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CODE COMPLIANCE CERTIFICATE

SECTION 95, BUILDING ACT 2004

THE OWNER

Van Lent Cornelius Francis Maria & Van Lent Suzanne Karen C/- Hayward Homes PO Box 1416 Paraparaumu Beach	No. 080056 Issue date 26/02/09 Application date 23/01/08
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THE BUILDING

Street Address	286 Peka Peka Road, Peka Peka
Valuation No.	1489006926
Legal Description	Lot 12 DP 385819 C/T 343710
Intended Use	Residential Dwelling
Intended Life	Indefinite, but not less than 50 years
Current Use	Vacant Land
Proposal	New Dwelling
Estimated Value	\$240,000

Code Compliance

The building consent authority named below is satisfied, on reasonable grounds, that –

- The building work complies with the building consent; and
- The property owner must follow and carry out the manufacturers prescribed maintenance procedures.

Signed for and on behalf of the Kapiti Coast District Council:

Signature:

Date:

KAPITI COAST DISTRICT COUNCIL

APPLICATION FOR A CONNECTION TO COUNCIL WATER SUPPLY.

Vanhent

(full name)

PLEASE PRINT

hereby apply for an "ORDINARY" service to be laid from the Kapiti Borough Water Supply to the premises owned by me at:

(PROPERTY Address in full, if different from above)

286 Reka Reka Rd

Lot

12

DP

385814

Fees Payable (on application)

Inspection

\$

Connection

\$

Total

\$ Nil

Notes: All dwelling units to pay full inspection fees.

The connection fee to be divided equally between dwelling units situated on the same lot sharing a common lat

Owners Signature

Date

THIS PART TO BE COMPLETED BY PLUMBER

I, A. Davies

(full name)

of

(address)

being a Licensed Craftsman Plumber apply for permission to connect the above premises to the Kapiti Borough Water Supply. I agree to comply in every respect with the Kapiti Borough Water Supply By-Laws. Connection NOT permitted until permit obtained.

(Signature)

(Craftsman Licence No.)

(Date)

1. Existing Water Supply

To be retained/dismantled

2. Pressure: high/low

"Header Tank"/Pressure Reducing Valve

3. B/W Cylinder Type

Exhaust Pipe/Pressure Relief Valve

4. Approximate Age of Water Piping

Copper/PVC/Alkathene

5. If premises have swimming pool what capacity

Filter plant Yes/No

6. State precisely how it is proposed to make the new connection:

OFFICE USE ONLY

building consent no

080056

Plumbers producer statement to be provided.

Date Issued

Connection Recorded



Site Inspection Report - New BC Applications

BC Application number: Lot 12 DP 385819.

Site Address: 286 PEKA PEKA RD.

Building Project: NEW DWELLING.

Check NCS status is currently "To Site Inspection"

Item to be checked	Decision	Record any relevant information	Action required
Contours match application?	<u>Yes</u> / No		
Datum point identified?	<u>Yes</u> / No		
Boundaries identified?	<u>Yes</u> / No		
Check ground conditions OK?	Yes / No	<u>ENGINEER DESIGN</u>	
Check f/path, kerb & channel, grass berm, note existence/damage.	Yes / <u>No</u>		
Vehicle entrance crossing installed (describe condition)	Yes / <u>No</u>	<u>curse</u>	
Photos taken? (Save & link to NCS)	Yes / <u>No</u>		
Dogs on property?	Yes / No		
Is there a requirement for further foundation investigation e.g Engineers design	Yes / <u>No</u>		Referred to Approvals T/L Yes / No
Record all decisions in accordance with KCDC Policy 007. Circle Yes or No in each case.			

Note: if there is a requirement for further information or some areas which do not appear to comply refer file to Team Leader Consent Approvals for action.

Inspecting Officer: Name ALAN TOWNLEY Signature [Signature]

Date Inspected: 25/1/08

Unless further foundation information required, change NCS status to "To Plumbing & Drainage" and place file in P&D shelf area for Approvals. If further information is required, then Status change to "To Senior Building Inspector" and hand to Team Leader Consent Approvals for action.

CONSENT DATA INPUT REQUIREMENTS

REQUIRED INSPECTIONS	32	✓	Lapse and cancellation after 12mths of consent	23	✓	Installation of solid fuel appliance (wood burner) comply and secured
Foundation/Piles						
Block	2	✓	Engineer design specific components	23A		Second hand wood burner certified
Pre-Slab (Plumbing)	3		Foundations to solid bearing of 200mm	25	✓	Contractor to leave site clean and clear
Pre-Slab (Building)	4		NZS3604 as acceptable solution in terms of NZ Building Code	30		To comply with Food Hygiene Regulations 1974
Sub-Floor						
Drainage	6		Not approved as Habitable Room	31	✓	As in CCZ, all fixings need to be stainless steel
Pre-Wrap	9		Note and comply with all endorsements on approved plans	33		Approval only given for relocation purposes
Pre-Clad	10		Names and Registration of plumber and drain-layer required	34		If cladding to have pre-finished colour coating, to be appropriate for coastal conditions
Weathertightness						
Pre-lining (Building)	11		Concealed soil and TV pipes and gas flues only allowed in ducts or minimum framed	38		Window sashes on upper levels less than 760mm above floor to have stays fixed
Pre-lining (Plumbing)						
Wet areas - membrane	12		Hot & Cold water pipes tested to 1500kPa	39		Construction of playground to comply with NZS5828
Post Lining						
Brick Veneer	13		Roof stormwater to be connected to existing	40		Fencing, gates, doors directly leading to swimming pool to comply with Pool Act 1987
Retaining Wall						
Final (Dwelling)	14		Copper water pipes not permitted	43		Textured systems should be applied by licensed, trained applicators - supply warranty
Final (Commercial & Multi-resd)						
	15		Owner/builder to ensure prop foundation height will allow satisfactory connection	44	✓	Exterior cladding system to be completed and inspected prior to internal lining
	21	✓	Minimum FFL to comply with NZS3604			

STANDARD CONSENT CONDITIONS		
37		
72		
80		

NON-STANDARD ADDENDA

This project is fully designed by an engineer. The owner/builder is required to ensure the Engineer inspects the work and provides KCDC with written evidence of the inspection.

ENGINEERS DESIGN

fully designed by an engineer.

FOR OFFICE USE ONLY

FEES		APPLICATION FEE	\$ 2480	24/1
Building Fee	\$ 1732	RECEIPT NO		DATE
Sewer Connection	\$	INVOICE NO	56081	24/1
Water Connection	\$	RECEIPT NO	244076	24/1
Vehicle Crossing	\$	FEES PAID BY:	Hayward Homes	
Damage Deposit	\$ 4	BUILDING CONSENT NUMBER	3080056	24/1
Code Compliance Administration	\$	AUTHORISATION FOR REFUND OF DEPOSIT		
Building Research Levy	\$ 240	Deposit held =	\$	
Development Levy	\$	Cost to Repair Damage Caused During Construction =	\$	
DBH Levy	\$ 12-80	Total Balance to be Refunded		
Compliance Schedule	\$	Authority Number:		
Digital Storage Fee	\$ 36	Authorised:		DATE:
Certificate of Title Charge	\$			
Photocopying	\$			
SUBTOTAL	\$ 2480			
Less Fee Paid	\$ 2480			
TOTAL	\$ 0			
GST INCLUDED	\$ 248.97			

GST 51-860-608

Received with thanks by 19/01
KAPITI COAST DISTRICT COUNCIL

24-01-08 9:05 Receipt no.244076

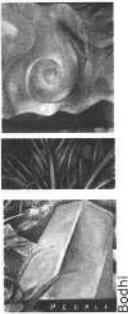
COPY *COPY* *COPY*
DR BC080056
HAYWARD HOMES LTD 2,480.00-
Hayward Homes Ltd::P O Box 1416:Parapar
Hayward Homes Ltd 2,480.00

FOR COUNCIL USE:			
DEPARTMENT	TICK FOR REFERRAL	COMMENTS	APPROVING OFFICER/ DATE
Resource Consents (refer PIM Sheet)	/	Refer PIM	
Plumbing and Drainage	/		8/9/08
Building	/		11/3/08
Fire Design			
Compliance Schedule			
Environmental Health			
Site, Footpath & Entrance Conditions		Ground	
Refer NO FOOTPATH		ENGINEER DESIGN	A TINKLEY 25/1/08
NOTES:			

RECEIVED
KAPITI COAST
DISTRICT COUNCIL 23 JAN 2008

Building Consent No.	BC080056
Building Project	New Dwelling
Location (Site Address)	Lot 12 Seacrest Downs - Peka Peka.
Building Category	Circle appropriate category 0 (1) 2 3

Application workflow checklist		
	Name & Signature Note # A signature confirms that the application contains sufficient information to enable compliance with the building code to be assessed	Date
# Note: Checked, date stamped and initialled by TO/BCO. Select and circle appropriate category above & identify allocation to appropriate technical groups and if required to go to "site inspection" AP-WI-001	Michelle Salmon	23/01/08
Payment taken and receipted (details entered inside this cover sheet) by CSO CS-WI-008	Mei Mei	24/1/08
Data entered and invoiced by CSO CS-WI-008	Mei Mei	24/1/08
Pages numbered by CSO CS-WI-008	Paula	24/1/08
BC Application and documentation scanned, checked & status update by CSO CS-WI-009	Paula	24/1/08
BC Application signed over to BC CS-WI-009		
Application reviewed by Technical Officers who sign off at back of this form AP-WI-026 & AP-WI-009	Simon Copp	11/2/08
Once Technical review complete, passed to CS for Plan Production and Invoicing AP-WI-009		11/3/08
CSO checks data entry input, including required inspections CS-WI-012		
BC, plans and other appropriate paperwork produced by CSO CS-WI-012		
BC, Approved plans and appropriate paperwork sent to applicant or agent with receipt by CSO CS-WI-012	Helen	11/3/08
Inspection envelope prepared by CSO with endorsed plans and other appropriate paperwork and filed to cabinet. CS-WI-012		



Building consent 080056

Section 51, Building Act 2004

The building

Street address of building: 286 Peka Peka Road, Peka Peka

Legal description of land where building is located: Lot 12 DP 385819 C/T 343710

Valuation number: 1489006926

Building name:

Location of building within site/block number:

Level/unit number:

The owner

Name of owner: Mr & Mrs Van Lent

Contact person:

Mailing address: 70A Marine Parade, Paraparaumu

Street address/registered office:

Phone number: Landline:

Mobile:

Daytime:

After hours:

Facsimile number:

Email address:

Website:

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

Full Name: Hayward Homes Ltd

Mailing Address: P O Box 1416, Paraparaumu

Phones:: 0274970238: 2981417

Fax: 2971488

Building work

The following building work is authorised by this building consent:

New Dwelling

Residential Dwelling

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.

Compliance schedule

A compliance schedule is not required for the building.

Attachments

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

Signature

Position

On behalf of: KAPITI COAST DISTRICT COUNCIL

Date: 11/03/08

11 March 2008

Mr & Mrs Van Lent
70A Marine Parade
Paraparaumu

Dear Sir/Madam

Approval of Building Consent: 080056

Description: New Dwelling
Location: 286 Peka Peka Road, Peka Peka
Legal Description: Lot 12 DP 385819 C/T 343710

I am pleased to inform you that the above building consent application has been approved. The building consent documents have been issued and are enclosed.

Before starting any work please read ALL the building consent documents carefully and in full so that you as the owner understand the conditions under which the consent has been issued.

As the owner you are also responsible for the following:

- ensuring that building work starts within 12 months of the approval of the building consent and that work progresses at a reasonable pace.
- ensuring that all required inspections are completed and that a Code Compliance Certificate is obtained once the work has been completed – please be aware that before a Code Compliance Certificate is issued, the building work must comply with the Building Act 2004 and the Building Code as at the date of final inspection.
- that no work with noisy equipment is to be carried out before 7.30 a.m. or after 6 p.m. Monday to Saturday. During the week there may be workers on site from 6.30 a.m. quietly preparing for work. Work with noisy equipment is not permitted on Sundays and public holidays.
- ensuring that no damage occurs to public property, for example footpaths or retaining structures. Should damage occur you will be required to pay for any repairs.
- ensuring that if you wish to make any changes to the approved building consent, then an amendment to the building consent will need to be lodged with us.

If you have any questions regarding your building consent or your responsibilities, please contact Kapiti Coast District Council on (04) 9045 617.

Addenda to Application

Application

Hayward Homes Ltd
P O Box 1416
Paraparaumu

No.

080056

Project

Description	New (& prebuilt) House, Unit, Bach, Crib, Town House etc. Being Stage 1 of an intended 1 Stages New Dwelling
Intended Life	Indefinite, but not less than 50 years
Intended Use	Residential Dwelling
Estimated Value	\$240,000
Location	286 Peka Peka Road, Peka Peka
Legal Description	Lot 12 DP 385819 C/T 343710
Valuation No.	1489006926

Builder: Hayward Homes P O Box 416, Paraparaumu :
2981417/0274970238

Designer: Hayward Architecture 102 Rata Rd : 2981417/0274970238

Drainlayer: David ? R D 1 Levin : 0273122211

Plumber: Davie Plumbing : 0274541533

Contractor: Designiq?- Str Eng 298 Rosetta Rd

General Requirements

- a) The District Inspector is to be given 24 hours' notice before carrying out the following inspections:
1. Foundations
 2. Pre-slab
 3. Pre-slab
 4. Drainage
 5. Pre Wrap
 6. Pre Clad
 7. Weathertightness
 8. Weathertightness
 9. Wet Area - pre Application
 10. Wet Area - post application
 11. Postline
 12. Retaining Wall
 13. Final Inspection
- b) To arrange for any of the above required inspections by Building Control Team, please contact the Call Centre on (04) 296 4700 between the hours of 7.30am and 5.30pm.

1. LAPSE AND CANCELLATION OF BUILDING CONSENT. A building consent shall lapse and be of no effect if the building work concerned has not been commenced within 12 calendar months after the date of issue. Or within such further period as the territorial authority allows.
2. The inspection of all specific design components of the building is the responsibility of the Design Engineer who is also required to supply a written report to Council.
3. All foundations are to be to solid bearing minimum of 300mm
4. NZS3604 is an Acceptable Solution in terms of the New Zealand Building Code and is a recommended reference document for timber framed buildings.
5. Minimum heights of finished concrete slab-on-ground floors above adjoining finished ground level to comply with the current NZS3604.
6. Seismic restraint to be provided to appliance and flue as per manufacturer's recommendations (and NZBC C/AS1 Sections 9.1.2 and 9.2.2)
7. Contractor to leave site clear of all demolition materials and in a tidy state.
8. As this site is located in the Severe Coastal Corrosion Zone, all exposed fixings and cladding fixings need to be stainless steel.
9. Exterior cladding system to be previously completed and inspected by Council's Inspector prior to any subsequent prelining inspection/approval being granted for the fixing of internal linings.
10. This project contains elements specifically designed by an engineer. The owner/builder is required to ensure the Engineer inspects the work and provides KCDC with written evidence of the inspection.

I have read the foregoing addenda to application, and the Owner/Builder/Authorised Person hereby agrees to comply with them.

**OWNER/BUILDER/
AUTHORISED PERSON**

Date: _____



greig hayward architecture

102 Ratanui Road, Paraparaumu, Kapiti Coast
Tel 04 298 1487, Fax 04 298 1488, Mobile: 027 233 9840
Email: greighayward@xtra.co.nz

FACSIMILE

To : KCDC

From : Greig Hayward

Att: Leon Smith

Date : 4/3/08

Fax No : 04 296 4830

Pagers :
(including Cover Page)

Re : BC 080056

Message:

Hi Leon

Clarification of issues requested

1. All roofing material Colorsteel Max Trimline.
2. 300mm wide internal gutters ✓
3. Beam in roof space between entry and kitchen to be h3.1
4. Rafters to canopy to be at 600mm c/c ✓
5. Distribution of bracing elements to councils approval.

Regards

Greig Hayward

Kapiti Coast District Council
Private Bag 601
Paraparaumu 5254

Tel. (04) 296 4700
Fax (04) 296 4830

E: kapiti.council@kapiticoast.govt.nz
W: www.kapiticoast.govt.nz



29 February 2008

Hayward Homes Ltd
P O Box 1416
Paraparaumu

Building Consent: 080056

Dear Sir/Madam

Request for further information

Description: New Dwelling
Location: 286 Peka Peka Road, Peka Peka
Legal Description: Lot 12 DP 385819 C/T 343710

Unfortunately, we are unable to process your *Building Consent* application that information clarification is required.

We should be pleased if you would arrange a meeting in order to discuss the outstanding Issues.

We have suspended your application and will not proceed any further until we have had the opportunity to resolve the necessary items.

Yours sincerely

Leon Smith

Kapiti Coast District Council
Private Bag 601
Paraparaumu 5254

Tel. (04) 296 4700
Fax (04) 296 4830

E: kapiti.council@kapiticoast.govt.nz
W: www.kapiticoast.govt.nz



9 February 2008

Hayward Homes Ltd
P O Box 1416
Paraparaumu

Building Consent: 080056

Dear Sir

Request for further information

Description: New Dwelling
Location: 286 Peka Peka Road, Peka Peka
Legal Description: Lot 12 DP 385819 C/T 343710

Unfortunately, we are unable to process your *Building Consent* until we receive the information detailed below.

Information Needed:

1/ Please provide a copy of the sewage treatment designers site plan showing the effluent field location. *Site plan provided 19/2/08*

2/ Check with the duty Town Planner regarding location of large water storage tank shown close to the road boundary.

We have suspended your application and will not proceed any further until the above information is received. Please send it to us by 9th March 2008. If we do not receive it by this date, we may not be able to issue your *Building Consent*.

Please contact me if you would like to discuss this matter.

Yours sincerely

Simon Copp

Building Control Officer

COPY

CHECKSHEET (Effective from 31 March 2005)

Single Residential Dwelling and Accessory Building

Use for single stand-alone dwellings, dwelling additions and/or alterations, repiles, garages, decks, gazebos, sheds, retaining walls, etc

For use with applications for building consent

Address _____

This checklist shows you the information that has to be supplied with your building consent application. Please attach 2 copies of the following information (unless otherwise specified) with your completed Building Consent Application form.

Please tick each relevant box in the Customer Use column as you attach the information. If the box is not relevant to your application, write NA across the box. Please check each section carefully and complete those sections that are relevant to your project.

A guidance document is available to help complete the section in the application form on 'means of compliance' for each building code clause

Once you have attached all the required information, please check for completeness as an incomplete application or lack of any supporting information will mean that your application cannot be accepted for processing.

Customer
use

1. GENERAL

COMPLETE FOR ALL APPLICATIONS

- | | | |
|--------------------------|---|--------------------------|
| ☐ | <p>a Building Consent Application Form (1 copy)
Completed and signed by the owner or by an agent on behalf of the owner.</p> | ☐ |
| ☐ | <p>b Proof of ownership (1 copy)
One recent copy of <u>current</u> certificate/s of title (i.e. not older than 3 months) or one copy of purchase agreement (if recently purchased) or one copy of relevant portions of current lease</p> | ☐ |
| ☐ | <p>c Locality plan (1:500) showing:
Physical location of the subject building in relation to streets or landmarks, north point, name of building and lot and DP number</p> | ☐ |
| ☐ | <p>d Inspections and monitoring
Details of proposed inspection regime including monitoring by council officers and other professionals eg architects, engineers, surveyors and certification to be supplied on completion.</p> | ☐ |
| ☐ | <p>e Application fee</p> | ☐ |

Applications will not be accepted without payment of the appropriate fees. Fees payable are set out in the published fee schedule of the council that has jurisdiction over the project site.

For office use
only

2. DEMOLITION / REMOVAL

COMPLETE FOR ALL PROJECTS INVOLVING DEMOLITION OF SIGNIFICANT PARTS OF BUILDINGS OR THE DEMOLITION OR REMOVAL OF WHOLE BUILDINGS.

Note: Where the project is only for the complete removal or demolition of a building you are not required to complete any further sections

- ☐ a Means of barricading the site
Provide details of temporary barriers, gates which swing inwards or other means of restricting public access to the area
- ☐ b Proposed tipping location for demolition materials (address/landfill)
- ☐ c Hazardous building materials
Provide safety plan detailing the safe handling and disposal of hazardous materials
- ☐ d Site management plan covering
management to control silt run off, noise and dust
- ☐ e Proposed destination for relocated building:
- ☐ f Access to and from the site including (use of kerb and crossings)
- ☐ g Specify termination of existing services
 - Water
 - Sewer
 - Stormwater

- ☐ h Details about the building such as:
Number of storeys, type of materials the building is constructed of (note: Photographs of the building would be useful)

Note: You will need to contact the relevant service authorities specified below to advise them of the extent of your work:

Electricity, gas, drainage, water, transport, telecommunications, cable television or any other services that may be affected.

Note: Transportation of relocated building -

You will be required to contact and provide details to Council's Transportation and Traffic Department

3. FOUNDATIONS / FLOOR

COMPLETE FOR ALL NEW BUILDINGS, FOR EXISTING BUILDINGS WHERE THE FOOTPRINT OF THE BUILDING WILL CHANGE OR WHERE AN ADDITIONAL STOREY IS BEING ADDED

- ☐ a Site Plan (1:100) showing
Dimensions of all boundaries, north point, finished floor levels, ground contours (extended to boundaries) and/or levels, site area, street name and number, lot and DP number, outline of building and distances to boundaries. Include on the site plan the designated wind zone of the site (e.g. specific design, very high, high, medium or low)
- ☐ b Foundation plan (1:100/1:50) showing:
 - dimensions of all new foundations
 - sub-floor, including bracing
 - footing details
 - if a concrete slab, show basic details including reinforcing and contractions joints
 - piles and footings
 - if the addition is an upper storey show details on upgrading existing foundations, joints, piles, etc
 - indicate ventilation to sub floor spaces
- ☐ c Subfloor bracing
Provide subfloor bracing plan and calculations for all piled structures. Where the structure is specifically engineered, this should be included with the structural calculations
Subfloor bracing plan and calculations are required where an additional storey is to be added.
- ☐ d Foundation details
Details including reinforcing and connections

4. CONSTRUCTION

COMPLETE FOR ALL NEW STRUCTURES OR ALTERATIONS TO EXISTING STRUCTURES

- ☐ a Existing floor plan (1:100/1:50) showing
(for additions and alterations only)
- all levels
 - all designated spaces
 - all removals
 - sanitary fixtures
 - smoke detectors
- ☐ a Proposed floor plans (1:100/1:50) showing:
- room dimensions
 - location of partitions
 - all designated spaces
 - all floors (new or altered)
 - location of sanitary fixtures
 - stairs, barriers, handrails, floor joists and beams
 - floor joist layout for each level with timber floors
 - smoke detectors
- ☐ b Wall bracing plan (1:100/1:50) showing:
- Bracing details and calculations for wall bracing (also required for existing lower storeys where an additional storey is being added)
- Sub-floor bracing for decks projecting more than 2m from the house
- Location, type and number of bracing elements to indicate compliance with NZS 3604:1900 (include calculations)
- If the bracing was specifically designed by a structural engineer, provide calculations (required for specific design wind zones and lateral distribution of upper floor loads where lower storey bracing is provided in walls beyond the upper storey footprint)
- ☐ c Sections and details (1:50/1:20/1:10) showing:
- stairs, handrails, decks and decking
 - insulation systems and materials to floors, walls and roof
 - barriers providing safety from falling. Specific engineering design required where detail does not comply with NZBC B1/AS2
 - framing sizes, beams, lintels, trusses including fixing and other structural items. Lintels carrying point loads, such as from girder trusses, require specific engineering design
 - roof cladding, eaves, fascias, gutters, flashings to openings
 - fire rated systems on all walls - closer than 1 metre to boundary
 - stud heights of rooms and total height from lowest ground floor level to top of ridge
 - truss layout supported by design certificate and design of fixing details and load path to ground
 - retaining wall details e.g. type, height of retained ground, relationship to boundary, waterproof membrane and proposed drainage.
 - truss design details
- ☐ d Fire report:
- For domestic dwellings of 4 storeys or more, or buildings providing more than one household unit.

5. STRUCTURAL

COMPLETE FOR ALL PROJECTS INCORPORATING SPECIFIC STRUCTURAL

- ☐ a Structural calculations
- If any design work required the services of a structural engineer, attach 2 copies of the calculations with this application along with structural drawings
- The calculations must be prefaced with information explaining the design philosophy and justification of assumptions and methodologies used in analysis
- ☐ b Producer statements:
- If this application for consent relies on any producer statements certifying compliance with the New Zealand Building Code, a copy must be attached with this application. (Note all structural producer statements are required to have accompanying calculations)

6. EXTERNAL

COMPLETE FOR NEW BUILDINGS OR EXISTING BUILDINGS WITH ALTERATIONS TO THE EXTERNAL SHELL

- ☐ a Elevations (1:100/1:50) showing:
Accurate lines from boundary to boundary on each elevation, relevant District Plan daylight control lines, the maximum height on each elevation, location of door and window openings, fixed and opening sashes, sill heights, floor levels in relation to ground levels, exterior cladding nominated to all elevations, down pipes and spouting, ventilators to sub-floor area (suspended floors only)
- ☐ b Risk assessment
(Risk matrix in E2/AS1 may be used)
Consider exposure, design and detailing to support appropriate selection of cladding
- ☐ c Cladding details (1:50/1:20/1:10)
Provide details around all penetrations, joinery and other junctions at a level appropriate to the level of risk e.g. roof/wall, balcony/ wall, junction of different types of cladding, backflashing details for cavity systems
- ☐ d Product certification
Supply copies of product certificates relied on as compliance documents
- ☐ e Alternative solutions
If the proposal uses products or systems that are not covered in the Acceptable Solutions of clause E2 of the building code provide supporting current information including independent test results (full signed reports), case studies, expert opinion (including evidence of experience/qualification, basis for forming opinion, and statement of independence) etc to demonstrate compliance

7. SERVICES

COMPLETE FOR ALL PROJECTS WITH NEW INSTALLATION OR ALTERATION OF PLUMBING OR DRAINAGE SERVICES

- ☐ a Plumbing and Drainage plan (1:100) showing:
Note: If you have supplied drainage details for surface water disposal on the site plan, no drainage plan is required
- fixtures and fittings, hotwater system(s)
 - if the building is more than one storey with sanitary fittings on upper floors, provide an isometric layout showing wastes, pipes and falls
 - drainage layout with inspection bends and junctions indicated for both sewer and stormwater
 - any other drainage on site including council mains and retaining wall field drains
 - ventilation of sanitary rooms
 - calculations for sizing of downpipes

8. CHANGE OF USE

COMPLETE FOR ALL EXISTING BUILDINGS WHERE THE PROPOSAL INVOLVES FORMING A HOUSEHOLD UNIT WHERE ONE DID NOT EXIST BEFORE

Example: the conversion of a garage or shed into a residential unit

- ☐ a Assessment of the building for compliance with the building code
Section 115(a) of the Building Act 2004 requires that the work comply fully with all clauses of the building code.
- ☐ b Reasonably practicable
The above assessment must relate to all building code clauses. If the proposal is for the project to meet anything less than full compliance with any clauses, your application must clearly state your reasoning, with supporting documentation, and show how you will meet the highest level of compliance that can be considered reasonably practicable.

9. SPECIFICATIONS

COMPLETE FOR ALL APPLICATIONS

Note: The specification must be specific to the project and cover all aspects of the proposed work.

☐

a Specification: General

- elements of structure (size, spacing, timber treatment)
- finish of fixings to meet durability requirements
- plumbing and drainage materials and design that installation is to comply with
- wet area surfaces
- ventilation systems
- flooring slip resistance for access routes
- glazing
- type of smoke detectors (including existing smoke detectors where they will remain)

☐

b External claddings

For each of the following claddings provide details of the product name, manufacturer, maintenance requirements and warranties offered

- Building wraps
- Wall claddings
- Roof claddings
- Membranes (roofs and decks)
- Tanking
- Joinery

☐☐

NOTES

The issue of a building consent does not relieve the owner of any duty or responsibility under any other act

Please check with your local territorial authority regarding the requirement for other approvals required and fees payable. These may include:

- Consents under the Resource Management Act
- Approvals under bylaws including earthworks, vehicle crossings and road openings

DWELLING PROCESSING CHECKLIST

BC.080056

No = Plans, specifications & documentation not complying with the Building Code (specified alongside each prompt)

Yes = Plans, specifications & documentation complying with the Building Code. (specified alongside each prompt)

N/A = Not Applicable to this application.

Category.....

Site Plan (NZS 3604 Sec 3.4, 4.5 Code clB1, F1&F2)

Comments

N/A NO YES

- ☐ ☐ ☒ Wind zone High V/ High Specific..... NZS 3604
- ☐ ☒ Flooding / ponding GIS District plan
- ☐ ☒ Hazards..... F1 F2 & Sec 71-74 Bld Act
- ☐ ☒ Corrosion zone B2 & NZS 3604
- ☐ ☒ Soil conditions B1 NZS 3604
- ☐ ☒ Distances to boundaries/siting..... District plan
- ☐ ☒ Floor levels/ contours E2/AS1 & NZS 3604 E1
- ☐ ☒ Two or More Allotments..... Sec 75 - 83 Bld Act
- ☐ ☒ Specific Design (list all items) *- Part Foundation & Canopy Bracing*

Note :- all critical engineering to be accompanied by a design and calculations

Concrete / Foundation Plan (NZS 3604 NZS 4210 & 4229 E2/AS1)

Comments

Layout

- ☐ ☐ ☒ Layout dimensions..... NZS 3604.
- ☐ ☐ ☒ Control joints..... NZS 3604
- ☐ ☐ ☒ Slab thickening..... NZS 3604
- ☐ ☐ ☒ Plumbing layout..... NZS 3500

Section

- ☐ ☐ ☒ Depth & width..... NZS 3604
- ☐ ☐ ☒ Reinforcement..... NZS 3604;B2
- ☐ ☐ ☒ Plate fixings..... NZS 3604;B2
- ☐ ☐ ☒ DPM NZS 3604;B2
- ☐ ☐ ☒ Engineer design and Calcs..... B1;B2
- ☐ ☐ ☒ Concrete strength..... B1;B2

Timber / Subfloor Plan (NZS3604 NZS 3602 & 3640, B1)

Comments

Layout

- ☐ ☐ ☒ Layout dimensions
- ☐ ☐ ☒ Bearers details..... B1;B2
- ☐ ☐ ☒ Joist details..... B1;B2

Section

- ☐ ☐ ☒ Foundation type/size..... NZS 3604;B2
- ☐ ☐ ☒ Piles post sizes & treatment NZS 3604;3602;3640;B2
- ☐ ☐ ☒ Pile c/c..... NZS 3604
- ☐ ☐ ☒ Fixing..... NZS 3604;B2
- ☐ ☐ ☒ Ventilation & Access to sub floor spaces NZS 3604

If the addition is an upper storey show details on upgrading existing foundations, joints, piles, etc (may require Engineer design)

Floor plans / layout

Comments

General

N/A NO YES

- ☐ ☐ ☒ Room dimensions
- ☐ ☐ ☒ Sectional lines
- ☐ ☐ ☒ Location of partitions
- ☐ ☐ ☒ All designated spaces
- ☐ ☐ ☒ Location of sanitary fixtures
- ☐ ☐ ☒ Lintels..... NZS 3604:B2
- ☐ ☐ ☒ Beams..... NZS 3604, by engineer
- ☐ ☐ ☐ Point loads by engineer or prenaier....B1 B2
- ☐ ☐ ☒ Smoke detectors.....F7

Changes to existing work requires both an existing floor plan & a proposed floor plans

Kitchen

- ☐ ☐ ☒ SinkG3/AS1
- ☐ ☐ ☒ Hot & cold supply....G12
- ☐ ☐ ☒ Food preparation surface.....G3/AS1
- ☐ ☐ ☒ Waste water....G13.
- ☐ ☐ ☒ Cooking area.....G3
- ☐ ☐ ☒ Space for refrigerator.....G3
- ☐ ☐ ☒ Energy source....G11& G9
- ☐ ☐ ☒ Impervious surfaces.....G3

*Facility provided for washing utensils / food G3, Section 1.1 & Figure 1:
Preparation Area and Access to Facility Paragraphs 1.1.2 and 1.5*

Wet areas / WCs NZS 3602: 2003 sec. 10.3.1 ;D1, Table 2.

- ☐ ☐ ☒ Non-slip flooring.....D1 table2
- ☐ ☐ ☐ Waterproofing membrane.....B2 & E2
- ☐ ☐ ☒ Safety glazing.....F2
- ☒ ☐ ☐ Accidental overflow provision if multi-unit dwelling

Laundry G2/AS1, cl 1.01&2; E3/AS1 cl 3.1.

- ☐ ☒ ☒ Laundry tub or spaceG2/AS1
- ☐ ☐ ☒ Water and electric powerG9
- ☐ ☐ ☒ Splash protectionE3/AS1

Wall / Framing

Comments

General

- ☐ ☐ ☒ Identify engineering / Structural items.B1 B2
- ☐ ☐ ☒ By prenaier or to NZS 3604
- ☐ ☐ ☒ Fixing types NZS 3604
- ☐ ☐ ☐ Stud c/d as per wind zone.... NZS 3604
- ☒ ☐ ☒ Building wrap..... NZS 3604 E2/AS1
- ☐ ☐ ☒ Stud heights of rooms..... NZS 3604
- ☐ ☐ ☒ Wall claddings (see below)

Roof..... NZS 3604,3602 &3640 B1B2E2

Comments

Trussed / by preheader

- ☐ ☐ ☒ Fixing layout & details.....B1 B2
- ☐ ☐ ☒ Correct layout.....B1
- ☐ ☐ ☒ Max span (12m or Engineer).....B1
- ☐ ☐ ☒ Purlin or batten c/c.....B1 B2

Framed roof NZS 3604

- ☐ ☐ ☒ Purlins.....B1 B2
- ☐ ☐ ☒ Grade.....B1 B2
- ☐ ☐ ☒ Rafters.....B1 B2
- ☐ ☐ ☒ Ridge beams.....B1 B2
- ☐ ☐ ☒ Ceiling joists.....B1 B2
- ☐ ☐ ☒ Ceiling battens.....B1 B2
- ☐ ☐ ☒ Collar ties.....B1 B2
- ☐ ☐ ☒ Strong backs.....B1 B2
- ☐ ☐ ☒ Valley boards.....B1 B2
- ☐ ☐ ☒ Under purlins.....B1 B2
- ☐ ☐ ☒ Strutting beam.....B1 B2

Masonry, Metal or Profiled Metal

- ☐ ☐ ☒ Pitch / profile.....B1
- ☐ ☐ ☒ Underlay.....E2
- ☐ ☐ ☒ Flashings.....E3;E2
- ☐ ☐ ☒ Parapets.....B1 E2 B2
- ☐ ☐ ☒ Type or thickness (e.g. 0.4 pressed metal).....B2
- ☐ ☐ ☒ Gutters, Barges & Fascias detail Refer E2, section 8.3, cl 8.3.9

Installation of profiled metal roof cladding shall be by trained installers, approved by the tile manufacturer or NZ agent. In some cases experienced builders undertake installation, refer E2, section 8.4, cl 8.4.2 'General'.

Membrane Roofs Code E2/AS1 B2

- ☐ ☐ ☒ Flashings.....E3
- ☐ ☐ ☒ Limitations.....E2 B2
- ☐ ☐ ☒ Approved installer.....B2
- ☐ ☐ ☒ Substrate thickness.....B2
- ☐ ☐ ☒ Substrate treatment.....B2
- ☐ ☐ ☒ Fall.....E1 E2
- ☒ ☐ ☒ Overflow.....E1
- ☐ ☐ ☒ Wall roof junctionsE2

Refer also E2, Section 8.5, cl 8.5.4, 'Butyl & EPDM' Note:- a roof plan layout is required for all of the above

Claddings Code E2/AS1, Branz good practice Guides & Weather tightness Vol 12&3

Comments

- ☐ ☐ ☒ Cavity.....E2
- ☐ ☐ ☒ Direct fix.....E2
- ☒ ☐ ☒ Brick Veneer.....E2 "The brick book" Branz Masonry Guide
- ☐ ☐ ☒ Timber WeatherboardE2 Branz Timber Guide Vol 1&2
- ☐ ☐ ☒ StuccoB1 NZS 3604 Branz good practice guide
- ☒ ☐ ☒ Profiled Metal.....E2 Metal Roofing Practice
- ☒ ☐ ☒ PlywoodE2
- ☐ ☐ ☒ Fiber Cement W/b.....E2
- ☐ ☐ ☒ Weatherboard.....E2 Branz Timber Guide
- ☐ ☐ ☒ Fiber Cement Sheet.....E2
- ☐ ☐ ☒ Board & Batten..... Branz good practice guide

LINCOLN WEATHER BOARD.

Bracing NZS 3604

Comments

- ☒ ☐ ☐ Subfloor bracing.....B1& NZS 3604
☐ ☐ ☒ Wall bracing..... B1 & NZS 3604
☐ ☐ ☒ Roof bracing..... B1& NZS 3604
☐ ☐ ☒ Bracing calculations..... B1 & NZS 3604
☐ ☐ ☒ Provide bracing plan layout..... B1 & NZS 3604
☐ ☐ ☒ Double top plate (if > 5m)..... B1 & NZS 3604
☒ ☐ ☐ Indicate dragon tie (if > 6m)..... B1.& NZS 3604
☐ ☐ ☒ Diaphragm ceilings (if > 7.5m)..... B1 & NZS 3604
☒ ☐ ☐ Check for distribution B1 & NZS 3604

Light & Ventilation G4, Clause 1.2 ; G4, clause 1.3 G7 F2

Comments

General

- ☐ ☐ ☒ Vent 5%.....G4
☐ ☐ ☒ Light 10%.....G7
☐ ☐ ☒ Electrical.....G9
☐ ☐ ☒ Mechanical ventilation.....G4
☐ ☐ ☒ Exterior space for awareness.....G7

Glazing

- ☐ ☐ ☒ Safety glass.....F2 NZS 4223,NZS 4211
☐ ☐ ☒ Wind zone..... B1.& NZS 3604

Insulation BRANZ Home Insulation Guide, NZS 4218, AS/NZS 2918

Comments

- ☐ ☐ ☒ FloorH1
☐ ☐ ☒ Wall.....H1
☐ ☐ ☒ Roof.....H1
☐ ☐ ☒ Windows/glazing.....H1

Stairs / Landings / Handrails D1, sec 4

Comments

- ☒ ☐ ☒ Stair tread & risers.....D1
☐ ☐ ☒ Landing size.....D1
☒ ☐ ☒ Handrail.....D1
☐ ☐ ☐ Riser opening (min) where children.....D1
☐ ☐ ☐ Accessibility.....D1

Stair type

Minor Private: Max rise 220mm/Min tread 220mm,

Secondary Private: Max rise 200mm/Min tread 250mm,

Main Private: Max rise 190mm/Min tread 280mm. (Main private includes exterior stairs)

Decks / Balconies / Barriers D1, F4 & NZS 3604, Section6 & 7,

Comments

- ☐ ☐ ☐ Barrier & deck fixing durability.....D1 B1 B2
☐ ☐ ☐ Top rails, balusters, bottom rails, palings.....D1 B1
☐ ☐ ☐ If Engineer then calculations required.....B1 B2
☐ ☐ ☐ Max 3m height or Engineer.....B1 B2
☐ ☐ ☐ Deck joist sizes, grade, treatment, span & spacing.....D1 B1 B2
☐ ☐ ☐ Piles & bearers the correct grade, treatment, size, spacing & span.....D1 B1 B2
☐ ☐ ☐ Slip resistanceD1
☐ ☐ ☐ Appropriate waterproofing membrane..... B1 B2
☐ ☐ ☐ Stringer size & connectionsD1 B1 B2
☐ ☐ ☐ Thresholds.....D1 E2

Wood burners /Outbreak of Fire (Solid Fuel / Gas) G12/ AS1 NZS 5261 C/AS1 part 9 – 9.5

Comments

- ☐ ☐ ☒ Manufacturer specifications including hearth dimensions
- ☐ ☐ ☒ Flue details
- ☒ ☐ ☐ Wetback
- ☐ ☐ ☐ Seismic restraint
- ☒ ☐ ☐ Gas appliances NZS 5261
- ☒ ☐ ☐ Ventilation
- ☐ ☐ ☐ Open fires c/as1 part 9 – 9.5

Fire NZBC F7;Cdoc

Comments

- ☐ ☐ ☐ Travel distances max 24m.....C3.15
- ☐ ☐ ☒ Smoke detectors.....F7
- ☒ ☐ ☐ Garage fire wall detailsC7 (C7.10 C7.8)

Swimming Pool & Fencing Fencing of Swimming Pools Act 1987

Comments

- ☐ ☐ ☐ Refer to Compliance for sign off
- ☐ ☐ ☐ Specific Engineering Design
- ☐ ☐ ☐ Proprietary system/design
- ☐ ☐ ☐ Section/construction
- ☐ ☐ ☐ Pool backwash discharging the sewer
- ☐ ☐ ☐ Fence height
- ☐ ☐ ☐ Gate(s) / door(s) open outward

Effluent Disposal Systems

Comments

- ☐ ☐ ☐ Engineering Site Investigation
- ☐ ☐ ☒ Design Specification & Producer Statement

(The design criteria should include; Capacity based on bedroom numbers, Loading calculation, site evaluation, soil profile, site characteristics.)

Site plan required. provided 19/2/08

Water Supplies

Comments

- ☐ ☐ ☒ Town supply,
- ☐ ☒ ☐ Private scheme
- ☐ ☐ ☒ Type & location
- ☐ ☐ ☒ Size 20mm

Restricted supply location unknown

Sanitary Drainage*Comments*

- ☐ ☒ ☒ Layout
☐ ☒ ☐ Council availability or
☐ ☐ ☒ Septic tank design & calcs
☐ ☐ ☐ Registration/qualification

Stormwater Drainage*Comments*

- ☐ ☒ ☐ Layout
☐ ☒ ☐ Council availability
☐ ☐ ☒ Registration/qualification

Sanitary Plumbing*Comments*

- ☐ ☐ ☒ Layout
☐ ☐ ☒ Council availability
☐ ☐ ☒ Registration/qualification

Sign below if all the plans, specifications & documentation comply with the Building Code.

Refer to the associate code clause along side each prompt above for compliance

Signature & Date

Plumbing + Drainage O.K. *JK* 11/2/08



11/3/08.

Date / Time	Dialogue Record List Further Information Requested – Record / Reference Communication:	Summary of dialogue. (Reference to documents sent/received)
	Phone / Email / letter / counter / fax	
Date	3/3/08 TRIAD TO Pline Grey Hayward	
Time	3:50pm.	
Date	2. Meeting at the counter with Architect to go	
Time	over outstanding items requiring clarification.	
Date		
Time		
Date		
Time		
Date		
Time		
Date		
Time		
Date		
Time		

Alternative Solutions: Record assessment, decision and reasons for decisions below. Has the designer substantiated why they believe the proposal complies with the building code? Is there a determination on a similar proposal? Has corroborative evidence been provided (peer review, appraisal or determination)? Include reference to comparison with acceptable solutions, other documents / standards / best practice guides / publications, expert opinion, determinations, in-service history, product certification, professional judgment, building code objectives. Refer BRANZ Bulletin # 456 (Dec 2004). List any conditions / communications / actions:

Date:	
5/3/08	Meeting with Grey Hayward Architect Part information provided - awaiting Fire Place specifications & Make/Type of Building Wrap.

Waiver – Sec. 67 - 69: (Record assessment, decision and reason for decisions below - confirm that notification has been sent to CE of DBH). List conditions / communications / actions:

Date:	

Compliance Schedule – Sec 100 - 107: (record if new / amended compliance schedule required, and attach copy of replica compliance schedule. Ensure that note is recorded on building consent that new / amended compliance schedule will be issued).

Date:	

Alteration to Existing Building – Sec 112: (record decisions and basis for decisions – confirm whether sec 118 applies and if so, has it been complied with?). List conditions / communications / actions:

Date:	

Dexterity Required at Risk Matrix over 12

Your notes

Prompts

- Corrosion Zone
 - Very High Wind
 - No Ponding - No Hazards
 - Engineered designed foundation (Retaining walls & Comp
 - Site coverage
 - Contin Scale
 - Endoconcrete
 - Bamboo
 - NZS 3604 Amendments
 - NZS 3604
 - Cables & cables
 - Maintenance
 - Noisy stamp
 - Soft soil stamp
 - FPL
 - Deck stamp Registered Deck layer
 - Bottom plates -
 - Top Plates
 - Sub
 - Gable ends.
 - Close steel trussline MAX (if corrugated) on same page 5
 - Racking
 - Racking Bracing
 - Rake Flashing
 - Portin fixing
 - Back racking solid flashings
 - Rain distribution -
 - Gables
 - House
 - Ceiling Diaphragm Lunge
 - Steps to entrance if (2.0m wide) of more than .600 is height handrail
 - Frames
 - Pci studs
 - Linels
 - Retaining wall details
 - By owner

- Equine design
 - Rodder standards
 - Super columns
 - Ventilation
 - Slip resistance
 - Concrete strength
 - Reinforcing tenders
 - Non Glazing
 - Control Joints
 - Membrane roof
 - Manufactures specify Appraisal
 - GARAGE Now Habitable
 - Fire Place
 - Specs
 - Insulation
 - Timber treatment
 - Risk Matrix
 - Bolts & Square Cap
 - Cross flow ventilators
 - Kick at flashings
 - Gutter min size (300mm min)
 - & over flow (fall - min 1.40) roof
 - Beam in roof space H1.2
 - in low pitch, less than
 - 10° requires to be (H3.1)
 - Ceiling diaphragm double top plate
 - Rain in the floor
 - 1:100 Gutter
 - cladding specs
 - Far - lined
 - Asbestos Panel
 - Rte Building Wrap - Male
 - Patterns centres 190 x 45

BUILDERS Category 1
 Ground conditions
 Structure NZS 3604 or engineer
 Balustrades B1/AS2 or engineer
 Cut stability, retaining walls
 Work close to boundaries
 Durability, timber treatments
 Fire report; 4 storey, 1m to boundary
 Smoke detectors
 Access; stairs, handrails, slip resist
 Siteworks around buildings
 Cladding selection appropriate
 Flashings
 Waterproof retaining walls
 Floor heights and crawl space
 Wet area, waterproofing, surfaces
 Safety from falling
 Pool fencing
 Glazing for impact
 Natural light and awareness
 Natural ventilation
 Thermal insulation
BUILDERS Categories 2 & 3
 Fire report, purpose groups, escape
 height, path lengths, egress width
 F ratings, surface finishes
 Fire systems required, AS or
 alternative
 Accessible route from carpark/street
 Lifts
 Accessible facilities,
 Hazardous substances/processing
 Site safety, hoardings, gantries
 Assistive hearing systems
 Signage
 Sound control
 Energy efficiency (lighting)
 Specified systems/compliance
 schedule
PLUMBERS Category 1
 Flood zone, secondary flow path
 Stormwater disposal
 Subsoil drainage (retaining walls)
 Durability, material compatibility
 Flashing cover (roof and pipes)
 Internal gutter sizing
 Downpipe sizing, spreaders
 Foulwater disposal, overflow relief
 On site disposal systems
 Potable water supply
 HWC venting, restraint, thermal
 Water temperature at sanitary
 fixtures
 Gas appliance venting, thermal
PLUMBERS Category 2 & 3
 Stack drainage, venting
 Toilet numbers include accessible
 Mechanical ventilation/fume cupb'ds
 Penetrations through fire rated and
 acoustic rated walls/ceilings
 Trade waste, grease trap
 Back flow prevention
 Heating (old people & early
 childhood centres)

type
 400 p 4 & 600 p 6

Trick to King 35sqm Greig Hayward 29 81487

BUILDING CONSENT NOTES

ADDRESS: Peka Peka Road, Peka Peka.

LEGAL DESCRIPTION: _____

Zone: Residential

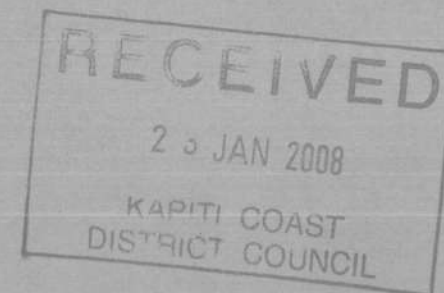
NOTES * CT Supplied
* DP
* Easements - R.O.W.
* S221 - Attached.
* S36 - Nil
* Resource Consents -
* District Plan Features - Nil
* Designations - Nil
* Flood Hazards - Nil
* Hazards - Nil
* Services - Nil
* Eco Sites / Imi Springs / GNS Fault / CHRB - Nil
* Yards -
* HIRB - } Nil Issues
* Site Coverage - }

Neighbours Written Approval:

Consulted Parties:

Approved/Approved with Conditions

Name: Guitehelf Date: 21/02/08



Project Information Memorandum No. 080056P

Building Project Lot 12

Seacrest Downs
Peka Peka.
286 Peka Peka Rd
Peka Peka

FOR OFFICE USE ONLY

FEES	PIM Fee	\$.....
\$.....	RECEIPT NO.	DATE
\$.....	INVOICE NO	DATE
\$.....	RECEIPT NO	DATE
SUBTOTAL		
Less Deposit Paid		
TOTAL		
GST INCLUDED		

PROJECT INFORMATION MEMORANDUM

Section 34, Building Act 2004

Building Consent Number: BC080056P
Applicant Name: Hayward Homes Ltd
Applicant Address: P O Box 1416
Paraparaumu
Application Date: 2008-01-23
Pim Decision Issued: 2008-02-19

Project: New Dwelling
Intended Use: 99
Estimated Value: 240000
Legal: Lot 12 DP 385819 C/T 343710
Location: 286 Peka Peka Road, Peka Peka
Valuation No: 1489006926

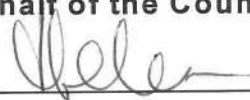
This project information memorandum is confirmation that the proposed building work may be undertaken, subject to the provisions of the Building Act 2004, and any requirements of the building consent.

This project information memorandum includes:

- ☐ Information identifying special features of the land concerned
- ☐ Details of relevant utility systems
- ☐ Details of authorisations which have been granted

Signed for and on behalf of the Council:

Name:



Date:

11/3/08

General

Use permitted:	Permitted activity
Resource Consent granted:	None listed
Designations on property:	None listed
Easements:	Right of way
Site subject to inundation:	Not known to be
Coastal building line restriction:	N/A
Relocatable zone:	N/A
Minimum floor level: (50 year event)	N/A
Floor level: (100 year event)	N/A
Yard and height requirements:	Comply
Tree/building preservation:	None listed

Planning

Potential erosion:	None Known
Potential avulsion:	None Known
Potential subsidence:	None Known
Potential slippage:	None Known
Potential alluvion:	None Known
Potential inundation:	None Known
Presence of hazardous contaminants:	None Known

Plumbing & Drainage

Sewer available / connected:	Not available
Water available / connected:	Available?

Site plan of existing services: Not supplied
(if any)

Location of sewer lateral: none

Location and size of water toby: no record of any

Location of easements: see planners comments
(if any)

Location of public drains: unknown
(if any)

Stormwater disposal to: Soak pits

Services Plan:

BC080056P

19 February 2008

Kapiti Coast District Council
Private Bag 601
Paraparaumu 5254

Tel. (04) 296 4700
Fax (04) 296 4830

E: kapiti.council@kapiticoast.govt.nz
W: www.kapiticoast.govt.nz



Hayward Homes Ltd
P O Box 1416
Paraparaumu

Re: New Dwelling for Mr & Mrs Van Lent at 286 Peka Peka Road, Peka Peka

I am pleased to advise that the Project Information Memorandum (PIM) component of your Building Consent application, BC080056P, has been completed.

Your proposed building project meets all the requirements of Council's District Plan which means that once you have received your Building Consent you may proceed with construction.

Council's Customer Service group is currently holding the PIM documents so that they can be forwarded to you once your Building Consent is completed however if you require them to be sent earlier please contact our Customer Service staff on 04 2964700.

Yours Sincerely

Sam Mitchell
Resource Consents Projects Officer

DEC 03 2007 09:22 64 4 5693933
30 NOV 2007 1:25Millespie Young Watson
Duncan Cotterill - Wellington#5571 P.002/004
No. 2243 P. 2/4**COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952**

Search Copy



Identifier 343710
Land Registration District Wellington
Date Issued 27 November 2007



Prior References
 WNC4/374

Estate Fee Simple
Area 1090 square metres more or less
Legal Description Lot 12 Deposited Plan 315819
Proprietors
 Seacrest Downs Limited

Encumbrances

Subject to drainage rights created by Transfer 79201
 Subject to drainage rights created by Transfer 101251
 7027199.2 Mortgage to Dominion Finance Group Limited - 13.9.2006 at 9:00 am
 7631519.1 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 27.11.2007 at 9:00 am
 Appurtenant hereto is a right of way, right to drain stormwater, right to convey water, electricity and telecommunications
 created by Easement Instrument 7631519.4 - 27.11.2007 at 9:00 am
 The easements created by Easement Instrument 7631519.4 are subject to Section 240 (a) Resource Management Act 1991
 Land Covenant in Easement Instrument 7631519.7 - 27.11.2007 at 9:00 am

Transaction ID 17954162
Other References mgallagher-002

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 Register Copy

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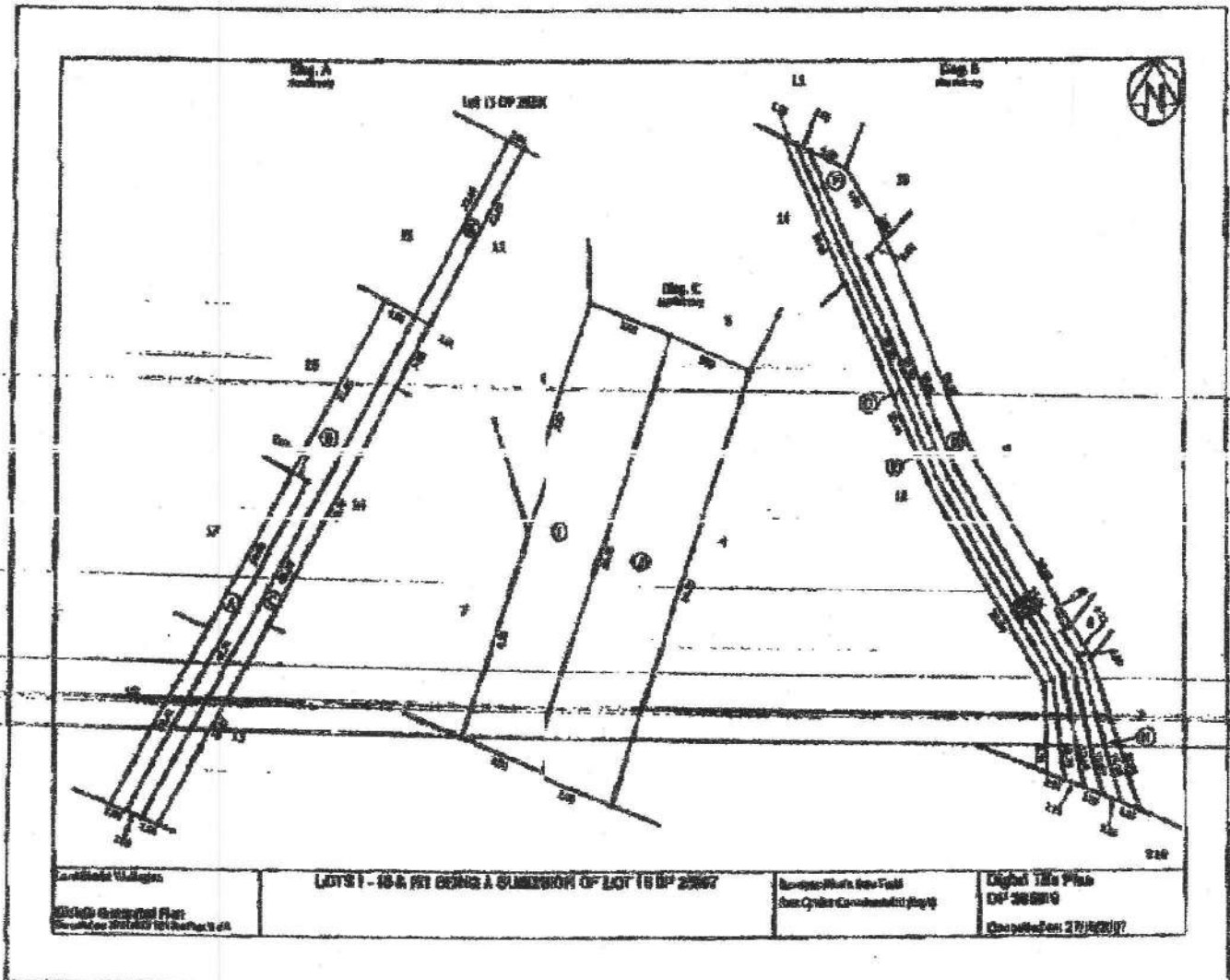
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30. Nov. 2007 1:58

TTRC
Hilary Pie Young Watson
Uncran Capital III - Wellington

PAGE 04/04
#6371 P. 004/004
NO. 4243 P. 4/4

Measure 343710



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Client Reference: 5693933

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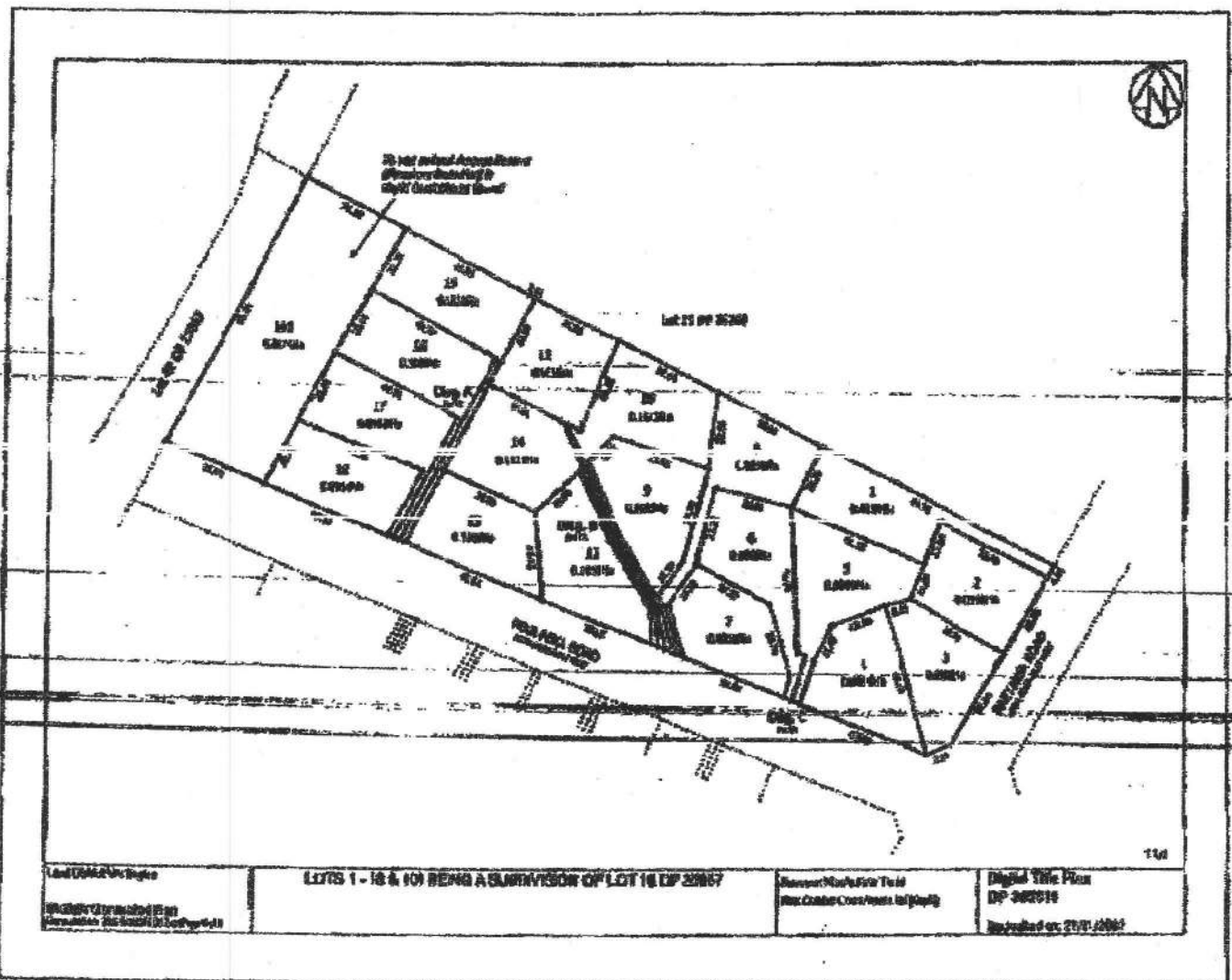
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 30. Nov. 2007 1:28

TTRC
 Allezpie Young Watson
 Duncan Colterill - Wellington

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 #5571 E.003/004
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Transaction Ref: 15654142
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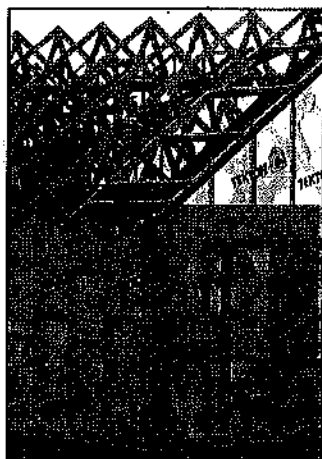
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#6901-003

TEKTON House Wrap *The Builder's Choice*

BC 080056



- Tekton House Wrap is **BRANZ Appraised #548 (2007)**
- Tekton is a **breather type** coated, spun bonded polypropylene.
- Tekton can be left **exposed for 60 days**.
- Tekton has **superior water holdout**. Taking the industry to a new level for water resistance.
- Tekton has **optimal surfactant resistance**. Wash your building with confidence.
- Tekton is **fire retardant**.
- Tekton is a leader in **tear strength**.
- Tekton is suitable in **all wind zones**.
- Tekton can be used with no internal wall linings, ie: **gable ends**.
- Tekton increases your building's **energy efficiency**.
- Tekton has a **50 year durability warranty**.
- Tekton can be used for **residential and commercial** applications.

For best results, use with



BRANZ Appraised

Protecto Wrap Tapes

benefits of
Tekton
house wrap

- COST EFFECTIVE
- LIGHT WEIGHT
- FIRE RETARDANT
- WATER RESISTANT
- BRANZ APPRAISED
- 50 YEAR WARRANTY

please
note:

- For peace of mind use with BRANZ Appraised Protecto Wrap tapes.
- Tekton House Wrap must not be used behind face fixed non absorbent claddings such as vinyl or metal.
- Tekton House Wrap can be used on all absorbent and non-absorbent wall claddings installed over 18mm minimum drainage cavity.
- Tekton House Wrap can be used in all wind zones up to an including "Very high".
- Tekton House Wrap may be used as a slip layer over rigid backings for stucco plaster in accordance with the requirements of NZDC acceptable solutions E2/AS1 paragraph 9.3.3(b).
- Tekton House Wrap has an AS 1530 Part 2 Flammability Index of 0 and meets the requirements of NZBC Acceptable Solution C/AS1 Part 6, Table 6.2 for surface finish requirements for suspended flexible fabrics, and therefore it may be used with no restrictions in all buildings.
- Tekton House Wrap must be separated from fireplaces, heating appliances, flues and chimneys in accordance with the requirements of NZBC Acceptable Solution C/AS1 Part 9 for the protection of combustible materials.
- BRANZ Appraised - Appraisal # 548 (2007).

other professional solutions by
Marshall Waterproofing

- Protecto Sill System - Window and door protection, BRANZ Appraisal # 444 (2005).
- Protecto Tape - Parapet and handrail protection, BRANZ Appraisal #450 (2005).
- Anti Fracture Membrane (AFM) - crack suppression and waterproofing for under tiles. Interior BRANZ Appraisal # 461 (2005). Exterior BRANZ Appraisal # 449 (2005).
- Protecto Wall - Tanking and below ground applications, BRANZ Appraisal # 517 (2006).
- Pro-Joist - Cantilevered deck joist protection, BRANZ Appraisal #497 (2006).
- Pro-Drain 8 - The protection board that creates a neutral pressure zone between the foundation wall and subsoil.

Aug 2007

11/03/2008

Masport
Heating

WOOD FIRES 2006

For Sales

616 080056

THE
IRRESISTIBLE
FLAMES OF
MASPORT



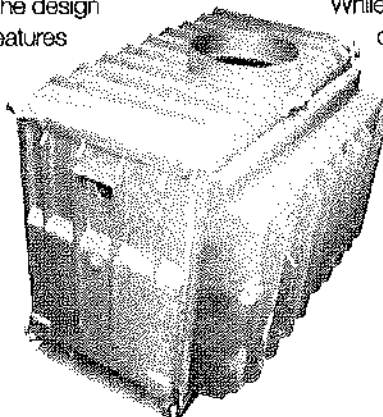
HEATING NEW ZEALANDERS
25
FOR OVER
YEARS

www.masport.com

If you love wood fires, you'll be seduced by the irresistible flames of Masport.

Superior Cast Iron Fireboxes

The key to an efficient, long-lasting fire lies in the design and construction of a superior firebox. Each features an advanced panel design with an array of heat dispersing fins that can increase a surface area of the firebox by up to 65%. The result is a superior wood fire that transfers heat through the cast iron firebox and passes directly into the fins. The depth of a Masport cast iron firebox is 8-10mm plus the height of the fins (approx. 30mm). This extra cast iron surface area is the key.



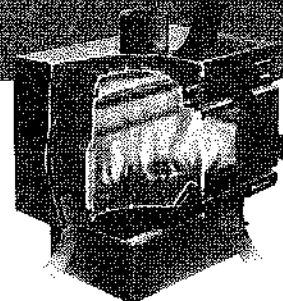
While heating a greater surface area, the volume of heat being transferred into the room is significantly increased. It will heat large volume areas and store and distribute warmth long after the fire has died down.



Triple Air Combustion* Exclusive to Masport

All Masport Wood Fires* have been built with an exclusive Triple Air Combustion system designed to efficiently burn all of the fuel put in the fire. Primary air comes through the high/low control, secondary air passes through the 'air wash' which helps keep the glass clean, and tertiary air comes from below

the door to ensure complete combustion. This means less fuel, less cost for a lot more heat.



Over 90 Years of Manufacturing Excellence

Founded in the early 1900's, Masport is one of the most diverse and successful manufacturing companies in Australasia. We have been leading the market in home heating since the early 1980's with innovative designs.

Our reputation is built on producing the highest quality product, backed with the most comprehensive warranty and customer service network.

Irresistibly Clean Air Friendly



*Excluding Radiant fires

Masport

NZ Resource Management Regulations 2004
As from September 1st 2006, all wood burners installed in a building on a property with an allotment size less than 2 hectares is prohibited unless it complies with -

- A/ *emissions of no more than 1.5 gram of particles are discharged for each kilogram of dry wood burnt
- B/ combustion efficiency of greater than 65%
- C/ the allotment size of property of 2 hectares or larger

*Note Environment Canterbury (ECAN) (Christchurch City) and Nelson Regional Council require emissions less than 1.0 gram of particles are discharged for each kilogram of dry wood. Please consult your Masport retailer for more information about local Council regulations.



The good news is that most Masport woodfires have been designed and tested to exceed the strict clean air requirements. They will provide more efficient heat and are more cost effective than older wood burners and open fires. The Masport multi burn technology means that as wood burns the combustible gases released are also burned, creating more heat with less wood and emissions levels below 1.0 gram.



Freestanding Wood Fires

GrandView

With its large capacity and powerful output, the Grandview is a stylish choice for large rooms and open plan spaces. A stunning feature is the panoramic bay window design, which offers you an expansive view of the fire from all corners of the room.

- Comfortably heats very large areas
- Magnificent heat and superior burn with a mighty lined cast iron firebox and triple air combustion system
- 175mm flue to ensure complete burn
- NZ clean air and ECAN approved
- Optional 3 Speed Fan for faster heat circulation
- Easy installation with ash only floor protection required
- Finished in Charcoal hi temp paint with stylish silver grilles
- Internal ash shelf prevents debris falling from fire when door is opened

Fire	\$
Flue	\$
Floor Protector	\$
Installation	\$
Options	\$
TOTAL	\$



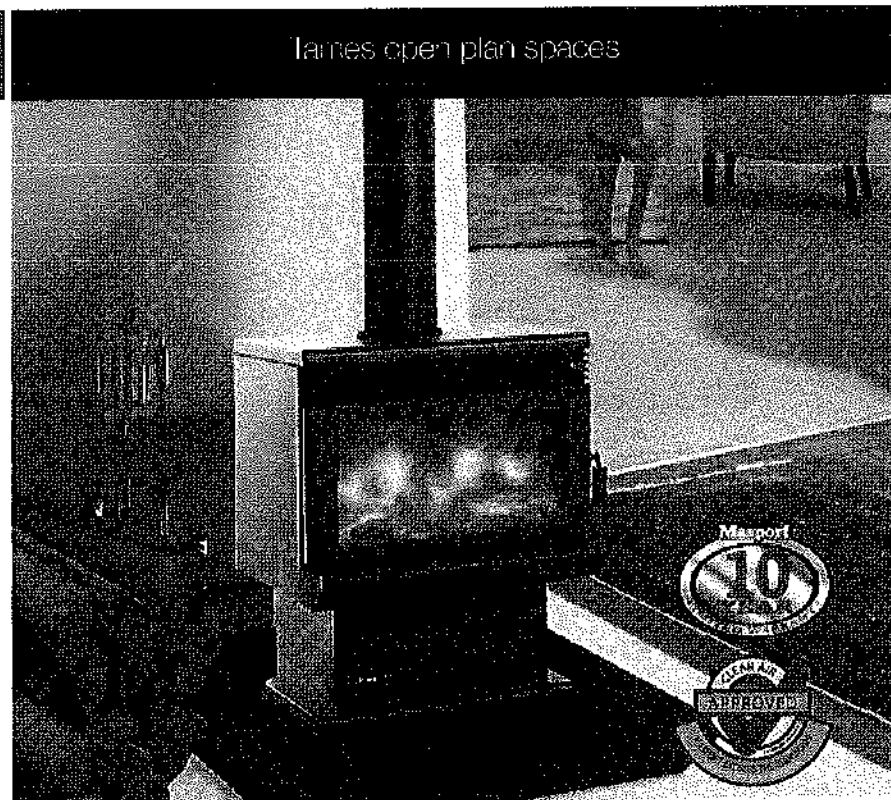
Colour	Louvre/Grille	Est. Peak Output	Circulation	Dimensions (WxDxH)
Charcoal	Silver	28kW	Optional Fan	760 x 620 x 790mm

Toronto

Outstanding heat! This traditional style fire with its large output is perfect for large and open plan spaces. With its amazing wide window this fire offers you a generous viewing area to maximise your viewing pleasure from around the room.

- Comfortably heats very large areas
- Magnificent heat and superior burn with a mighty lined cast iron firebox and triple air combustion system
- 175mm flue to ensure complete burn
- NZ clean air and ECAN approved
- Optional 3 Speed Fan for faster heat circulation
- Easy installation with ash only floor protection required
- Finished in matt black vitreous enamel
- External ash shelf to catch falling debris

Fire	\$
Flue	\$
Floor Protector	\$
Installation	\$
Options	\$
TOTAL	\$



Colour	Louvre/Grille	Est. Peak Output	Circulation	Dimensions (WxDxH)
Black	Black	25kW	Optional Fan	660 x 645 x 825mm

Masport 10

Verona

There's something special about the expansive feel of a curved window. Masport have captured that dramatic look in our stunning Verona design. Any room will be enhanced by this quality fire.

- Exciting new shapely European curves and panoramic window design
- Comfortably heats medium to large areas
- Superior heat from a fully lined flued cast iron firebox and triple air combustion system
- 150mm flue to ensure complete burn
- NZ clean air and ECAN approved
- Optional 3 Speed Fan for faster heat circulation
- Easy installation with ash only floor protection required
- Finished in matt black vitreous enamel
- Optional extra, gold or black louvers
- Our most popular woodfire
- Internal ash shelf prevents debris falling from fire when door is opened

Fire	\$
Flue	\$
Floor Protector	\$
Installation	\$
Options	\$
TOTAL	\$



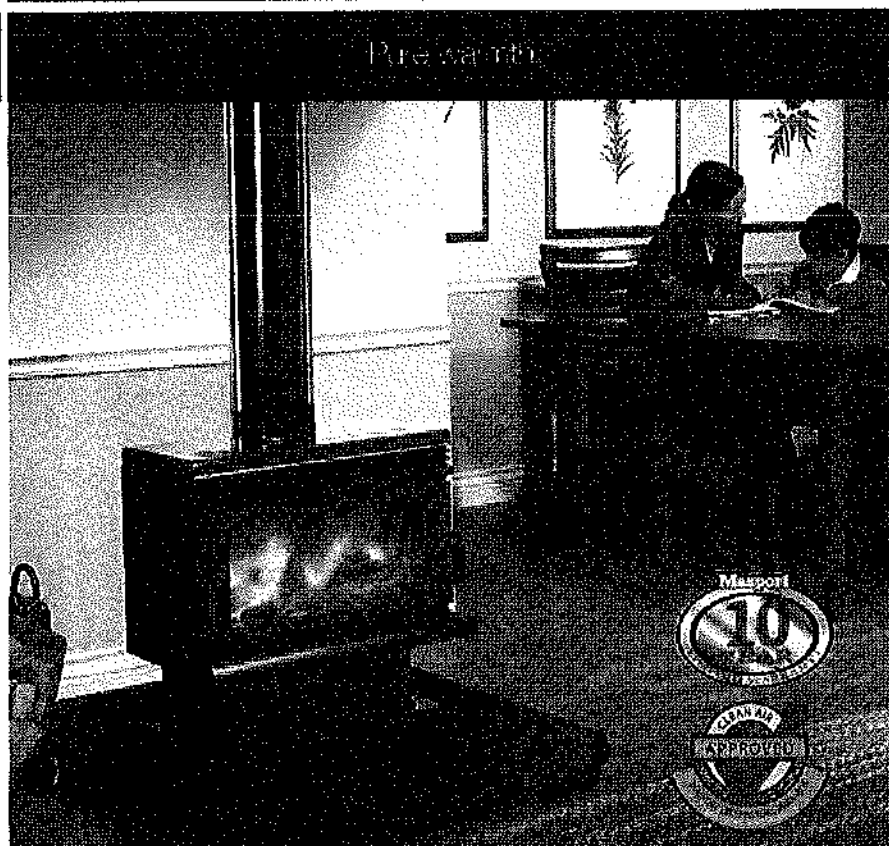
Colour	Louvre/Grille	Est. Peak Output	Circulation	Dimensions (WxDxH)
Black	Silver/Black	20kW	Optional Fan	660 x 570 x 700mm

LE 3000

This modern day fire place can fit easily into any room, keeping in line with any style. It's perfect for medium to large areas. Large flat glass door that opens past 45° to make refueling easier.

- Comfortably heats medium to large sized areas
- Superior heat from a fully lined flued cast iron firebox and triple air combustion system
- NZ clean air and ECAN approved
- Optional 3 Speed Fan for faster heat circulation
- Easy installation with ash only floor protection required
- Finished in matt black vitreous enamel
- 150mm flue to ensure complete burn

Fire	\$
Flue	\$
Floor Protector	\$
Installation	\$
Options	\$
TOTAL	\$



Colour	Louvre/Grille	Est. Peak Output	Circulation	Dimensions (WxDxH)
Black	Silver/Black	18kW	Optional Fan	660 x 490 x 680mm

Siena

Kick off your shoes and enjoy irresistible panoramic flames of the stylish Siena fire. The expansive curved window offers an unparalleled view of the beautiful real wood fire.

- Comfortably heats medium areas
- Superior heat from a fully lined flined cast iron firebox and triple air combustion system
- NZ clean air and ECAN approved
- Easy installation with ash only floor protection required
- Finished in matt black vitreous enamel
- Optional extra, gold and black louvres
- Internal ash shelf prevents debris falling from fire when the door is opened
- Modern fire with clean lines to enhance any room
- Optional 3 speed fan for faster heat circulation

Fire	\$
Flue	\$
Floor Protector	\$
Installation	\$
Options	\$
TOTAL	\$



Colour	Louvre/Grille	Est. Peak Output	Circulation	Dimensions (WxDxH)
Black Vitreous Enamel	Silver/Black	17KW	Optional Fan	555 x 490 x 840mm

LE 2000

The LE 2000 efficiently heats small to medium sized areas. The flush front window gives a warm open feeling. With the optional fan you can also dramatically increase the circulation of heat in your home.

- Comfortably heats small to medium areas
- Superior heat from a fully lined flined cast iron firebox and triple air combustion system
- NZ clean air and ECAN approved
- Optional 3 Speed Fan for faster heat circulation
- Easy installation with ash only floor protection required
- Finished in matt black vitreous enamel
- Smooth release door latch with adjustable door hinge

Fire	\$
Flue	\$
Floor Protector	\$
Installation	\$
Options	\$
TOTAL	\$



Colour	Louvre/Grille	Est. Peak Output	Circulation	Dimensions (WxDxH)
Black	Black	16KW	Optional Fan	555 x 520 x 615mm

Masport

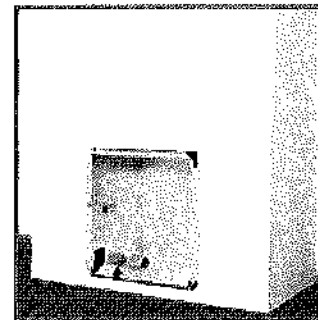
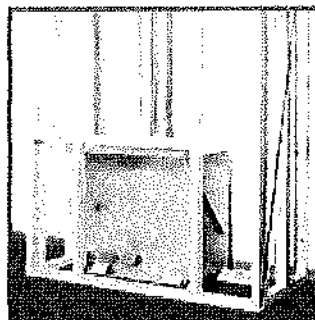
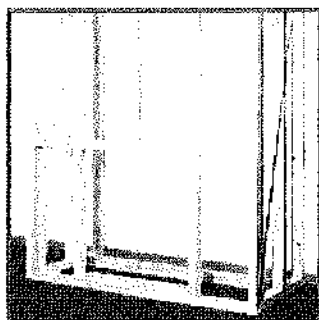
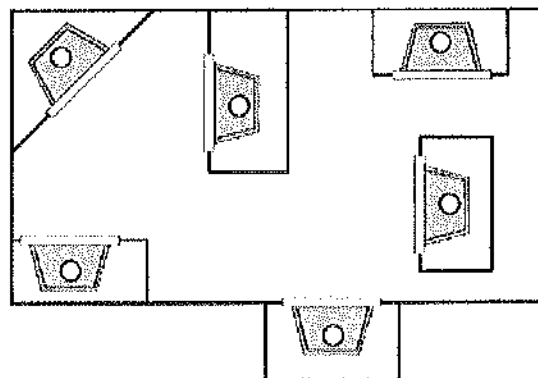
Inbuilt Wood Fires

Zero Clearance (ZC)

Have you ever wanted to have an attractive wood fireplace but been put off by the need for an expensive remodelling of your house? Now, thanks to Masport, almost any wall can be quickly and safely converted to accommodate a wood fireplace with the Masport zero clearance (ZC) range of fires.

The Masport ZC range enables you to have a wood fireplace installed into almost any wall, while protecting floors and walls constructed from combustible materials, as you can see from the diagrams.

And they are easy to install too, making them ideal for houses under construction, or for renovating an existing home. All Masport inbuilt wood fires are ZC capable.



The LE 4000 Provincial can be installed in a masonry fireplace even though the fireplace has not been constructed to meet the 50mm timber-to-masonry separation requirements specified in the Building Code and even though timber is in contact with the outside of the masonry.

Where New Zealand fireplaces can be shown to comply with those separation requirements, the LE 7000 and Grande Provincial models can also be installed. All models can be installed in a timber framed enclosure using a 'zero clearance' installation kit. Flue pipe must be fitted.

LE 4000 Provincial

The stylish sleek lines of LE 4000 Provincial are perfect for transforming your existing masonry fireplace into a dramatic modern feature. Also available with an optional zero clearance kit, these fires can be quickly and safely installed into any wall of your home, no masonry chimneys required.

