or blocking-off surface with a flat stone, hose with clean water. Fill holes with mortar/acrylic based filler. Remove efflorescence by dry brushing with a stiff bristle brush. Brickwork that has been acid cleaned shall have the pH tested to ensure it is neutralized before painting.

3.24 PREPARING CONCRETE

Remove grease and formwork oil with solvent or water and household detergent. Wash with clean water and allow to dry. Fill unwanted holes with cement grouting and allow to cure. Remove loose surface material and surface projections with a flat stone. Roughen slightly dense or glazed surfaces with light (30 mesh) sandblasting, rubbing with coarse abrasive stones, or by wetting the surface and treating with 10% commercial hydrochloric acid solution. Allow to react for 5 minutes, scour surface with a stiff bristle brush, wash off with clean water and allow to dry. Remove efflorescence by dry brushing or by wetting the surface and treating with 10% commercial hydrochloric acid solution as above.

Remove dust and dirt by brushing, air blast, hosing, or scrubbing as may be necessary.

3.25 PREPARING CEMENT PLASTER

Ensure surface is adequately cured and dry. Treat mould with one part sodium hypochlorite household bleach to three parts clean water solution or a proprietary anti-mould solution, and allow to dry. Remove efflorescence by brushing only.

3.26 PREPARING CONCRETE MASONRY

Remove loose dirt, sand, aggregate and mortar by brushing down or blocking-off the surface with a flat stone or hardwood block. Fill holes with mortar or acrylic based filler. Treat mould with one part sodium hypochlorite household bleach to three parts clean water solution, or a proprietary anti-mould solution, and allow to dry.

Remove efflorescence by dry brushing or by wetting the surface and treating with 10% commercial hydrochloric acid solution. Allow to react for 5 minutes, scour the surface with a stiff bristle brush, wash off with clean water and allow to dry.

Remove dust and dirt by brushing, air blast, hosing or scrubbing.

Preparation - gypsum plaster

3.27 PREPARING GYPSUM PLASTER

Fill and sand small crevices and cracks. Surface moisture content not to exceed 12% at time of coating.

Preparation - unpainted linings

3.28 PREPARING FIBROUS PLASTER

Check for and remove release agents and other contaminants by washing with clean water or solvent and allow to dry. Fill cracks and surface imperfections with patching plaster and lightly sand smooth. Remove dust.

3.29 PREPARING PLASTERBOARD

Check that joints are prepared to a smooth level surface finish. Fill cracks and surface imperfections with the sheet manufacturer's required stopping compound and lightly sand smooth. Remove dust.

Preparation - unpainted plastics

3.30 PREPARING POLYESTERS (GRP) AND PHENOL FORMALDEHYDES

Wipe surfaces with methyl ethyl ketone or other suitable solvent. Lightly abrade with sandpaper and dust off. Proceed immediately with priming.

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3.31 PREPARING UNPLASTICISED POLYVINYL CHLORIDE (UPVC)
Wipe surfaces with mineral turpentine, methylated spirits or white spirit. Lightly abrade with sandpaper and dust off. Proceed immediately with topcoats applicable for walls or timber finishes.

Preparation - painted surfaces generally

3.32 SURFACE PREPARATION
Refer to the **Dulux** Duspec specification sheets and product data sheets. Carry out the preparatory work required by them for each of the substrates.

For interior surfaces such as paper faced plasterboard use **Dulux** Professional Ultra 5 Surface Prep & Finish as an aid to achieving a Level 5 finish.

3.33 MOULD
Sterilise surface mould by washing or sponging the whole surface with a one part sodium hypochlorite household bleach to three parts clean water solution. Allow bleach to act for 30 minutes and wash off with clean water. Wash cloths and sponges regularly in clean water. Reapplication may be necessary. Treat with anti-mould solution to the treatment manufacturer's requirements.

3.34 REMEDIAL WORK
If any substrate or surface, even with the preparation work called for in this section, cannot be brought up to a standard that will allow painting and clear finishing of the required standard then do not proceed until remedial work is carried out.

3.35 GAP FILLING
Make good cracks, holes, indented and damaged surfaces as outlined in **Dulux** Duspec specification sheets and product data sheets. Use suitable gap fillers to match the service conditions and surface being prepared. Any special requirement of the fillers must be satisfied. Allow to dry or set before sanding back level with the surface. Prime or seal timber before using putty.

Preparation - painted surfaces in good condition

3.36 PREPARING SURFACES
Wash down surfaces with either:
- a chlorine based solution; or
- 5-10 millilitres of ordinary household detergent to 1 litre of warm water; or
- a solution of 30 grams of trisodium phosphate to 1 litre of water

Replace solutions frequently and finally wipe over a second time with a clean absorbent cloth.

For surfaces containing heavy smoke and grease deposits, wash down with either:
- mineral turpentine; or
- a 5% solution of ammonia; or
- a 1:40 solution of sugar soap and water

as necessary to remove the deposits. Wipe over with a clean absorbent cloth.

Prepare coatings which have chalked by sanding, brushing, waterblasting or other methods as appropriate.

Lightly sand glossy surfaces to ensure good adhesion of the coatings.

Preparation - painted surfaces in poor condition

3.37 PREPARING PAINTED TIMBER
Completely remove blistered, flaked, excessively chalked and cracked (due to exposed end grain and knots) paint to give a sound base for repainting. Scrape out damaged or decayed timber and where the area is extensive, arrange to cut out and replace with treated timber, primed (including end grain) before fixing.

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Scrape clean loose or soft material, holes and depressions in timber due to damage or defects such as resin or gum pockets, knot holes and surface splits. Remove and replace sprung or loose corroded nails.

Where necessary strip paint back to the original timber surface, using the most appropriate of the following methods:
- burning off using a blowtorch to soften paint without charring, before scraping off with a broad knife
- using an electrically heated hot air stream to soften paint, before scraping off with a broad knife
- sanding using orbital and/or belt sanders
- paint removers used to the manufacturer's requirements
- hand scraping.

Follow OSH guidelines for minimising the hazards of stripping.

3.38 PREPARING PAINTED GYPSUM PLASTER

Remove flaked paint completely from powdery, loose and other unsatisfactory plaster surfaces. Treat powdery surfaces with a solution of 150 millilitres of concentrated phosphoric acid and clean water to make 1 litre. Apply the solution, allow to stand 10 minutes and wash down with clean water. Remove loose, weak and drummy plaster and replaster. Allow to cure before proceeding with coatings as for unpainted work.

Confirm that the cause of any efflorescence has been eliminated before wiping it away with a dry rag and making good the damaged surface.

Fill small cracks and damaged surfaces with gypsum plaster or cellulose gypsum compound to just proud of the surface and lightly sand smooth and flush when dry.

3.39 PREPARING PAINTED PLASTERBOARD AND FIBROUS PLASTER

Fill cracks, pores, irregularities and damaged surfaces with the appropriate filler to the paint manufacturer's requirements, trowelled smooth, allowed to dry and lightly sanded to a smooth flush surface. Treat any staining of paint films on plaster as required by the coating manufacturer.

3.40 PREPARING PAINTED CEMENT PLASTER, CONCRETE AND MASONRY

Remove the fine white powder of efflorescence by brushing and then wiping with a clean cloth. Remove faulty mortar by wire-brushing. Make good with fresh mortar to match.

Confirm that the cause of any dampness has been eliminated and that the substrate is dry before applying any coating.

Wire brush moss or lichen affected areas to remove loose, powdery growth. Treat the affected areas with a solution of 200 millilitres of formalin (40% solution) to 800 millilitres of water. Apply the solution and leave for 3 days or until the moss and lichen turns brown. Scrub off with a hard bristle brush and hose down liberally with water. Swab the affected area using a solution of 1 volume of household bleach to 2 volumes of water. After 30 minutes wash down with clean water.

Remove grease by continued washing with a 1:40 solution of sugar soap and water until completely removed, wash with clean water and allow to dry.

Where necessary strip paint back to the original surface by water or abrasive blasting. Remove chalk dust and dirt when dry by stiff bristle brushing.

3.41 PREPARING PAINTED METALWORK

Remove corrosion in whatever form. Sand edges to form a smooth surface with surrounding areas unaffected by corrosion. Use a chemical pre-treatment to remove the last traces of and to inhibit future, corrosion. Clean down completely before spot priming to suit the coating system specified.

Application - before applying final coatings

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3.42 OFF-SITE WORK

Carry out off-site preparation and coating under cover, in a suitable environment and with adequate lighting. Store items both before and after coating in a clean, dry area, protected from the weather and mechanical damage, properly stacked and spaced to permit air circulation and to prevent sticking of surfaces.

3.43 PRIMING JOINERY

Before priming preservative treated timber ensure that any cut surfaces have been retreated. Liberally coat end grain, allow to soak in and then recoat. Ensure LOSP. treated joinery has dried sufficiently to lose odour.

3.44 CONCEALED JOINERY SURFACES

Apply off-site coatings to all surfaces including those which will be concealed when incorporated into the building.

3.45 CONCEALED METAL SURFACES

Apply primer to suit the coating system to all metal surfaces which will be concealed when incorporated into the building.

3.46 DOORS

Prime or seal and paint all six faces of doors before hanging.

3.47 BEAD GLAZING

Before glazing apply the first two coats, or the primer and one undercoat, to rebates of stained, varnished or painted joinery and beads.

3.48 PUTTY FRONTING

According to the painting manufacturer's instructions allow putty to set, then prime with **Dulux** Prepcoat Oil Based Primer Undercoat. Fully protect the putty by completing the **Dulux** coating system as soon as it is sufficiently firm.

Application - generally

3.49 PAINTING GENERALLY

Comply with the **Dulux** Duspec specification sheets, specification manuals and product data sheets and the additional requirements of this work section.

3.50 MIXING

Thoroughly mix paints. Lift any settled pigment and ensure the paint is homogenous.

3.51 ENVIRONMENT

Paint exterior surfaces only in favourable weather conditions:

- warm dry days without frost or heavy dews
- avoid painting in direct sunlight any surfaces that absorb heat excessively
- as far as possible apply paint in the temperature range 15°C to 25°C
- do not paint if temperatures fall outside the range of 10°C and 35°C unless paints with the necessary temperature tolerance have been specified
- do not apply solvent borne paint if moisture is present on the surface

3.52 SEQUENCE OF OPERATIONS

Painting work to generally the following sequence:

- Complete surface preparation before commencing painting
- Apply primers, sealers, stains, undercoats, paints and clear coatings in the sequences laid down by **Dulux**
- Allow the full drying times between coats laid down by **Dulux**
- Do not expose primers, sealers and undercoats beyond a few days before applying the next coat
- Finish broad areas before painting trim
- Ensure batch numbers of tins are matched for whole areas
- Internally paint ceilings before walls and walls before joinery, trim and other items.

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3.53 PAINT APPLICATIONS
Select brush, roller, or pad and apply paint to the requirements of **Dulux** and to obtain a smooth even coating of correct thickness, uniform gloss and colour.

3.54 DRYING TIME
Before handling or applying the next coat of paint, give each coat the full drying time as required by the paint manufacturer. Ensure that surfaces are dry and that condensation does not occur before the paint reaches surface-dry condition.

3.55 LIGHTLY SAND
Lightly sand primers, sealers, undercoats and intermediate coats to remove dust pick-up, protruding fibres and coarse particles. Remove dust immediately before applying the next coat.

3.56 DEFECTIVE WORK
Correct defective work immediately and re-coat as required, following precisely the **Dulux** paint system specified.

3.57 EACH COAT
Each coat of paint and the completed paint system to have the following qualities and properties:
- uniform finish, colour, texture, sheen and hiding power
- the specified number of coats applied
- no blemishes such as runs, sags, crinkling, fat edges, entrained paint skins, hairs, dust, bare or starved patches, cracks, brush marks, ladder marks and blistering
- proper covering of corners, crannies, thin edges, cracks, end grain and other difficult places of application

Completion

3.58 CLEAN
Clean adjoining surfaces, glass and fittings of any paint contamination. Clean off glass indicators at completion of the building works. Clean glass inside and out to a shining finish.

3.59 CLEAN EQUIPMENT
Use **Dulux** Envirosolutions wash system for the cleaning of water-based paint and plasters from brushes, rollers, plastering or spray equipment to separate the solids from the water component for safe disposal. Phone 0800 800 424 for information regarding this system.

3.60 LEAVE
Leave the whole of this work uniform in gloss and colour, of correct thickness, free from painting defects, clean and unmarked and to the standard required by following procedures.

3.61 REMOVE
Remove dropsheets, coverings and masking to leave surrounding surfaces and areas clean, tidy and undamaged. Remove debris, unused materials and elements from the site.

3.62 REPLACE HARDWARE
Replace hardware without damage to it or the adjoining surface. Leave properly fitted and in working order.

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6721D DULUX PAINTING INTERIOR

1. GENERAL

This section relates to the surface preparation and painting of new and existing interior substrates using **Dulux** interior paint systems.

1.1 RELATED WORK

Refer to 6700D DULUX PAINTING GENERAL for general matters related to painting work.

2. PRODUCTS

2.1 PRODUCTS

Refer to 6700D DULUX PAINTING GENERAL for product clauses.

3. EXECUTION

3.1 EXECUTION

Refer to 6700 PAINTING GENERAL for execution clauses.

4. SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise.
All VOC levels quoted are based on white topcoats and will vary when tinted. Refer to DULUX Duspec for up to date VOC levels as these are subject to change.

Interior Decorative Paint Systems

Supply the listed **Dulux** paint systems for the following new substrates:

4.1 INTERIOR PAPERFACED PLASTERBOARD - WALLS PAINT FINISH

Coating type:	Water based low sheen
System:	DuSpec NZSD0088
Preparation:	PPL008
1st coat:	DULUX Prepcoat acrylic sealer undercoat @ 12 sqm / litre
2nd coat:	DULUX Wash & Wear 101 @ 16.1 sqm / litre
3rd coat:	DULUX Wash & Wear 101 @ 16.1 sqm / litre
Spread of Flame Index	= 0
Smoke Development Index	= 2

4.2 INTERIOR PAPERFACED PLASTERBOARD - CEILINGS - PAINT FINISH

Coating type:	Water based flat
System:	DuSpec NZSD0074
Preparation:	PPL008
1st coat:	DULUX Prepcoat acrylic sealer undercoat @ 12 sqm / litre
2nd coat:	DULUX Professional UltraHide tintable ceiling paint @ 12.8 sqm / litre
3rd coat:	DULUX Professional UltraHide tintable ceiling paint @ 12.8 sqm / litre
Spread of Flame Index	= 0
Smoke Development Index	= 3

4.3 INTERIOR TIMBER -TRIM, DOORS, FRAMES & SASHES

Coating type:	Water based enamel semi gloss
System:	DuSpec NZSD0299
Preparation:	PTI003
1st coat:	DULUX Prepcoat Acrylic Primer Undercoat @ 13.7 sqm / litre
2nd coat:	DULUX Aquanamel @ 16.1 sqm / litre
3rd coat:	DULUX Aquanamel @ 16.1 sqm / litre

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Repaint systems

4.4 INTERIOR PAPERFACED PLASTERBOARD - WALLS PAINT FINISH

Coating type:	Water based low sheen
System:	DuSpec NZSD089
Preparation:	PPL008
1st coat:	DULUX Wash & Wear 101 @ 16.1 sqm / litre
2nd coat:	DULUX Wash & Wear 101 @ 16.1 sqm / litre

4.5 INTERIOR PAPERFACED PLASTERBOARD - CEILINGS - PAINT FINISH

Coating type:	Water based flat
System:	DuSpec NZSD0075
Preparation:	PPL008
1st coat:	DULUX Professional UltraHide tintable ceiling paint @ 12.8 sqm / litre
2nd coat:	DULUX Professional UltraHide tintable ceiling paint @ 12.8 sqm / litre

4.6 INTERIOR TIMBER -TRIM, DOORS, FRAMES & SASHES

Coating type:	Water based enamel semi gloss
System:	DuSpec NZSD0300
Preparation:	PTI003
1st coat:	DULUX Aquanamel @ 16.1 sqm / litre
2nd coat:	DULUX Aquanamel @ 16.1 sqm / litre

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APPENDIX 1: Bracing Schedule & Elephant Board Manual

Bracing Schedule & Manual:
Please find attached Bracing Schedule & Elephant Board Manual as appendix 1 to this specification

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ELEPHANT PLASTERBOARD QUICKBRACE© SYSTEMS 2012

- NZS3604:2011 Compliant
- Revised Performances
- Simplified Bracing Systems
- New Numbering System

Elephant
Plasterboard
STRENGTH WITH STYLE

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Elephant Plasterboard QuickBrace© Systems 2012 Key Changes

This document replaces and supersedes all previous Elephant Plasterboard Bracing Publications.

Key Changes

- NZS3604:2011 compliant
- Re-evaluated performances in accordance with BRANZ P21 (2010) Test Method
- Simplifield bracing systems
- New numbering system

Compliance to NZS3604:2011

The Elephant Plasterboard Quickbrace Systems and software are now fully compliant to NZS3604:2011.

- NZS 3604:2011 compliant to meet the new wind and earthquake demands

Revised Performance

A new re-evaluated table of results is enclosed that reflect the changes in the methodology behind the BRANZ P21 (2010) Test Method. These make the performance tables available for use when designing to NZS3604:2011.

- Responsible, conservative and reliable bracing units ratings

Simplified Bracing Systems

We have reviewed and condensed the number of systems available to designers including amalgamating the 10 and 13mm systems.

- Total systems reduced to eight

New Numbering System

In order to clearly differentiate between the earlier systems and the new NZS3604:2011 compliant systems, we have produced a new numbering system:

- Simpler and easier to learn and understand for the designer, engineer, building official and installer
- Reduce likelihood of mixing previous version with newer ones

Elephant Plasterboard
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Elephant Plasterboard QuickBrace© Bracing Calculator

The Calculator provide a number of special features that will assist the designers and engineers to comply to the new rules of NZS3604:2011.

The new re-evaluated Elephant Plasterboard bracing performance tables are incorporated making the software fully NZS3604:2011 compliant.

We strongly recommend the use of the Jan 2012 Quickbrace© Microsoft Excel calculator. (Please discontinue use of any earlier versions).

The NZS 3604:2011 compliant tool can be downloaded from our web site **http://www.elephantplasterboard.co.nz** or you can request a copy by phoning **0800 ELEPHANT (353 742)**. Training is available on request.

Appraisal

The bracing ratings published in this document have been obtained by independent testing and opinions sourced from organisations with accredited quality assurances, then re-evaluated to comply with NZS3604:2011 and BRANZ P21 (2010) Test Method.

An independent appraisal of the new performance table will be made available in mid February.

New Elephant Plasterboard Quickbrace© Systems 2012 Bracing Manual

A comprehensive and detailed technical manual will be made available sometime after February 2012.

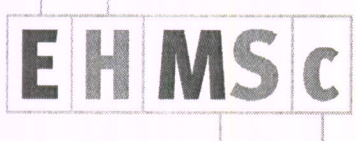
Key Benefits

- Large head bracing fasteners not required
- All systems start at 400mm wide
- Condensed number of Bracing Systems
- Simpler and easier Numbering System

Elephant
Plasterboard
STRENGTH WITH STYLE

Document Set ID: 3528964
Version: 2, Version Date: 30/07/2013

QuickBrace© Numbering System



Elephant Plasterboard Systems

H = Denotes that the system requires Panel Hold Downs.

N = Denotes No Panel Hold Downs in the system.