- Comfortably heats medium areas
- Substantial heat from a fully lined 6mm steel firebox, triple air combustion system and heat exchanger technology
- NZ clean air and ECAN approved
- Fan for faster and improved heat circulation
- Easy installation and minimum floor protection required
- Modern clean lines makes this fire a true feature in any room

Fire	\$
Flue	\$
Floor Protector	\$
Installation	\$
Options	\$
TOTAL	\$



Colour	Louvre/Gate	Est. Peak Output	Circulation	Fascia Dimensions (MM)
Black	Black	16kW	2 Speed Fan	965mm x 670mm 965mm x 710mm (ZC only)

Note: Reduced width fascia (610mm) available soon for masonry installations.

LE 7000 Provincial Z/C

The new LE 7000 Provincial incorporates zero clearance technology so you can enjoy irresistible flames in virtually any space. This fire can be built into any wall - no existing chimney required. No need for expensive remodelling of your home to enjoy the ambience of a wood fire.

- Comfortably heats medium areas
- Superior heat from a fully lined finned cast iron firebox and triple air combustion system
- Only recommended for 2 hectares plus properties
- Multi speed fan improves heat circulation

Fire	\$
Flue	\$
Floor Protector	\$
Installation	\$
Options	\$
TOTAL	\$

Sleek and slim



Colour	Louvre/Grille	Est. Peak Output	Circulation	Z/C Fascia Dimensions (MM)
Black	Black	21kW	2 Speed Fan	1010mm x 760mm

Grande Provincial Z/C

Very big and bold, the Grande Provincial adds visual impact and plenty of heat for large, spacious areas. With zero clearance this fire can be easily installed into almost any wall, while still protecting floors and walls from combustible materials.

- Comfortably heats medium to large sized areas
- Superior heat from a fully lined finned cast iron firebox and triple air combustion system
- Only recommended for 2 hectares plus properties
- Easy installation with minimum floor protection required
- Multi speed fan improves heat circulation

Fire	\$
Flue	\$
Floor Protector	\$
Installation	\$
Options	\$
TOTAL	\$

Where tradition meets comfort



Colour	Louvre/Grille	Est. Peak Output	Circulation	Z/C Fascia Dimensions (MM)
Matt Black	Black	24kW	2 Speed Fan	1095mm x 830mm

Masport

Multi-fuel Fires

Grand Arcadia

The Grand Arcadia is a cast iron fire. It heats smaller areas with top or rear flue options so you can enjoy this fire in almost any room.

- Arched cast iron door with a decorative grill front
- Comfortably heats small areas
- Burns more efficiently than an open fire with low emissions and less pollution
- Heat food or liquids on top
- For easy installation choose either a top or rear flue exit
- A genuine multi fuel fire with ash pan and grate
- Allows you to burn coal

Fire	\$
Flue	\$
Floor Protector	\$
Installation	\$
Options	\$
TOTAL	\$



Colour	Louvre/Grills	Est. Peak Output	Circulation	Dimensions (MMxH)
Cast iron	N/A	13kW	Radiant	525 x 435 x 610mm

Grand Utopia

The rustic charm of the Grand Utopia heats medium areas and has the added feature of a clip on screen so doors can be opened for an open fire feeling (optional extra).

- Comfortably heats medium areas
- Burns more efficiently than an open fire with low emissions and less pollution
- For easy installation choose either a top or rear flue exit
- Heat food or liquids on top
- When using the Grand Utopia as an open fire an optional Fire Screen will protect small children and animals from the fire
- A genuine multi fuel fire with ash pan and grate
- Allows you to burn coal

Fire	\$
Flue	\$
Floor Protector	\$
Installation	\$
Options	\$
TOTAL	\$



Colour	Louvre/Grills	Est. Peak Output	Circulation	Firebox Dimensions (MMxH)
Cast iron	N/A	16kW	Radiant	615mm x 690mm

Masport

NEW ZEALAND

Wood Fire Specifications

	LE 2000	Siena	LE 3000	Verona	Toronto	Grandview	LE 4000 Provincial	LE 7000 Provincial	Grande Provincial	Grand Arcadia	Grand Utopia
Estimated peak output (kW)	16	17	19	20	25	28	16	21	24	13	19
Normal heat output (kW)	1-14	1-15	1-17	1-18	1-21	1-24	1-15	1-17	1-18	1-12	1-17

*Heat output and burn time will vary depending on fuel size, type and moisture content.

#Domestic hot water systems can be heated with your Masport fire. For more details talk to your local Masport retailer.

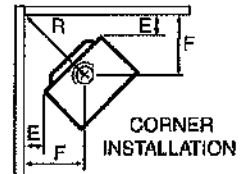
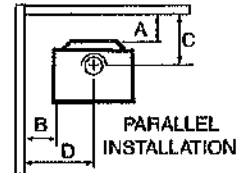
Minimum distance to heat sensitive wall (mm) - with stainless steel shield fitted

	A	B	C	D	E	F	SR
LE 2000	125	350	295	628	100	415	605
Siena	100	250	270	528	50	355	500
LE 3000	75	300	300	630	50	405	575
Verona	125	300	345	630	125	480	680
Toronto	125	400	320	730	50	425	600
Grandview	150	350	345	730	200	605	860
Grand Arcadia	300	512	450	775	350	600	850
Grand Utopia	345	642	500	950	350	650	920

* All fire heat shields are polished stainless steel with top Heat Dispersal Cap.

§ Valid only when the room walls are at 90° to each other.

Note: clearances are for fire hazard only. For durability of finishes or surfaces you should contact the relevant manufacturer for their specification. Masport accepts no responsibility for the deterioration of surfaces or finishes.



Minimum floor protector dimensions (mm)

All with flue shield

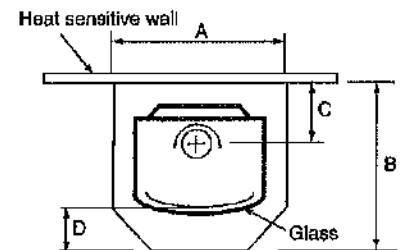
	A	#B	#C	D	Ash Insulating Floor prot.a	Floor prot.b
LE 2000	875	865	295	300	Yes	Optional
Siena	875	880	270	300	Yes	Optional
LE 3000	935	865	300	300	Yes	Optional
Verona	940	985	345	300	Yes	Optional
Toronto	965	965	345	300	Yes	Optional
Grandview	965	1060Y	385	300Y	Yes	Optional
Grand Arcadia	975	880Y	450	345Y	No	Yes
Grand Arcadia (with rear shield)	975	880Y	270	345Y	No	Yes
Grand Utopia (without rear shield)	1065	1245Y	500	470	No	Yes

∅ See installing instructions for minimum constructional requirements.

Y Increase by 80mm if the floor protector top is less than 50mm above the floor.

Valid only when the fire is exactly at its minimum allowable wall clearance.

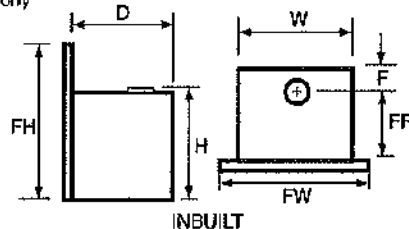
∞ Increase by 100mm if the floor protector top is less than 50mm above the floor.



Dimensions (mm)

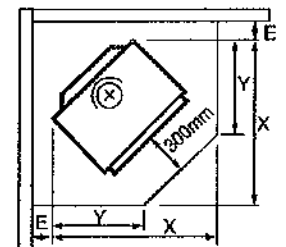
Model	D	H	W	F	FH	FH*	FW	FF
LE 4000 Provincial	420	560	590	105	670	710	965	315
LE 7000 Provincial Z/C	485	595	630	175	720	760	1010	310
Grande Provincial Z/C	485	670	720	175	790	830	1095	310

* Zero Clearance only



Corner floor protector arrangement

Minimum Dimensions - mm	X	Y
LE 2000	1025	405
Siena	880	600
LE 3000	950	570
Verona	970	655
Toronto	1015	640
Grandview	1255	570
Grand Arcadia	750	470+
Grand Utopia	1000	680+

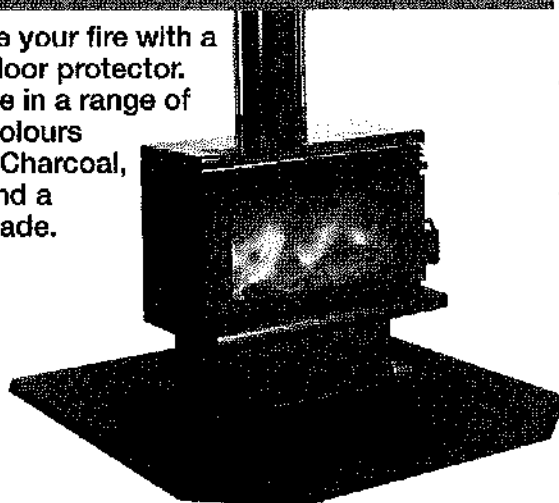


Your measurement 'E' must be added to 'X' and 'Y' to find the appropriate minimum overall floor protector dimensions. See above for minimum values of 'E'.

+ Increase 'Y' by 120mm if the floor protector top is not at least 50mm above the floor.

Floor Protectors

Enhance your fire with a stylish floor protector. Available in a range of sizes. Colours include Charcoal, Black and a Multi shade.



For the appropriate size, look and style of your floor protector please contact your Masport retailer for more information on floor protectors.

Guaranteed for 10 Years

Guaranteed for 10 Years at No Additional Cost

As a sign of our commitment to quality, all new Masport cast iron fireboxes are guaranteed for 10 years. We warranty our fire boxes to be free from defects in material or workmanship under normal use and service.

The Warranty (on the cast iron firebox, excluding attachments) is 10 years from the date of purchase.



Your specialist Masport retailer

Masport Heating

Metalfab Industries

38 Harris Road, East Tamaki.

PO Box 58-473, Greenmount, Auckland, New Zealand

Phone: +64 9 274 8265

Fax: +64 9 274 8472

www.masport.com



*Masport is always improving its range of products. All specifications are subject to change or variation without notification. For confirmation of Masport product details, please refer to www.masport.com. Please refer to the installing and operation instructions before installing your Masport Wood Fire. Full installation instructions are supplied with each Masport Wood Fire.

Note: This brochure is a guide only and not to be used for installation requirements. Front cover features a non Zero Clearance Grande Provincial.



11/03/2008



greig hayward architecture

102 Ratanui Road, Paraparaumu, Kapiti Coast
Tel 04 298 1487, Fax 04 298 1488, Mobile: 027 233 9840
Email: greighayward@xtra.co.nz

FACSIMILE

To : KCDC

From : Greig Hayward

Att: Leon Smith

Date : 4/3/08

Fax No : 04 296 4830

Pagers :
(including Cover Page)

Re : BC 080056

Message:

Hi Leon

Clarification of issues requested

1. All roofing material Colorsteel Max Trimline.
2. 300mm wide internal gutters ✓
3. Beam in roof space between entry and kitchen to be h3.1
4. Rafters to canopy to be at 600mm c/c ✓
5. Distribution of bracing elements to councils approval.

Regards

Greig Hayward

19/02/2008

CAUTION
Plans have been digitally reproduced and may not be to scale.

Cladding to be installed to manufacturers requirements in particular fixing and ground clearance.

Note area is coastal corrosion area, and components must meet 50yr durability requirements of NZ Bldg Code

BC 080056

ENGINEER'S DESIGN
This project contains elements specifically designed by an Engineer. The Owner/Builder is required to ensure the Engineer inspects the work and provides KCDC with written evidence of the inspection.

APPROVED BY P & D
REVISIONS
Simon Copp
Officer
18/2/2008

APPROVED BY BUILDING
Leon Smith
Officer
06/03/08

Confirm roof/cladding warranty eligibility with manufacturer prior to purchasing

Endorsements made on any single page apply equally to the entire project.

BOUNDARY LINES
The owner/builder is responsible for clearly defining the site boundary lines and pegs. This may require a survey.
NOTE: Established fences are not necessarily on the site boundary

2006/03/09 AMENDMENT
Please be aware that the May 2006 amendments to NZS3604:1999 are now in effect. In a number of cases this has REDUCED the allowable span of some timber members.

All references to standards and codes etc shall be taken as reference to latest version including amendments.

MINIMUM FINISHED GROUND LEVEL CLEARANCES. (to FFL)
BRICK VENEER
Protected ground minimum 100mm.
Unprotected ground minimum 150mm
OTHER CLADDINGS
Protected ground minimum 150mm.
Unprotected ground minimum 225mm.

6000L underground water storage tank.
storing 1000L per day frackle feed.

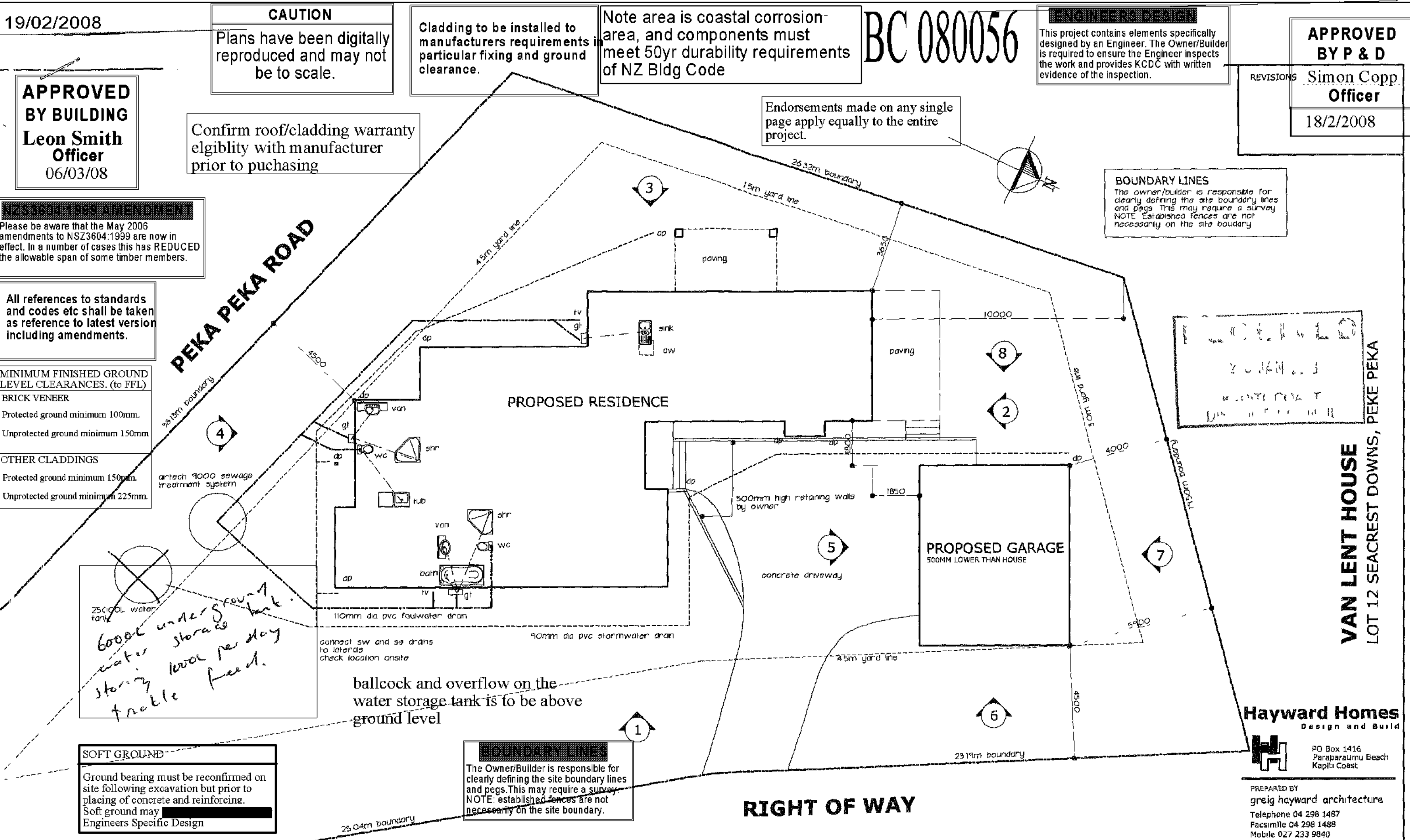
SOFT GROUND
Ground bearing must be reconfirmed on site following excavation but prior to placing of concrete and reinforcing.
Soft ground may Engineers Specific Design

BOUNDARY LINES
The Owner/Builder is responsible for clearly defining the site boundary lines and pegs. This may require a survey.
NOTE: established fences are not necessarily on the site boundary.

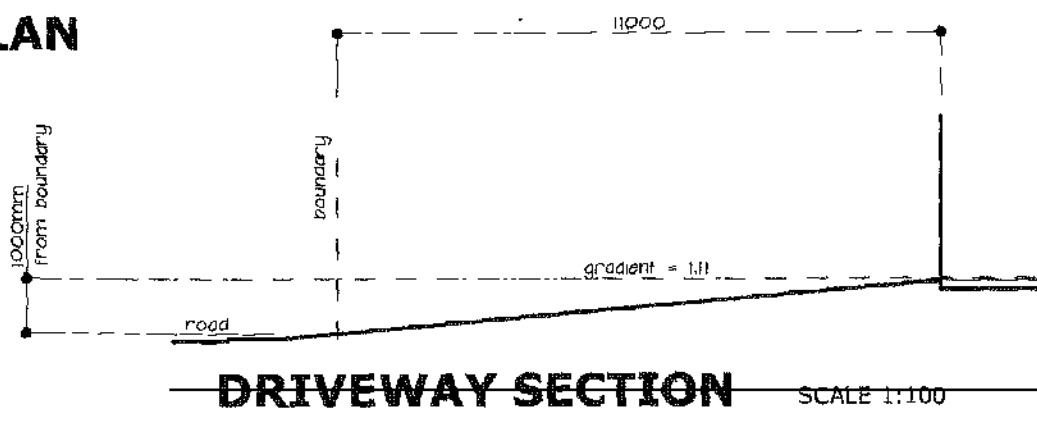
LOT 12
SITE AREA = 0.1050 Ha
BUILDING FOOTPRINT = 208 sqm
SITE COVERAGE = 19.8%
WIND ZONE = VERY HIGH
COASTAL CORROSION ZONE = YES

CAUTION
Plans have been digitally reproduced and may not be to scale.

All work must be carried out to conform to relevant sections of The New Zealand Building Code and New Zealand Standards, particularly NZS.3604:1999 For Light Timber Framed construction.



SITE AND DRAINAGE PLAN
SCALE 1:100



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Kapiti Coast

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DATE NOV 2007
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JOB/SHEET No:
0739/1

Noisy Equipment

It is the responsibility of the owner to ensure that no work with noisy equipment shall be carried out before 7:30 a.m. or after 6 p.m. Monday to Saturday. During the week there may be workers on site from 6:30 a.m. quietly preparing for work. Work with noisy equipment is not permitted on Sundays or public Holidays.

BC 080056

Both sides of bolted connections to be fitted with 50x50x3mm square or 55mm dia round washers

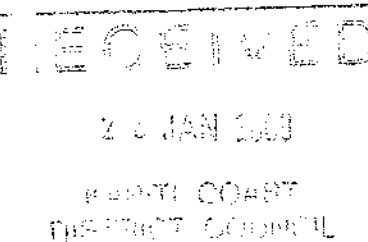
REVISIONS:

APPROVED BY P & D
Simon Copp
Officer

18/2/2008

BOUNDARY LINES

The owner/builder is responsible for clearly defining the site boundary lines and pegs. This may require a survey. NOTE: Established fences are not necessarily on the site boundary



VAN LENT HOUSE
LOT 12 SEACREST DOWNS, PEKE PEKA

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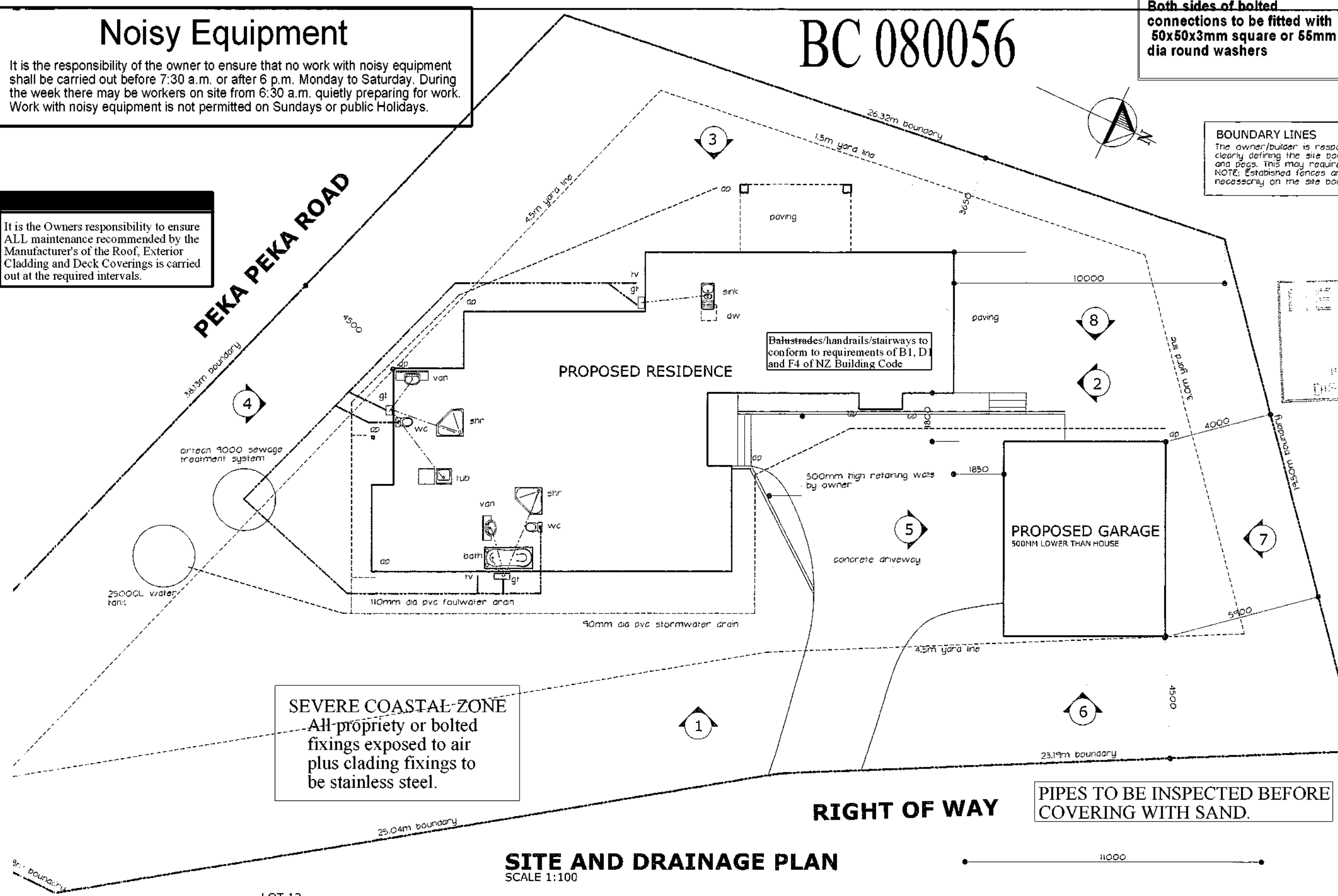
JOB/SHEET No:

0739/1

(42 original) OF 2

PEKA PEKA ROAD

It is the Owners responsibility to ensure ALL maintenance recommended by the Manufacturer's of the Roof, Exterior Cladding and Deck Coverings is carried out at the required intervals.



SITE AND DRAINAGE PLAN

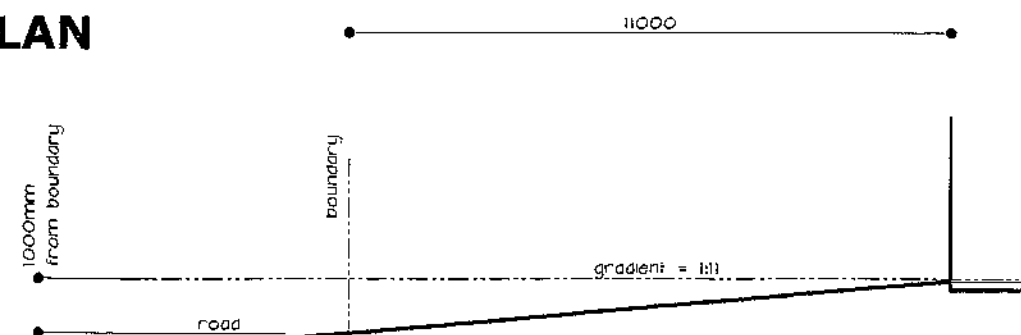
SCALE 1:100

LOT 12
SITE AREA = 0.1050 Ha
BUILDING FOOTPRINT = 208 sqm
SITE COVERAGE = 19.8%
WIND ZONE = VERY HIGH
COASTAL CORROSION ZONE = YES

PLUMBER/DRAINLAYER TO FILL OUT ATTACHED PRODUCER STATEMENT FORMS AND RETURN TO COUNCIL ALSO PROVIDE A ASBUILT DRAINAGE PLAN SHOWING SEWER STORMWATER AND WATER.

RIGHT OF WAY

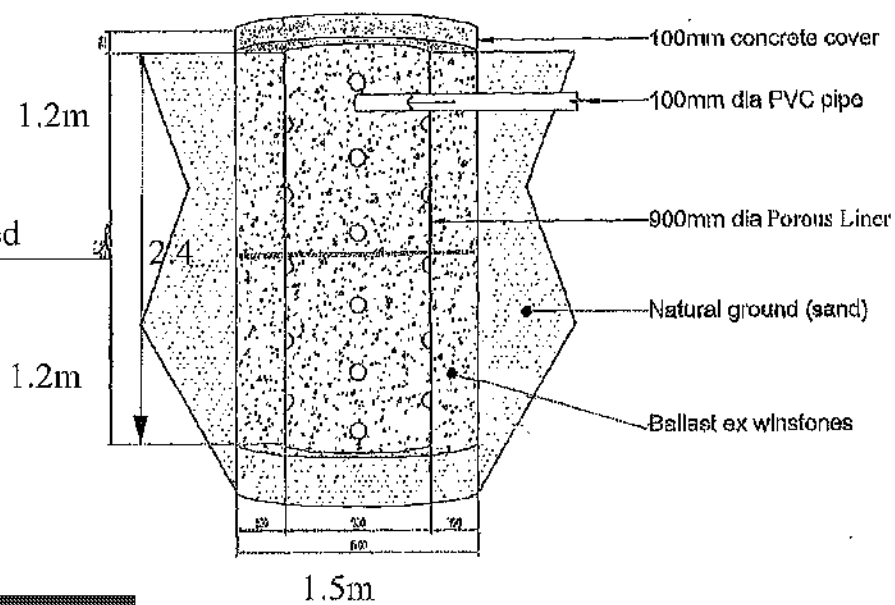
PIPES TO BE INSPECTED BEFORE COVERING WITH SAND.



DRIVEWAY SECTION

SCALE 1:100

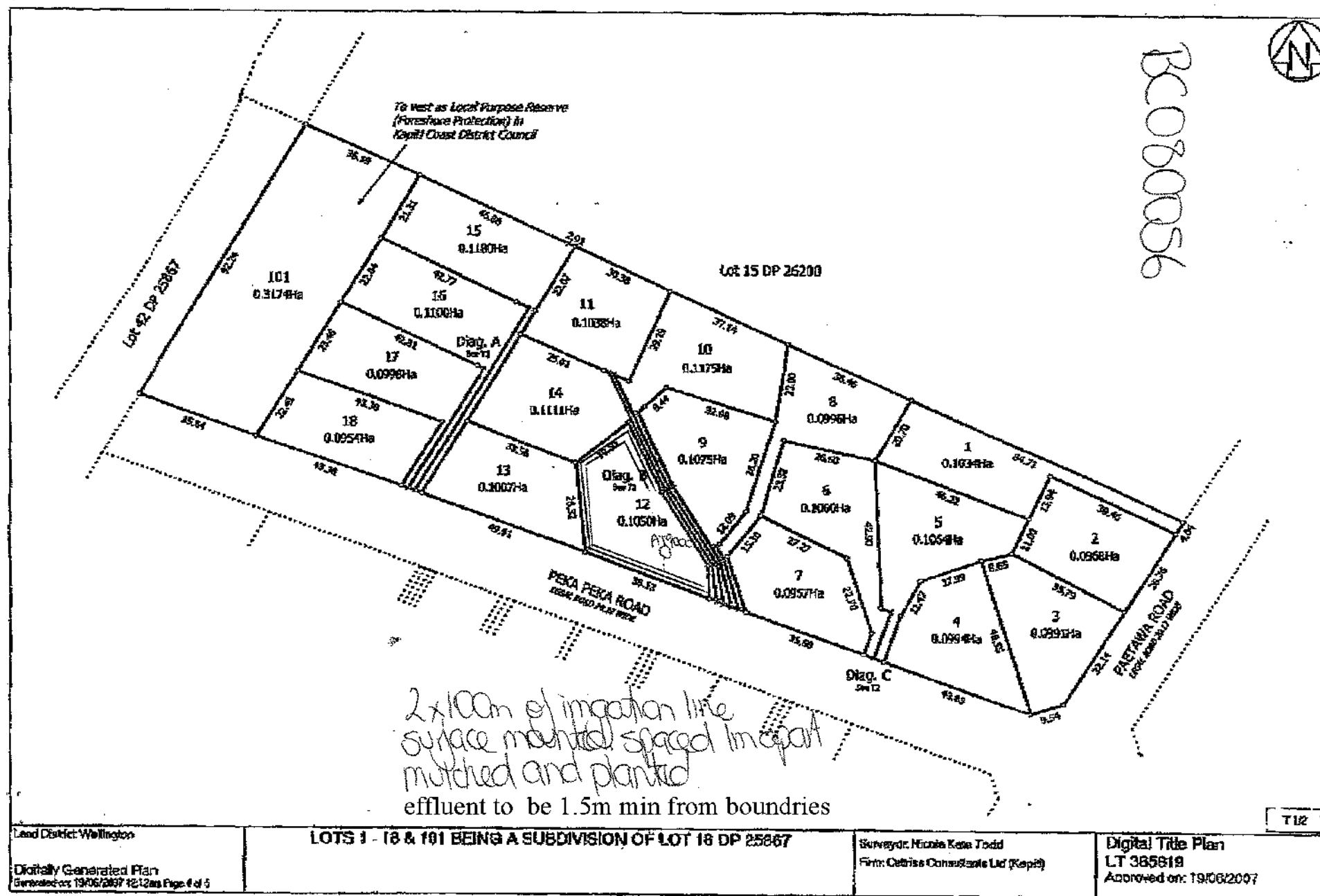
or have the 2 linked
side by side.



NOTE: Double the width
of the structure for 2 linked



BC080056



**APPROVED
BY P & D
Simon Copp
Officer**

18/2/2008

VAN LENT HOUSE
LOT 12 SEACREST DOWNS, PEKE PEKA

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Design and Build

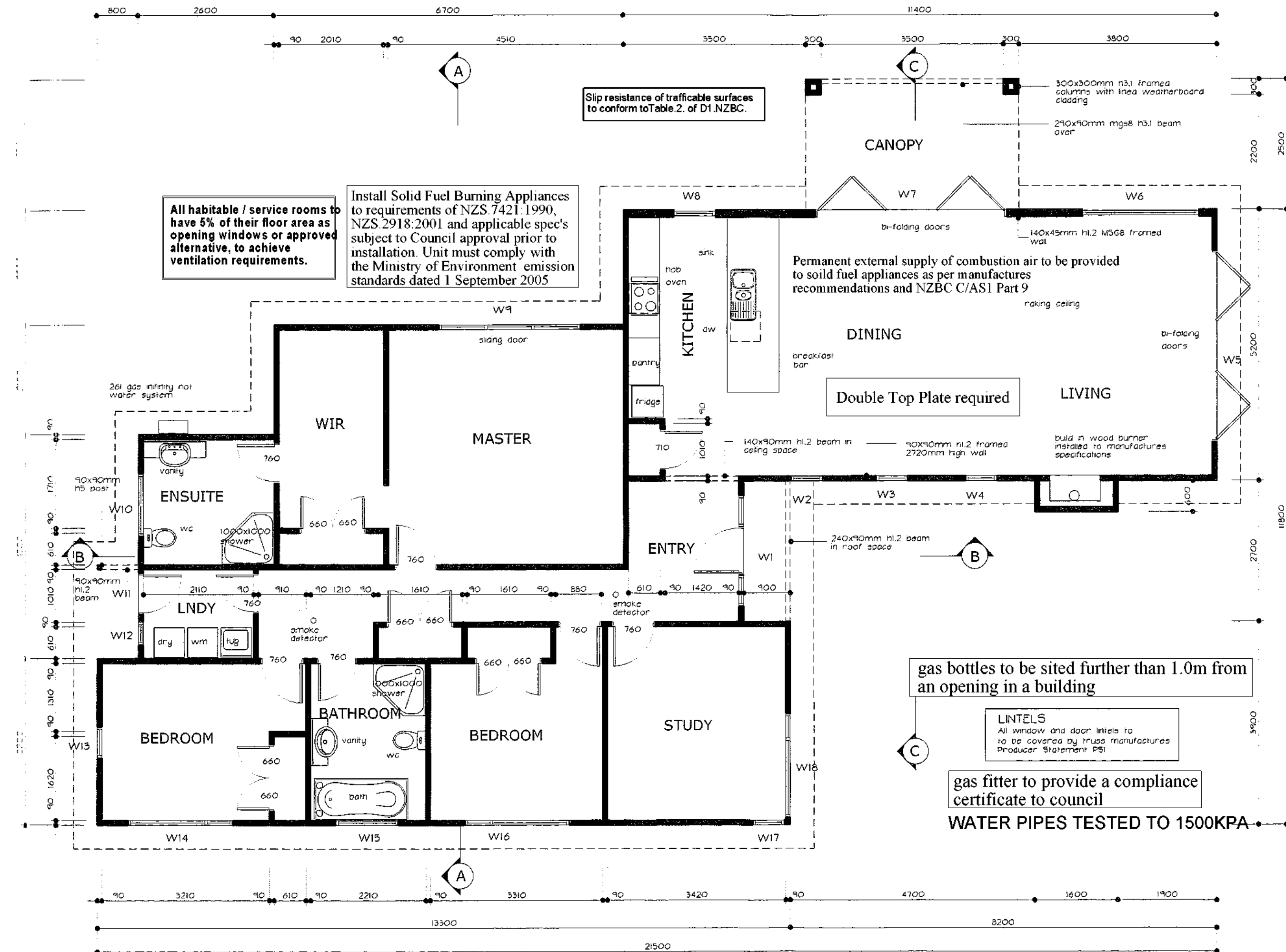
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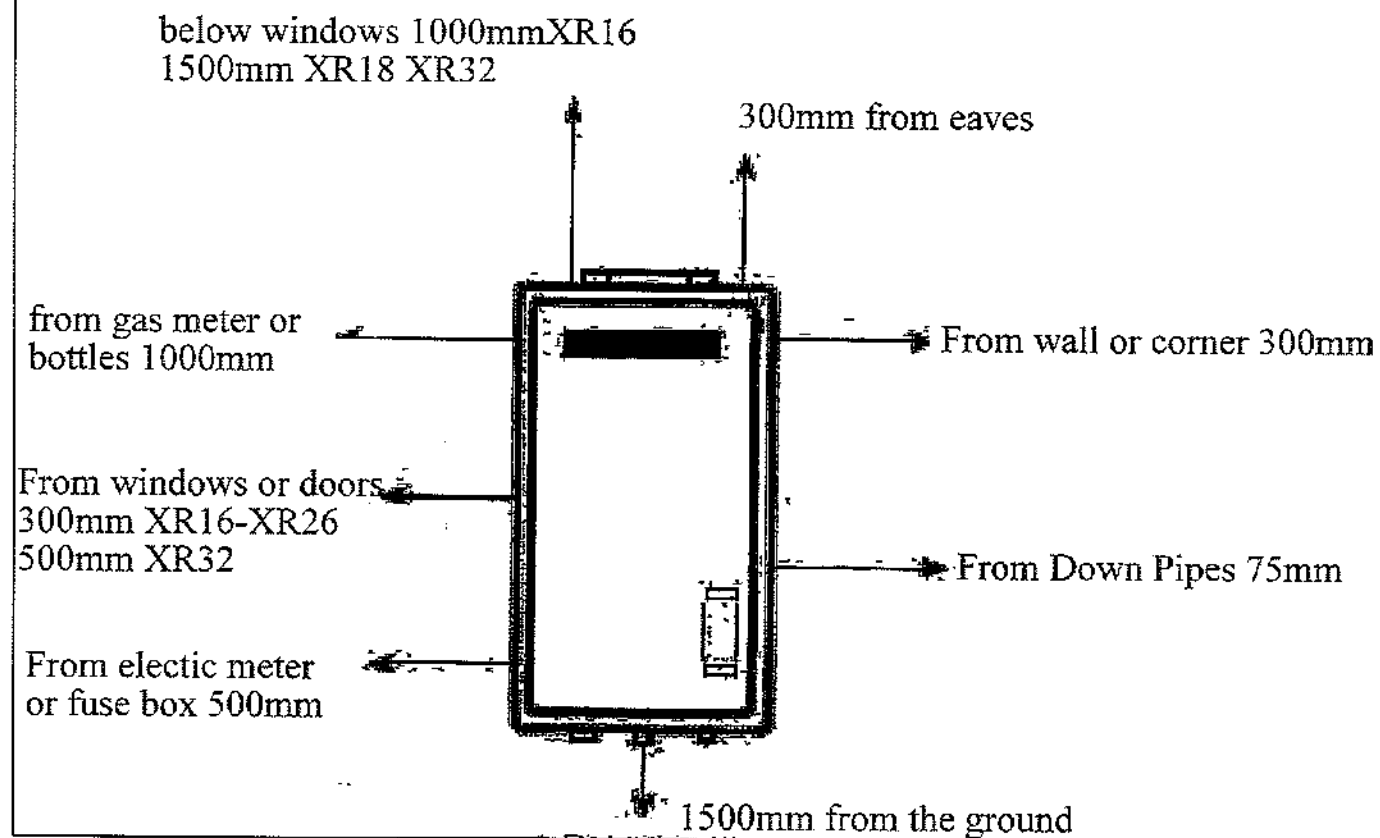
JOB/SHEET No:
0739/2
(A2 original) OF 8



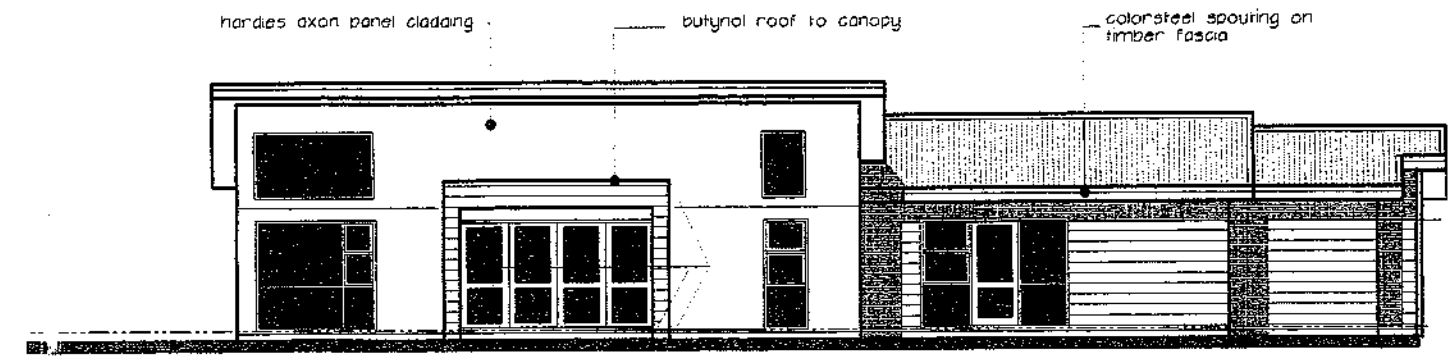
FLOOR PLAN SCALE 1:50 FLOOR AREA HOUSE = 165.3 sqm TOTAL = 208.5 sqm

NZ Standards 5261 2003 26 13 3

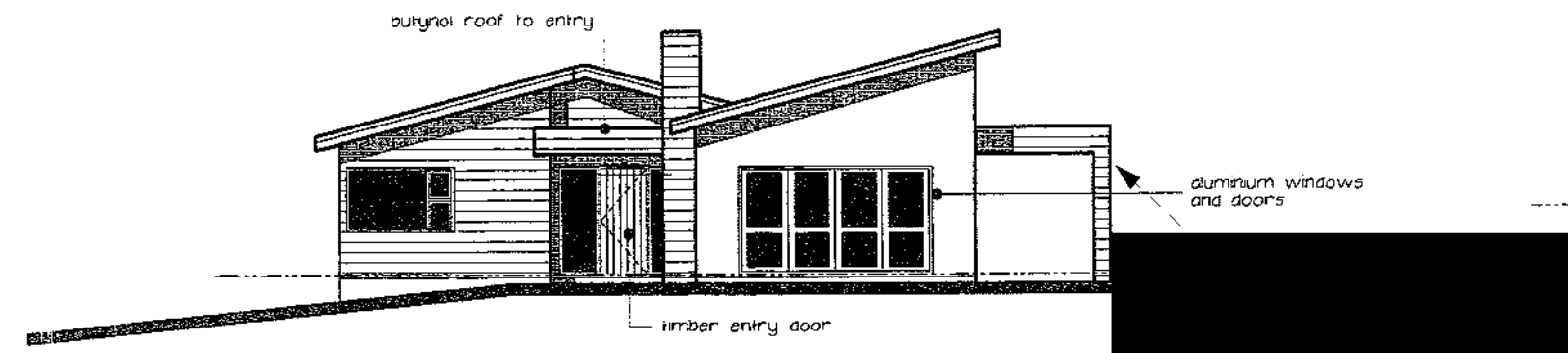
External Model Diagram



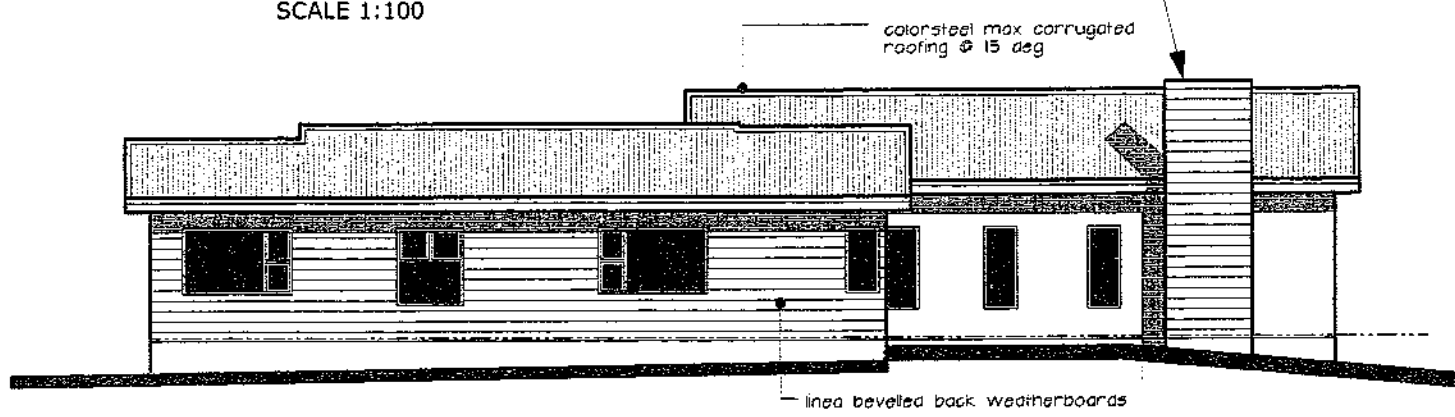
Kickout apron flashings
required at several locations.



ELEVATION ONE
SCALE 1:100

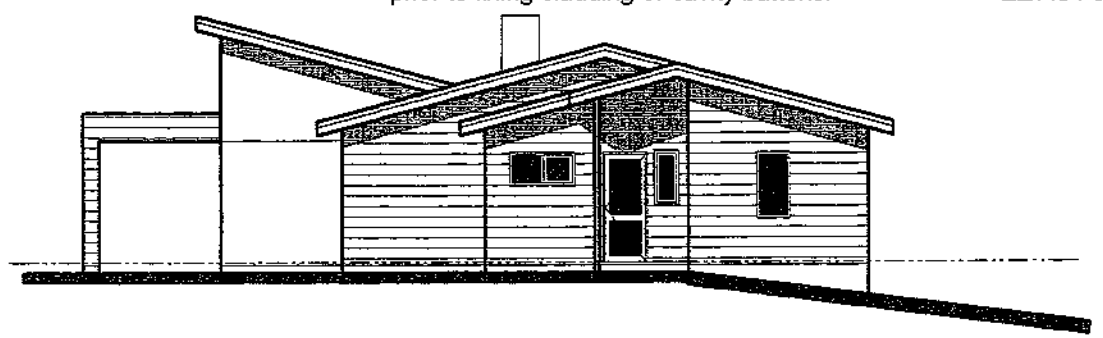


ELEVATION TWO
SCALE 1:100



ELEVATION THREE
SCALE 1:100

Where walls are not lined, such as attic spaces at gable ends, a rigid sheathing (ply or fibre cement sheet) or an air barrier to be fixed to framing E2/AS1 9.1.4



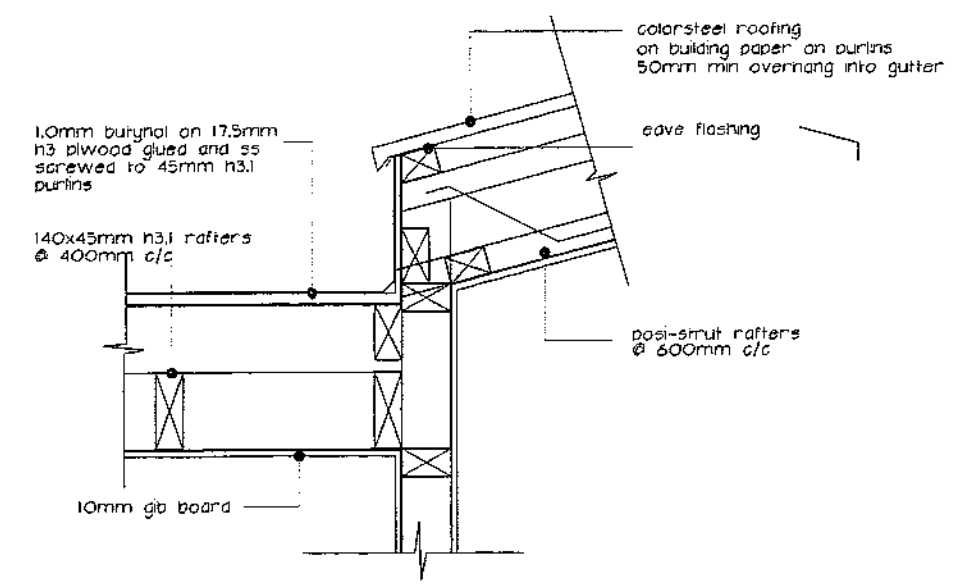
ELEVATION FOUR
SCALE 1:100

2378	600	600	600	3600	
2020	1900	1500	1500	2000	
W1	W2	W3	W4	W5	
2200	3600	800	2700		
2000	2000	2000	2000		
W6	W7	W8	W9		
600	1200	800	450	600	2000
1200	1000	1200	1200	1400	1200
600	2000	1000	1200	1200	1400
W10	W11	W12	W13	W14	W15
2000	600	2000	800	2000	
1200	1200	1200	2000	1200	1200
W16	W17	W18	W19	W20	
2000	2200	800			
1200	1200	1200			
W21	W22	W23			

GLAZING CONFORM NZS 4223
PARTS 1, 2, 3.
FIT SUITABLE FLASHINGS ETC.
JOINERY
HIGH WIND - H100pa DWP

DESIGN STANDARDS
Exterior aluminium joinery to comply with NZS 4223, Specification for Performance of Windows. Windows to satisfy the requirements for very high wind zone.
Safety glass as required by NZS 4223:1999 Part 3 to be provided (eg. glazed doors, side panels, full height windows, windows with low glass etc)

WINDOW SCHEDULE SCALE 1:100



**PITCHED / BUTYNOL
ROOF JUNCTION** SCALE 1:10

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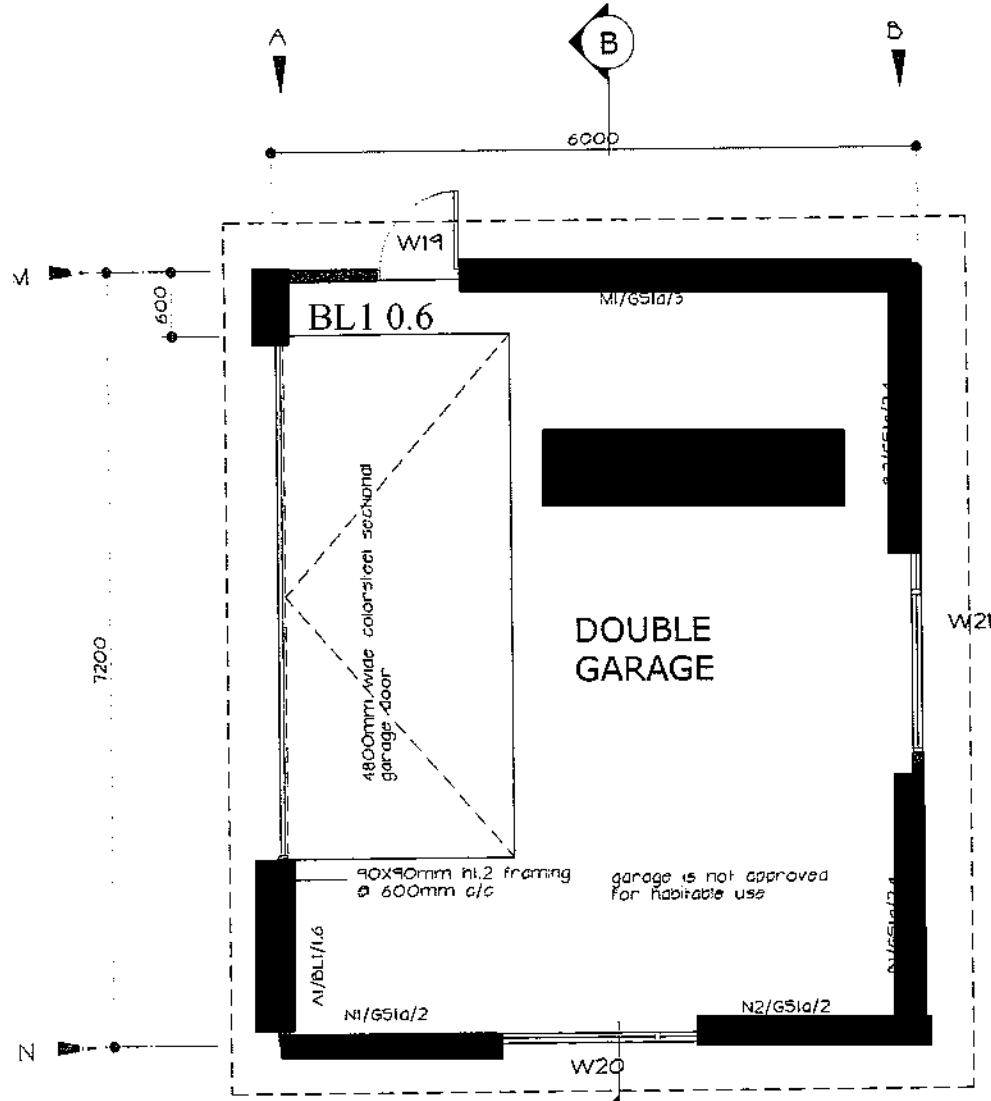
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0739/3
(A2 original) OF 8

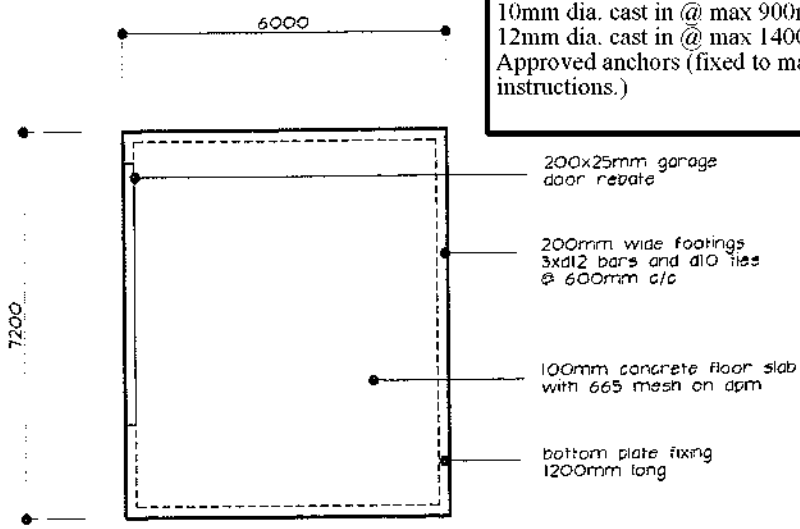
VAN LENT HOUSE
LOT 12 SEACREST DOWNS, PEKE PEKA

REVISIONS:



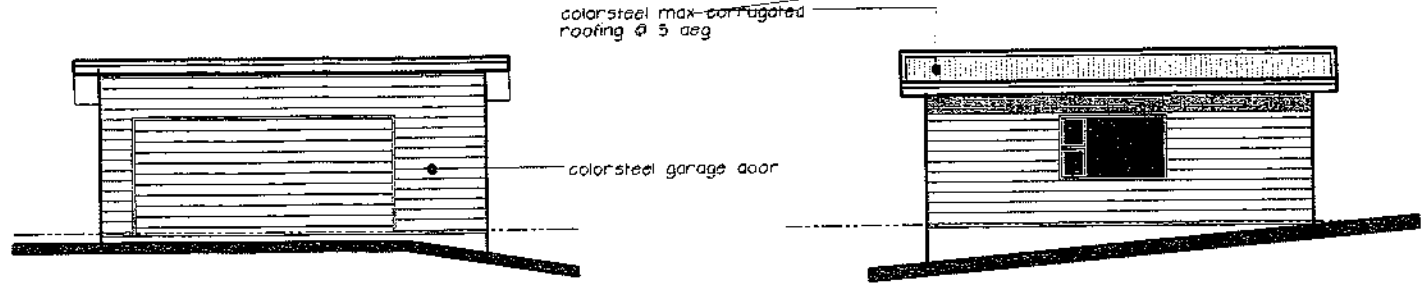
GARAGE FLOOR PLAN SCALE 1:50
GARAGE FLOOR AREA = 43.2 sqm

Bottom Plate Fixing
10mm dia. cast in @ max 900mm crs.
12mm dia. cast in @ max 1400mm crs.
Approved anchors (fixed to manufactures instructions.)



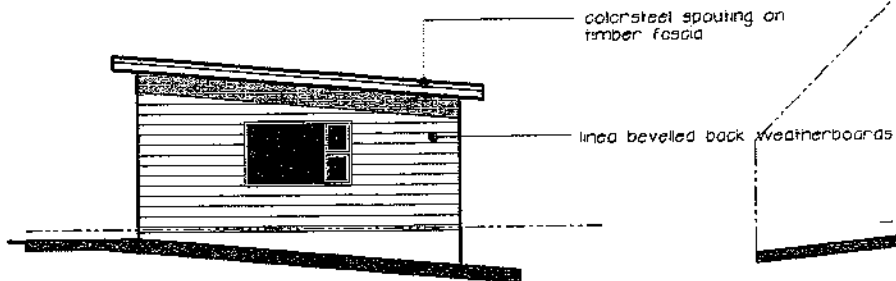
FOUNDATION PLAN SCALE 1:100

**ENGINEER STRUCTURAL DESIGN
TAKES PRECEDENCE**

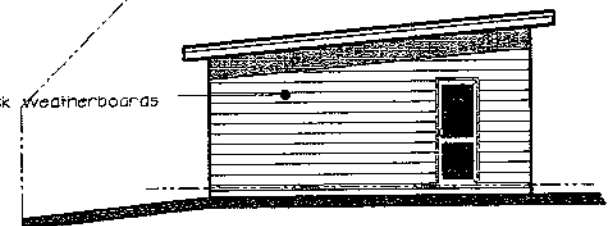


ELEVATION FIVE
SCALE 1:100

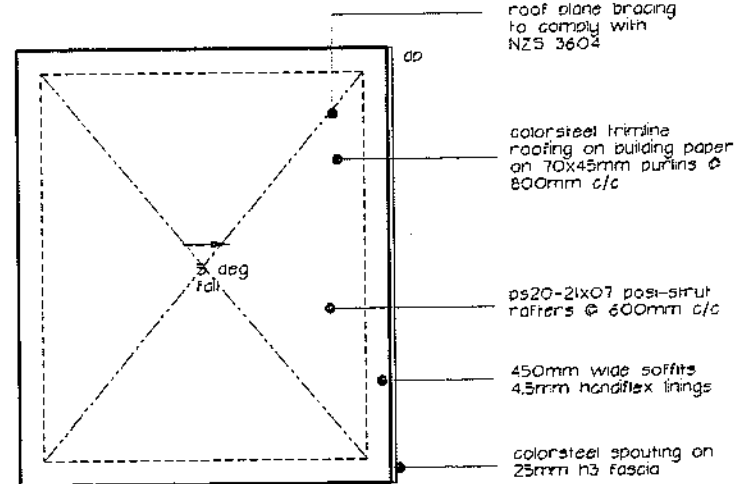
ELEVATION SEVEN
SCALE 1:100



ELEVATION SIX
SCALE 1:100



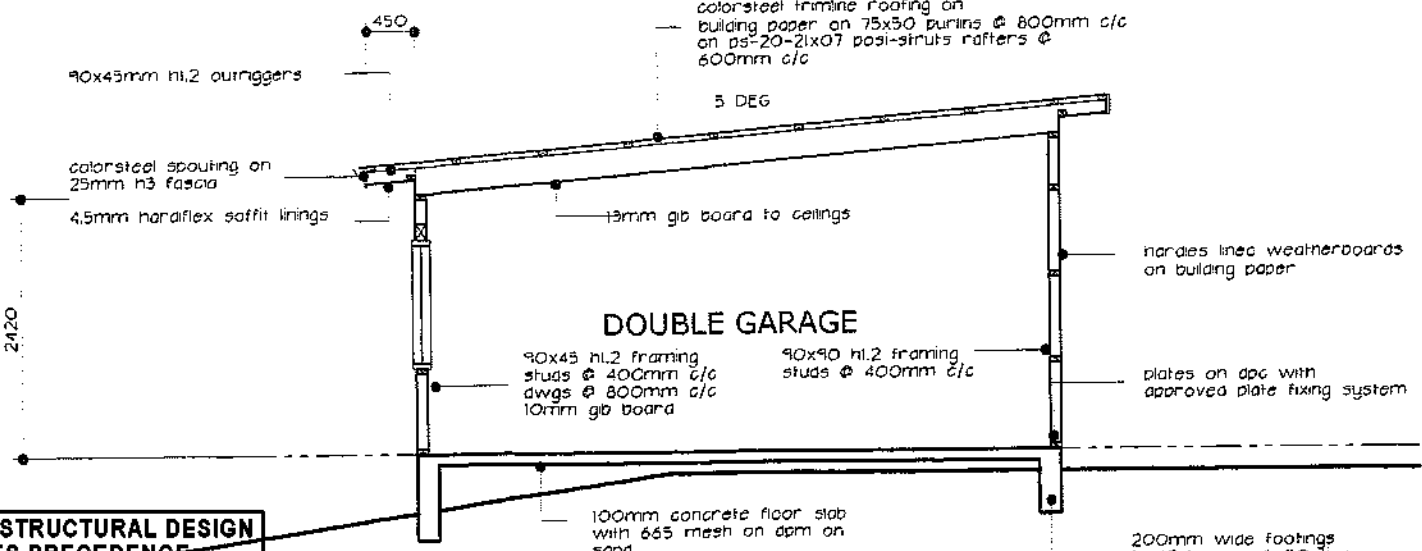
ELEVATION EIGHT
SCALE 1:100



ROOF PLAN SCALE 1:100

Roof structures at an angle of less than 10° to the Horizontal, or at a slope of less than 1 in 6 must have a timber treatment of H3.1 refer NZS 3602 : 2003

Cross-flow of ventilation to be provided to roofs above the thermal insulation layer sufficient to prevent interstitial condensation.



SECTION D-D SCALE 1:50

VAN LENT HOUSE
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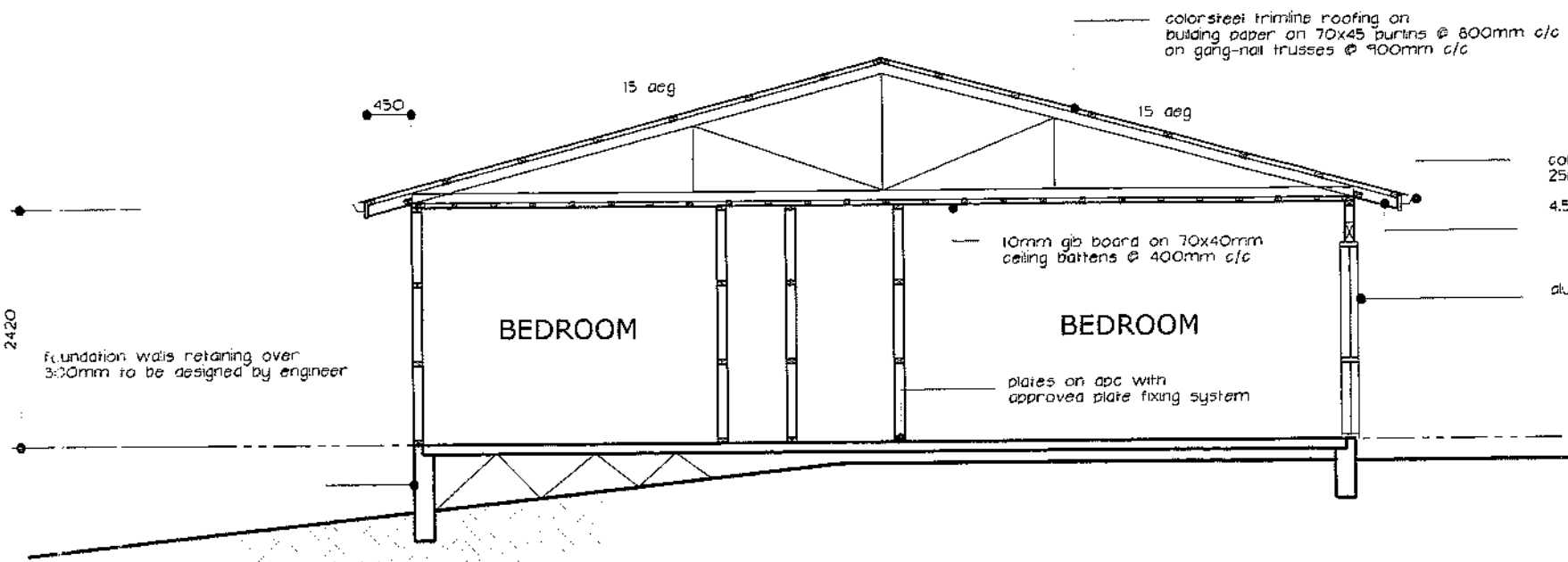
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Thermal insulation must be provided to floor, walls & roof
sufficient to satisfy NZBC clause H1 Energy Efficiency

REVISIONS:



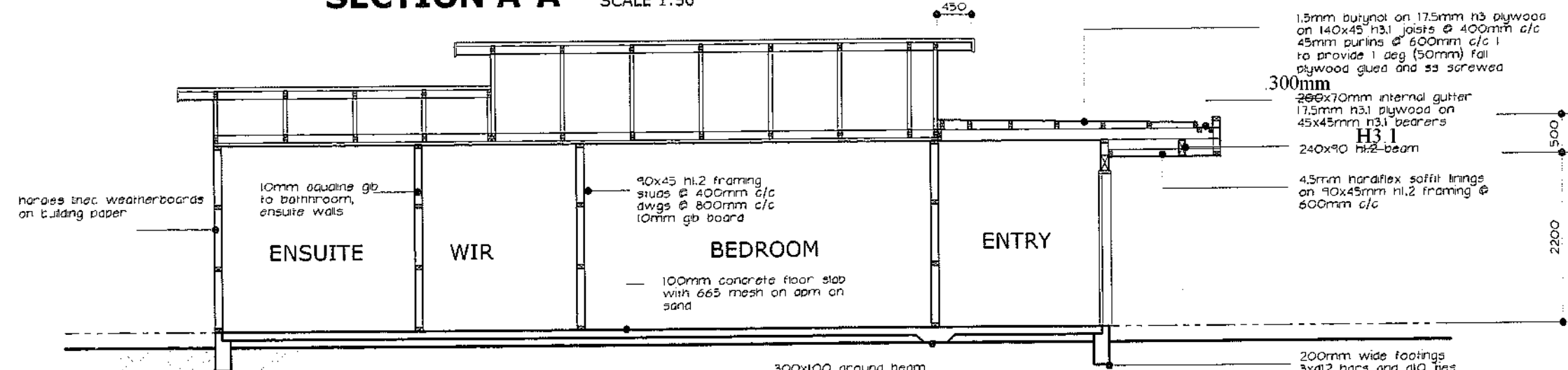
SEA SPRAY ZONE
Site is within 500mm from the sea. All exterior fixings and fastenings shall be type 304 stainless steel

INSULATION
R1.8 insulation batts to exterior walls
R2.6 insulation batts to ceilings

RAFTERS AND TRUSS FIXING
8.7 kN fixing
2/100x3.75 skewed nails + 4 wire dogs

Also refer to NZBC, clause E2/AS1, External Moisture: Third Edition for clarity

SECTION A-A SCALE 1:50



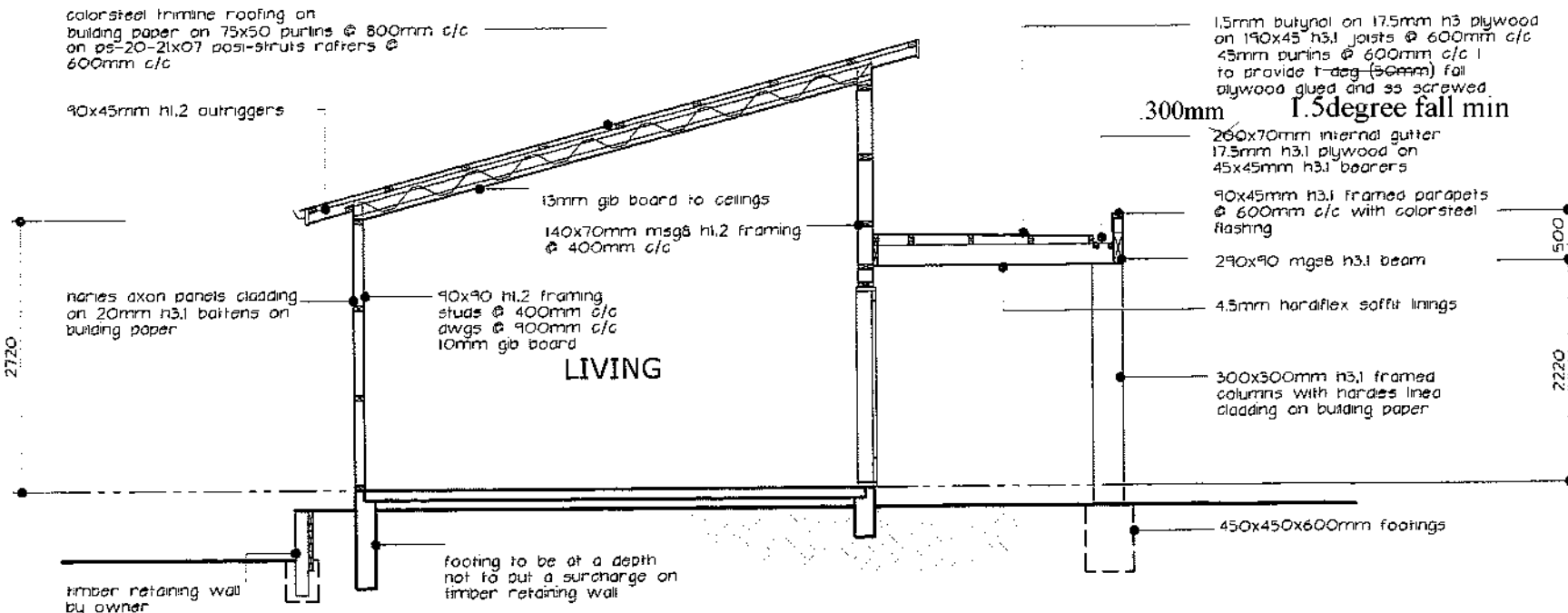
Top Plate Fixing
Where walls are supporting trusses the top plate must be fixed to the supporting member (eg studs and lintels) as per Table 8.18 NZS3604:1999

PURLIN FIXING 2.7 kN fixing
2/100x3.75 skewed nails + 1 wire dog or 2/100x3.75 skewed nails + 1/14g type 17 screw to AS 3566

SECTION B-B SCALE 1:50

Butynol

BUTYNOL ROOFING MEMBRANE is to be installed and maintained in accordance with the statements and conditions of BRANZ APPRAISAL CERTIFICATE No. 436 (2005) & the New Zealand Building Code.



SECTION C-C SCALE 1:50

TIMBER TREATMENT	
ALL TIMBER TREATMENTS TO BE ACCORDANCE WITH WITH NZS 3602:2002. MINIMUM TREATMENT AS BELOW	
Roof Framing, Trusses and Ceiling Joists Internal Walls Exterior wall Framing for single storey brick veneer	H1.2 or Untreated
Exterior wall framing (ex Brick veneer) Skillion Roofs Subfloor framing	H1.2
Enclosed framing for roof structures less than 10 deg, decks, balconies and handrails Framing supporting decks and balconies Cladding cavity battens	H3.1
Unroofed decks, external stairs, handrails Exposed structural members	H3.2
Piles and other structural in ground members	H5
ALL TIMBER NO.1 FRAMING OR MSG6 UNLESS STATED OTHERWISE	

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0739/6

(A2 original) OF 8

VAN LENT HOUSE
LOT 12 SEACREST DOWNS, PEKE PEKA

8.5 Membrane Roofs and Decks

8.5.1 Limitations

This Acceptable Solution is limited to *membranes* composed of butyl or EPDM installed over plywood substrates for:

- a) *Roofs* with a minimum fall of 1° (1:60),
- b) *Decks* with:
- a minimum fall of 1° (1:60),
 - a maximum area of 40 m²,
 - no steps in level within *deck* area except into gutters,
 - no integral roof gardens, and
 - no downpipe direct discharge to *deck*,

Amend 2
Jul 2005

COMMENT:

Discharging gutters directly onto *decks* increases the chances of water entry into sensitive areas.

Direct discharge may be allowed into gutters calculated to have sufficient water-carrying capacity, but this is outside the scope of this Acceptable Solution.

- c) Internal gutters with a minimum fall of 1 in 100, with no seams in the gutters closer than 1 m to an outlet, and

COMMENT:

Seams should be avoided in gutters where possible. Where they cannot be avoided they should be positioned at a high point or a change in plane to reduce the risks of ponding on the seam. Seams in gutters are particularly difficult to form at outlets through *enclosed balustrade* walls, and the risk of failure is high. Failure of a seam can result in damage to underlying walls.

- d) Decks with removable raised surfaces to give level access as shown in Figure 17A.

The application of directly-applied wearing or decorative surfaces to *membranes* is not covered in this Acceptable Solution.

COMMENT:

EPDM and butyl rubber *membranes* are subject to damage when on trafficable roof-decks. A suitable wearing surface will help reduce such damage.

8.5.2 General

Amend 2
Jul 2005

COMMENT:

It is recommended that installation of membrane *cladding* be by trained installers, approved by the manufacturer or the NZ agent (in the case of imported membrane).

Amend 2
Jul 2005

8.5.3 Plywood substrates

Plywood shall be:

- A minimum of 17 mm complying with AS/NZS 2269,
- At least CD Grade Structural plywood with the sanded C face upwards, and
- H3 with treatment type compatible with *membrane* and adhesives used, and kiln dried after treatment.

Amend 2
Jul 2005

COMMENT:

The compatibility of LOSP-treated plywood must be checked with *membrane* suppliers.

If using plywood containing copper-based preservatives, check the compatibility of adhesives and *membranes* with copper with the product manufacturers.

8.5.4 Butyl and EPDM

Butyl rubber and EPDM rubber used for *membrane* roofing or *decks* shall:

- Be a minimum thickness of:
 - 1 mm for roofing, or
 - 1.5 mm for decks, and
- Comply with the following parts of Table 1 in ASTM D6134:
 - tensile strength,
 - elongation,
 - water absorption,
 - water vapour permeance, and
 - heat aging followed by:
 - tensile strength
 - elongation, and
- Have adhesives, primers and seam tapes that:
 - comply with BRANZ EM 5, and
 - are part of a complete system approved by the manufacturer or supplier of the *membrane*.

Amend 2
Jul 2005

8.5.5 Installation

8.5.5.1 Plywood

Substrates must be dry when *membranes* are applied. The plywood and the timber substructure shall have a maximum moisture content of 20% when a *membrane* is adhered.

COMMENT:

This will generally require substrates to be covered to prevent rain wicking, or to be pre-primed to avoid moisture uptake.

Manufacturers' recommendations should be consulted, as some require a lower moisture content in order to validate guarantees.

Plywood substrates shall be fixed according to the following requirements:

- a) Panels shall be laid with staggered joints (brick bond),
- b) The edge of sheets shall be supported with *dwangs* or *framing*, unless a structurally tested tongue-in-groove edge provides equivalent support,
- c) The maximum span shall be 400 mm,
- d) Plywood shall be laid with the face grain at right angles to the supports,
- e) A 20 mm triangular fillet shall be used at the base of any 90° upstand,
- f) External edges shall be chamfered with a minimum radius of 5 mm, and
- g) Plywood shall be fixed:
 - i) with 10 g x 50 mm stainless steel countersunk head screws,
 - ii) with 3 mm gaps between all sheets,
 - iii) at 150 mm centres on edges, and
 - iv) 200 mm in the body of the sheets.

Amend 2
Jul 2005

COMMENT:

Closed-in construction spaces under *membrane* roofs and *decks* shall have adequate ventilation to prevent the accumulation of moisture under the *membrane*. There should be a minimum gap of 20 mm between the underside of the substrate and any insulation.

For roof or *deck* areas over 40 m², roof vents will be required. Roof vents are not covered by this Acceptable Solution.

8.5.5.2 Butyl and EPDM

Seam tapes shall be used on all joints of:

- a) Roofs or *decks* with falls less than 5° (1:12),
- b) Gutters or where water could pond,
- c) Penetrations through the *membrane* where butyl or EPDM *flashing* is required,
- d) EPDM *membrane*, and
- e) Butyl *membranes* that contain EPDM.

COMMENT:

Coloured butyl *membranes* contain EPDM, which makes them more difficult to adhere properly.

Seams should be aligned parallel to the fall of the *deck* to minimise ponding. The use of joints in butyl or EPDM should be avoided in gutters. Where this is not possible, the plywood should be rebated to minimise the effect of the seam.

Where a penetration is made through the *membrane* subsequent to laying, the *flashing* should be installed by the applicator of the *membrane* system.

All joints in the plywood and junctions of plywood with other materials shall have 25 mm polyethylene release tape applied before application of the *membrane*.

8.5.6 Roof and deck drainage

Roofs and *decks* shall be constructed to provide falls as shown in Figure 56.

Roofs and *decks* shall be constructed so that:

- a) The highest point of the roof or *deck* is a minimum of 100 mm below an adjoining floor as shown in Figure 62,
- b) *Membrane* upstands extend to a minimum level of 50 mm above the floor level at all walls or *parapets* as shown in Figure 62,

Amend 2
Jul 2005

COMMENT:

This will lead to a minimum total *membrane* upstand of 150 mm which, if the clearance of the *cladding* from the *deck* or roof surface is at the minimum of 35 mm, gives an overlap of 115 mm.

c) Water discharges either:

- i) directly into roof outlets with a minimum diameter of 75 mm as shown in Figure 64, or
- ii) via *scupper* openings, into a rainwater head, or a gutter with a minimum width of 300 mm as shown in Figure 63,

d) Where the discharge is through a *parapet* or *enclosed balustrade*, the *scupper* opening shall have a minimum clear opening of 200 mm wide and 75 mm high, with a lip as shown in Figure 63,

e) External corner upstands in the *membrane* around the *scupper* opening are formed as shown in Figure 57, and

COMMENT:

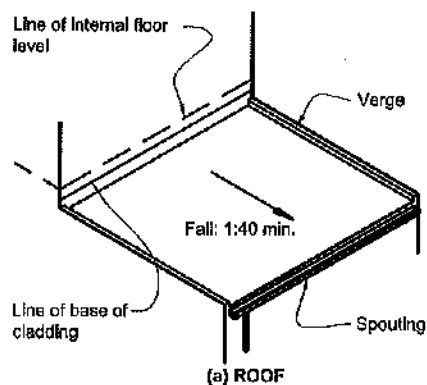
Refer to E1/AS1 for specific drainage requirements, as minimum sizes for outlets and gutters may be higher than shown in this Acceptable Solution.

- f) When an internal outlet is used, allowance for additional run-off shall be provided by:
- i) an overflow in addition to the outlet, or
 - ii) an extra outlet, with both outlets sized to take the full required capacity.

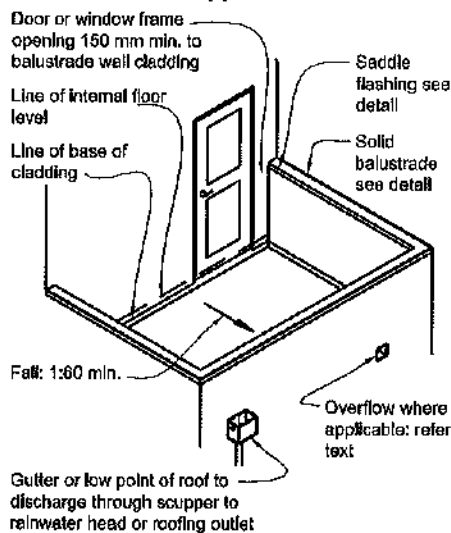
When an overflow is provided in addition to the outlet, a lip to the overflow shall be formed as shown in Figure 63.

Figure 56: Falls in membrane roofs and decks
Paragraphs 8.5.6 and 8.5.8 a)

NOTE: (1) Refer Figure 82 for thresholds and clearances.
(2) Junction *saddle flashing* – refer Figure 13.



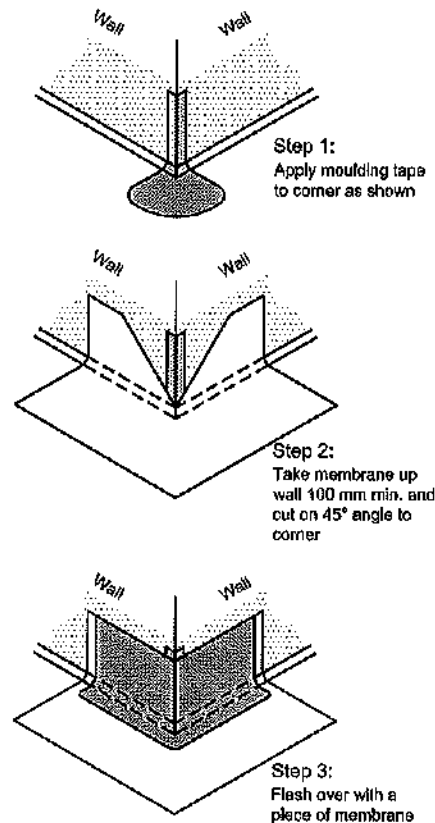
(a) ROOF



(b) DECK

Amend 2
Jul 2005

Figure 57: External corner in upstand
Paragraphs 8.5.6 c) and 8.5.8 a),
Figures 59 and 63



8.5.7 Control joints

All *control joints* in the substrate shall be accommodated in the *membrane* roof design.

The design of *control joints* for *membrane* roofing is subject to *specific design* and is outside the scope of this Acceptable Solution.