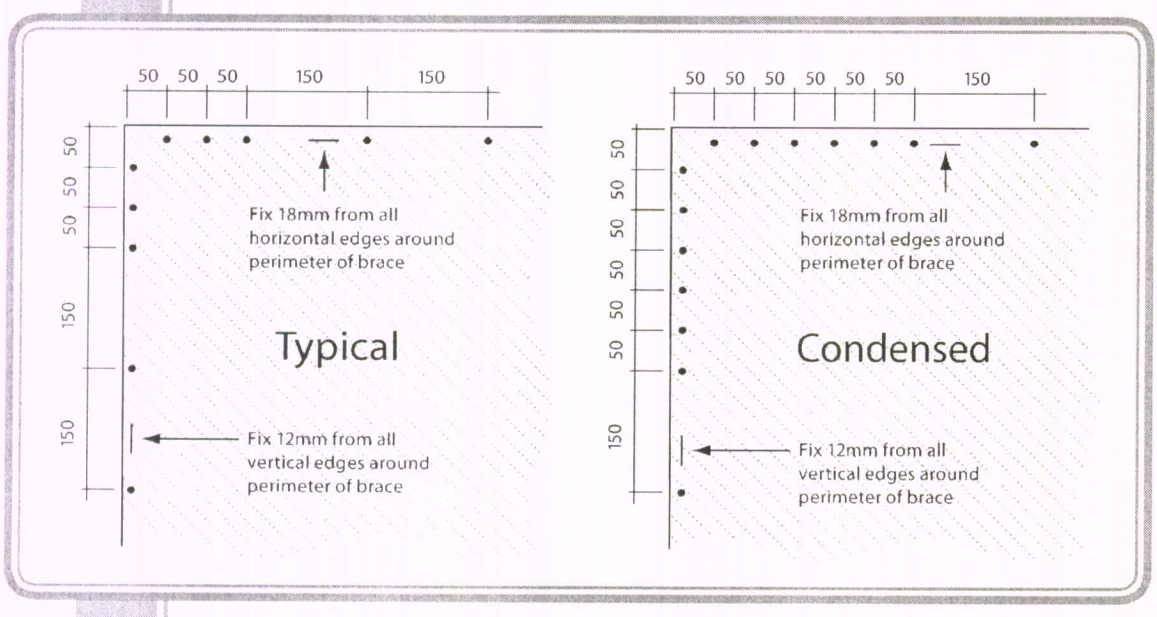
Identifies the type of board and if the system is single or double sided. For example:
M = Multiboard one side;

MS = Multiboard one side, Standard Plasterboard on the other

c = Denotes that the system requires the Condensed Braced Corner Fixing Pattern.

No "c" = Typical Corner Pattern.

QuickBrace© Pattern Types



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QuickBrace© Performance Table

System Number	Wall Type	Length (m)	BU/m		Panel Hold-down	Corner Pattern
			W	EQ		
ENS	Elephant Standard-Plus one side	0.4	65	65	No	Typical
		0.8	70	65		
		1.8	85	70		
ENSS	Elephant Standard-Plus both sides	0.4	75	65		
		0.8	80	70		
		2.4	100	75		
EHSc	Elephant Standard-Plus one side	0.4	85	80	Yes	Condensed
		0.8	105	90		
		1.8	120	90		
EHSSc	Elephant Standard-Plus both sides	0.4	100	115		
		0.8	145	135		
		1.2	150	145		
EHSPc	Elephant Standard-Plus one side Plywood on the other	0.4	105	120		
		0.6	130	140		
		0.8	150	150		
EHMc	Elephant Multiboard one side	0.4	90	105	Yes	Condensed
		0.8	130	120		
		1.2	150	125		
EHMSc	Elephant Multiboard one sides and Standard-Plus on the other	0.4	105	115		
		0.8	150	140		
		1.2	150	150		
EHMPc	Elephant Multiboard one side Plywood on the other	0.4	115	125		
		0.6	135	140		
		0.8	150	150		

NB: The Elephant QuickBrace© Numbering System and the sub components thereof are protected by copyright.

MS Excel Bracing Calculator

A Microsoft Excel spreadsheet calculator can be downloaded to utilise the above performance table.

For more information visit **http://www.elephantplasterboard.co.nz/**

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Elephant installation manual

Elephant
Plasterboard
STRENGTH WITH STYLE

www.elephantplasterboard.co.nz

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Elephant Plasterboard Installation Guide Publications

These publications are continuously being updated and superseded. It is important to check to ensure you have the latest publication Call Free Helpline 0800 ELEPHANT (353742).

Elephant Plasterboard Installation Guide

Liability for Systems that are not designed and installed in accordance with this publication will not be accepted by Elephant Plasterboard (NZ) Limited.

Substitution

If Elephant Plasterboard have been selected at design stage, it is important to note that these systems may not be substitutable by other plasterboard systems. All components, framing design, fixing layout and fasteners details must be strictly adhered to in order to ensure the performance of the systems originally specified.

Copyright

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Guarantee

Elephant Plasterboard wall and ceiling linings are supported by Elephant Plasterboard's Quality Guarantee.

Elephant Plasterboard supplies products which are warranted to be free from defects. Any products found to be defective before or after installation will be replaced and/or repaired, provided installation has been in accordance with Elephant Plasterboard's technical literature.

Trademarks

Elephant Plasterboard, Elephant Gypsum Board, Elephant Board, Elephant Standard Plasterboard, Elephant Superboard, Elephant Multiboard, Elephant Fireboard, Elephant Braceboard, Elephant Aquaboard, Elephant Smartboard, Elephant Standard Plus, Elephant Noiseboard, Ele Board and Elephant Impactboard are trademarks of Elephant Plasterboard (NZ) Limited.

For assistance call our Free Helpline:
Ph 0800 ELEPHANT (353-742).

Or email info@elephantpb.co.nz
or visit www.elephantplasterboard.co.nz

Elephant Plasterboard (NZ) Limited
P.O. Box 21-436, Waitakere 0650
New Zealand

Telephone (09) 818-7706
Facsimile (09) 818-7702
Technical Support Fax (09) 818-7767

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Introduction

This publication contains within it the recommended methods for fixing 10mm and 13mm Elephant Standard Plus (referred to as Standard) Plasterboard. Elephant Plasterboard systems designed for fire rating, bracing, wet area, and acoustical control may not be fully covered by this publication.

It is important that reference is made to separate publications for fire, wet area, sound control and bracing systems in regard to fixing and jointing recommendations.

Product Description

Elephant Plasterboard is a strong, dense sheet lining for walls and ceilings and has been specifically manufactured and tested for New Zealand and Australian conditions. It complies with AS/NZS 2588. It can be easily installed by the tradesman or home handyman.

The dense pure gypsum core is encased in a high quality face paper and backing paper, produced using a continuous production procedure. This remarkable material is renowned for its stability, acoustic control, bracing and fire resistance.

Along the longitudinal edges sheets are tapered edged so as to allow reinforcing tapes and plaster in the joints. This is designed to produce a stable crack resistant surface. Square, tapered sheets are also available for horizontal applications.

Delivery, Handling & Storage

- Where possible Elephant Plasterboard should be delivered to site immediately before installation as this greatly reduces the possibility of damage.
- Sheets should be neatly stacked to avoid sheet distortion, damage or moisture ingress. This can be achieved by stacking on a clean flat surface that is not susceptible to moisture. Use a moisture barrier (eg polythene sheet) when standing sheets on concrete floors.
- Alternatively sheets can be stacked on supports parallel to the ends of the linings and extending full width of the sheet at no more than 600mm centres.
- Care should be taken to prevent undue sagging or damage to edges, ends or surfaces during storage and handling.
- All materials should be kept dry, preferably by being indoors and under cover (especially when storage is likely to be for a lengthy period). While stored plasterboard should be protected from moisture and direct sunlight.
- Elephant Plasterboard should not be used where it will be exposed to excessive moisture.
- The front face of the sheets should be kept face down to prevent footprints and other marks or damage to the face.
- Cracked or damaged sheets must not be used.
- Floor Loadings should be considered as the Elephant Plasterboard can weigh in the range of 700–900 kg/m^3.
- When floor space is limited, sheets may be leaned against a wall 150–180mm from the bottom plate. Maximum number of sheets when stacked against a wall;
  10mm or 13mm – 18
  16mm – 12.

References can also be made to the publication "The Application and Finishing of Gypsum Linings" AS/NZS 2589:2007

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Pre-Inspection of the Site Framework

- Check that the framing is plumb, level and square and has been erected according to the relevant building specification. The framing must have a minimum flat face width of 35mm for timber and 32mm for steel.
- Plumbing and electrical services should be installed before the plasterboard is fixed and all service ducting, pipes, outlets and switch boxes should be set back from the framing and not protrude beyond the face of the framing.
- Make sure all contact surfaces of the framing are dry and free from dirt, grease, oil or any other foreign material.
- Where level 3, 4 or 5 finishes are specified (see heading **Levels of Finish** on page 6) the deviation in the position of the bearing surface of the framing from a 1.8m straight edge shall not exceed 2mm when measured over a 1.8m span at any point along individual members or across adjacent members.

Note – The fixing of Elephant Plasterboard is deemed to be an acceptance of the substrate, so it is important to make sure that the above requirements are adhered to.

Framing Spacings

The spacing of framing support for Elephant Plasterboard linings shall not be greater than 600mm centres for all thicknesses of Elephant Plasterboard.

The requirements for wall and ceiling framing spacings are detailed below.

Location	Framing Centres	Thickness and Type
Wall	600mm	10mm Standard or greater
Ceiling	600mm*	10mm Standard or greater

**It is recommended that Framing centres be kept at 450mm in Bathrooms or other areas that may be subject to moisture and steam when using 10mm Standard or 10mm Aquaboard.*

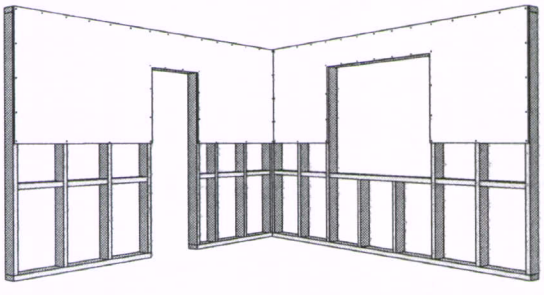
On ceilings we recommend the use of steel battens, as timber battens can be subject to expansion and contraction.

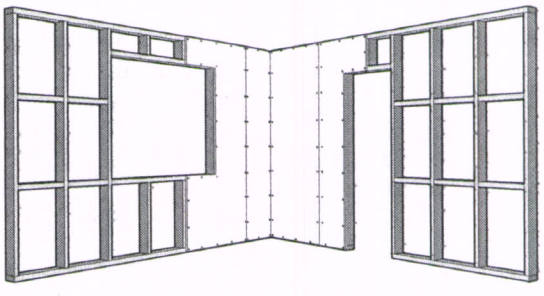
Note – The dimensions of timber framing to which Elephant Plasterboard is fixed shall not be less than those required by AS 1684/NZ3604: 1999 or AS 1720.1.

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Planning and Measuring

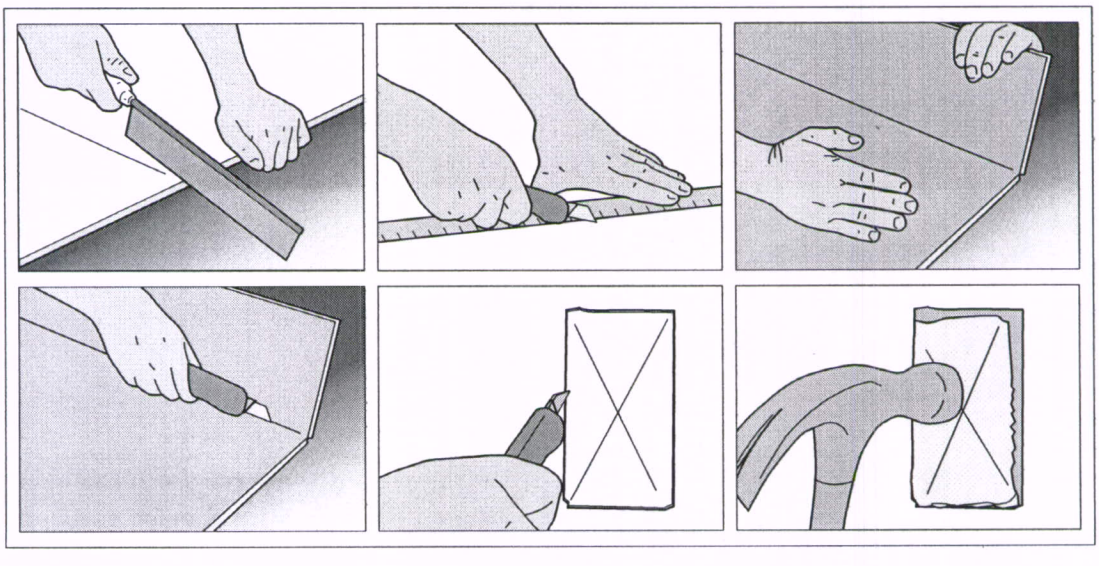
- Good planning of sheet layout is important. This will reduce wastage and keep the number of joints to a minimum, saving time and extra costs.
- On ceilings the use of maximum sheet sizes minimises the occurrence of end butt joints. Where end butt joints occur they must be formed preferably between framing members where joints can be neatly finished using the "back-blocking" method (see pages 18,19).
- Sheets may be fixed either vertically or horizontally and should ideally run right through and over doors and windows. The window and door openings are then able to be cut out when sheets are in place.
- Joints should not occur within 200mm of door or window frame corners or on jamb studs as this is a point of stress.





Cutting Elephant Plasterboard

- Elephant Plasterboard is easily cut by scoring or sawing with all work done on the face of the board.
- When scoring use a sharp drywall knife and straight edge. When cut the board may be snapped away from the cut face and the back paper can then be cut.
- Cut-outs for switch boxes and other penetrations should be scored on both surfaces before trying to remove waste board. Care should be taken to avoid damaging the core during this procedure.



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Curving Elephant Plasterboard

Elephant Plasterboard can be formed to provide curved surfaces to fit various interior wall and ceiling designs.

- Sheets are to be applied horizontally to walls.
- If sheets are required to be wet then the face that is to be compressed should have water applied with a roller prior to application.
- Allow wet boards to set for 1 hour prior to application.
- Allow 1 litre of water for every 3 sqm of board.
- As the sheets dry the board should retain its original hardness along with its new curve.
- To avoid flat areas between framing, studs may need to be spaced closer than normal.
- Penetrations are not recommended for curved surfaces.
- Adhesive must not be used for fixing damp sheets.

Minimum Bending Radius of Elephant Plasterboard

Board Thickness mm	Minimum Radius – Wet	Minimum Radius – Dry
10mm Standard	1050mm	1400mm
13mm Standard	1200mm	1700mm

Minimum Vertical Stud Spacings – Radius of Curve (mm)

Over 1000–1500	Over 1500–3000	Over 3000
200	300	400

Timber Frame Moisture Content

When Elephant Plasterboard is fixed to timber containing excessive moisture, problems may occur which can affect the finished appearance of the wall or ceiling. These can occur in the form of –

- The appearance of mould as the moisture migrates through the plasterboard.
- Nails or screws popping from timber shrinkage.
- Joints cracking when frame expands.
- Joints peaking when the frame shrinks as it dries.

To achieve a level 3, 4 or 5 finish, timber with a moisture content of between 12–18% at the time of lining is required as a substrate for the direct fixing of Elephant Plasterboard. Overly dry timber at time of lining (especially in Summer months) can result in cracking of joints because when moisture is reabsorbed in wetter seasons timber framing begins to expand.

Consider back blocking on the tapered joints of horizontal fixed sheets, especially on wall heights over 2.7 metres.

- Install Plasterboard when the timber moisture content is within 2% of the final expected ambient moisture content.
- It is recommended to use metal ceiling battens. If timber battens are unavoidable, then the moisture content of the timber battens should not exceed 16% at the time of lining.

For more information see BRANZ Information Bulletin No. 301 Avoiding Peaking and Popping with Gypsum Plasterboard. Nov. 1992. Plasterboard Expectations.

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Levels of Finish

Different applications for Elephant Plasterboard may require different specifications according to where it is to be used and the level of finish required.

The following gives details of how to choose a level of finish for Elephant Plasterboard installations depending upon the final decoration of the room.

Level 3

For use in areas which are to receive heavy or medium texture (spray or hand applied) finishes before final painting, or where heavy grade wall coverings are to be applied as the final decoration. This level of finish is not generally suitable where smooth painted surfaces or light to medium weight wall coverings are specified.

- **Description**
  Typically all joints and interior angles would have tape embedded in joint compound and one separate coat of joint compound applied over all joints and fastener heads. All joint compound should be finished smooth. (Generally this is achieved by scraping off nibs and ridges and the like with the edge of a trowel.)

Level 4

For use where light textures or wall coverings are to be applied. It is also for non-critical lighting areas where flat and low sheen paints are to be applied.

In critical lighting areas, flat paints applied over light textures tend to reduce joint photographing. Gloss and semi-gloss paints are not generally suitable over this level of finish.

The weight, texture and sheen level of wall coverings applied over this level of finish should be carefully evaluated. Joints and fasteners must be adequately concealed if the wall covering material is lightweight, contains limited pattern, has a gloss finish, or has any combination of these features.

- **Description**
  Typically all joints and interior angles would have tape embedded in joint compound and a minimum of two separate coats of joint compound applied over all joints, angles, fastener heads and accessories. All joint compound should be finished smooth and free of tool marks and ridges.

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Levels of Finish

Level 5

This level of finish is for use where gloss or semi-gloss paints are specified or where critical lighting conditions occur.

- **Description**
  Typically all joints and interior angles would have tape embedded in joint compound and a minimum of two separate coats of joint compound applied over all joints, angles, fastener heads and accessories. All joint compound should be finished smooth and free of tool marks and ridges. This should be followed by proprietary surface preparations or (in some areas) skim coating to remove differential surface textures and porosity. Local advice should be sought prior to finish for gloss paints or in areas of critical lighting.

For further details on the factors affecting levels of finish, reference should be made to the following:

"Plasterboard Expectations"
Published by Gypsum Lining Council of Australia and New Zealand available through the Federation of Wall and Ceiling Industries of Australia and New Zealand.

Illumination and Decoration of Flat Surfaces
CSIRO Division of Building Research as Report No. L8, 1960.

Australia/New Zealand Standard
Gypsum Lining – Application and Finishing AS/NZS 2589:2007.

Skim Coating

Skim coating is a term denoting a thin finish coat, trowelled or airless sprayed to achieve a smooth finish. It is a thin coat of joint compound over the entire surface to fill imperfections in the joint work, smooth the paper texture and provide a uniform surface for decorating. Skim coatings would not normally exceed 1mm in finished thickness.

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Building Code Compliance

Elephant Plasterboard Drywall Systems

Elephant Plasterboard is manufactured to the International Standard ISO 9001, and has been specifically designed to meet New Zealand and Australian Standards and Building Code requirements. Elephant Plasterboard has been marketed internationally since 1975 and the product has established an excellent history of performance for its use in buildings throughout New Zealand and Australia.

Elephant Plasterboard meets the durability requirements of the NZBC and BCA and is subject to use, installation and maintenance in accordance with the Manufacturer's instructions.

Conditions of use

Elephant Plasterboard systems are intended for normal conditions of dry internal use. All performance testing of Elephant Plasterboard Systems has been carried out using dry ex-factory product.