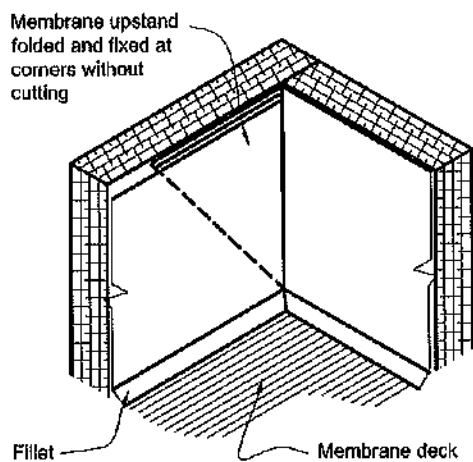
Amend 2
Jul 2005

8.5.8 Junctions

All junctions of roof or *deck* to walls, *parapets* and *enclosed balustrades* shall be made *weathertight* using the following appropriate details:

- a) Figure 57: External corner in upstands,
- b) Figure 58: Internal corner in upstands,
- c) Figure 61: Verges and eaves,

Figure 58: Internal corner in upstand
Paragraph 8.5.8 b); Figure 62



Amend 2
Jul 2005

- d) Figure 62: Junctions of *decks* and walls, and
e) Figure 63: *Scupper* discharge from a roof to a rainwater head and the weatherproofing of the opening.

8.5.8.1 Junctions with walls

Junctions of *membrane decks* or walls shall be formed as shown in Figure 62.

Clearances in Figure 62 are shown to the *membrane* surface. Where there is an additional material applied over the *membrane*, all required clearances shall apply to the highest level of the upper wearing surface, where this is also the draining surface.

The bottom of the wall *cladding* above the *deck* or roof surface shall be sealed prior to fixing.

COMMENT:

Adding wearing surfaces such as tiles over the *membrane* will effectively reduce clearances, and should be allowed for when setting *membrane* levels.

8.5.9 Penetrations

Penetrations through *membrane* roofs and *decks* shall be as shown in Figure 59 and Figure 60.

Figure 59: Roofing penetration in membrane
Paragraphs 8.5.8 and 8.5.9

NOTE: (1) For maximum penetration size of 1200 mm x 1200 mm.

(2) External corners to be formed as shown in Figure 57.

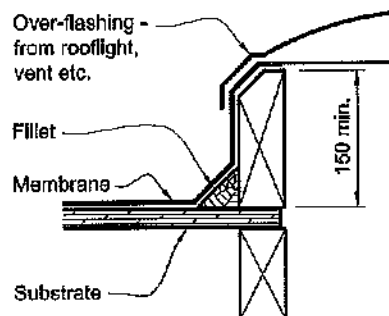


Figure 60: Pipe penetration in membrane
Paragraph 8.5.9

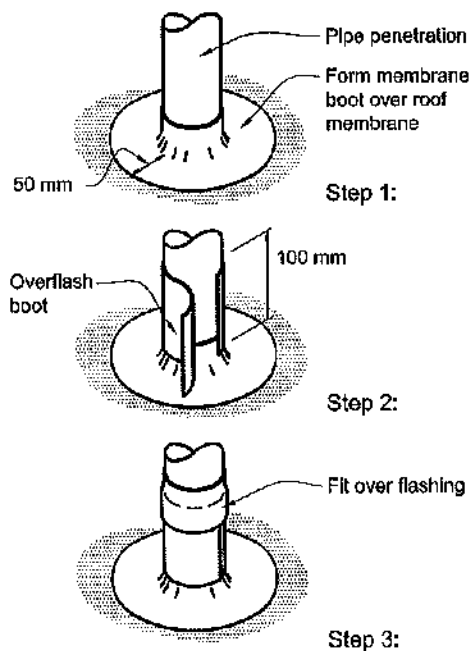


Figure 61: Verges in membrane
Paragraph 8.5.8 c)

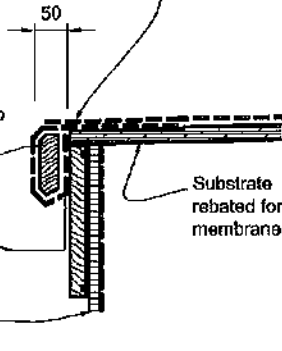
NOTE: Z = variable according to wind zone – refer Table 7.

Membrane fixed under timber fillet and then folded round and overflashed by roof membrane

Ex 75 mm deep fillet to form drip edge

Gutter

Wall cladding and building wrap



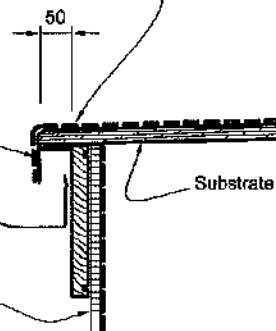
(a) EAVE

Membrane dressed over substrate and angle

50x50 mm aluminium angle

Spouting

Wall cladding and building wrap



(c) EAVE

Roofing membrane
100x50 mm capping
Ex 25 mm barge
Z
Membrane fixed under timber fillet and then folded round and flashed over roof membrane
Wall cladding and building wrap

(b) VERGE

Roofing membrane
Uprand framing
Membrane dressed down over barge flashing and returned at ends
Z
Metal flashing
Wall cladding and building wrap

(d) VERGE

8.5.9.1 Handrails

Fixing of posts for *handrails* into *membrane* roofs or *decks* is not covered by this Acceptable Solution.

COMMENT:

Any fixing of posts into *membrane* roofs or *decks* will require *specific design*.

The fixing of posts into tiles over a *membrane* is particularly risky, and should be avoided.

8.5.10 Gutters

Deck gutters and internal outlets shall be constructed as shown in Figure 64.

COMMENT:

Internal outlets should have a dome-type cover to reduce risk of blockage, except where this could constitute a pedestrian hazard.

When an overflow is provided for roofs or *enclosed decks* as per Paragraph 8.5.6 f) i), the overflow shall have a cross-sectional area equal to 1.5 times the cross-sectional area of the calculated discharge downpipe.

Any plywood adjacent to *deck* gutters shall be treated to H3.1, and protected from water splash.

Amend 2
Jul 2005

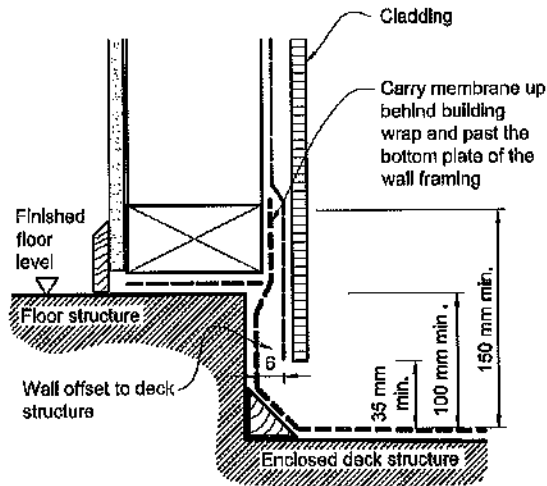
Amend 2
Jul 2005

Amend 2
Jul 2005

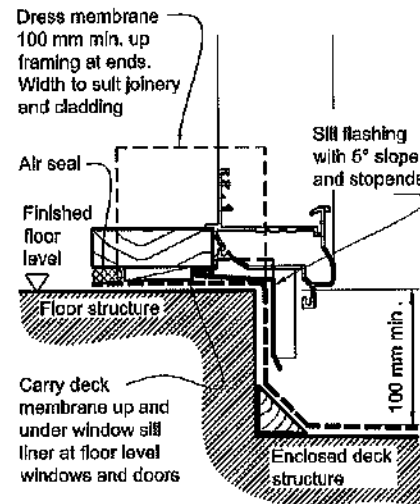
Figure 62: Junctions with walls for membrane
Paragraphs 7.4.3, 8.5.6(b), 8.5.8(d) and 8.5.8.1

NOTE: (1) Internal corners to be formed as shown in Figure 58.

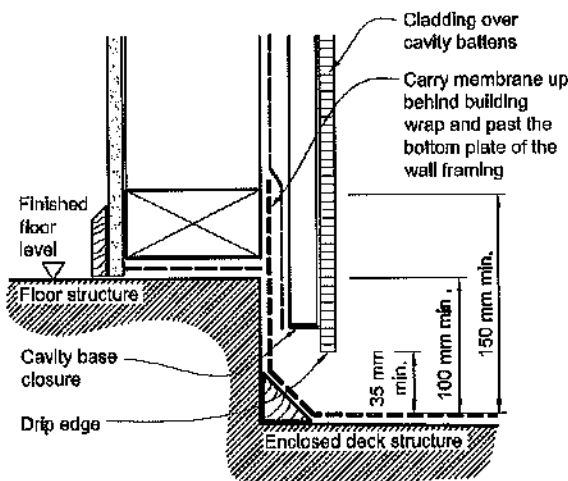
(2) Dimensions are shown to *membrane*. However, where there is an additional material applied over the *membrane*, all dimensions shall apply to the highest level of the wearing surface.



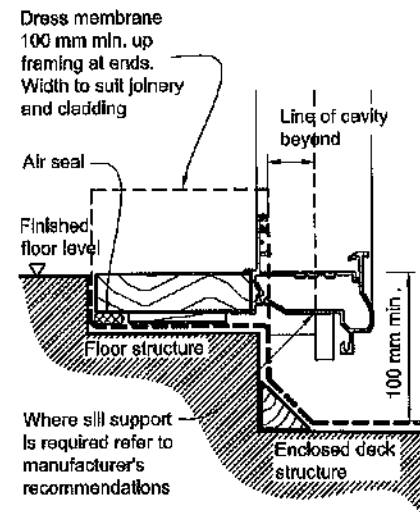
(a) DIRECT FIX THRESHOLD AT WALL



(b) DIRECT FIX THRESHOLD AT OPENING



(c) CAVITY THRESHOLD AT WALL



(d) ALTERNATIVE CAVITY THRESHOLD AT OPENING

Amend 2
Jul 2005

Amend 2
Jul 2005

Figure 63: Rainwater head and scupper opening in membrane
Paragraphs 8.5.6 d) and f)

NOTE: (1) A preformed scupper unit may be used, but this will require *specific design*.
(2) External corners of scupper opening to be formed as shown in Figure 57.

Amend 2
Jul 2005

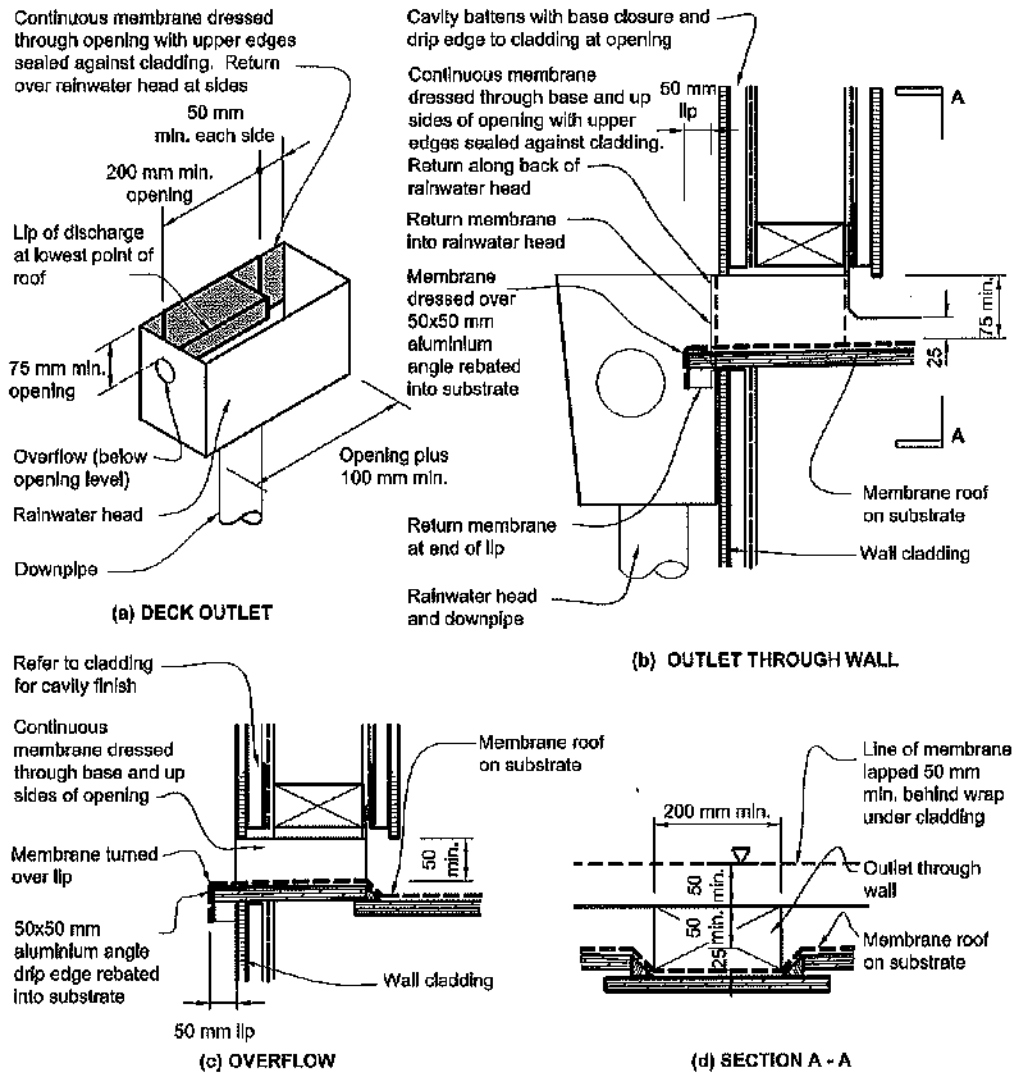
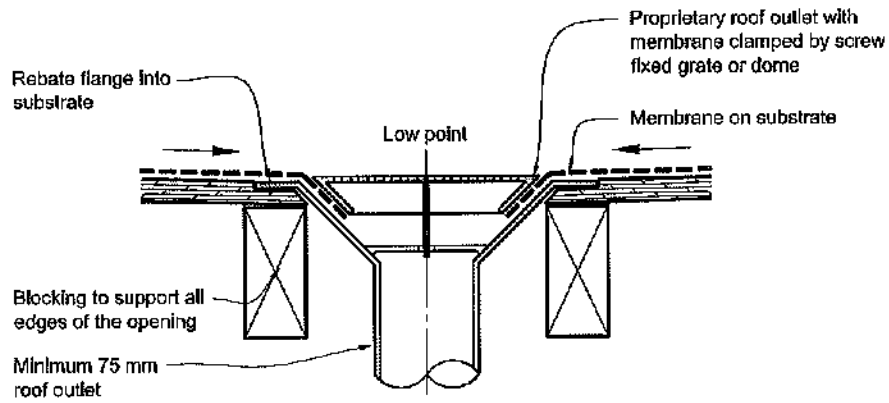
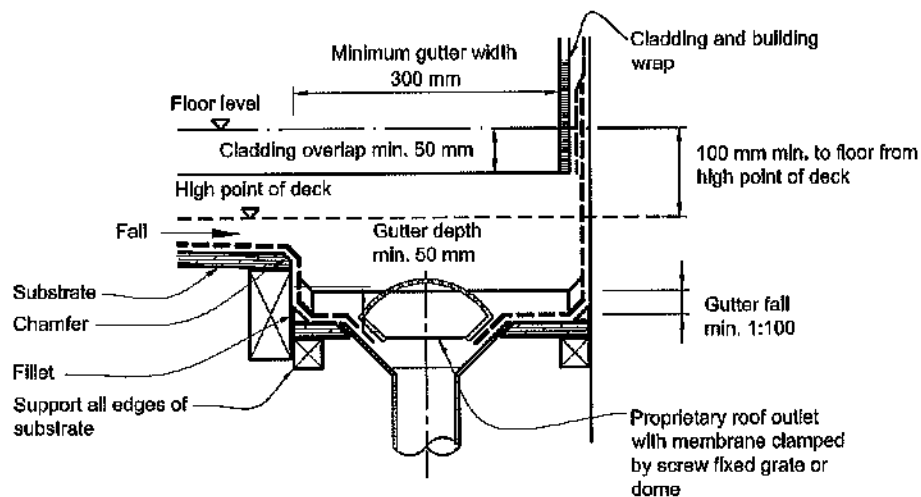


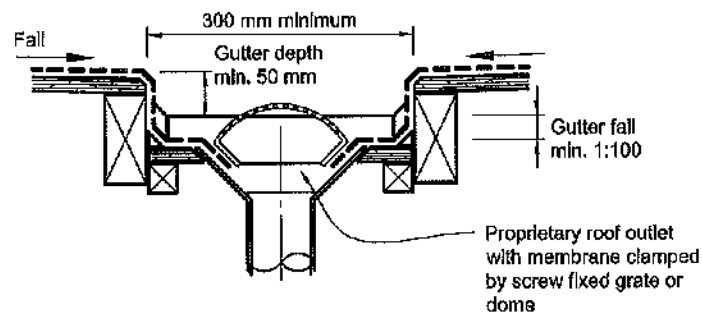
Figure 64: Gutters and outlets in membrane
Paragraphs 8.5.6 c) and 8.5.10



(a) TYPICAL GUTTER OUTLET

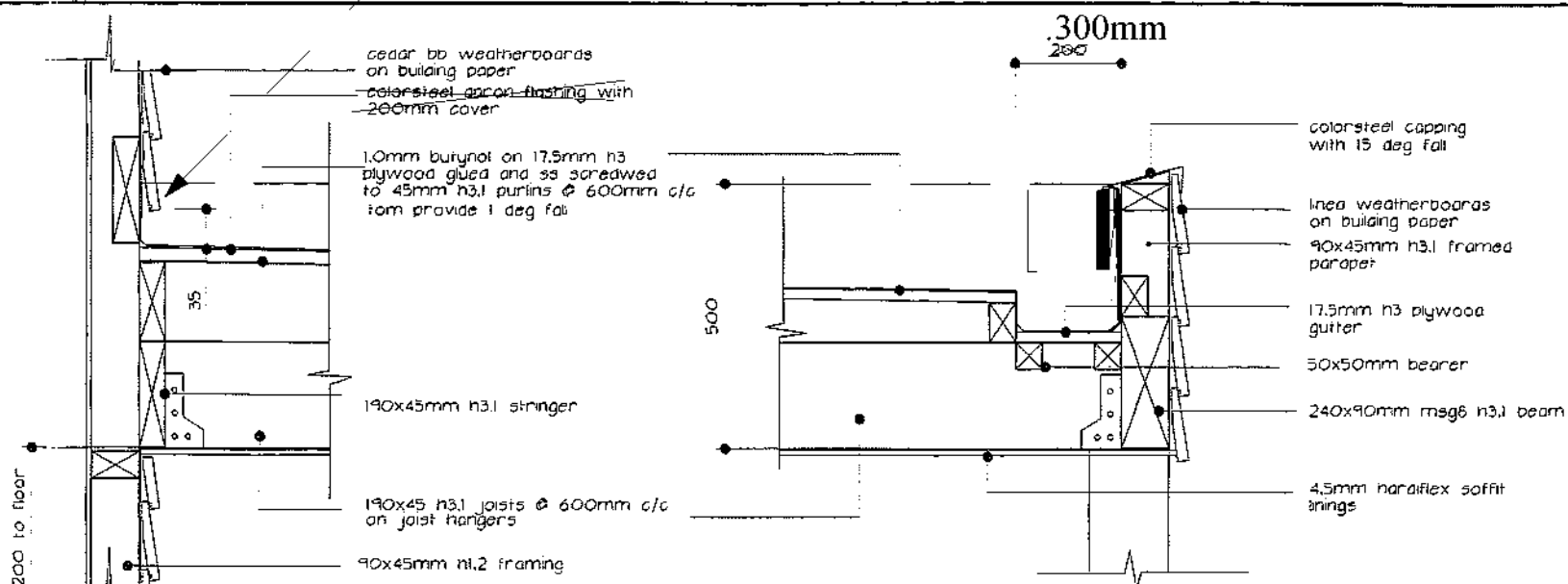


(b) EDGE GUTTER

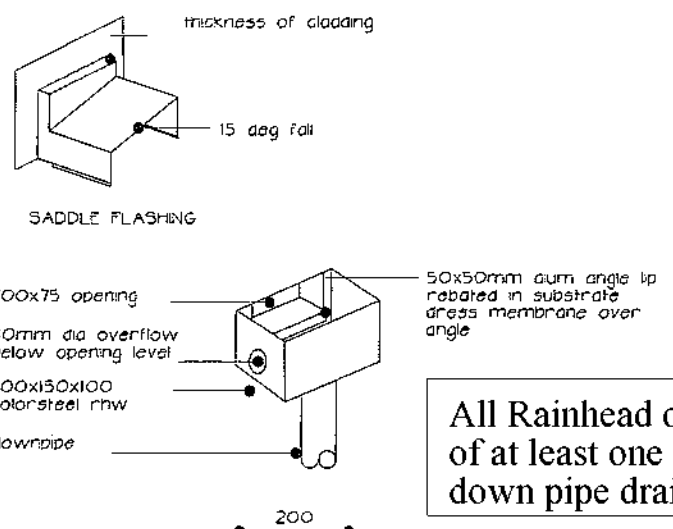


(c) CENTRAL GUTTER

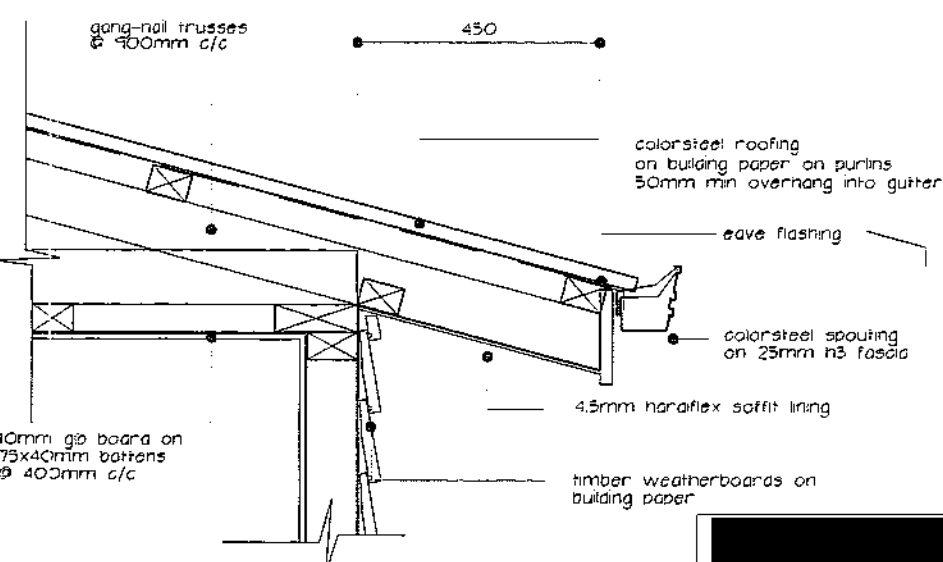
REVISIONS:



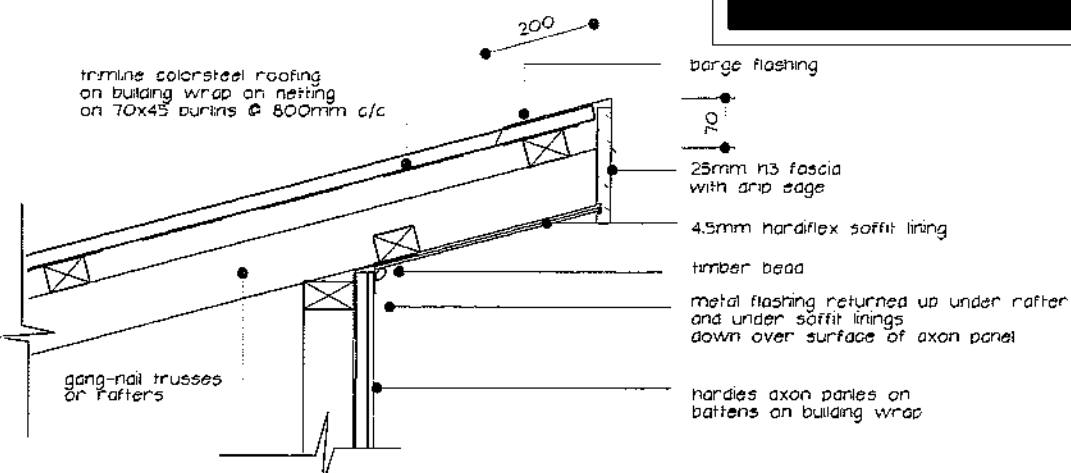
SECTION THRU CANOPY ROOF SCALE 1:10
ROOF AND GUTTER OVER ENTRY SIMILAR



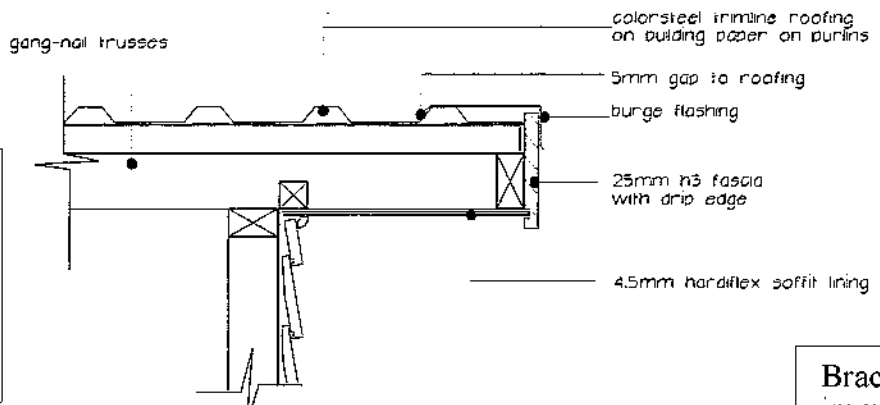
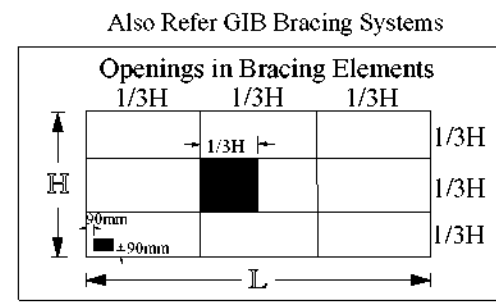
All Rainhead overflows are to have an overflow of at least one & a half times the size of the down pipe draining it.



SOFFIT DETAIL SCALE 1:10

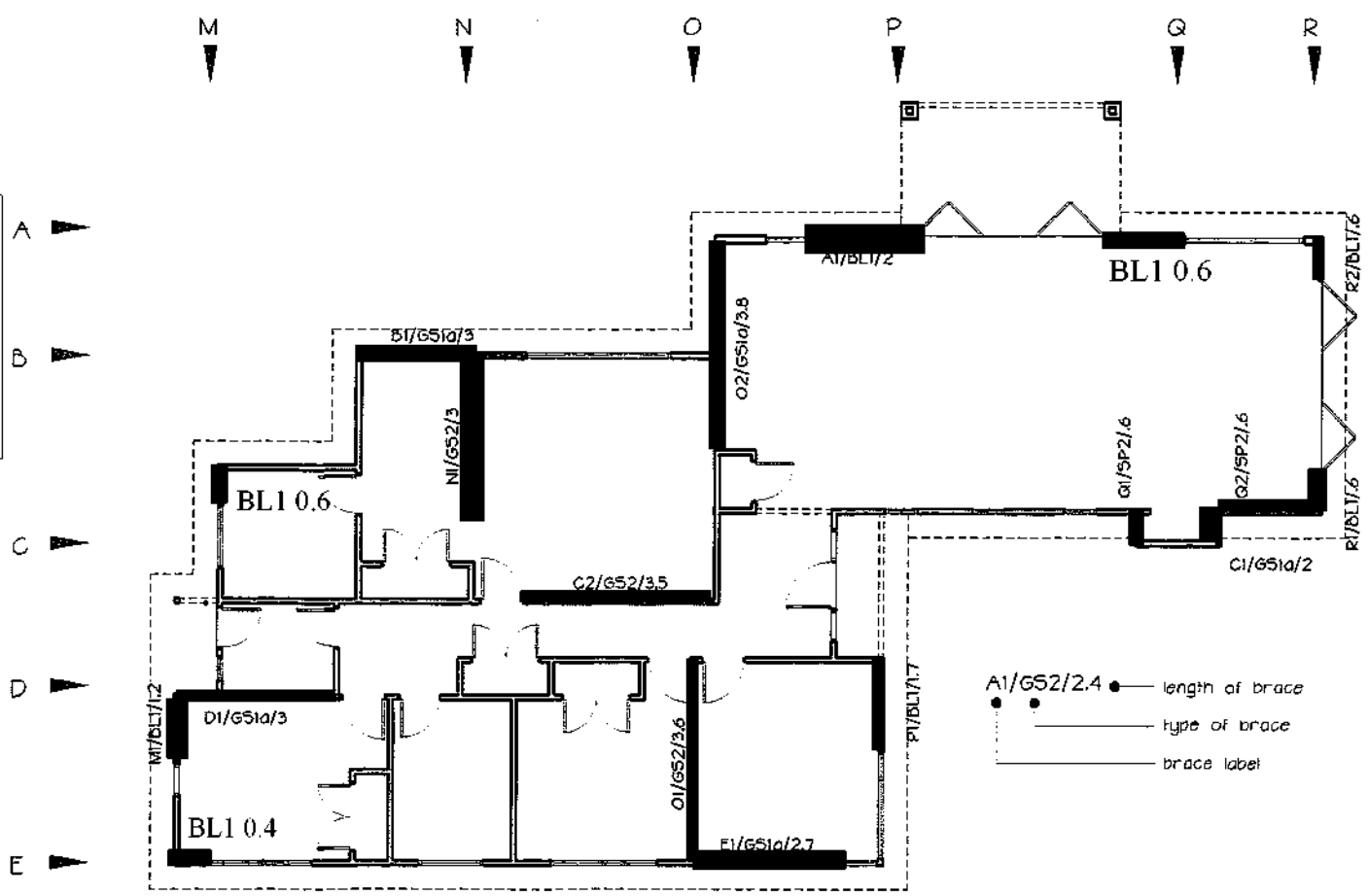


SOFFIT DETAIL >90 DEG SCALE 1:10



BARGE FLASHING DETAIL SCALE 1:10

Bracing elements not permitted, fixed immediately behind shower/bath fixtures within wet area spaces.



LOWER BRACING PLAN SCALE 1:100

VAN LENT HOUSE
LOT 12 SEACREST DOWNS, PEKE PEKA

Hayward Homes
Design and Build
PO Box 1416
Paraparaumu Beach
Kapiti Coast

PREPARED BY:
greig hayward architecture
Telephone 04 298 1487
Facsimile 04 298 1488
Mobile 027 233 9840
Email: greighayward@xtra.co.nz

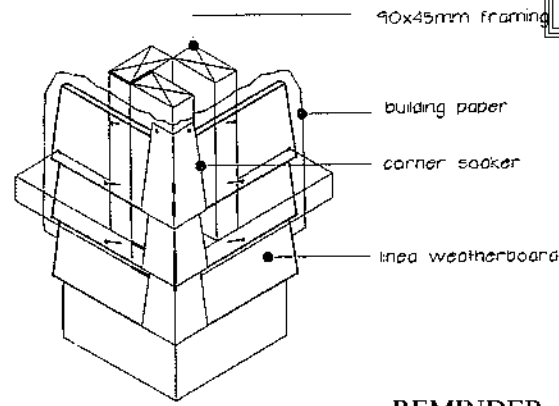
DATE: NOV 2007
DRAWN: GREIG
CAD REF: 0739.WORKING

CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK. THESE DRAWINGS ARE COPYRIGHT. DO NOT SCALE DRAWINGS. DRAWINGS TO BE READ IN CONJUNCTION WITH STRUCTURAL ENGINEERS DRAWINGS.

JOB/SHEET No:
0739/7
(A2 original) OF 8

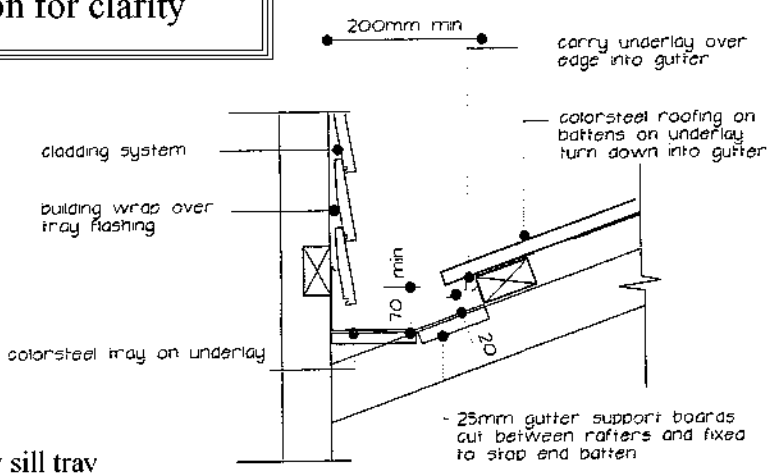
Also refer to NZBC, clause
E2/AS1, External Moisture:
Third Edition for clarity

REVISIONS:

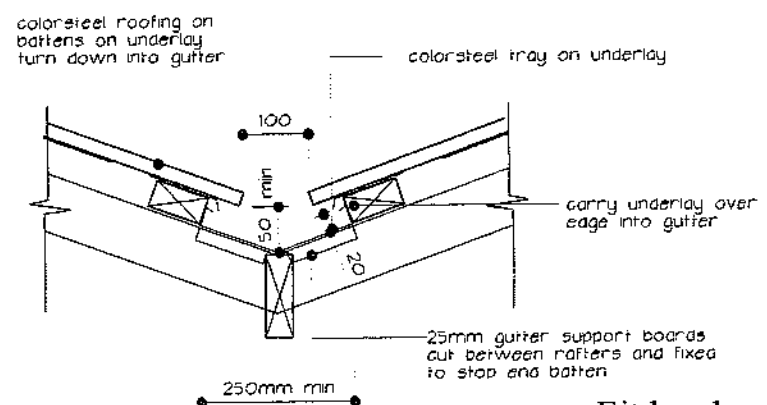


EXTERNAL CORNER

REMINDER
Fit head flashing & proprietary sill tray to external joinery. Fit flexible flashing tape to corners, jamb and sill. Fit airseals to the inner edge of the joinery reveals.

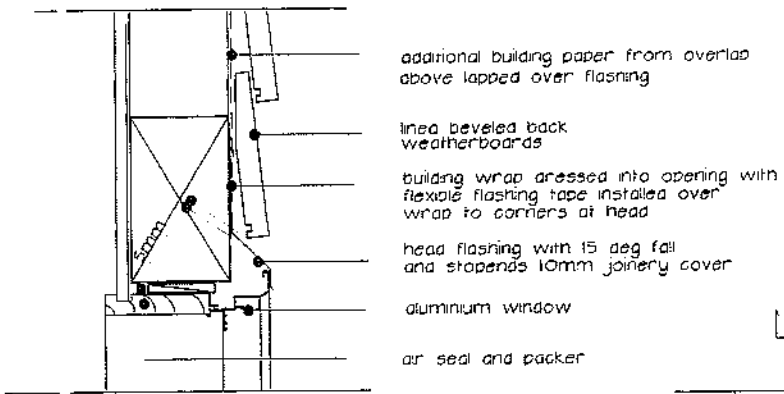


CHIMNEY JUNCTION
SCALE 1:10

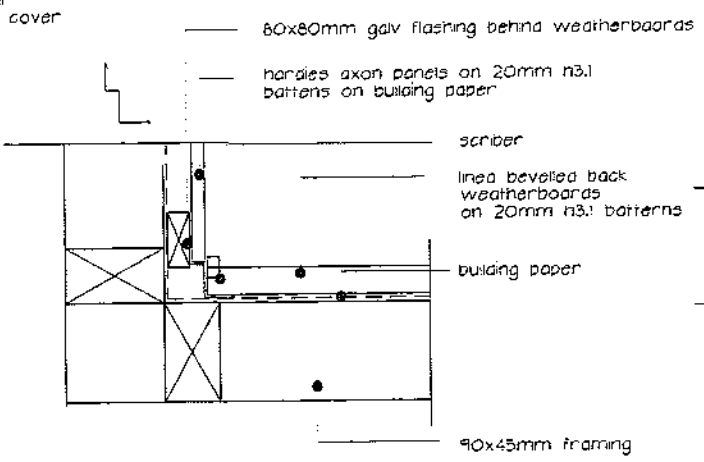


VALLEY GUTTER
SCALE 1:10

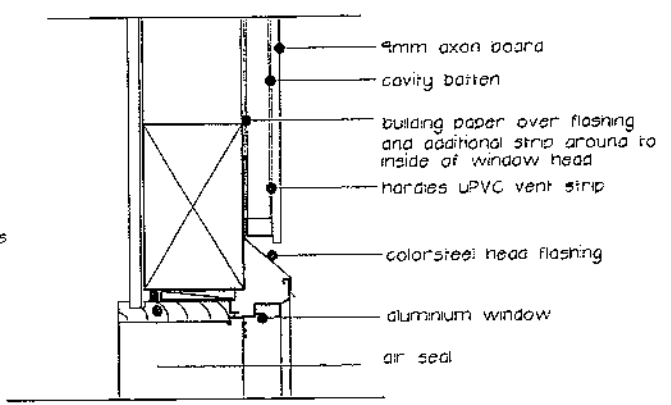
Fit head and jamb flashings to face-fixed external joinery. Fit flexible flashing tape. Fit airseals to the inner edge of the joinery reveals.



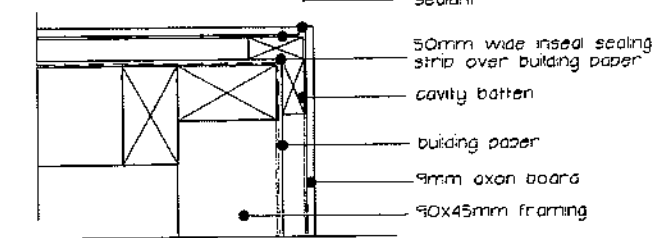
HEAD



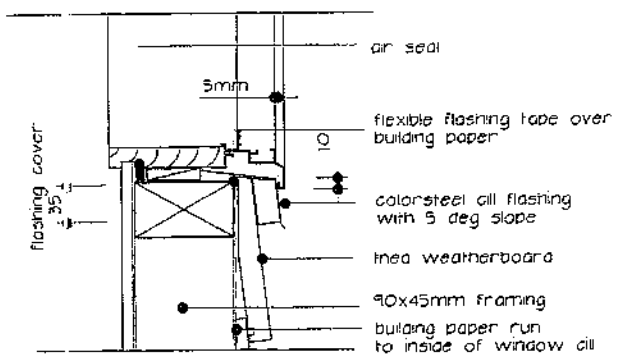
**INTERNAL CORNER
AXON- LINEA WEATHERBOARDS**



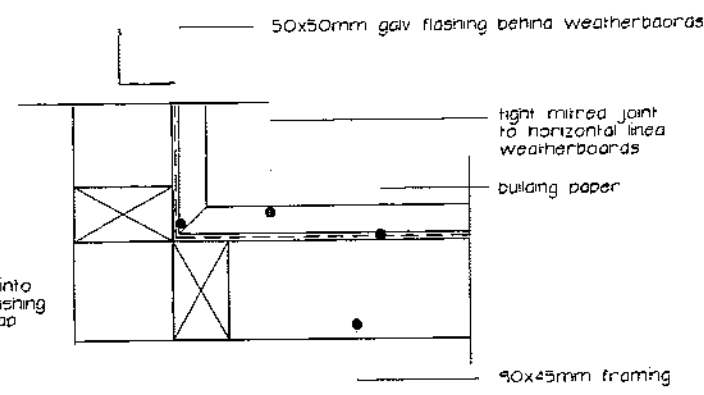
HEAD



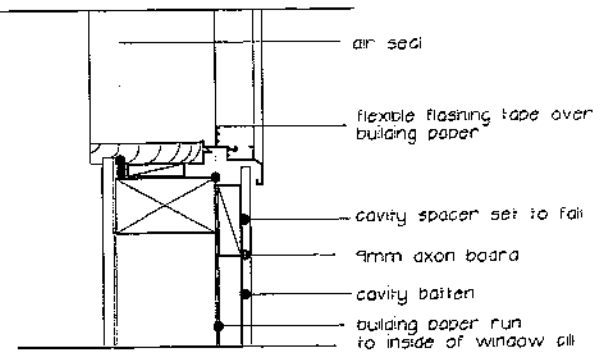
EXTERNAL CORNER



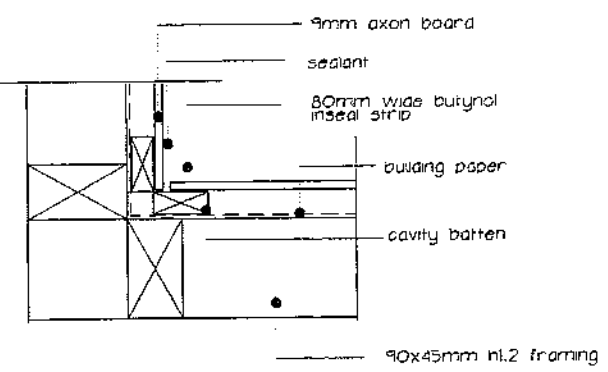
CILL



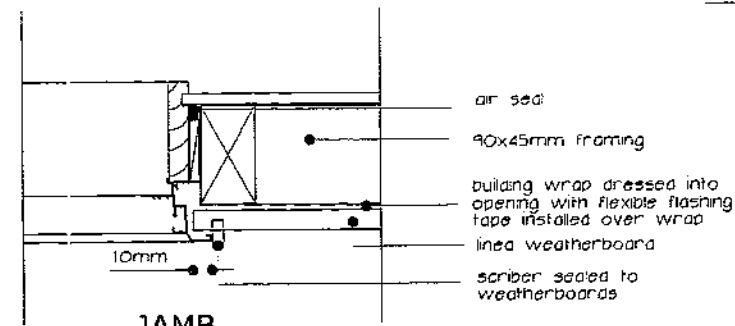
INTERNAL CORNER



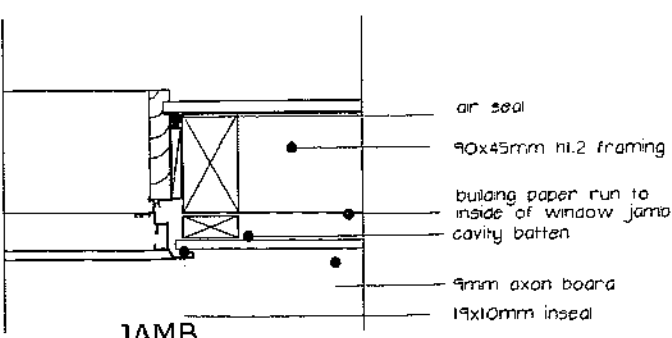
CILL



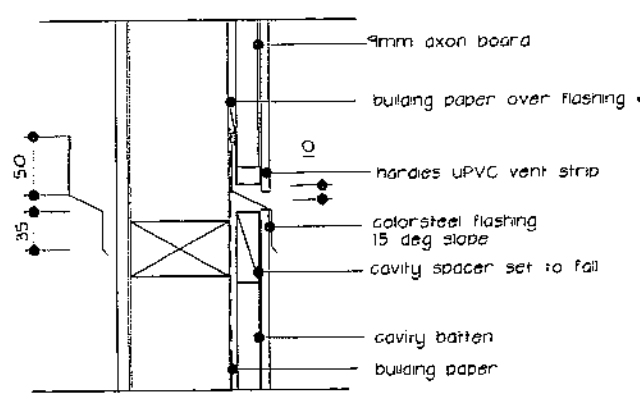
INTERNAL CORNER



JAMB



JAMB



HORIZONTAL JOINT

**LINEA WEATHERBOARD
DETAILS** SCALE 1:5

HARDIES AXON PANEL CLADDING
SCALE 1:5

VAN LENT HOUSE
LOT 12 SEACREST DOWNS, PEKE PEKA

Hayward Homes
Design and Build



PO Box 1416
Paraparaumu Beach
Kapiti Coast

PREPARED BY:
greig hayward architecture
Telephone 04 298 1487
Facsimile 04 298 1488
Mobile 027 233 9840
Email: greighayward@xtra.co.nz

DATE: NOV 2007

DRAWN: GREIG

CAD REF: 0739.WORKING

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0739/8

(A2 original) OF 8

6/03/2008

SPECIFIC DESIGN



P.I.M. No.

Building Regulation Clause(s) B1

PRODUCER STATEMENT – PS1 – DESIGN

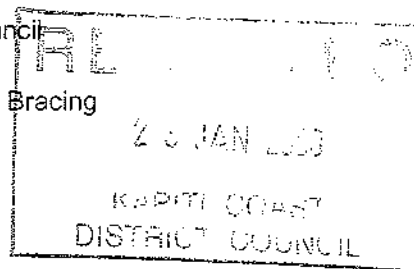
ISSUED BY: Allan Bruce Pullenger
(Suitably qualified Design Professional)

TO: Mr & Mrs Van Lent
(Owner)

TO BE SUPPLIED TO: Kapiti Coast District Council
(Territorial Authority)

IN RESPECT OF: Retaining walls, Canopy Bracing
(Description of Building Work)

AT: Lot 12 Seacrest Downs
Peka peka
(Address)



LOT 12

DP

Designscape sharkbait ltd
(Design Firm)

has been engaged by

owner

(Owner/Developer/Contractor)

to provide Structural design

services in respect of the

(Extent of Engagement)

requirements of Clause(s) B1

of the Building Regulations 2004 for

☐ All



Part only as specified

of the building work. The design has been prepared in accordance with B1
(verification method(s)/acceptable solutions(s))

(respectively) of the approved documents issued by the Building Industry Authority and the work is described on

Designscape sharkbait ltd drawings titled Van Lent House and numbered 2450 and the specification and other documents according to which the building is proposed to be constructed.

As an independent design professional covered by a current policy of Professional Indemnity Insurance to a minimum value of \$600,000. I BELIEVE ON REASONABLE GROUNDS that subject to:

(i) the site verification of the following design assumptions

and (ii) all proprietary products meeting the performance specification requirements, the drawings, specifications, and other documents according to which the building is proposed to be constructed comply with the relevant provisions of the building code.

All work carried out under jurisdiction of producer statement to meet the engineer's requirements fully.
Engineer to sign off work supervision after construction

(Signature suitably qualified Design Professional)

Date 21/12/2007

NZCE, Rea
(Professional Qualifications)

ERB/AERB Reg No NA

Member

ACENZ



alPENZ



298 Rosetta Road, Raumati
(Address)

GUIDANCE ON USE OF PRODUCER STATEMENTS

This producer statement has been prepared by a combined task committee consisting of members of the New Zealand Institute of Architects, Institution of Professional Engineers New Zealand, Association of Consulting Engineers New Zealand and the Building Officials Institute of New Zealand.

Four producer statements are available and brief details on the purpose of each are as follows:

- Design:** Intended for use by the person responsible for the design in circumstances where the Territorial Authority will rely on the producer statement to issue a Building Consent.
- Design Review:** Intended for use by a suitably qualified independent design professional where the Territorial Authority does not undertake an internal review and relies on the independent design professional's review to issue the Building Consent.
- Construction:** Intended for the use by the contractor of the building works where the Territorial Authority requires a producer statement at the completion of construction.
- Construction Review:** Intended for use by the person required by the Building Consent to undertake construction monitoring of the building works in circumstances where the Territorial Authority will rely on the producer statement to issue a Code Compliance Certificate.

The producer statements system is intended to provide Territorial Authorities with reasonable grounds for the issuing of a Building Consent or Code Compliance Certificate without having to duplicate design or construction checking by others.

The following criteria are recommended to Territorial Authorities with respect to the use of the producer statements.

Definition of Suitably Qualified Design Professional

A suitably qualified design professional should have recognised qualifications and experience for the work undertaken and should be either:

- (i) an active member of the Association of Consulting Engineers New Zealand (ACENZ) or;
- (ii) a member of the Institution of Professional Engineers New Zealand (IPENZ) having a current policy of Professional Indemnity Insurance for a sum not less than \$200,000 or;
- (iii) a member of the New Zealand Institute of Architects (NZIA) having a current policy of Professional Indemnity Insurance for a sum of not less than \$200,000.

Design Build Contracts

If the design professional is engaged by the contractor, the territorial authority should satisfy itself that it is appropriate for the territorial authority to rely upon a producer statement from the design professional.

Consulting Services during Construction Phase

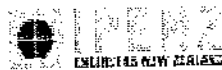
There are several levels of service which a design professional may provide during the construction phase of a project. The territorial authority is encouraged to require that the service to be provided by the design professional is appropriate for the project concerned.

Requirement to provide Producer Statement

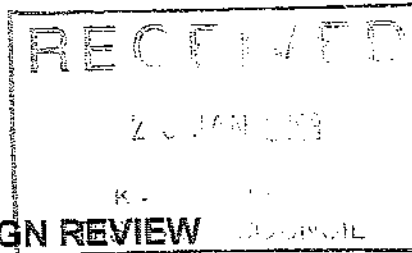
Territorial Authorities should ensure that the applicant is aware of any circumstances in which there may be a requirement for producer statements for the construction phase of building work at the time the building consent is issued as no design professional should be expected to provide a producer statement unless such a requirement forms part of the design professional's engagement.

Attached Particulars

Attached particulars referred to in this producer statement refer to supplementary information appended to the producer statement.



THE INSTITUTE OF
ARCHITECTS
NEW ZEALAND



Building Code Clause(s) B1

PRODUCER STATEMENT – PS2 – DESIGN REVIEW

ISSUED BY : Tatana Contracting Ltd
TO : Mr & Mrs Van Lent
(Owner/Developer)
TO BE SUPPLIED TO : Kapiti Coast District Council
(Building Consent Authority)
IN RESPECT OF : New Dwelling
(Description of Building Work)
AT : Lot 12 Seacrest Downs, Pekapeka
LOT 12 DP

We Tatana Contracting Ltd have been engaged by Designscape to review the design documents for this project in respect of the requirements of Clause(s) B1 of the Building Code.

The Review is for all of the structural design work prepared by Designscape as described in drawings titled **Van Lent Home** and numbered **job 2450**, the specification, and other documents set out in the schedule attached to this statement according to which the building is proposed to be constructed.

The Review is in respect of **Structural design and calculations** or per attached schedule.

The Review confirms that these aspects of the design are in accordance with:

Compliance Documents issued by Dept of Building & Housingor
(verification method / acceptable solution)

Alternative Solution as per attached schedule **specific design**

On behalf of the firm undertaking this review, on the basis of the review undertaken, and subject to:

- (i) site verification of the following design assumptions
- (ii) all proprietary products meeting their performance specification requirements;

I believe on reasonable grounds the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code.

I, **Phillip Karl Nordberg** am an **CPEng** **48168**

I hold the following qualifications: **BE (civil); CPeng;**

The Design Review Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than \$200,000*.

SIGNED BY **Phillip Karl Nordberg** ... ON BEHALF OF **Tatana Contracting Ltd**

Date **18/12/2007**

(signature).....

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Review Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of \$200,000

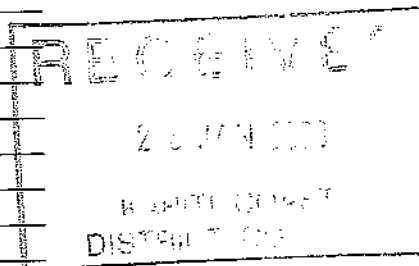
This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.

All work carried out under jurisdiction of producer statement to meet the engineer's requirements fully.
Engineer to sign off work supervision after construction

Date: 10/12/07

Fabricator: Placemakers Paraparaumu

Job Name: Hayward Builders
Lot 12 Seacrest Downs
Peka Peka



Building Consent No: _____

(to be provided by the City / District Council)

Attn: City / District Council

We have been engaged to provide the trusses for the above project and have enclosed the truss layout and Producer Statement to allow completion of the consent application. On advice from the building project owner, the structure will be designed under the following parameters:

Wind Zone Very HighSnow Load N/AEarthquake Zone ARoof Material Light

All work carried out under jurisdiction of producer statement to meet the engineer requirements fully.

Treatment Definition	External walls	<u>H1.2</u>	Trusses	<u>H1.2</u>
	Internal walls	<u>H1.2</u>		

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

1. A full as-built truss layout and Producer Statement
2. Specific truss / truss and truss / top plate fixing details indicated on the truss layout.
3. All lintel sizes outside NZS3604: 1999 will be indicated on the truss layout.
(all timbers to be MSG8 unless otherwise stated on layouts)
4. Top plate to stud connections will be indicated on the truss layout.

Acknowledgement of this letter, along with the Building Consent number, by fax to our office, would be appreciated.

Placemakers Paraparaumu Ltd
A Member of Frame and Truss Manufacturers Association NZ

**PRODUCER STATEMENT
FRAMING COMPONENT DESIGN**

This producer statement is issued by Placemakers Paraparaumu Ltd to

Name of Builder : Hayward Builders

Mitek : Components Frames to be built at

Job Address : Lot 12 Seacrest Downs, Peka Peka

On Our Drawings ;

All work carried out under
jurisdiction of producer
statement to meet the engineer
requirements fully.

Building Consent No:

Job Reference Number : 42692 (Van Lent)

As a Mitek Component Fabricator Accredited By Mitek NZ Ltd:

our design is based on standard designs selected from

the Gang-Nail System Manual or MiTek 20/20 V4.4.

Computer-Aided Design Program produced and certified by Mitek NZ Ltd

which have been prepared in accordance with NZS3603 and NZS4203

of the approved documents issued by the Building Industry Authority

in compliance with Clauses B1 and B2 of the New Zealand Building
Code.

Designers Name : M Taylor Date:10/12/07

For and behalf of Placemakers Paraparaumu Ltd

Placemakers Paraparaumu Ltd
A Member of Frame and Truss Manufactures Association NZ

PRODUCER STATEMENT

This producer statement is issued by Placemakers Paraparaumu Ltd

Name of Builder : Hayward Builders

**Mitek Components: Ganglams, Trusses, Fitch Beams,
All Posistruts, GN Lintels**

Job Address: Lot 12 Seacrest Downs, Peka Peka

Building Consent No:

All work carried out under
jurisdiction of producer
statement to meet the engineer
requirements fully.

Job Reference: 42692 (Van Lent)

As a MITEK component fabricator accredited by MITEK NZ Ltd,
our design is based on standard designs selected from

the MITEK System Manual or MiTek 2100 or 20:20 Ver V4.4

Computer-Aided Design Program produced and certified by MITEK NZ Ltd
which have been prepared in accordance with NZS3603 and NZS4203

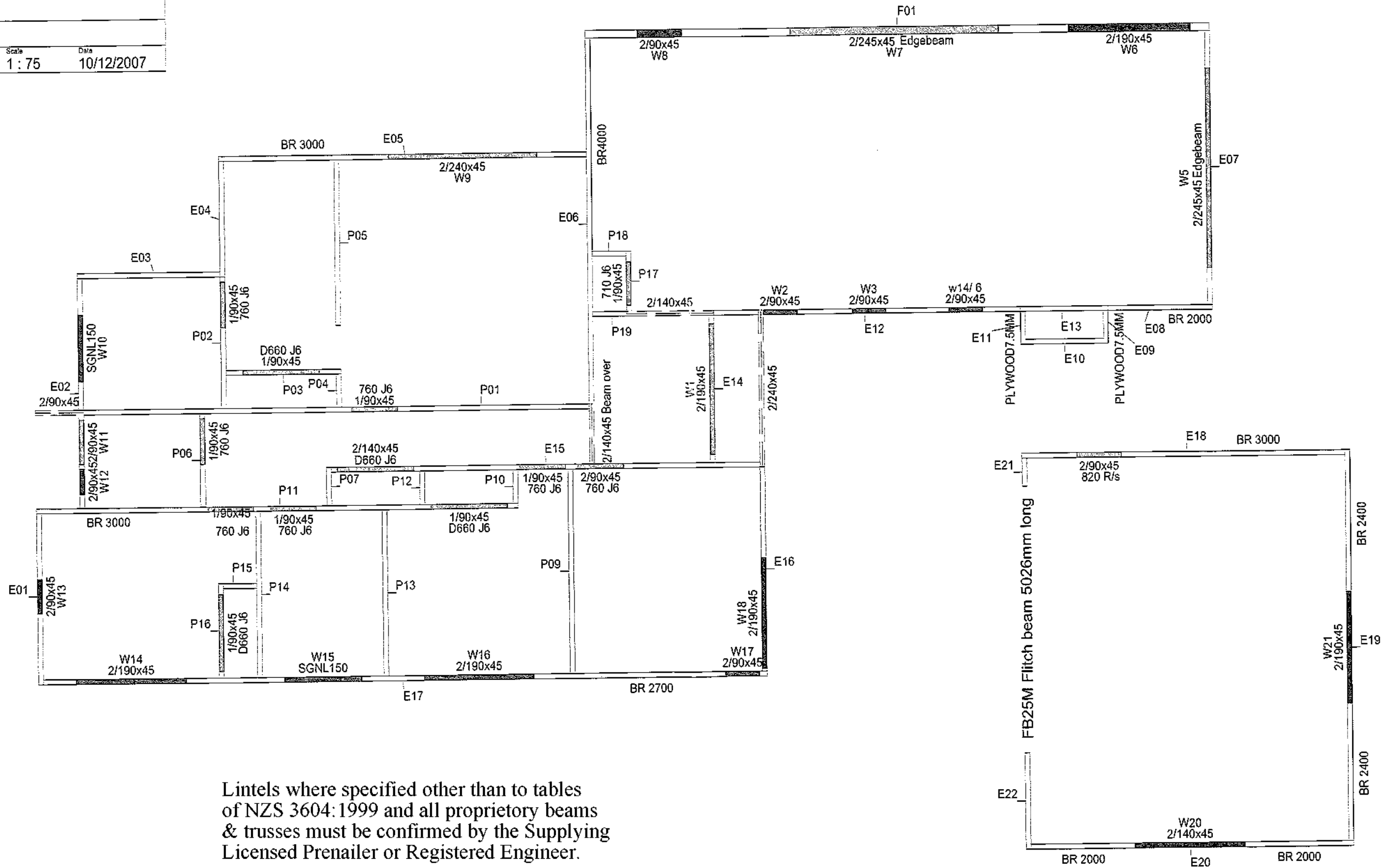
of the approved documents issued by the Building Industry Authority
in compliance with Clauses B1 and B2 of the New Zealand Building Code.

Designers Name : M. Taylor Date : 10/12/07

For and behalf of Placemakers Paraparaumu Ltd

Company		
Placemakers Manufacturing		
Customer		
Placemakers Paraparaumu		
Customer Address		
Site		
HAYWARD BUILDERS		
Site Address		
LOT 12 SEACREST DOWNS, PEKA PEKA		
Lin Type		
Std		
Stud Height		
2420		
Level		
First Floor		
Job	Scale	Date
42692	1 : 75	10/12/2007

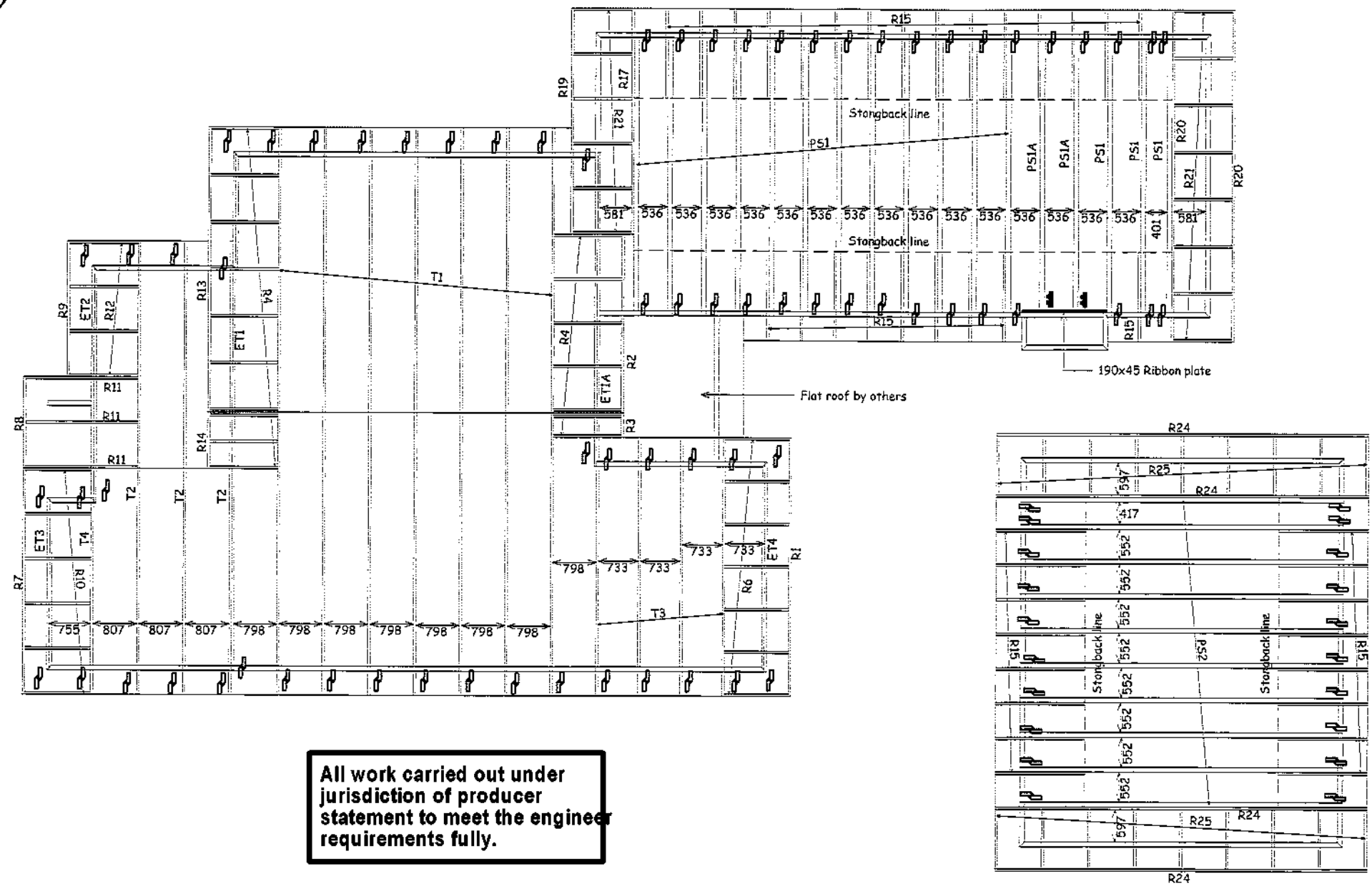
All work carried out under jurisdiction of producer statement to meet the engineer requirements fully.





NOTE : Where no fixings have been indicated
use 2 / 90 x 3.33mm (driven) skew nails.

Roof Weight & Type :	Light (Longrun Iron)
Design wind speed category:	Very High
Timber size and grades :	90x45 MSG8 & MSG12 (H1.2)
Earthquake Zone :	A / Snow Zone : 1



All work carried out under
jurisdiction of producer
statement to meet the engineer
requirements fully.

Table 10.1 (from NZS3604:1999) Summary of roof bracing systems. (see 10.1.4)

Roof Type	Roof plane diagonal braces unless sarked, (see 10.4)	Roof space diagonal braces*	Hip or valley Rafter	Hip and top plate.
Light Hip			Minimum 3 per ridge.	
Heavy Hip	One per 25m ² roof plane plan area.	Plus	Minimum 3 per ridge.	Top plate connected at 2.5m maximum per 10 wall framing elements (see figure 10.22)
Light Gable	One per 50m ² roof plane plan area.	Or	At each end of ridge, and maximum 7.5m on between.	
Heavy Gable	One per 25m ² roof plane plan area, minimum 2 per plane.	Plus	One per 12m ² roof plane plan area, parallel to ridge, but not less than 2m from a parallel external wall.	

No. off	Fixing description
2	"Z" nails (1 pair)
1	JH37 x 90
1	JH37 x 120
1	JH47 x 90
1	JH47 x 120
1	JH47 x 190
1	JH70 x 180
1	JH95 x 165
1	CPC 80
1	200x100x1mm Nail on plate.
1	320x100x1mm Nail on plate.
2 pairs	Multi-Grips (pair)
94 pairs	CT200 (pair)
1	CT400 (cyclone ties)

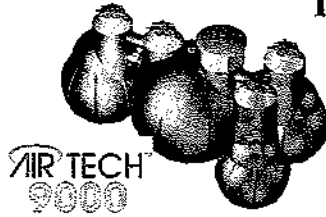
Truss to Truss Fixings.		(In all other situations use 2 / 100mm skew nails)		Truss to Top Plate Fixings.	
☐	JH37 x 90	☐	Fill all holes with Product nails 30x3.15mm	☐	CPC 80
☐	JH37 x 120	☐	Fill all holes with Product nails 30x3.15mm	☐	CT200 (pair)
☐	JH47 x 90	☐	8 x Product nails 30x3.15mm / 4 x Type 17, 35mm screws	☐	CT400 (cyclone ties)
☐	JH47 x 120	☐	200x100x1mm Nail on plate. (fill all holes to within 10mm of the finial edge)	☐	"Z" nails (pair)
☐	JH47 x 190	☐	320x100x1mm Nail on plate. (fill all holes to within 10mm of the finial edge)		

TRUSS LAYOUT FOR : HAYWARD BUILDERS (VAN LENT)
LOT 12 SEACREST DOWNS, PEKA PEKA.

JOB # 42692

Kiwi Green Contracting Ltd

Installers of Aerated Wastewater Treatment Systems



Lisa 0274 540515
Greg 027 2436866
Ph/Fax 04 905 2757
kiwigreen@paradise.net.nz

PRODUCER STATEMENT

In respect of:	Air Tech™ 9000 A.W.T.S Household Sewage Treatment Systems
Attn:	Kapiti Coast District Council
For:	Van Lent, Lot 12, Seacrest Downs, Peka Peka

We believe that we have designed the above wastewater treatment system having regard to the basic performance criteria incorporated in the following standards and guidelines:

AS/NZ 1546:1.1998:	On-site Wastewater Treatment Units Part 1 – Septic Tanks
AS/NZ 1547:2000	On-site Domestic-Wastewater Management
NZS 4610 : 1982	Household Septic Tank Systems
ARC Environment:	TP 58 November 1994 – On-site Wastewater Disposal from Household and Institutions

and the requirements of:

NZ Building Code:	Section B2 Durability
	Section G13 Foul Water
	Section G14 Industrial Wastes

PERFORMANCE:

The system is designed to achieve the following quality of effluent treatment:

BOD	:	15 to 20mg/1
Total Suspended Solids	:	20 to 30mg/1
Faecal Coliforms	:	0 to 200/100ml (after disinfection/soil treatment)

SEPTIC TANK AND EFFLUENT SYSTEM IS TO BE SUPERVISED AND CERTIFIED BY THE DESIGNING PERSON. A COPY OF CERTIFICATION IS TO BE FORWARDED TO COUNCIL.
--



RX PLASTICS LTD

EFFLUENT DISPOSAL:

The design of the effluent disposal system is based on the discharge of 700 litres per day of treated effluent, at a hydraulic loading of 4mm per square metre. The required disposal area is 175 square metres.

The effluent is to be dispersed through a subsurface Naan dripline irrigation system. 200m of Naan pipe will be laid. The proposed sitting and layout of the disposal area is shown on the attached plan. The irrigation line will be surface mounted, mulched and planted with suitable vegetation.

The on-site contractor is ultimately responsible for ensuring the system is installed in accordance with the Company's installation specifications.

An approved installation Agent will be responsible for the commissioning of the system.



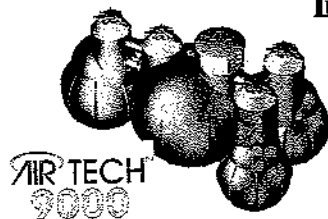
Lisa Burns
DIRECTOR



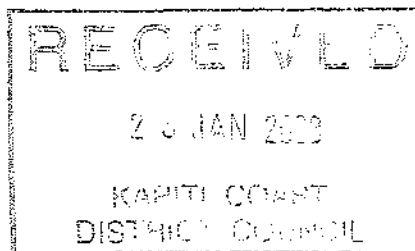
RX PLASTICS LTD

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Greg 027 2436866
Ph/Fax 04 905 2757
kiwigreen@paradise.net.nz



SEWAGE TREATMENT AND EFFLUENT DISPOSAL DESIGN

Treatment Process : Aerated Wastewater Treatment System (A.W.T.S)
System Design : Air Tech™ 9000
Design Capacity : 2000ltrs per day (maximum)

DESIGN LOADINGS : AS/NZ 1547:2000

Number of Bedrooms : 3
Number of persons : 5
Water Supply : Tank: Roof Water Storage
Wastewater Flow : 140ltrs per person per day
Total Wastewater Flow : 5 x 140 = 700 ltr per day
Soil Category Type : 4mm D.I.R per day

700 litres/4mm = 175²m of irrigation disposal area required

EFFLUENT DISPOSAL

Effluent dispersement will be NAAN DAN purple compensating emitter irrigation lateral.
Emitters will be at .600mm spacings with a 2.1ltr per/hr flow rate.
The irrigation system will incorporate a vacuum break and line flushing valve.
An Arkal inline ring disc filter will protect the dripper lateral.

SOIL TYPE

The site has a north east aspect and receives good sun exposure. The area designated for the effluent disposal via drip irrigation lateral will be planted with suitable vegetation that will have very good nutrient uptake. Evapotranspiration will be greatly assisted given the sunny aspect of the site.



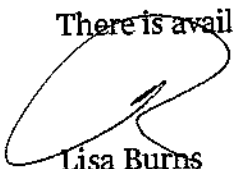
RX PLASTICS LTD

6/03/2008

The soil condition is 50mm of topsoil over sand. Given the nature of the site, soil type has been assessed at – 4mm D.I.R per day.

RESERVE DISPOSAL AREA

There is available land and landscape for additional disposal if required.

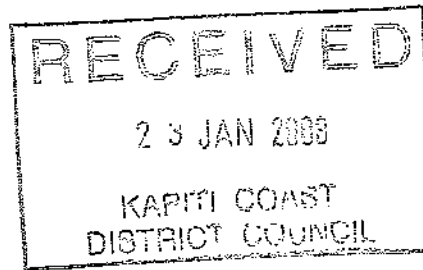


Lisa Burns
DIRECTOR



RX PLASTICS LTD

6/03/2008



CALCULATIONS

**FOR THE RETAINING WALLS
AND CANOPY BRACE**

FOR NEW HOUSE

AT LOT 12 SEACREST DOWNS

FOR MR AND MRS VAN LENT

december 2007

job number 2450

prepared by DESIGNSCAPE shark bait ltd
298 rosetta road sunny raumati
allan pullenger rea, aipenz

GENERAL

These calculations are specific to the above contract, and shall not be used elsewhere.
Footings sizes are shown on the plan, or on the attached calculation sheet.
All work will be carried out by, or under the control of, competent tradesman experienced in the type of work.
All material shall be of the best quality and condition.

INSPECTIONS

The engineer will inspect :

- 1) Base steel to foundation
- 2) Stem Steel to walls.
- 3) Pole holes.

Inspections will be requested by the builder giving 24 to 48 hours notice. Inspections are required for the issuing of the PS4 showing compliance.

NOTE builder acts on behalf of the owner in requesting inspections.

FOUNDATIONS

Penetrometer tests were taken about the site, and good ground complying with NZS 3604, was found. Foundations will be designed to NZS 3604.

CM CONCRETE MASONRY

CM 1 GENERAL

Follow the Approved Documents of the NZ Building Code, with regard to the criteria and/or methods that must be used in this section to establish compliance with the Code.

- B1/AS1 Structure - general - 3.0 Masonry
- B1/AS4 Structure - foundations - 1.0 Foundations for small buildings
- E2/AS1 External moisture - 2.0 Walls
- **DOCUMENTS** referred to in this section are:
 - AS/NZS 4455 Concrete masonry units
 - NZS 3402 Steel bars for the reinforcement of concrete.
 - NZS 4210 Masonry construction materials and workmanship.
 - NZS 4229 Concrete masonry buildings not requiring specific design.
- Documents listed above and cited in the clauses which follow are deemed to form part of this specification. However, this specification takes precedence in the event of it being a higher standard than the cited documents.
- **BLOCKLAYER QUALIFICATIONS:** All work in this section to be carried out by competent experienced tradesmen and under the supervision of a registered mason.
- **INSPECTION:** Allow for inspection of the work at critical stages such as set out, reinforcing, and prior to and during grouting, to recognised good trade practice as set out in NZS 4210.
- **QUALITY RECORDS:** Keep accurate records relating to strength and quality of materials used in the construction, and make available to the Engineer or Territorial Authority inspector when requested.

CM 2 MATERIALS

- **GROUT:** To conform to NZS 4210. Design strength of 17.5 Mpa at 28 days.
- **BLOCKS:** To conform with AS/NZS 4455.
- **REINFORCEMENT:** To conform with NZS 3402, and details as per plan.
- **MORTAR:** Conform to the requirements of NZS 4210 to provide a compressive strength of not less than 12.5 Mpa for structural walls and work below ground, or 8.5 Mpa for all other masonry.

CM 3 WORKMANSHIP

- **GENERALLY:** Comply with NZS 4210 and NZS 4229.
- **STORE BLOCKS:** Clear of the ground, under cover and well ventilated until placed in the work.
- **CHECK BASE:** Check that the base concrete on which block work is to be built is true to line and level. If more than 20 mm thickness of mortar bed will be needed to correct inaccuracies obtain direction from the Engineer. Ensure that all laitance, loose aggregate, or anything that would prevent bond is removed prior to block laying.
- **STARTER POSITIONS:** Before commencing block laying check location of starter reinforcement by measure or by a dry trial lay up of the first course. Do not attempt to correct misplacement by cranking bars. Where misplacement exceeds the location tolerance obtain direction from the Engineer.
- **TOLERANCES:** Construct within the tolerances set out in NZS 4210 Clauses 2.6.5 and 2.7.1.4. Lay blocks with jointing of consistent thickness throughout.
- **MOISTURE CONTENT:** Ensure that blocks are air-dry prior to laying.
- **PROTECTION:** Protect fair faced block walls to keep them clear of all mortar droppings, grout splashes, or stains of any kind as the work proceeds.
- **LAYING:** Use good trade practice to ensure consistent fully filled and tooled joints. Where walls are reinforced prevent mortar droppings from entering cells to be grouted, or clean out by adequate means prior to grouting. Unless Low Lift grouting is used, provide clean out holes at base of wall. Ensure reinforcement is accurately placed and tied. Lay in regular running bond with all necessary special units and sill blocks. Cut blocks if necessary true and square without chipping. Fully grout all cells.
- **CONTROL JOINTS:** Locate at major changes of wall height or thickness, at openings, and at not more than 8 metre centres, or as shown on the drawings. Where reinforcement passes through a control joint, provide for breaking bond using methods detailed on Fig. 2.10.1 of NZS 4210, unless specifically detailed otherwise on the drawings.
- **BRACING:** Provide adequate temporary lateral bracing where necessary to ensure stability until final supporting construction is in place.

CM GROUTING

- **INSPECTION:** Inspect walls prior to grouting. Ensure that cells are clean and reinforcement is correctly placed. Where high lift grouting is used, seal the clean out holes and brace to prevent blow outs.
- **GROUTING PROCEDURE:** Grout fill the whole of the block walls using procedures set out in NZS 4210.
- **CONSTRUCTION JOINTS:** Form and treat construction joints between grout pours and between block walls and hardened concrete work so that bonding occurs. Comply with NZS 4210 Section 2.16 to ensure this happens.

CM ANCILLARY WORK

BUILD IN COMPONENTS: Mortar in place as the work proceeds, components such as sills, copings, lintels, steps, fixings such as plugs, bolts, ties, metal flashings, dowels, fastenings and fixings required by this and other work sections. Co-operate with others to meet this requirement.