Elephant Plasterboard Drywall systems must not be exposed to liquid water or be installed in situations where extended exposures to humidities above 95% Relative Humidity are to be expected. A suitable surface finish must be applied to Elephant Plasterboard in all areas where liquid water or high humidity can be expected. Vinyl wallpaper and gloss and semi-gloss alkyd paints are suitable systems. Bathrooms, kitchens and laundries for example should have adequate ventilation or heating to avoid condensation buildup.

Maintenance of Elephant Plasterboard Drywall Systems

The long term durability of an Elephant Plasterboard system is conditional upon the systems being kept dry in service, compliance with the New Zealand Building Code clauses E2 External Moisture and E3 Internal Moisture. This compliance ensures dry internal conditions and alleviates the circumstances which may lead to timber movement, corrosion of metal components, moisture uptake by the gypsum core and fungal growth.

Elephant Plasterboard is a finishing material and must be fully protected during construction from direct sunlight, moisture and direct impact.

NZBC Clause C1 Outbreak of Fire provides for a performance under C1.3.2 that a fixed appliance shall not raise the temperature of an element to a level that would adversely affect its physical properties. The maximum service temperature for Elephant Plasterboard is 45ºC; above which the gypsum core undergoes chemical conversion.

The paper face of the Elephant Plasterboard should be kept intact and care exercised during wet stripping of wallpaper, afterwards the surface made good wherever necessary prior to redecoration. The making good of the paper face is important because plasterboard is a composite laminate and the gypsum core and paper face each contribute to the lining's performance.

The making good would include using paper jointing tape and jointing compounds over scratches or cuts in the paper face.

Any surface damage to the paper face or corners caused by normal 'wear and tear', should be made good as soon as practicable otherwise ongoing wear and tear if it remains unchecked, may lead to the integrity of the board being compromised. If cracks occur at the joints or nail pops occur in the surface of the board, the reason for the problem should be investigated and rectified. The cracks and nail pops should be made good as soon as practicable thereafter.

Control joints should be provided to relieve stresses imposed by movement due to moisture, temperature or structural changes. Details of joint design should be obtained from the designer where control joints have been specified to be carried through Elephant Plasterboard linings.

If cracks occur at junctions of elements or at joints in various systems they must be made good immediately.

The penetration of fire and sound control systems by unprotected services is detrimental to their performance and must be avoided.

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Building Code Compliance

Accidental Damage

1. **Fire**
   After an outbreak of fire the paper face, core and joints must be checked and where the paper face or the core of any sheet has been affected then the whole sheet must be removed and replaced.

2. **Bracing**
   After a severe earthquake and extreme wind conditions, the Bracing elements must be checked for cracks at joints, deformation of sheet or joints and damage to the fixing/sheet sealing.

   Where the damage is minor, for example, limited nail pops or joint cracks, the item should be made good as soon as practicable.

   Where the damage is severe, for example, board distortions and fixing failure, then the whole sheet must be renailed or replaced and advice sought from a consultant engineer.

3. **Flooding**
   After a flood or when severe moisture ingress has occurred, all Elephant Plasterboard Systems should be inspected by a suitably qualified person. Certain components of the system may need to be replaced and in this instance we recommend that advice is sought from the manufacturer's agent.

4. **Direct Impact**
   If the integrity of the Elephant Plasterboard Drywall System is affected then the area up to the nearest stud or nog must be cut out and made good with new Elephant Plasterboard, including jointing.

Related Documents

New Zealand Building Code Approved Documents:

Clause B1	Structure
Clause B2	Durability
Clause C1	Outbreak of Fire
Clause E2	External Moisture
Clause E3	Internal Moisture

Elephant Plasterboard Drywall as a General Lining

The NZBC durability requirement under Clause B2.3 c) and d) for general linings is between 5 or 15 years depending on the ease of access and replacement.

Elephant Plasterboard systems, used as a general lining, including adhesive fixing when using an adhesive recommended by the manufacturer for this application, satisfy the 15 year durability requirements of the NZBC.

Elephant Plasterboard systems fixed mechanically using only screws or nails achieve a 50 year durability performance.

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Fixing Methods

General

- Elephant Plasterboard must be fixed leaving a gap of approximately 10mm at the floor level to allow for movement of framing members.
- All nails and screws should be driven in to the plasterboard at right angles and to a depth so that heads are seated in a slight recess.
- A lightweight hammer (16oz or less) or a drywall hammer must be used to avoid breaking the paper face surface of plasterboard by overdriving the fixings.
- Daubs of wallboard adhesive should be about 30mm in diameter.
- Never place the mechanical fixings through wallboard adhesive.
- Always keep the mechanical fixings 12mm from the sheet edge.
- For bracing elements fixing refer pages 24–30.

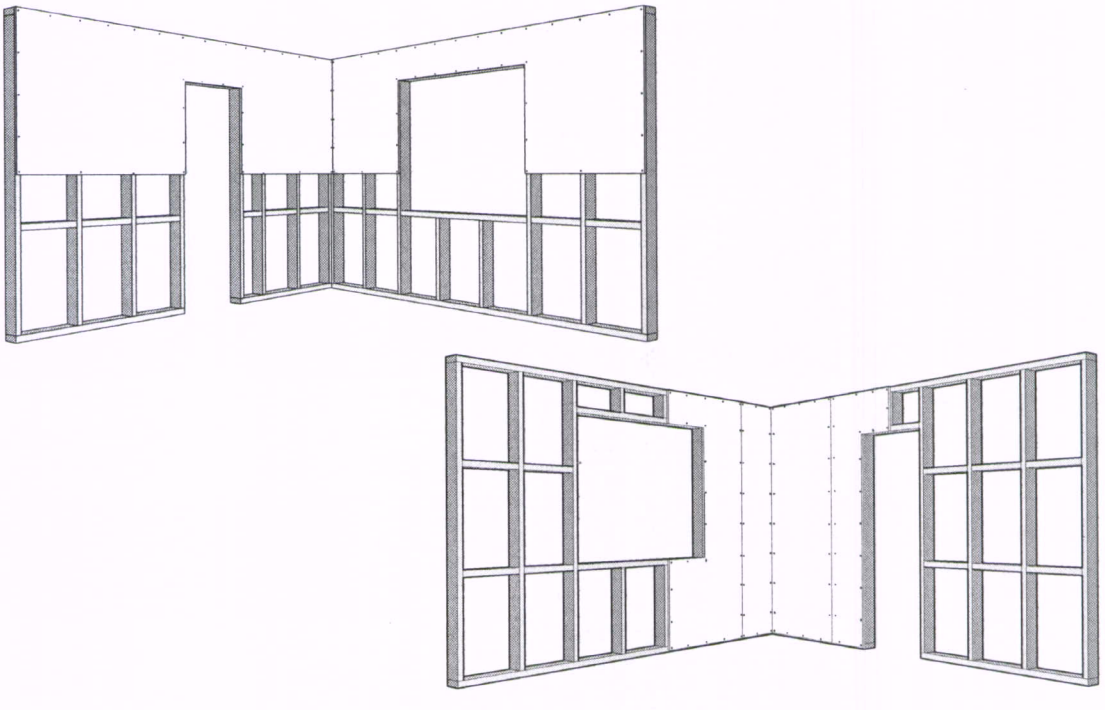
Walls

There are two approved methods for fixing plasterboard to framing members –

- **Horizontal Fixing** – Board fixed at right angles to the studs.
- **Vertical Fixing** – Board fixed parallel to the studs.

By fixing sheets using the horizontal method the number of joints is considerably reduced giving a generally higher quality wall finish. Plasterboard also has greater strength along its length so will offer more support between spans when fixed this way. Where the face of the framing member is reduced, horizontal fixing is also preferred as it is more difficult to fix two sheets on the smaller surface.

- When fixing over doors and windows it is recommended that joins do not occur on load bearing door and window studs. Sheets should be fixed horizontally and waste plasterboard cut out after it has been fixed.
- Joints should not occur within 200mm of door or window frame corners or on jamb studs as this is a point of stress.



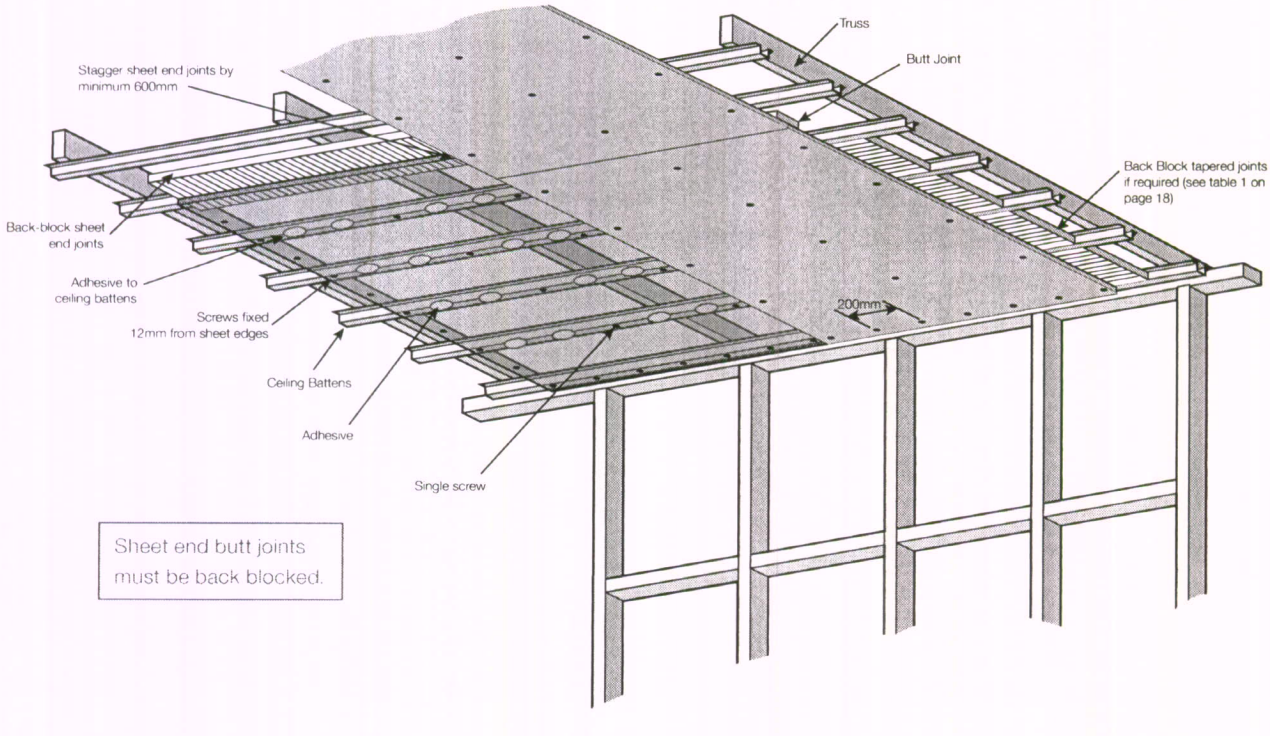
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Fixing to Ceilings

Adhesive/Screw

- Fix ceiling sheets across battens or joists.
- Steel battens are recommended
- Refer to table on page 3 for suitable board thickness and framing centres.
- Apply adhesive to battens or joists at 200mm centres between centre and edge of sheet.
- Start fixing from the centre of each sheet outwards.
- Position the sheet hard up to the framing, single screw at the centre line and the edges across each batten.
- Nailing is not recommended.
- Single screws to be minimum 12mm from sheet edge.
- Press the plasterboard where adhesive has been applied to ensure full contact.
- Sheet end joints must not be made on framing and must be back blocked.
- Back blocking of sheet ends and recessed joints is essential for a high quality finish. (See table on page 18.) Fix the edges of the sheet at the wall junction at 200mm centres.
- Adhesive must not be applied to the sheet edges or under screws. This may contribute to screw popping.
- All joints between sheets should be touch fitted.
- Use long length sheets to minimise sheet end butt joints.
- The use of a drywall lifter will greatly assist the builder in achieving optimum results.

Fasteners	
Steel Battens	25mm x 6 gauge self tapping drywall screws
Timber	32mm x 6 gauge coarse thread drywall screws



Sheet end butt joints must be back blocked.

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Fixing to Walls – Timber Frame

Horizontal Method

Wall Framing

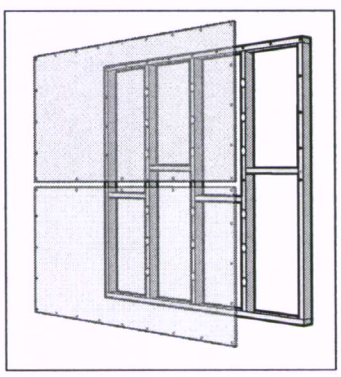
Dimensions for framing must comply with NZS3604:1999 requirements.

- Timber Framing moisture content should be between 12–18% when lining is installed.
- Studs must be spaced at 600mm centres maximum when using either 10mm or 13mm Elephant Plasterboard.
- For wall heights up to 2700mm use either
  (a) 2 rows of nogs spaced evenly or
  (b) 1 row of nogs staggered to a max 150mm from either side of centre line.
- Where the stud height is between 2400–2700mm, Elephant Plasterboard has 1350mm wide sheets to install horizontally.
- An additional row of nogs is required for wall heights up to 3600mm.
- Sheet end joints made on framing should be staggered 600mm by fixing to different studs.
- Adhesive must not be applied to the sheet edges or under nails or screws. This may lead to nail or screw popping.
- All joints between sheets should be touch fitted.

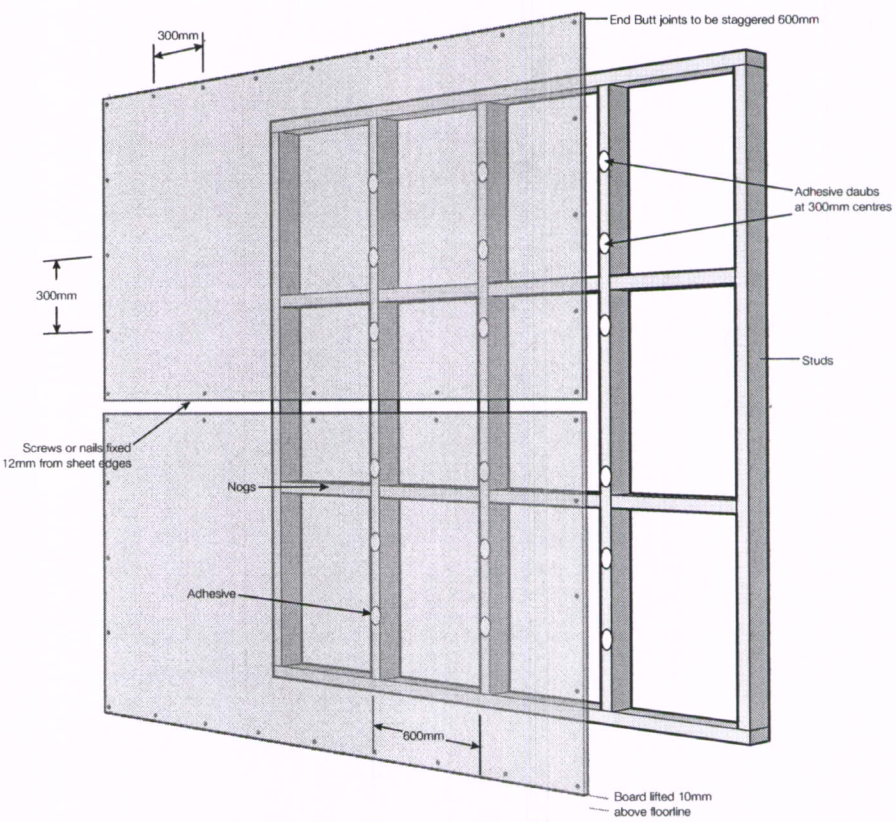
Fastening the Linings

- Leave a 6–10mm gap at the floor level to allow for movement in timber framing.
- Apply adhesive to intermediate studs at maximum 300mm centres.
- Fix the top sheet first.
- Screws or clouts should be fixed no less than 12mm from the sheet edge.
- Nail or screw single fastenings at 300mm centres to top and bottom plates and sheet ends. Screw or nail single fastenings through the centre of the wall at the point where the horizontal joint crosses the stud.
- Nail or screw with single fasteners all wall openings at 300mm centres.
- Firmly press the plasterboard where adhesive has been applied to ensure full contact.

Fasteners	10mm	13mm
Coarse Thread Drywall Screws	25mm x 6 gauge	32mm x 6 gauge
Drywall Clouts	30mm x 2.8mm	30mm x 2.8mm



Alternate framing method when fixing horizontally.



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Fixing to Walls – Timber Frame

Vertical Method

Wall Framing

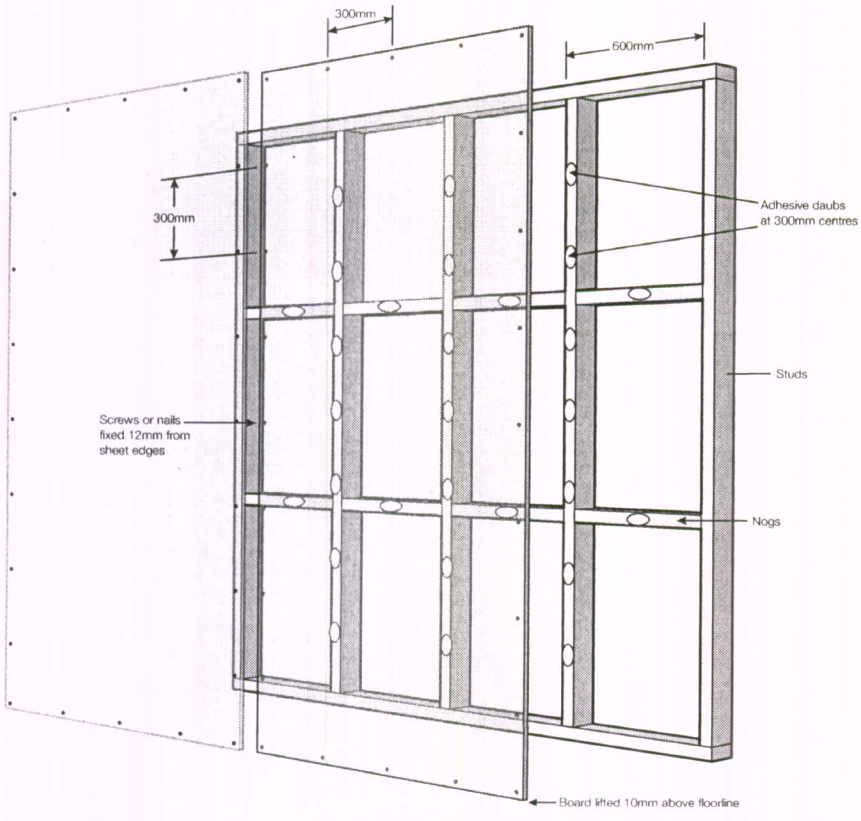
Dimensions for framing must comply with NZS3604:1999 requirements.

- Timber Framing moisture content should be between 12-18% when lining is installed.
- Studs must be spaced at 600mm centres maximum when using either 10mm or 13mm Elephant Plasterboard.
- For wall heights at 2400mm high, nogs need to be set at 800mm centres.
- For wall heights at 2700mm high, nogs need to be set at 900mm centres.

Fasteners	10mm	13mm
Coarse Thread Drywall Screws	25mm x 6 gauge	32mm x 6 gauge
Drywall Clouts	30mm x 2.8mm	30mm x 2.8mm

Fastening the Linings

- Leave a 6–10mm gap at the floor level to allow for movement in timber framing.
- Apply adhesive at maximum 300mm centres to intermediate studs and to the centre of each nog.
- Firmly press the plasterboard where adhesive has been applied to ensure full contact.
- Fasteners should be at 300mm centres around the sheet perimeter.
- Screws or clouts should be fixed no less than 12mm from the sheet edge.
- Adhesive must not be applied to the sheet edges or under nails or screws. This may lead to nail or screw popping.
- All joints between sheets should be touch fitted.



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Fixing to Walls – Steel Framing

Horizontal Method

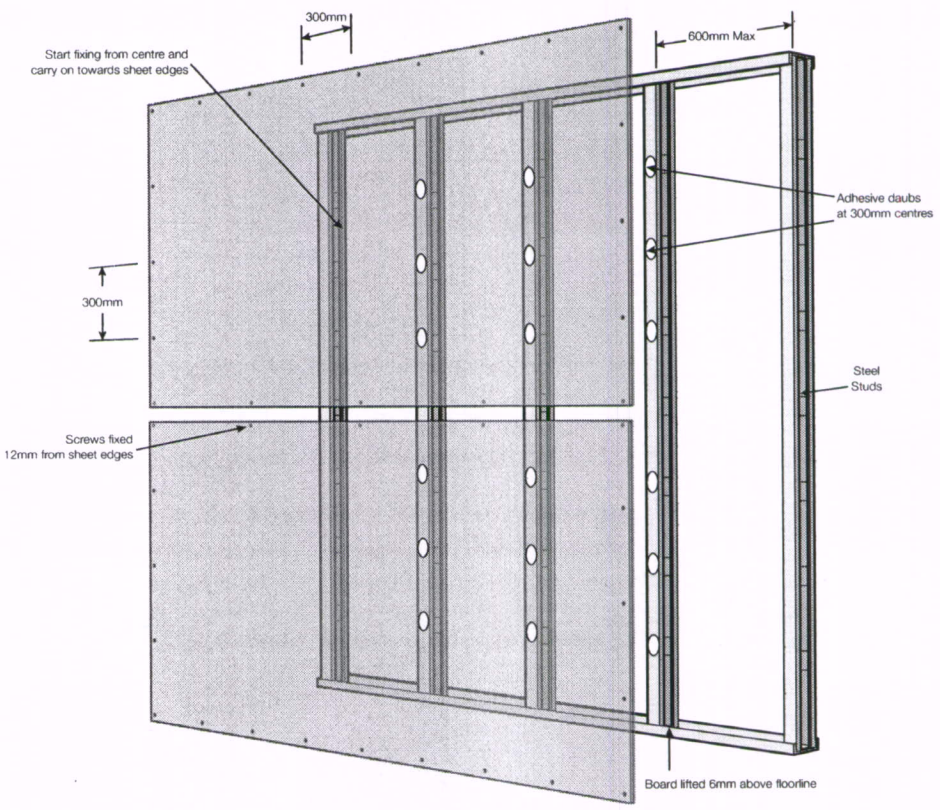
Wall Framing

- Steel stud dimensions should be 63 x 34 x 0.55mm minimum with a 6mm return.
- Steel channel dimensions should be 63 x 30 x 0.55mm minimum.
- Stud spacing should be at 600mm centres maximum.
- Studs need to be placed with the open side facing in the same direction.
- The correct order for attaching the board is crucial, as the face of the steel stud can deflect initially. The first board will deflect slightly when attached to the open side of the stud, but when the screw is fully tightened it will pull back tight against the board. There will be minimal deflection when the second sheet is attached, as the open flange is now supported by the first one. Support the stud to avoid twisting.

Fasteners	
Self-Tapping Drywall Screws	25mm x 6 gauge

Fastening the Linings

- Leave a 6–10mm gap at the floor level. Sheets can be fixed hard to the floor if friction fitted steel studs used.
- Apply adhesive or screws to intermediate studs at maximum 300mm centres.
- Screws should be fixed no less than 12mm from the sheet edge.
- Screw single fastenings at 300mm centres to top and bottom channels and at end studs.
- Single screw to each stud where the horizontal joint crosses the studs.
- Joints made on framing should be staggered 600mm by fixing to different studs.
- Adhesive must not be applied to sheet edges or under screws. This may lead to screws popping.
- All joints between sheets should be touch fitted.
- For stud heights greater than 2.4m we recommend 13mm Plasterboard or greater.



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Fixing to Walls – Steel Framing

Vertical Method

Wall Framing

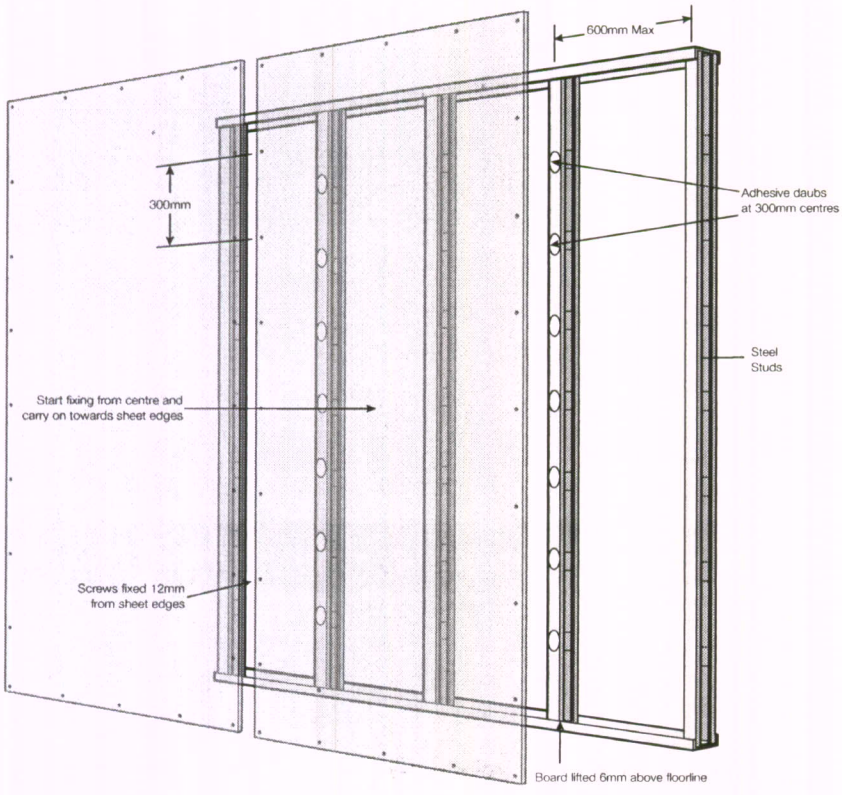
- Steel Stud dimensions should be 63 x 34 x 0.55mm minimum with a 6mm return.
- Steel channel dimensions should be 63 x 30 x 0.55mm minimum.
- Stud spacing should be at 600mm centres maximum.
- Studs need to be placed with the open side facing in the same direction.

The correct order for attaching the board is crucial, as the face of the steel stud can deflect initially. The first board will deflect slightly when attached to the open side of the stud, but when the screw is fully tightened it will pull back tight against the board. There will be minimal deflection when the second sheet is attached, as the open flange is now supported by the first one. Support the stud to avoid twisting.

Fasteners	
Self-Tapping Drywall Screws	25mm x 6 gauge

Fastening the Linings

- Leave a 6–10mm gap at the floor level. Sheets can be fixed hard to the floor if friction fitted steel studs used.
- Apply adhesive or screws at maximum 300mm centres to intermediate studs.
- Screws should be fixed at no less than 12mm from the sheet edge.
- Start fixing from the sheet centre and work out towards the edge.
- Adhesive must not be applied to the sheet edges or under screws. This may lead to screw popping.
- Joints should be staggered 600mm on opposite sides of the partition.
- All joints between sheets should be touch fitted.
- For stud heights greater than 2.4m we recommend 13mm Plasterboard or greater.



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Concrete and Masonry Walls

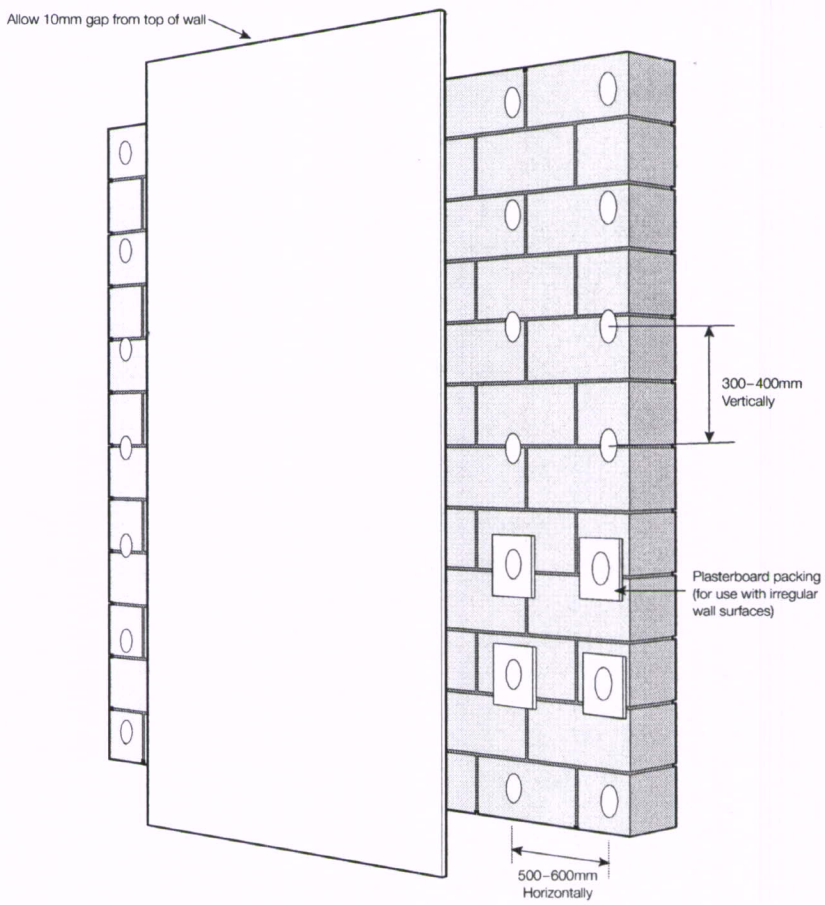
General

Before commencing application a true plane must be established. Where irregularities occur use either plasterboard strips as packing, or Timber/ Steel Furring channel.

- Apply adhesive 40mm from the sheet edges to avoid excess adhesive squeezing out through the joint.
- Ensure that sheets are applied within the setting time of the adhesive.
- All joints between sheets should be touch fitted.

Direct Bonding

- Masonry surface must be free of flaking paint, efflorescence, dust or any material that may impair the adhesive bonding.
- Apply daubs of adhesive at vertical and horizontal spacings of 300–400mm.
- Adhesive daubs should be approx 50mm in diameter and 10mm thick.
- Sheets should be firmly pressed into position ensuring full contact with adhesive. Hold sheets in position by shoring or other temporary fixing until adhesive has set.
- Cut Elephant Plasterboard sheets to allow a 10mm gap at the top.
- When adhesive has set remove shoring and carry out flush jointing.
- Control joints in walls must be carried through the plasterboard.

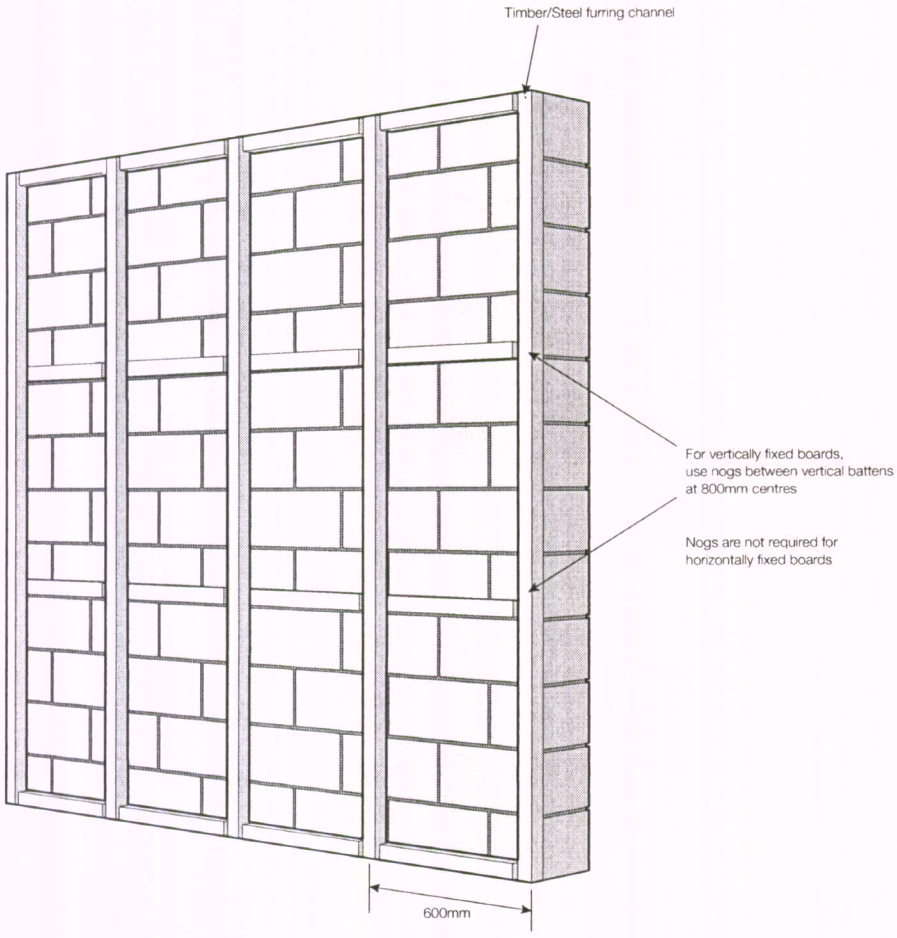


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Concrete and Masonry Walls

Fixing to Furring Channel

- Fix timber/steel furring channel vertically at 600mm centres with suitable fasteners and pack to achieve a true plane where necessary.
- Fix short lengths of timber/steel furring channel at top and bottom leaving a 10mm ventilation gap between ends and main furring.
- Fixing details are as described for fixing Elephant Plasterboard to timber or steel frames.



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Backblocking

General

Backblocking is a reinforcing system designed to minimise the deformation and cracking of joints which can occur from a combination of weather conditions and/or building stresses resulting from expansion, contraction or building movement.

Backblocking is generally used where butt or end jointing of sheets occur between framing members and to recessed joints where a high standard of finish is required.

- Do not use panel adhesives for backblocking as they have high flexibility characteristics.

Ceiling recessed edge joints

- Cut back blocks at least 200mm wide and long enough to fit loosely between the framing members.
- Apply plaster based setting type adhesive/ cement to back blocks over the full face of the back block. A notched spreader to give 6mm x 6mm beads at approximately 20mm centres at right angle to the joint would be satisfactory.
- Fix Elephant Plasterboard at right angles to framing members. Place back blocks centrally along the full length of the board end or edge.
- Immediately after the blocks are in place erect the next board.
- Ceilings back blocks may be cemented into position from above the ceiling after the boards have been fixed and before they are flush jointed.

Backblocking for Ceilings and Walls

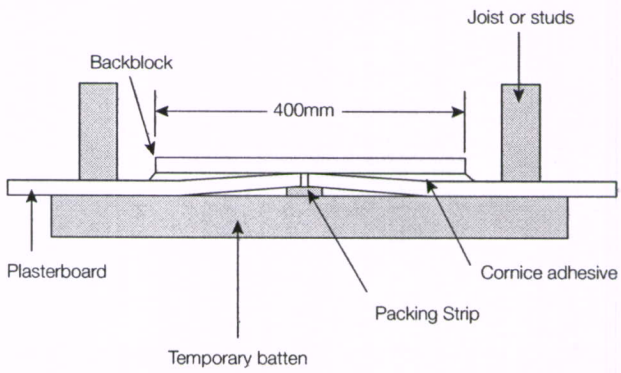


Table 1 **Requirements for Backblocking**

Level of Finish	Ceilings		Walls	
	Butt	Recessed	Butt	Recessed
5	Yes	Yes	Yes	No
4	Yes	Yes*	No	No
3	No	No	No	No

**Recessed joints on ceiling must be backblocked in any area containing 3 or more recessed joints.*

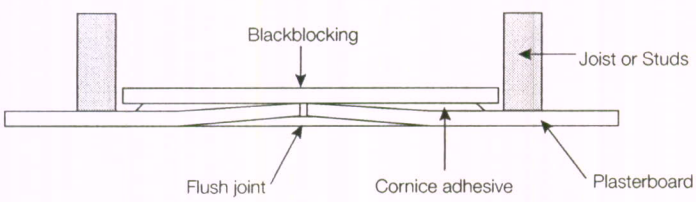
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Backblocking

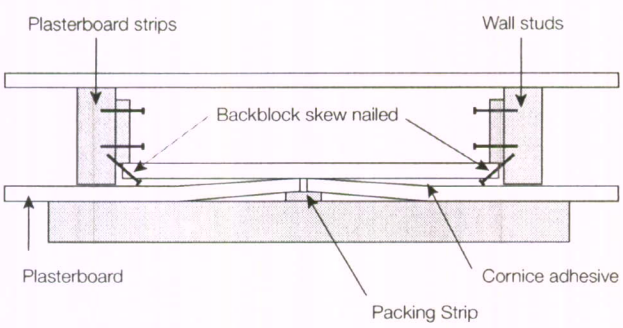
Ceiling Butt Joints

- Fix ceiling sheets with ends butted neatly together. The butt joint shall fall within 50mm of the mid-span point between framing members.
- Use battens and packers to support and deflect the sheet ends upwards about 2mm.
- Reinforce the butt joint by back-blocking with Elephant Plasterboard cut to fit loosely between the framing across the full width of the sheet and overlapping the edges of adjoining sheets by 50mm.
- Adhere back blocks with plaster-based setting type adhesive/cement applied over the full face of the backblock. A notched spreader to give 6 x 6mm beads at approximately 20mm centres at right angle to the joint would be satisfactory.
- Allow adhesive/cement to set for a minimum of 24 hours before removing temporary battens. When temporary battens are removed, a hollow formation suitable for jointing remains.
- Backblocking of sheet ends and recessed joints is essential for a high quality finish. Joints made on framing should be staggered 600mm by fixing to different battens or joists.

Butt joint after flush jointing



Backblocking walls where access is difficult



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Jointing and Finishing

Three Coat Application

First Coat

- Using a broad knife, evenly fill the joint recess formed by the tapered edges of the plasterboard with a suitable bedding compound.
- Centre the paper tape along the joint. Using a broad knife, press the tape down into the compound with enough pressure to ensure that there are no air bubbles sandwiched beneath the tape.
- Leave sufficient compound under the tape to achieve a good bond.
- Immediately apply a thin skim coat of compound to reduce the possibility of the tape edge curling or wrinkling which can lead to edge cracking.
- Cover all fastener heads with compound using a 100mm broad knife.

Note – Allow compounds to harden and dry before overcoating.

Second Coat

- When the first coat has hardened and dried apply a second coat of compound with a broad knife. This coat should be feathered approximately 50mm beyond the edges of the first coat.
- Cover all fastener heads with a second coat of compound overlapping the first coat by approximately 25mm.
- Allow to harden and dry.