PENETROMETER CHART

project: Van Lent
 Job no: 2450
 date: December 2007

Penetrometrist: allan pullenger
 Reading-Depth: 0
 Location: Te Puia Drive

TEST 1

depth reading blows/50mm

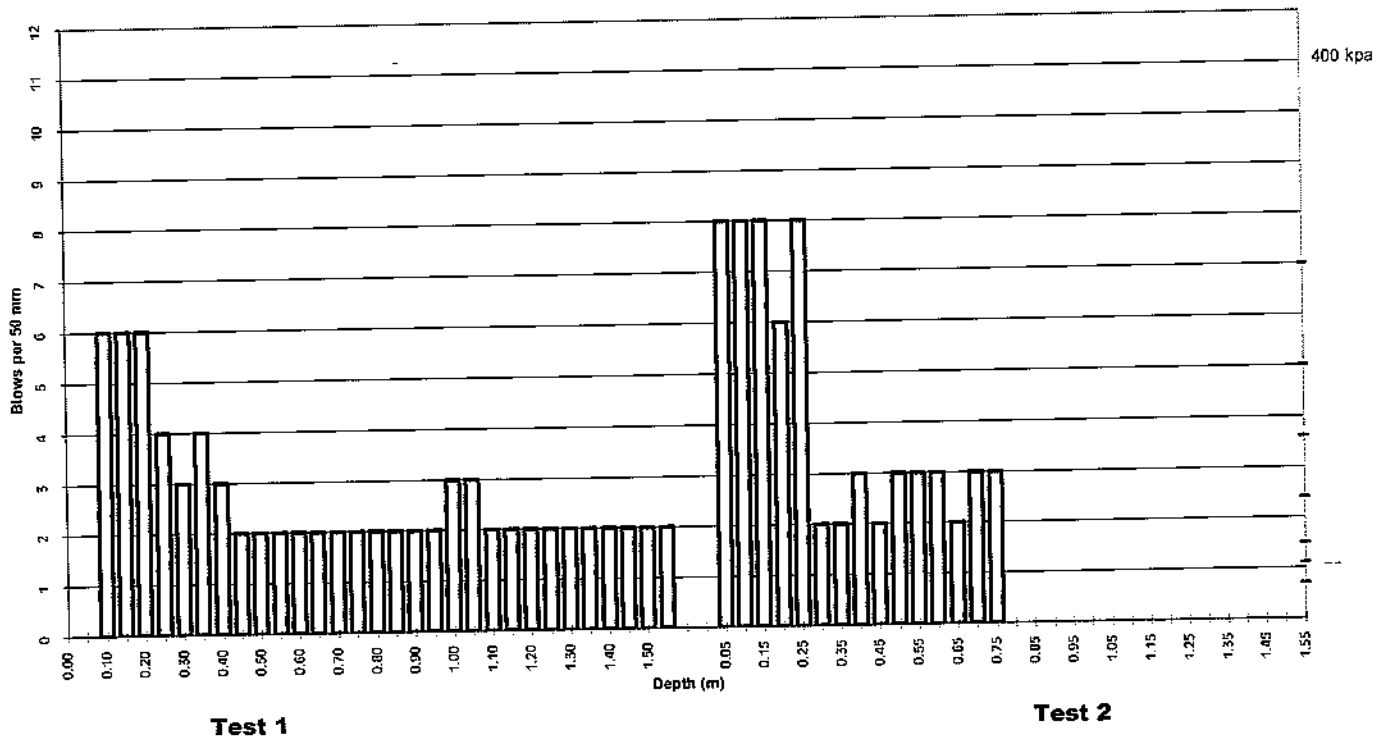
0.00	0.00	
0.05	0.05	
0.10	0.10	6
0.15	0.15	6
0.20	0.20	6
0.25	0.25	4
0.30	0.30	3
0.35	0.35	4
0.40	0.40	3
0.45	0.45	2
0.50	0.50	2
0.55	0.55	2
0.60	0.60	2
0.65	0.65	2
0.70	0.70	2
0.75	0.75	2
0.80	0.80	2
0.85	0.85	2
0.90	0.90	2
0.95	0.95	2
1.00	1.00	3
1.05	1.05	3
1.10	1.10	2
1.15	1.15	2
1.20	1.20	2
1.25	1.25	2
1.30	1.30	2
1.35	1.35	2
1.40	1.40	2
1.45	1.45	2
1.50	1.50	2
1.55	1.55	2

Test 1 is garage

TEST 2

depth reading blows/50mm

0.00	0.00	
0.05	0.05	8
0.10	0.10	8
0.15	0.15	8
0.20	0.20	6
0.25	0.25	8
0.30	0.30	2
0.35	0.35	2
0.40	0.40	3
0.45	0.45	2
0.50	0.50	3
0.55	0.55	3
0.60	0.60	3
0.65	0.65	2
0.70	0.70	3
0.75	0.75	3
0.80	0.80	
0.85	0.85	
0.90	0.90	
0.95	0.95	
1.00	1.00	
1.05	1.05	
1.10	1.10	
1.15	1.15	
1.20	1.20	
1.25	1.25	
1.30	1.30	
1.35	1.35	
1.40	1.40	
1.45	1.45	
1.50	1.50	
1.55	1.55	



PENETROMETER CHART

project: Van Lent
job no: 2450
date: December 2007

Penetrometrlist: allan pullenger
Reading-Depth: 0
Location: Te Puia Drive

TEST 3

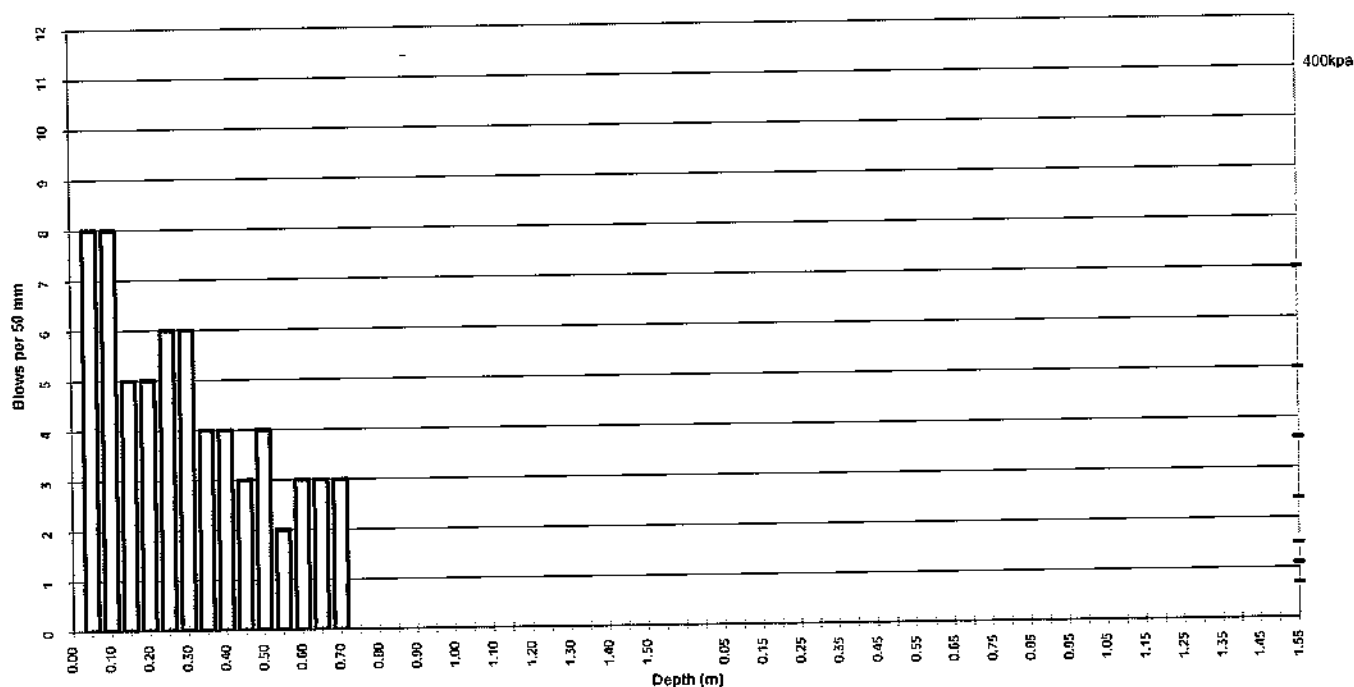
depth reading blows/50mm

0.00	0.00	
0.05	0.05	8
0.10	0.10	8
0.15	0.15	5
0.20	0.20	5
0.25	0.25	6
0.30	0.30	6
0.35	0.35	4
0.40	0.40	4
0.45	0.45	3
0.50	0.50	4
0.55	0.55	2
0.60	0.60	3
0.65	0.65	3
0.70	0.70	3
0.75	0.75	
0.80	0.80	
0.85	0.85	
0.90	0.90	
0.95	0.95	
1.00	1.00	
1.05	1.05	
1.10	1.10	
1.15	1.15	
1.20	1.20	
1.25	1.25	
1.30	1.30	
1.35	1.35	
1.40	1.40	
1.45	1.45	
1.50	1.50	
1.55	1.55	

TEST 4

depth reading blows/50mm

0.00	0.00	0
0.05	0.05	0
0.10	0.10	0
0.15	0.15	0
0.20	0.20	0
0.25	0.25	0
0.30	0.30	0
0.35	0.35	0
0.40	0.40	0
0.45	0.45	0
0.50	0.50	0
0.55	0.55	0
0.60	0.60	0
0.65	0.65	0
0.70	0.70	0
0.75	0.75	0
0.80	0.80	0
0.85	0.85	0
0.90	0.90	0
0.95	0.95	0
1.00	1.00	0
1.05	1.05	0
1.10	1.10	0
1.15	1.15	0
1.20	1.20	0
1.25	1.25	0
1.30	1.30	0
1.35	1.35	0
1.40	1.40	0
1.45	1.45	0
1.50	1.50	0
1.55	1.55	0



Test 3

Test 4

designscape

298 Rosetta Road sunny Raumati
phone 04 902 8528 or 025 420 486
allan.pulinger@ea.scoop.nz

shark bait ltd

CONCRETE BLOCK RETAINING WALL

CLIENT : Van Lent
NUMBER : 2450
DATE : 12/12/2007

Walls are not designed for permanent garden watering systems saturating backfill.
Unless stated else where, no soil testing has been done, and soil assumed at 100 kpa

WALL PARAMETERS

Retaining Height mm H = 900
Wall Height mm H1 = 1000
Key Depth mm K = 0
wall thickness mm t = 180
footing length mm l = 400
footing depth mm d = 250
footing behind stem mm b = 0
wall density Kn/m^3 Dw = 24.1
Floor length mm fl = 0
Base Friction is tan (phi) n = 0.47
Loading on top wall kn/m Sl = 4

SOIL PARAMETERS

soil type sand
soil (wall) ϕ 30.00 degrees
wall slope alpha ha = 90.00 degrees
back slope beta ta = 0.00 degrees
wall frictn del ta = 20.00 degrees
active coefft Ka = 0.30 0.297
soil density D_s μ 17.00 Kn/m^3
surcharge S = 0.00 Kn/m^2
footing soil type sand
soil (ftg.) p hi = 25.00 degrees
passive coefft (coulomb) Kp = 4.60 4.596

REINFORCING PARAMETERS

	Bottom third of Wall	Upper 2/3 Wall	Base
cover to reinforcing mm	90	90	75.00
diameter of reinforcing Dr mm	12	12	12.00
spacing of reinforcing mm	600	600	600.00
Concrete F'c MPa	8		
strength redn factor Phi	0.85		
steel strength Fy MPa	300		
maximum steel centres is 3 times wall thickness		570 mm	
ensure stem has minimum lap distance for bottom ti		480 mm	

STEEL PLACEMENT

location	grade	diameter	spacing	notation
steel reduction	D	12	600	D12-600
upper vertical	D	12	600	D12-600
horiz in wall	D	16	420	D16-420
horiz in footing	D	12	450	D12-450
Base steel area vertical	D	12	600	D12-600
horiz in base	D	12	300	D12-300
height reduction		480		480mm
side cover		90		90mm
bot cover		75		75mm cover

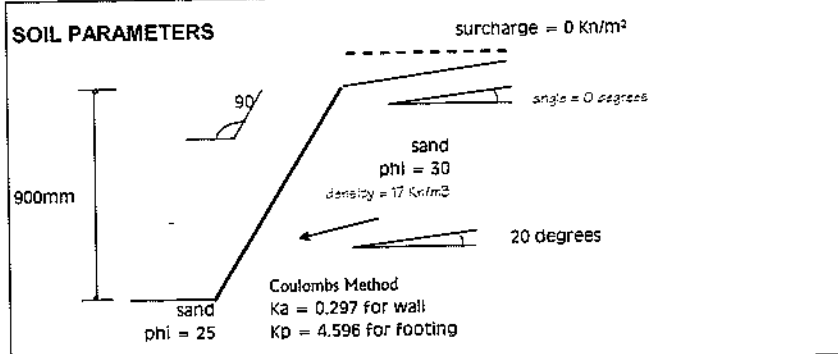
WALL STRENGTH

wall soil force	$F_s = K_a \cdot D_s \cdot H^2 \cdot 0.5 \cdot \sin(\alpha - \delta)$	=	1.92	Kn
wall surcharge fce	$F_{ss} = K_a \cdot S \cdot H \cdot \sin(\alpha - \delta)$	=	0.00	Kn
factored wall fce	$F_u = (F_s + F_{ss}) \cdot 1.6$	=	3.08	Kn
wall soil mmt	$M_s = F_s \cdot H \cdot 0.33$	=	0.57	Kn/m
wall scharge mmt	$M_{ss} = F_{ss} \cdot H \cdot 0.5$	=	0.00	Kn/m
design moment	$M_u = (M_s + M_{ss}) \cdot 1.6$	=	0.91	Kn/m
reinforcing area	$A_s = D_r^2 \cdot \pi / 4 \cdot s$	=	188.50	mm^2
effective depth	$d_e = t - c - D_r / 2$	=	94.00	mm
dependable moment	$M_{dep} = \Phi \cdot A_s \cdot F_y \cdot (d_e - A_s \cdot F_y / (2 \cdot 0.85 \cdot F'c \cdot 1000))$	=	4.32	Kn/m

OVERTURNING

wall weight	$W_w = (H_1 + h) \cdot t \cdot D_w$	=	4.58	Kn
footing weight	$W_f = l \cdot d \cdot D_w$	=	2.41	Kn
heel soil wt	$W_h = H \cdot b \cdot D_s$	=	0.00	Kn
wall friction	$F_w = (K_a \cdot D_s \cdot (H + d + K) \cdot 0.5 + K_a \cdot S \cdot (H + d + K)) \cdot \tan(\delta) \cdot \cos(\alpha - \delta)$	=	0.49	Kn

key weight	$KW = k * t * DW$	=	0.00	
total vertical load	$Ft = WW + Wf + Wn + Fw + Kw$	=	7.48	Kn
toe bottom OT moment	$Mot = Ka * Ds * (H + d)^3 * 0.17 * \sin(\alpha - \delta) + Ka * S * (H + d)^2 * 0.5 * \sin(\alpha - \delta)$	=	1.21	Kn/m
toe bottom REST moment	$Mr = WW * (l - (b + t/2)) + Wf * l/2 + Wn * (l - (b + t/2)) - Fw * l + Kw * (l - (b + t/2))$	=	2.00	Kn/m
FOS overturning	$FSo = Mr / Mot$	=	1.72	
eccentricity	$e = l/2 - (Mr - Mot) / Ft$	=	83.84	mm
bearing pressure	$fb = 2 * Ft / (3(l/2 - e))$	=	42.93	kPa
SLIDING				
Sliding force	$Fsl = (Ka * Ds * (H + d + k)^2 * .5 + Ka * S * (H + d + k)) * \sin(\alpha - \delta)$	=	3.14	Kn
footing friction	$Ff = Ft * \tan(\phi)$	=	3.49	Kn
key soil force	$Fk = Kp * Ds * (k + d)^2 * 0.5$	=	2.44	Kn
sliding REST	$Fr = Ff + Fk + Sl + SR + UW$	=	10.15	Kn
FOS sliding	$FSS = Fr / Fsl$	=	3.23	
Slab sliding resistance slab	$SR = fl * Dw * .1 * n$	=	0.00	
Plus upper section of wall not retaining soil	Hd is non retaining section of wall $UW = Hd * t * Dw * n$	=	0.10 0.22	
Steel Reduction				
Take top 2/3 of wall	H1 2/3 * H or H - steel lap	=	420.00	
wall soil force	$Fs = Ka * Ds * H^2 * 0.5 * \sin(\alpha - \delta)$	=	0.42	Kn
wall surcharge fce	$Fss = Ka * S * H * \sin(\alpha - \delta)$	=	0.00	Kn
factored wall fce	$Fu = (Fs + Fss) * 1.6$	=	0.67	Kn
wall soil mmt	$Ms = Fs * H * 0.33$	=	0.06	Kn/m
wall scharge mmt	$Mss = Fss * H * 0.5$	=	0.00	Kn/m
design moment	$Mu = (Ms + Mss) * 1.6$	=	0.09	Kn/m
reinforcing area	$As = Ds^2 * Pl / 4 * s$	=	188.50	mm ²
effective depth	$de = L - C - Dr/2$	=	94.00	
dependable moment	$Mdep = \Phi * As * Fy$ $*(de - As * Fy / Q * .85 * F'c * 1000)$	=	4.32	Kn/m
BASE				
Pressures	See Fb	=	42.93	kpa
BASE STEEL AREA				
Vertical Steel	From bottom of wall	=	188.50	mm ²
horizontal 15% csa		=	375.00	mm ²

SOIL PARAMETERS**FDR CALCULATION CHECKING ONLY**

see plans for construction details

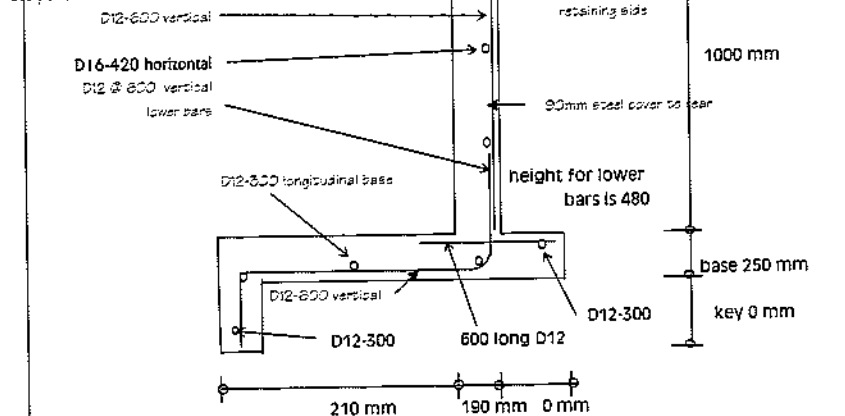


Diagram of Job 2450

GIB® Wall Bracing Calculation Sheet A

single storey

V85A

GIB® EzyBrace™

GIB® Bracing Systems, 2006

Job Details

Name	Van Lent	canopy	2450
Street and Number	Lot 12 Seacrest Downs		
Lot and DP Number			
City/Town/District	Peka^2		
Designer and date	allan pullenger		12-Dec-07
Company Name	Designscape		

Building Specification

Location of Storey	single	
Floor Loading	2 kPa	
Foundation Type	slab	
Building Height to Apex (m)	4	
Roof Height above Eaves (m)	1	
Stud Height (m)	2.4	
Cladding Weight (top or single)	light	
Cladding Weight (lower)	light	not applicable (single storey building)
Cladding Weight (subfloor)	light	not applicable (slab)
Roof Weight	light	
Roof Pitch (degrees)	0-25	
Room in Roof Space	no	
Building Length (m)	3.5	
Building Width (m)	2.5	
Gross Building Plan Area (m2)	8.75	

Building Location

Wind Zone	Very High	Earthquake Zone
Region	R2	A
Terrain	Inland	
Exposure	Exposed	
Topography	Moderate	

Bracing Units required for Wind

per m	subfloor	walls
W along	n/a	63 BUs/m
W across	n/a	44 BUs/m
Totals	subfloor	walls
W along	n/a	158 BUs
W across	n/a	154 BUs

Bracing Units required for Earthquake

per m2	subfloor	walls
E	n/a	3.6 BUs/m2
Totals	subfloor	walls
E along	n/a	32 BUs
E across	n/a	32 BUs

GIB® Wall Bracing Calculation Sheet B							single storey		V85A		
GIB® EzyBrace™							GIB® Bracing Systems, 2006				
Along								Wind	Earthq.		
Wall or Bracing Line	Bracing Elements provided							9W	10EQ		
1	2	3	4	5	7	8	6				
Line Label	Minimum BUs Req/Ach	Bracing Element No.	Supplier	Bracing Type	Element Length L (m)	Element Height H (m)	Angle to Bracing line (degrees)	BUs Achieved	BUs Achieved		
A	enter	1									
		2									
line totals		3									
W		4									
EQ		5									
B	enter	1									
		2									
line totals		3									
W		4									
EQ		5									
C	enter	1									
		2									
line totals		3									
W		4									
EQ		5									
D	enter	1									
		2									
line totals		3									
W		4									
EQ		5									
E	enter	1									
		2									
line totals		3									
W		4									
EQ		5									
F	enter	1									
		2									
line totals		3									
W		4									
EQ		5									
G	enter	1									
		2									
line totals		3									
W		4									
EQ		5									
H	enter	1									
		2									
line totals		3									
W		4									
EQ		5									
								Wind	Earthq.		
Totals Achieved											
								not enough	not enough		
Totals Required (from Sheet A)								158	32		

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Mr and Mrs Van Lent
LINTELS AND BEAMS

2450

DATE

2/12/2003

BEAM NUMBER

Poles

From the deck bracing calculations, the maximum bracing value is taken. This is divided amongst the poles. Poles are then checked for cantilever loading.

Check Poles for Sizing

Pole length out of ground	L	2.9	m
Bracing Units (from deck calculations)		158	BU's
Conversion units to Kn		20	
Total Live load		7.9	kn
This load taken over poles		2	
Per Pole		3.95	kn

BENDING MOMENT

BM = WL	M =	11.455	knm
---------	-----	--------	-----

POLE SIZE

250 diameter

Diameter	D =	0.25	m
Area		0.0491	m ²

STRESS

Fw = MY / I	Y =	0.125	m
I = pi D ⁴ / 64	I =	1.92E-04	m ⁴
Fw =		7467	kpa

Note rounds NZS 3603 table 34 multiplied by K20 and K21 allows 7.9 mpa for 200 diameter

Slenderness Ratio

S2 = L / d		11.6	
S2 > 85	OK		

EMBEDMENT

γ	18	Kn/m ³
φ	25	degrees
Kp	2.8	

Hole width	c	0.4	
Force on wall (from above)		3.95	kn
Force to resist with 1.5 FOS		5.93	kn
Restoring Force	$K_p \cdot \gamma \cdot h_g^2 / 2 \cdot c$	9.97	
Embedment of Pole	h_g	0.77	m

Neglect top 200, so pole depth required 0.97 metres

CHECK UPLIFT

Check Uplift and hence bolts required to fix down

Take the area of roof	8.75	m ²
V	55	m/sec
S1	1	
S2	0.88	
Vs	48.4	m/sec
$q = 0.613 V_s^2$	1.435	kpa
For roof angle	30	degrees
Cpe	-0.8	
$F = Cpe \cdot q \cdot \text{Area}$	-10	kn
Deduct the mass of roof		
Load	4.375	kn
mass taken as .5kpa	0.5	kpa
Resulting loads		
Uplift total	-6	kn
Per Post	-1	kn

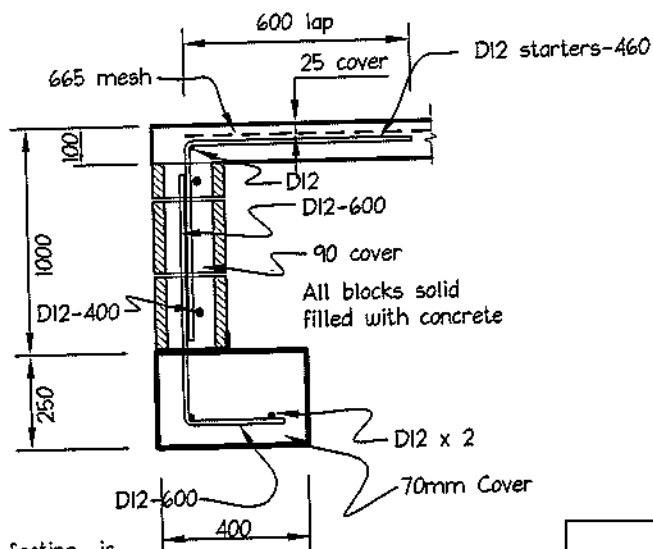
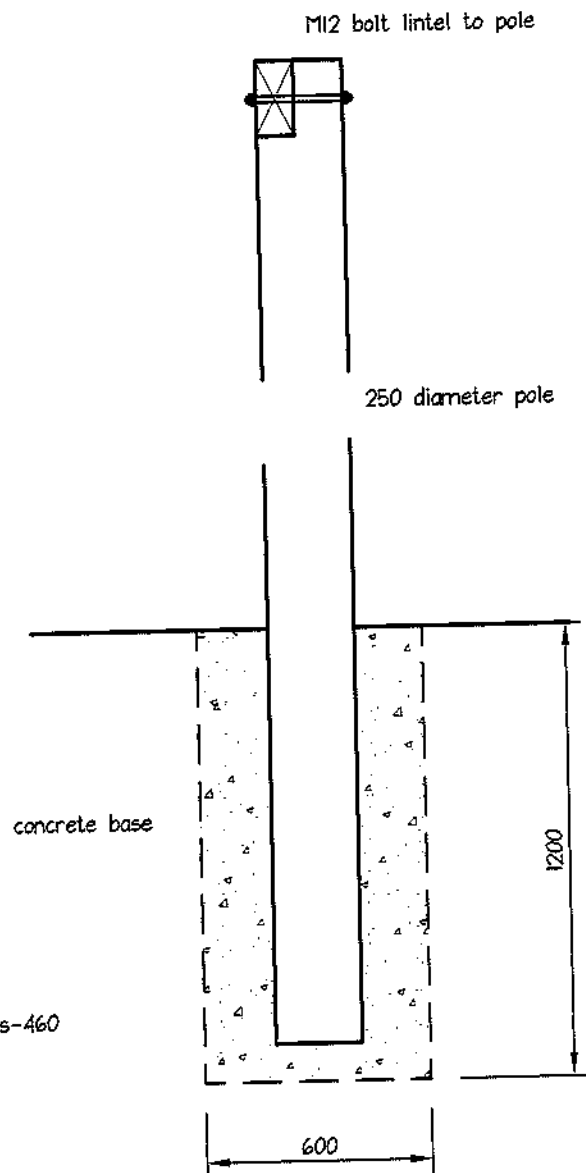
Using timber supports the number of bolts required in sizes
Require 1 x M12 bolts.

CONCRETE BASE

Depth	1.2	m
side length	0.6	m
Volume	0.432	m ³
Check area per post	2.19	m ²
Volume required (NZS 3604)	0.153	m ³

SPECIFIC DESIGN

All work carried out under jurisdiction of producer statement to meet the engineer's requirements fully.
Engineer to sign off work supervision after construction



NOTE: footing is to solid bearing

CANOPY POLE DETAIL

SCALE 1:20

NZS.3604:1999 and NZS.4210:2001 require all structural masonry work to be carried out by an experienced tradesman Registered with the NZ Masonry Registration Board.

DO NOT SCALE FROM THIS DRAWING

1000mm HIGH WALL

SCALE 1:20

the contractor shall check and verify dimensions before construction

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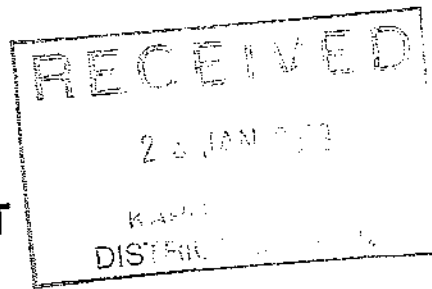
scale 1:20
date december 2007
drawn Allan Pullenger
designed Allan Pullenger

plan number
2450
Sht 01 of 1

6/03/2008

Greig Hayward Architecture

**NEW RESIDENCE FOR
MR AND MRS VAN LENT**



**LOT 12 SEACREST DOWNS
PEKA PEKA
KAPITI COAST**

**STANDARD SPECIFICATIONS
WALL BRACING CALCULATIONS
RAFTER CALCULATIONS
FLITCH BEAM TABLES AND DETAILS
RISK ASSESSMENT**

Prepared by

Greig Hayward NZCAD



greig hayward architecture

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Standard Specifications

1 PRELIMINARIES AND GENERAL

1.1 PROJECT DESCRIPTION

The scope of the works to be as described in this specification and as shown on the drawings.

1.2 THE SITE

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

1.3 SPECIFICATION SECTIONS

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

1.4 INTERPRETATIONS

Required: Required by the documents, or by a statutory authority.
 Proprietary: Identifiable by naming the manufacturer, supplier, installer, trade name, brand name, catalogue or reference number.
 Approval: Approval in writing.
 Direction: Direction in writing.

1.5 MANUFACTURER'S RECOMMENDATIONS

Manufacturer's recommendations means manufacturers recommendations, instructions, directions, specifications, or details issued by them for their particular material, product or component and are the latest edition.

1.6 ABBREVIATIONS

The following abbreviations are used throughout the specification sections:

NZBC	New Zealand Building code
NZS	New Zealand Standard
NZMP	New Zealand Miscellaneous Publication
AS/NZS	Joint Australian/New Zealand Standard
NZS/AS	Joint New Zealand/Australian Standard
AS	Australian Standard
BS	British Standard
CSA	Canadian Standards Association
HERA	Heavy Engineering Research Association

1.7 REFERENCED DOCUMENTS

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

Reference is also made to various Standards produced by Standards New Zealand (NZS, NZMP, AS/NZS, NZS/AS), Transit New Zealand specifications, overseas standards (AS, BS, CSA) 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, with the resolution of any variance being confirmed by the owner in writing and then notified to the territorial authority for consent prior to any further work proceeding.

1.8 DOCUMENTS REFERRED TO

Documents referred to in this section are:

Building Act 2004
 Building Regulations 1992
 Health and Safety in Employment Act 1992
 Smoke Free Environments Act 1990

- 1.9 CODE COMPLIANCE**
It is an offence under the Building Act 2004 to carry out any work not in accordance with the building consent. The resolution of matters concerning code compliance to be referred to the owner for a direction in writing and then to the territorial authority for consent.
- 1.10 BUILDING CONSENT**
Obtain the original or copies of the building consent form and documents from the owner and keep on site. Liaise with the territorial authority 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.
- 1.11 PRODUCER STATEMENTS**
When producer statements verifying construction are required, provide copies to both the territorial authority and the owner.
- 1.12 COMPLIANCE SCHEDULE**
Obtain from the owner the list of all systems and features agreed as comprising the compliance schedule when application was made for building consent. Liaise with the owner and supply any further information on each system or feature of the building, as required by the territorial authority prior to their issue of the building consent.
- 1.13 PROVIDE GUARANTEES**
Provide guarantees in favour of the owner and executed by the contractor/subcontractor 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 guarantee in no case negate the minimum remedies available under common law as if no guarantee had been offered.
Where specific trade guarantees/warranties are offered covering materials and/or execution of proprietary products or complete installations, provide copies of all such guarantees/warranties to the owner. Failure to provide guarantees does not reduce liability under the terms of the guarantee called for in that specified section of the work. Commence all guarantees from practical completion. Maintain their effectiveness for the times stated. Deliver executed guarantees to the owner prior to the commencement of the work covered by the guarantee
- 1.14 OVERALL WEATHERTIGHTNESS AND WATERTIGHTNESS**
A guarantee 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 guarantee is in addition to any specific guarantees required.
- 1.15 TEMPORARY WORKS AND SERVICES**
Provide, erect and maintain all scaffolding, sheds, toilets, water, power, hoardings and access to the site. Allow for all cartage, craneage, plant hire and storage. Arrange for all temporary works and services necessary for the completion of the works. Pay all fees and remove temporary works and services on completion of the works.
Protect all parts of the work liable to damage, including all adjoining public or private property, existing buildings, existing roads, footpaths, fences, site services, trees, landscaping and all existing retained site features, until completion of the works. Take all precautions necessary to protect the works from damage by unauthorised entry or inclement weather. Brace and support all parts of the works against damage during construction. Make good all damage to existing property and site features arising from construction activities or failure to protect.
- 1.16 WORK OUTSIDE NORMAL HOURS**
Work outside normal hours is permitted, but 24 hours notice is required in writing to the owner before commencing such work. Obtain any necessary permits and permission for such work.
- 1.17 HEALTH AND SAFETY**
Refer to the requirements of the Health and Safety in Employment Act 1992. Identify hazards and if their elimination or isolation is not possible, then minimise hazards in the work on site by using proper equipment and techniques. Supply protective clothing and equipment. Inform employees and others on site of the hazards and put in place procedures for dealing with emergencies.

- 1.18 **NUISANCE**
Take all reasonable precautions to prevent damage and nuisance from water, fire, smoke, vehicles, dust, rubbish, noise and all other causes resulting from the contract works. Comply with the requirements of the territorial authority and all relevant Acts and Standards.
- 1.19 **SET OUT**
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.
- While it remains the contractor's responsibility to set out the works accurately and correctly and to confirm any changes from the approved location with the territorial authority, the contractor to obtain the owner's written confirmation that the owner has sighted the proposed building location, site datum and profiles before commencing any further work.
- 1.20 **EXECUTION**
Conform to the requirements of this specification. All work to be level, plumb, and true to line and face. Employ only experienced workers familiar with the materials and techniques specified.
- 1.21 **MATERIALS**
Materials to be new unless stated otherwise, the best quality of their respective kinds, and complying with all cited documents. Substitution of alternative materials, plant or equipment from those specified to be confirmed by the owner in writing, with the substitution then approved by the territorial authority.
- 1.22 **COMPLETE ALL SERVICES**
Ensure all building services are complete and operational, with all labelling and service instructions provided.
- 1.23 **CLEAR AWAY**
Clear away all trade debris, unused materials and components from the site and leave the building clean and ready for occupancy, with all services operating and mechanical parts in good working order. Remove all temporary markings, coverings and protective wrappings.
- 1.24 **CLEANING**
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.

2 PREPARATION AND GROUNDWORK

2.1 DOCUMENTS

Documents referred to in this section are:

NZS 3604 Light timber frame buildings not requiring specific design

Occupational Safety and Health Service (OSH) publication: Approved code of practice for safety in excavation and shafts for foundations

2.2 CARRY OUT

Carry out all excavation to the guidelines set by the Occupational Safety and Health Service (OSH) publication: "Approved code of practice for safety in excavation and shafts for foundations."

2.3 PREPARATION

Comply with NZS 3604 - clause 3.5, Site preparation. Remove all turf, vegetation, trees, topsoil, stumps and rubbish from the area to be built on.

2.4 UNDERGROUND ELEMENTS AND SERVICES

Break out and remove old foundations, slabs, drainage pipes, manholes, tanks, cables and redundant services. Seal off the ends of drains or remove to territorial authority approval.

2.5 SHORING AND UNDERPINNING

Carry out shoring and underpinning shown on the drawings and as necessary to prevent subsidence of adjoining public or private property and to ensure the safety of the public and site personnel.

2.6 GENERAL EXCAVATION

Trim ground to required profiles, batters, falls and levels. Protect all cut faces from collapse. Keep all excavations free from water. Remove all surplus and excavated material from the site.

2.7 INADEQUATE BEARING

If bearing is inadequate then excavate further and backfill with material as follows:

Below slabs on grade: Hardfill

Below footings: 10MPa concrete

Service trenches: Hardfill

2.8 EXCAVATION FOR FOUNDATIONS

Foundation excavations to be taken to depths shown. Keep trenches plumb and straight, bottoms level and solid, stepped as detailed and clean and free of water.

3 FOUNDATIONS AND CONCRETE

3.1 DOCUMENTS

Documents referred to in this section are:

NZS 3104	Concrete production - high grade and special grade
NZS 3109	Concrete construction
NZS 3114	Concrete surface finishes
NZS 3124	Concrete construction for minor works
NZS 3602	Timber and wood-based products for use in buildings
NZS 3603	Timber structures standard
NZS 3604	Light timber frame buildings not requiring specific design
NZS 3631	New Zealand timber grading rules
NZMP 3640	Minimum requirements of the NZ Timber Preservation Council

3.2 GENERALLY

Comply with NZS 3602 and NZS 3604 except as varied by 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).

3.3 NAILS, BOLTS, SCREWS, AND NAIL PLATES

Nails, bolts and screws shall be Steel, stainless steel and galvanised steel of pattern to NZS 3604. Nail plates shall be stainless steel and galvanised steel toothed or nailed steel plates to the manufacturer's design for the particular locations shown on the drawings.

3.4 FALSEWORK AND FORMWORK

Falsework and formwork to be of sufficient strength to retain and support the wet concrete to the required profiles and tolerances. Formwork finish to be selected to produce the specified finished quality. Timber or plywood used for formwork to be non-staining to the set concrete.

Securely fix and brace formwork with sufficient strength to support all loads and with joints and linings tight enough to prevent water loss. Tie wires or rods not to be used unless approved in writing by the owner.

Unless detailed otherwise, all interior and exterior angles of beam and column forms to have a 19mm chamfer or fillet strip, mitred at intersections.

Water blast to clean formwork. Keep formwork wet before concrete is placed.

Unless detailed otherwise, set up soffit boxing for beams and slabs to provide a camber when forms are stripped, of 3mm rise for every 3 metres of total clear span.

3.5 REINFORCEMENT

Bars to NZS 3402. Welded reinforcing mesh to NZS 3422. Reinforcing shall be placed to comply with NZS 3109. Bends to be made cold and once only. Reinforcing to be accurately placed and well secured against displacement. Do not weld reinforcement.

3.6 INSPECTION

Do not place concrete until all excavations, boxing and reinforcing have been inspected and passed by the territorial authority inspector.

3.7 CASTING IN

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

Continuous grounds (i.e. exceeding 100mm) must not be used. Bare aluminium items not to be encased in concrete. Steel embedded items not to be painted more than 25mm into the concrete encasement. Any form ties to be cut back to specified cover and the cavities filled with mortar.

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

Wrap all pipes embedded in concrete with tape to break the bond and to allow for expansion. Pipes for conveying liquids exceeding a temperature of 50 degrees centigrade not to be embedded in concrete.

3.8 CONCRETE

Ready Mixed Concrete shall be High grade 20 MPa, maximum aggregate size 19mm to NZS 3104.

Site Mixed Concrete shall be to NZS 3124. Ordinary grade 17.5 MPa minimum strength, using either separate batching of sand and coarse aggregate to NZS 3108, or builder's mix.

Pump operation, placing and compaction of the mix to be set up and supervised in accordance with NZS 3109. Advise the ready-mix supplier of the type of pump to be used and the slump required, in addition to the concrete grade, strength and quantity.

Concrete compaction to be achieved by the use of power operated vibrators.

3.9 RESIDENTIAL CONCRETE FLOORS

Apply 0.25mm minimum polythene (NZS 3604, appendix E8) membrane to prepared basecourse with 150mm laps; tape seal laps and penetrations. Refer to drawings for perimeter details

Construct slab in accordance with NZS 3604, appendix E. Lay to true and straight surfaces, screeded, floated and steel (manual or power) trowelled finish. Tolerance on flatness to be a maximum 3mm gradual deviation over a 3 metre straight-edge, to the requirements of NZS 3109.

Locate and construct Construction joints as shown on the drawings.

Floor slabs cast on the ground to be poured in areas not greater than 25 square metres, with a maximum ratio of length to breadth of 1:1.5 Cut slabs where indicated on the drawings and as required to control shrinkage cracking. Cutting to be carried out as soon as possible, without causing tear-out of aggregate and before shrinkage cracking has occurred, generally within 24 hours of pouring. Where saw cuts are made, cut out 100mm of every second wire of the mesh for a length of 50mm each side of the saw cut position. Saw cuts to be 1/3rd slab depth or 30mm minimum.

3.10 BRUSH ON LIQUID-APPLIED MEMBRANE

Fully stable, water-based colloidal bitumen emulsion. Three coats of water-based bitumen emulsion applied strictly in accordance with the manufacturer's recommendations. First coat at the rate of 0.20 litres/m², with the second and third coats each at the rate of 0.75/m². Protect all vertical surfaces with polystyrene sheets before backfilling

3.11 REPAIRS

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

3.12 CURING OF CONCRETE

Keep damp for not less than seven days. Ensure curing of slabs commences as soon as possible after final finishing, by the use of continuous water sprays, or ponding. Alternately, apply a curing membrane. Make sure any membrane used will not affect subsequent applied finishes.

Sides of beams, walls and columns:	12 hours
Slabs in beam and slab construction:	4 days
(leave props under slab spans over 2 metres)	
Props from under slab spans over 2 metres:	10 days
Beams, soffits and slab spans over 5 metres:	18 days

3.13 REMOVE

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

4 CARPENTRY

4.1 DOCUMENTS

Documents referred to in this section are:

AS 1748	Mechanically stress-graded timber
AS/NZS 1859	Reconstituted wood based panels 1859.1 Particle board
AS/NZS 2269	Plywood - structural
NZS 3602	Specifying timber and wood-based products for use in building
NZS 3603	Timber structures standard
NZS 3604	Light timber frame buildings not requiring specific design
NZS 3606	Manufacture of glue-laminated timber
NZS 3617	Profiles of weatherboards, fascia boards and flooring
NZS 3631	NZ national timber grading rules
NZMP 3640	Minimum requirements of the NZ Timber Preservation Council Inc.
NZS 4214	Methods of determining the total thermal resistance of parts of buildings
NZS 4218	Energy efficiency - Housing and small building envelope
NZS 4222	Materials for the thermal insulation of buildings
BRANZ Bulletin 302:	Preventing moisture problems in timber framed skillion roofs
BRANZ Bulletin 328:	Selection and use of fasteners
BRANZ Bulletin 343:	Moisture in timber
BRANZ Bulletin 357:	Thermal insulation of houses

4.2 GENERALLY

To NZS 3603 and 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).

4.3 EXTENT OF WORK

Comprises the supply and fixing of all timberwork, liings, sheathlings, fittings, finishings and hardware specified or otherwise as shown to the best trade practise.
Co-ordinate with all subtrades to assure most time effective completion of the job. Provide and fix blocks, nogs, openings and other items as required by other trades
Provide and fix all necessary beads, stops, fillets etc as may be required to leave work in a tidy and complete manner. Leave all working parts in good working order.

4.4 TIMBER GRADES

Species, grade and moisture content in service as set out in NZS 3602. Treated H1.2 to NZMP 3640, with an average moisture content at supply of 16% or less. Either mechanically stress graded to AS 1748, or visual grading to NZS 3631.

The builder shall allow for all timber as specified below :-

Roof framing, trusses and ceiling joists. Internal walls. Exterior framing for single storey brick veneer	H1.2 or untreated
Exterior wall framing (ex brick veneer) Skillion Roofs Subfloor framing	H1.2
Enclosed framing for flat roofs, decks, balconies, and handrails Framing supporting decks and balconies. Cladding cavity battens	H3.1
Unroofed decks, external stairs, handrails Exposed structural members	H3.2
Piles and other structural in ground members	H5

For additional information refer to NZS 3602:2003

Radiata pine laminations to NZS 3606, table 1; treated as required by NZS 3602, to the requirements of NZMP 3640, with special attention to section 4 "Recommendations and advisory notes." Supply weather resistant sealed.

4.5 MOISTURE CONTENT

Maximum allowable equilibrium moisture content (EMC) in accordance with BRANZ Bulletin 343 for framing supporting interior linings:

	<u>EMC</u>
1. Framing at erection	24%
2. Framing at enclosure	20%
3. Framing at lining	16%
4. Timber strip flooring (at time of laying)	10%

4.6 DAMPPROOF COURSE

2-ply/3-ply kraft felt strip saturated and coated with bitumen.

4.7 NAILS, BOLTS AND SCREWS

Steel, stainless steel and galvanised steel of pattern to suit the location and to BRANZ Bulletin 328 "Selection and use of fasteners."

4.8 NAIL PLATES AND CONNECTORS

Stainless steel and/or galvanised steel toothed or nailed plates to the manufacturer's design for the particular locations as shown on the drawings.

4.9 WALL FRAMING

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

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

4.10 ROOF FRAMING AND TRUSSES

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 10.

Trusses to be designed and manufactured by a approved fabricator, with a produced statement supplied to the local authority prior to erection. Trusses shall be carefully handled, stacked and covered on site to prevent damage.

4.11 BRACING

All bracing elements shall be located strictly in the positions shown on the drawings.

Bracing shown on the drawings is required to satisfy the requirements of NZS3604:1999. Roof bracing to comply with NZS3604:1999 table 10.1

4.12 CEILING BATTENS

Setout and size to NZS3604:1999 table 13.1 or provide 75x50mm solid dwanging on edge as required for ceiling linings.

4.13 TIMBER FASCIAS AND BARGE BOARDS

Dressing grade to NZS 3631 and H3.2 treated to NZMP 3640. Finger jointed timber to AS/NZS 1491.

4.14 PLYWOOD

Structural plywood to AS/NZS 2269 for bracing, bracketing, sarking and floors. Lay and countersink screw fix to the manufacturer's recommendations and to NZS 3604, section 7.2.

4.19 INSULATION

Interleaved glass fibre quilt in block form, or Natural wool insulation blankets Lay aluminium foil insulating sheet and fit insulation, to NZS 4214, as detailed, to the manufacturer's recommendations, and to the recommendations of BRANZ Bulletin 357 "Thermal insulation of houses."

Sub-floor foil underlay shall be aluminium sheet, kraft paper fibre reinforced laminates to NZS 4222, part 4 and fitted to NZS 4218. Lay and secure to the manufacturer's recommendations and as shown in NZS 4218.

4.20 ALL JOINERY FITTINGS

Check site dimensions. Carry out machining within the practices recommended for the particular timber, wood product or pre-finished wood product being used. Machine drill and cut all holes and recesses and form all joints to the componentry manufacturer's recommendations. All work to be accurate, square and true to line and face. Scribe fit on site - level, square, plumb and true to line and face.

4.21 WARDROBES , STORAGE CUPBOARDS

Fit out with 300mm wide melamine faced board shelf,. All exposed edges clashed to match. Fit the selected coat rail to the front edge of the shelf.

4.22 LEAVE

Leave all work to the standard required by all following trades.

5 CLADDING (HARDIES WEATHERBOARD)

5.1 DOCUMENTS

Documents referred to in this section are:

NZS/AS 2908 Cellulose - cement products
 2908.2 Flat sheets
 NZS 2295 Building papers (breather type)
 NZS 3604 Light timber frame buildings not requiring specific design
 NZS 4214 Methods of determining the total thermal resistance of parts of buildings
 BRANZ appraisal certificate 229: James Hardie wall bracing systems
 BRANZ Bulletin 284: Sealed joints in exterior claddings - 2. Sealants
 BRANZ Bulletin 304: Flashing design
 BRANZ Bulletin 305: Domestic flashing installation
 James Hardie documents

5.2 GENERALLY

James Hardie fibre cement weatherboards to comply with NZS/AS 2908.2.
 Treated cellulose fibre in a matrix of cement and sand, formed into boards and cured by autoclaving.

5.3 UNDERLAY

Breather type flame retardant lightweight paper to NZS 2295.
 Fix breather type building paper to NZS 4214, as detailed.

5.4 MOISTURE CONTENT

Maximum allowable equilibrium moisture content (EMC) of framing at enclosure 24%.

5.5 STORING AND HANDLING

Take delivery of sheets dry and undamaged in pallets and stack vertically or lay horizontally on a smooth level surface. Protect edges and corners from damage and cover to keep dry until fixed.
 Avoid distortion and contact with potentially damaging surfaces. Do not drag sheets across each other, or across other materials. Protect edges, corners and surface finish from damage.

5.6 SUBSTRATE

Do not commence work until the substrate is of the standard required by relevant James Hardie technical literature for the specified finish; plumb, level and in true alignment. Moisture content of timber framing to comply with NZS 3602 moisture content maximums, to minimise shrinkage and movement after sheets are fixed.

5.7 JAMES HARDIE WEATHERBOARD NAILS GALVANISED

Galvanised 50mm x 2.8mm and 40mm x 2.8mm flathead minimum head diameter 6.8mm. Refer to relevant James Hardie technical literature.

5.8 JAMES HARDIE WEATHERBOARD NAILS STAINLESS STEEL

316 stainless steel 50mm and 40mm x 2.8mm flathead minimum head diameter 6.8mm. Refer to relevant James Hardie technical literature.

5.9 JAMES HARDIE WEATHERBOARD ACCESSORIES

Extruded PVC or Etch-primed aluminium. Refer to relevant James Hardie technical literature.

5.10 SEALING STRIPS

Butynol rubber and/or compressible sealing strips. Refer to relevant James Hardie technical literature.

5.11 CAVITY BATTENS

If required fix 50x20mm radiata pine, treated to NZMP 3604, hazard class H3.1 to every stud over the building wrap. Battens to comply with New Zealand Building Code E2/AS1.
 Cavity base closures to be installed at the base of walls and over window and door openings.
 Install 100mm long cavity spacers at a 1:12 slope as set out in figure 67.

5.12 INSTALL WEATHERBOARDS

Establish a level line and assess the number of boards required, allowing a minimum overlap of 30mm. Fix boards strictly in accordance with relevant James Hardie technical literature, fixing to each stud by fastening through both thicknesses of boards 20mm up from the underside of the lap. Install external and internal corner moulds, soakers and cappings as detailed and as required.

5.13 FLASHINGS

All the proprietary sill, jamb, corner and base moulds shall be made of aluminium suitable for exterior applications. Head flashings shall be made of power coated aluminium and supplied by window manufacture.

5.14 HARDIFLEX® SOFFIT PANELS

Treated cellulose fibre in a matrix of cement and sand autoclaved sheet with an unsanded finish. Cut sheets dry and scribe fit to fully support all edges and joints. Nail and drill for and insert PVC fasteners. Fit complete with colour matched jointers and capping moulds. Refer to relevant James Hardie technical literature.

5.15 FIX FLASHINGS

Fix flashings, covers and soakers as detailed and to BRANZ Bulletins 304 "Flashing design" and 305 "Domestic flashing installation."

5.16 USE OF SEALANTS

Selection and use of sealants to follow BRANZ Bulletin 284 "Sealed joints in external claddings - 2. Sealants."

5.17 LEAVE

Leave all work to the standard required by all following trades.

5 CLADDING (HARDIES AXON PANEL)

5.1 DOCUMENTS

Documents referred to in this section are:

NZS/AS 2908 Cellulose - cement products
2908.2 Flat sheets
NZS 2295 Building papers (breather type)
NZS 3604 Light timber frame buildings not requiring specific design
NZS 4214 Methods of determining the total thermal resistance of parts of buildings
BRANZ appraisal certificate 229: James Hardie wall bracing systems
BRANZ Bulletin 284: Sealed joints in exterior claddings - 2. Sealants
BRANZ Bulletin 304: Flashing design
BRANZ Bulletin 305: Domestic flashing installation
James Hardies Related Documents

5.2 GENERALLY

James Hardie fibre cement sheets to comply with NZS/AS 2908.2.
Treated cellulose fibre in a matrix of cement and sand, formed into boards and cured by autoclaving.
To 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).

5.3 UNDERLAY

Breather type flame retardant lightweight paper to NZS 2295.
Fix breather type building paper to NZS 4214, as detailed.

5.4 MOISTURE CONTENT

Maximum allowable equilibrium moisture content (EMC) of framing at enclosure 24%.

5.5 STORING AND HANDLING

Take delivery of sheets dry and undamaged in pallets and stack vertically or lay horizontally on a smooth level surface. Protect edges and corners from damage and cover to keep dry until fixed.
Avoid distortion and contact with potentially damaging surfaces. Do not drag sheets across each other, or across other materials. Protect edges, corners and surface finish from damage.

5.6 SUBSTRATE

Do not commence work until the substrate is of the standard required by relevant James Hardie technical literature for the specified finish; plumb, level and in true alignment. Moisture content of timber framing to comply with NZS 3602 moisture content maximums, to minimise shrinkage and movement after sheets are fixed.

5.7 BRACING SYSTEM

Fix sheets in accordance with relevant James Hardie technical literature and BRANZ appraisal certificate 229.

5.8 AXON CLADDING SYSTEM

Cut sheets dry, form holes and work sheets to relevant James Hardie technical literature. Cover framing with building paper to NZS 3604. Fit butynol rubber sealing strips behind joints before scribe fitting and nailing sheets to all framing. Fit control joints at 5.4 metre maximum centres to limit flush areas to 25 m² and vertical structural expansion joints at 14.4 metre centres. Finalise location and form of control and expansion joints on site before commencing cladding work.

5.9 AXON, GALVANISED NAILS

Galvanised 50mm x 2.8mm and 40mm x 2.8mm flathead minimum head diameter 6.8mm. Refer to relevant James Hardie technical literature.

- 5.10 **AXON, STAINLESS STEEL NAILS**
316 stainless steel 40mm x 2.8mm flathead minimum head diameter 6.8mm. Refer to relevant James Hardie technical literature.
- 5.11 **SEALING STRIPS**
Butynol rubber and/or compressible sealing strips. Refer to relevant James Hardie technical literature.
- 5.12 **CAVITY BATTENS**
If required fix 50x20mm radiata pine, treated to NZMP 3604, hazard class H3.1 to every stud over the building wrap. Battens to comply with New Zealand Building Code E2/AS1.
Cavity base closures to be installed at the base of walls and over window and door openings.
Install 100mm long cavity spacers at a 1:12 slope as set out in figure 67.
- 5.13 **FLASHINGS**
All the proprietary sill, jamb, corner and base moulds shall be made of aluminium suitable for exterior applications. Head flashings shall be made of power coated aluminium and supplied by window manufacture.
- 5.14 **HARDIFLEX® SOFFIT PANELS**
Treated cellulose fibre in a matrix of cement and sand autoclaved sheet with an unsanded finish. Cut sheets dry and scribe fit to fully support all edges and joints. Nail and drill for and insert PVC fasteners. Fit complete with colour matched jointers and capping moulds. Refer to relevant James Hardie technical literature.
- 5.15 **FIX FLASHINGS**
Fix flashings, covers and soakers as detailed and to BRANZ Bulletins 304 "Flashing design" and 305 "Domestic flashing installation."
- 5.16 **USE OF SEALANTS**
Selection and use of sealants to follow BRANZ Bulletin 284 "Sealed joints in external claddings - 2. Sealants."
- 5.17 **LEAVE**
Leave all work to the standard required by all following trades.

6 LINING**6.1 DOCUMENTS**

Documents referred to in this section are:

NZMP 9	Fire properties of building materials and elements of structure
AS/NZS 1859	Reconstituted wood-based panels
	1859.1 Particle board
	1859.2 Medium density fibreboard (MDF)
AS/NZS 2269	Plywood - structural
AS 2458	Hardboard
NZS/AS 2908	Cellulose-cement products
	2908.2 Flat sheets
NZS 3602	Timber and wood-based products for use in buildings
NZS 3604	Light timber frame buildings not requiring specific design
NZS 3610	Profiles of mouldings and joinery
NZS 3612	Interior plywood
NZS 4221	Fibrous plaster sheet

Interior Systems Association: Levels of finish

New Zealand Fibrous Plaster Association: Code of recommended practice for the application and fixing of fibrous plaster

BRANZ Bulletin 328: Selection and use of fasteners

BRANZ Bulletin 343: Moisture in timber

6.2 MOISTURE CONTENT

Maximum allowable equilibrium moisture content (EMC) in accordance with BRANZ Bulletin 343 for:

	<u>EMC</u>
1. Framing at lining (timber-based)	24%
2. Framing at lining (plasterboard/fibrous)	16%

6.3 SUBSTRATE

To NZS 3604, sections 8, 10, 12 and the standard required by the manufacturer's recommendations. Starting work implies acceptance the substrate will allow work of the required standard.

6.4 PLASTERBOARD

Gypsum plaster core encased in a durable face and backing paper formed for: standard use, bracing use, water resistance, and for fire rated use as approved by the fire ratings committee of Standards New Zealand for inclusion in NZMP 9.

6.5 EXTERNAL ANGLE AND CASING BEAD

Slim type 0.5mm galvanised steel. Fix full length to all external corners with clouts at 100mm each side staggered

6.6 NAILS AND SCREWS

Galvanised clouts 40mm x 2.5mm. and 40 x 6 gauge zinc electro-plated bugle head gypsum drywall screws.

6.7 ADHESIVE

Multi-purpose water based wallboard adhesive.

6.8 LEVELS OF FINISH

Before commencing work, confirm the surface finish assessment procedures necessary to ensure the specified levels of finish will be obtained. Provide levels of finish to standards laid down by the Interior Systems Association document "Levels of finish," as follows:

Level 3: surfaces receiving heavy to medium texture finishes

Level 4: surfaces receiving light texture or wall covering finishes

Level 5: surfaces receiving thin coating finishes.

6.9 LINE CEILINGS AND WALLS

Line ceilings with plasterboard sheets, fastened to the manufacturer's recommendations.

6.10 FORM BRACING PANELS AND SYSTEMS

Form using high density plasterboard sheets fixed with clout-washers and clouts to the manufacturer's details. For panels strap substrate and for systems diagonal brace to NZS 3604, section 5.

6.11 GIB STOPPING

Compound and paper tape to the board manufacturer's recommendations

Fill joint recess with bedding compound, centre the paper tape, apply second coat of bedding compound followed by a coat of finishing compound; allow to dry and lightly sand off, all to the manufacturer's recommendations.

Fill nail holes and flush up external angles with two successive coats of bedding compound followed by a coat of finishing compound, allow to dry and lightly sand off, all to the manufacturer's recommendations.

6.12 CLEAN ALL

Clean all adjoining surfaces and fittings of spots, marks, dust and droppings.

6.13 LEAVE

Leave all work to the standard required by all following trades.

7 ROOFING (METAL PROFILE)

7.1 DOCUMENTS

Documents referred to in this section are:

NZBC	E2/AS1	External moisture 1.0 Roofs
NZS/AS 1397		Steel sheet and strip - hot-dipped, zinc-coated, or aluminium/zinc-coated
NZS 2295		Building papers, (breather type)
NZS 3602		Timber and wood-base products for use in building
NZS 3604		Light timber frame buildings not requiring specific design
NZMP 3640		Minimum requirements of the NZ Timber Preservation Council
NZS 4217		Pressed metal tile roofs
NZS 4222		Materials for the thermal insulation of buildings

BRANZ Bulletin 284: Sealed joints in external claddings - 2. Sealants

New Zealand Metal Roofing and Cladding Manufacturers' Association Inc: Profiled metal roofing design and installation handbook

7.2 WIND AND EARTHQUAKE LOADINGS

Use fixings and methods capable of sustaining the loads appropriate to the area as set out in NZS 3604, table 2.3.

7.3 COORDINATE

Coordinate to ensure substrate and preparatory work is complete and other work programmed in the order required for access and completion of the roof.

7.4 STACK ROOFING

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

7.5 SET OUT

Set out the planned layout before fixing commences, to ensure true lines and the correct relationship to module, grid and roof features.

7.6 ROOF UNDERLAY

Breather type kraft paper laminates to NZS 2295 on 50mm hexagon mesh of 1mm diameter galvanised steel wire in 900mm (minimum) width sheets. Lay and fix to NZBC acceptable solution E2/AS1, NZS 3604, section 11.2 and the manufacturer's recommendations.

7.7 LAY ROOFING, GENERALLY

Take care to avoid damaging pre-finished roofing both during and after fixing. Wear only soft-soled shoes on the finished surface.

7.8 PROFILED METAL ROOFING

Lay profiled metal roofing and fix complete with all matching accessories, flashed to all roof features and penetrations; and in accordance with the recommendations in the New Zealand Metal Roofing and Cladding Manufacturers' Association Inc. publication "Profiled metal roofing design and installation handbook." Cut profiled metal roofing with recommended tools, fold ends and seal cut edges all to the manufacturer's recommendations.

7.9 FIX COVERS AND FLASHINGS

To comply with NZBC acceptable solution E2/AS1, 1.0. Install and fixed as detailed and to the roofing manufacturer's details.

7.10 PENETRATIONS

Flash and overflash all penetrations through the roof.

- 7.11 **USE OF SEALANTS**
Selection and use of sealants to follow BRANZ Bulletin 284 "Sealed joints in external claddings - 2. Sealants."
- 7.12 **LEAVE**
Leave the work complete with all flashings, undercloaks, valleys, ridges and hips properly installed so the finished roof is completely weathertight.
- 7.13 **CLEAR**
Clear all trade rubbish and unused materials from the roof and surrounds regularly during the work and at completion. Sweep down the completed roof and flush out all spoutings, gutters and rainwater pipes, ensuring that metal filings, metal scraps and loose fixings are removed.
- 7.14 **REPLACE**
Replace damaged or marked elements. Remove unused materials from the site.

7 ROOFING (MEMBRANE)

- 7.1 DOCUMENTS
Documents referred to in this section are:
BRANZ Bulletin 345: Flat membrane roofs - design and installation
BRANZ Bulletin 346: Flat membrane roofs - materials
- 7.2 APPLICATOR
Applicator to be licensed and recommended by the membrane system manufacturer. Use only competent, experienced applicators. All work and materials to BRANZ Bulletins 345 "Flat membrane roofs - design and installation" and 346 "Flat membrane roofs - materials."
Soft-soled shoes only to be worn on the finished roof surface. Do not place any materials on, or support any ladders or scaffolding off, the finished surface. Determine the layout of sheets to best suit the roof topography. Apply coverings in dry atmospheric conditions and only when the temperature is above 8 degrees centigrade.
- 7.3 STORAGE
Take delivery of sheet in packs/rolls undamaged and allow for site handling facilities where required. Stack off the ground on a level surface and with accessories secured against damage.
- 7.4 PRELIMINARY WORK
Before laying coverings ensure all preliminary work, including surface finish, formation of falls, provision of suitable flashing chases and fillets, fixing of vents and roof outlets to correct levels, is complete and formed to allow the system to work as intended.
- 7.5 PLYWOOD SUBSTRATE
Confirm that all sheets are rigid, with joints flush, no loose or protruding fixings, no lumps or hollows, smooth, clean, dry and free of all debris. Commencement of this work means the substrate, including levels and falls, is accepted by the applicator as satisfactory for the required standard of work.
- 7.6 SYNTHETIC BUTYL RUBBER SHEET
Single ply membrane compounded from vulcanised isobutylene isoprene copolymer or EPDM (ethylene propylene diene monomer) synthetic elastomeric rubber. Substrate condition and preparation, materials, accessories, fixing and laying to be strictly in accordance with the manufacturer's specifications, details, and, applicator recommendations.
- 7.7 TAPES
Lap and moulding tapes to the sheet manufacturer's recommendations for each location.
- 7.8 OUTLETS
As supplied and recommended by the sheet manufacturer.
- 7.9 CAPPINGS AND FLASHINGS
As detailed and as recommended by the roofing manufacturer.
- 7.10 ADHESIVES
Adhesives, primers, sealants and solvents to be compatible with the membrane and approved by the sheet manufacturer.
- 7.11 PENETRATIONS
Form and finish to all upstands, downturns, penetrations, sumps and vents to sheet manufacturer's details. Seal, flash and overflash all penetrations through the roof.
- 7.13 EXPANSION JOINTS
Finish and seal all expansion, contraction, construction and control joints to the sheet manufacturer's details and recommendations.
- 7.14 INSPECT
Inspect and test all joints on completion.

9 ALUMINIUM WINDOWS AND DOORS

9.1 DOCUMENTS

Documents referred to in this section are:

NZBC	F2/AS1	Hazardous building materials 1.0 Glazing
AS/NZS 1231		Aluminium and aluminium alloys - Anodised coatings for architectural applications
AS/NZS 2208		Safety glazing materials in buildings
NZS 3504		Aluminium windows
NZS 4211		Performance of windows
NZS 4223		Glazing in buildings Parts 1 & 2: Glazing in buildings Part 3: Human impact safety requirements

Architectural Aluminium Association of New Zealand: Aluminium Window Handbook

Architectural Aluminium Association of New Zealand: Specification for powder coatings on architectural aluminium products

Architectural Aluminium Association of New Zealand: Installation code for aluminium joinery products

BRANZ Bulletin 349: Finishes for aluminium

9.2 ALUMINIUM WINDOWS AND DOORS QUALITY

To be fabricated by a member of the Architectural Aluminium Association of New Zealand. Nominate brand and type for approval. The owner reserves the right to reject any nominated brand and request the nomination of alternatives.

9.3 GENERALLY

Execution to be in accordance with the requirements of NZS 4211 and the Architectural Aluminium Association of New Zealand's "Aluminium window handbook" and "Installation code for aluminium windows."

9.4 SECTIONS

All aluminium members to be formed from extruded sections. Folded sections restricted to flashings and concealed members only.

9.5 ORGANIC POWDER COATING FINISH

To BRANZ Bulletin 349 "Finishes for aluminium" and the Architectural Aluminium Association of New Zealand's "Specification for powder coatings on architectural aluminium products." All finished surfaces to show uniformity of gloss and colour (to match approved sample) free of all coating defects.

9.6 ANODISING

To BRANZ Bulletin 349 "Finishes for aluminium" and AS/NZS 1231.

9.7 FIXINGS

All fixings and bracketing to be compatible with aluminium. Do not use electroplated zinc fasteners or brass fastenings.

9.8 CORROSION PROTECTION

All cut ends and holes drilled in aluminium to be sealed, or suitably coated before the frames are installed. Before fixing, apply bituminous coatings, slips or underlays between dissimilar metals in contact, or aluminium in contact with concrete.

9.9 FIX FRAMES

Fix frames rigidly in place without distortion, to the manufacturer's and the Architectural Aluminium Association's "Aluminium window handbook" recommendations, plumb, true to line and face, weathertight and with all openings operating freely.

9.10 DRAINAGE

All sills to incorporate anti-condensation channels. All sills to sashes and fixed lights to incorporate positive drainage to the exterior.

- 9.11 **GLASS**
All glazing to comply with NZS 4223, with particular attention to NZS 4223, part 3 where glass could be subject to human impact. Glazing and infill panels to be the responsibility of the window manufacturer for structural and weather-tight performance. All glass to be held in aluminium beads and black PVC gaskets. Use Safety Glass in all doors, sidelight panels, low level windows and all other locations to comply with NZS 4223, part 3, as modified by NZBC acceptable solution F2/AS1. Glass to comply with AS/NZS 2208.
- 9.12 **FLASHINGS**
Install flashings to heads, jambs and sills of frames as supplied and recommended by the window manufacturer and as detailed on the drawings. Head flashings to be finished to match window finish.
- 9.13 **SEAL FRAMES**
Seal frames to each other and to adjoining structure and finishes, all as recommended by the manufacturer and to make the installation weathertight.
- 9.14 **RETAIN PROTECTIVE COVERINGS**
Retain protective coverings and coatings in place during fixing wherever possible. Provide additional protection to prevent marking of surfaces which will be visible in the completed work. Remove protection on completion.
- 9.15 **ON COMPLETION**
On completion remove temporary protection and clean down both sides of all aluminium and glass, using the method recommended by the manufacturer.
- 9.16 **INDICATE**
Indicate the glass in place with inert whitening, paper, glazing signs or tape.
- 9.17 **CLEAN**
Clean off or remove indicators at completion of the building. Clean all glass inside and out to a shining finish.

10 PAINTING

10.1 DOCUMENTS

Documents referred to in this section are:
 NZS 7703 The painting of buildings
 Health and Safety in Employment Act 1992

10.2 HEALTH AND SAFETY

Refer to the requirements of the Health and Safety in Employment Act 1992 and if elimination or isolation are not possible, then minimise the hazards in this work.

Refer to NZS 7703 for the recommended procedures and precautions when:

1. Treating or removing lead based paint.
2. Burning off paint.
3. Sanding off paint.
4. Using solvent based paint removers.

10.3 INSPECT

Inspect all surfaces to be painted and report to the owner any that will not, after the preparatory work laid down in NZS 7703, allow work of the required standard. Confirm that all areas have adequate lighting and are sufficiently free of other construction activities to enable painting and/or paperhanging work to proceed.

10.4 COVER UP AND HARDWARE

Cover up all adjoining surfaces and areas liable to damage or over-painting.
 Remove all hardware liable to damage or over-painting and replace on completion.

10.5 WHERE NECESSARY

Where necessary to prime or seal surfaces before or while other materials are being built in, arrange with those concerned to inform the painter when this work is required.

10.6 CARRY OUT

Carry out all work within acceptable temperature and humidity limits, and with all timber dry and in the equilibrium moisture content range required by NZS 7703.

10.7 PREPARE SURFACES

Prepare surfaces to be coated by making good all damage and defects. Gap filler to be linseed oil putty, plastic wood, wood filler or plaster filler as appropriate to the surface and to the paint manufacturer's recommendations.

10.8 PAINT SYSTEMS

To NZS 7703 for exterior and/or interior primers, undercoats, sealers, stains, clear coatings, solvent-borne and water-borne paints. Apply paint by brush and/or roller to suit the location of the coating to NZS 7703, clause 6.7. Do not spray on site without express permission.

Refer to the paint manufacturers' manuals and follow their preparation, sequence and application recommendations applying to each system. Correct defective work immediately, with recoating to follow the systems recommendation.

All paint coats in any system to be supplied by the same manufacturer.

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

10.9 ALL FINISHED PAINT SURFACES

All finished paint surfaces to show uniformity of gloss and colour, to have the correct thickness for each coat, and freedom from painting defects such as tackiness and conspicuous brush marks. Finished work to be clean and free of any disfigurement.

Seal or size walls. All drops to be full-length, completely glued, pattern matched and hung vertically without bubbles or visible butt joints. Scribe cut paper 2mm onto surrounding trim.

10.11 CLEAN ALL

Clean all adjoining surfaces, glass and fittings of any paint contamination. Replace all hardware without damage to the hardware or the adjoining surfaces. Take away from the site all unused painting materials and equipment.

11 PLUMBING AND GASFITTING

11.1 DOCUMENTS

Documents referred to in this section are:

NZBC	G1/AS1	Personal hygiene 2.0 Fixture construction and installation 3.0 Location of sanitary fixtures
NZBC	G10/AS1	Piped services (Gas)
NZBC	G11/AS1	Gas as an energy source
NZBC	G12/AS1	Water supplies
NZBC	H1/AS1	Energy Efficiency
AS/NZS 1260		PVC pipes and fittings for drain, waste and vent applications
AS/NZS 2642.2		Polybutylene pipe fittings Polybutylene pipe systems - Polybutylene (PB) pipe for hot and cold water applications
AS/NZS 2642.3		Polybutylene pipe systems - Mechanical jointing fittings for use with polybutylene pipes for hot and cold water applications
AS/NZS 3500.2		Plumbing and drainage - Sanitary plumbing and drainage
AS/NZS 3500.5		National plumbing and drainage - Domestic installations
NZS 4617		Tempering (3-port mixing) valves
NZS 5258		Gas distribution
NZS 5261		Installation of gas burning appliances and equipment
NZS 7641		Unplasticized PVC waste and ventilating pipe, fittings and accessories, 32mm, 40mm and 50mm
NZS 7646		Polyethylene pipes and fittings for gas reticulation
CSA B137-8		Polybutylene (PB) piping for hot and cold water distribution systems.
DIN 8077		Polypropylene (PP-R) Pipe dimensions
DIN 8078		Polypropylene (PP-R) Pipes Types 1, 2 & 3, General Quality Requirements and Testing.
Plumbers, Gasfitters and Drainlayers Act 1976		
Electricity Regulations 1997		
Gas Regulations 1993		

HOT AND COLD WATER SUPPLY

11.1 QUALIFICATIONS

Plumbers to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a plumber registered under the Plumbers, Gasfitters and Drainlayers Act 1976.

11.2 EXECUTION GENERALLY

Generally carry out the whole of this work and tests to NZBC G12/AS1: Water supplies. Avoid electrolytic action by eliminating contact or continuity of water between dissimilar metals. Conceal pipework within the fabric of the building unless detailed otherwise. Satin finish chrome plate exposed work, complete with matching ferrule at the surface penetration. Replace damaged or marked elements.

11.3 POLYBUTYLENE PIPE

Polybutylene tubing to AS/NZS 2642.1, AS/NZS 2642.2 and AS/NZS 2642.3 complete with fittings and accessories brand-matched with durability to NZBC B2/AS1 Durability, table 1 and NZBC G12/AS1 Water supplies table1. Copper clamped, seal ring compression or push fit "O" ring seal jointing to pipe system manufacturer's requirements

11.4 POLYETHYLENE PIPE

To NZS 7602, type 5 (over 0.7 kPa) complete with fittings and accessories brand matched to the pipe manufacturer's requirements with durability to NZBC B2/AS1 Durability, table 1 and NZBC G12/AS1 Water supplies table1. Seal ring compression joints and electrofusion to NZBC G12/AS1: Water supplies.

- 11.5 VALVES**
Pressure reducing or limiting valve, filter, non-return valve, cold water expansion valve, pressure relief or temperature valve, pressure relief valve and isolating valves to NZBC G12/AS1: Water supplies.
- 11.6 TEMPERING VALVE**
Tempering valve to NZS 4617 to NZBC G12/AS1: Water supplies. Install 1 metre minimum from outlet of hot water cylinder and to manufacturer's instructions
- 11.7 CORROSION**
Separate all metals subject to electrolytic action from each other and from treated timber, concrete and other lime substances by space, painting of surfaces, taping, or separator strips.
- 11.8 THERMAL MOVEMENT**
Accommodate movement in pipes resulting from temperature change by the layout of the pipe runs, by expansion joints and by sleeving through penetrations.
- 11.9 PIPE SIZE**
Flow rates to each outlet to be no less than those given in NZBC G12/AS1: Water supplies, table 3, Acceptable flow rates to sanitary fixtures. Pipe size as determined in table 4, Tempering valve and nominal pipe diameters.
- 11.10 WATER SUPPLY CONNECTION**
Arrange with the network utility operator for a connection to the water main and from there through a water meter and gate valve. Excavate for the water main to a firm, even trench base in straight runs. Allow to backfill.
- 11.12 HOT WATER PIPEWORK**
Use a take-off spigot to give separate branches to each fitting, lay out pipes with support spacing to NZBC G12/AS1: Water supplies, table 7 Water supply pipework support spacing. Fix firmly and buffer to eliminate noise and hammer, with preformed tee-connection take-offs and branches, and preformed 3 diameter bends, complete with all necessary valves and fittings.
- 11.13 EQUIPOTENTIAL BONDING**
Earth metallic water supply pipe and metallic sanitary fixtures to NZBC G12/AS1: Water supplies: 9.0.
- 11.14 GAS HOT WATER HEATER, CONTINUOUS FLOW TYPE**
Continuous flow unit with an integral gas burner and flue. Install where shown complete with all the necessary fittings to the cylinder manufacturer's requirements and in accordance with NZBC G12/AS1: 6.10. Complete the flue installation in accordance with the heater manufacturer's details and requirements.
- 11.15 PENETRATIONS**
Provide and fit collars and escutcheon plates to match the pipework at all penetrations through constructions. Review location and fit core holes and sleeves as needed throughout the structure in conjunction with the boxing, reinforcing and placing of concrete. Strip core holes and make good after installation of pipework.
- 11.16 INSTALLING APPLIANCE ISOLATING VALVES - CONCEALED**
Install isolating valves for appliances in accessible positions. Locate in adjacent cupboards and position to allow for easy connection and operation.
- 11.17 INSTALLING TAPWARE**
Install tapware supplied. Install in accordance with the manufacturer's requirements.
- 11.18 LEAVE**
Leave work to the standard required by following procedures.
- 11.19 REMOVE**
Remove debris, unused materials and elements from the site.

GAS SUPPLY

- 11.20 REGULATIONS**
 Comply with the Gas Regulations, Electricity Regulations and other network utility operator's requirements.
 Give notices for inspections and carry out tests as required.
 Carry out the whole of this work to the requirements of NZBC G10/AS1: Piped services (Gas);
 NZBC G11/AS1: Gas as an energy source and NZS 5261.
 Provide a Gasfitting Certification Certificate as required by Regulation 24 of the Gas Regulations 1993.
- 11.21 QUALIFICATIONS**
 Gasfitters to be experienced competent craftsman gasfitters, or registered gasfitters working under the direction of a craftsman gasfitter, familiar with the materials and techniques specified.
- 11.22 PIPING DESIGN**
 Design the piping system with pipe sizes to give a minimum pressure at any appliance inlet of 1.13 kPa for natural gas, when all appliances are in use; and with a maximum design pressure drop from meter outlet to any appliance of 80 Pa. All to NZS 5261.
- 11.23 FINAL INSPECTION AND TEST**
 Pressure test the system for leakage to NZS 5261 before pipework is concealed by linings
 Submit the work for inspection and test and prove to the satisfaction of the gas retailer that the installation complies with all Acts and Regulations and has been tested for leakage and proved to be sound.
- 11.24 ISOLATING VALVES**
 Manual shut-off valves to NZS 5261.
- 11.25 ARRANGE FOR MAINS CONNECTION**
 Arrange for the network utility operator to connect their distribution system to the primary meter, to NZS 5258.
- 11.26 METER INSTALLATION**
 Primary meter to suit design load, supply pressure and pressure drop, supplied and installed by the network utility operator.
 Check the location of the meter enclosure with the owner. Recess or conceal as detailed. The metal frame of the meter acts as a thermal bridge. This may be overcome with the addition of 12 mm bitumen coated softboard of EPS installed to the back of the meter prior to installation. Advise the network utility operator or their agent of the location for the meter. Not all network utility operators install gas meters. Meters are owned by retailers or meter lease companies and installed by them or their agent.
- 11.27 UPPER PIPE**
 complete with fittings to NZS 5261. Run the system, completely concealed, in the most suitable type of pipe for each part of the installation, bent, supported, jointed and complete with all fittings to NZS 5261. Confirm the type of pipe and its location. Label pipework to distinguish it from other services.
- 11.28 GAS APPLIANCES**
 Fit and connect the gas appliances to NZS 5261, complete with isolation valves and flues where required and to the appliance manufacturer's requirements.
- 11.29 CONNECT GAS HOT WATER HEATERS**
 Connect gas hot water heaters supplied and fitted to NZBC G10/AS1; G11/AS1; NZBC G12/AS1 and to NZS 5261 and the water heater manufacturer's requirements.
- 11.30 REPLACE**
 Replace damaged, cracked or marked components.

SANITARY PLUMBING SYSTEM

- 11.31 **QUALIFICATIONS**
Carry out work by or under the direct supervision of a person registered under the Plumbers, Gasfitters and Drainlayers Act 1976.
- 11.32 **EXECUTION GENERALLY**
Carry out this work and complete all tests to AS/NZS 3500.2.
Carry out this work and complete all tests to NZBC G1/AS1: 2.0, 3.0.
- 11.33 **ELECTROLYTIC ACTION**
Avoid electrolytic action by eliminating actual contact or continuity of water between dissimilar metals.
- 11.34 **uPVC WASTE, SOIL AND VENT PIPES**
uPVC pipe to NZS 7641 and AS/NZS 1260 complete with fittings brand-matched to the pipe manufacturer's requirements.
- 11.35 **EXPOSED PIPES AND TRAPS**
White polybutylene or PVC, including all associated fittings.
- 11.36 **SEALANT, SANITARY FIXTURES**
For between sanitary fixtures and accessories and adjacent floor or wall surfaces.
1-part, silicone, containing mildew resistant agents.
- 11.37 **INSTALL SANITARY FIXTURES**
Fit and install sanitary fixtures and associated screens, elements and hardware, plumb, true to line and rigid, to the fixture manufacturer's requirements. Supply standard chrome plated brass wastes and plastic plugs on chrome plated chains with all basins, tubs and baths.
- 11.38 **FOULWATER SYSTEM**
A pipe schematic has been drawn detailing the pipe layout, sizes and main vent locations. A detailed analysis other than pipe layout size has not been done and complete compliance with this system has not been verified. It is anticipated that the plumber on site will make decisions about the installation and its performance, and the BCA will inspect for compliance.
- 11.39 **INSTALL TRAPS, WASTE AND VENT PIPES**
Connect waste outlets to traps and run waste pipes and back vents concealed, sized and fixed to AS/NZS 3500.2. Discharge wastes into the drainage system stack, soil pipe, or gully trap as shown. Bird proof mesh to all roof vents and vermin proof mesh to all untrapped waste pipes.
- 11.40 **PENETRATIONS**
At penetrations through constructions provide and fit collars and escutcheon plates to match pipework.
- 11.41 **TEST**
Test soil and waste disposal systems to ensure no leakage exists and leave in proper working order.
- 11.42 **CLEAN UP**
Remove labels and clean fittings. Remove unused materials from the site.

12 DRAINAGE

12.1 DOCUMENTS

Documents referred to in this section are:

NZBC B1/AS1	Structure – general, 6.0 Drains
NZBC E1/AS1	Surface water
	3.0 Drainage system materials and construction
AS/NZS 1254	PVC pipes and fittings for storm and surface water applications
AS/NZS 1260	PVC pipes and fittings for drain, waste and vent applications
AS/NZS 1547	On site domestic wastewater management
AS/NZS 4130	Polyethylene pressure pipes (PE)
AS/NZS 4671	Steel reinforcing materials
NZS 3107	Precast concrete drainage and pressure pipes
NZS 3104	Specification for concrete production
AS/NZS 3500.2	Plumbing and drainage - Sanitary plumbing and drainage
AS/NZS 3500.3	Plumbing and drainage - Stormwater drainage
NZS 7643	Installation of unplasticised PVC pipe systems

Plumbers, Gasfitters and Drainlayers Act 1976

12.2 SUPPLY

Supply a 1:100 scale as-built plan of drains and fittings to the territorial authority and to the owner on completion.

12.3 ALL WORK

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

Carry out drainage work and tests to AS/NZS 3500 Part 2 (sanitary drainage) AS/NZS 3500 Part 3 (stormwater drainage) as modified by NZBC B1/AS1: 6.0. Lay uPVC pipe systems to relevant sections of NZS 7643.

12.4 EXCAVATE

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

12.5 UPVC PIPES

uPVC Pipes bends, junctions, fittings and joints to AS/NZS 1254 and AS/NZS 1260

12.6 FOUL WATER DRAINS

Lay drains in straight runs to correct gradients, to discharge into the network utility operators sewer. Set all inspection fittings on a concrete base.

12.7 GULLY TRAPS

To NZBC acceptable solution G13/AS2, 3.2, complete with grating. Set on concrete brought up to protect the top of the fitting. Trowel off.

12.8 STORMWATER DRAINS

Confirm the required location of all downpipes and all finished ground levels before commencing pipework. Set downpipe bends in concrete brought up to protect the top of the fitting from damage. Trowel off and fit a cast iron grating. Lay drains in straight runs to correct gradients to discharge into the network utility operator's stormwater system.

12.9 SUBSOIL DRAINS

Plastic piping for field drains perforated and coiled with filter fabric over. Lay perforated coil piping firmly in a granular bed in straight runs to correct gradients, discharging into stormwater drains via a trapped sump. Carry the granular bed up over the pipes without disturbing them, to a total depth of 300mm and cover with geotextile fabric, all to the pipe manufacturer's recommendations.

- 12.10 SUBSOIL DRAINS TO BASEMENT WALLS**
To NZBC E2/AS1: External moisture, 12.3 Drainage. Lay perforated piping firmly in a granular bed in straight runs to correct gradients, discharging into a cesspit. Carry the granular bed up over the pipes without disturbing them to a total depth of 300 mm and cover with geotextile fabric to the pipe manufacturer's requirements. Carry the high end of all lines up to the surface to allow for flushing out and finish with a protected removable cap.
- 12.11 STRIP DRAIN CHANNEL**
Proprietary, modular, variable invert, PVC or precast concrete drainage channel sections and drainage sump, embedded in site concrete and fitted with selected metal gratings. Excavate trench and form site concrete base to fall. Set interlocking channel sections, sumps and accessories in place, all in accordance with the channel manufacturer's requirements. Check falls and install gratings and covers.
- 12.12 ISURFACE WATER SUMP**
To NZBC acceptable solution E1/AS1 standard, complete with ceramic half-siphon pipe and cast iron frame with a lift out grating.
- 12.13 STORMWATER INSPECTION CHAMBERS**
To NZBC acceptable solution E1/AS1 standard, with channels to form a cascade and with a 75mm fall across the chamber. Bench from channels at 45 degrees and plaster all the interior with 1:2 cement: sand mortar, trowelled smooth. Fit a cast iron cover and frame.
- 12.14 FOUL WATER INSPECTION CHAMBERS**
To NZBC acceptable solution G13/AS2 standard, with ceramic channels to form a cascade and with a 75mm fall across the chamber. Bench from channels at 45 degrees and plaster all the interior with 1:2 cement: sand mortar, trowelled smooth. Fit a cast iron cover and frame.
- 12.15 CONCRETE ENCASE**
Concrete encase shallow drains and drains under driveways, on a 100mm deep 17.5 MPa concrete bed reinforced with three 10mm mild steel bars. Surround pipes with a polythene membrane to allow movement and encase in 100mm 17.5 MPa concrete.
- 12.16 FIELD TEST**
Field test drains for watertightness (UPVC to NZS 7643 section 11) to the satisfaction of the territorial authority inspector.
- 12.17 BACKFILL**
Backfill drain lines in 150mm layers, well tamped but without disturbing the drains. Finish off with 150mm of topsoil, slightly mounded above the finished ground line.