Finishing Coat

- When the second coat has hardened and dried, scrape back any build-up of compound along the joint to give a smooth and level surface.
- Apply a coat of finishing compound with a trowel or broad knife. Joint edges should be feathered at least 50mm beyond the edges of the previous coat.
- Apply a finishing coat to all fastener heads and overlap the second coat by approximately 25mm.
- Allow to dry and harden, then sand lightly in the same direction as the joint using 220 grit sandpaper. Care must be taken not to scuff the face paper.

Butt Joints

Butt or end joints that have been backblocked should be flush stopped and finished as described for recessed edge plasterboard jointing procedures.

However, in order to give a flatter finish and minimise any apparent surface build-up of compound, each finishing coat is considerably widened so that the finished joint is approximately 500mm to 550mm wide.

- Wet sponging the edges of the finished joints after trowelling reduces sanding.
- All compounds should be applied in accordance with the compound manufacturer's instructions.
- For best results allow 24 hours between coats.

Note: When jointing during dry conditions, it is not recommended to use a chemical set compound with a long setting time as most of the moisture in the plaster may be evaporated before the actual setting time. This can result in weak joints and cause cracking.

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External and Internal Corners

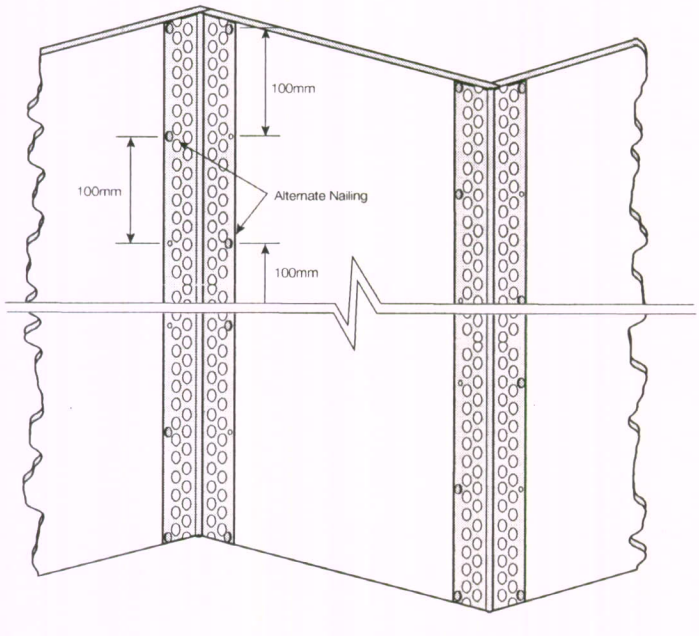
All external corners should be reinforced with Angle/Corner beads.

External Corners

- Angle/corner beads must be fixed plumb and straight. Fasten temporarily at each end, ensuring the angle is straight and fasten working down from the top.
- Fix the angle bead/corner on both sides top and bottom, then fasten working down from the top nailing at 100mm centres on alternative sides. (Alternatively, tape trims may be used which eliminate the need for fasteners as they are able to be fixed using jointing compounds.)
- To finish, apply the first coat of bedding compound to both sides of the angle bead using a 200mm trowel. Allow to harden and dry, then lightly scrape back.
- Apply a second coat using a 280mm trowel. Allow to harden and dry, then lightly sand back.
- Apply the final coat of finishing compound, allow to harden and dry, then lightly sand back.

Internal Corners

- Apply bedding compound to both sides of the corner to be filled using a 50mm chamfered broad knife.
- Fold the paper tape along its centre line and bed into the compound using a 50mm corner tool. Allow to harden and dry.
- Apply finishing compound ensuring edges are feathered using a 100mm corner tool.
- Allow to harden and dry, then lightly sand back.
- For a superior finish take care not to deform leading edge of Angle/Corner bead during installation.



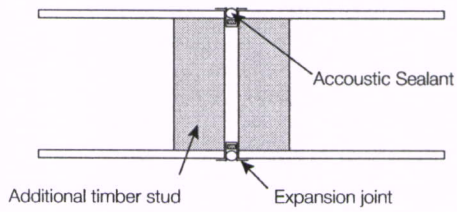
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Control Joints

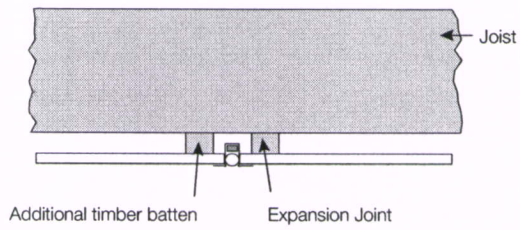
Control joints should be provided where there is a potential stress build up from structural movement and changes in temperature and humidity. Control joints should be generally sited as follows –

- In expansion joints between dissimilar materials to permit movement in the structure should be brought through to include plasterboard linings.
- Where plasterboard abuts any dissimilar material, it should be isolated by an edge trim or casing bead.
- In long unbroken partition or wall runs, control joints should be inserted at not more than 9 metre centres.
- Door frames extending from floor to ceiling constitute an effective control joint.
- Extensive interior ceiling areas should have control joints, spaced at not more than 9 metre centres in either direction without perimeter relief, or 12 metres with perimeter relief and may be positioned to intersect lighting fixtures, heating vents or air diffusers.

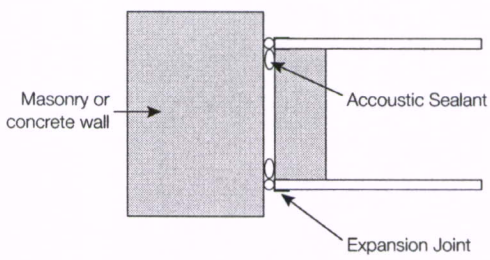
Joint in Timber Stud Wall



Joint in Timber Ceiling



Joint in Masonry Wall



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Decoration

General

Elephant Plasterboard surfaces provide an excellent base for painting, wallpapering and other decorative finishes when installed to the requirements of the Australian and New Zealand Standard 'The Application and Finishing of Gypsum Linings in Residential & Light Construction' and the instructions outlined in this publication.

The use of satin and high gloss paints can at times highlight surface imperfections. When these paint finishes are required it is important that an even texture is achieved over the entire plasterboard surface. No building material has an absolutely flat surface, and all that can be achieved in practice is the appearance of flatness. It is known that surfaces that appear flat in diffuse light may appear rough and uneven when lit by light falling nearly parallel to the surface.

When preparing surfaces and applying decorative finishes, it is important that all materials be used strictly in accordance with the manufacturer's instructions.

Surface Preparation

Before sealer is applied remove all loose dirt and dust with a soft brush or dry cloth. Ensure that all joints are dried thoroughly before sealer or paint is applied. Surface imperfections should be made good with an approved filler.

Sealers and Primers

When applying sealers and primers, apply sufficient quantities to ensure that the surface is completely covered. Do not overwork or overroll the first coat as this may cause the paint to lift over the jointed areas.

Brush or roller application of sealers is recommended to obtain the best results as this ensures adequate binding over the jointed areas.

Allow the first coat to dry thoroughly.

Top Coats

Under normal conditions, allow 12 to 18 hours after the application of sealers before applying the subsequent coats of paint. In rainy, humid or cold weather conditions a waiting period of up to 36 to 48 hours may be required before recoating. For the best results apply the final coat with a roller which will ensure a full cover coat and a uniform texture over the entire surface.

- Plasterboard that has been fixed and allowed to stand for a long periods prior to painting may discolour due to exposure to light. This should be well sealed with an approved oil based sealer before the application of the finishing coats of paint.
- Oil or solvent based paints are recommended in areas of high humidity, or where water resistance and 'cleanability' are important, such as bathrooms, kitchens, laundries and toilets.

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Elephant Bracing Systems

Refer to publication Elephant Bracing Systems for complete design and construction details

Design Solutions

TABLE B1X – Special Enhanced Systems

10mm Elephant Standard Plasterboard or any other Elephant Plasterboard: **Using Extra Components**[1]

System Number	Plasterboard Requirement Vertical or Horizontal	Minimum Element Length (m)	Bracing Units/M Performance on **Timber** and **Concrete** Floors		Angle Brace	Panel Hold Downs	Fixing Type	Fixing Pattern Type
			Wind	Earthquake				
EXS	10mm Elephant Standard Plasterboard one side	0.4	**95**	**85**	**No**	**Yes**	32mm x 6g Drywall screws	**Pattern 2**
EXSa	10mm Elephant Standard Plasterboard one side	1.8	**120**	**100**	**Yes**			
EXSP[2]	10mm Elephant Standard Plasterboard one side, 7mm D-D Plywood on the other	0.6	**130**	**135**	**No**			
EXSS	10mm Elephant Standard Plasterboard **both** sides	0.6	**145**	**135**				
		1.2	**150**	**140**				

1 **EXS, EXSa, EXSP and EXSS** Achieving these bracing unit ratings use **Pattern 2** Corner Pattern and Panel End Hold Downs on page 30.

2 **EXSP** For Plywood fixing, see notes on page 26.

TABLE B1 – 10mm Elephant Standard Plasterboard or any other Elephant Plasterboard

System Number	Plasterboard Requirement Vertical or Horizontal	Minimum Element Length (m)	Bracing Units/M Performance on **Timber** and **Concrete** Floors		Angle Brace	Fixing Type	Fixing Pattern Type
			Wind	Earthquake			
ES	10mm Elephant Standard Plasterboard one side	1.2	**70**	**65**	**No**	32mm x 6g Drywall screws	**Pattern 1**
		1.8	**85**	**70**			
ESa	10mm Elephant Standard Plasterboard one side	1.8	**95**	**75**	**Yes**		
ESP	10mm Elephant Standard Plasterboard one side 7mm D-D Plywood on the other	0.6	**100**	**90**	**No**		
ESS	10mm Elephant Standard Plasterboard **both** sides	1.2	**85**	**75**			
		1.8	**95**	**80**			
		2.4	**100**	**80**			

TABLE B2 – 10mm Elephant Multiboard (or 10mm Elephant Aquaboard, see note 1)

System Number	Plasterboard Requirement Vertical or Horizontal	Minimum Element Length (m)	Bracing Units/M Performance on **Timber** and **Concrete** Floors		Angle Brace	Panel Hold Downs	Fixing Type	Fixing Pattern Type
			Wind	Earthquake				
EM	10mm Elephant Multiboard one side	0.4	**100**	**95**	**No**	**Yes**	35mm Elephant Bracing Screw **or** 38mm Elephant Bracing Nail	**Pattern 2**
		0.6	**130**	**115**				
EMa	10mm Elephant Multiboard one side	1.8	**130**	**115**	**Yes**			
EMP[2]	10mm Elephant Multiboard one side, 7mm D-D plywood on the other	0.6	**150**	**150**	**No**			
EMS[3]	10mm Elephant Multiboard one side, 10mm Elephant Standard on the other	0.6	**150**	**150**				
EMd	10mm Elephant Multiboard one side	0.4	**125**	**125**		**Yes**[4]	38mm EB Nails only	

1 10mm Elephant Aquaboard can be used in place of 10mm Elephant Multiboard, provided the perimeter of the element is fixed with fasteners spaced at 120mm centres, and using the relevant corner fixing pattern and fixing type. Minimum element length is 600mm.

2 **EMP:** For Plywood fixing, see notes on page 26.

3 **EMS:** The 10mm Elephant Standard Plasterboard on the other face is fixed as per System ES.

4 **EMd:** Achieving these bracing unit ratings for element lengths under 600mm use 35mm or 38mm bracing nails only and double bottom plate if applicable. Refer Elephant Bracing Systems.

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Elephant Bracing Systems

Refer to publication Elephant Bracing Systems for complete design and construction details

Construction Details

Framing

Framing is to comply with NZS 3604:1999 and must be a minimum of 70 x 35mm for internal walls and 90 x 45mm for external walls. Nogs or dwangs are not a requirement in order to achieve the bracing ratings published in this document.

Fastening Elephant Plasterboard Linings

Elephant Plasterboard designated as a bracing element must be constructed with specified fasteners and fastener patterns. Specialised panel end hold downs may also be required as they are essential for obtaining the bracing unit ratings.

The corner detail for plasterboard bracing elements requires specific increased fastening.
See figures labelled Pattern 1 and Pattern 2 below.

System Number	Corner Fastener Pattern No.	Fasteners				Panel End Hold Downs
		32mm x 6g Drywall Screw	30mm Drywall Clouts	38mm Elephant Bracing Nail	35mm Elephant Bracing Screw	
ESX, ESPX, ESSX, E13S, E13SP, E13SS	2	Yes	Yes*	Optional	Optional	Yes
ES, ESS	1	Yes	Yes*	Optional	Optional	N/A
EM, EMP, EMS, E13M, E13MP, E13MS	2	**No**	**No**	Yes	Yes	Yes
EMd	2	**No**	**No**	Yes	**No**	Yes*

- **EMd:** To achieve these bracing unit ratings for element lengths under 600mm use 35mm or 38mm bracing nails only and double bottom plate if applicable. See Bracing Manual.

* Refer Elephant Bracing Systems for conditions of use of clouts.

Fastener Layout

Refer to figures labelled Pattern 1 and Pattern 2.

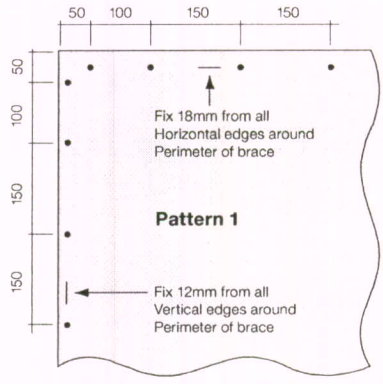
Must be positioned 12mm from the vertical edge and 18mm from the horizontal edge.

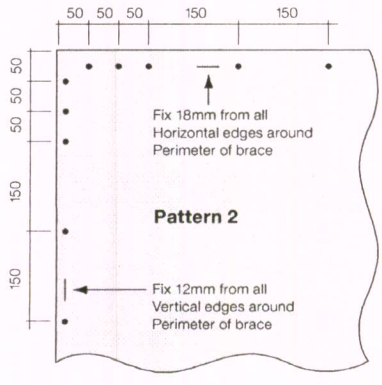
Fastening the middle of the bracing element is as per the recommended screw and glue methods. Refer page 10-13.

There is no minimum sheet width provided that the joint forms over solid framing and is paper taped and stopped, or the sheet joint may be backblocked.

Fix the plasterboard horizontally if possible as this is recommended. All butt joints should be either fitted over nogs or studs and fastened at 200mm centres or back-blocked. Refer page 18.

All joints must be paper taped and stopped. Refer page 20.





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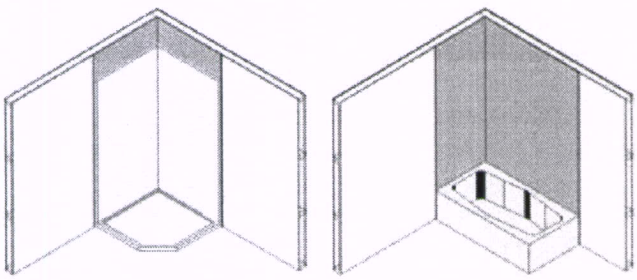
Elephant Bracing Systems

Refer to publication Elephant Bracing Systems for complete design and construction details

Construction Details

Wet Areas

Do *not* place bracing elements in areas such as behind showers and baths.



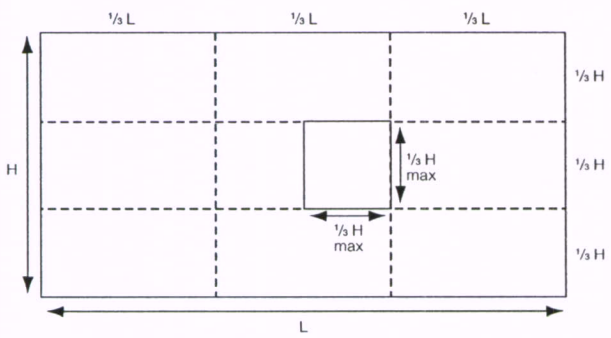
Shaded area must not have Plasterboard Bracing Systems

Placing bracing elements in water splash areas is acceptable provided that these areas are maintained impervious for the life of the building. Bracing elements require a 50 year durability.

Elephant Aquaboard can be substituted for Elephant Standard Plasterboard. Elephant Aquaboard can be substituted for Elephant Multiboard for bracing elements with a minimum width of 600mm provided the fixing spacings are reduced from 150mm to 100mm around the perimeter of the bracing element.

Openings in Bracing Elements

Small openings of 90 x 90mm or less cannot be placed closer than 90mm from the edge of the bracing element. Larger openings can only be placed in the middle 1/3 of the bracing element. Neither the opening height nor length can be more than 1/3 of the bracing element height.



Plywood

For Systems **EXSP**, **ESP**, **EMP**, **E13SP** and **E13MP** plywood is required. This can be Grade D-D 7mm construction plywood at a minimum. The plywood must be manufactured as per Australian/New Zealand Standard AS/NZS 2269:2004.

The nailing pattern is at 150mm centres around the perimeter of the bracing element or the plywood sheet, whichever is the lesser width, using 30 x 2.8mm flat head galvanised nails. Sheet edges must be supported by framing or blocking.

The corner pattern fastening is conventional and there is no need for the specialised corner patterns as is required on the plasterboard side of the brace.

Angle Braces

(For Systems EXSa, ESa, EMa, E13Sa, E13Ma)

Angle braces should generally not be placed at an angle over 55 degrees. They should span the bracing element length from the bottom corner to the diagonally opposite top corner. Secure to the frame by using three 30 x 2.8mm galvanised flathead nails to both the bottom and top plates. Use two 30 x 2.8mm galvanised flathead nails to intermediate frames. For elements longer than 3.6m, place the additional diagonal braces in opposite directions.

Fastening Bracing Elements to Floors

Timber Floors

When fastening the bottom plate of an Elephant Plasterboard bracing element to a timber floor this must be done in accordance with NZS3604. Either pairs of 100 x 3.75mm hand driven or three 90 x 3.15mm power driven nails at 600mm centres.

For all Systems **except ES, ESA, ESP** and **ESS** also use panel end hold downs (see page 15).

Concrete Floors

Elephant Plasterboard bracing element **ES**, **ESa** and **ESP** on **external walls**: Fix the bottom plate to the foundation as per NZS 3604, clause 7.5.12.2.

Elephant Plasterboard bracing elements **ES**, **ESa** and **ESS** on **internal walls**: Fix the bottom plate using shot fired fasteners fitted with 16mm discs.

These must be spaced at 150mm and 300mm from the end studs and thereafter at 600mm centres.

The length of the shot fire fastener should be a minimum of 75 x 3.8mm on a bottom plate no thicker than 45mm. Longer fasteners are required on thicker bottom plates to ensure a minimum penetration into the concrete foundation of 30mm.

For all Systems **except ES**, **ESa**, **ESP** and **ESS** also use panel end hold downs (see page 30).

The remainder of the bracing element is fixed as per NZS3604:1999.

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Elephant Bracing Systems

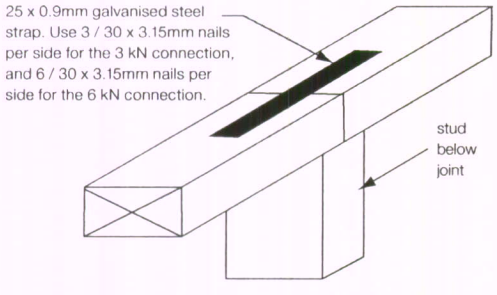
Refer to publication Elephant Bracing Systems for complete design and construction details

Construction Details

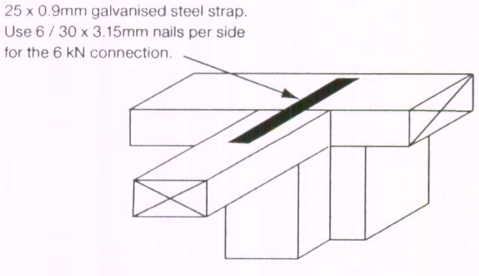
Top Plate Connections

Top plate connections detailed below meet the requirements of NZS3604:1999 Section 8.7.3 "Joints in Plates".

(a) **Joints along walls** in single or upper storey walls. The joints must be over a stud or blocking. A 6 kN connection is required if any bracing element in the wall exceeds 100 bracing units. Otherwise a 3 kN connection is adequate. Note, no connection is required at intermediate storey levels.



(b) **Joints between intersecting walls.** A 6 kN connection is adequate if the total bracing capacity of the wall framing into the continuous wall does not exceed 250 bracing units.



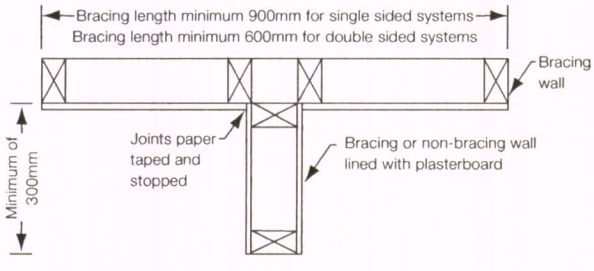
Horizontal Fixing

Elephant Bracing systems may be fixed horizontally. Bracing fasteners need only to be placed over the length and width of the bracing element.

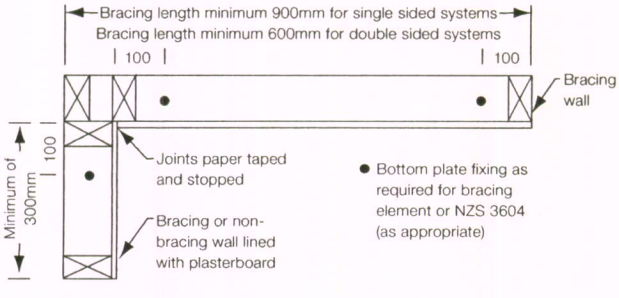
Guide for Intersecting Walls

Provided the minimum wall lengths are complied with and walls are constructed as described in this manual, bracing wall lengths can be defined as shown below. Fasteners around the perimeter of the bracing elements shall be in accordance with instructions on pages 13–15. Joints between sheets shall be paper taped and stopped in accordance with Elephant Plasterboard Installation Instructions. Wall hold-downs must also comply with Elephant Plasterboard Installation Instructions except that the location of bottom plate anchors is modified for L intersections as defined below.

(a) T intersection



(b) L intersection



The bracing length can be 600mm minimum for double sided systems, e.g. EXSP, EXSS, ESP, ESS, EMP, EMS, E13SP, E13SS, E13MP and E13MS.

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Elephant Bracing Systems

Refer to publication Elephant Bracing Systems for complete design and construction details

Ceiling Diaphragms

Elephant Plasterboard Ceiling Diaphragms

Ceiling diaphragms are required to comply with NZS3604:1999. (In particular Refer Section 5.6 and Section 13.5 of NZS3604:1999). They are required when spacings between bracing lines exceed 5m (when single top plate used) or 6m (when double top plate used). However this can be increased to 7.5m if Dragon ties are used as per NZS3604.

The length of the ceiling diaphragms shall not exceed twice the width (both length and width being measured between supporting walls). The ceiling lining shall cover the entire area of the ceiling diaphragm.

Elephant Plasterboard Ceiling Diaphragm Systems

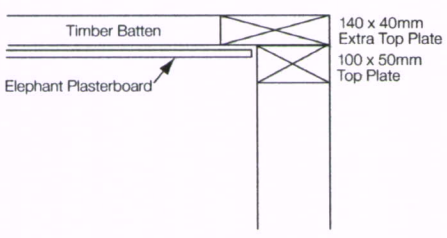
Either:	Not steeper than 25 degrees and not longer than 15m in length
Or:	Not steeper than 45 degrees and not longer than 7.5m in length
Lining Requirement:	**10mm Elephant Standard Plasterboard or any other Elephant Plasterboard**
Framing members:	Either timber (65 x 35mm) battens or steel (35mm deep ceiling) battens at centres not greater than 600mm.
Fasteners:	Timber battens: 32mm x 6g course thread dry wall screws Timber perimeters: 32mm x 6g course thread dry wall screws Steel battens: 32mm x 6g self tapping drywall screws Place fasteners not less than 12mm from sheet edge

Fastening requirements within the ceiling diaphragm are conventional. Refer 'Elephant Plasterboard Installation Manual'. All joints shall be paper tape reinforced and stopped. Sheet end butt joints should be between the battens and backblocked.

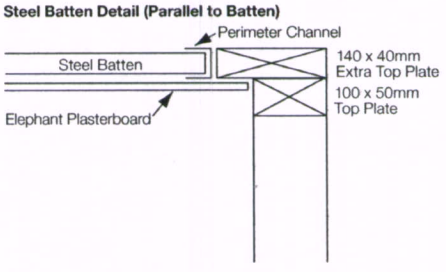
Minimum sheet size shall be 900mm wide by 1800mm long. Sheets between 600mm wide and 900mm wide can be used provided they are backblocked with adjacent sheets.

Openings are allowable and must be within the middle third of the diaphragm's length and width.

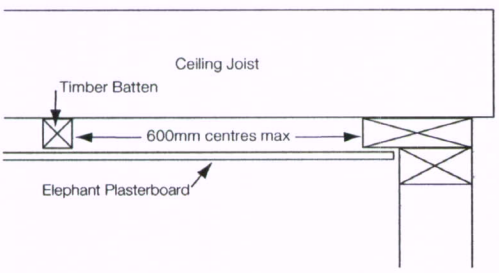
Timber Batten Detail (Parallel to Batten)



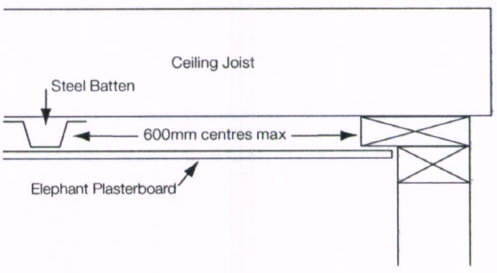
Steel Batten Detail (Parallel to Batten)



Timber Batten Detail (Perpendicular to Batten)



Steel Batten Detail (Perpendicular to Batten)



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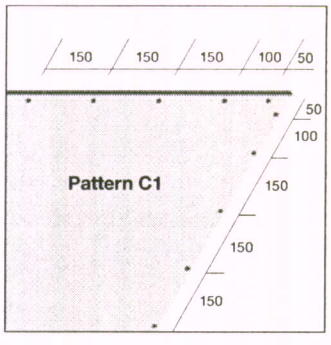
Elephant Bracing Systems

Refer to publication Elephant Bracing Systems for complete design and construction details

Ceiling Diaphragms

For Ceiling Diaphragms not steeper than 25 degrees and not longer than 7.5m

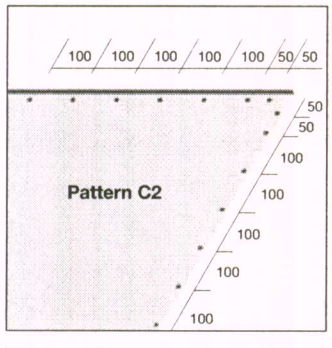
- Use specialised ceiling corner fastening pattern C1. (Pattern C2 or C3 also acceptable)
- Place fasteners 50mm, 100mm and then 150mm from all corners of the diaphragm
- Fasteners at maximum 150mm centres to the boundary members and around the perimeter of the diaphragm



Fasten 12mm max from all edges.

For Ceiling Diaphragms not steeper than 25 degrees and not longer than 10m

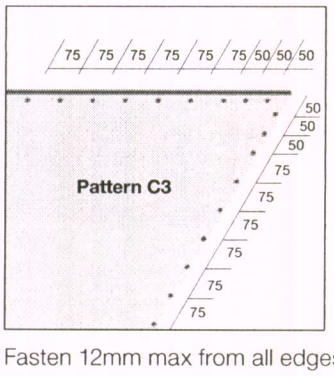
- Use specialised ceiling corner fastening pattern C2. (Pattern C3 also acceptable)
- Place fasteners 50mm, 50mm and then 100mm from all corners of the diaphragm
- Fasteners at maximum 100mm centres to the boundary members and around the perimeter of the diaphragm



Fasten 12mm max from all edges.

For Ceiling Diaphragms not steeper than 25 degrees and not longer than 15m or not steeper than 45 degrees and not longer than 7.5m

- Use specialised ceiling corner fastening pattern C3.
- Place fasteners 50mm, 50mm, 50mm and then 75mm from all corners of the diaphragm
- Fasteners at maximum 75mm centres to the boundary members and around the perimeter of the diaphragm



Fasten 12mm max from all edges.

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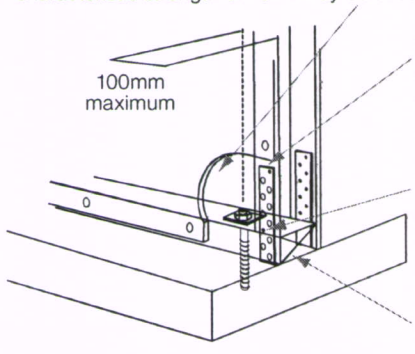
Elephant Bracing Systems

Refer to publication Elephant Bracing Systems for complete design and construction details

Panel End Hold Down Details

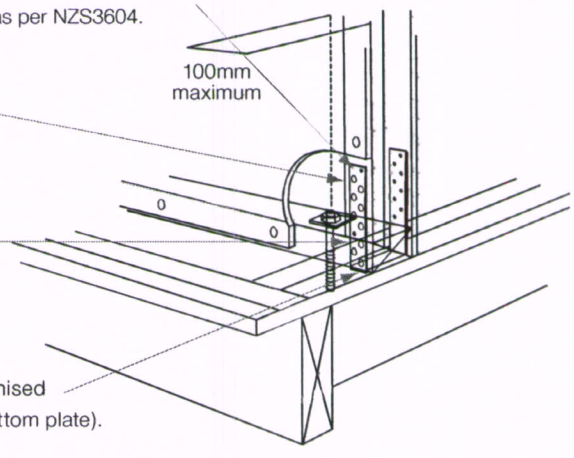
Concrete Floor – Internal or External Walls

M12 galvanised bolt set not less than 75mm into concrete. Allow for a 3mm x 50 x 50 square galvanised washer and threaded nut above the plate. Alternatively, proprietary fixings with a minimum characteristic strength of 15kN may be used.

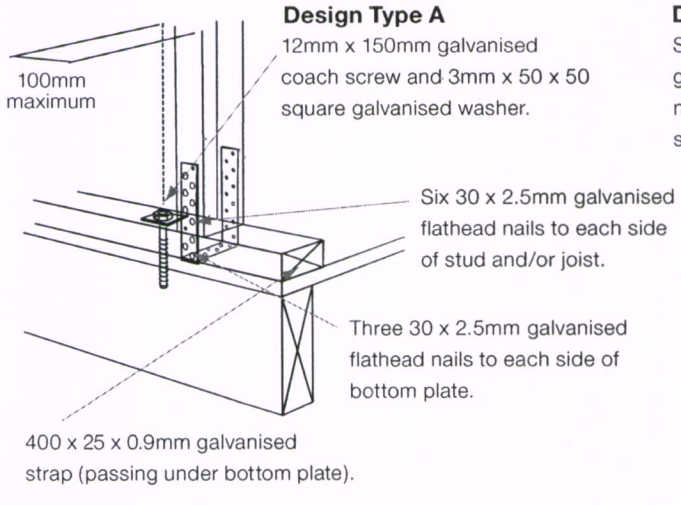


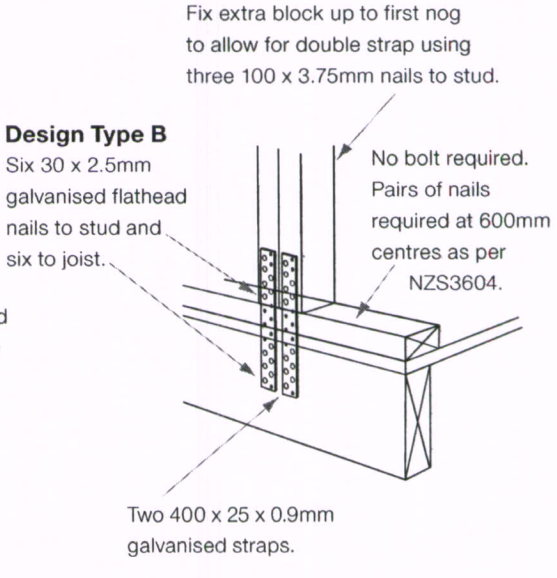
Timber Floor – Internal Walls

12mm x 150mm galvanised coach screw and 3mm x 50 x 50 square galvanised washer. Place through the centre of the timber joist or blocking. Framing to be fixed as per NZS3604.



Timber Floor – External Wall Options





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Product Range

PRODUCT	WEIGHTS	WIDTH	LENGTH								PRIMARY FUNCTIONS							
	Kg per m²	mm	2.4m	2.7m	3.0m	3.3m	3.6m	4.2m	4.8m	6.0m	Superior Finish	Horizontal Fixing	Span 600* Centres on Ceilings	Bracing	Fire Resistant	Noise Control	Impact Resistant	Water Resistant
Standard Plus 10mm	7.3	1200	•	•	•	•	•	•	•	•	•		•	•	•			
Standard Plus 13mm	9.4	1200	•	•	•	•	•	•	•	•	•		•	•	•			
Horizontal Plus 10mm TE/SE	7.3	1200	•		•		•	•	•	•	•	•		•	•			
Horizontal Plus 10mm TE/SE	7.3	1350					•		•	•	•	•		•	•			
Horizontal Plus 13mm TE/SE	9.4	1350							•		•	•		•	•			
Multiboard 10mm	8.5	1200	•	•	•		•				•		•	•	•	•	•	
Multiboard 13mm	11.2	1200	•	•	•		•				•		•	•	•	•	•	
Multiboard 16mm	13.8	1200	•	•	•		•				•		•		•	•	•	
Aquaboard 10mm	8.5	1200	•	•	•		•				•							•
Aquaboard 13mm	11.2	1200	•	•	•		•				•		•					•

* In areas with significant temperature or humidity variations e.g. bathrooms, it is recommended to place battens at max 450mm centres when using 10mm Standard or 10mm Aquaboard

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Contact Details

Customer Services

New Zealand

Freephone 0800 ELEPHANT (353742)
Telephone +64-9-818 7706
Facsimile +64-9-818 7702

Australia

Freephone 1-800 ELEPHANT (353742)
Freefax: 1-800 ELEFAX (353329)

Fire and Bracing Ratings

Elephant Plasterboard has been tested for its Bracing and Fire Ratings by BRANZ (Building Research Association of New Zealand).

Exceeds the New Zealand and Australian Standard. AS/NZ 2588

Manufactured to ISO 9001 International Organisation for Standardisation

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APPENDIX 2: Hyspan Beam Calculations

Hyspan Beam Calculations:
Please find attached Hyspan Beam Calculations as appendix 2 to this specification

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

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

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

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

References:

NZS 3603:1993 Timber Structures Standard.
NZS 3604:2011 Timber-framed buildings.
AS 1720.1 – 2010 Timber structures. Part 1: Design methods.
AS 1684.1 – 1999 Residential timber framed construction. Part 1: Design criteria.
AS/NZS 1170:2002 Structural design actions, Parts 0 and 1.
AS/NZS 1170:2011 Structural design actions, Part 2: Wind actions.
AS/NZS 1170:2003 Structural design actions, Part 3: Snow and ice actions.

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

Version date: 22 August 2011

For further information or advice please contact: Carter Holt Havey Woodproducts New Zealand
173 Captain Springs Road, Onehunga. Auckland
Telephone 0800 808 131
Facsimile 0800 808 132
Email: designit@chhwoodproducts.co.nz

Specifier details:

Specifier:	Jason	
Business name:	New Vision Architetcure Ltd.	
Address:		
Email:		
Phone:	**Mobile:**	**Facsimile:**

Project & Site details:

Project:		**Ref. no.:** NV12020
At (address):	210 Goodfellow St Te Awamutu	
For (owner/s):	Lovegrove	
Wind zone:	Medium	
Snow loading	Snow region: N0, snow loading not applicable	

MEMBER DESIGN DETAILS

Member 1

1) Member code and description SB1 - Strutting beams - Supporting underpurlins and ceiling joists

2) Date prepared 16/10/2012

3) Serviceability criteria AS 1720.1-2010 and AS 1684.1-1999

4) Design inputs

Span	3.4 m
Ceiling load width 'CLW'	3.0 m
Roof area supported	8.0 m²
Roof type and mass	Heavy roof & ceiling - 90 kg/m²

5) Member specification

Size, stress grade/product	Use 2/240 x 45 hySPAN

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Material type: Structural Laminated Veneer Lumber to AS/NZS 4357

6) Serviceability

Load case	Limit[3] on average deflection[2]	Estimated average deflection[2]	Rigidity ratio[4]
Long term load - $G+\psi_L Q$ * *Critical serviceability load case	11.3 mm	8.4 mm (long term)	$\frac{11.3}{8.4} = 1.35$

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

7) Reactions

Load case	k_1[1]	Limit states design reaction[2,3] End[4] kN
1.35G	1.00	-6.6
1.2G + 1.5Q	1.00	-8.6
1.2G + W_U + $\Psi_C Q$	1.00	-8.3
0.9G + W_U	1.00	0.4

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

8) Installation requirements

Provide at least 30 mm bearing at end supports
Chamfer allowed - see Detail H7
Nail lamination in accordance with Detail H1.

Member 2

1) Member code and description: SB2 - Strutting beams - Supporting underpurlins and hanging beams

2) Date prepared: 16/10/2012

3) Serviceability criteria: AS 1720.1-2010 and AS 1684.1-1999

4) Design inputs

Span	4.0 m
Hanging beam spans (average)	3.2 m
Roof area supported	6.0 m²
Roof type and mass	Heavy roof & ceiling - 90 kg/m²

5) Member specification

Size, stress grade/product	Use 2/240 x 45 hySPAN
Material type	Structural Laminated Veneer Lumber to AS/NZS 4357

6) Serviceability

Load case	Limit[3] on average deflection[2]	Estimated average deflection[2]	Rigidity ratio[4]
Long term load - $G+\psi_L Q$ * *Critical serviceability load case	12.0 mm	10.8 mm (long term)	$\frac{12.0}{10.8} = 1.11$

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

7) Reactions

Load case	k_1[1]	Limit states design reaction[2,3] End[4] kN

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1.35G	1.00	-5.1
1.2G + 1.5Q	1.00	-7.0
1.2G + W_U + $\Psi_C Q$	1.00	-6.3
0.9G + W_U	1.00	0.2

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

8) Installation requirements

Design assumes that hanging beams provide intermediate lateral restraint
Provide at least 30 mm bearing at end supports
Chamfer allowed - see Detail H7
Nail lamination in accordance with Detail H1.