13 ELECTRICAL

13.1 DOCUMENTS

Documents referred to in this section are:

AS/NZS 3194 Electric shaver supply units
 NZS 6401 PVC-insulated cables for electric power and lighting
 Electricity Regulations 1997

13.2 COMPLY

Comply with the Electricity Regulations 1997 for listed and prescribed work and with the utility network operator's requirements. Apply for the service connection. Arrange for the required inspections of listed work. Pay all fees. All work to be carried out by or under the direct supervision of a holder of a practising certificate under the Electricity Regulations 1997

13.3 CERTIFICATE OF COMPLIANCE

Carry out the prescribed electrical work, test and complete a certificate of compliance, as required by the Electricity Regulations 1997, and in particular, clauses 16, 34 and 35. Allow the network utility operator to view before the meter installation, listed work inspection, polarity check and livening of supply. Supply the certificate to the owner.

13.4 MAINS UNDERGROUND, SINGLE PHASE

Tough plastic sheathed neutral screened cable to NZS 6401 with a minimum rating of 60 amps per phase. Lay underground mains to the network utility operator's requirements. Allow for trench excavation and backfill.

13.5 CABLES

Tough plastic sheathed copper conductors to NZS 6401.

Lighting circuits	1.5mm ² on 10amp MCB's
Power circuits (domestic)	1.5mm ² on 16amp MCB's
Power circuits (domestic - insulated construction)	2.5mm ² on 16amp MCB's
Power circuits (commercial)	2.5mm ² on 20amp MCB's

13.6 METER BOX

Rust protected metal case (glass panel door), all powder coated and complete with meter mounting, main switch and fuse. Fit to the manufacturer's recommendations, level and plumb where shown on the plan. Recess into the external wall; flash to weatherproof.

13.7 DISTRIBUTION BOARD

Complete with neutral and earth busbars, MCB's and 60 amp main switch, complete with removable insulated panel. Include 2 spare MCB's labelled as "spare." All protective devices to be 6kA MCB's of the appropriate rating. Fit to the manufacturer's recommendations, level and plumb where shown on the plan. Recess into the wall. All labelling to be complete and include a warning notice if light dimmers are used in the installation.

13.8 INSTALL CABLING

Design layout with a maximum of 8 light outlet units or 4 switched socket units on any circuit. Separate circuits for all electric heating appliances. All cabling to be run concealed. No TPS cable to be laid directly in concrete and all holes in timber framing for the passage of cables to be at the centre line of the timber member.

13.9 SWITCH UNITS

16 amp, 230 volt flush polycarbonate units. For number of switches per unit, dimmer units, neon (indicator or toggle) units, locator units and 2-way units refer to the electrical drawings.

13.10 HOT WATER SYSTEM SWITCH

One way 20 amp switch complete with clamp for flexible PVC tubing.

13.11 SWITCHED SOCKET UNITS

10 amp, 230 volt flush polycarbonate 3 pin combined switch units. For the number of single and double socket units and inbuilt earth leakage socket units refer to the drawings.

- 13.11 **SHAVER AND EARTH LEAKAGE PROTECTED SOCKET OUTLETS**
Earth leakage protected 110/230 volt multiple plug configuration and residual current protected socket outlets, tripping at 30 mA.
- 13.12 **FIT SWITCH AND SOCKET UNITS**
Fit all single and double switch units and socket units level and plumb where shown on the drawings. Install at the following heights (to the centre of the unit) unless shown otherwise on the electrical drawings.
- 13.13 **LIGHT FITTINGS**
Install selected light fittings in the locations and heights shown on the drawings and in accordance with the manufacturer's recommendations.
- 13.14 **ELECTRIC HOT WATER SYSTEM**
Wire as a separate circuit through a wall-mounted isolating switch, with the cable from switch to element encased in flexible PVC hose, clamp fixed at each end.
- 13.15 **INSTALL ELECTRIC POWERED FITTINGS AND EQUIPMENT**
Provide, install and wire all selected fittings and equipment to the Electricity Regulations and the manufacturer's recommendations. Refer to the drawings for required layouts and locations for equipment.
- 13.16 **ELECTRIC POWER FOR SITEWORKS**
Provide circuits and connections for site installations, including 12 volt path lighting and electronic irrigation systems. Refer to the drawings for required connection points. High current capacity wiring to be used for all 12 volt system wiring.
- 13.17 **WIRE FOR PLUMBING FITTINGS**
Wire for all fittings to the Electricity Regulations 1997 and to the manufacturer's recommendations.
- 13.18 **BELL SYSTEM**
Supply a bell transformer as part of the distribution board.
- 13.19 **TV AERIAL**
Selected aerial, co-axial cable and outlets, suitable for both VHF and UHF reception.
- 13.20 **TELEPHONE WIRING**
Wire for the telephone outlets shown on the electrical drawings.
- 13.21 **EARTHING**
Provide a plastic roby box or UPVC tube to contain and protect the earth pin. Fix the connecting earth wiring closely and securely against wall surfaces.
- 13.22 **LABELLING**
Provide and install a printed label under each controller, switch and circuit breaker on all distribution boards. List the rating of each circuit.
- 13.23 **COMPLETION**
Leave all work operating correctly, with all equipment clean and all light bulbs and tubes operational.

GIB® Wall Bracing Calculation Sheet A

single storey

V85A

GIB® EzyBrace™

GIB® Bracing Systems, 2006

Job Details

Name	Van Lent House
Street and Number	Seacrest Downs
Lot and DP Number	Lot 12
City/Town/District	Peka Peka
Designer and date	Greig Hayward 22-Nov-07
Company Name	Greig Hayward

Building Specification

Location of Storey	single	▼	
Floor Loading	2 kPa	▼	
Foundation Type	slab	▼	
Building Height to Apex (m)	4	▼	eaves 2 m or less from ground
Roof Height above Eaves (m)	2	▼	not a valid building scope
Stud Height (m)	2.4	▼	
Cladding Weight (top or single)	light	▼	
Cladding Weight (lower)	light	▼	not applicable (single storey building)
Cladding Weight (subfloor)	light	▼	not applicable (slab)
Roof Weight	light	▼	
Roof Pitch (degrees)	0-25	▼	
Room in Roof Space	no	▼	
Building Length (m)	21.5		
Building Width (m)	11.8		
Gross Building Plan Area (m2)	165.3		

Building Location

Wind Zone	Very High	Earthquake Zone
Region	R2	A
Terrain	Coastal	
Exposure	Exposed	
Topography	Gentle	

Enter at least 'moderate' in a Lee Zone

Bracing Units required for Wind

per m	subfloor	walls
W along	n/a	81 BUs/m
W across	n/a	69 BUs/m
Totals	subfloor	walls
W along	n/a	956 BUs
W across	n/a	1484 BUs

Bracing Units required for Earthquake

per m2	subfloor	walls
E	n/a	3.6 BUs/m2
Totals	subfloor	walls
E along	n/a	595 BUs
E across	n/a	595 BUs

GIB® Wall Bracing Calculation Sheet B						single storey		V85A	
GIB® EzyBrace™						GIB® Bracing Systems, 2006			
Along									
Wall or Bracing Line		Bracing Elements provided						Wind	Earthq.
1	2	3	4	5	7	8	6	9W	10EQ
Line Label	Minimum BUs Req/Ach	Bracing Element No.	Supplier	Bracing Type	Element Length L (m)	Element Height H (m)	Angle to Bracing line (degrees)	BUs Achieved	BUs Achieved
A	11	1	GIB®	BL1	2	4		150	138
		2							
line totals		3							
W	150	4							
EQ	138	5							
B	67	1	GIB®	GS1a	3	2.4		225	195
		2							
line totals		3							
W	225	4							
EQ	195	5							
C	90	1	GIB®	GS1a	2	2.7		116	98
		2	GIB®	GS2	3.5	2.4		315	280
line totals		3							
W	431	4							
EQ	378	5							
D	70	1	GIB®	GS1a	3	2.4		225	195
		2							
line totals		3							
W	225	4							
EQ	195	5							
E	133	1	GIB®	GS1a	2.7	2.4		203	176
		2							
line totals		3							
W	203	4							
EQ	176	5							
F	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
G	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
H	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
								Wind	Earthq.
Totals Achieved								1233	1081
								OK	OK
Totals Required (from Sheet A)								956	595

GIB® Wall Bracing Calculation Sheet B						single storey		V85A	
GIB® EzyBrace™						GIB® Bracing Systems, 2006			
Across									
Wall or Bracing Line		Bracing Elements provided						Wind	Earthq.
1	2	3	4	5	7	8	6	9W	10EQ
Line Label	Minimum BUs Req/Ach	Bracing Element No.	Supplier	Bracing Type	Element Length L (m)	Element Height H (m)	Angle to Bracing line (degrees)	BUs Achieved	BUs Achieved
M	75	1	GIB®	BL1	1.2	2.4		150	138
		2							
line totals		3							
W	150	4							
EQ	138	5							
N	70	1	GIB®	GS2	3	2.4		270	240
		2							
line totals		3							
W	270	4							
EQ	240	5							
O	70	1	GIB®	GS2	3.6	2.4		324	288
		2	GIB®	GS1a	3.8	2.4		285	247
line totals		3							
W	609	4							
EQ	535	5							
P	70	1	GIB®	BL1	1.7	2.4		213	196
		2							
line totals		3							
W	213	4							
EQ	196	5							
Q	70	1	Ply	SP2	0.6	2.4		51	51
		2	Ply	SP2	0.6	2.4		51	51
line totals		3							
W	102	4							
EQ	102	5							
R	52	1	GIB®	BL1	0.6	2.4		75	69
		2	GIB®	BL1	0.6	2.4		75	69
line totals		3							
W	150	4							
EQ	138	5							
S	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
T	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
								Wind	Earthq.
Totals Achieved								1494	1349
								OK	OK
Totals Required (from Sheet A)								1484	595

GIB® Wall Bracing Calculation Sheet A

single storey

V85A

GIB® EzyBrace™

GIB® Bracing Systems, 2006

Job Details

Name	Van Lent Garage
Street and Number	Seacrest Downs
Lot and DP Number	Lot 12
City/Town/District	Peka Peka
Designer and date	Greig Hayward 22-Nov-07
Company Name	Greig Hayward

Building Specification

Location of Storey	single	▼	
Floor Loading	2 kPa	▼	
Foundation Type	slab	▼	
Building Height to Apex (m)	3	▼	eaves 2 m or less from ground
Roof Height above Eaves (m)	1	▼	not a valid building scope
Stud Height (m)	2.4	▼	
Cladding Weight (top or single)	light	▼	
Cladding Weight (lower)	light	▼	not applicable (single storey building)
Cladding Weight (subfloor)	light	▼	not applicable (slab)
Roof Weight	light	▼	
Roof Pitch (degrees)	0-25	▼	
Room in Roof Space	no	▼	
Building Length (m)	7.2		
Building Width (m)	6		
Gross Building Plan Area (m2)	43.2		

Building Location

Wind Zone	Very High		Earthquake Zone	
Region	R2	▼	A	▼
Terrain	Coastal	▼		
Exposure	Exposed	▼		
Topography	Gentle	▼		Enter at least 'moderate' in a Lee Zone

Bracing Units required for Wind

per m	subfloor	walls
W along	n/a	63 BUs/m
W across	n/a	44 BUs/m
Totals		
W along	n/a	378 BUs
W across	n/a	317 BUs

Bracing Units required for Earthquake

per m2	subfloor	walls
E	n/a	3.6 BUs/m2
Totals		
E along	n/a	156 BUs
E across	n/a	156 BUs

GIB® Wall Bracing Calculation Sheet B					single storey			V85A	
GIB® EzyBrace™					GIB® Bracing Systems, 2006				
Along									
Wall or Bracing Line	Bracing Elements provided							Wind	Earthq.
1	2	3	4	5	7	8	6	9W	10EQ
Line Label	Minimum BUs Req/Ach	Bracing Element No.	Supplier	Bracing Type	Element Length L (m)	Element Height H (m)	Angle to Bracing line (degrees)	BUs Achieved	BUs Achieved
A	72	1	GIB®	BL1	1.6	3		160	147
		2							
line totals		3							
W	160	4							
EQ	147	5							
B	72	1	GIB®	GS1a	2.4	2.4		180	156
		2	GIB®	GS1a	2.4	2.4		180	156
line totals		3							
W	360	4							
EQ	312	5							
C		1							
		2							
line totals		3							
W		4							
EQ		5							
D		1							
		2							
line totals		3							
W		4							
EQ		5							
E		1							
		2							
line totals		3							
W		4							
EQ		5							
F	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
G	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
H	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
								Wind	Earthq.
Totals Achieved								520	459
								OK	OK
Totals Required (from Sheet A)								378	156



Posi-STRUT™

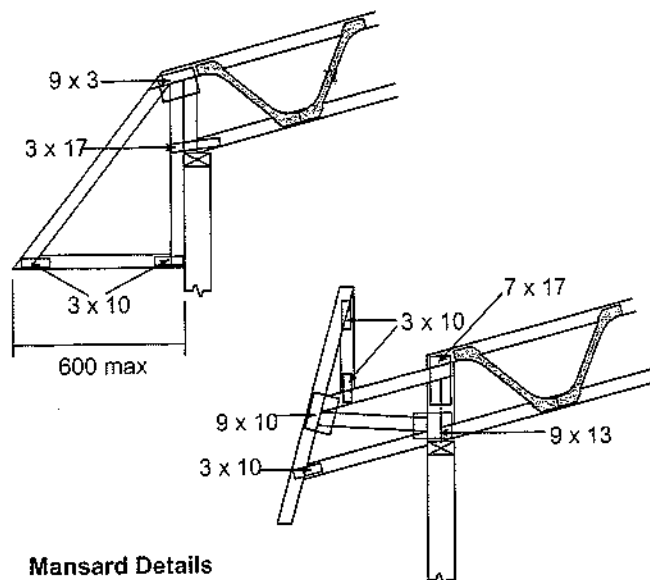
Detailing

Rafter & Purlin Truss Detailing

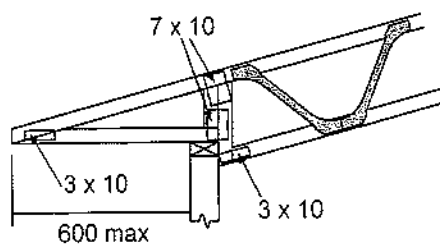
Rafter End Details

There is a large number of possible details for the ends of rafter trusses depending on style of eaves and fixing requirements.

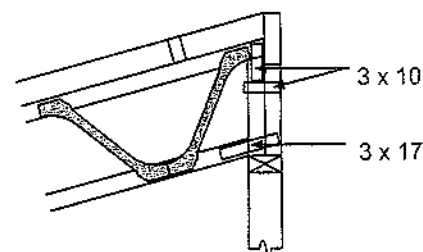
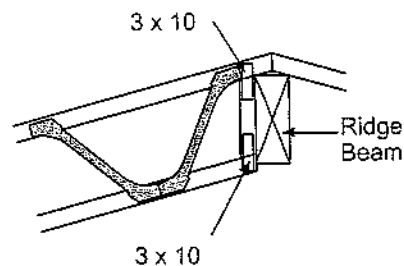
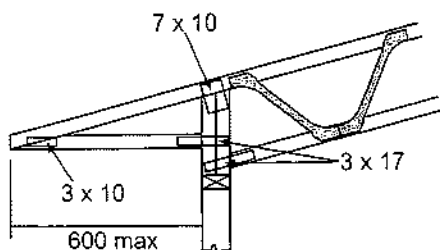
Some typical end support construction details suitable for Posi-STRUT rafters up to around 30 degrees pitch are shown as follows:



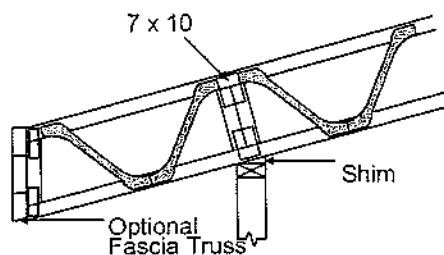
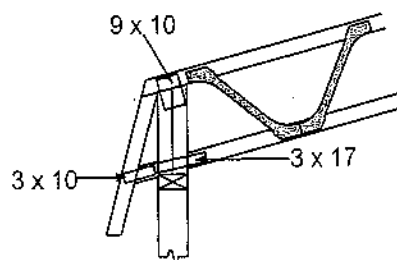
Mansard Details



NOTE - Maximum pitch for rafters is 30 degrees



Ridge Details



Rafter End Details



Rafter Trusses

Maximum Span (m) at Spacing = S										
Light Roof - Low/Medium Wind - Grade F5										
	Truss Code	D mm	With Ceiling				Without Ceiling			
			Spacing "S" mm				Spacing "S" mm			
			600	900	1200	1800	900	1200	1800	2400
	PS20-21x07	217	6.13	5.35	4.86	4.25	6.45	5.68	4.64	4.02
	PS25-25x07	249	6.86	5.99	5.44	4.75	7.15	6.19	5.06	4.38
	PS30-30x07	303	7.81	6.99	6.35	5.35	8.04	6.96	5.69	4.92
	PS40-40x07	413	9.32	8.42	7.82	6.38	9.60	8.31	6.79	5.88
	PS20-19x09	197	5.87	5.13	4.66	4.07	6.18	5.51	4.50	3.90
	PS25-23x09	229	6.62	5.78	5.26	4.59	6.97	6.04	4.93	4.27
	PS30-28x09	283	7.65	6.80	6.18	5.24	7.88	6.83	5.57	4.83
	PS40-39x09	393	9.19	8.30	7.71	6.30	9.47	8.20	6.70	5.80
	PS20-21x09	217	6.66	5.82	5.29	4.62	7.01	6.37	5.26	4.56
	PS25-25x09	249	7.41	6.52	5.92	5.17	7.70	7.02	5.73	4.97
	PS30-30x09	303	8.32	7.52	6.91	6.03	8.65	7.90	6.45	5.58
	PS40-40x09	413	9.92	8.97	8.34	7.24	10.31	9.43	7.70	6.67
Maximum Span (m) at Spacing = S										
Light Roof - High/Very High Wind - Grade F5										
	Truss Code	D mm	With Ceiling				Without Ceiling			
			Spacing "S" mm				Spacing "S" mm			
			600	900	1200	1800	900	1200	1800	2400
	PS20-21x07	217	5.44	4.75	4.18	3.42	4.63	4.01	3.27	2.83
	PS25-25x07	249	6.09	5.27	4.56	3.72	5.04	4.37	3.57	3.09
	PS30-30x07	303	7.10	5.92	5.13	4.19	5.67	4.91	4.01	3.47
	PS40-40x07	413	8.66	7.07	6.12	5.00	6.77	5.86	4.79	4.15
	PS20-19x09	197	5.21	4.55	4.06	3.32	4.49	3.89	3.17	2.75
	PS25-23x09	229	5.88	5.13	4.45	3.63	4.92	4.26	3.48	3.01
	PS30-28x09	283	6.91	5.81	5.03	4.11	5.56	4.81	3.93	3.40
	PS40-39x09	393	8.54	6.97	6.04	4.93	6.68	5.78	4.72	4.09
	PS20-21x09	217	5.91	5.17	4.69	3.87	5.25	4.54	3.71	3.21
	PS25-25x09	249	6.62	5.78	5.17	4.22	5.72	4.95	4.04	3.50
	PS30-30x09	303	7.72	6.72	5.82	4.75	6.43	5.57	4.55	3.94
	PS40-40x09	413	9.77	8.02	6.94	5.67	7.68	6.65	5.43	4.70

(1) Spans in bold and shaded indicate double webs (DW) are required at ends for fabrication (see p.19).

Cavity required for areas of the linea weather board also refer to elevations

Weathertightness Risk Assessment

Project Van Lent

Project Address Seawest Avenue

	Risk Score	Cladding Selected from Table 3	Tick selected option ✓	
			Direct Fixed	Drained cavity
North Elevation	11	BB WB + Atrn	WB	Drain
South Elevation	4	4	/	/
East Elevation	11	4	/	/
West Elevation	4	4	/	/

Table 3 from E2/AS1: Suitable wall claddings

Suitable wall Claddings		
Risk score	Direct fixing to framing	Over 20mm minimum drained cavity
0-6	a) Timber weatherboards-all types b) Fibre cement weatherboards c) Vertical profiled metal ⁽³⁾ – corrugated and symmetrical trapezoidal only d) Fibre cement sheet ⁽⁴⁾ e) Plywood sheet f) EIFS (polystyrene)	a) Masonry veneer b) Stucco c) Horizontal profiled metal corrugated or trapezoidal only
7-12	a) Bevel-backed weatherboards b) Vertical board and batten c) Vertical profiled metal ⁽³⁾ – corrugated only	a) Masonry veneer b) Stucco c) Horizontal profiled metal d) Rusticated weatherboards e) Fibre cement weatherboard f) Fibre cement sheet g) Plywood sheet h) EIFS (polystyrene)
13-20	a) Vertical profiled metal ⁽³⁾ – corrugated only	a) to h) as above i) Bevel-back weatherboard
Over 20	a) redesign the building to achieve a lower score, or b) Specific design:	

6/03/2008

6/03/2008									
	Risk Severity North Elevation								
Risk Factor	Low	Score	Medium	Score	High	Score	Very High	Score	Sub totals for each risk factor
Wind zone (per NZS 3604)	0		0		1		2	2	2
Number of storeys	0	0	1	1	2		4		.
Roof/wall intersection design	0		1		3		5	5	5
Eaves width	0		1	1	2		5		1
Envelope complexity	0		1		3	3	6		3
Deck design	0	0	2		4		6		
Total risk score									11

Risk Factor	Risk Severity East Elevation								Sub totals for each risk factor
	Low	Score	Medium	Score	High	Score	Very High	Score	
Wind zone (per NZS 3604)	0		0		1		2		2
Number of storeys	0		1		2		4		
Roof/wall intersection design	0		1		3		5		5
Eaves width	0		1		2		5		1
Envelope complexity	0		1		3		6		3
Deck design	0		2		4		6		
Total risk score									17

	Risk Severity		South Elevation						
Risk Factor	Low	Score	Medium	Score	High	Score	Very High	Score	Sub totals for each risk factor
Wind zone (per NZS 3604)	0		0		1		2		2
Number of storeys	0		1		2		4		
Roof/wall intersection design	0		1		3		5		5
Eaves width	0		1		2		5		1
Envelope complexity	0		1		3		6		3
Deck design	0		2		4		6		
Total risk score									11

	Risk Severity West Elevation								
Risk Factor	Low	Score	Medium	Score	High	Score	Very High	Score	Sub totals for each risk factor
Wind zone (per NZS 3604)	0		0		1		2		2
Number of storeys	0		1		2		4		
Roof/wall intersection design	0		1		3		5		5
Eaves width	0		1		2		5		1
Envelope complexity	0		1		3		6		3
Deck design	0		2		4		6		
Total risk score									15

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Millespie Young Watson
Duncan Cotterill - Wellington#5571 E.002/004
No. 2243 P. 2/4**COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952**

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Register 343710
Land Registration District Wellington
Date Issued 27 November 2007

RECEIVED

23 JAN 2008

KAPITI COAST
DISTRICT COUNCIL**Prior References**
WNC4174

Estates Fee Simple
Area 1050 square metres more or less
Legal Description Lot 12 Deposited Plan 315819
Proprietors
 Seacrest Downs Limited

Encumbrances

Subject to drainage rights created by Transfer 76201
 Subject to drainage rights created by Transfer 30123
 7627109.2 Mortgage to Dominion Finance Group Limited - 13.9.2004 at 9:00 am
 7631519.1 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 27.11.2007 at 9:00 am
 Appurtenant hereto is a right of way, right to drain stormwater, right to convey water, electricity and telecommunications
 created by Resource Instrument 7631519.4 - 27.11.2007 at 9:00 am
 The encumbrances created by Resource Instrument 7631519.4 are subject to Section 243 (a) Resource Management Act 1991
 Land Covenant in Resource Instrument 7631519.7 - 27.11.2007 at 9:00 am

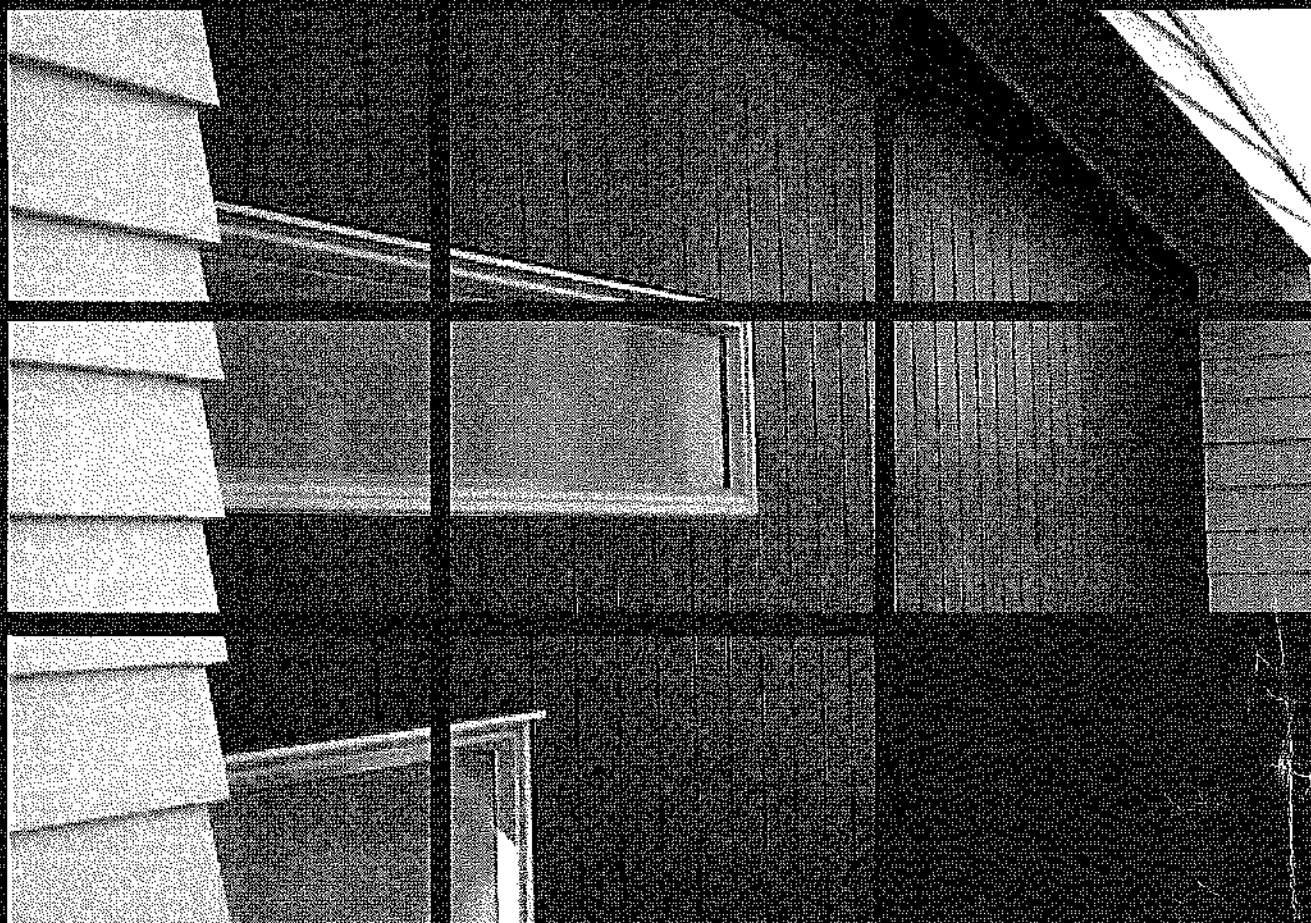
Transaction ID 19954162
Other References Wellington 002

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 Register Copy

AxonTM
PANEL

NEW ZEALAND
AUGUST 2006

TECHNICAL SPECIFICATION



James Hardie

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WE VALUE YOUR FEEDBACK

To continue with the development of our products and systems, we value your input. Please send any suggestions, including your name, contact details, and relevant sketches to:

James Hardie

Fax 0800 808 988

literaturefeedback@jameshardie.co.nz

1 APPLICATION AND SCOPE

1.1 APPLICATION

Axon™ Panel is manufactured in New Zealand by James Hardie using Ceramic Low Density (CLD™) fibre cement which is a composition of treated cellulose fibre, portland cement, finely ground sand and water. Axon Panel has vertical grooves along the length of panel. It is classified as light weight wall cladding suitable for residential and light commercial buildings using timber framed buildings.

- Axon Panel is ideal for achieving feature walls in areas such as gable ends and entrance ways etc.
- Axon Panel is primed on the face to take a suitable paint finish in any colour.
- The grooves on the face panel are 10mm wide x 2.25mm deep and spaced at 133mm c/c.

If you are a specifier

Or other responsible party for a project ensure that the information in this document is appropriate for the application you are planning and that you undertake specific design and detailing for areas which fall outside the scope of these specifications.

If you are an installer

Ensure that you follow the design, moisture management and associated details and material selection provided by the designer. All details provided in this document must be read in conjunction with this specification.

Make sure your information is up to date

When specifying or installing James Hardie products, ensure you have the current manual. If you're not sure you do, or you need more information, visit www.jameshardie.co.nz or Ask James Hardie™ on 0800 808 868.

1.2 SCOPE

The scope of this specification for the use of Axon Panel is limited to buildings which fall within the scope limitations of 'Acceptable Solution E2/AS1 paragraph 1.1' of New Zealand Building Code (NZBC).

This document is intended for use by architects, designers and specifiers who may be involved with the specification of Axon Panel. This manual covers the use of Axon Panel for both construction methods i.e. direct fixed to framing or cavity construction, used in external walls of timber framed buildings.

Please refer to E2/AS1 for further information regarding the selection of construction methods to be used for fixing claddings.

1.3 DETAILS

Various Axon Panel figures are provided at the rear of this document. All dimensions shown are in millimetres unless noted otherwise. This specification and details in CAD file are also available to download from our web site at www.jameshardie.co.nz.

1.4 SPECIFIC DESIGN

For use of Axon Panel outside this published scope, the architect, designer or engineer must undertake specific design.

For advice on designs outside the scope of this specification, Ask James Hardie™ on 0800 808 868.

2 DESIGN

2.1 COMPLIANCE

Axon Panel complies with E2 of NZBC as an alternate solution. Axon Panel cladding has been tested as per E2/VM1 of NZBC and it passes the test performance requirements. Axon Panel also complies with durability requirements of 'B2' clause of NZBC.

2.2 RESPONSIBILITY

The specifier or other party responsible for the project must run through a risk matrix analysis to determine which construction method is to be used. The designer must also ensure that the figures published in this specification are appropriate for the intended application and that additional detailing is performed for specific design or any areas that fall outside the scope of this specification. The designers should ensure that the intent of their design meets the requirements of NZBC.

All New Zealand Standards referenced in this manual are current edition and must be complied with.

James Hardie conducts stringent quality checks to ensure that any product manufactured falls within our quality spectrum. It is the responsibility of the builder to ensure that the product meets aesthetic requirements before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation.

2.3 SITE & FOUNDATION

The site on which the building is situated must comply with NZBC Acceptable Solution E1/AS1 'Surface Water'.

Foundations design must comply with the requirements of NZS 3604 'Timber Framed Buildings' or be as per specific engineering design.

The grade of adjacent finished ground must slope away from the building to avoid any possibility of water accumulation in accordance with NZBC requirements.

2.4 CLEARANCES

The bottom edge of claddings must comply with section 9.1.3 of E2/AS1. Also the floor must maintain a minimum clearance to paved or unpaved ground as required by NZS 3604.

Axon Panel must overhang the bottom plate on a concrete slab by a minimum of 50mm as required by NZS 3604.

Axon Panel must have a minimum clearance of 100mm paved ground, and 175mm from unpaved ground. On the roofs and decks, the minimum clearance must be 50mm.

Do not install external cladding such that it may remain in contact with water or ground. Refer Figures 3, 17, 29, 31 and 37.

2.5 MOISTURE MANAGEMENT

It is the responsibility of the specifier to identify moisture related risks associated with any particular building design.

Wall construction design must effectively manage moisture, considering both the interior and exterior environments of the building, particularly in buildings that have a higher risk of wind driven rain penetration or that are artificially heated or cooled. Walls shall include those provisions as required by NZBC Acceptable Solution E2/AS1 'External Moisture'. In addition all wall openings, penetrations, junctions, connections, window sills, heads and jambs must incorporate appropriate flashings for waterproofing. The other materials, components and installation methods used to manage moisture in external walls, must comply with the requirements of relevant standards and NZBC.

2.6 STRUCTURE

2.6.1 TIMBER FRAMING

Timber-framed buildings must be designed in accordance with NZS 3604 (Timber Framed Buildings). When the framing is provided as per the specific engineering design, the framing stiffness must be equivalent to or more than the stiffness requirements of NZS 3604.

2.6.2 WIND LOADING

Axon Panel panel cladding is suitable for use in all New Zealand wind zones up to and including VH as defined in NZS 3604.

A specific design is required for all situations where the buildings falls in a specific engineering design (SED) wind zone.

2.7 BRACING

Axon Panel can be used to achieve structural bracing. For further information on bracing Ask James Hardie™ on 0800 808 868.

2.8 FIRE RATED WALLS

Axon Panel whether direct fixed or through cavity battens to external walls can achieve fire ratings up to 60/60/60 to comply with C/AS1 of NZBC when the walls are constructed in accordance with the current James Hardie 'Fire and Acoustic' technical specification manual.

2.9 ENERGY EFFICIENCY

The R-Value of Axon Panel walls constructed in accordance with this manual using bulk insulation, will comply with the Section 3.1 - 'Schedule Method' of NZS 4218 (Energy Efficiency - Small Building Envelope) required under Table 1. To meet these insulation requirements, bulk insulation as mentioned in Table 1 of this specification must be used. This calculation is based on a timber framing member size of 90 x 45mm and internal linings of James Hardie Villaboard® lining or plasterboard.

TABLE 1:

INSULATION CAPABILITY		
Climate Zone*	R-Value Requirement	Cavity Insulation Infill Requirement
1 & 2	1.5 m ² ·C/W	R1.8 Fibreglass batts.
3	1.9 m ² ·C/W	R2.2 Fibreglass batts.

*as defined in NZS 4218

FRAMING

3.1 GENERAL

This Axon Panel technical specification is only suitable for timber-framed buildings. Other framing materials are subject to a specific engineering design.

3.2 TIMBER FRAMING

3.2.1 DIMENSIONS

A minimum 45mm wide stud is required at panel edges when fixing the panel direct to framing.

Minimum 70mm wide stud is required at panel edges for cavity construction using HardiFlex® nails.

3.2.2 STRUCTURAL GRADE

Minimum timber grade requirement is No. 1 Framing grade or MSG6 as per NZS 3604. The grading of timber must comply with AS/NZS 1748 and NZS 3631 requirements.

3.2.3 DURABILITY

The external framing must be treated to a minimum H1.2 treatment. Refer to NZBC Acceptable Solution B2/AS1 'Durability' for further information about the durability requirements.

For timber treatment and allowable moisture content information refer to NZS 3602 (Timber and Wood-Based Products for use in Buildings) and NZS 3640 (Chemical Preservation of Round Sawn Timber) for minimum timber treatment selection and treatment requirements.

Also refer to framing manufacturer's literature for further guidance on timber selection. Framing must be protected from moisture at site in accordance with the recommendation of framing manufacturers.

Note: Refer to NZS 3602 for the allowable moisture contents in timber.

3.2.4 FRAME CONSTRUCTION

The framing must fully support all panel edges. The framing must be rigid and not rely on the cladding panel for stability.

All timber framing sizes and set-out must comply with NZS 3604 and as specified in this specification.

3.2.4.1 DIRECT FIXED

For direct fixed construction method the following framing is required:

- Studs at 600mm c/c maximum.
- A minimum 45mm stud width is required at vertical panel joints.
- Nogs / Dwargs are required at 1200mm c/c maximum.

3.2.4.2 CAVITY CONSTRUCTION METHOD

For cavity construction method the following framing is required:

- When studs are spaced at 600mm centres maximum, the nogs / dwargs must be provided at 800mm centres maximum.
- A minimum 70mm wide stud is required at vertical panel joint when fixing with HardiFlex 60 x 3.15mm nails.
- When studs are spaced at 400mm centres then the nogs / dwargs may be provided at 1200mm centres.
- An extra stud is required in internal corners. Refer to Figures 6 and 20

3.2.5 TOLERANCES

In order to achieve an acceptable wall finish, it is imperative that framing is straight and true.

Framing tolerances must comply with the requirements of NZS 3604. All framing shall be made flush.

4 PREPARATION

4.1 BUILDING WRAP

Building wrap must be provided as per the requirements of NZBC Acceptable Solution E2/AS1 'External Moisture' and NZS 3604.

The building wrap must comply with Table 23 of E2/AS1 and AS/NZS 4200.1. The building wrap must be fixed in accordance with E2/AS1, NZS 3604 and AS/NZS 4200.2 and the wrap manufacturer's recommendations.

Walls which are not lined on the inside face e.g. garage walls or gable ends must include an air barrier behind the cladding which complies with the requirements of NZBC Acceptable Solution E2/AS1 Table 23. RAB board meets these requirements.

4.2 VENT STRIP

The James Hardie uPVC cavity vent strip must be installed at the bottom of all walls constructed using the drained and ventilated cavity construction method. It is important that the openings in the vent strip are kept clear and unobstructed to allow free drainage and ventilation of cavities. James Hardie uPVC vent strip has an opening area of 1000mm²/m length.

4.3 CAVITY BATTENS

Buildings with a risk score of 7-20 calculated in accordance with Table 2 of Acceptable Solution E2/AS1 of NZBC, require Axon Panel to be installed on a cavity. The battens provide airspace between the frame and the panel and are considered a "packer" only in this specification.

The timber battens must be minimum H3.1 treated in accordance with NZS 3640 (Chemical preservation of rough and sawn timber) to comply with the durability requirements of B2/AS1.

Cavity battens must comply with E2/AS1 and:

- be minimum 18mm thick
- be as wide as the width of studs
- be provided at 300mm c/c where studs are fixed at 600mm c/c.
- be fixed by the cladding fixings to the main framing over the building wrap. Therefore until claddings are fixed the battens only need to be fixed to framing by 40 x 2.8mm nails at 800mm c/c.

No intermediate supports are required:

- when studs are spaced at 400mm centres
- when RAB board instead of building wraps are used.

4.4 FLASHINGS

All wall openings, penetrations, intersections, connections, window sills, heads and jambs must be flashed prior to panel installation. Please refer to moisture management requirements in Clause 2.5. The building wraps must be appropriately incorporated with penetration and junction flashings. Materials must be lapped in such a way that water tracks down to the exterior on the face of building wrap. James Hardie will assume no responsibility for water infiltration within the wall due to poor flashings or building wraps. The selected flashing materials must comply with the durability requirements of NZBC. For information refer to Table 20 of E2/AS1.

5 PANEL FIXING

5.1 GENERAL

Axon Panel must be kept dry and under cover whilst in storage or during the installation. Every endeavour must be made to keep framing dry once panel fixing commences. All site cut panel edges must be sealed prior to installation.

The shiplap jointing of panels is only suitable for vertical fixing of panels.

5.2 FASTENER DURABILITY

Fasteners must meet the minimum durability requirements of the NZBC. NZS 3604 specifies the requirements for fixing material to be used in relation to exposure conditions and are summarised in Table 2.

TABLE 2:

EXPOSURE CONDITIONS & NAIL SELECTION PRESCRIBED BY NZS 3604		
Nail material		
Sea Spray Zones*	Zone 1 outside sea spray zone and Zones 2-4 & Geothermal hot spots	Bracing - All zones
Grade 316 Stainless	Hot-dipped galvanised or 316 stainless	Grade 316 Stainless

* (Zone 1 areas where local knowledge dictates that increased durability is required, appropriate selection shall be made)

Also refer to the NZBC Acceptable Solution E2/AS1' Table 20 and 21 for information regarding the selection of suitable fixing materials and their compatibility with other materials.

5.3 FASTENER – SIZE & LAYOUT

Axon Panel must be fixed to framing using the fixings as specified in Table 3 below and follow the edge distance required for nails as shown in the details. Refer to Figures 4 and 18.

TABLE 3:

PANEL FIXING	
DIRECT FIXED TO FRAME	
40 x 2.8mm HardiFlex nails.	Fix @ 200mm centres to all framing. Stud width 45mm min. required at vertical joint.
CAVITY CONSTRUCTION	
60 x 3.15mm HardiFlex nails.	Fix @ 200mm centres to all framing. Stud width 70mm min. required at vertical joint.

For other fixing options Ask James Hardie™ on 0800 808 868.

Note: Special fixing arrangements are required for bracing and fire-resistance rated wall systems. For more information Ask James Hardie™ on 0800 808 868.

- When fixing the panels using nail guns, refer to the nail gun manufacturer for information about nails and the type of nail gun to be used.

Note: Do not use 'D' head nails.

5.4 PANEL LAYOUT

All panel edges must be supported by the framing.

The shiplap joint must be formed vertically. The framing centers must be checked before the panel installation. Refer to Figures 2 and 16.

6 JOINTING

6.1 GENERAL

Axon Panels are fixed to form a shiplap joint at vertical edges. The panels have factory made edges to suit this jointing.

6.2 VERTICAL JOINT

Axon Panels are shiplap jointed keeping a gap of 1-2mm between the panels. A 50mm wide 3259 Inseal sealing tape is used under the joint. A flexible sealant must be applied to the full length of the joint before the panels are jointed. The edge distance for a HardiFlex nail must be 18mm min. Refer to Figures 4 and 18.

6.3 HORIZONTAL JOINT

At floor joist levels a horizontal joint must be provided to accommodate the movement resulting from timber joist shrinkage and settlement. A James Hardie aluminium horizontal 'h' mould is used to form a horizontal joint. Use the aluminium 'h' mould jointer to cover over the butt joint of flashings. A purpose made metal 'Z' flashing or a James Hardie uPVC flashing could also be used to flash the horizontal joint. Refer to Figures 11 and 25.

6.4 EXTERNAL CORNER

An aluminium box corner flashing is used to form the external box corner. The site cut sheet edges are sealed before butting them into the box corner.

Do not run the box corner flashing continuously over the floor joist. On a two storey construction the aluminium box corner is finished under the aluminium 'h' mould. A uPVC corner under flashing must be used under the box corner when in this situation. Refer to Figures 7, 13 and 21.

6.5 INTERNAL CORNER

The internal corner is formed using the uPVC corner under flashing or an 80mm wide Inseal sealing strip behind the panel edges. The joint is filled with the flexible sealant. Refer to Figures 6 and 20.

6.6 FLASHING MATERIAL DURABILITY

Please refer to Table 20 of E2/AS1 of the NZBC regarding the durability requirements of various flashing materials.

7 FINISHING

7.1 PREPARATION

Painting of Axon Panel is required to meet the durability requirements of the NZBC and James Hardie product warranties. Axon Panel must be dry and free from dirt before painting. When using uPVC flashings, dark colours should be avoided as it will affect the durability of uPVC flashing. The LRV of paint must be above 40% when using uPVC flashings. Dark paints can be used when using the aluminium flashings.

7.2 SEALANTS

All sealants used must comply with the relevant requirements of NZBC. Application and use of sealants must comply with manufacturer's instructions. Check with sealant manufacturer prior to coating over sealants. Some sealant manufacturers do not recommend coating over their product.

7.3 COATING

Axon Panels are supplied pre-primed. Panels must be painted within 90 days of installation. Use only quality exterior paints complying with AS 3730. Manufacturer's specification for the selected paint must be followed. Note that certain special paints require an undercoat before applying the finish coat. Refer to the paint manufacturer for preparation required before commencing the coating work. Axon Panel can be painted with dark colour paints. When using uPVC flashings, the LRV of colour should be 40% or higher.

8 STORAGE AND HANDLING

Axon Panel must be laid flat on a smooth level surface. Edges and corners must be protected from chipping.

To ensure optimum performance, store panels under cover and keep dry prior to fixing. If the panels become wet, allow them to dry thoroughly before fixing.

Do not carry panels on the flat, carry in the vertical position to avoid excessive bending.

9 MAINTENANCE

The extent and nature of maintenance will depend on the geographical location and exposure of the building. As a guide, it is recommended that basic normal maintenance tasks shall include but not be limited to:

- Washing down exterior surfaces every 6-12 months*
- Re-applying of exterior protective finishes if necessary*
- Maintaining the exterior envelope and connections including joints, penetrations, flashings and sealants that may provide a means of moisture entry beyond the exterior cladding
- Cleaning out gutters, blocked pipes and overflows as required
- Pruning back vegetation that is close to or touching the building.
- The clearance between the bottom edge of Axon Panel and the finished ground must always be maintained.

*Refer to your paint manufacturer for washing down and recoating requirements related to paint performance.

10 PRODUCT INFORMATION

10.1 MANUFACTURING AND CLASSIFICATION

Axon Panel is a cellulose fibre reinforced cement building product. The basic composition is portland cement, ground sand, cellulose fibre and water. The panels are easily identified by the name 'Axon Panel' printed at regular intervals on the back face of panel. Axon Panel is manufactured to AS/NZS 2908.2 'Cellulose-Cement Products Part 2: Flat Sheets' (ISO 8336 'Fibre Cement Flat Panels') standards in New Zealand. James Hardie New Zealand is an ISO 9001 'Telarc' certified manufacturer. Axon Panel is classified Type A, Category 2 in accordance with AS/NZS 2908.2 'Cellulose-Cement Products'. For Material Safety Data Sheets (MSDS) visit www.jameshardie.co.nz or Ask James Hardie™ on 0800 808 868.

10.2 PRODUCT MASS

Axon Panel is manufactured in 9.0 mm thickness and has a mass of 12.1kg/m² at EMC.

Axon Panel cladding is defined as a Light Weight Wall Cladding (not exceeding 30kg/m²) as per NZS 3604.

10.3 PANEL SIZES

Available sizes of Axon Panels are specified in Table 4.

TABLE 4:

AXON™ PANEL SIZES (NOMINAL)			
Thickness (mm)	Width (mm)	Length (mm)	
		2450	2750
9.0	1200	✓	✓

Note: The actual Panel width is 1203mm but 4mm is covered under the lap. Refer to Figures 4 and 18.

10.4 PRODUCT TOLERANCE

The product tolerances are specified in Table 5.

TABLE 5:

TOLERANCES	
Properties	At equilibrium condition
Approx. Moisture Content	3% - 5%
Width Tolerance	+/- 1mm
Length Tolerance	+/- 2mm
Thickness Tolerance	+/- 0.3mm
Diagonal Difference	+3.0mm

10.5 DURABILITY

10.5.1 GENERAL

Axon Panel installed as per this technical specification will meet the durability requirements for claddings as required under clause 'B2-Durability' of NZBC.

10.5.2 RESISTANCE TO MOISTURE/ROTTING

Axon Panel has demonstrated resistance to permanent moisture induced deterioration (rotting) by passing the following tests in accordance with AS/NZS2908.2:

- Water Permeability (Clause 8.2.2)
- Warm Water (Clause 8.2.4)
- Heat Rain (Clause 6.5)
- Soak Dry (Clause 8.2.5)

10.5.3 RESISTANCE TO FIRE

Axon Panel has the following Early Fire Hazard Indices (tested to AS 1530 Part 3).

TABLE 6:

EARLY FIRE HAZARD INDICES	
Ignition Index	0
Flame Spread Index	0
Heat Evolved Index	0
Smoke Developed Index	0-1

10.5.4 ALPINE REGIONS

In regions subject to freeze/thaw conditions, Axon Panel must not be in direct contact with snow or ice build up for extended periods, e.g. external walls in alpine regions subject to snow drifts over winter.

The Axon Panel has been tested in accordance with AS/NZS 2908.2 Clause 8.2.3.

11 SAFE WORKING PRACTICES

WARNING - AVOID BREATHING SILICA DUST

James Hardie products contain respirable crystalline silica which is considered by relevant government authorities to be a cause of cancer from some occupational sources. Breathing excessive amounts of respirable silica dust can also cause a disabling and potentially fatal lung disease called silicosis, and has been linked with other diseases. Some studies suggest smoking may increase these risks. During installation or handling: (1) work in outdoor areas with ample ventilation; (2) minimise dust when cutting by using either 'Score and Snap' knife, fiber cement shears or, where not feasible, use a HardiBlade® Saw Blade and dust-reducing circular saw attached to a HEPA vacuum; (3) warn others in the immediate area to avoid breathing dust; (4) wear a properly-fitted, approved dust mask or respirator (e.g. P1 or P2) in accordance with applicable government regulations and manufacturer's instructions to further limit respirable silica exposures. During clean-up, use HEPA vacuums or wet cleanup methods - never dry sweep. For further information, refer to our installation instructions and Material Safety Data Panel available at www.jameshardie.co.nz
FAILURE TO ADHERE TO OUR WARNINGS, MATERIAL SAFETY DATA PANELS, AND INSTALLATION INSTRUCTIONS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

JAMES HARDIE RECOMMENDED SAFE WORKING PRACTICES

CUTTING OUTDOORS

- Position cutting station so that wind will blow dust away from user or others in working area.
- Use a dust reducing circular saw equipped with HardiBlade® Saw Blade and HEPA vacuum extraction.

SANDING/DRILLING/OTHER MACHINING

When sanding, drilling or machining you should always wear a P1 or P2 dust mask and warn others in the immediate area.

IMPORTANT NOTES:

1. NEVER use a power saw indoors
2. NEVER use a circular saw blade that does not carry the HardiBlade® logo
3. NEVER dry sweep – Use wet suppression or HEPA Vacuum
4. NEVER use grinders
5. ALWAYS follow tool manufacturer's safety recommendations

P1 or P2 respirators can be used in conjunction with above cutting practices to further reduce dust exposures. Additional exposure information is available at www.jameshardie.co.nz to help you determine the most appropriate cutting method for your job requirements. If concern still exists about exposure levels or you do not comply with the above practices, you should always consult a qualified industrial hygienist or contact James Hardie for further information.

WORKING INSTRUCTIONS

Refer to Recommended Safe Working Practices before starting any cutting or machining of product.



HARDIBLADE® SAW BLADE

The HardiBlade® Saw Blade used with a dust-reducing saw connected to a HEPA vacuum is ideal for fast, clean cutting of James Hardie fibre cement products. A dust-reducing saw uses a dust deflector or a dust collector connected to a vacuum system. When sawing, clamp a straight-edge to the sheet as a guide and run the saw base plate along the straight edge when making the cut.

HOLE-FORMING

For smooth clean cut circular holes:

Mark the centre of the hole on the sheet.

Pre-drill a 'pilot' hole.

Using the pilot hole as a guide, cut the hole to the appropriate diameter with a hole saw fitted to a heavy duty electric drill.

For irregular holes:

Small rectangular or circular holes can be cut by drilling a series of small holes around the perimeter of the hole then tapping out the waste piece from the sheet face.

Tap carefully to avoid damage to sheets, ensuring that the sheet edges are properly supported.



STORAGE AND HANDLING

All James Hardie building products should be stored to avoid damage, with edges and corners of the sheets protected from chipping.

James Hardie building products must be installed in a dry state and be protected from rain during transport and storage. The product must be laid flat under cover on a smooth level surface clear of the ground to avoid exposure to water or moisture, etc.

QUALITY

James Hardie conducts stringent quality checks to ensure that any product manufactured falls within our quality spectrum. It is the responsibility of the builder to ensure that the product meets aesthetic requirements before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation.

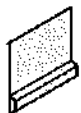
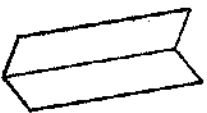
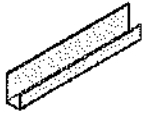
12 ACCESSORIES

AXON PANEL INFORMATION

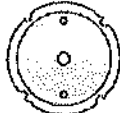
PRODUCT	DESCRIPTION	SIZE		PRODUCT CODE
		LENGTH	WIDTH	
	Axon Panel Is a shiplap jointed panel to hide the panel joints. The panel is face primed. The panel must be installed vertically with the white side facing the exterior of the structure. Nom. Panel Mass: 12.1kg/m ²	2450	1200	403780
		2750	1200	403781

NOTE: The actual width of the panel is 1203mm.

ACCESSORIES/TOOLS SUPPLIED BY JAMES HARDIE

ACCESSORIES	DESCRIPTION AND MATERIAL CODE	QUANTITY/SIZE (APPROX)
	Aluminium External Box Corner A box corner socket to form the external joints. 9mm etch prime. CODE: 304509 CODE: 304510	2450mm long 2750mm long
	Aluminium Horizontal 'h' Mould A horizontal flashing to flash the horizontal joints. 9mm etch prime. CODE: 304508	3000mm long
	Aluminium 'h' Mould Jointer A jointer to cover the butt joint of 'h' mould. CODE: 304512	100mm long
	uPVC Corner Under Flashing A 50 x 50mm corner under flashing for internal and external joints. CODE: 303745	3000mm long
	uPVC Vent Strip Used to provide protection from vermin entering cavity space. CODE: 302490	3000mm long
	INSEAL® 3259 Tape Black 50mm tape to be used under the vertical shiplap joint. CODE: 300767 Black 80mm tape to be used at corners. CODE: 300769	50m roll

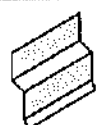
TOOLS

	HardiBlade® Saw Blade Diamond tip 184mm diameter fibre cement circular saw blade. Spacers not included. CODE: 300660	Each
	HardiFlex® Stainless Steel 316 Nails For fixing panels through cavity battens. 60 x 3.15mm CODE: 302781 CODE: 302782	JAR 5kg
	HardiFlex® Hot Dip Galv. Nails For fixing panels through cavity battens. 60 x 3.15mm CODE: 302783 CODE: 302784	JAR 5kg

NOTE: uPVC 'h' mould and jointer accessories are also available from James Hardie.

ACCESSORIES/TOOLS NOT SUPPLIED BY JAMES HARDIE

James Hardie recommends the following products for use in conjunction with Axon Panel. James Hardie does not supply these products and does not provide a warranty for their use. Please contact component manufacturer for information on their warranties and further information on their products.

ACCESSORIES	DESCRIPTION
	Building wrap To comply with table 23 of E2/AS1.
	Flexible tape A flexible self-adhesive tape used in preparation of a window. Refer to the Window installation section in this manual for more information. e.g. Tyvek®, Protecto or Thermakraft or similar.
	Joint Sealant Paintable flexible sealants are recommended for filling the joints. Refer to Section 7.2 for information.
	Head Flashing Required over window heads to be supplied by window installer. Material must comply with Table 20 and 21 of E2/AS1.
	HardiFlex® Hot Dip Galv and Stainless Steel 316 Nails For fixing panels direct to framing. 40 x 2.8mm

13 DETAILS

The following generic details have been provided in this document for both direct fixed and cavity construction methods.

TABLE 7:

DETAILS				
DESCRIPTION	DIRECT FIXED		CAVITY CONSTRUCTION	
	Figure No.	Page No.	Figure No.	Page No.
Typical Framing Setout	Figure 1	12	Figure 14	21
Typical Panel Fixing Setout	Figure 2	13	Figure 16	23
Foundation Detail	Figure 3	14	Figure 17	24
Shiplap Joint	Figure 4	14	Figure 18	24
Soffit Detail	Figure 5	15	Figure 19	25
Internal Corner Detail	Figure 6	15	Figure 20	25
External Corner Detail	Figure 7	16	Figure 21	26
Section at Sill	Figure 8	16	Figure 22	26
Window Head	Figure 9	17	Figure 23	27
Window Jamb	Figure 10	17	Figure 24	27
Horizontal Joint Detail	Figure 11	18	Figure 25	28
Base of Cladding at Timber Pile	Figure 12	19		
Corner at 'h' Mould Joint Detail	Figure 13	20		
Batten Fixing			Figure 15	22
Parapet Flashing			Figure 26	29
Enclosed Deck Balustrade to Wall Junction			Figure 27	29
Enclosed Balustrade to Wall			Figure 28	30
Enclosed Deck			Figure 29	31
Deck Junction			Figure 30	31
Cavity One Piece Apron Flashing Joint			Figure 31	32
Pipe Penetration			Figure 32	33
Meter Box at Head			Figure 33	33
Meter Box at Sill			Figure 34	34
Meter Box at Jamb			Figure 35	34
Cavity Interstorey Drainage			Figure 36	35
Roof to Wall Junction Detail			Figure 37	36
Alternative Head Flashing Termination Against Batten			Figure 38	37
Aluminium 'h' Mould Jointer			Figure 39	38

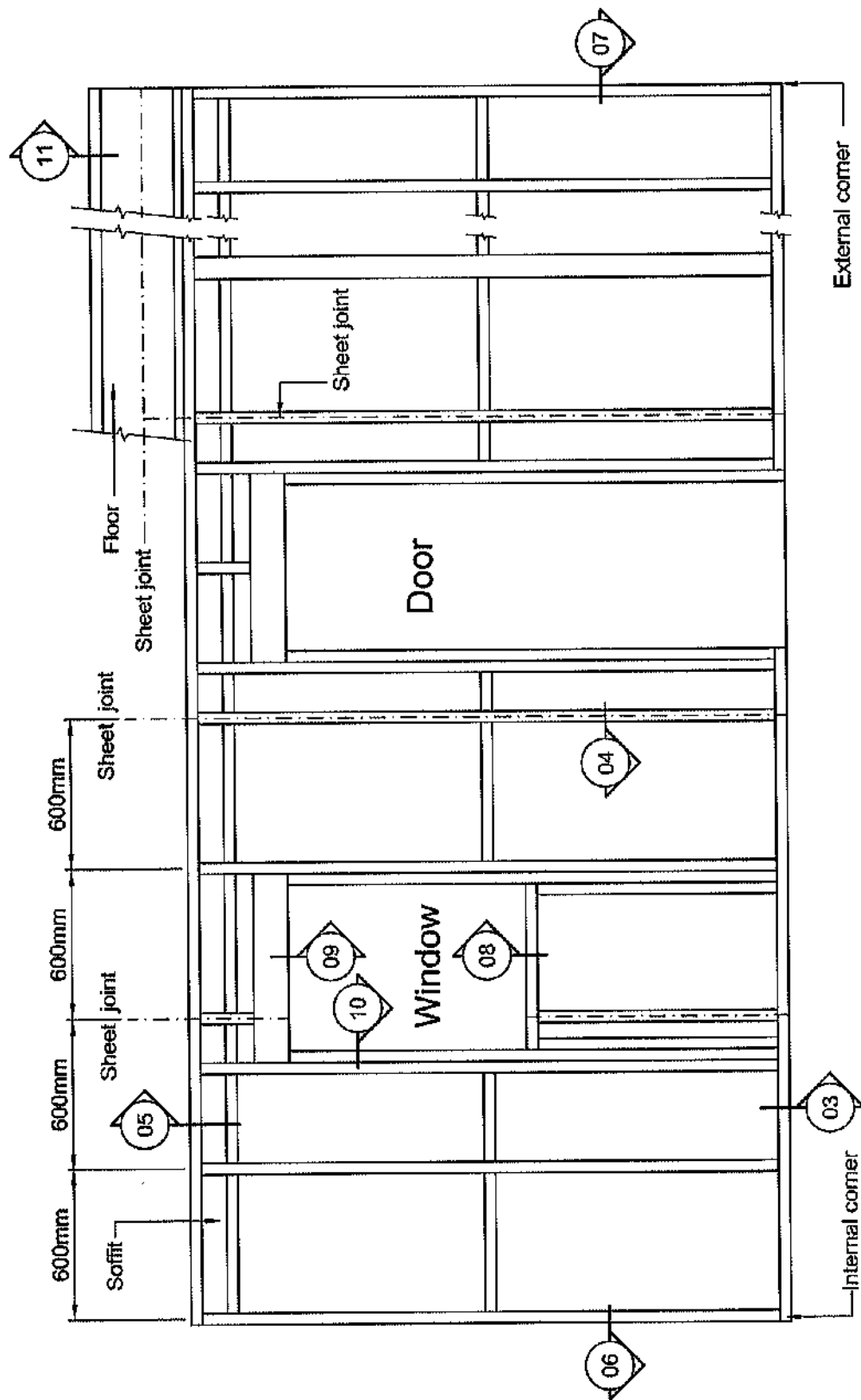


FIGURE 1: DIRECT FIXED TYPICAL FRAMING SETOUT

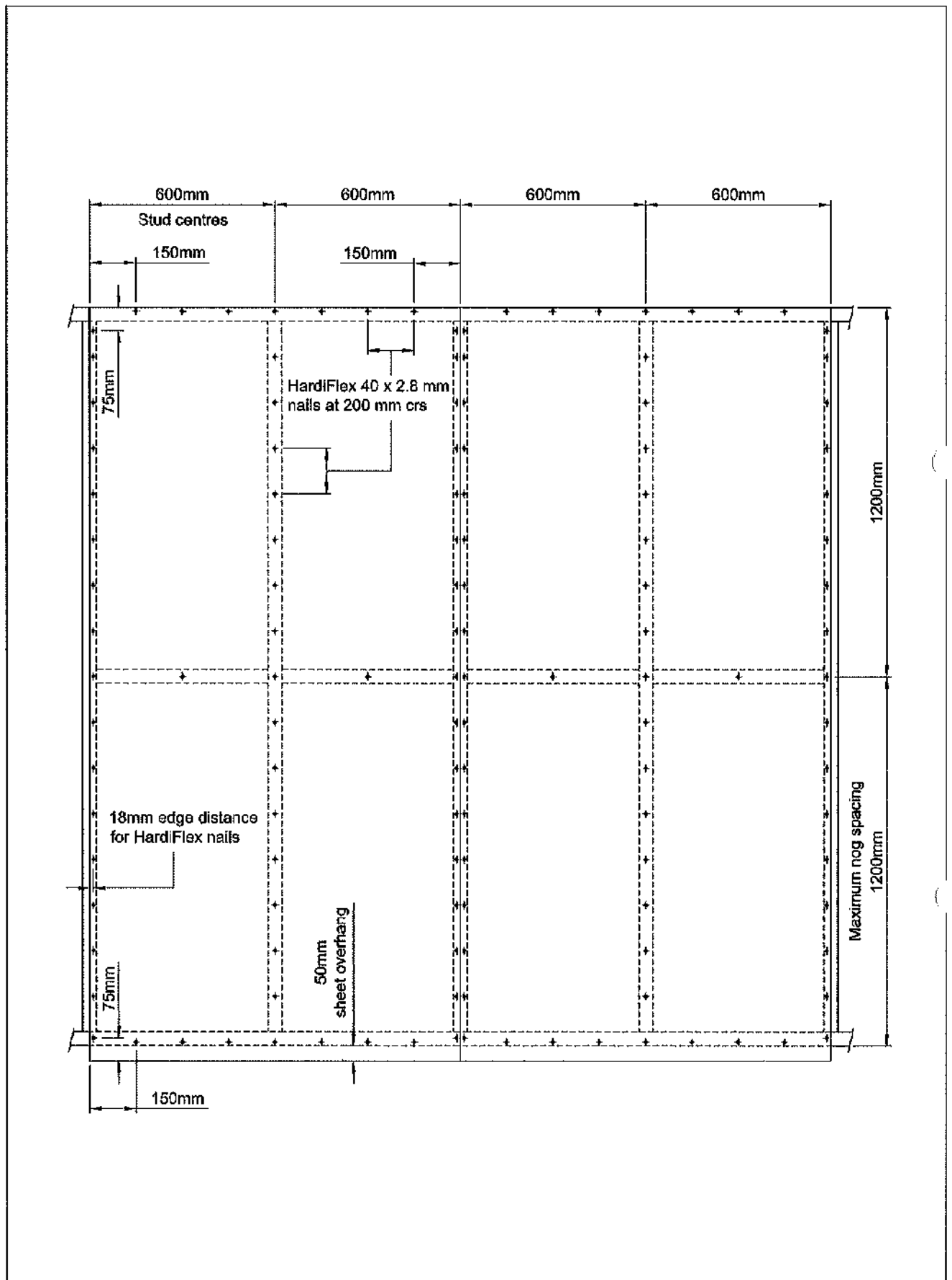


FIGURE 2: DIRECT FIXED TYPICAL PANEL FIXING SETOUT

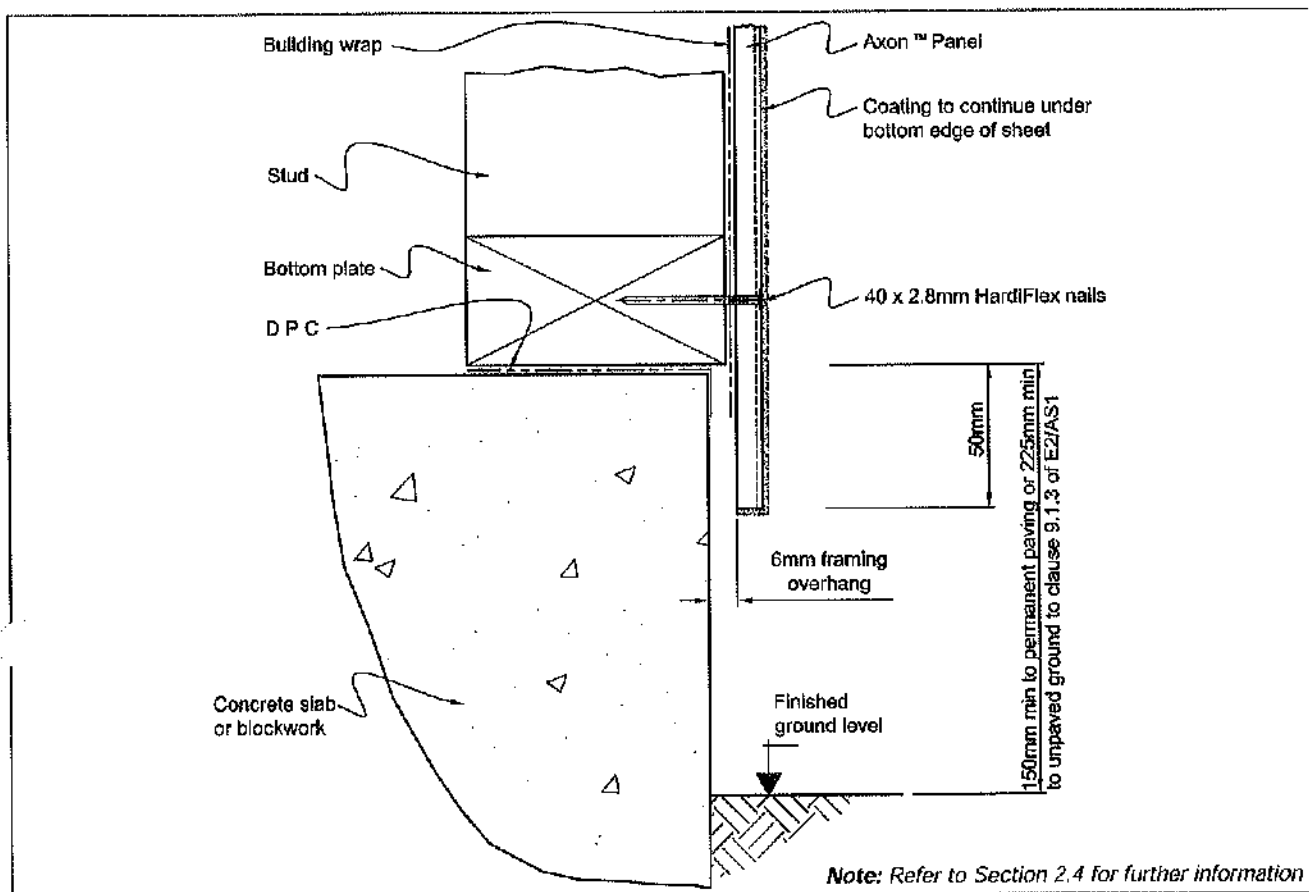


FIGURE 3: DIRECT FIXED FOUNDATION DETAIL

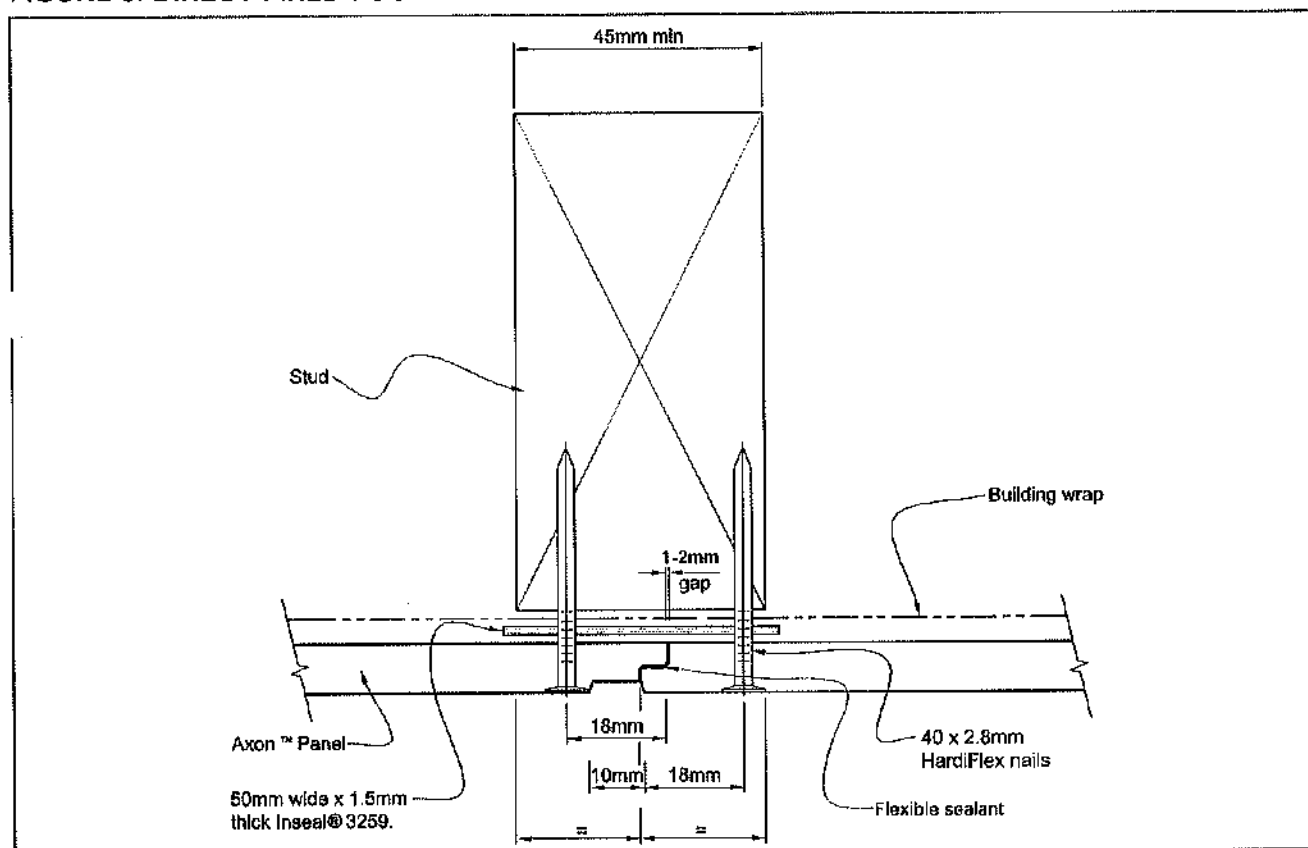


FIGURE 4: SHIPLAP JOINT

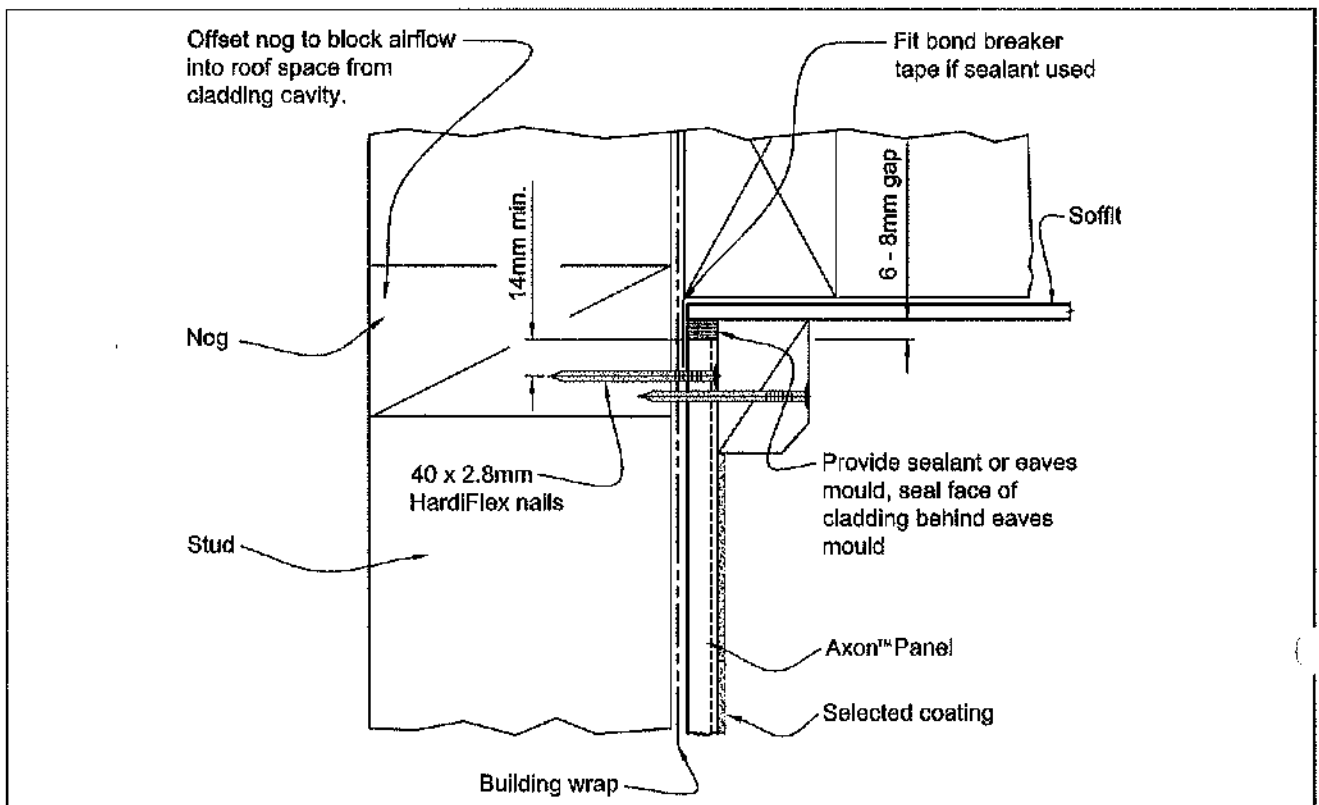


FIGURE 5: SOFFIT DETAIL

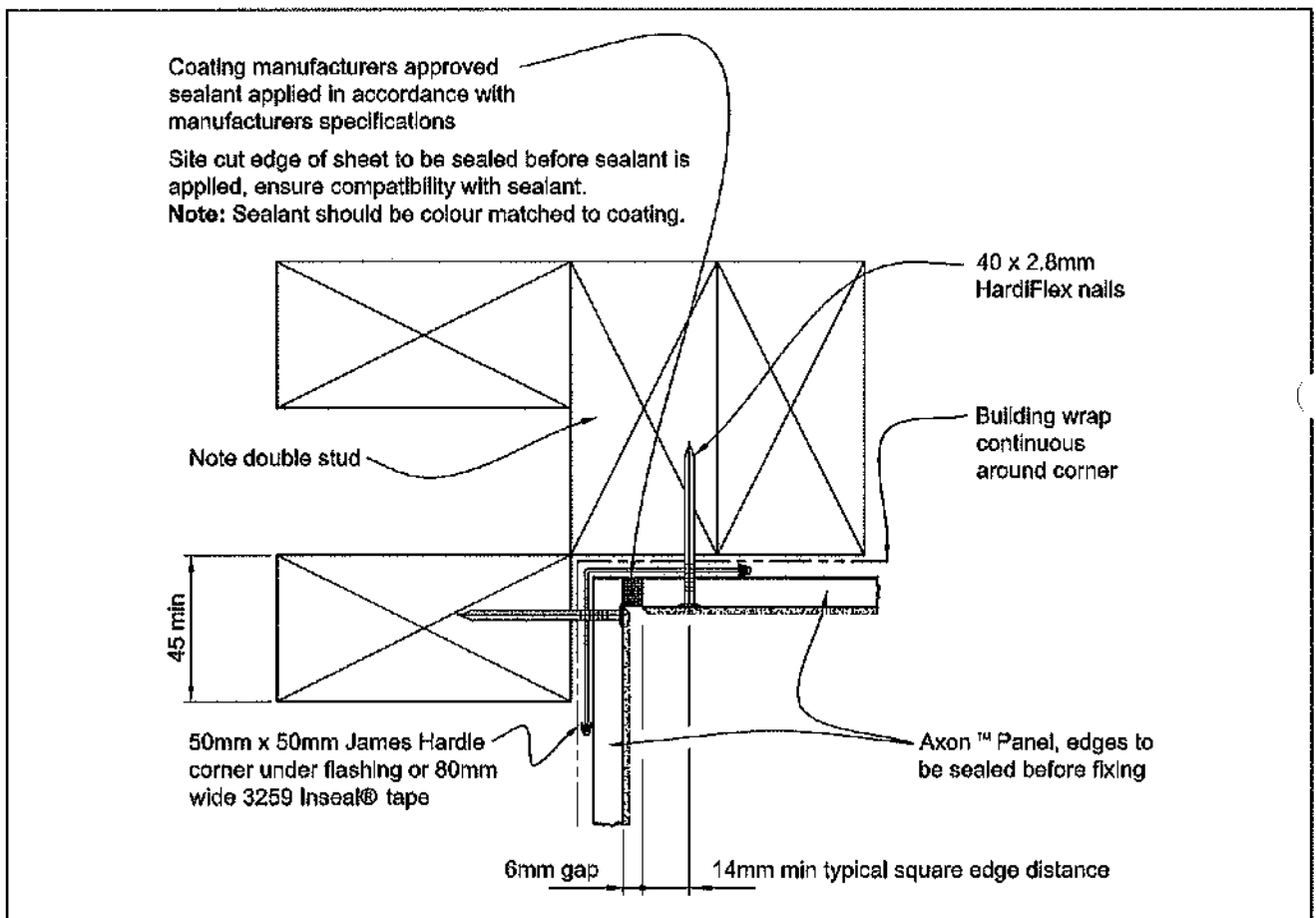


FIGURE 6: INTERNAL CORNER DETAIL

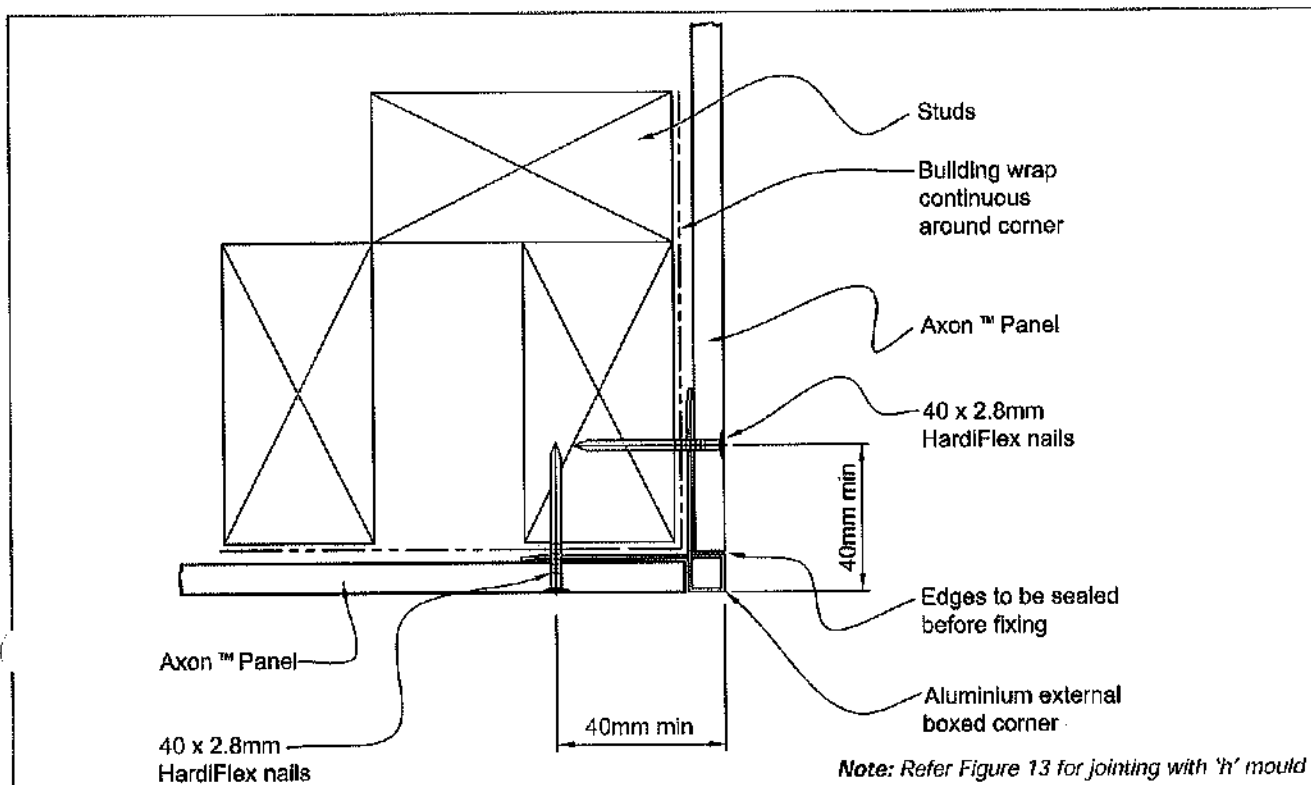


FIGURE 7: EXTERNAL CORNER DETAIL

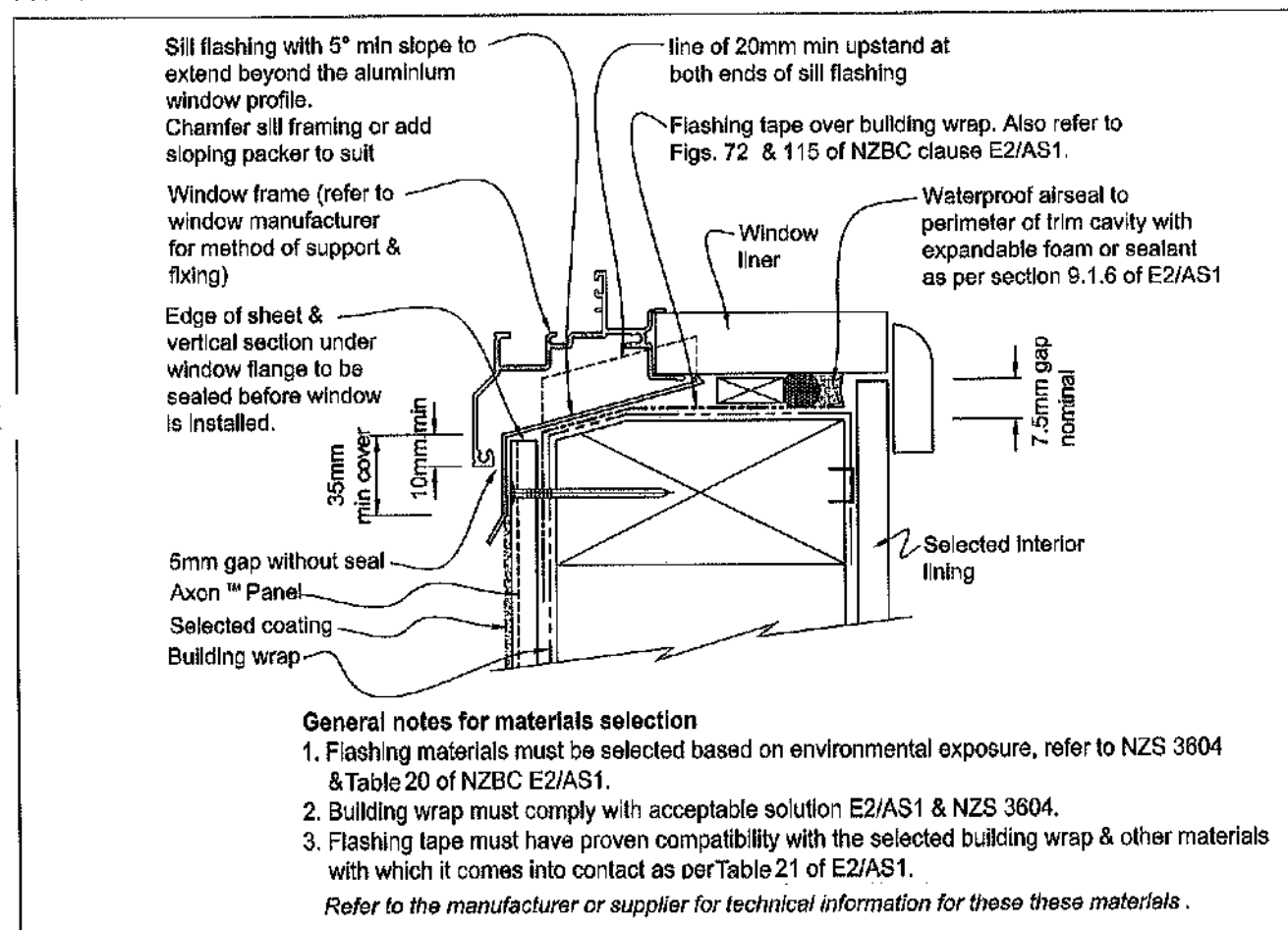


FIGURE 8: SECTION AT SILL

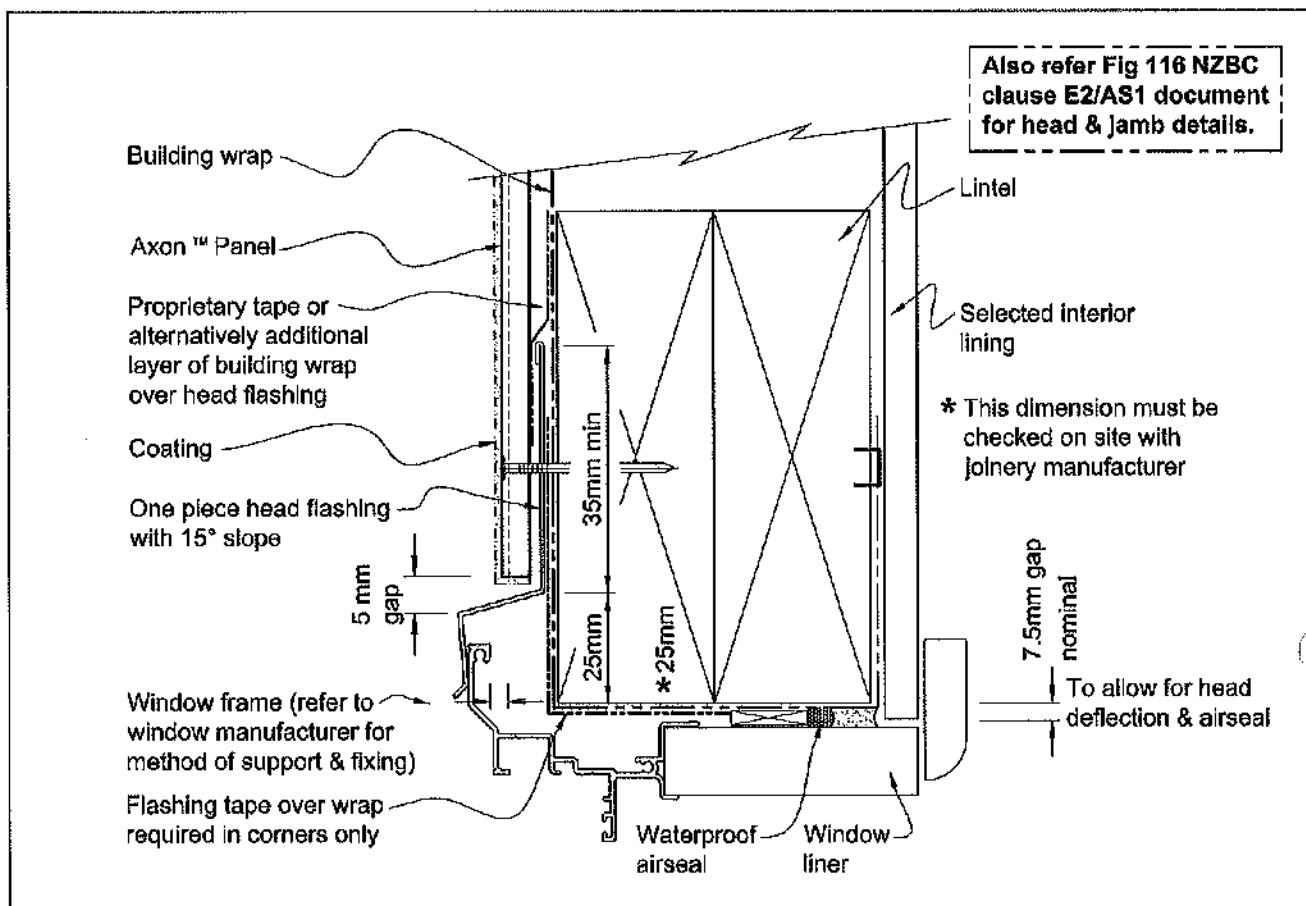


FIGURE 9: WINDOW HEAD

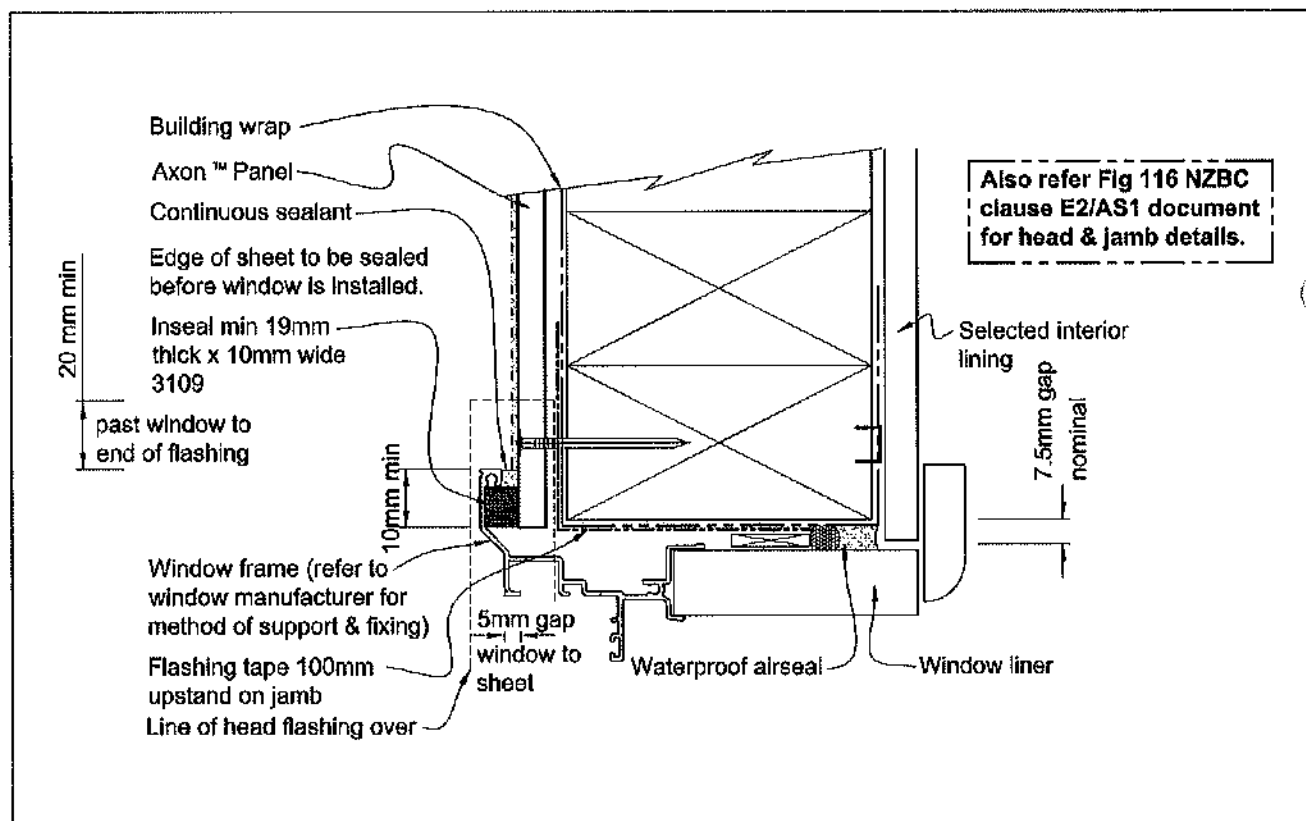


FIGURE 10: WINDOW JAMB

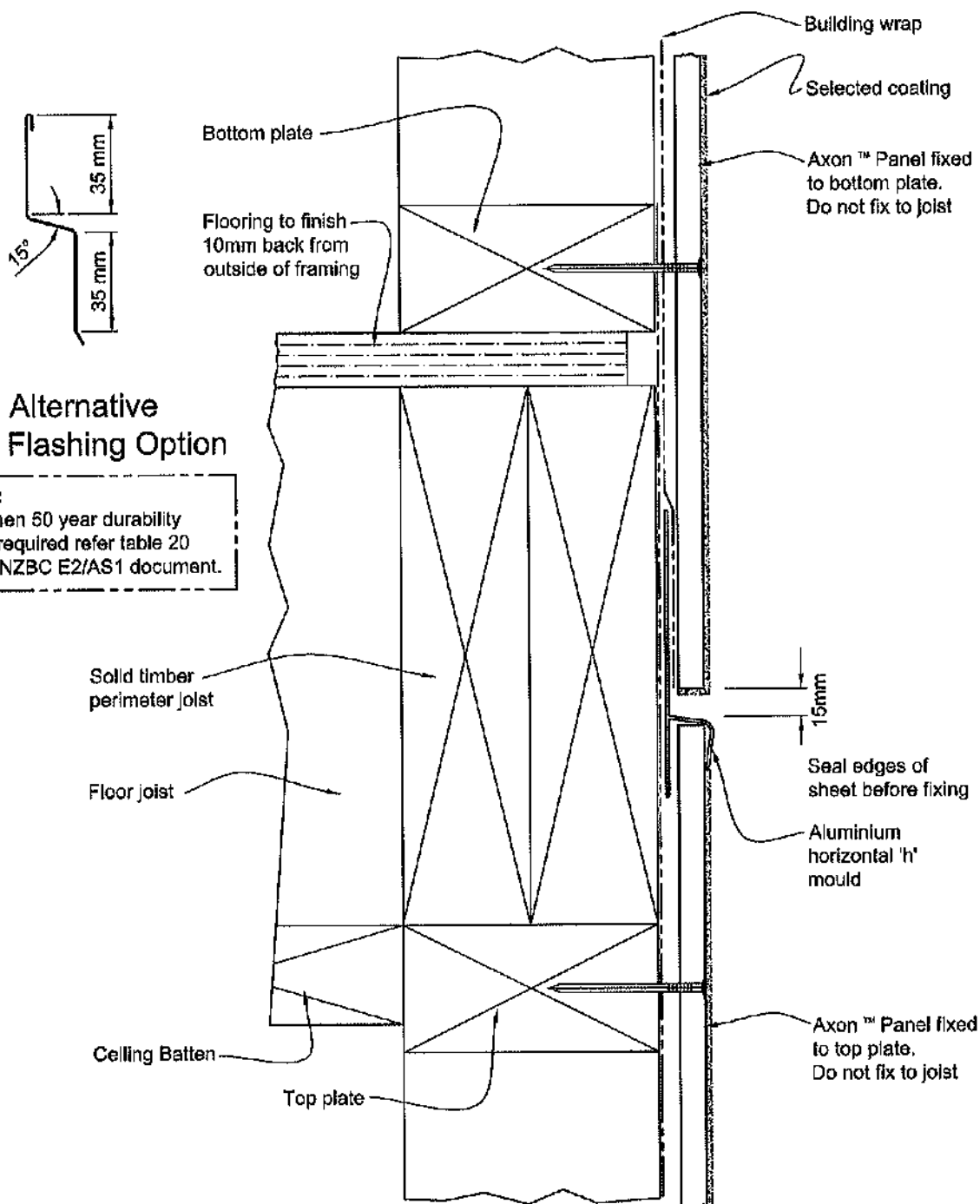


FIGURE 11: HORIZONTAL JOINT DETAIL

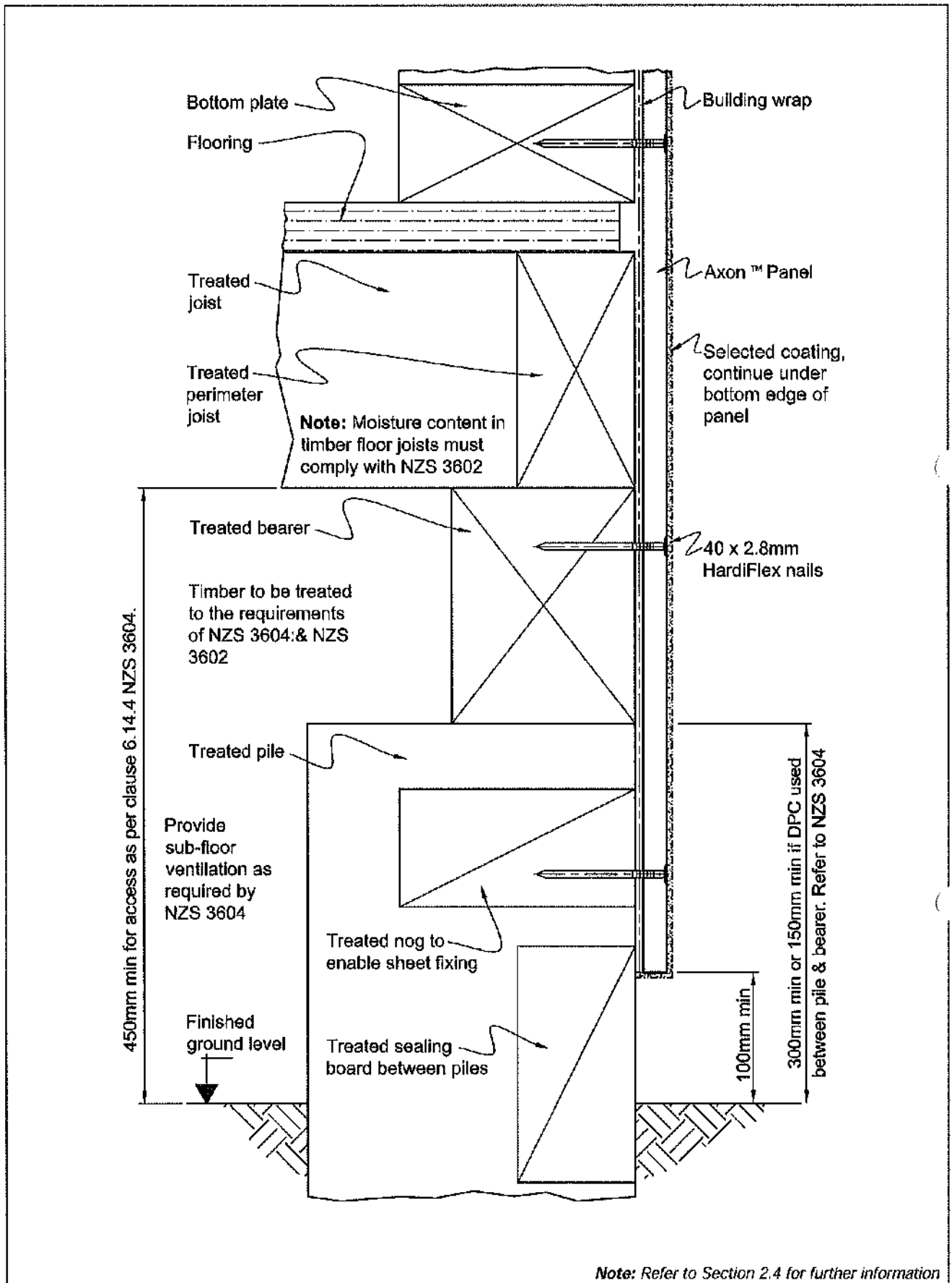


FIGURE 12: BASE OF CLADDING AT TIMBER PILE

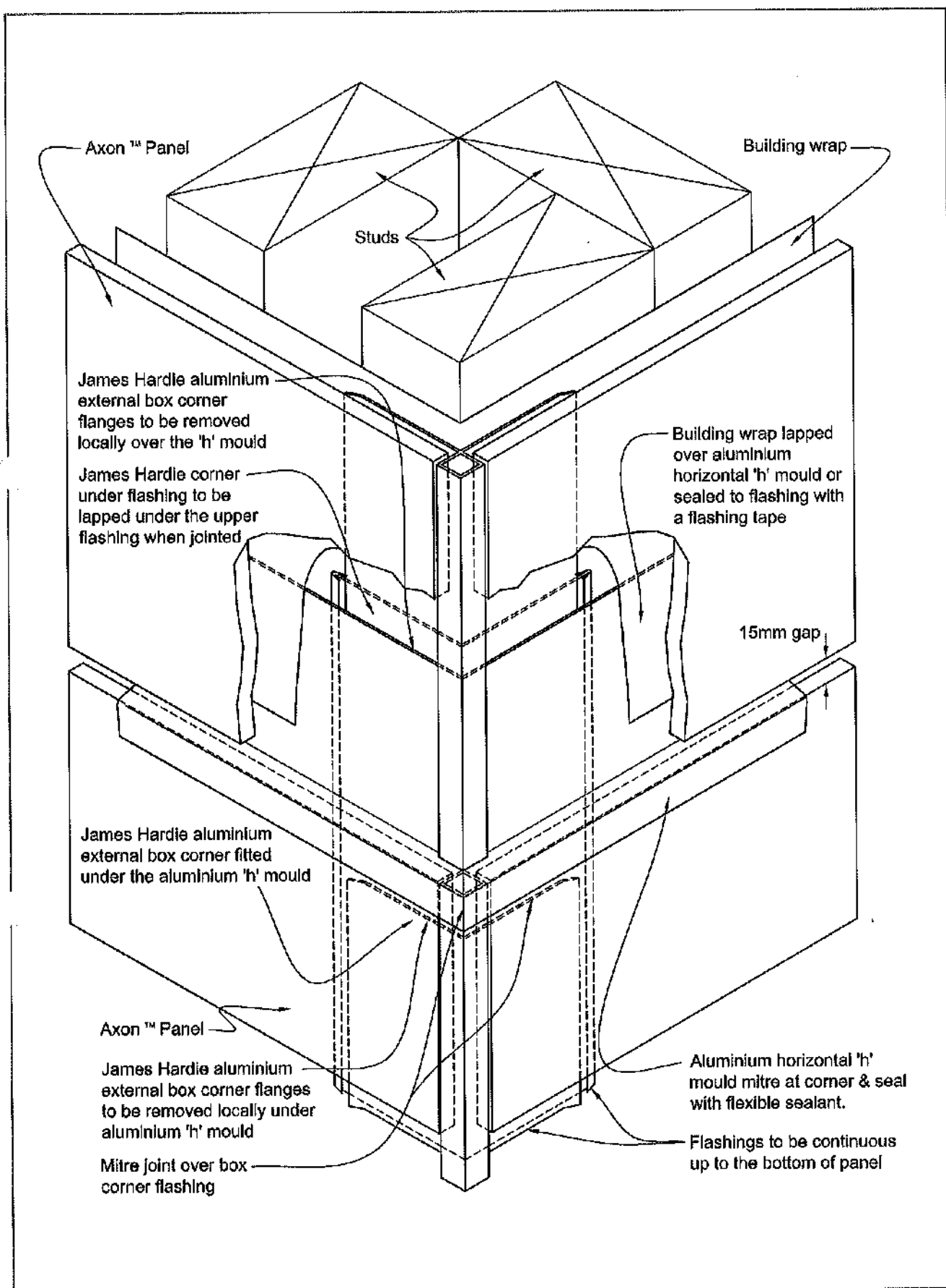


FIGURE 13: CORNER AT 'H' MOULD JOINT DETAIL

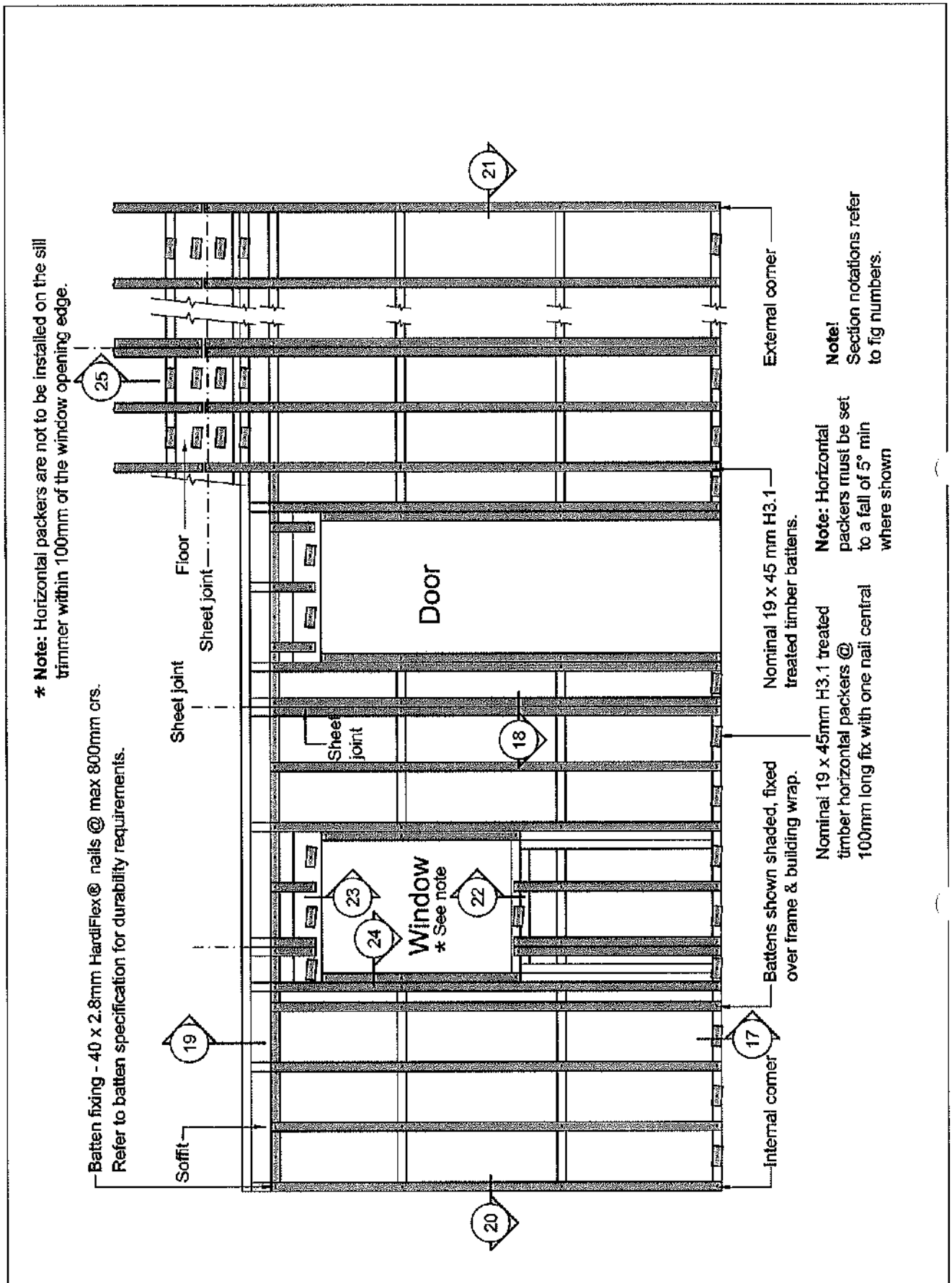


FIGURE 14: CAVITY FIXED TYPICAL FRAMING SETOUT

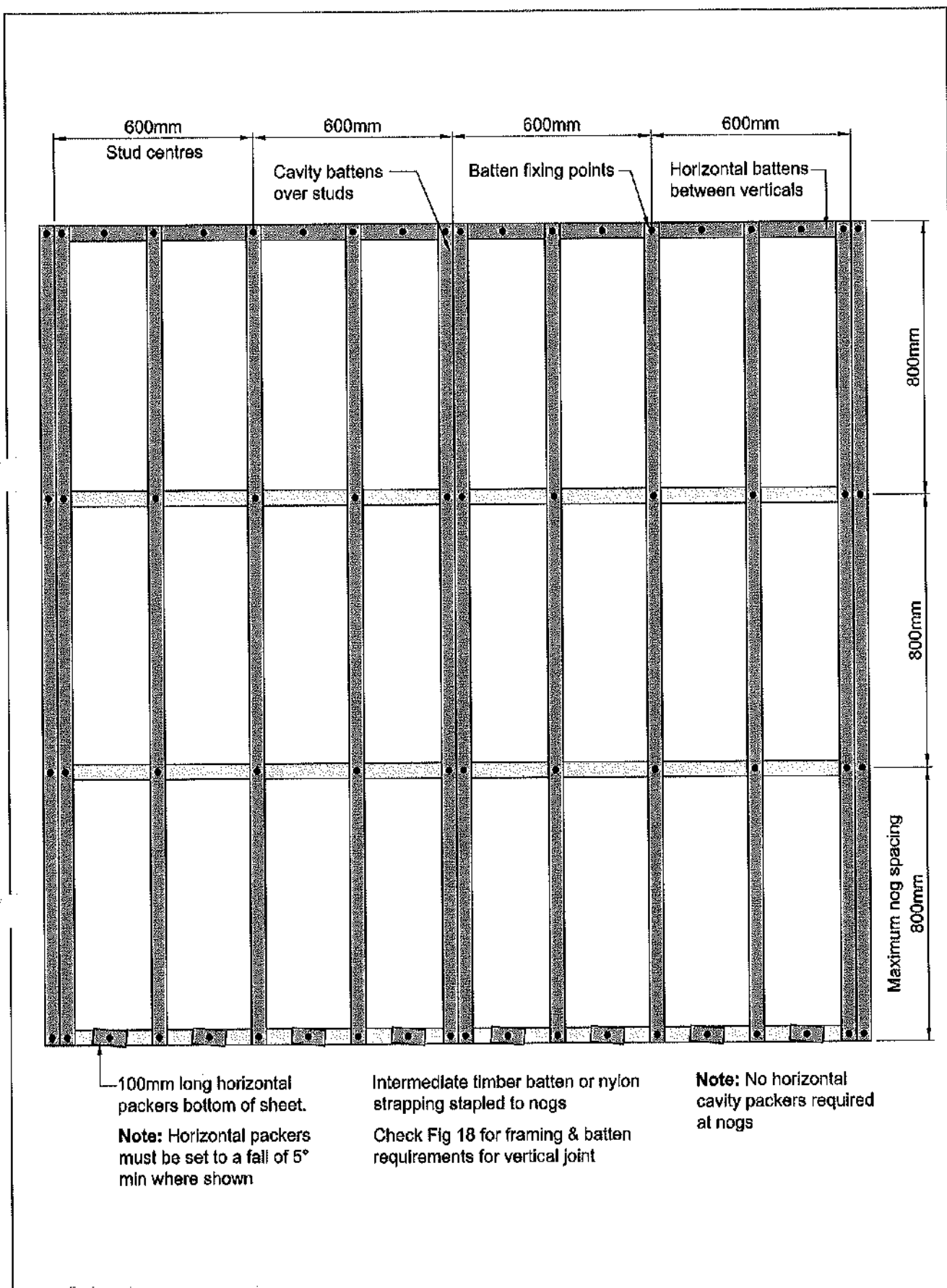


FIGURE 15: BATTEN FIXING

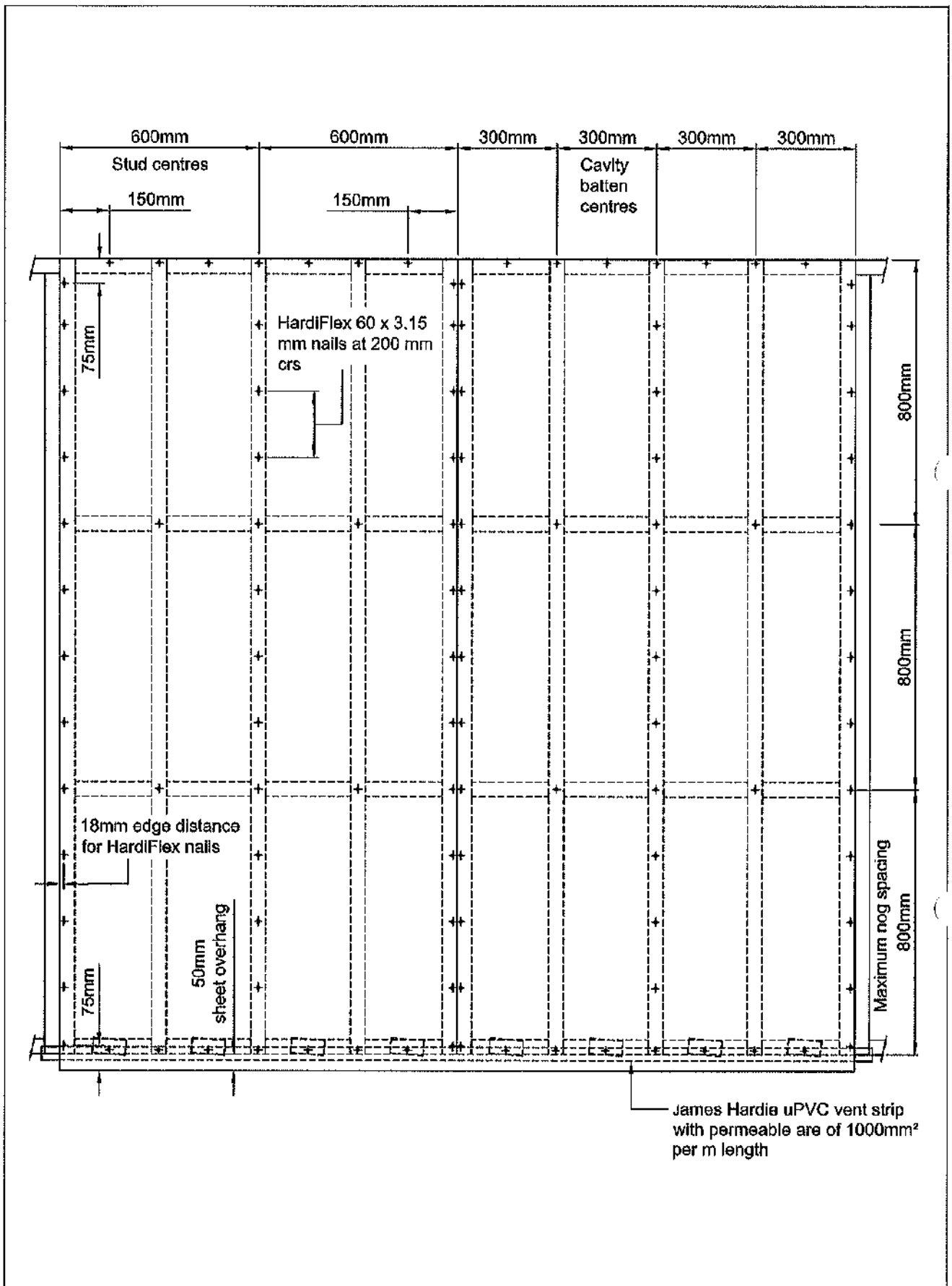


FIGURE 16: CAVITY FIXED TYPICAL PANEL FIXING SETOUT

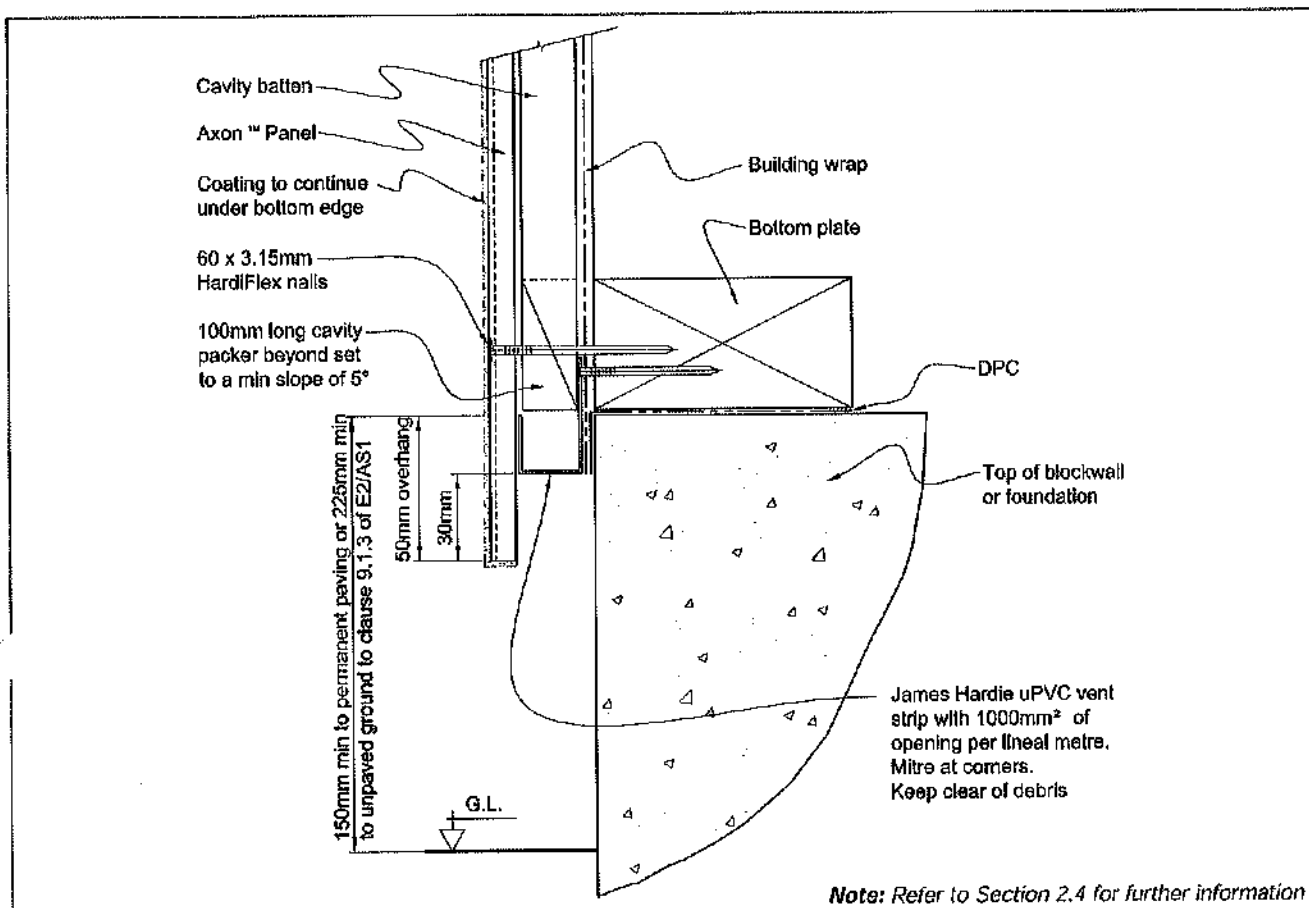


FIGURE 17: CAVITY FIXED FOUNDATION DETAIL

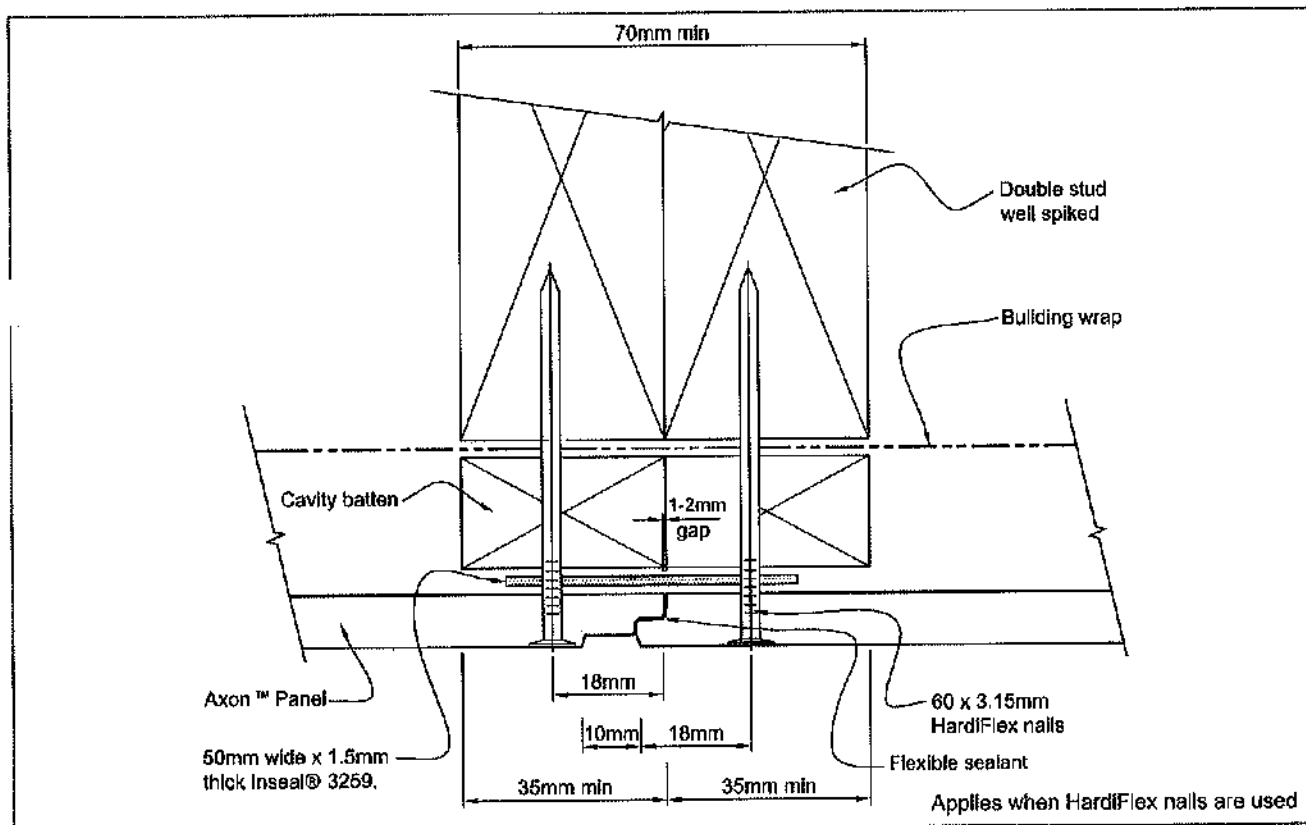


FIGURE 18: SHIPLAP JOINT

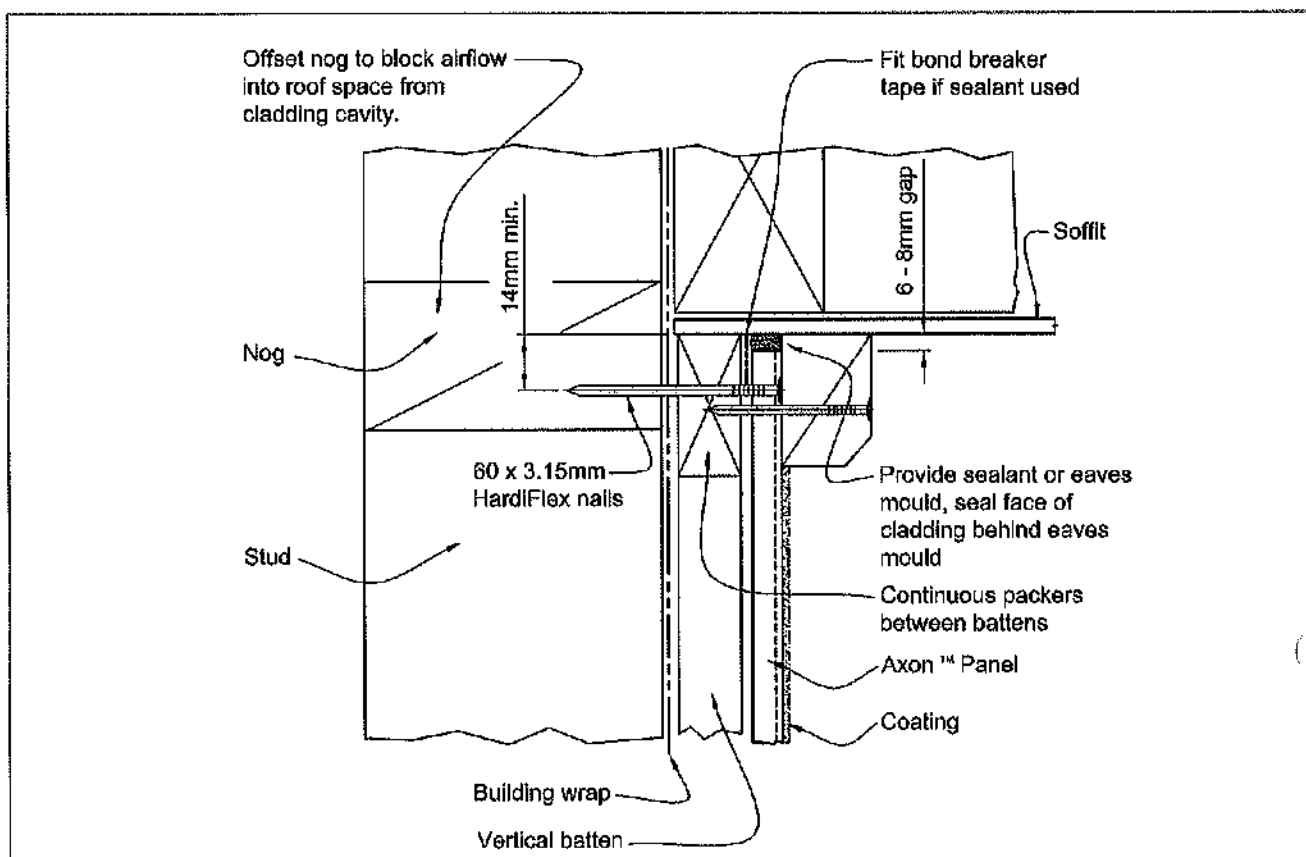


FIGURE 19: SOFFIT DETAIL

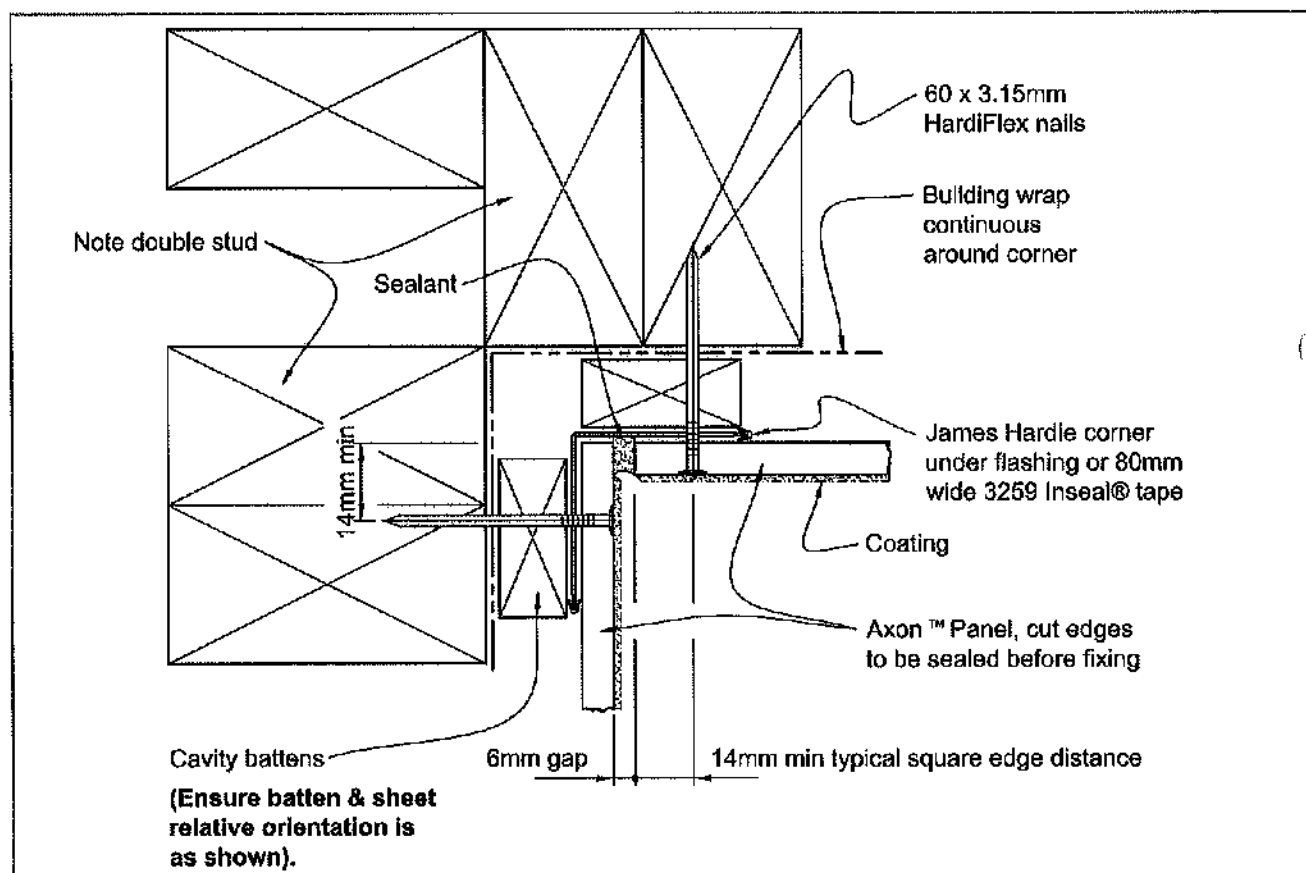


FIGURE 20: INTERNAL CORNER DETAIL

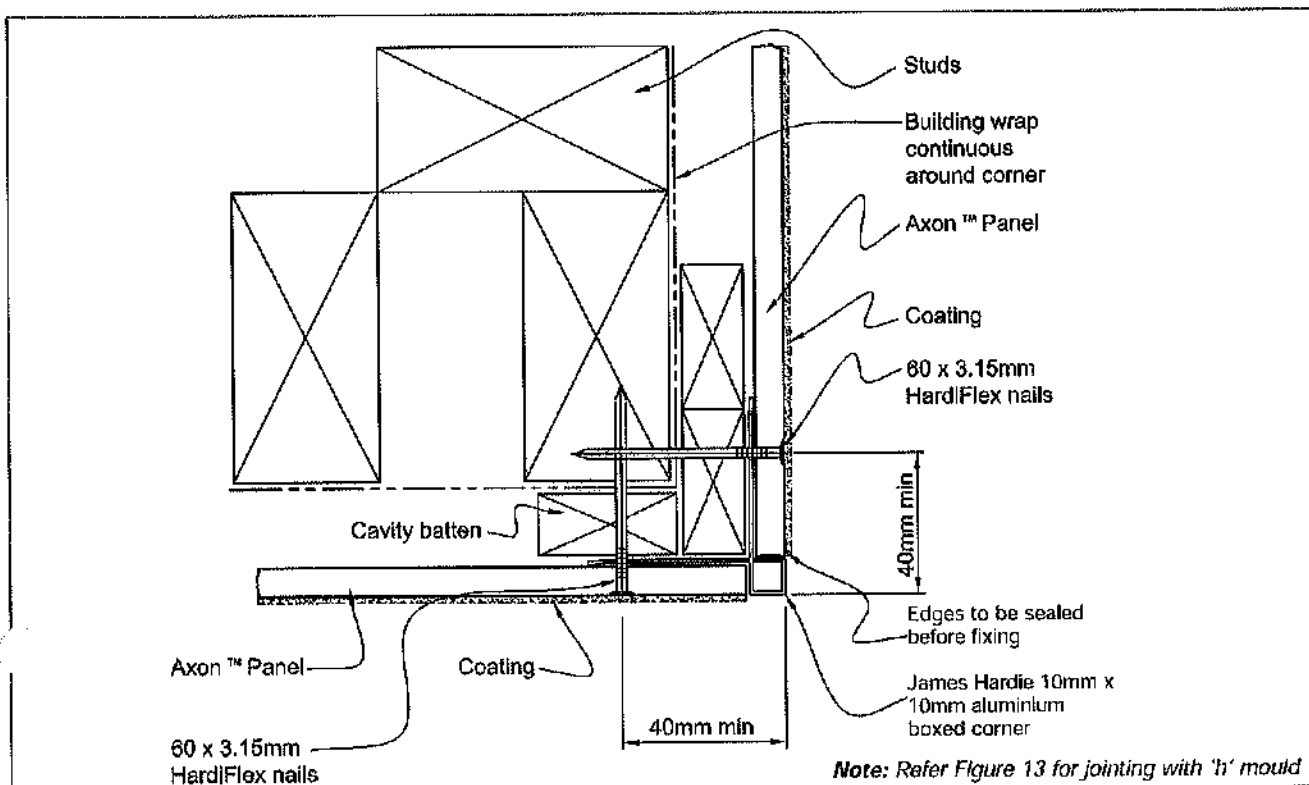


FIGURE 21: EXTERNAL CORNER DETAIL

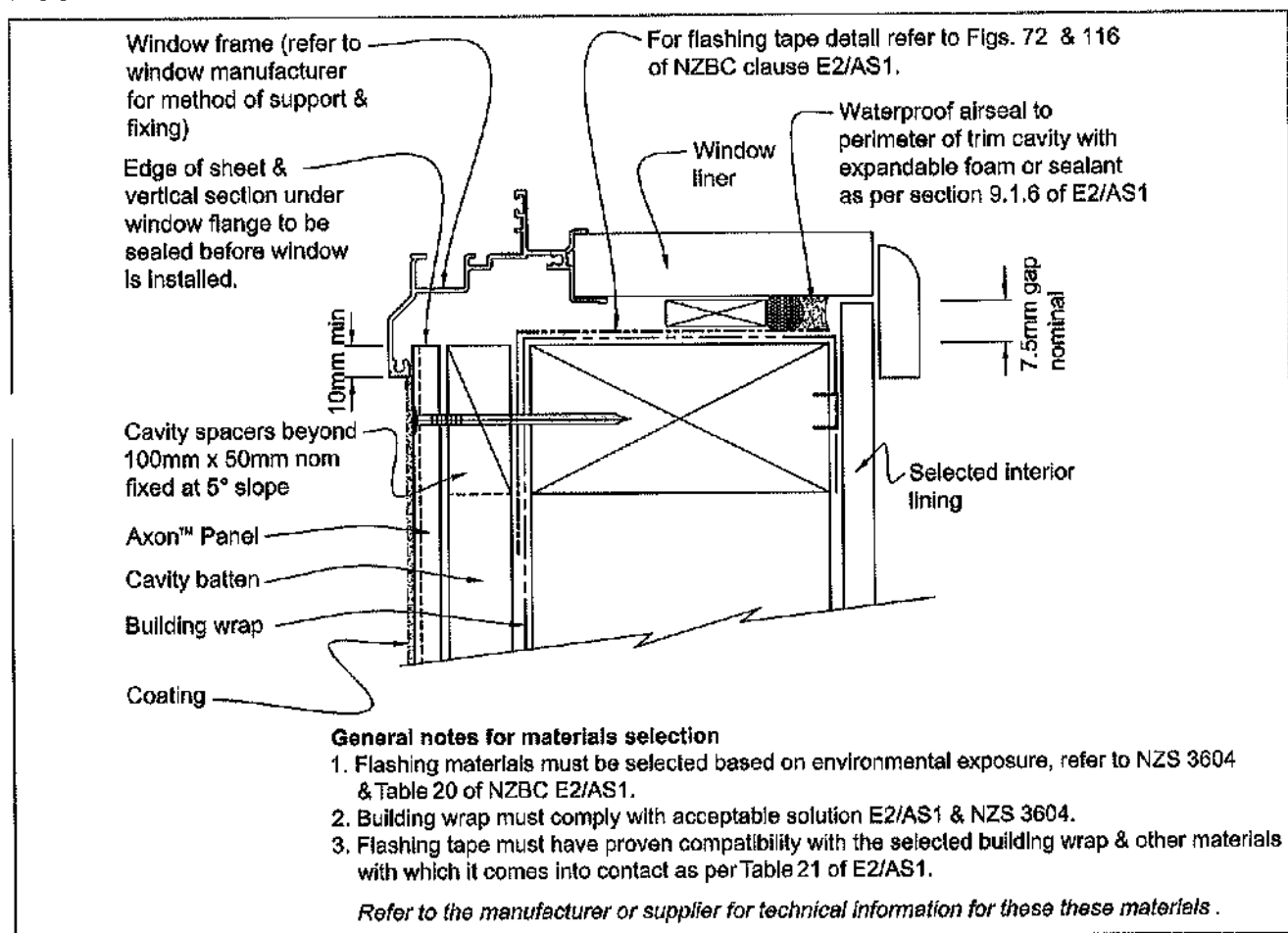


FIGURE 22: SECTION AT SILL

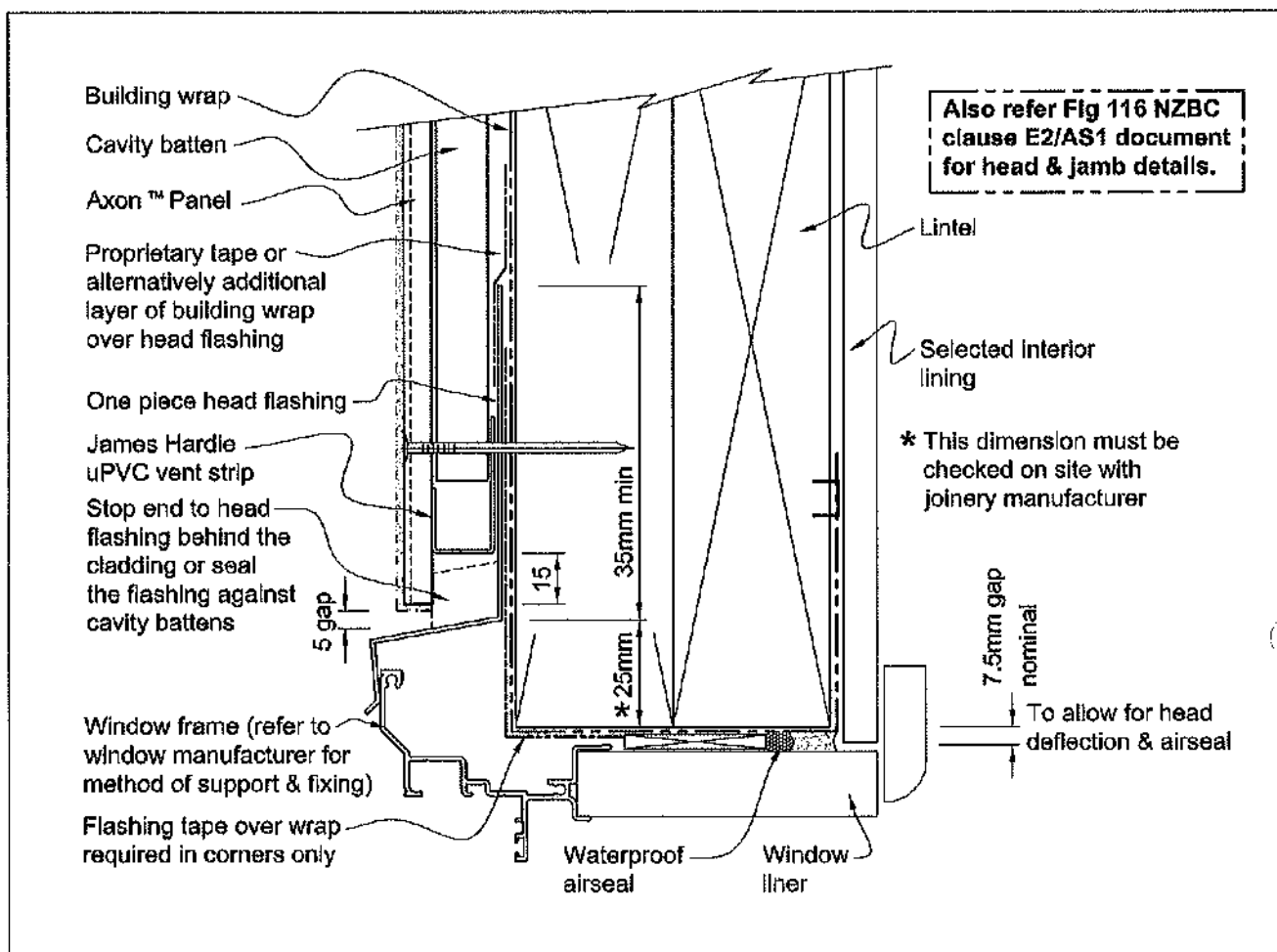


FIGURE 23: WINDOW HEAD

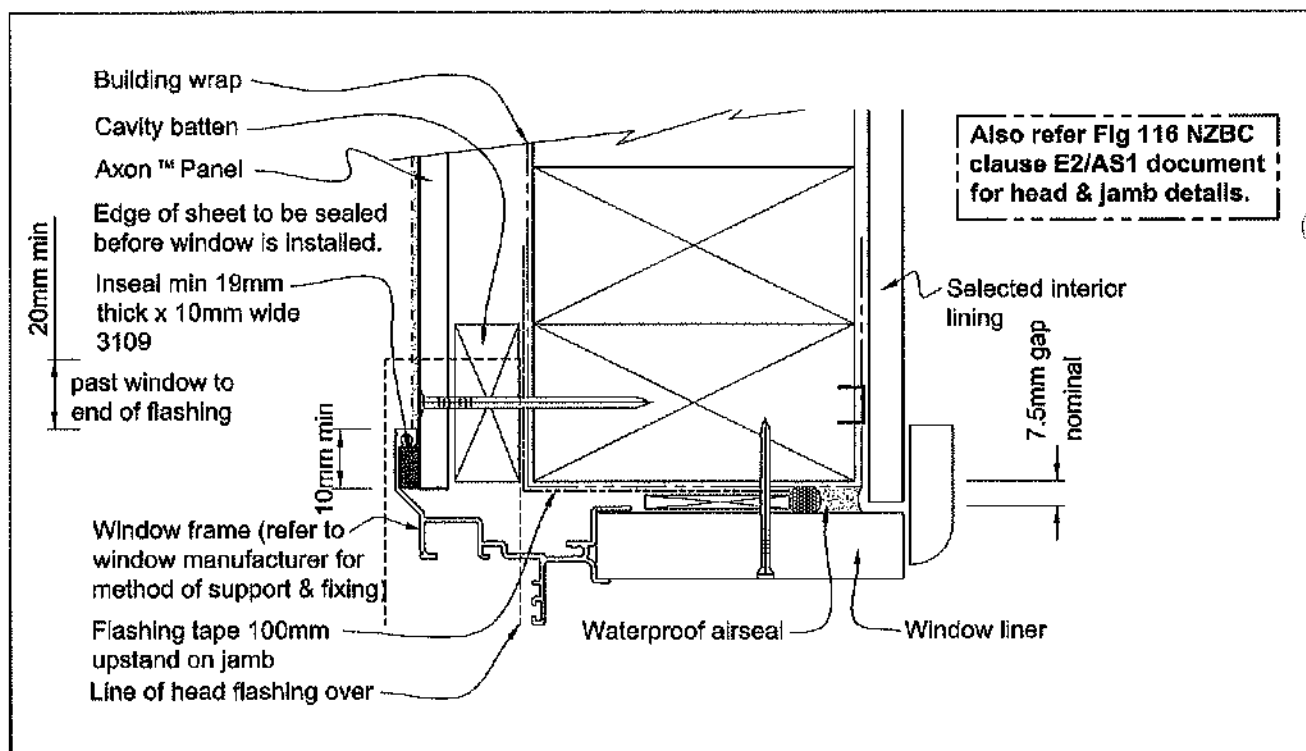


FIGURE 24: WINDOW JAMB

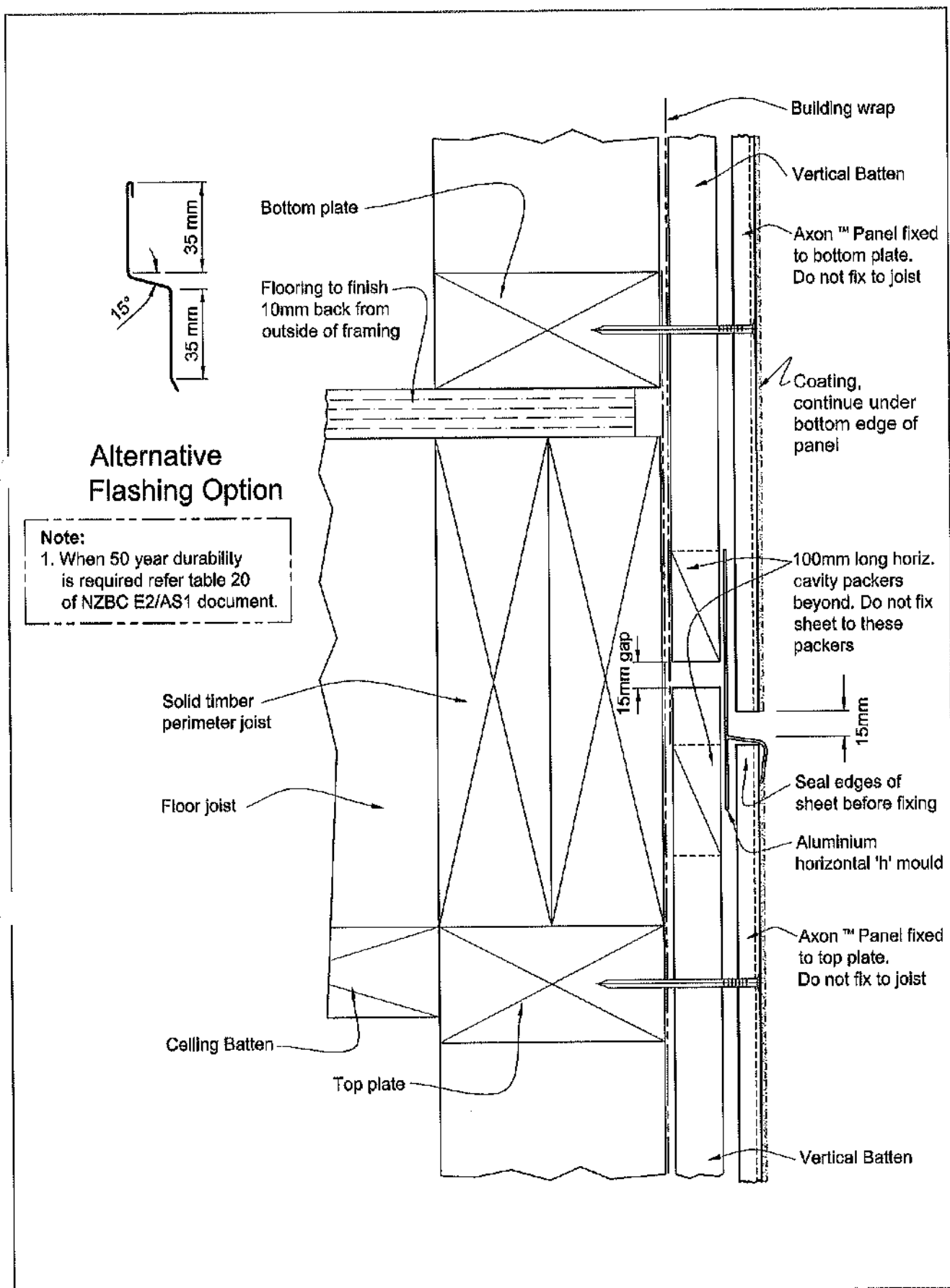


FIGURE 25: HORIZONTAL JOINT DETAIL

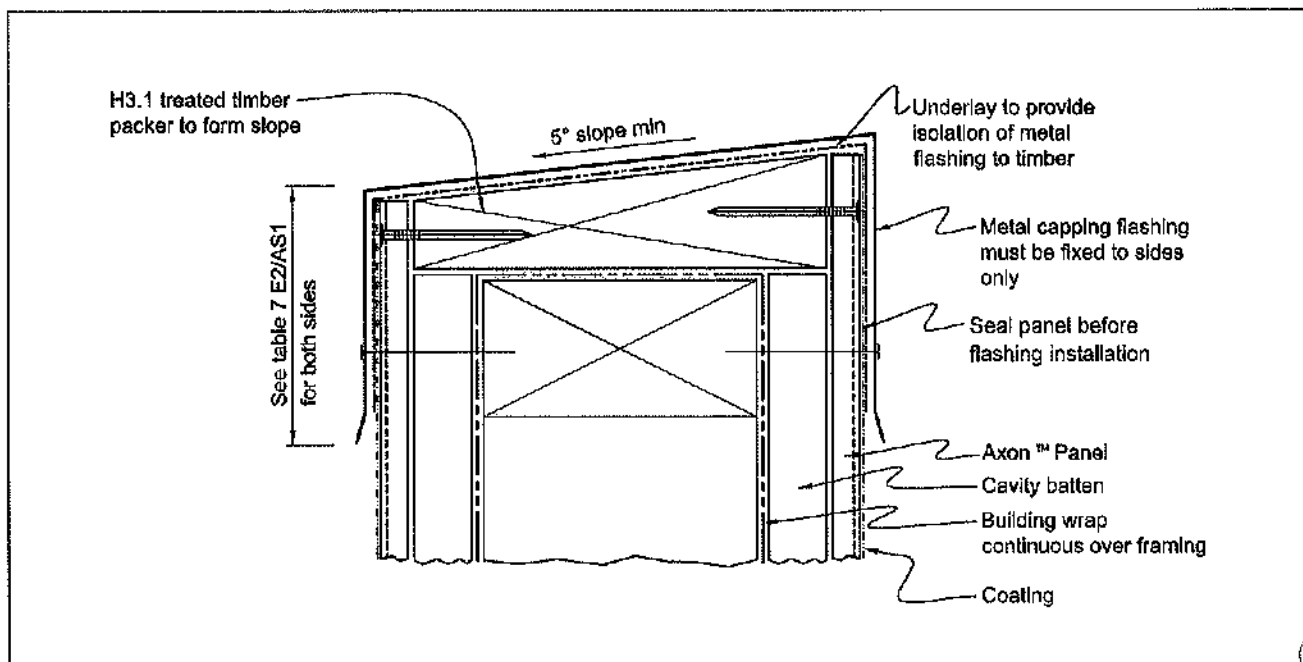


FIGURE 26: PARAPET FLASHING

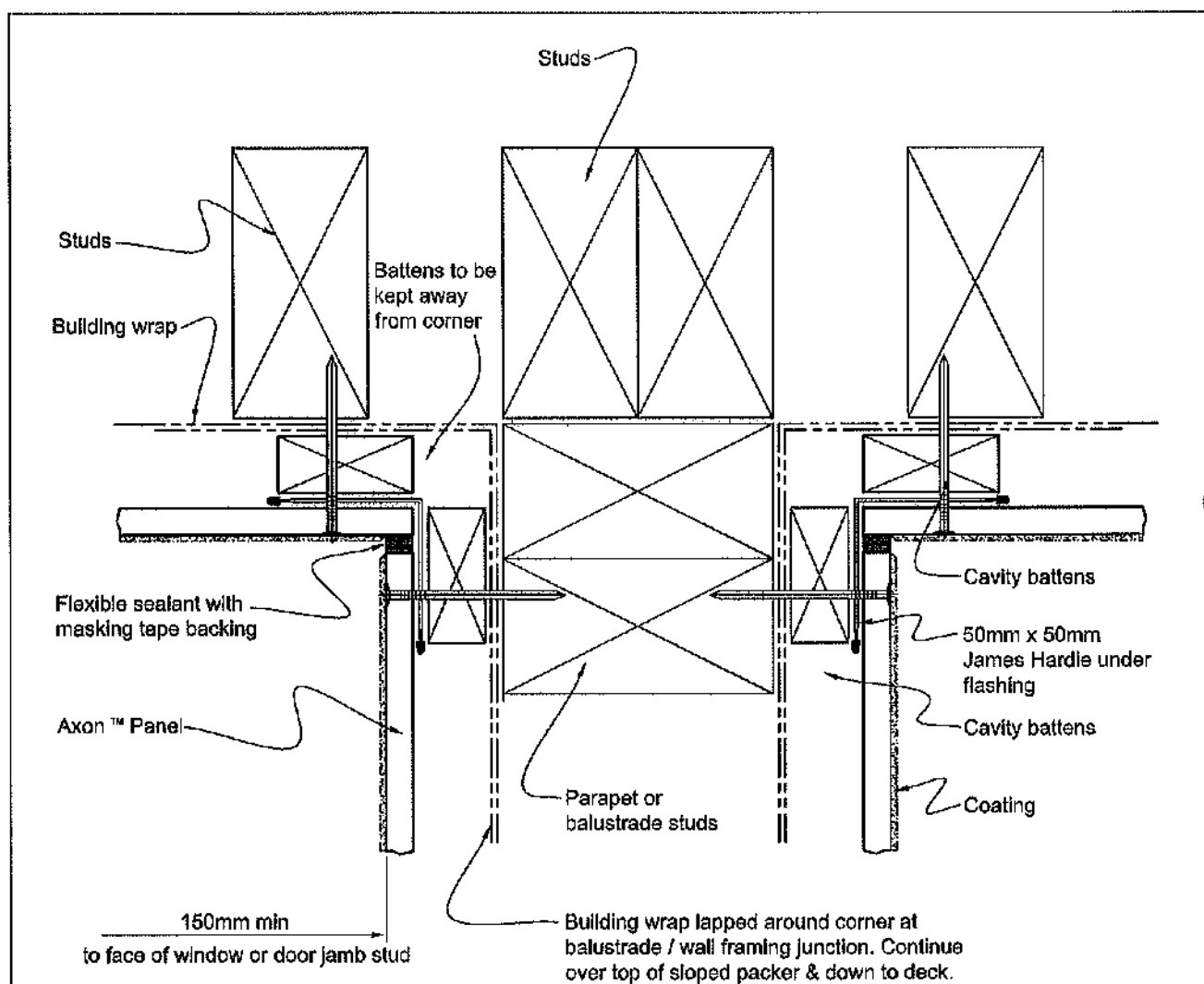


FIGURE 27: ENCLOSED DECK BALUSTRADE TO WALL JUNCTION

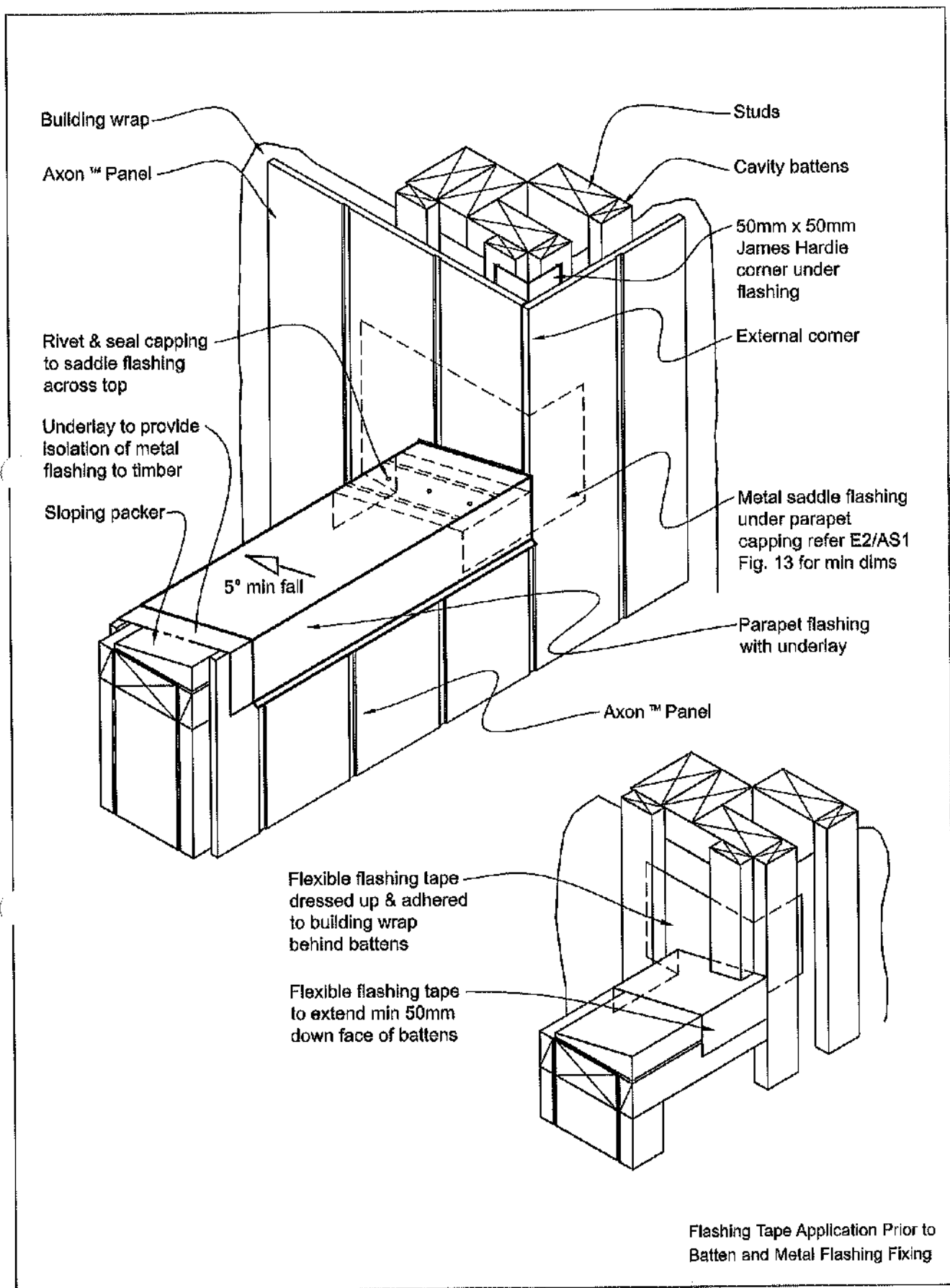


FIGURE 28: ENCLOSED BALUSTRADE TO WALL

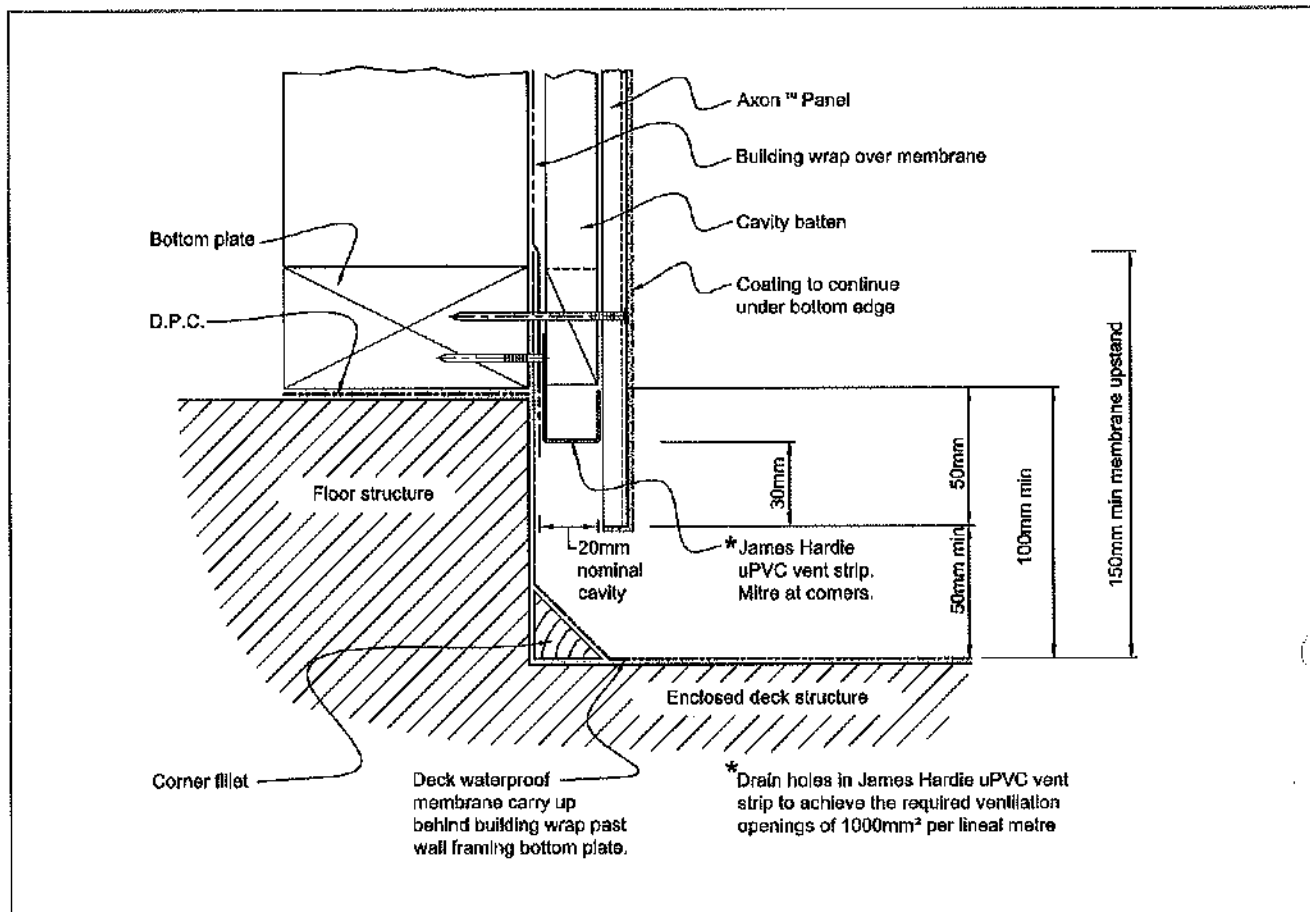


FIGURE 29: ENCLOSED DECK

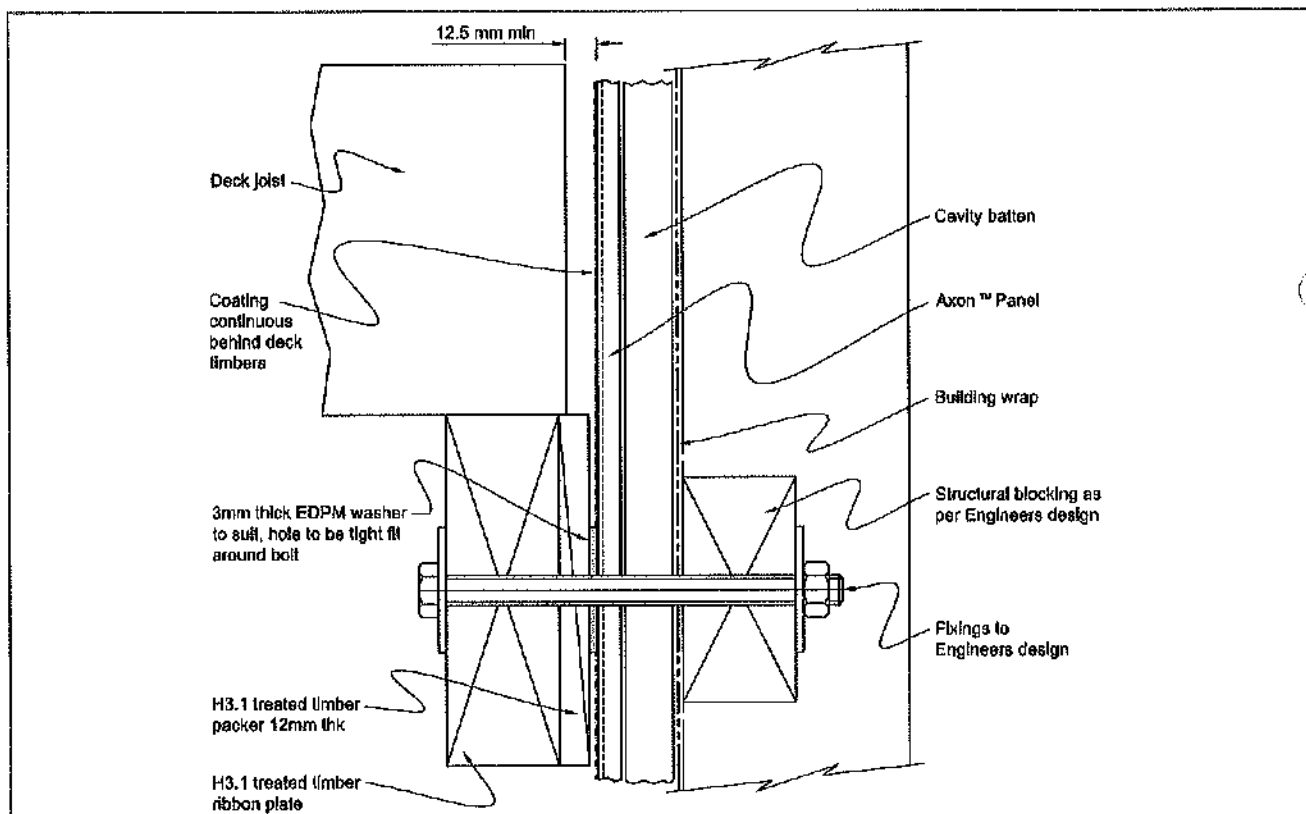


FIGURE 30: DECK JUNCTION

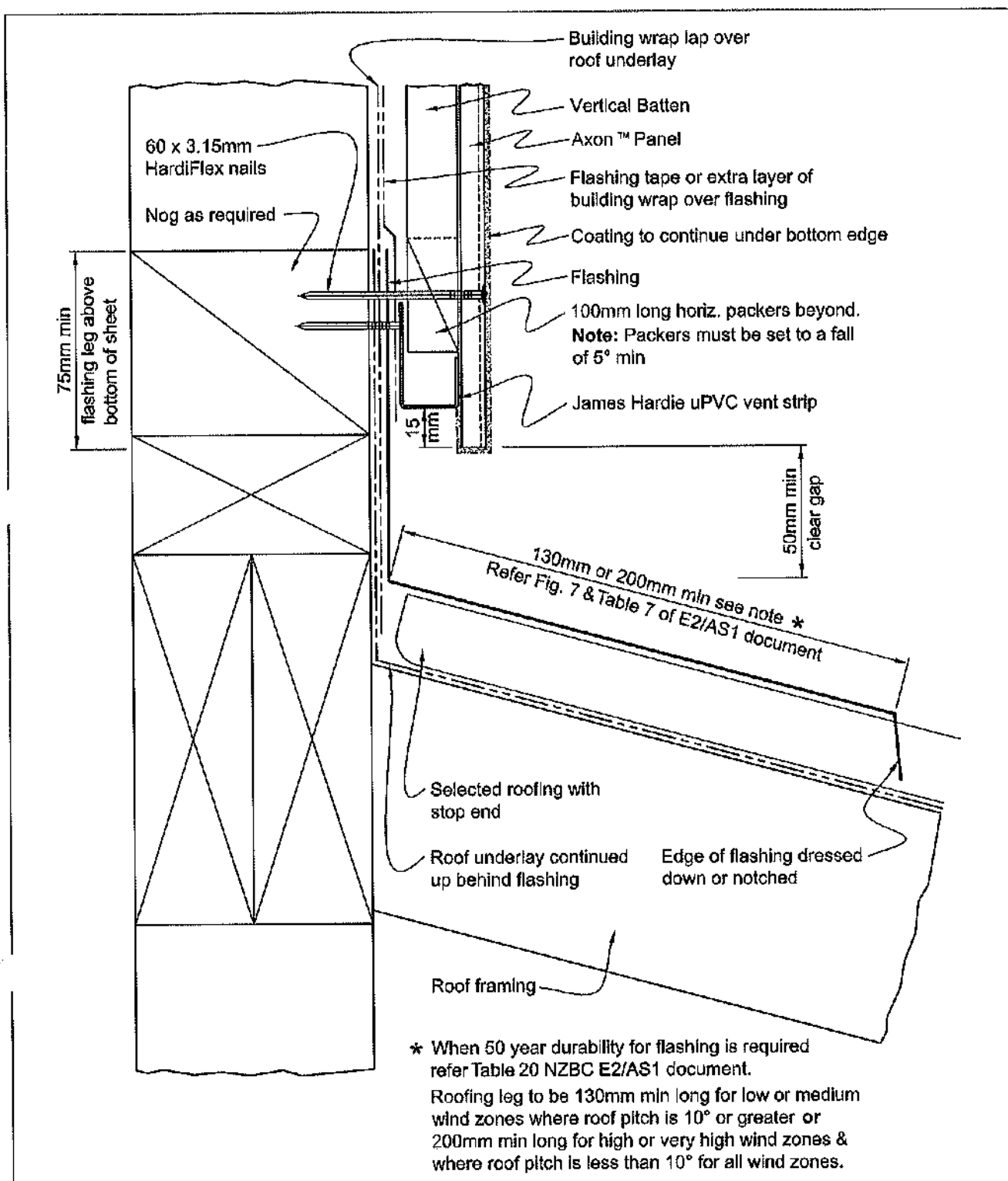


FIGURE 31: CAVITY ONE PIECE APRON FLASHING JOINT

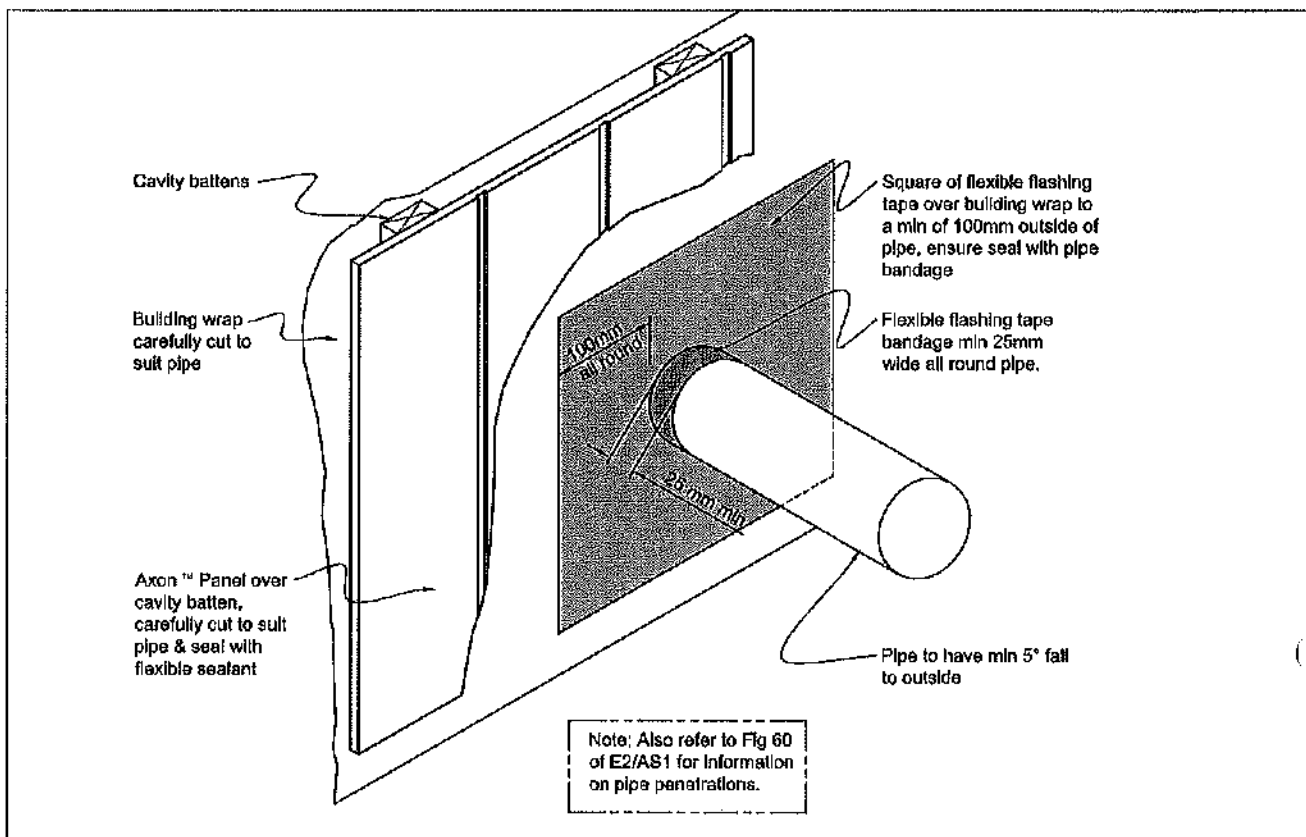


FIGURE 32: PIPE PENETRATION

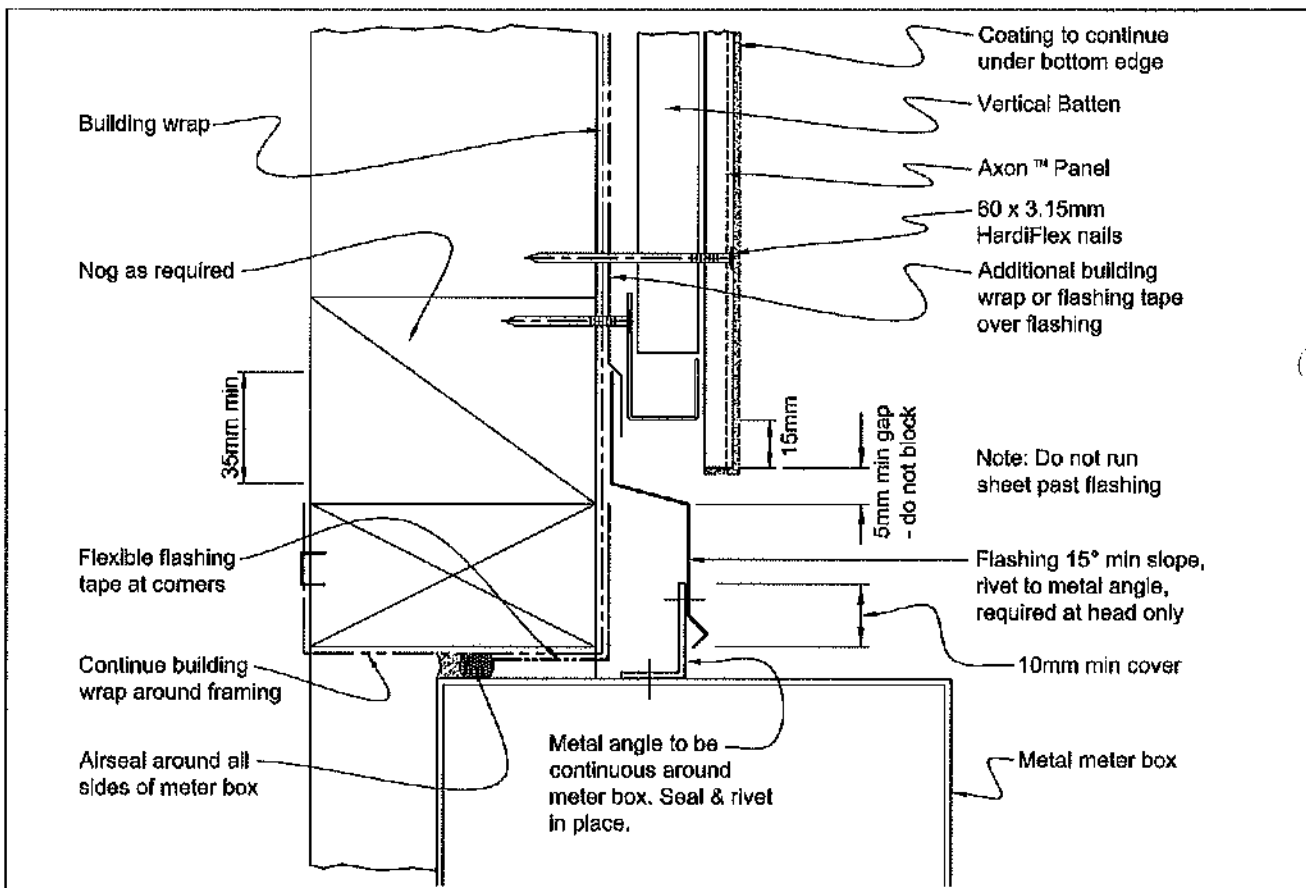


FIGURE 33: METER BOX

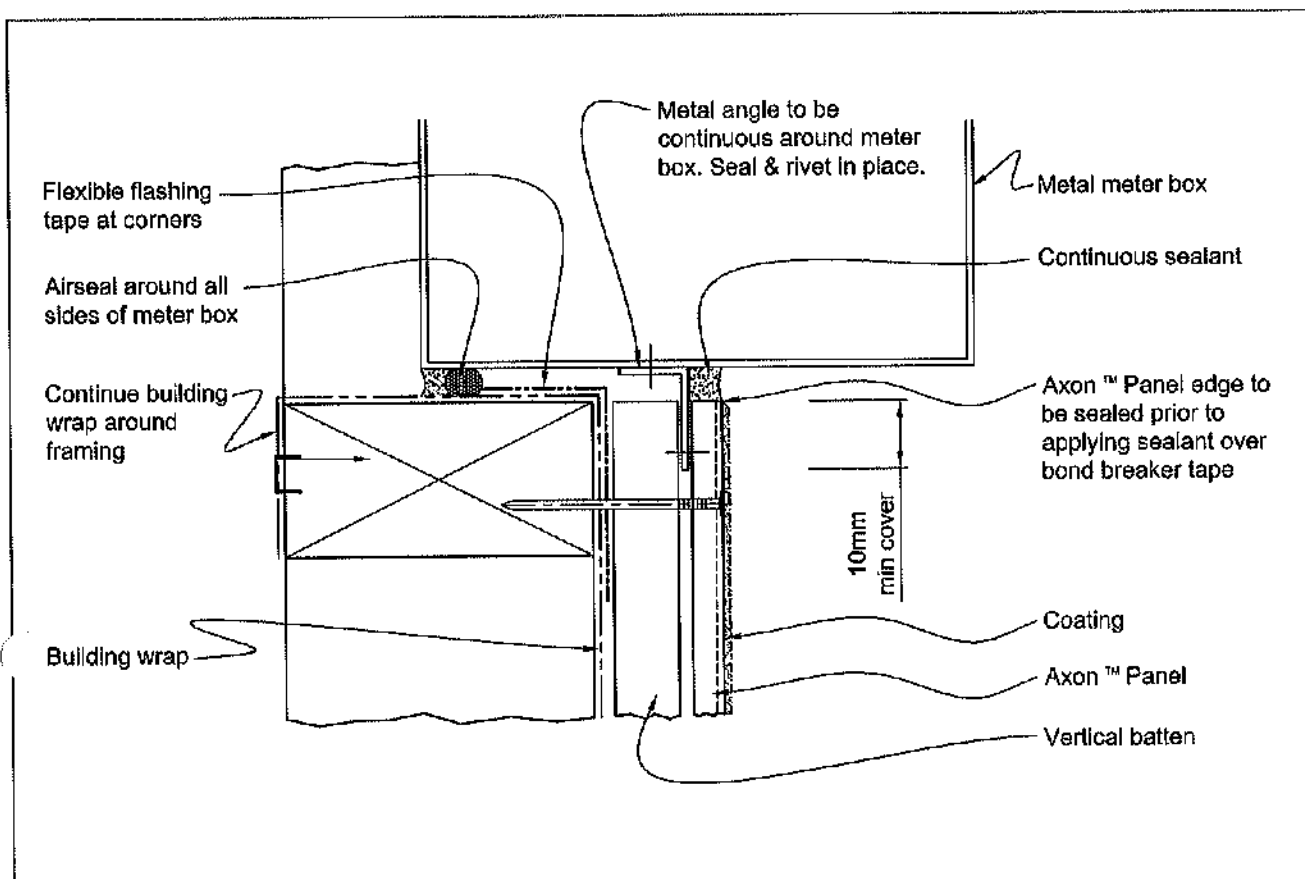


FIGURE 34: METER BOX AT SILL

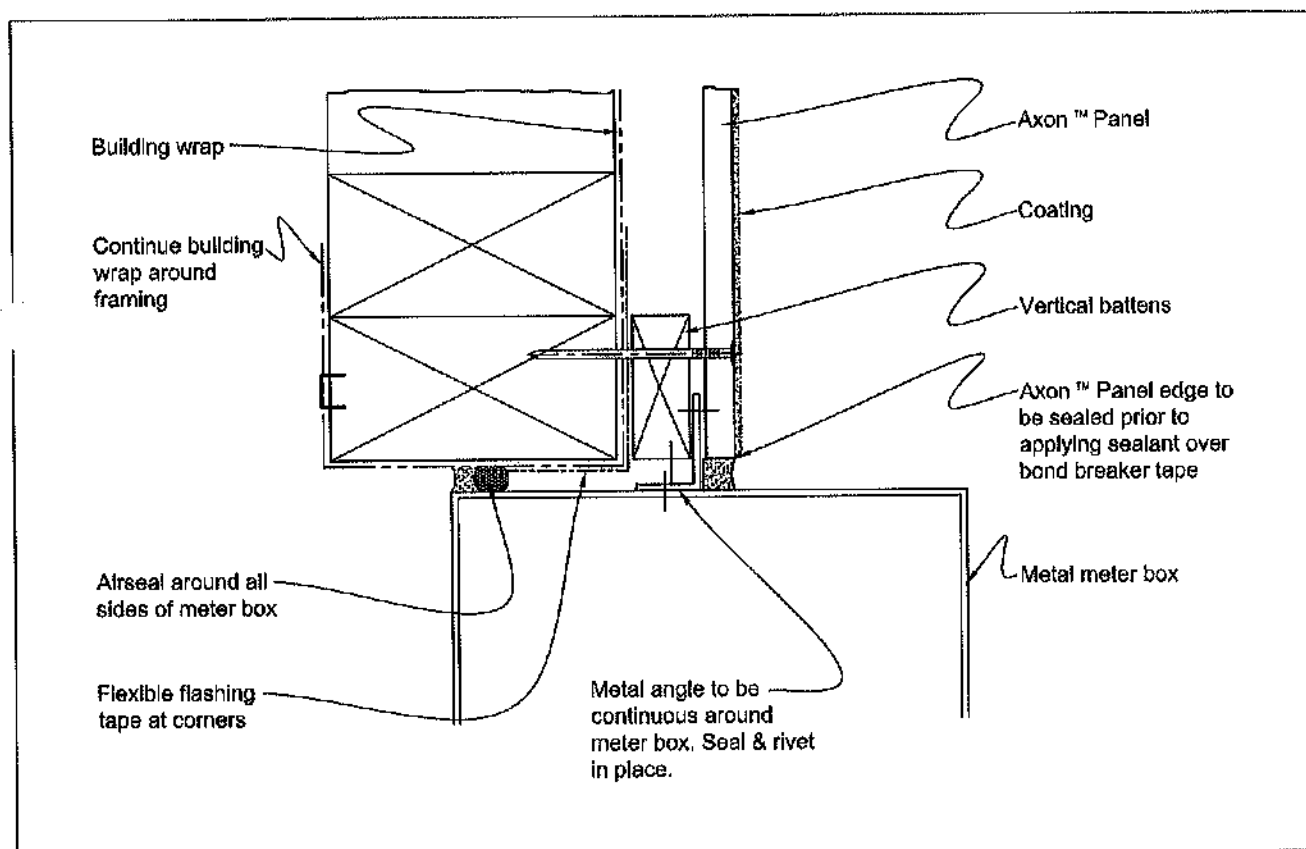


FIGURE 35: METER BOX AT JAMB

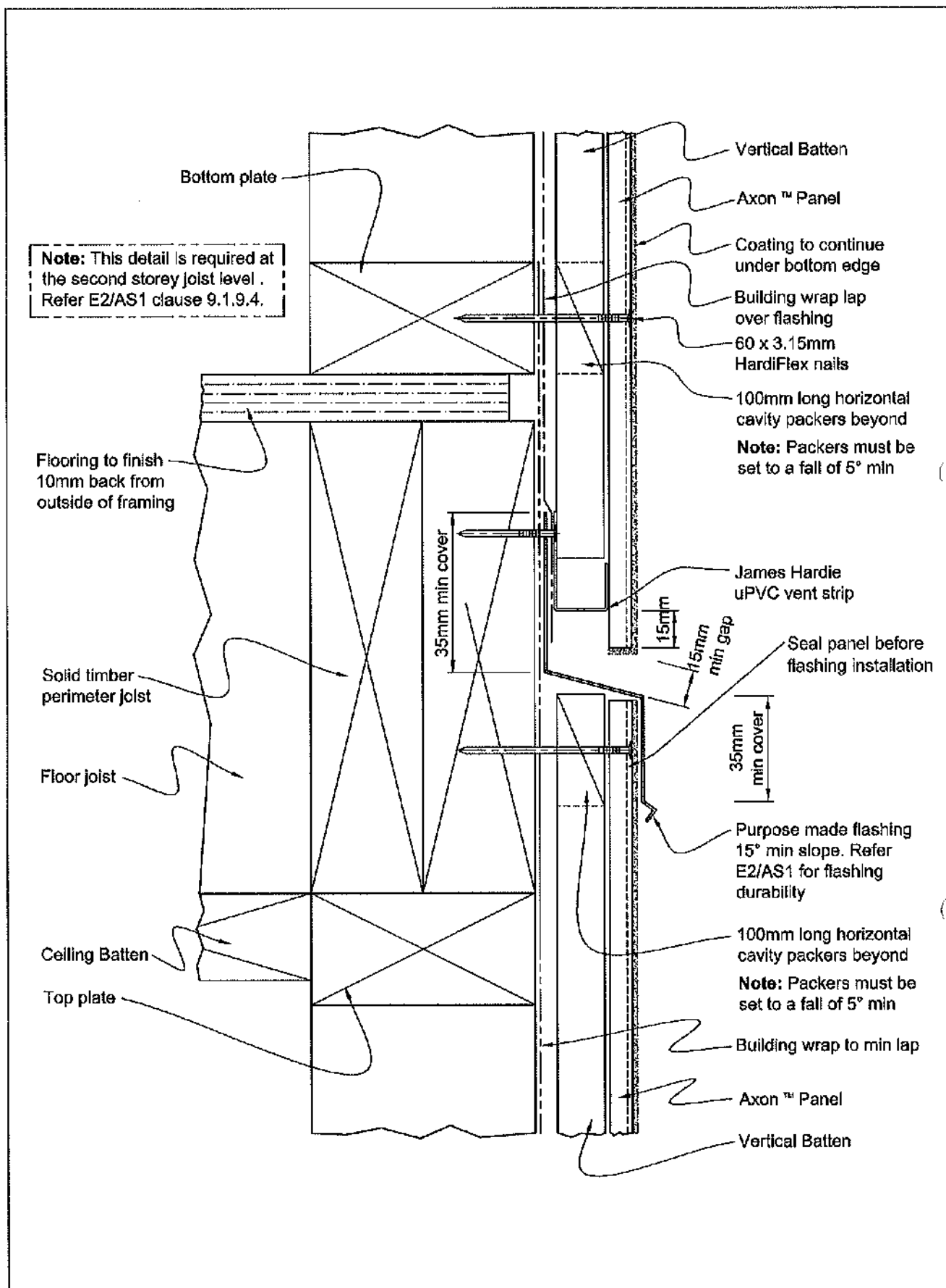


FIGURE 36: CAVITY INTERSTOREY DRAINAGE

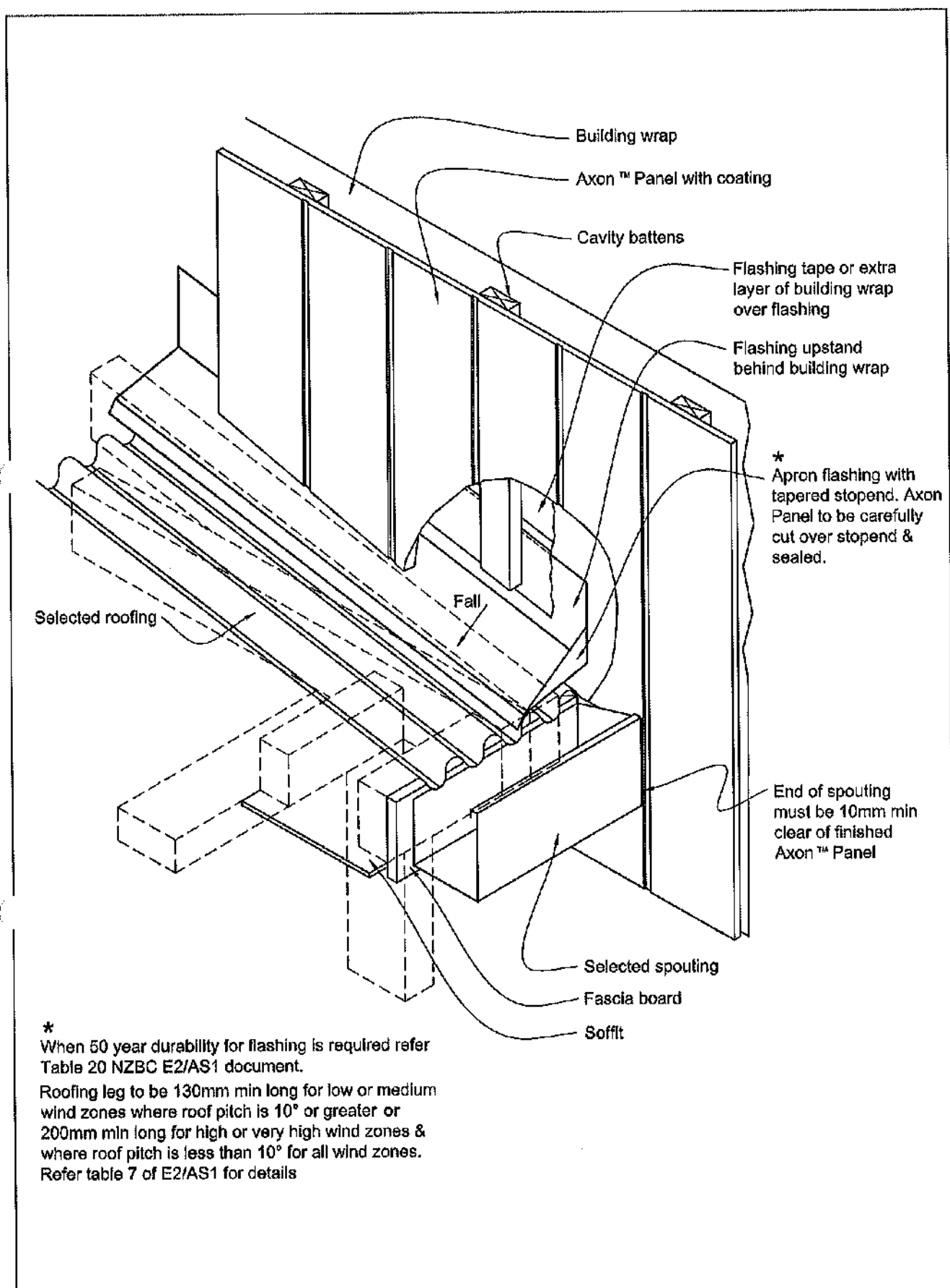


FIGURE 37: ROOF TO WALL JUNCTION DETAIL

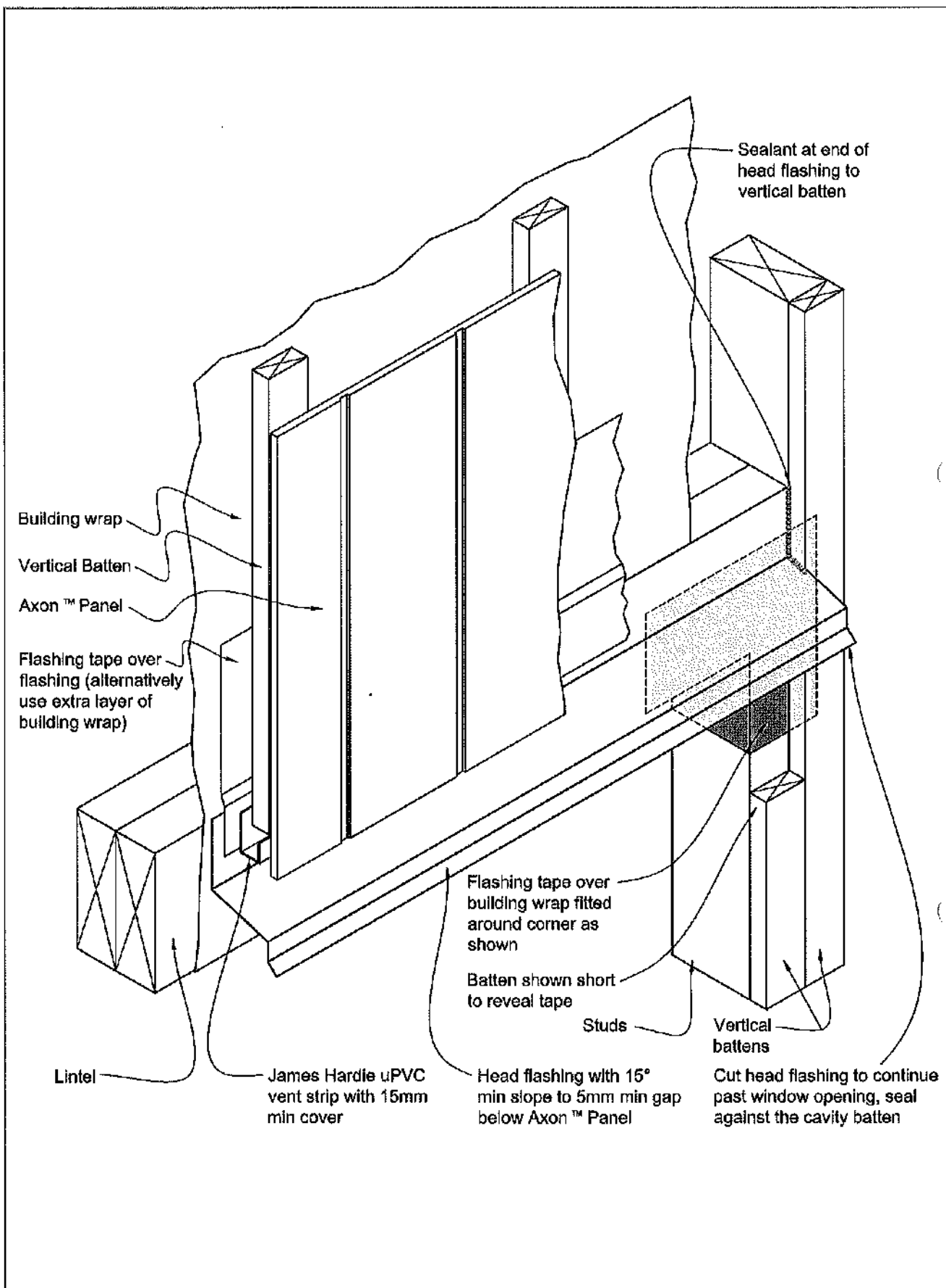


FIGURE 38: ALTERNATIVE HEAD FLASHING TERMINATION AGAINST BATTEN

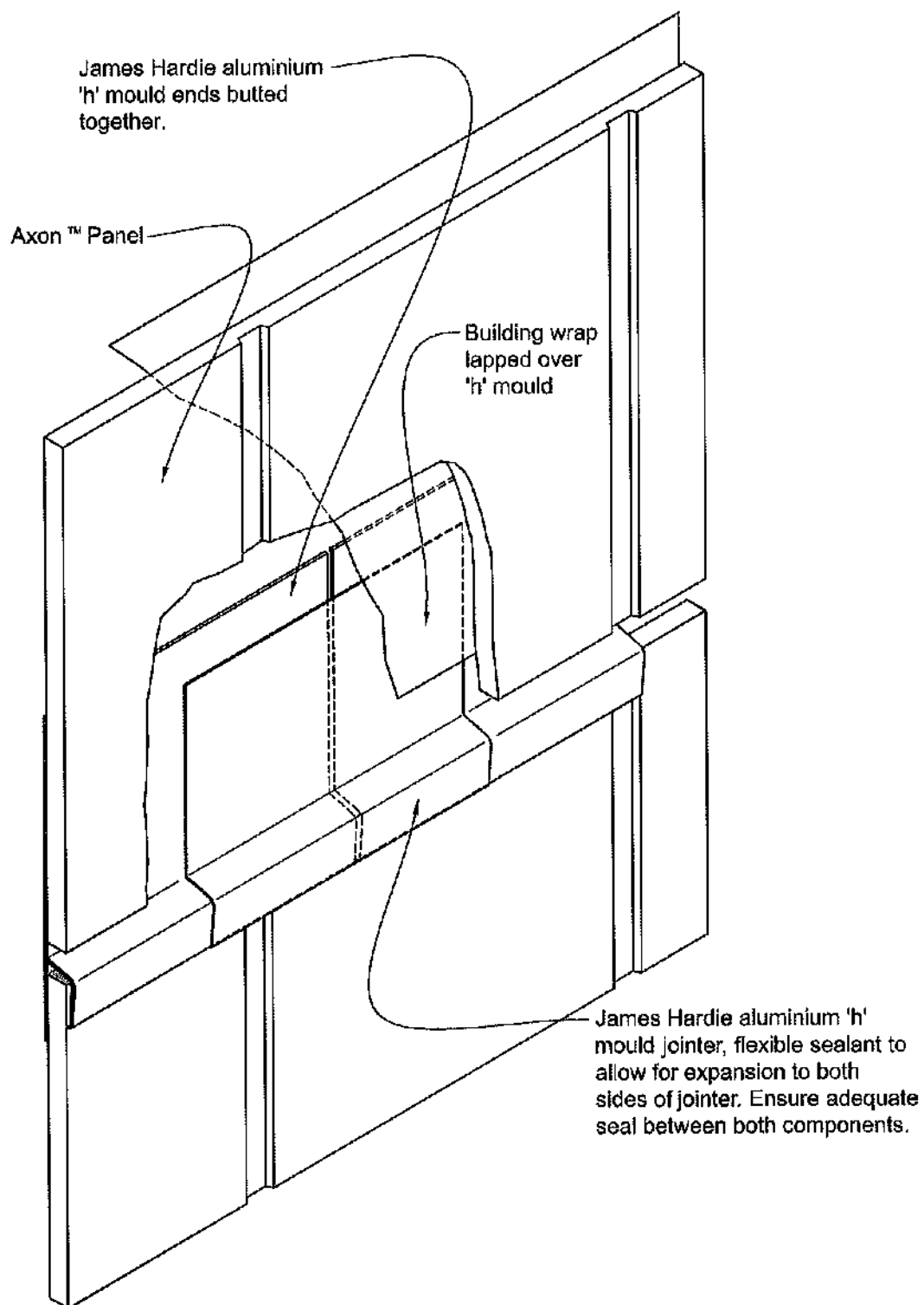


FIGURE 39: ALUMINIUM 'H' MOULD JOINTER

14 WARRANTY

Axon™
PANEL

WARRANTY:

James Hardie New Zealand Limited ("James Hardie") warrants for a period of 15 years from the date of purchase that the Axon™ Panel (the "Product"), will be free from defects due to defective factory workmanship or materials and, subject to compliance with the conditions below, will be resistant to cracking, rotting, fire and damage from termite attacks to the extent set out in James Hardie's relevant published literature current at the time of installation. James Hardie warrants for a period of 15 years from the date of purchase that the accessories supplied by James Hardie will be free from defects due to defective factory workmanship or materials.

Nothing in this document shall exclude or modify any legal rights a customer may have under the Consumer Guarantees Act or otherwise which cannot be excluded or modified at law.

CONDITIONS OF WARRANTY:

The warranty is strictly subject to the following conditions:

- (a) James Hardie will not be liable for breach of warranty unless the claimant provides proof of purchase and makes a written claim either within 30 days after the defect would have become reasonably apparent or, if the defect was reasonably apparent prior to installation, then the claim must be made prior to installation.
- (b) This warranty is not transferable.
- (c) The Product must be installed and maintained strictly in accordance with the relevant James Hardie literature current at the time of installation and must be installed in conjunction with the components or products specified in the literature. Further, all other products, including coating and jointing systems, applied to or used in conjunction with the Product must be applied or installed and maintained strictly in accordance with the relevant manufacturer's instructions and good trade practice.
- (d) The project must be designed and constructed in strict compliance with all relevant provisions of the current New Zealand Building Code ("NZBC"), regulations and standards.
- (e) The claimant's sole remedy for breach of warranty is (at James Hardie's option) that James Hardie will either supply replacement product, rectify the affected product or pay for the cost of the replacement or rectification of the affected product.
- (f) James Hardie will not be liable for any losses or damages (whether direct or indirect) including property damage or personal injury, consequential loss, economic loss or loss of profits, arising in contract or negligence or howsoever arising. Without limiting the foregoing James Hardie will not be liable for any claims, damages or defects arising from or in any way attributable to poor workmanship, poor design or detailing, settlement or structural movement and/or movement of materials to which the Product is attached, incorrect design of the structure, acts of God including but not limited to earthquakes, cyclones, floods or other severe weather conditions or unusual climatic conditions, efflorescence or performance of paint/coatings applied to the Product, normal wear and tear, growth of mould, mildew, fungi, bacteria, or any organism on any Product surface or Product (whether on the exposed or unexposed surfaces).
- (g) All warranties, conditions, liabilities and obligations other than those specified in this warranty are excluded to the fullest extent allowed by law.
- (h) If meeting a claim under this warranty involves re-coating of Products, there may be slight colour differences between the original and replacement Products due to the effects of weathering and variations in materials over time.

DISCLAIMER: The recommendations in James Hardie's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to conditions (c), (d), (f) and (g) above. Further, as the successful performance of the relevant system depends on numerous factors outside the control of James Hardie (eg quality of workmanship and design) James Hardie shall not be liable for the recommendations in that literature and the performance of the relevant system, including its suitability for any purpose or ability to satisfy the relevant provisions of the NZBC, regulations and standards.

Ask James Hardie™
Call 0800 808 868

www.jameshardie.co.nz



James Hardie

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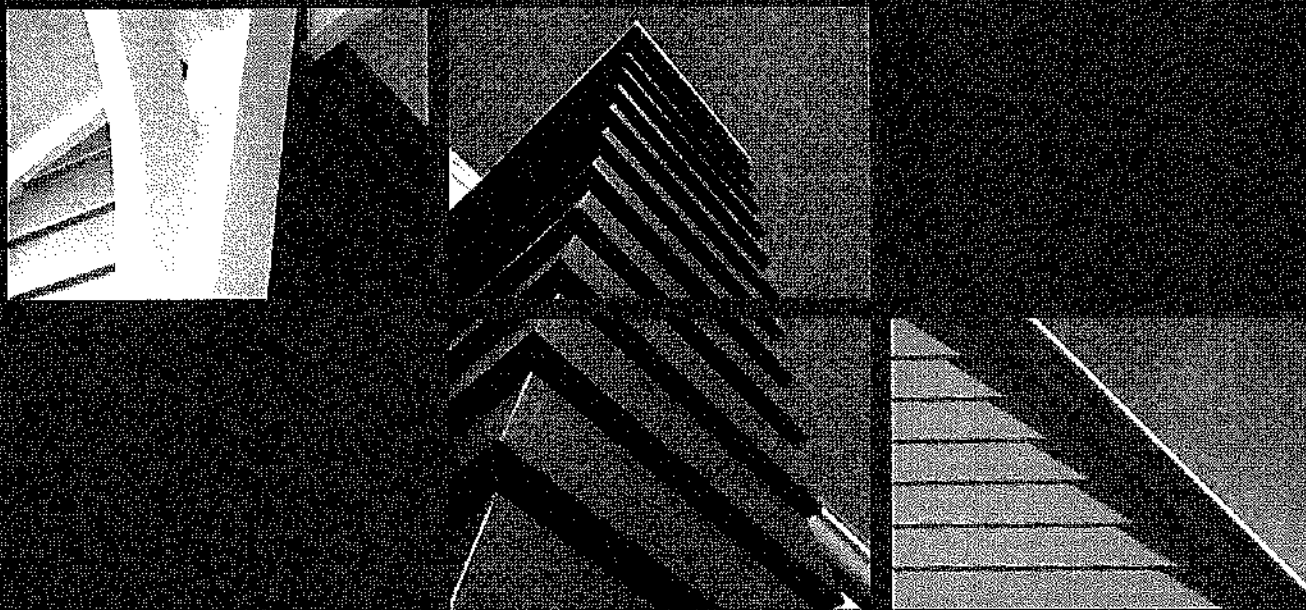
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Linea™
WEATHERBOARD

NEW ZEALAND
AUGUST 2007

TECHNICAL SPECIFICATION



James Hardie

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WE VALUE YOUR FEEDBACK

To continue with the development of our products and systems, we value your input. Please send any suggestions, including your name, contact details, and relevant sketches to:

James Hardie
 Fax 0800 808 988
literaturefeedback@jameshardie.co.nz

1 APPLICATION AND SCOPE

1.1 APPLICATION

Linea™ Weatherboard is a 16mm thick, pre-primed bevel back fibre cement weatherboard and is classified as lightweight wall cladding suitable for residential and light commercial construction using timber framed external walls. Linea Weatherboard is available in 135mm, 150mm and 180mm widths.

James Hardie also has available

- **CLD® Fascia** in two widths. CLD Fascia is a 16mm thick, pre-primed fibre cement product designed to accommodate James Hardie soffit linings.
- **CLD Trim** comes in a variety of widths for use as decorative trims around openings and external corners. CLD Trim is a 16mm thick, pre-primed fibre cement product.

If you are a specifier...

Or other responsible party for a project ensure that the information in this document is appropriate for the application you are planning and that you undertake specific design and detailing for areas which fall outside the scope of these specifications.

If you are an installer...

Ensure that you follow the design, moisture management and associated figures and material selection provided by the designer and this James Hardie Technical Specification.

All the details provided in this document must be read in conjunction with the specifiers specification.

Make sure your information is up to date

When specifying or installing James Hardie products, ensure you have the current manual. If you're not sure you do, or, if you need more information, visit www.jameshardie.co.nz or Ask James Hardie™ on 0800 808 868.

1.2 SCOPE

This specification covers the use of Linea Weatherboard for buildings that fall within the scope of limitations of NZBC Acceptable Solution 'E2/AS1', paragraph 1.1.

This specification includes the use of Linea Weatherboard in both direct to stud and cavity construction method and must be read in conjunction with the current BRANZ Appraisal for Linea Weatherboard.

1.3 DETAILS

Various Linea Weatherboard details are provided at the rear of this document. This specification and details in CAD file are also available to download from our website at www.jameshardie.co.nz.

1.4 SPECIFIC DESIGN

For use of Linea Weatherboard outside this published scope, the architect, designer or engineer must undertake specific design. For advice on designs outside the scope of this specification, Ask James Hardie on 0800 808 868.

2 DESIGN

2.1 COMPLIANCE

Linea Weatherboard has been appraised by BRANZ.

Refer to Appraisal Certificate number 446 (2005) and 447 (2005) at www.branz.co.nz or www.jameshardie.co.nz

Note: the scope of the Appraisal Certificate takes precedence over the scope of this specification.

2.2 RESPONSIBILITY

The specifier or other party responsible for the project must ensure that the information and details in this specification are appropriate for the intended application and that additional detailing is performed for specific design or any areas that fall outside the scope of this technical specification. For applications outside the scope of this literature and figures which are not provided herein, the architect, designer or engineer must undertake specific design and it should be ensured that the intent of their design meets the requirements of the NZBC.

All dimensions shown are in millimetres unless noted otherwise. All New Zealand Standards referenced in this manual are current edition and must be complied with.

James Hardie conducts stringent quality checks to ensure that any product manufactured falls within our quality spectrum. It is the responsibility of the builder to ensure that the product meets aesthetic requirements before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation.

2.3 SITE AND FOUNDATION

The site on which the building is situated must comply with the New Zealand Building Code (NZBC) Acceptable Solution E1/AS1 'Surface Water'. Foundation design must comply with the requirements of NZS 3604 'Timber Framed Buildings' or be as per specific engineering design. The grade of adjacent finished ground must slope away from the building to avoid any possibility of water accumulation in accordance with NZBC requirements.

2.4 GROUND CLEARANCES

The floor must have a minimum clearance to paved or unprotected ground as required by NZS 3604.

Linea Weatherboards must overhang the bottom plate on a concrete slab by a minimum of 50mm as required by NZS 3604. The bottom of claddings must comply with NZBC Acceptable Solution, 'E2/AS1' section 9.1.3.

On the roofs and decks the minimum clearance must be 50mm. Do not install external cladding such that it may remain in contact with water or ground.

2.5 MOISTURE MANAGEMENT

It is the responsibility of the specifier to identify moisture related risks associated with any particular building design.

Wall construction design must effectively manage moisture, considering both the interior and exterior environments of the building, particularly in buildings that have a higher risk of wind driven rain penetration or that are artificially heated or cooled. Walls shall include those provisions as required by NZBC Acceptable Solution 'E2/AS1' 'External Moisture'. In addition all wall openings, penetrations, junctions, connections, window sills, heads and jambs must incorporate appropriate flashing for waterproofing. The other

materials, components and installation methods used to manage moisture in the walls, must comply with the requirements of relevant standards and the NZBC. For information in relation to designing for weathertightness, refer to the Building Research Association of New Zealand (BRANZ) and the Department of Building & Housing (DBH) updates on the following websites, respectively www.branz.co.nz and www.dbh.govt.nz.

2.6 STRUCTURE

Timber framed buildings must be designed in accordance with NZS 3604 (Timber Framed Buildings). When the framing is provided as per the specific engineering design, the framing stiffness must be equivalent to or more than the stiffness requirements of NZS 3604.

2.7 WIND LOADING

Linea Weatherboard cladding is suitable for use in all New Zealand wind zones up to and including VH as defined in NZS 3604. A specific design is required for all situations when a building falls in a specific engineering design (SED) wind zone.

2.8 STRUCTURAL BRACING

Linea Weatherboard installed as per Linea Weatherboard specific bracing details will provide bracings for buildings designed and constructed in accordance with NZS 3604. The Linea Weatherboard bracing systems have been independently tested and certified by BRANZ using both construction methods i.e. direct fixed and cavity construction. The following range of bracings can be achieved

- Wind 68 – 120BU'S
- Earthquake 60 – 106 BU'S

Refer to the James Hardie Bracing manual for details.

2.9 FIRE RATED WALLS

Walls clad with Linea Weatherboard using a direct fix or cavity construction method can achieve fire ratings of up to 90/90/90 when constructed in accordance with the James Hardie 'Fire and Acoustic' Technical Specification Manual.

Refer to Fire and Acoustic Technical Specification Manual for further information about fire rated systems.

2.10 ENERGY EFFICIENCY

External walls constructed using Linea Weatherboard, bulk insulation, where the area of glazing is 30% or less of the total wall area and constructed as per this technical specification complies with the requirements for walls in NZBC Acceptable Solution H1/AS1 (NZBC Clause H1 Energy Efficiency – Third Edition), Replacement Table 1. To meet thermal insulation requirements for the construction, the bulk insulation as specified in Table-1 must be used. This insulation may be substituted with insulations having higher R-values. The thermal insulation of a wall gets affected when the depth of the timber framing is increased or decreased. The calculation used in Table below is based on a timber framing size 90 x 45mm and using an internal lining material such as James Hardie Villaboard® Lining or a 10mm plasterboard.

TABLE 1

INSULATION CAPABILITY		
Climate Zone	Construction R-Value Requirement	Minimum R-Value of Insulation Required
1 & 2	*1.5 m ² °C/W	#R1.8
3	*1.9 m ² °C/W	#R2.2
* These requirements will increase to 1.9 m² °C/W in Zone 1 & 2 and 2.0 m² °C/W in Zone-3 as per the new requirements of NZBC Clause 'H1- Energy Efficiency' (Third Edition). The insulation requirements will change in a phased manner as noted below; Zone 1 on 30 September 2008, Zone 2 on 30 June 2008, Zone 3 on 31 October 2007. # To achieve higher thermal insulation values of construction the insulation material must be replaced with an insulation material having R2.2 or higher to suit the requirements. For further guidance on insulation requirement refer to 'House Insulation Guide' published by BRANZ.		

3 FRAMING

3.1 GENERAL

This Linea Weatherboard technical specification is only suitable for timber-framed buildings. Other framing materials are outside the scope of this specification.

3.2 DIMENSIONS

A 35mm minimum stud width is required unless noted otherwise in this specification.

3.3 TIMBER GRADE

Minimum timber grade requirements are No.1 framing grade in accordance with NZS 3631 'New Zealand Timber Grading Rules' or equivalent.

3.4 DURABILITY

To comply with NZBC requirements the external framing must be treated to a minimum H1.2 treatment. Refer to NZBC Acceptable Solution 'E2/AS1' Durability for further information about the durability requirements. For timber treatment information refer to NZS 3602 (Timber and Wood-Based Products for use in Buildings) and NZS 3640 (Chemical Preservation of Round and Sawn Timber) for minimum timber treatment selection and treatment requirements. Also refer to framing manufacturer's literature for further guidance on timber selection.

Framing must be protected from moisture at sites in accordance with the recommendations of framing manufacturers.

Note: refer to NZS 3602 for information about the allowable moisture content in timber.

3.5 FRAME CONSTRUCTION

All timber framing sizes and set-out must comply with NZS 3604 and stud, nogs / dwangs centres as required by this specification.

3.5.1 DIRECT FIXED CONSTRUCTION METHOD

The following framing must be provided for direct fixed construction method:

- Studs must be provided at 600mm centres maximum.
- Nogs must be provided at 1200mm centres maximum.
- Double studs are required at internal corners.
- Extra packers may be required at external corners.
- Extra studs are required for aluminium internal corner sections.

3.5.2 CAVITY CONSTRUCTION METHOD

The following framing must be provided for cavity construction method:

- When studs are at 600mm centres the nogs must be provided at 800mm centres maximum.
- When studs are at 400mm centres the nogs may be provided at 1200mm centres maximum.
- Double studs are required at internal corners.
- Extra packers may be required at external corners.
- Extra studs are required for aluminium internal corner sections.

3.6 TOLERANCES

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

4 PREPARATION

4.1 BUILDING WRAP

Building wrap must be provided as per the requirements of NZBC Acceptable Solution 'E2/AS1' 'External Moisture' and NZS 3604. The building wrap must comply with Table 23 of 'E2/AS1'. The building wrap must be fixed in accordance with 'E2/AS1', NZS 3604 and the wrap manufacturer's recommendations. Walls which are not lined on the inside face e.g. garage walls or gable ends must include a rigid sheathing or an air barrier behind the cladding which complies with the requirements of NZBC Acceptable Solution 'E2/AS1'.

4.2 FLASHING

All wall openings, penetrations, intersections, connections, window sills, heads and jambs must be flashed prior to weatherboard installation. Please refer to moisture management requirements in Clause 2.5. The building wrap must be appropriately incorporated with penetration and junction flashings. Materials must be lapped in such a way that water tracks down to the exterior on the face of building wrap. James Hardie will assume no responsibility for water infiltration within the wall due to poor installation of flashings or building wraps. The selected flashing materials must comply with the durability requirements of Table 20 of Acceptable Solution 'E2/AS1'.

4.3 VENT STRIP

The James Hardie uPVC cavity vent strip must be installed at the bottom of all walls constructed using the drained and ventilated cavity construction method. James Hardie uPVC vent strip has an opening area of 1000mm²/m length. It is important that the openings in the vent strip are kept clear and unobstructed to allow free drainage and ventilation of cavities.

4.4 CAVITY BATTENS