Member 3

1) Member code and description SB3 - Strutting beams - Supporting underpurlins and hanging beams

2) Date prepared 16/10/2012

3) Serviceability criteria AS 1720.1-2010 and AS 1684.1-1999

4) Design inputs

Span	2.5 m
Hanging beam spans (average)	3.0 m
Roof area supported	6.0 m²
Roof type and mass	Heavy roof & ceiling - 90 kg/m²

5) Member specification

Size, stress grade/product	Use 2/240 x 45 SG8 Laserframe
Material type	Dry softwood, machine stress graded and verified (NZS 3622)
Assumed design density	< 480 kg/m³

6) Serviceability

Load case	Limit[3] on average deflection[2]	Estimated average deflection[2]	Rigidity ratio[4]
Long term load - G+ψ_L Q *	8.3 mm	5.7 mm (long term)	$\frac{8.3}{5.7}$ = 1.46

*Critical serviceability load case

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

7) Reactions

Load case	k_1[1]	Limit states design reaction[2,3] End[4] kN
1.35G	1.00	-4.4
1.2G + 1.5Q	1.00	-6.5
1.2G + W_U + $\Psi_C Q$	1.00	-5.8
0.9G + W_U	1.00	0.7

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

8) Installation requirements

Design assumes that hanging beams provide intermediate lateral restraint
Provide at least 30 mm bearing at end supports
Nail lamination required - refer AS 1684

Notes for interpretation of serviceability data

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1. "average deflection" is an engineering concept based upon a notional estimated load, notional member rigidity and, in some cases, an approximate model of material response to environmental conditions. These parameters are, 'standardised' in AS/NZS 1170, AS 1684.1 and AS 1720. Deflections calculated using this methodology cannot therefore be usefully compared with deflections calculated using other methods, eg GLTAA design methodology.

2. Deflection is the flexural response to load – 'out-of-level' measurements of installations are not necessarily deflections and can incorporate 'initial out-of-straightness', whether intended or not. Furthermore, loads can be higher/lower than the notional estimate and in any comparison with measured levels, material variability needs to also be considered. AS 1720 gives the following basis for estimation of upper bound deflections for various materials.

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

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

3. The limits referred are those specified in AS 1684.1 for the stated load case.

4. 'Rigidity ratio' expresses the rigidity of the specified beam relative to the rigidity of a notional beam just meeting the serviceability requirements of AS 1684.1

Notes for interpretation of reaction data

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

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LOVEGROVE
PROPOSED ALTERATIONS

210 GOODFELLOW ST, TE AWAMUTU

REFERENCE: NV12020
DATE: 16 OCTOBER 2012

INDEX

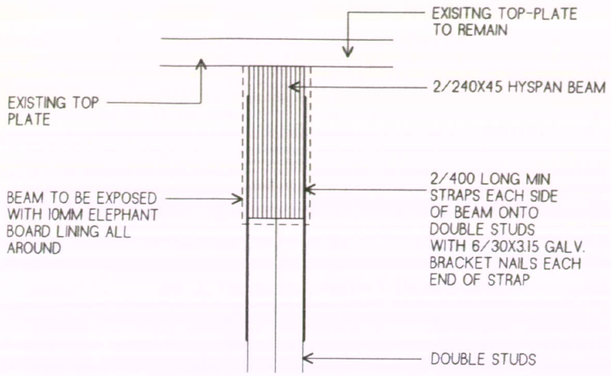
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TITLE PAGE	A-01
FOUNDATION PLAN & DETAILS	A-02
FLOOR PLAN - EXISTING & PROPOSED	A-03
BRACING PLAN	A-04
ELEVATIONS & WINDOW SCHEDULE	A-05
SECTION A-A	A-06
FLEXIBLE FLASHING TAPE DETAILS	A-07
WINDOW JOINERY DETAILS	A-08

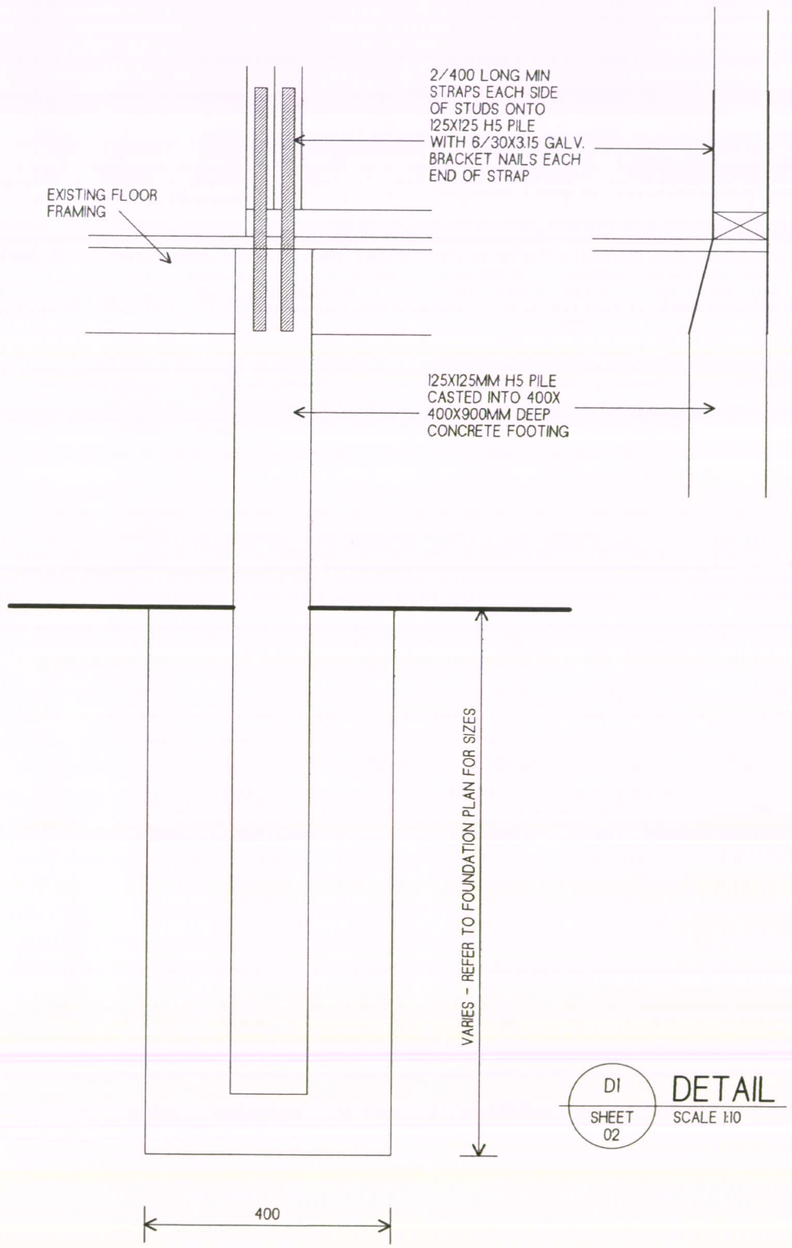
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Approved Waipa District Council
Building Department
0773/12
Subject to conditions of
Building Consent No

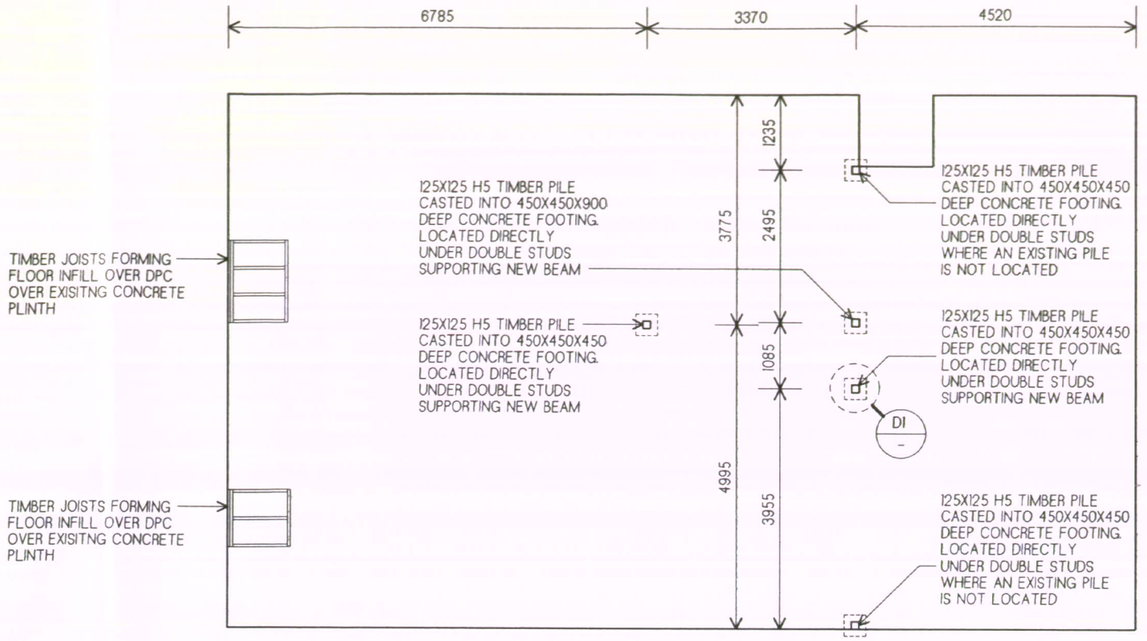
newvision architecture
Jason kraayvanger
ph: 021 80 54 52 email: newvisionarchitecture@xnet.co.nz
Design concepts and construction plans

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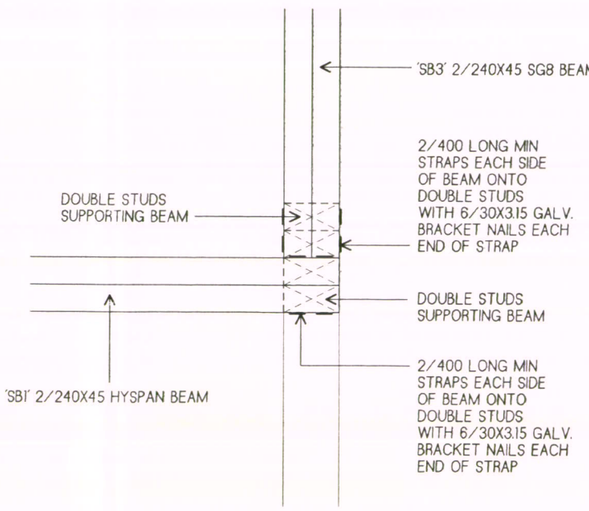


D1 SHEET 02 **DETAIL** SCALE 1:10



FOUNDATION PLAN

SCALE 1:100
ALL DIMENSIONS ARE TO FLOOR EGDE ONLY
PILE POSTIONS TO BE CONFIRMED ONSITE



D2 SHEET 03 **DETAIL** SCALE 1:10

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Building Department
0773/12
Subject to conditions of Building Consent No

newvision architecture

Jason kraayvanger
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Design concepts and construction plans

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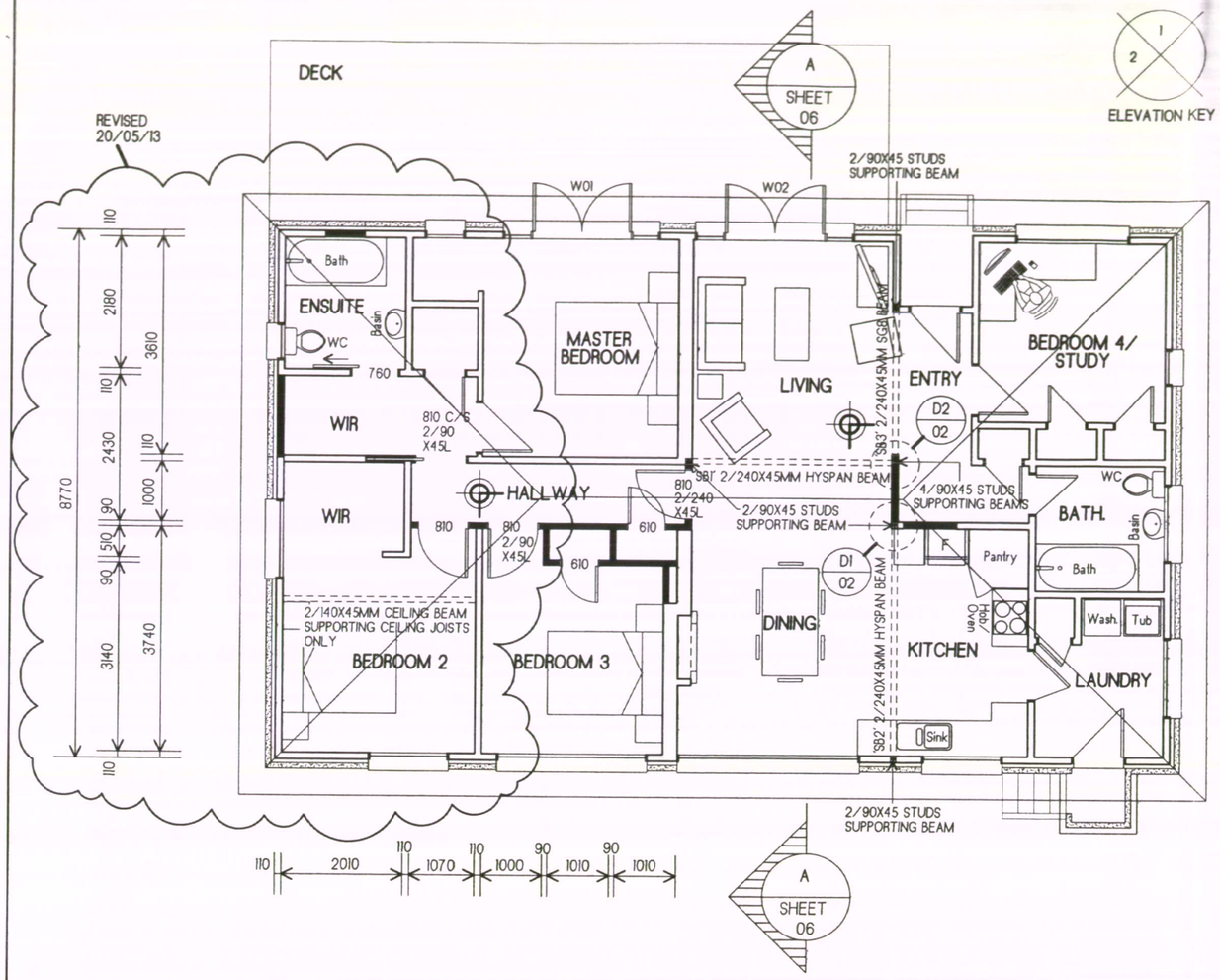
PROPOSED ALTERATIONS TO LOVEGROVE RESIDENCE

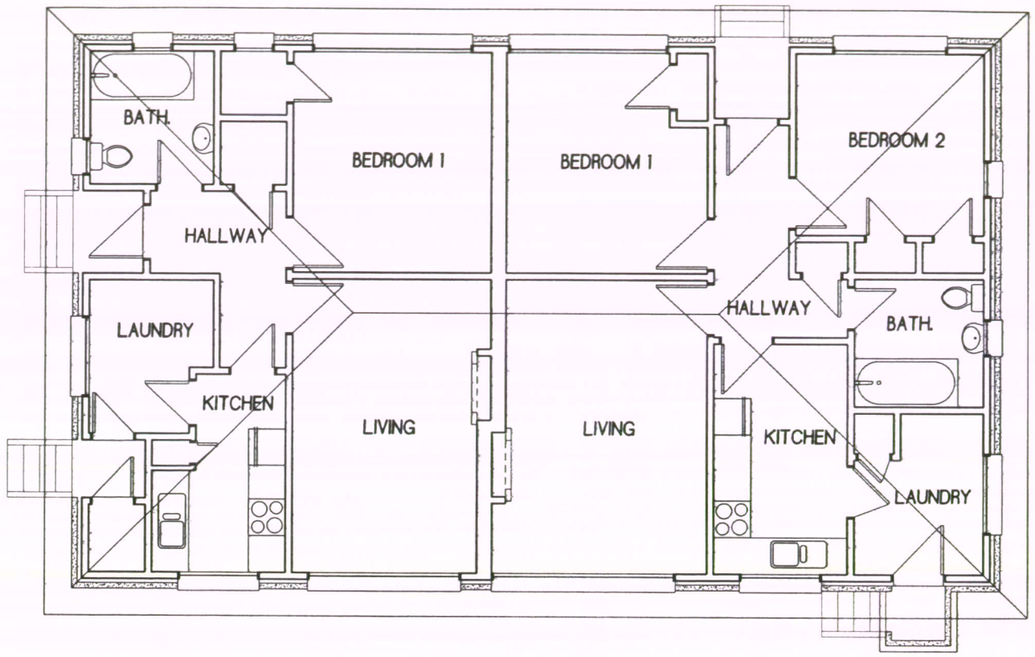
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SHEET: 02 OF 08 A3 SHEETS

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1
2
ELEVATION KEY

FLOOR PLAN - PROPOSED

SCALE 1:100
AREA: 125 SQM.

WIND ZONE: MED
EQ ZONE: 1
EXPOSURE ZONE: B

WALL KEY

PROPOSED NEW WALLS

EXISTING WALLS

FLOOR PLAN - EXISTING

SCALE 1:100
AREA: 125 SQM.

WIND ZONE: MED
EQ ZONE: 1
EXPOSURE ZONE: B

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WINDOW & DOOR SIZE TABLE

WINDOW/ DOOR NO.	WINDOW/ DOOR SIZE	WINDOW/ DOOR SQM.	LINTEL SIZE
W01	2015X2580	5.2	2/290X45
W02	2015X2580	5.2	2/290X45
W03	615X950	0.6	2/140X45
		TOTAL: 11.0	

TYPE 1 DOMESTIC SMOKE ALARM SYSTEM SPECIFICATION

1. THIS SYSTEM IS BASED AROUND ONE OR MORE DOMESTIC RESIDENTIAL TYPE SMOKE ALARMS WITH INTEGRAL ALERTING DEVICES.
2. SMOKE ALARMS SHALL BE LISTED OR APPROVED BY A RECOGNIZED NATIONAL AS COMPLYING WITH AT LEAST ONE OF: UL217, CAN/ULC S531, AS 3786, BS 5446: PART 1.
3. THE SMOKE ALARMS MAY BE BATTERY POWERED AND ARE NOT REQUIRED TO BE INTERCONNECTED. A HUSH FACILITY HAVING A MINIMUM DURATION OF 60 SECONDS.
4. SMOKE ALARMS SHALL HAVE A TEST FACILITY READILY ACCESSIBLE BY THE BUILDING OCCUPANTS. THIS FACILITY MAY BE LOCATED ON THE SMOKE ALARMS.