Buildings with a risk score of 13-20 calculated in accordance with NZBC Acceptable Solution 'E2/AS1' Table 2 require Linea Weatherboards to be installed on a cavity.

The cavity battens provide airspace between the frame and cladding and are considered a "packer" only in this specification.

The timber battens must be minimum H3.1 treated in accordance with NZS 3640 (Chemical preservation of Round and sawn timber) to comply with the durability requirements of 'B2/AS1'.

Cavity battens must comply with 'E2/AS1' and:

- be minimum 18mm thick.
- be minimum as wide as the width of studs.
- be fixed by the cladding fixings to the main framing through the building wrap.
- until claddings are fixed the battens need only to be tacked to framing.

(Batten fixing is required temporarily to keep them straight on the wall during construction.)

The cavity battens are installed as described below:

- Fix cavity battens to studs.
- Battens should be fixed with 40mm x 2.8mm nails at 800mm centres maximum.

4.5 INTERMEDIATE SUPPORT

Where studs are at 600mm centres an intermediate means of restraining the building wrap and insulation from bulging into the cavity shall be installed. An acceptable method to achieve this is using a:

- Intermediate cavity batten between the studs.
- 75 mm galvanized mesh.
- polypropylene tape.

No intermediate supports are required:

- where studs are at 400mm centres. Or;
- when rigid sheathings instead of building wraps are used.

4.6 CORNERS

Anticipated joist shrinkage must be allowed for in the design process. Do not run trims or aluminium extrusions continuously across solid floor joists. There are a number of options to select from when detailing external corners:

- 90° corner soaker in aluminium, copper or stainless steel. Refer to Figures 7 and 32.
- Box corners using CLD Trim. Refer to Figures 3, 4 and 29.
- Mitred corners to weatherboards. Refer to Figures 5 and 30.
- Aluminium boxed corners. Refer to Figures 6 and 31.

There are a number of options to select from when detailing internal corners:

- Scribed corner. Refer to Figures 8 and 33.
- 90° or 135° Aluminium W-mould.

Refer to Figures 9, 10, 34 and 35.

4.7 JUNCTIONS AND PENETRATIONS

Refer to Clause 2.5 of this specification for moisture management requirements. All windows and doors must be detailed as per the requirements of this specification. James Hardie has developed the window details for Linea Weatherboards which meet the requirements of E2 'External Moisture', an approved document of the NZBC. Refer to Figures 11 to 24 and 36 to 53.

5 FIXING LINEA WEATHERBOARD

5.1 GENERAL

The horizontal lap of Linea Weatherboards must be 30mm. Linea Weatherboards must be kept dry and under cover whilst in storage prior to and during fixing. Cut ends which are exposed or where sealant is applied to the boards must be primed prior to installation. Dust and loose material must be removed before priming. An H3.1 treated timber cant strip must be provided to support the bottom board on the wall. Refer to Figure 1 and Figure 26.

5.2 FASTENER DURABILITY

Fasteners must meet the minimum durability requirements of the NZBC. NZS 3604 specifies the requirements for fixing's material to be used in relation to the exposure conditions and are summarised in Table 2.

TABLE 2:

EXPOSURE CONDITIONS AND NAIL SELECTION PRESCRIBED BY NZS 3604

NAIL MATERIAL		
Sea Spray Zones *	Zone 1 outside sea spray zone and Zones 2 – 4 and Geothermal hot spots	Bracing – All zones
Grade 316 Stainless	Hot-dipped galvanised or 316 stainless	Grade 316 Stainless

* (Zone 1 areas where local knowledge dictates that increased durability is required, appropriate selection shall be made)

Also refer to NZBC Acceptable Solution 'E2/AS1' Table 20 and 21 for information regarding the selection of suitable fixing materials and their compatibility with other materials.

5.3 NAIL SIZE AND FIXING METHOD

Linea Weatherboards and CLD Trim must be fixed to timber with the types of nails specified in Tables 3 and 4, in accordance with the following requirements:

- Linea Weatherboard must be fixed into studs. Fixing centres to coincide with stud spacing.
- All concealed nails must be driven flush with the board surface.
- When concealed fixing Linea Weatherboards, nails must be driven behind the lap of the boards, except at all corners and vertical edges of openings where Linea Weatherboards must be face fixed/exposed nailed. Refer to Figure 2 and Figure 28. Or alternatively use 30mm Brad nails at the corners and beside openings to fix Linea Weatherboard together.
- Nails must be fixed 25mm from the end of the board when hand nailing.
- Linea Weatherboards may be face fixed when site conditions create a gap under the lap.

TABLE 3

NAIL REQUIREMENTS FOR LINEA WEATHERBOARDS	
DIRECT TO STUD FIXING	
Concealed Nailing	
40 x 2.8mm HardiFlex® nails	Finish flush with the board surface
Face Nailing	
60 x 3.15mm jolt head nails	Hot-dipped galvanised may be driven through both thicknesses at board lap without pre-drilling Stainless steel jolt heads will require pre-drilling*
CAVITY FIXING	
Concealed Nailing	
60 x 3.15mm HardiFlex® nails	Finish flush with the board surface
Face Nailing	
75 x 3.15mm jolt head nails	Hot-dipped galvanised may be driven through both thicknesses at board lap without pre-drilling Stainless steel jolt heads will require pre-drilling*

* Use a 3.0mm drill bit

TABLE 4:

NAIL REQUIREMENTS FOR TRIM	
Single Thickness	60mm jolt head nails. If fixing over Linea Weatherboard use pre-drilled* 75 x 3.15mm jolt head nails.
Double Thickness	60mm jolt head nails.
Single plus packer	If fixing over Linea Weatherboard use 75 x 3.15mm jolt head nails through a pre-drilled* hole. When fixing to timber support use 60mm jolt head nails.

* Use a 3.0mm drill bit

Note: Special fixing arrangements are required for bracing and fire-resistance rated wall systems. For more information Ask James Hardie on 0800 808 868.

5.4 GUN NAILING

Linea Weatherboard can also be gun-nailed when concealed fixing method is used.

- Gun-nailing must not be used when Linea Weatherboard is used for bracing.
- Nails must be no closer than 50 mm from the ends of boards when gun nailing is used – double studs will be required.
- Be minimum length and gauge as per Table 3.

6 JOINTING

The ends of Linea Weatherboards are jointed off-stud by means of a tongue and groove joint. Tongue and groove joints may be located centrally between studs but no closer than 100mm from the edge of a stud. The joints must be staggered by 600mm minimum. Sealant must be provided in the tongue and groove joint.

7 FINISHING

Note: Protective coating of Linea Weatherboard and CLD Trim is required in order to meet the durability requirements of the NZBC.

7.1 PREPARATION AND PRIMING

The Linea Weatherboard and CLD Trim must be dry before painting. Punch and fill all exposed nails a maximum of 2mm below the surface. Fill the hole with an exterior grade builders fill, allow to cure and sand smooth ready for priming. Prime the filled holes in accordance with paint manufacturer's specifications.

7.2 SEALANTS

All sealants must demonstrate the ability to meet the relevant requirements of the NZBC and hold a current BRANZ Appraisal certificate. Application and use of sealants must comply with manufacturer's instructions. Sealants, if coated, must be compatible with the paint system.

7.3 PAINTING

All Linea Weatherboards are pre-primed on their face and bottom edge with a factory applied acrylic base coat. Linea Weatherboard must be painted within 90 days of installation. All exposed faces, including the top edges under the sills and bottom edges of Linea Weatherboard, Trim and accessories must be finished with latex exterior paint system complying with any of parts 7, 8, 9, and 10 of AS 3730. Dark coloured paints can be used on Linea Weatherboard and Trim. Some environments require special coatings. Paint selection and the preparation required is dependant on paint chosen. Refer to the paint manufacturer for information before starting painting.

8 STORAGE AND HANDLING

Linea Weatherboards and Trim must be laid flat on a smooth level surface. To ensure optimum performance, store weatherboards under cover and keep dry prior to fixing. If the weatherboards should become wet, allow to dry thoroughly before fixing. Do not carry weatherboards on the flat, carry in the vertical position to avoid excessive bending.

9 MAINTENANCE

It is the responsibility of the specifier to determine normal maintenance requirements to comply with NZBC Acceptable Solution 'B2/AS1'. The extent and nature of maintenance will depend on the geographical location and exposure of the building. As a guide, it is recommended that basic normal maintenance tasks shall include but not be limited to:

- Washing down exterior surfaces every 6-12 months*,
- Re-applying exterior protective finishes*,
- Maintaining the exterior envelope and connections including joints, penetrations, flashings and sealants,
- Cleaning out gutters, blocked pipes and overflows as required,
- Pruning back vegetation close to or touching the building,
- The clearances between the bottom edge of Linea Weatherboard and the finished/unfinished ground must always be maintained.

**Refer to your paint manufacturer for washing down and recoating requirements related to paint performance.*

10 PRODUCT INFORMATION

10.1 MANUFACTURING AND CLASSIFICATION

James Hardie New Zealand is an ISO 9001(2000) Telarc certified manufacturer. Linea Weatherboard and CLD Trim are manufactured to meet the requirements of AS/NZS 2908.2: 2000 'Cellulose-Cement Products'. Linea Weatherboard has a classification of Type A Category 3 in accordance with this Standard. Linea Weatherboard is a reduced density cellulose cement formulation incorporating James Hardie patented CLD® (Ceramic Low Density) technology. Linea Weatherboard has a bevel back and tongue and groove at the ends for jointing. The bottom front edge of Linea Weatherboard is chamfered. The weatherboards are supplied pre-primed on their face and bottom edge with an acrylic primer. Linea Weatherboards and CLD Trim are identified by the printing at regular intervals of the name LINEA on the back face.

10.2 JAMES HARDIE TRIM

The CLD Trim, used for box corners, around windows and doors as well as special architectural features, is also made with the CLD technology and is supplied pre-primed with an acrylic primer.

10.3 DURABILITY

Linea Weatherboard and Trim, when installed and maintained as per the technical specification, will meet the durability requirements for claddings as required in the NZBC Approved Document B2 'Durability'.

10.3.1 RESISTANCE TO MOISTURE/ROTTING

Linea Weatherboard and CLD Trim have demonstrated resistance to permanent moisture-induced deterioration (rotting) by passing the following tests in accordance with AS/NZS2908.2:

- Water Permeability (Clause 8.2.2)
- Warm Water (Clause 8.2.4)
- Heat Rain (Clause 6.5)
- Soak Dry (Clause 8.2.5).

10.3.2 RESISTANCE TO FIRE

Linea Weatherboard and CLD Trim has the following Early Fire Hazard Indices (tested to AS 1530 Part 3).

10.3.3 ALPINE REGIONS

In regions subject to freeze/thaw conditions, Linea Weatherboard must not be in direct contact with snow or ice build up for extended periods, e.g. external walls in alpine regions subject to snow drifts over winter.

The Linea Weatherboard has been tested in accordance with AS/NZS 2908.2 Clause 8.2.3.

TABLE 5:

EARLY FIRE HAZARD INDICES	
Ignition Index	0
Flame Spread Index	0
Heat Evolved Index	0
Smoke Developed Index	0 -1

10.4 PRODUCT SIZES AND MASS

Available sizes of Linea Weatherboard and CLD Trim and its weight are given in Table 6.

10.5 SIZE AND WEIGHT

Linea Weatherboard is categorised as a Light Weight Wall Cladding as described in NZS 3604. Physical properties of Linea Weatherboard and CLD Trim are provided in Table 6.

11 SAFE WORKING PRACTICES

WARNING

DO NOT BREATHE DUST AND CUT ONLY IN WELL VENTILATED AREA

James Hardie products contain respirable crystalline silica which is considered by some international authorities to be a cause of cancer from some occupational sources. Breathing excessive amounts of respirable silica dust can also cause a disabling and potentially fatal lung disease called silicosis, and has been linked with other diseases. Some studies suggest smoking may increase these risks. During installation or handling: (1) work in outdoor areas with ample ventilation; (2) minimise dust when cutting by using either 'Score and Snap' knife, fibre cement shears or, where not feasible, use a HardiBlade® Saw Blade and dust-reducing circular saw attached to a HEPA vacuum; (3) warn others in the immediate area to avoid breathing dust; (4) wear a properly-fitted, approved dust mask or respirator (e.g. P1 or P2) in accordance with applicable government regulations and manufacturer instructions to further limit respirable silica exposures. During clean-up, use HEPA vacuums or wet cleanup methods - never dry sweep. For further information, refer to our installation instructions and Material Safety Data Sheets available at www.jameshardie.co.nz. FAILURE TO ADHERE TO OUR WARNINGS, MATERIAL SAFETY DATA SHEETS, AND INSTALLATION INSTRUCTIONS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

JAMES HARDIE RECOMMENDED SAFE WORKING PRACTICES

CUTTING OUTDOORS

- Position cutting station so that wind will blow dust away from user or others in working area.
- Use a dust reducing circular saw equipped with HardiBlade® Saw Blade and HEPA vacuum extraction.

DRILLING/OTHER MACHINING

When drilling or machining you should always wear a P1 or P2 dust mask and warn others in the immediate area.

IMPORTANT NOTES:

1. NEVER use a power saw indoors
2. NEVER use a circular saw blade that does not carry the HardiBlade® logo
3. NEVER dry sweep - Use wet suppression or HEPA Vacuum
4. NEVER use grinders
5. ALWAYS follow tool manufacturer's safety recommendations

P1 or P2 respirators can be used in conjunction with above cutting practices to further reduce dust exposures. Additional exposure information is available at www.jameshardie.co.nz to help you determine the most appropriate cutting method for your job requirements. If concern still exists about exposure levels or you do not comply with the above practices, you should always consult a qualified industrial hygienist or contact James Hardie for further information.

WORKING INSTRUCTIONS

Refer to Recommended Safe Working Practices before starting any cutting or machining of product.

HARDIBLADE® SAW BLADE

The HardiBlade® Saw Blade used with a dust-reducing saw connected to a HEPA vacuum is ideal for fast, clean cutting of James Hardie fibre cement products. A dust-reducing saw uses a dust deflector or a dust collector connected to a vacuum system. When sawing, clamp a straight-edge to the sheet as a guide and run the saw base plate along the straight edge when making the cut.



HOLE-FORMING

For smooth clean cut circular holes:

Mark the centre of the hole on the sheet.

Pre-drill a 'pilot' hole.

Using the pilot hole as a guide, cut the hole to the appropriate diameter with a hole saw fitted to a heavy duty electric drill.

For irregular holes:

Small rectangular or circular holes can be cut by drilling a series of small holes around the perimeter of the hole then tapping out the waste piece from the sheet face.



Tap carefully to avoid damage to sheets, ensuring that the sheet edges are properly supported.

STORAGE AND HANDLING

All James Hardie building products should be stored to avoid damage, with edges and corners of the sheets protected from chipping.

James Hardie building products must be installed in a dry state and be protected from rain during transport and storage. The product must be laid flat under cover on a smooth level surface clear of the ground to avoid exposure to water or moisture, etc.

QUALITY

James Hardie conducts stringent quality checks to ensure that any product manufactured falls within our quality spectrum. It is the responsibility of the builder to ensure that the product meets aesthetic requirements before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation.

12 PRODUCT SIZES

TABLE 6:

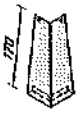
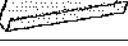
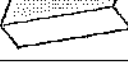
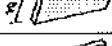
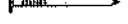
LINEA WEATHERBOARD AND TRIM SIZES									
Product	Length (mm)	Width (mm)	Thickness (mm)	End Details	Effective Cover (mm)	COVERAGE INFORMATION			
						No. of planks/ metre height (approx.)	Mass kg/linear m (approx. at EMC)	Mass kg/m ² approx. at EMC)	weight/pack (60 units/ pack)
135 Linea Weatherboard	4200*	135	16	T & G	105	9.5	2.62	24.93	660.00
150 Linea Weatherboard	4200*	150	16	T & G	120	8.3	3.1	25.70	781.00
180 Linea Weatherboard	4200*	180	16	T & G	150	6.7	3.57	23.92	899.00
84mm CLD Trim	2600	84	16	Square	N/A	N/A	1.6	N/A	N/A
100mm CLD Trim	2600	100	16	Square	N/A	N/A	1.9	N/A	N/A
135mm CLD Trim	4200	135	16	T & G	N/A	N/A	2.6	N/A	N/A
180mm CLD Trim	4200	180	16	T & G	N/A	N/A	3.4	N/A	N/A

*Length is 4200mm plus 5mm for the tongue and groove making overall length 4205mm

*The effective thickness of finished Linea Weatherboard on the wall at the lap is approximately 33 to 35mm

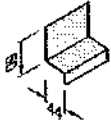
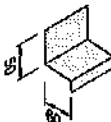
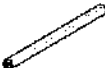
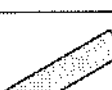
13 ACCESSORIES

ACCESSORIES/TOOLS SUPPLIED BY JAMES HARDIE

	ACCESSORY AND MATERIAL NUMBER	SIZE (MM)	MATERIAL / APPEARANCE
	External corner soaker 90° for 180mm weatherboards • Aluminium 301186 • Copper 301188 • Stainless Steel 301197	200 long	Self colour
	External corner soaker 90° for 150mm weatherboards • Aluminium 302820 • Stainless Steel 302821	170 long	Self colour
	External corner soaker 90° for 135mm weatherboards • Aluminium 301185 • Copper 301187 • Stainless Steel 301198	155 long	Self colour
	External Stirline Box Corner Mould 301195	2700 long	Etch Primed Aluminium
	Box Corner 'Z' Flashing 301203	2700 long	PVC Grey
	Internal 'W' Mould 90° 301184	2700 long	Etch Primed Aluminium
	Internal 'W' Mould 135° 301183	2700 long	Etch Primed Aluminium
	Vent Strip 302490	3000 long	PVC White
	JH Corner Under Flashing 50 x 50 303745	3000 long	PVC White
	Jolt Head Nail 316 Stainless Steel 301233	60 x 3.15mm	Self colour
	Jolt Head Nail 316 Stainless Steel 301234	75 x 3.15mm	Self colour
	Inseal 3109 Sealing Strip 302324	5 x 3 x 25	Black compressible foam
	CLD Trim 16mm 401943	84 x 2600 long	Fibre Cement primed
	CLD Trim 16mm 401930	100 x 2600 long	Fibre Cement primed
	HardiFlex nail - Jar - 5kg 302781 302782	60 x 3.15mm	316 Stainless Steel
	HardiFlex nail - Jar - 5kg 302783 302784	60 x 3.15mm	Hot Dip Galvanised
	HardiBlade® Saw Blade 300860	4 tooth - 184mm	Diamond Tipped
	CLD Fascia - 180mm - 230mm 401843 402230	4200 long	Fibre cement Primed
	Linea and Fascia Screw 303480	40mm x 9 gauge	Stainless Steel

ACCESSORIES NOT SUPPLIED BY JAMES HARDIE

James Hardie recommends the following products for use in conjunction with its Linea Weatherboard and CLD Trim. James Hardie does not supply these products. There may also be some other accessories required depending upon the application. Please contact component manufacturer for information on their warranties and further information on their products.

	ACCESSORY AND MATERIAL NUMBER	SIZE (MM)	MATERIAL / APPEARANCE
	Head Flashing for Direct Fixed without CLD Trim facings	To suit	Etch Primed Aluminium/ Powder Coated
	Head Flashing for Direct Fixed with CLD Trim facings	To suit	Etch Primed Aluminium/ Powder Coated
	HardiFlex nail	40 x 2.8mm	316 Stainless Steel
	HardiFlex nail	40 x 2.8mm	Hot Dip Galvanised
	Flexible Sealant or Expandable foam	Tube	Fosroc, Holdfast
	PEF Rod	Polyethylene foam	Fosroc or similar
	Flashing Tape	Proprietary tape to adhere to building wrap	Tyvek, Protecto wrap or similar
	Flashing material as per Table 20, 'E2/AS1'		Flashing Fabricator
	Joist Head Nail - Hot Dip Galvanised or 316 Stainless Steel	50 x 2.8 St.Steel 50 x 2.8 Galvanised 60 x 3.15 Galvanised 75 x 3.15 Galvanised	Self colour
	Planted Sill	As shown	H3.1 Treated Timber Timber Merchant or cut on site
	Titanium Coated High Speed Drill Bit	3.0mm	
	Timber Scriber	As required	H3.1 Treated Timber Timber Merchant or cut on site
	Fibre Cement Cutting Blade	254mm	Diamond Tipped
	Fibre Cement Cutting Blade	305mm	Diamond Tipped
	Exzza Meter Box		

14 DETAILS

Various details outlined in the following table are available on Pages 12 to 34.