LOCATIONS OF NEW SMOKE DETECTORS AS PER ATTACHED SPECIFICATIONS

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BUILDING CONSENT # BC 0074/12

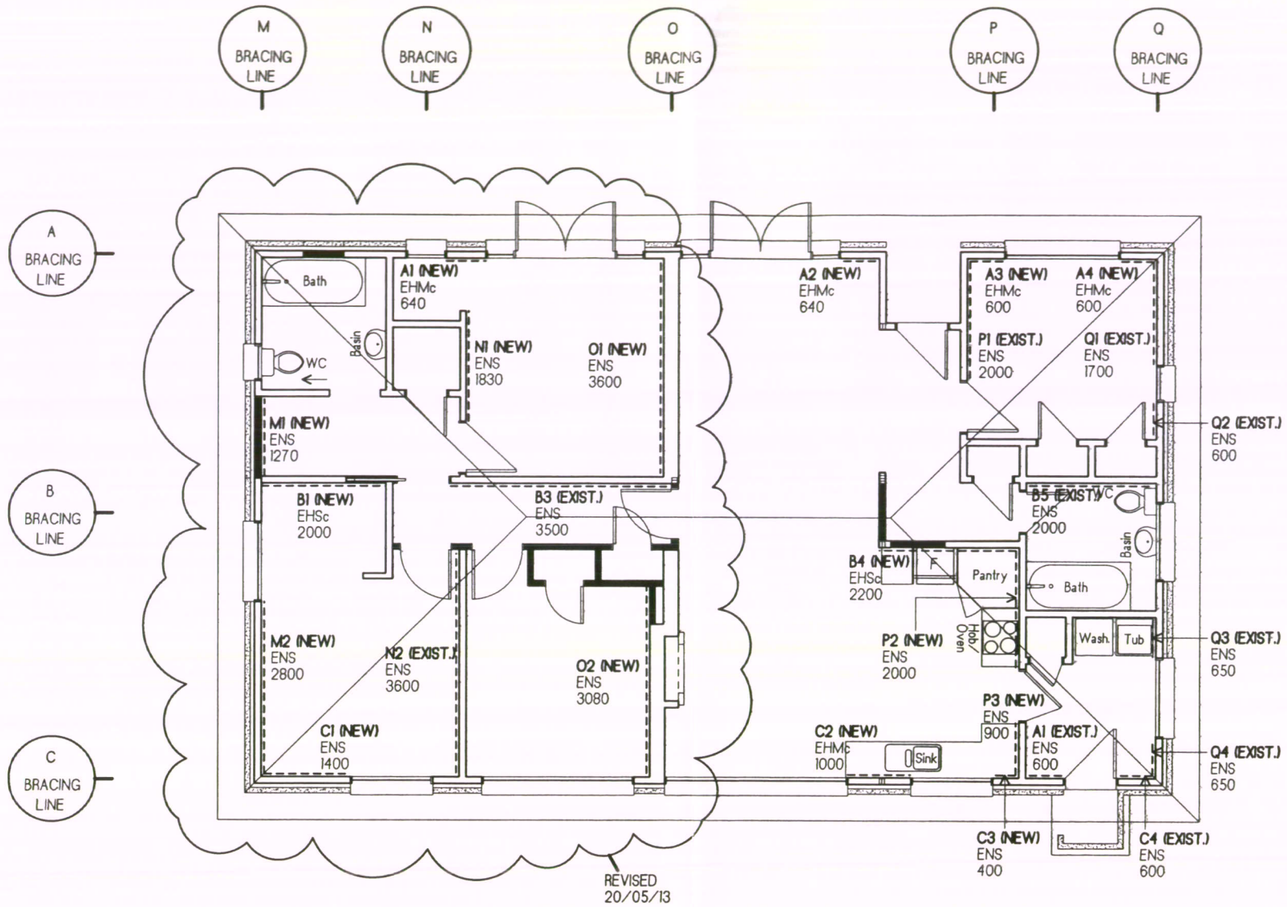
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WALL BRACING PLAN

REFER TO THE SPECIFICATION FOR BRACING CALCULATIONS.
SCALE 1:100

LENGTH	14675MM
WIDTH	8770IMM
AREA	125 M SQ
ROOF H	6200MM
EAVES h	3200MM
WIND	MED
EQ.	ZONE B

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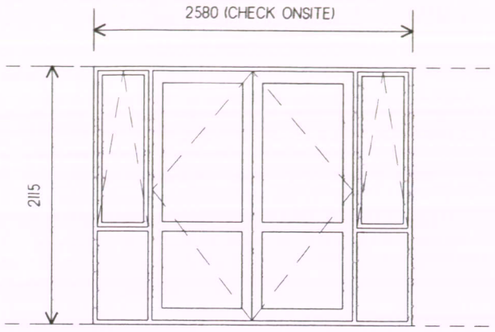
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ELEVATION 1
SCALE 1:100

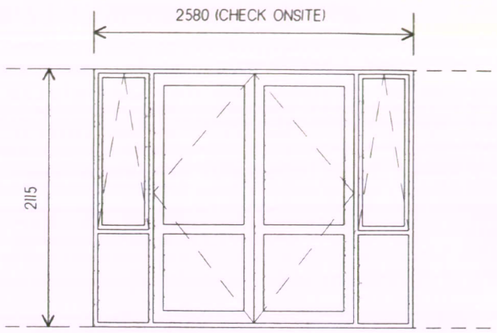


ELEVATION 2
SCALE 1:100



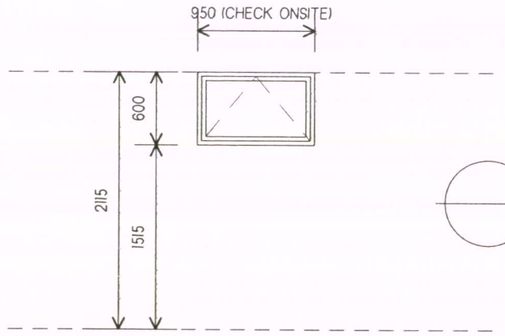
W01

JOINERY: 35MM SUITE
LINERS: 18MM P/P PINE
GLAZING: SINGLE GLAZED
WALL THICKNESS: 90-100MM (CONFIRM ONSITE)



W02

JOINERY: 35MM SUITE
LINERS: 18MM P/P PINE
GLAZING: SINGLE GLAZED
WALL THICKNESS: 90-100MM (CONFIRM ONSITE)



W03

JOINERY: 35MM SUITE
LINERS: 18MM P/P PINE
GLAZING: SINGLE GLAZED
WALL THICKNESS: 90-100MM (CONFIRM ONSITE)

WINDOW & DOOR SCHEDULE
SCALE 1:50

NOTE: ALL DIMENSIONS ARE TO TRIM SIZE ONLY
ALL WINDOW & DOOR DIMENSIONS TO BE CHECKED ONSITE

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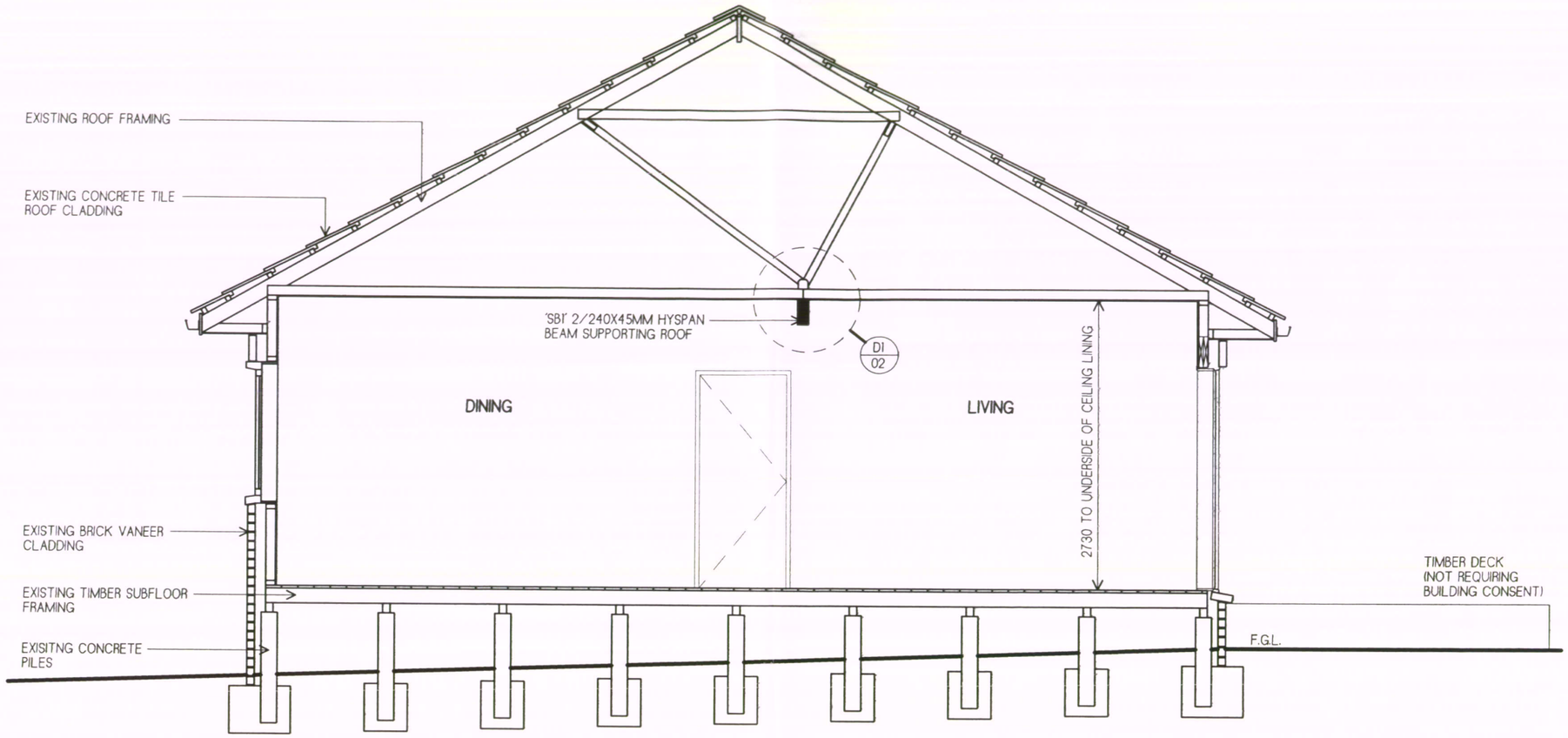
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A-A SHEET 5 CROSS SECTION
SCALE 1:50

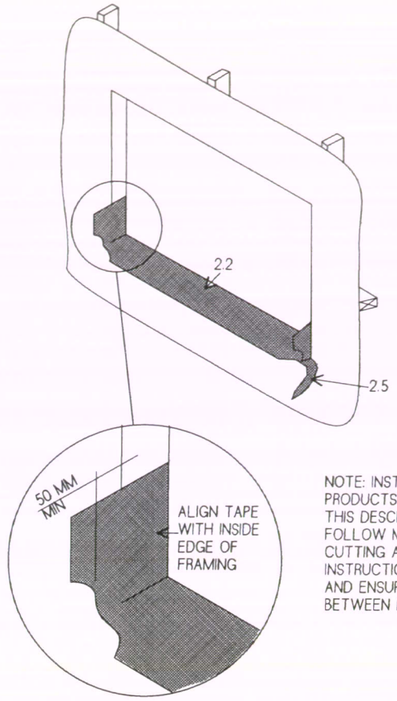
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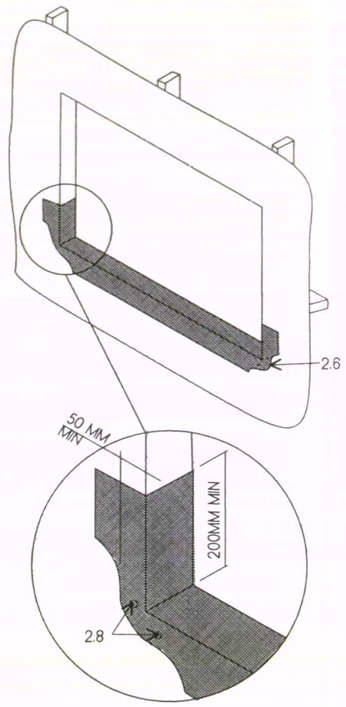
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NOTE: INSTALLATION OF SOME PRODUCTS MAY VARY FROM THIS DESCRIPTION, PLEASE FOLLOW MANUFACTURER'S CUTTING AND FITTING INSTRUCTIONS IN ALL CASES AND ENSURE COMPATIBILTY BETWEEN PRODUCTS USED



2.1 CUT SILL FLASHING TAPE AT LEAST 400MM LONGER THAN THE OPENING WIDTH, TO ENSURE BARE FRAMING IS COVERED

2.2 REMOVE FIRST PIECE OF RELEASE PAPER, ALIGN THE BACK EDGE OF SILL FLASHING TAPE WITH INSIDE EDGE OF SILL.

NOTE: DO NOT WRAP SILL FLASHING TAPE ONTO THE INTERIOR SURFACE OF THE FRAMING WHERE IT MAY INTERFERE WITH THE WALL LININGS.

2.3 FRONT EDGE OF THE SILL FLASHING TAPE SHOULD PROJECT OUT FROM THE FRONT OF WALL FRAMING FOR EASE OF INSTALLATION ADHERE INTO OPENING ACROSS SILL AND UP EACH JAMB (MIN. 200MM) TO COVER BARE FRAMING.

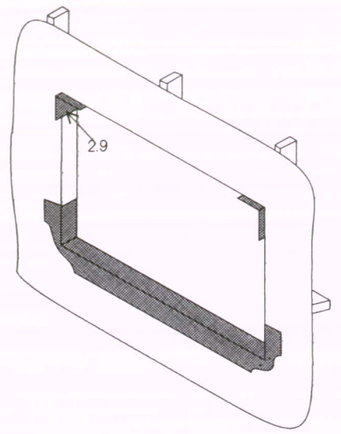
2.4 TRIM CORNERS OF SILL FLASHING TAPE SO THAT THE FRONT EDGE EXTENDS TO APPROXIMATELY 50MM OUT FROM FRONT OF WALL FRAMING TO ENABLE TAPE TO BE FOLDED AROUND EASILY

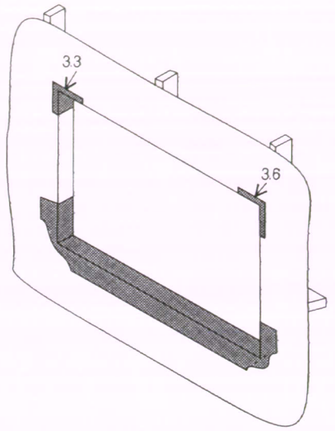
2.5 REMOVE SECOND RELEASE PAPER.

2.6 FAN SILL FLASHING TAPE AT BOTTOM CORNERS ONTO FACE OF HOUSE WRAP REMOVING ANY WRINKLES.

2.7 FIRMLY PRESS SILL FLASHING TAPE ONTO ALL SURFACE TO ENSURE FULL ADHESION.

2.8 SECURE EDGES OF BOTTOM CORNERS WITH CLOUTS OR SIMILAR THROUGH THE FLASHING TAPE INTO THE FRAMING.





3.1 CUT PIECES OF FLASHING TAPE AT LEAST 400MM LONG.

3.2 REMOVE RELEASE PAPER, AND ALIGN THE BACK OF THE FLASHING TAPE WITH THE INSIDE EDGE OF FRAMING AND THE FRONT EDGE PROJECTING A MINIMUM OF 50MM OUT FROM THE FRONT OF WALL FRAMING. ADHERE INTO OPENING ACROSS THE HEAD AND DOWN EACH JAMB A MINIMUM OF 200MM IN EACH DIRECTION.

NOTE: DO NOT WRAP SILL FLASHING TAPE ONTO THE INTERIOR SURFACE OF THE FRAMING WHERE IT MAY INTERFERE WITH THE WALL LININGS.

3.3 FAN FLASHING TAPE AT TOP CORNERS ONTO FACE OF 'HOUSE WRAP'

3.4 FIRMLY PRESS FLASHING TAPE ONTO ALL SURFACES TO ENSURE FULL ADHESION REMOVING ANY WRINKLES

3.5 TRIM EXCESS TAPE FROM INSIDE, FLUSH WITH FACE OF FRAMING. CARE MUST BE TAKEN NOT TO CUT HOUSE WRAP

3.6 SECURE EDGES OF BOTTOM CORNERS WITH CLOUTS OR SIMILAR THROUGH THE FLASHING TAPE INTO THE FRAMING.

FLEXIBLE FLASHING TAPE

SCALE 1:50

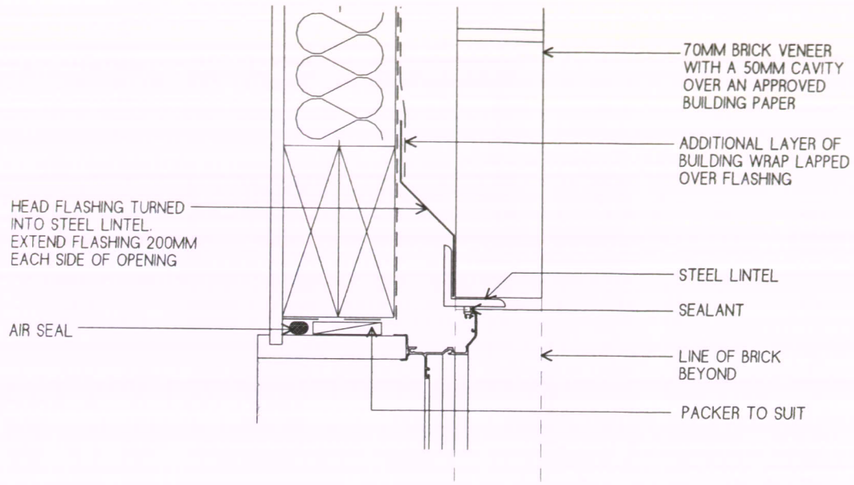
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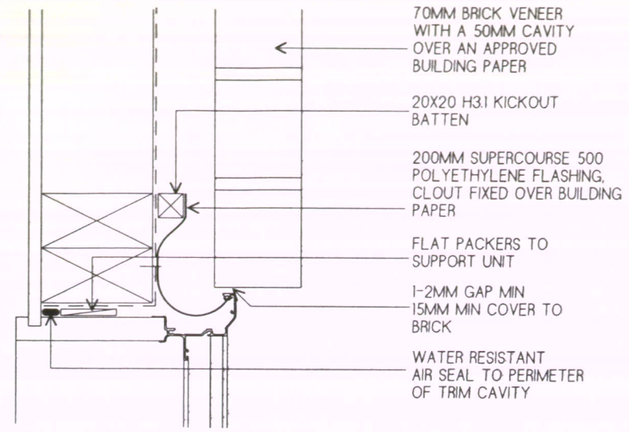
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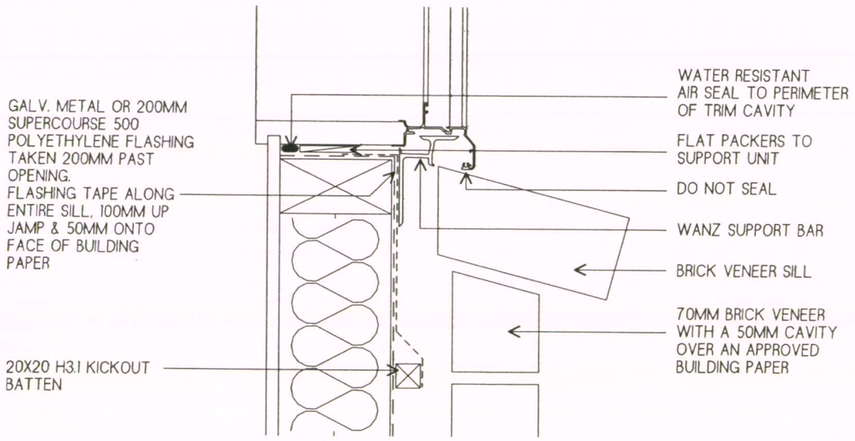
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BRICK
HEAD DETAIL
SCALE 1:5



BRICK
JAMB DETAIL
SCALE 1:5



BRICK
SILL DETAIL
SCALE 1:5

NOTE: BUILDING WRAP TO BE TEKTON FIXED TO FRAMING AS PER SPECIFICATION, AND POLYPROPYLENE TAPE SHELL BE USED BETWEEN STUDS @ 300 CRS TO ENSURE INSULATION DOES NOT BULG INTO CAVITY SPACE.

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