TABLE 7:

DETAILS				
DESCRIPTION	DIRECT FIXED		CAVITY CONSTRUCTION	
	FIGURE	PAGE	FIGURE	PAGE
Concrete Slab and Soffit	Figure 1	13	Figure 26	23
Weatherboard Fixing	Figure 2	13	Figure 28	24
Boxed Corners	Figure 3 & 4	14	Figure 29	25
Mitre Corner	Figure 5	15	Figure 30	25
Aluminium Box Corner	Figure 6	15	Figure 31	25
Corner Soaker	Figure 7	16	Figure 32	26
Internal Corner	Figure 8	16	Figure 33	26
Internal 135° Aluminium 'W' Mould Corner	Figure 9	17	Figure 34	27
Internal 90° Aluminium 'W' Mould Corner	Figure 10	17	Figure 35	27
Window Sill with Facings	Figure 11	17	Figure 37	28
Window Head with Facings	Figure 12	18	Figure 38	29
Window Jamb with Facings	Figure 13	18	Figure 39	29
Window Sill without Facings	Figure 14	18	Figure 40	29
Window Head without Facings	Figure 15	19	Figure 41	30
Window Jamb without Facings	Figure 16	19	Figure 42	30
Head Flashing Termination	Figure 17	19	Figure 43	31
One Piece Apron Flashing Joint	Figure 18	20	Figure 44	32
Pipe Penetration	Figure 19	20	Figure 46	33
Meter Box at Head	Figure 20	21	Figure 47	34
Meter Box at Sill	Figure 21	21	Figure 48	34
Meter Box at Jamb	Figure 22	21	Figure 49	34
Cavity Fix Meter Box	Figure 50	35		
Parapet Flashing	Figure 23	22		
Deck Junction	Figure 24	22		
Batten Fixing			Figure 25	23
Soffit Junction			Figure 27	24
Batten Layout at Window Opening			Figure 36	28
One Piece Gutter/Wall Junction			Figure 45	33
Drainage Joint			Figure 51	36
Enclosed Deck Balustrade to Wall			Figure 52	37
Enclosed Balustrade to Wall			Figure 53	37
Enclosed Deck	Figure 54		Figure 54	38

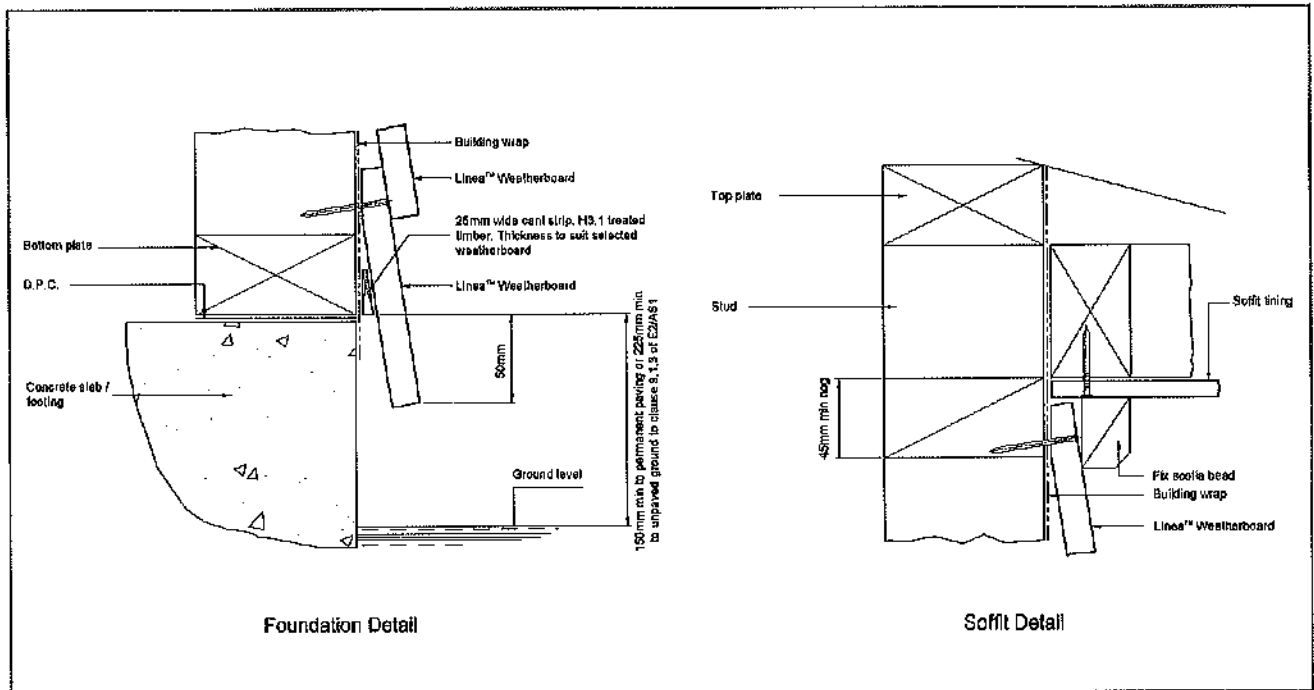


FIGURE 1: DIRECT FIX CONCRETE SLAB AND SOFFIT

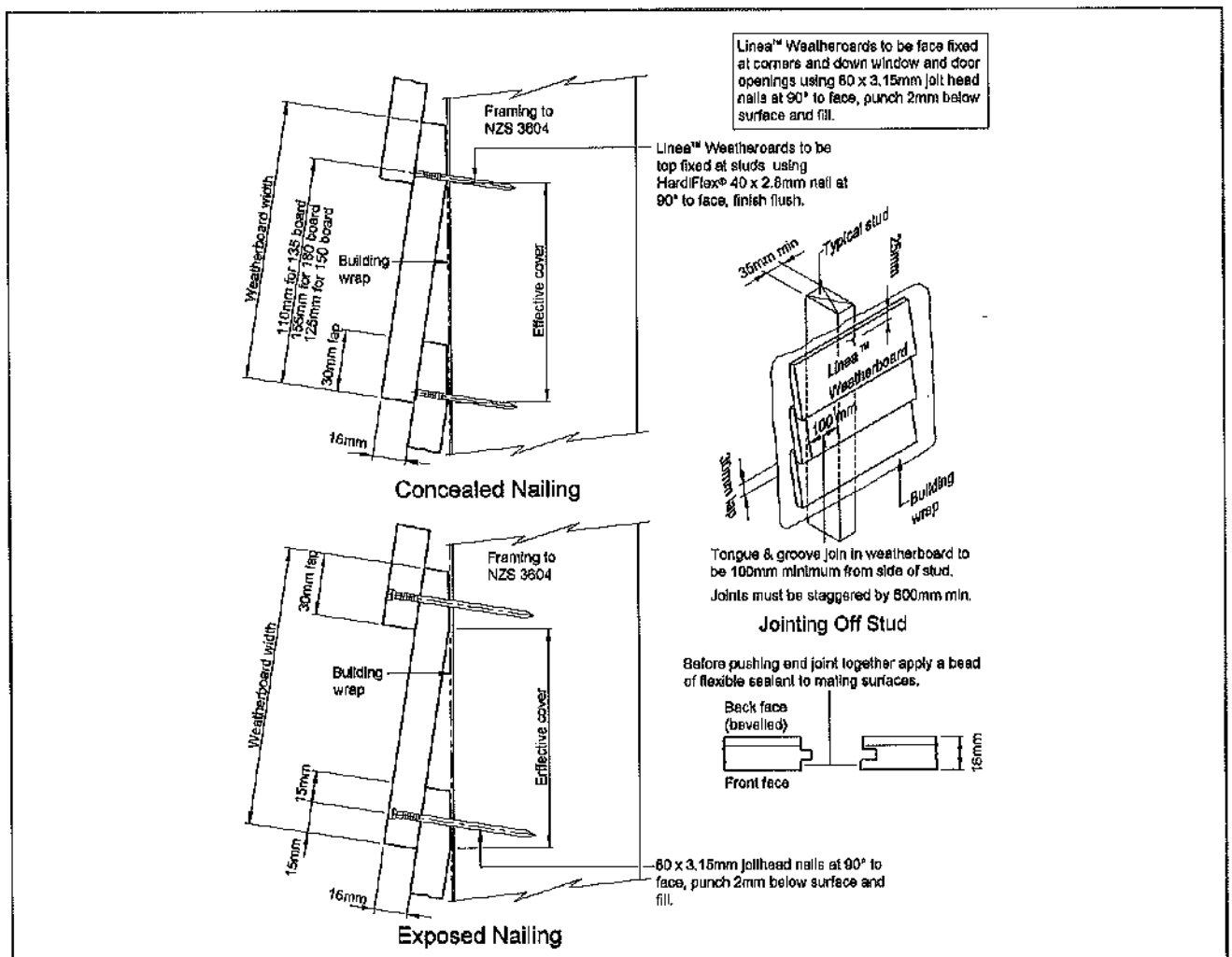


FIGURE 2: DIRECT FIX WEATHERBOARD FIXING

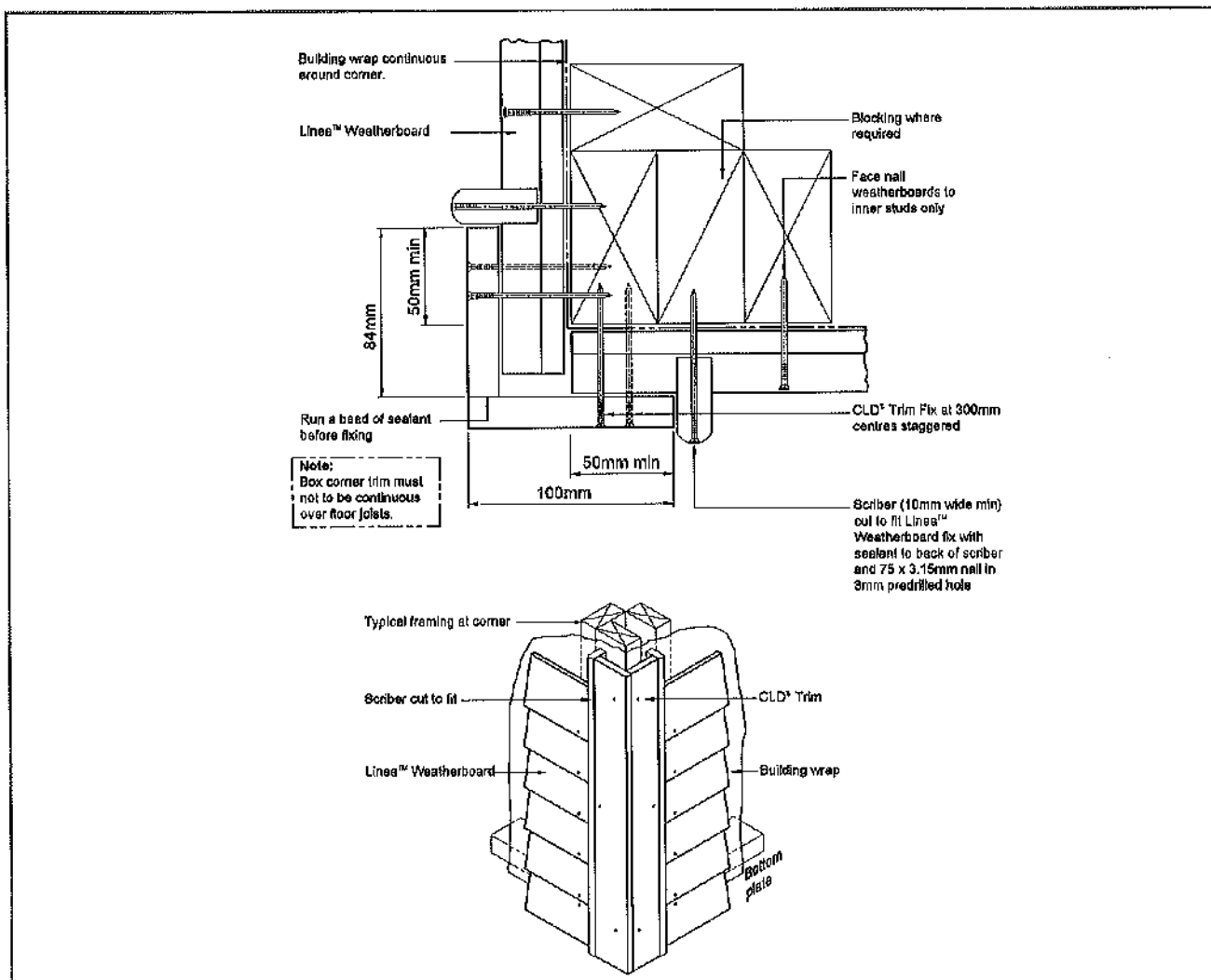


FIGURE 3: DIRECT FIX BOXED CORNER

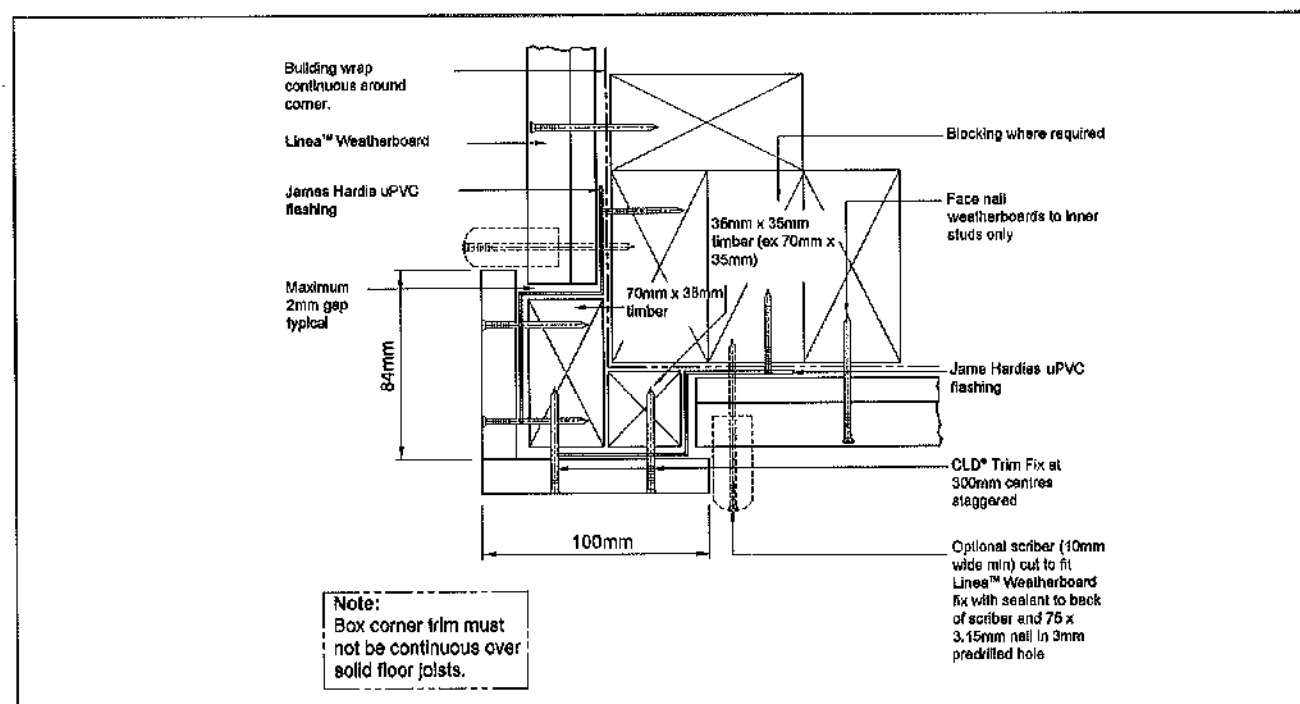


FIGURE 4: DIRECT FIX BOXED CORNERS

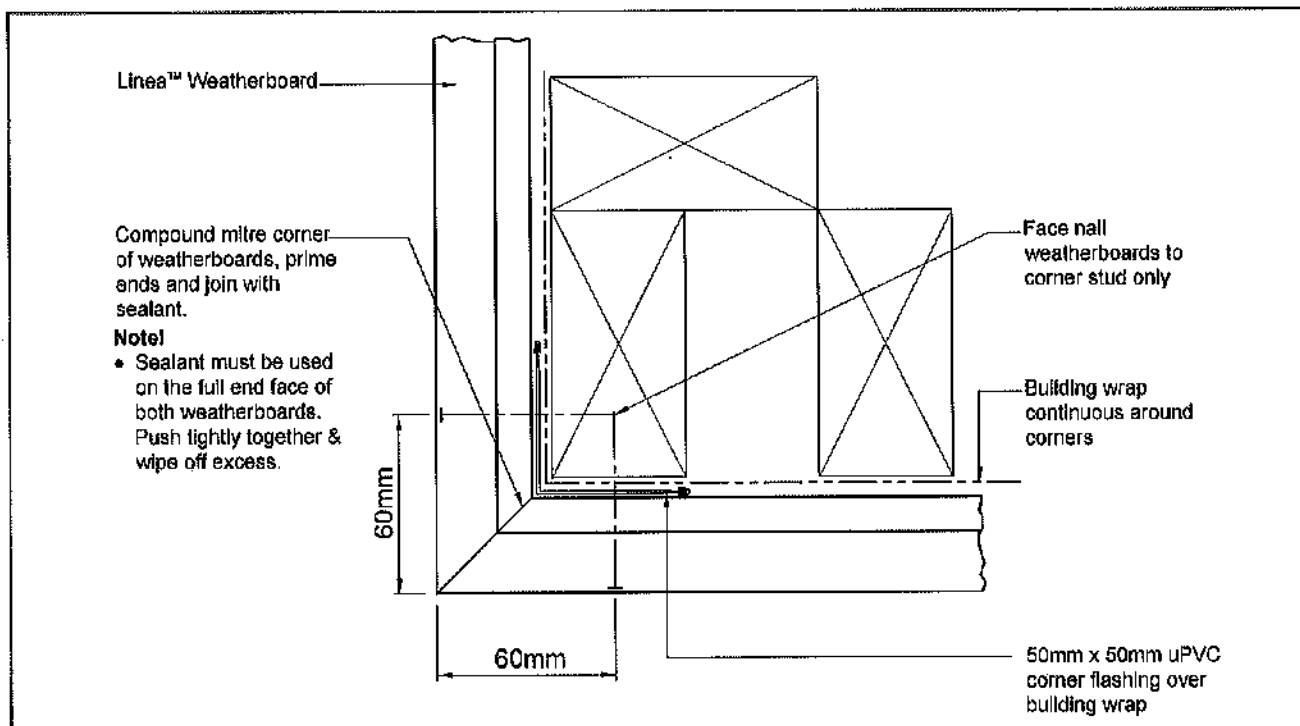


FIGURE 5: DIRECT FIX MITRE CORNER

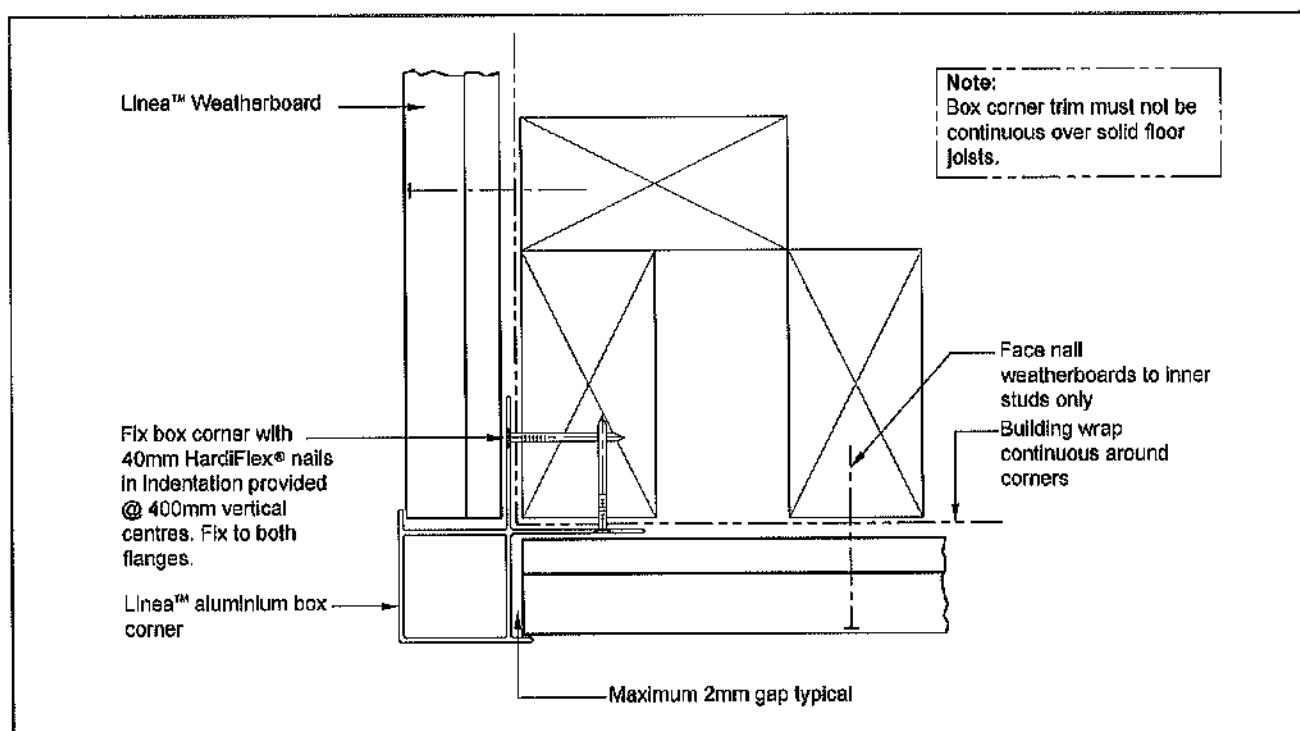


FIGURE 6: DIRECT FIX ALUMINIUM BOX CORNER

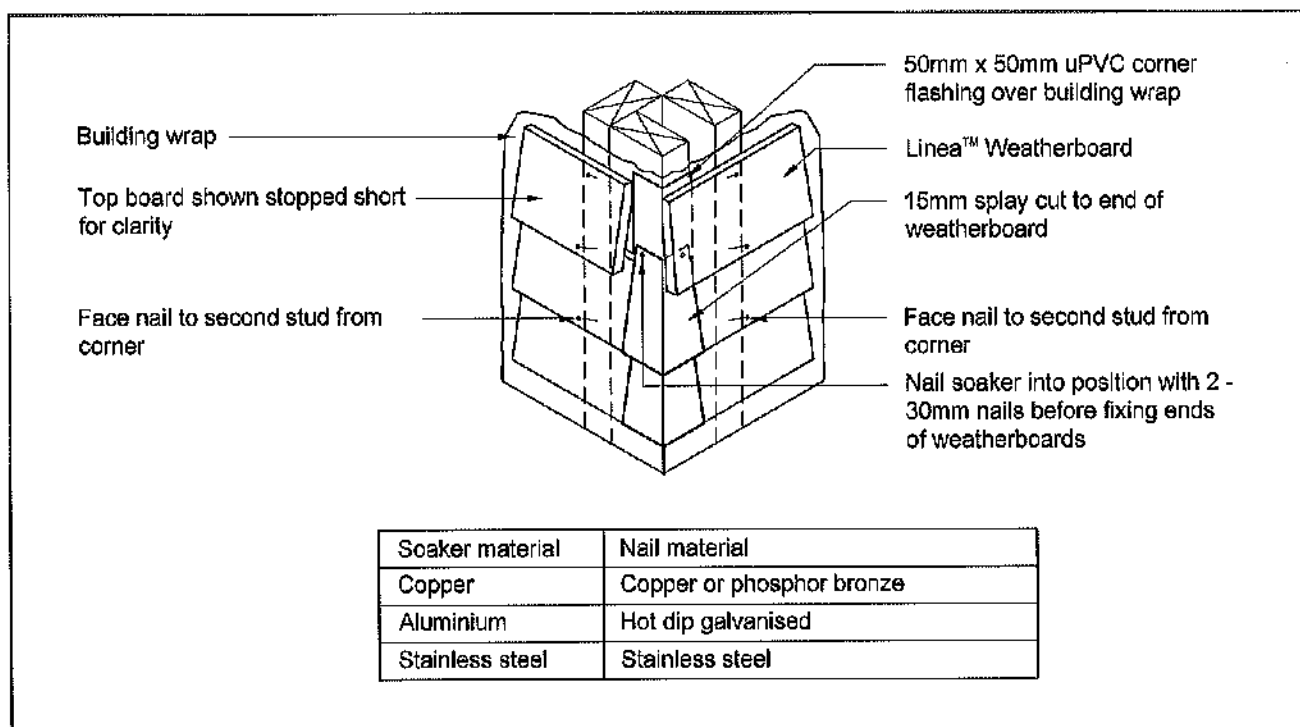


FIGURE 7: DIRECT FIX CORNER SOAKER

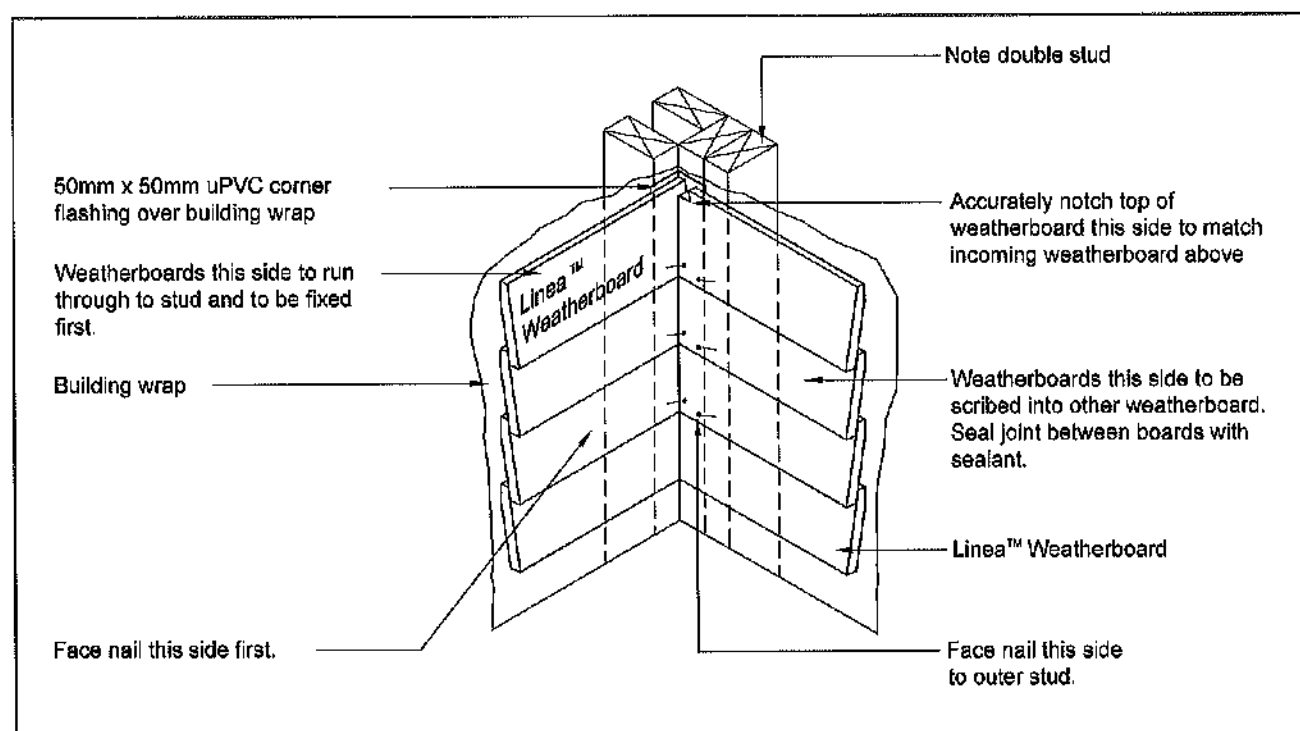


FIGURE 8: DIRECT FIX INTERNAL CORNER

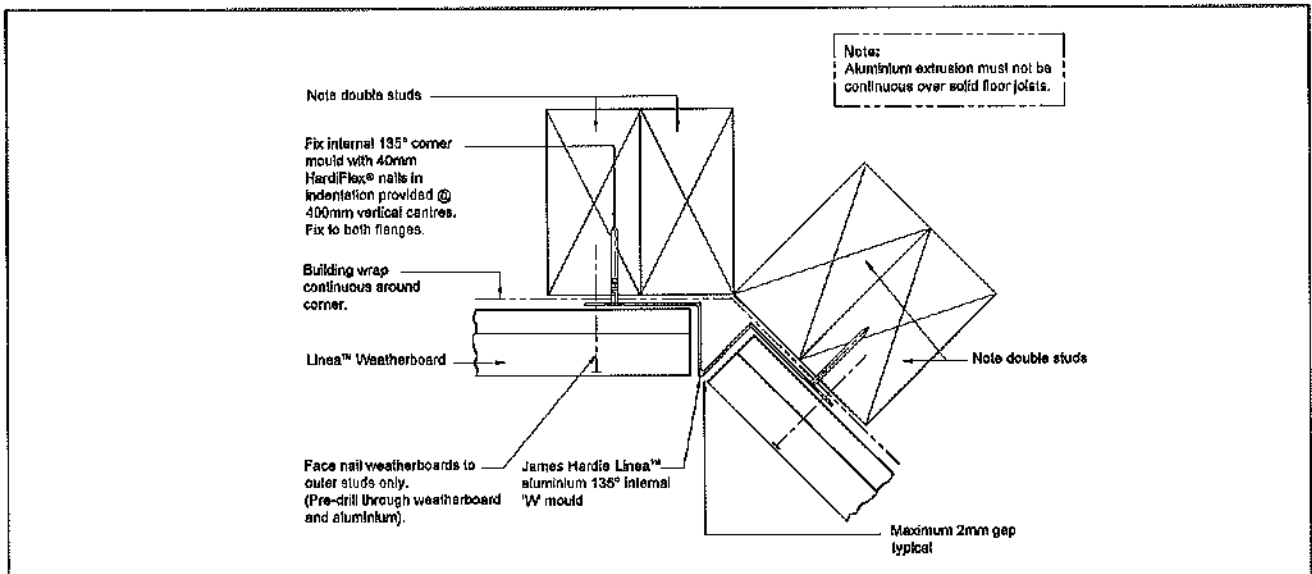


FIGURE 9: DIRECT FIX INTERNAL 135° ALUMINIUM 'W' MOULD CORNER

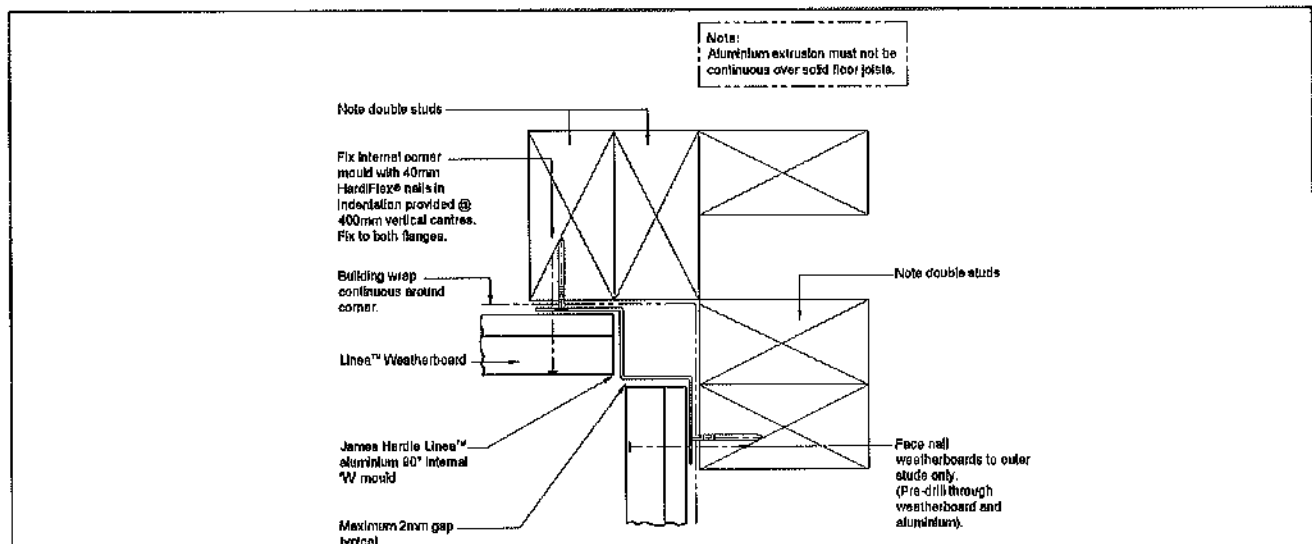


FIGURE 10: DIRECT FIX INTERNAL 90° ALUMINIUM 'W' MOULD CORNER

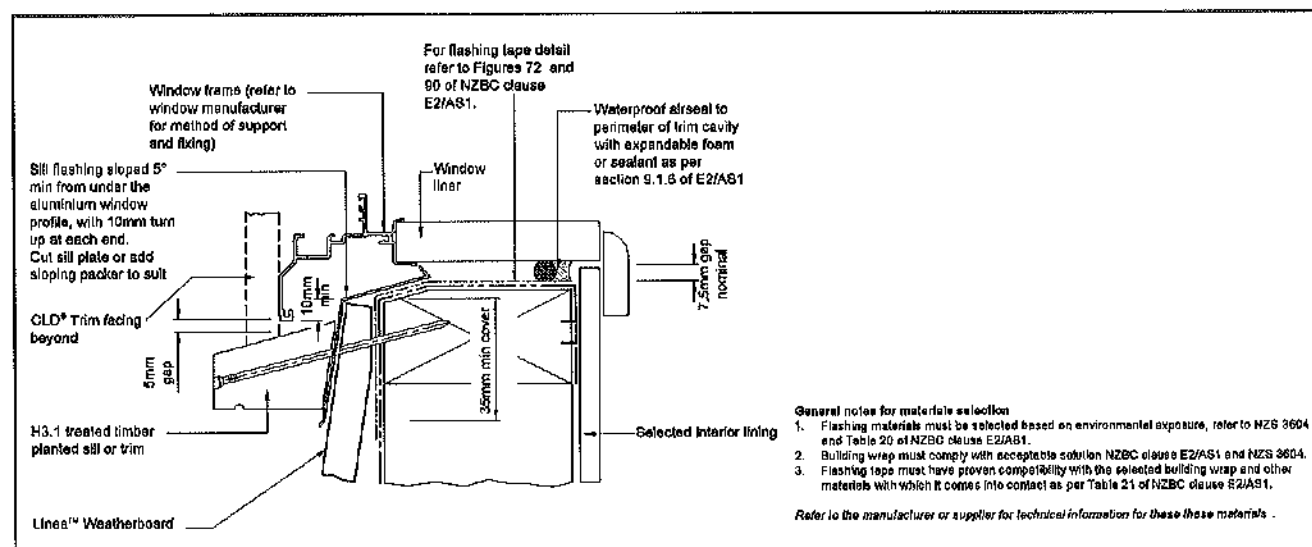


FIGURE 11: DIRECT FIX WINDOW SILL WITH FACINGS

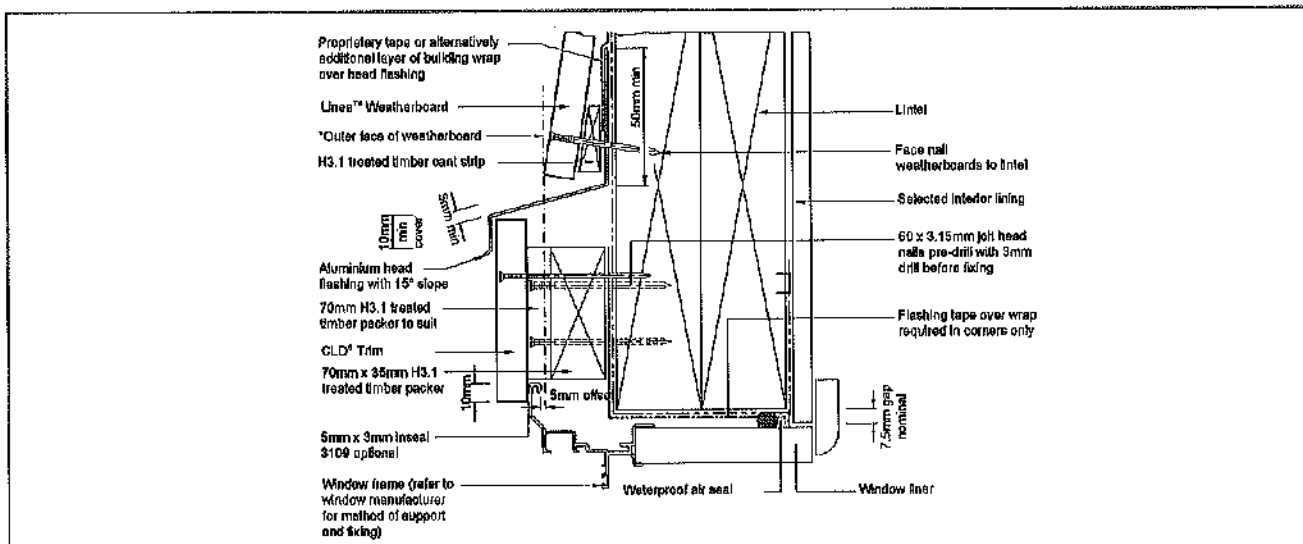


FIGURE 12: DIRECT FIX WINDOW HEAD WITH FACINGS

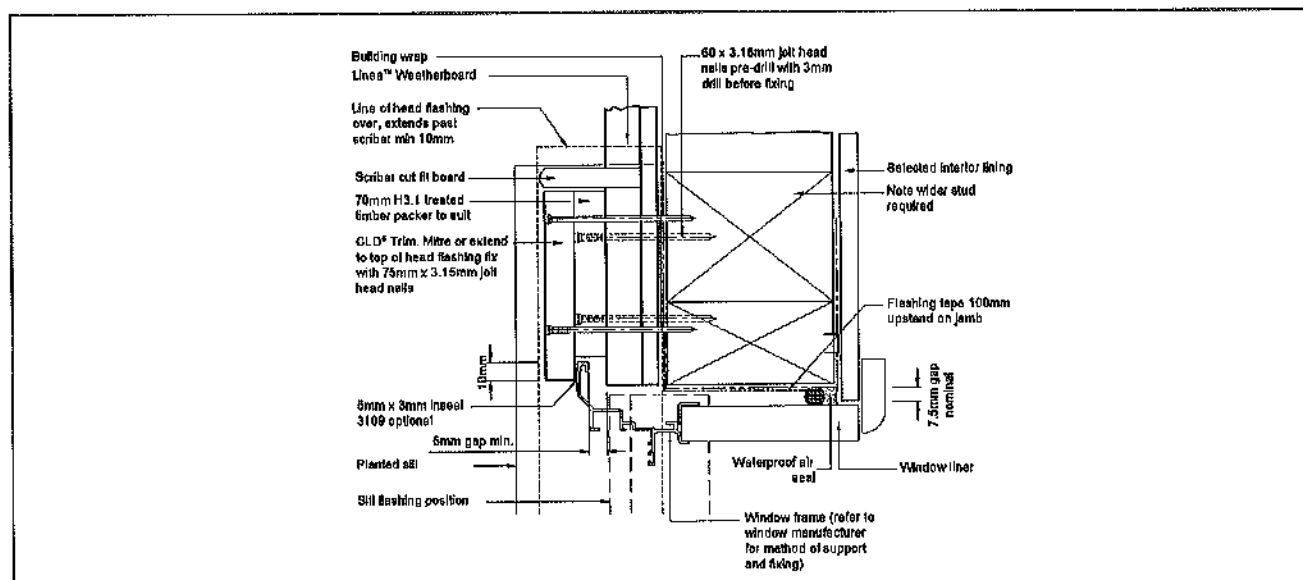


FIGURE 13: DIRECT FIX WINDOW JAMB WITH FACINGS

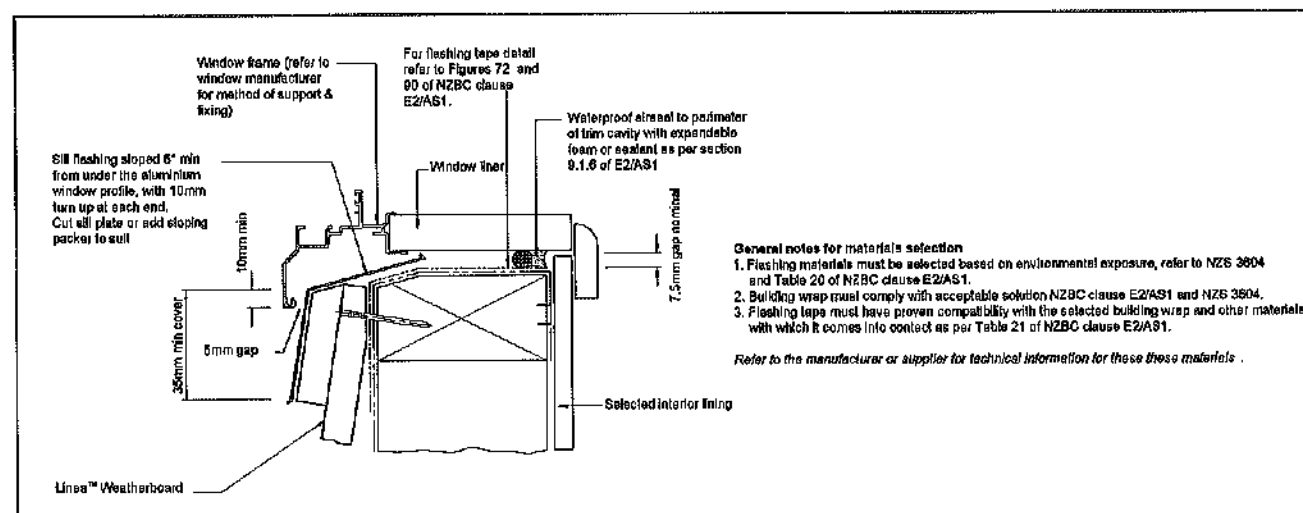


FIGURE 14: DIRECT FIX WINDOW SILL WITHOUT FACINGS

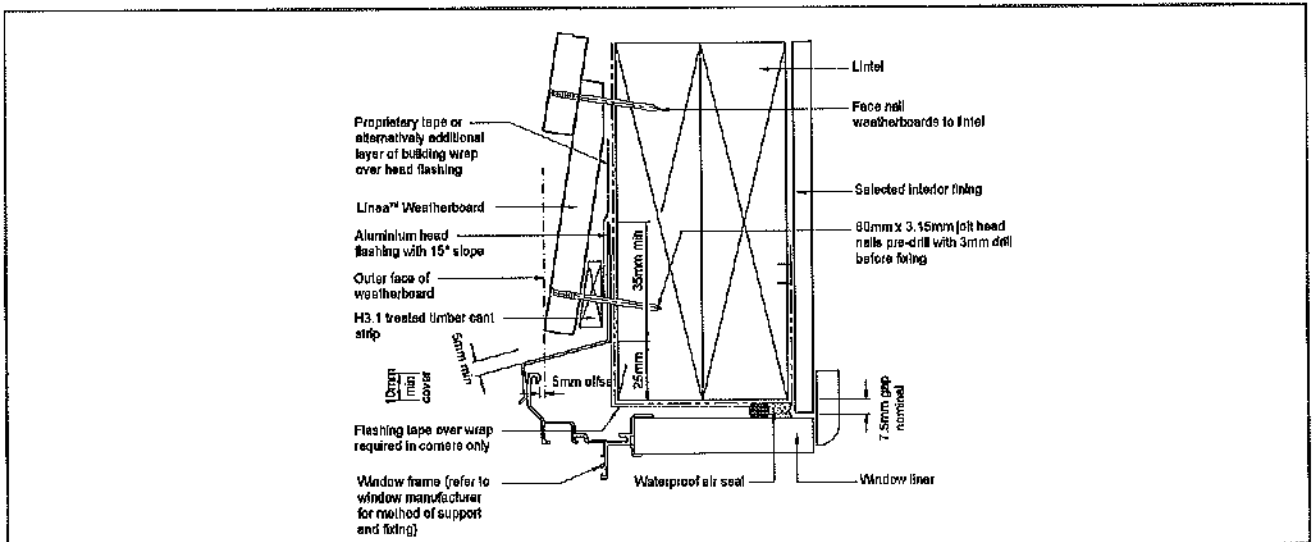


FIGURE 15: DIRECT FIX WINDOW HEAD WITHOUT FACINGS

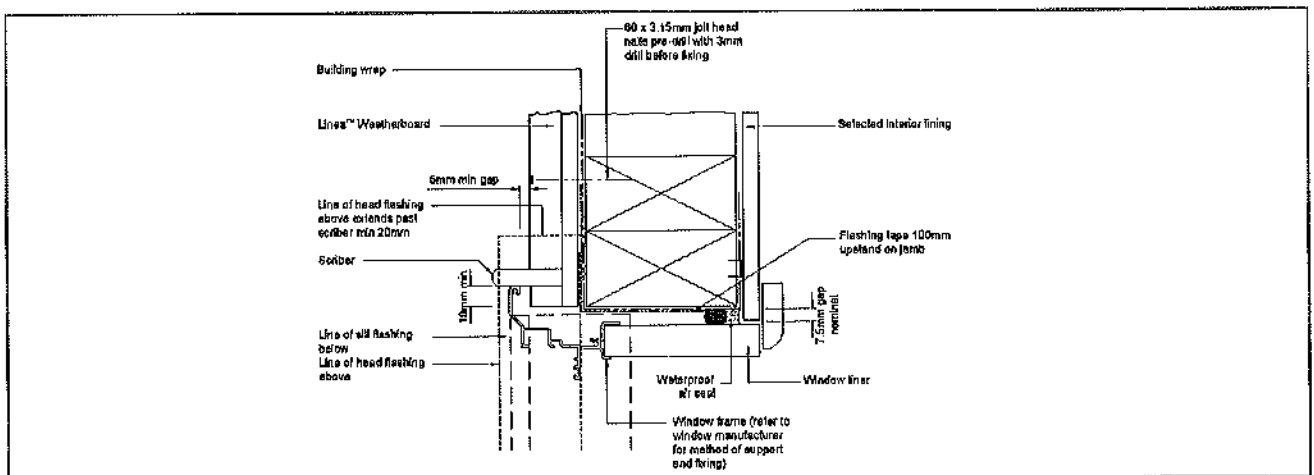


FIGURE 16: DIRECT FIX WINDOW JAMB WITHOUT FACINGS

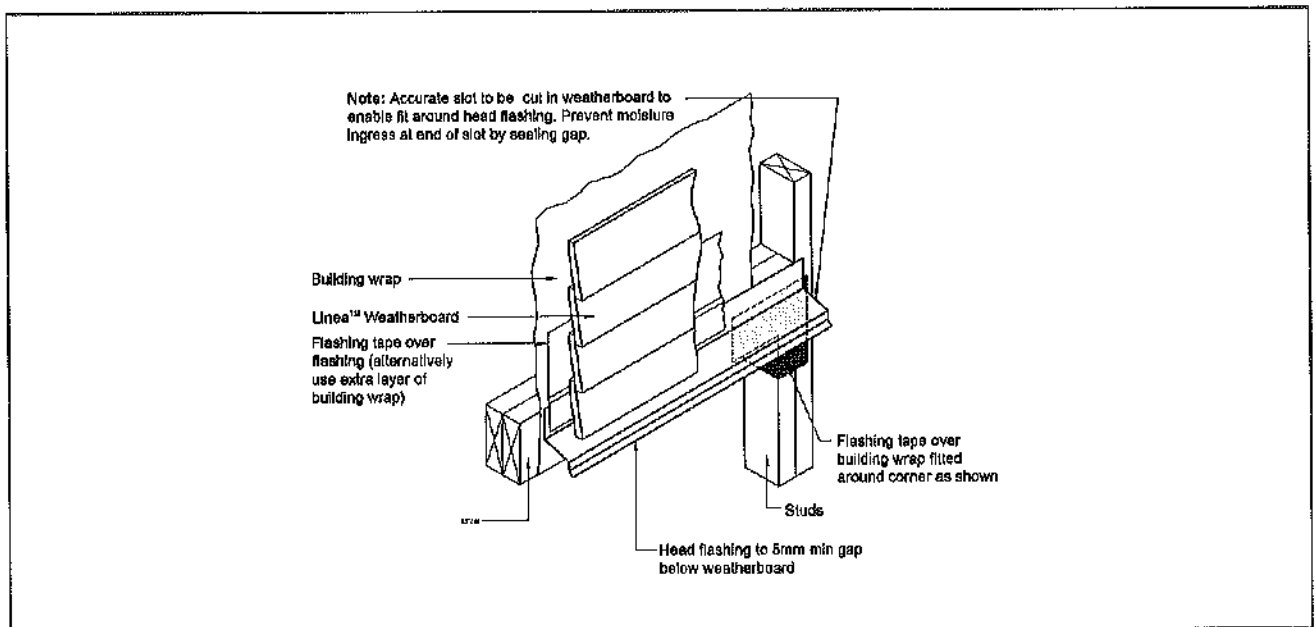


FIGURE 17: DIRECT FIX HEAD FLASHING TERMINATION

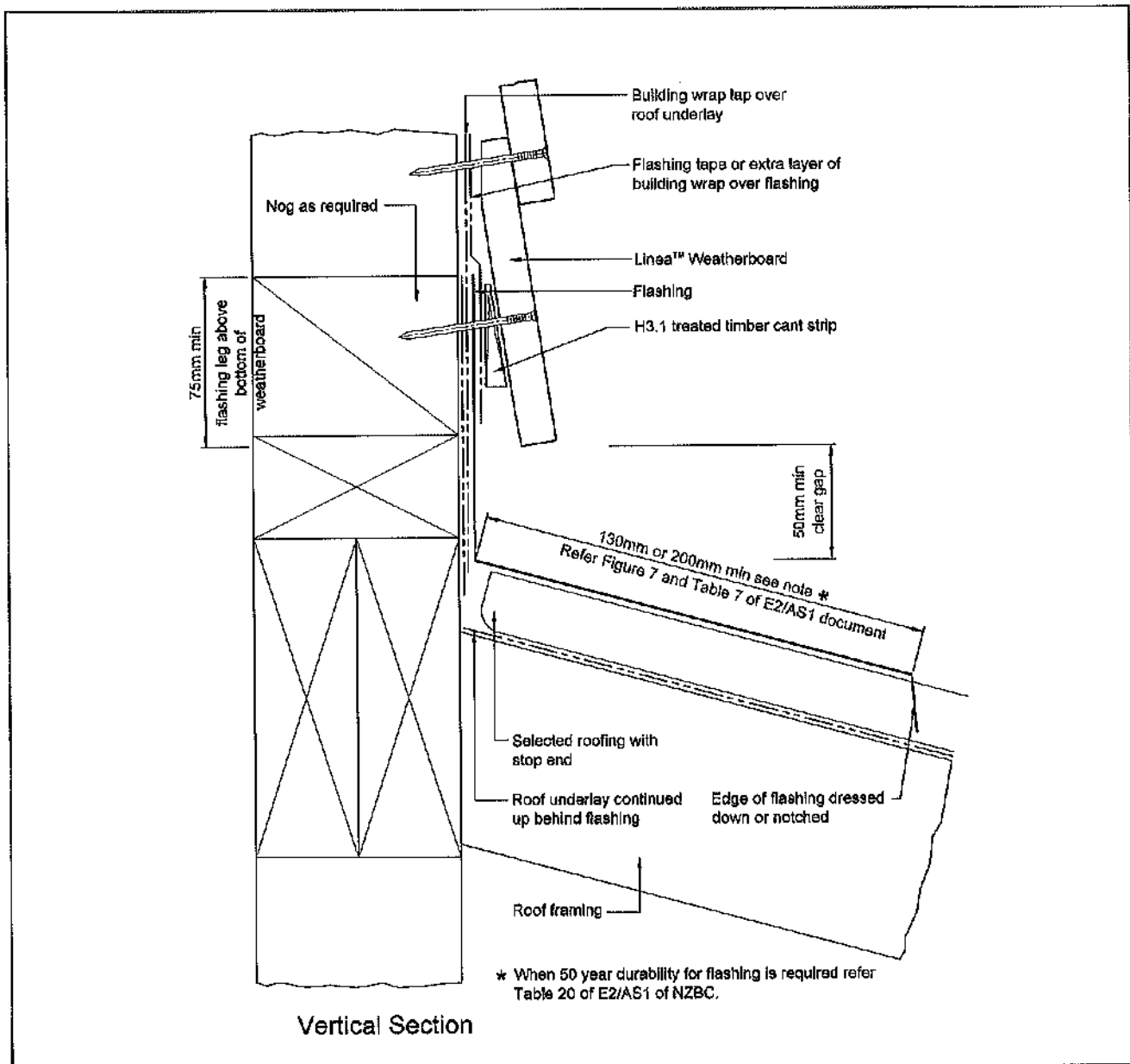


FIGURE 18: DIRECT FIX ONE PIECE APRON FLASHING JOINT

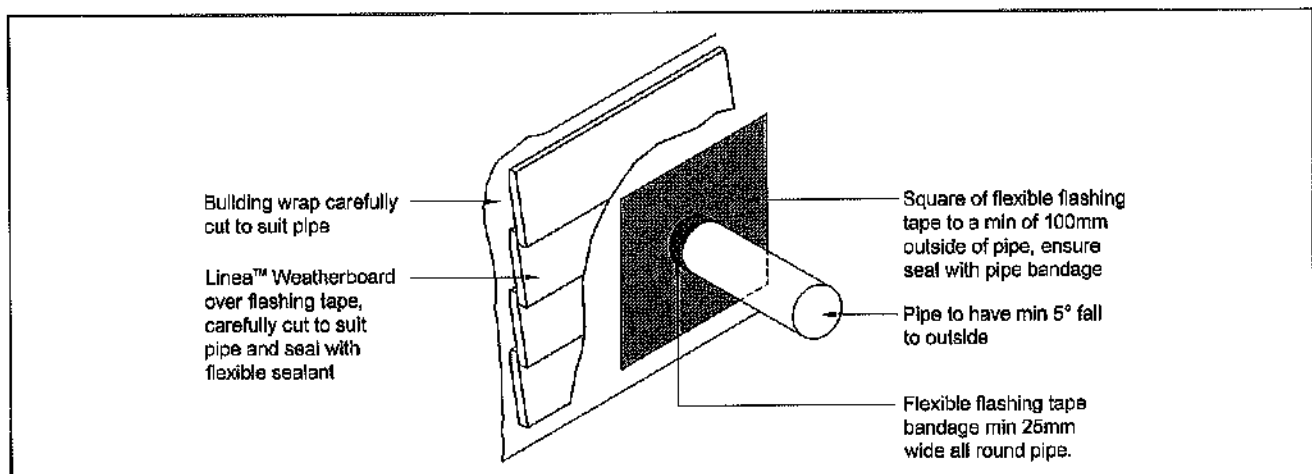


FIGURE 19: DIRECT FIX PIPE PENETRATION

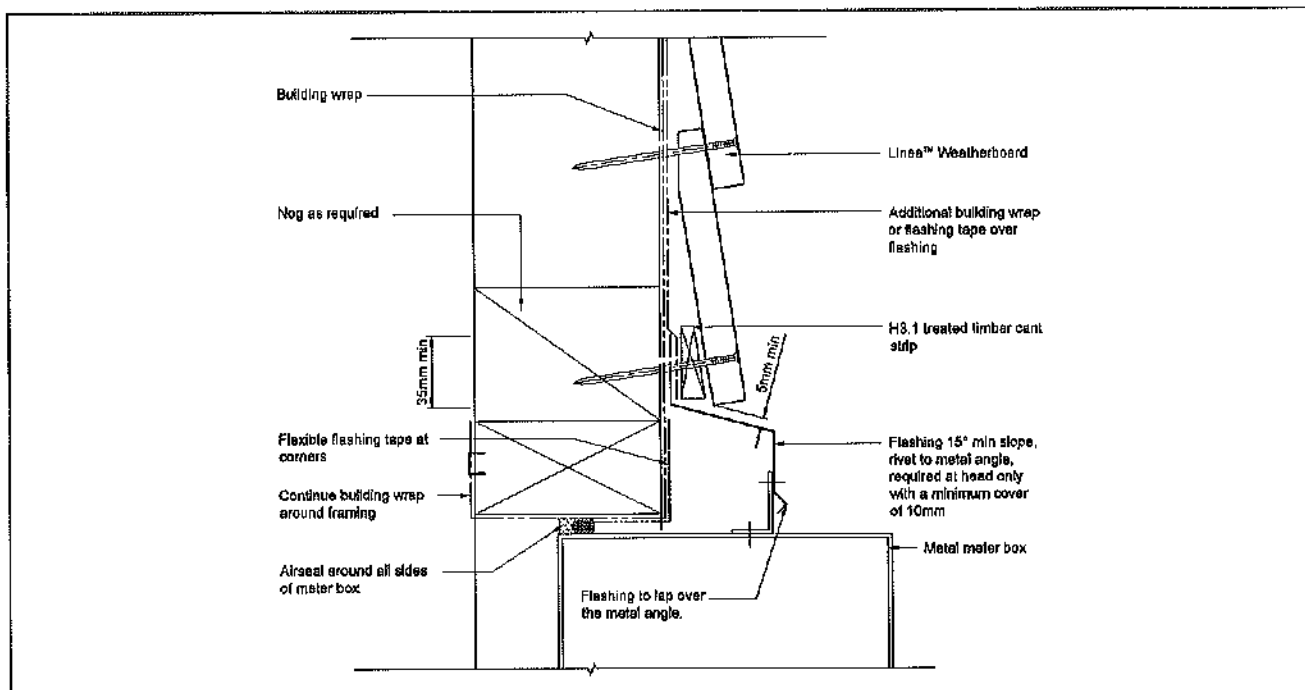


FIGURE 20: DIRECT FIX METER BOX AT HEAD

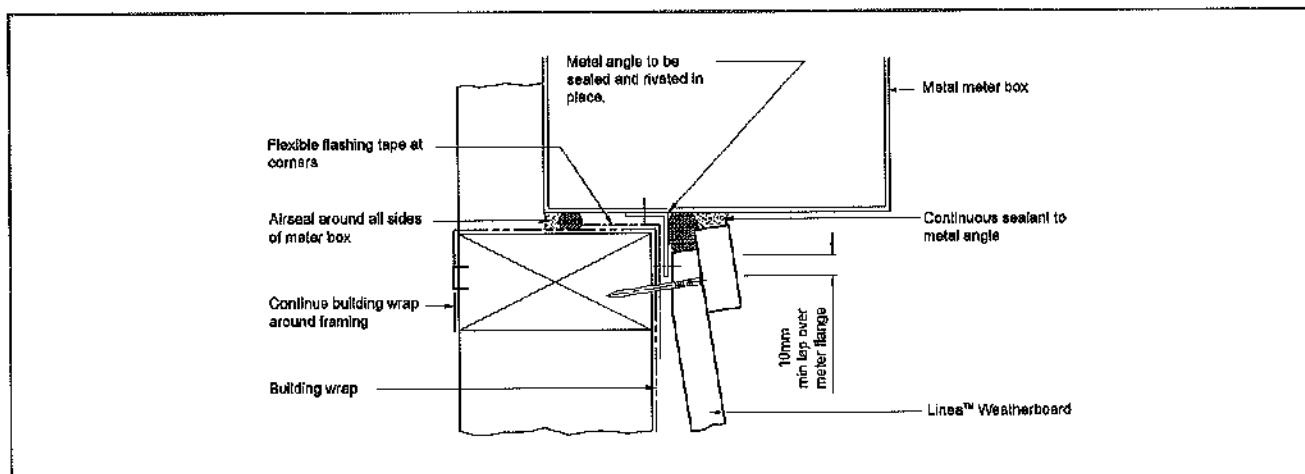


FIGURE 21: DIRECT FIX METER BOX AT SILL

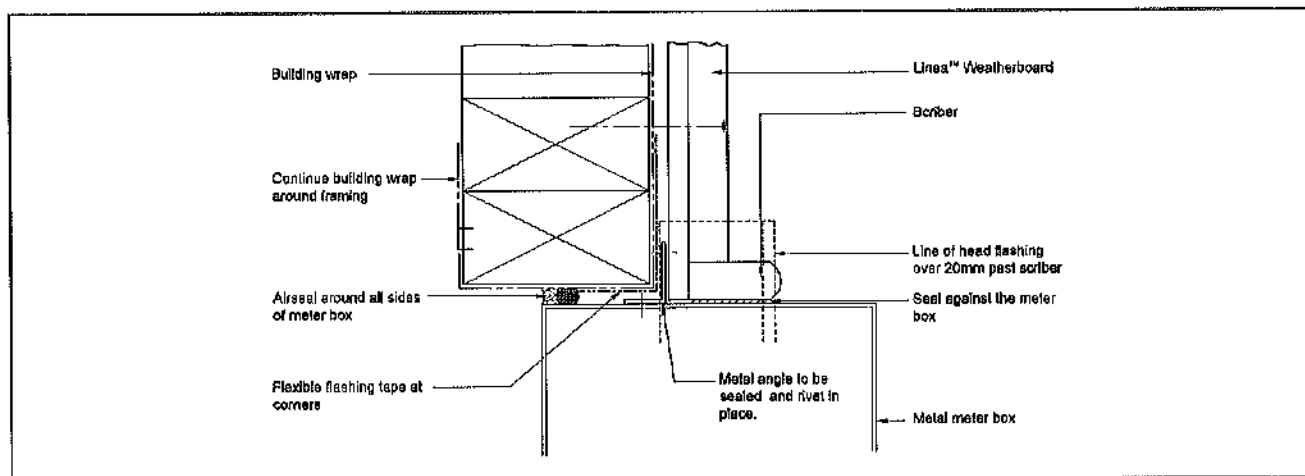


FIGURE 22: DIRECT FIX METER BOX AT JAMB

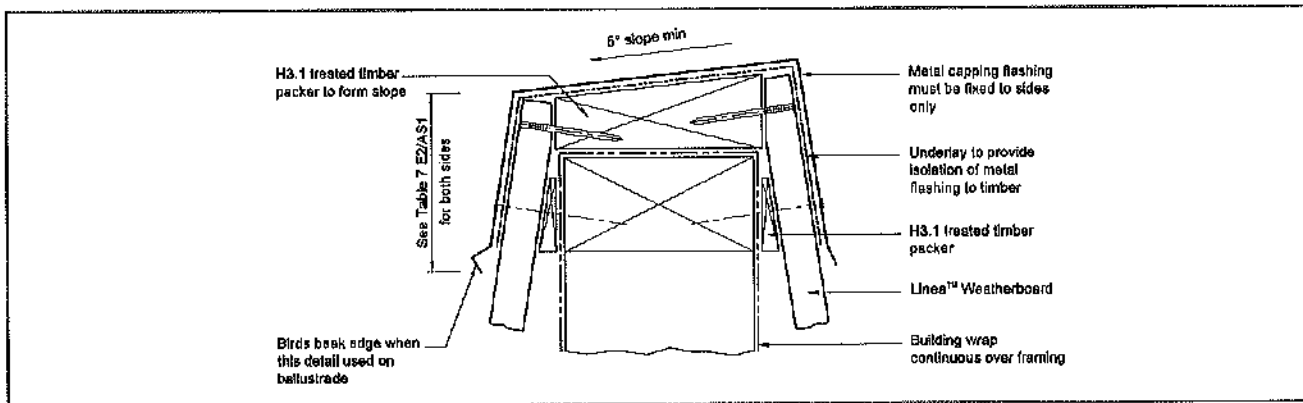


FIGURE 23: DIRECT FIX PARAPET FLASHING

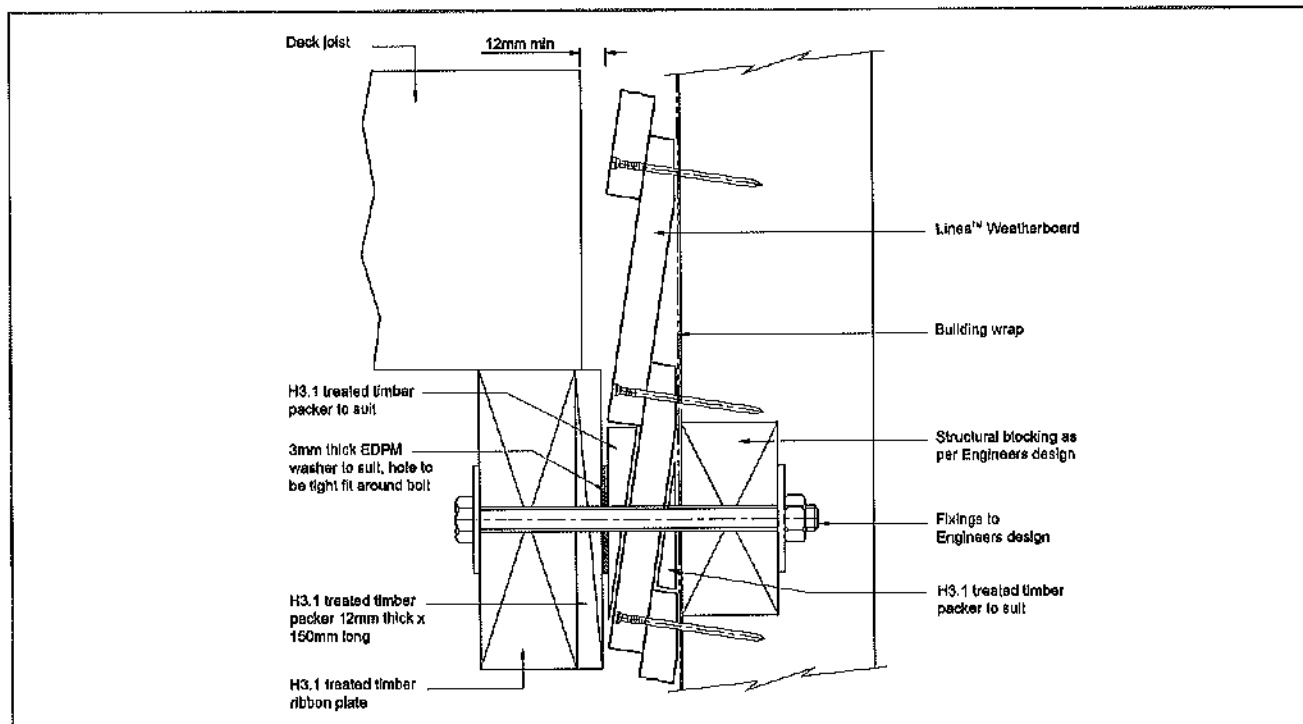


FIGURE 24: DIRECT FIX DECK JUNCTION

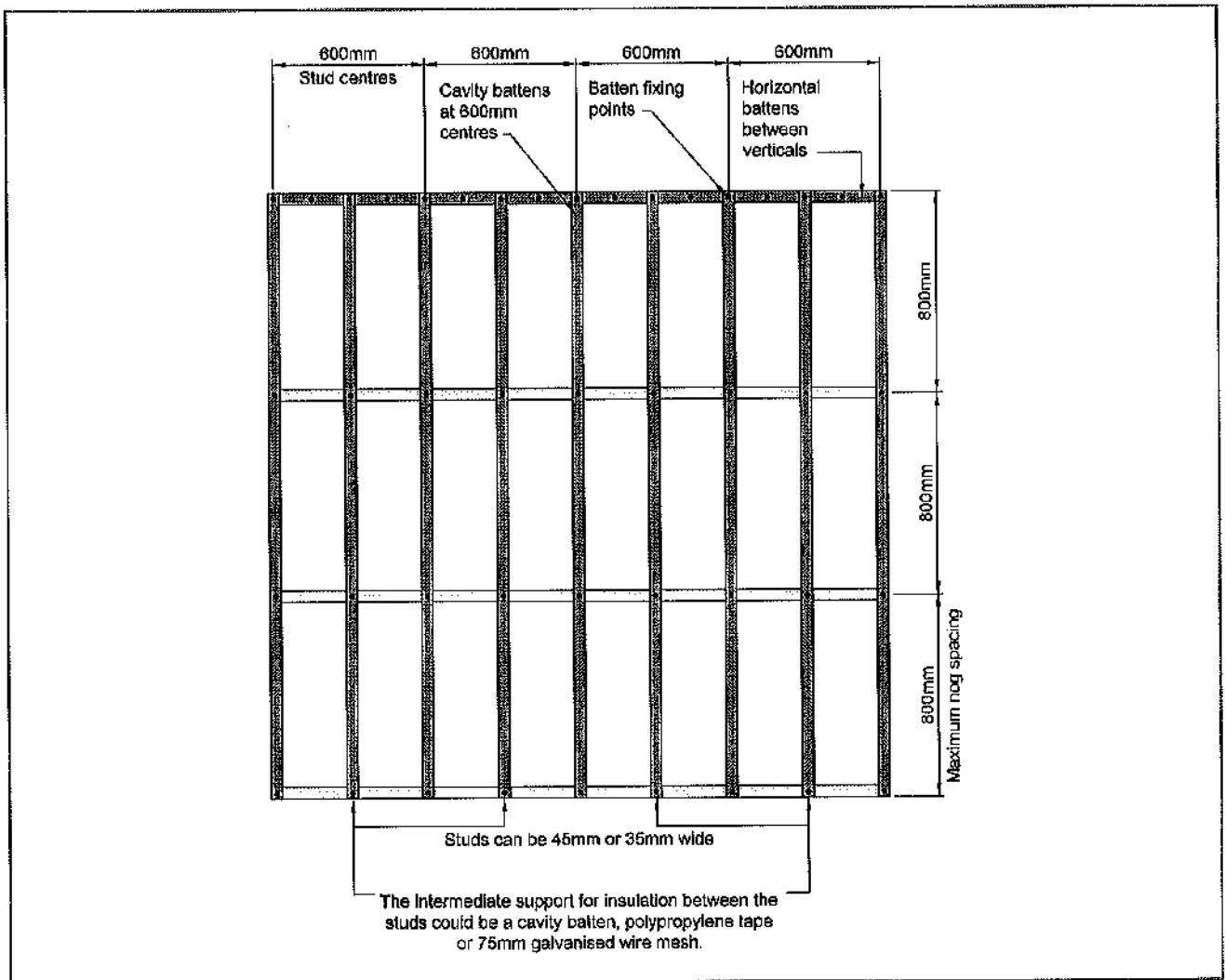


FIGURE 25: CAVITY BATTEN FIXING

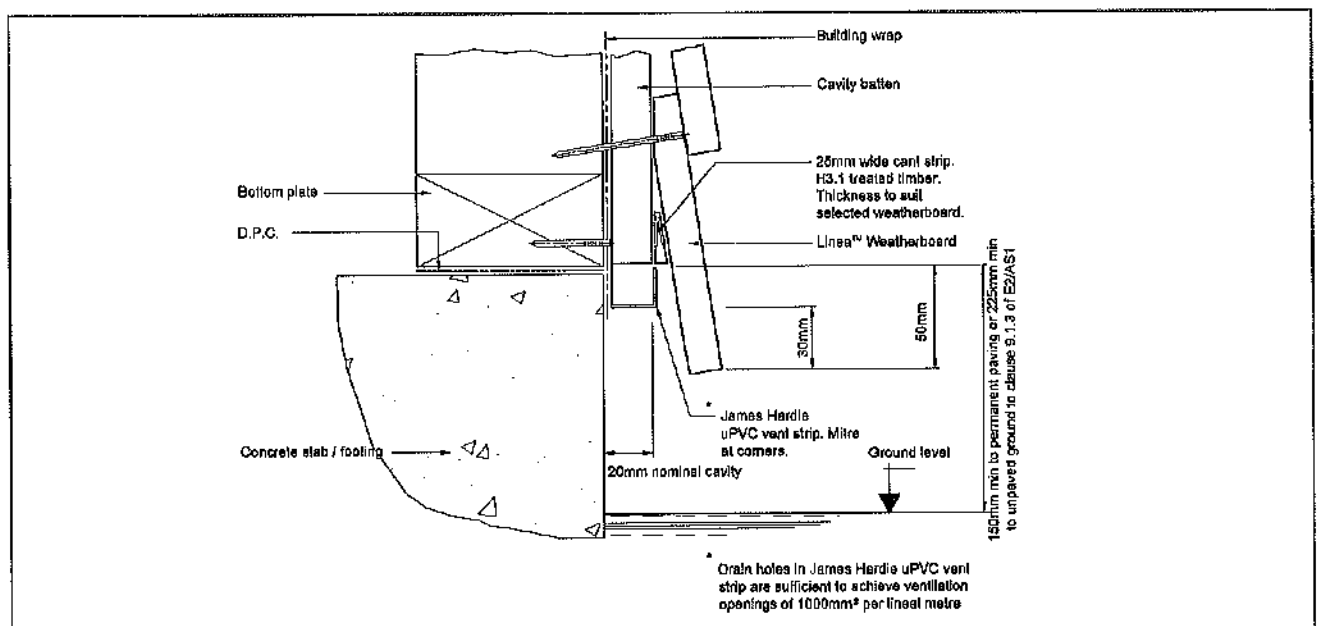


FIGURE 26: CAVITY FOUNDATION

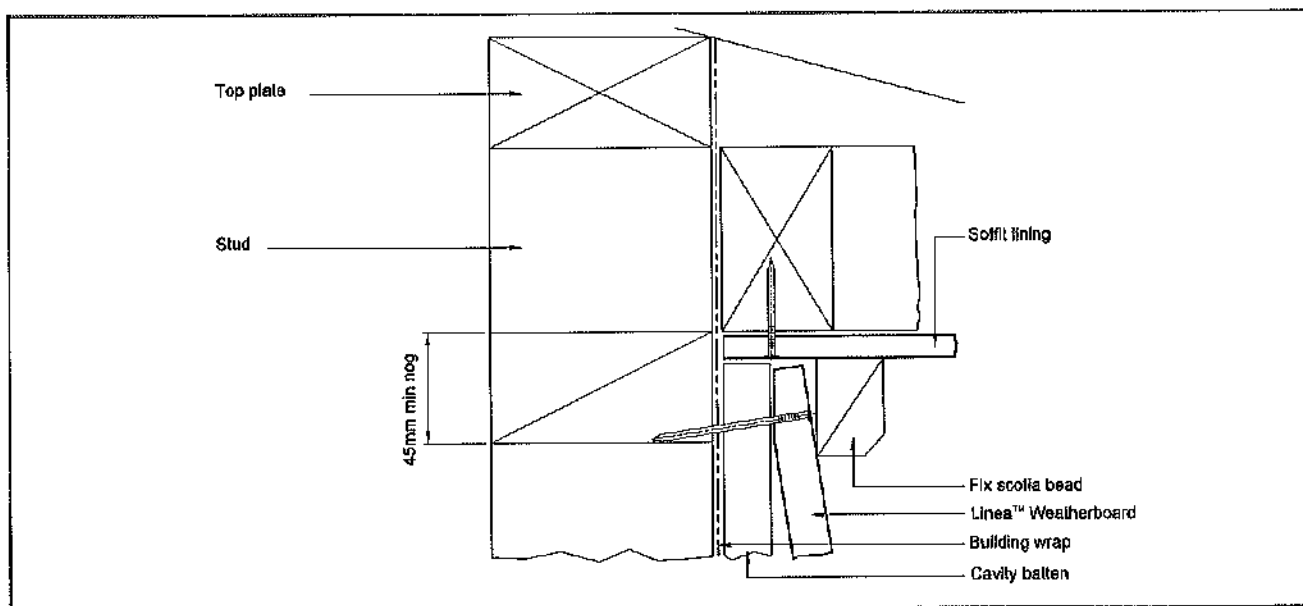


FIGURE 27: CAVITY SOFFIT JUNCTION

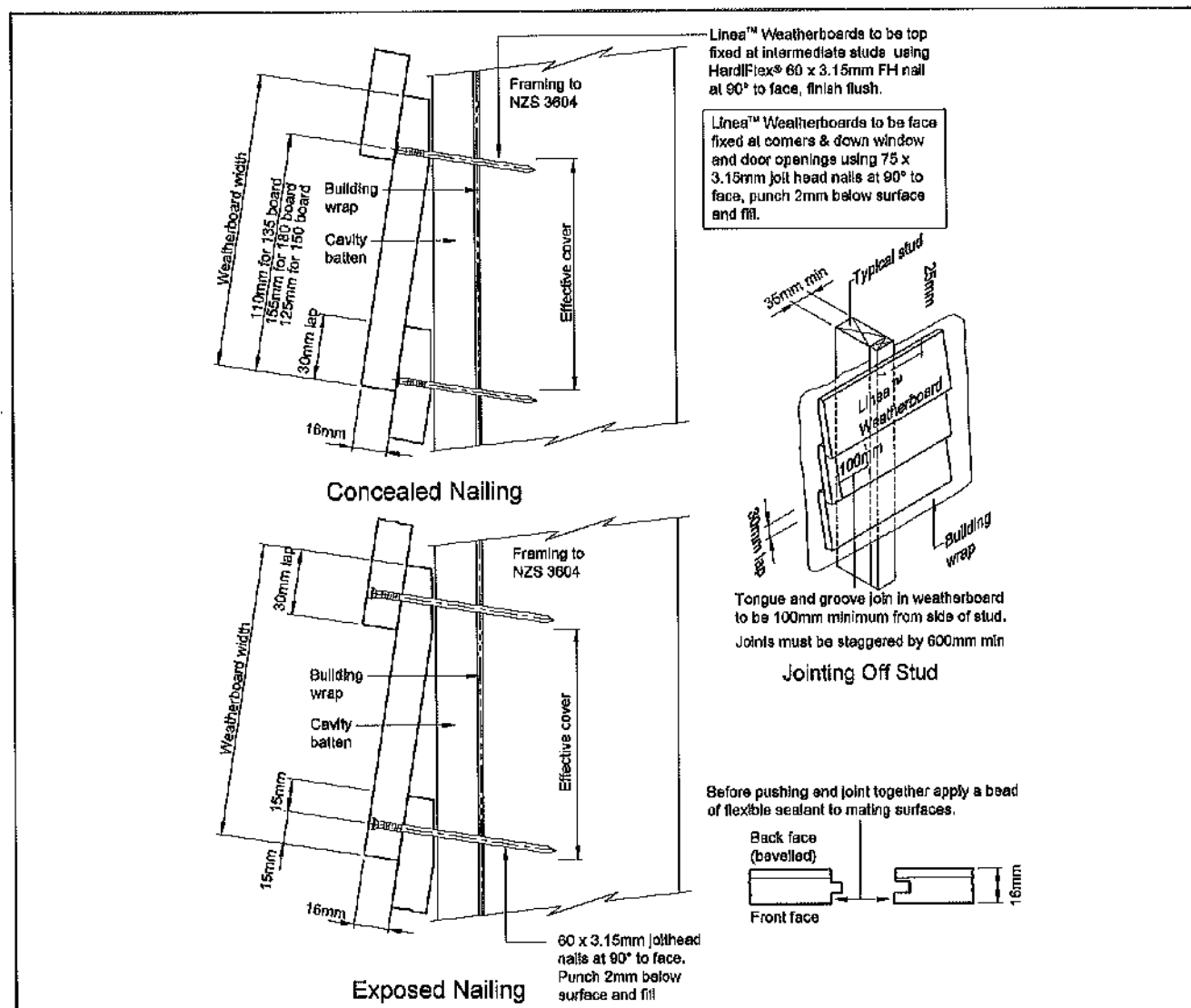


FIGURE 28: CAVITY WEATHERBOARD FIXING

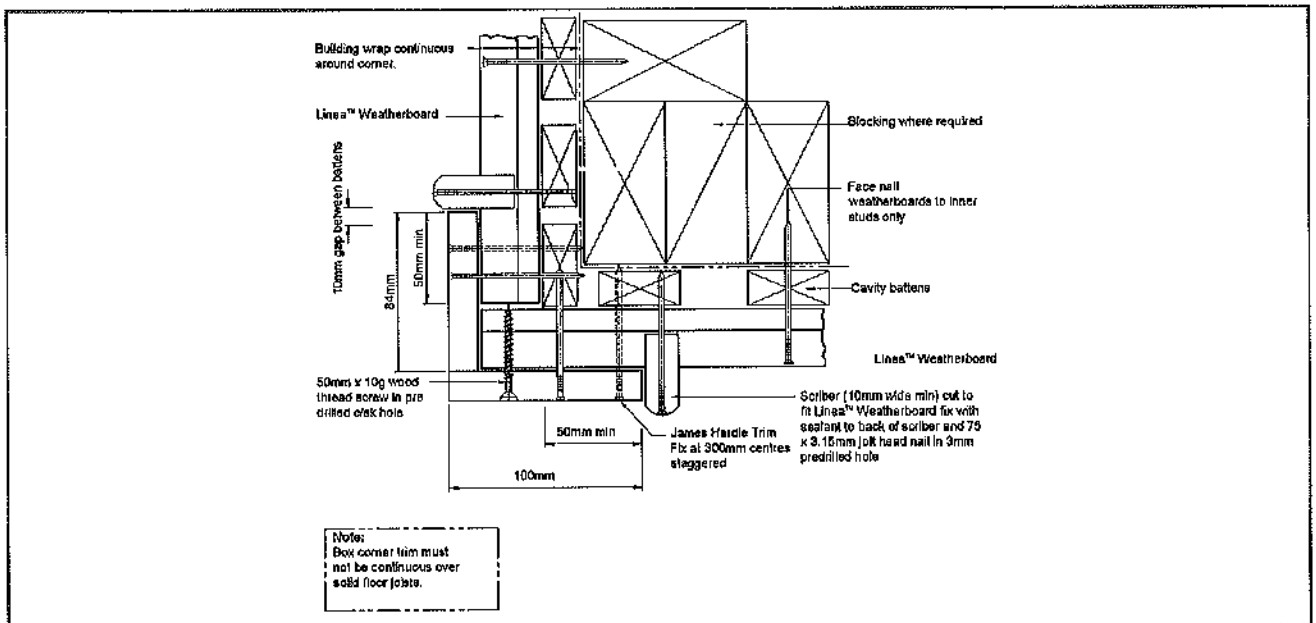


FIGURE 29: CAVITY BOXED CORNER

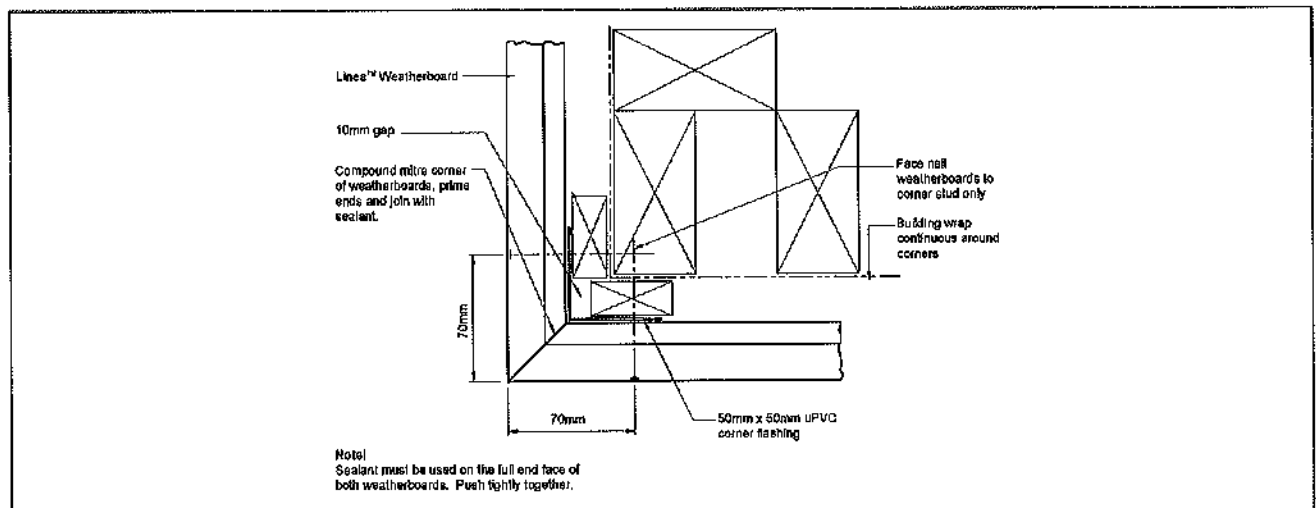


FIGURE 30: CAVITY MITRE CORNER

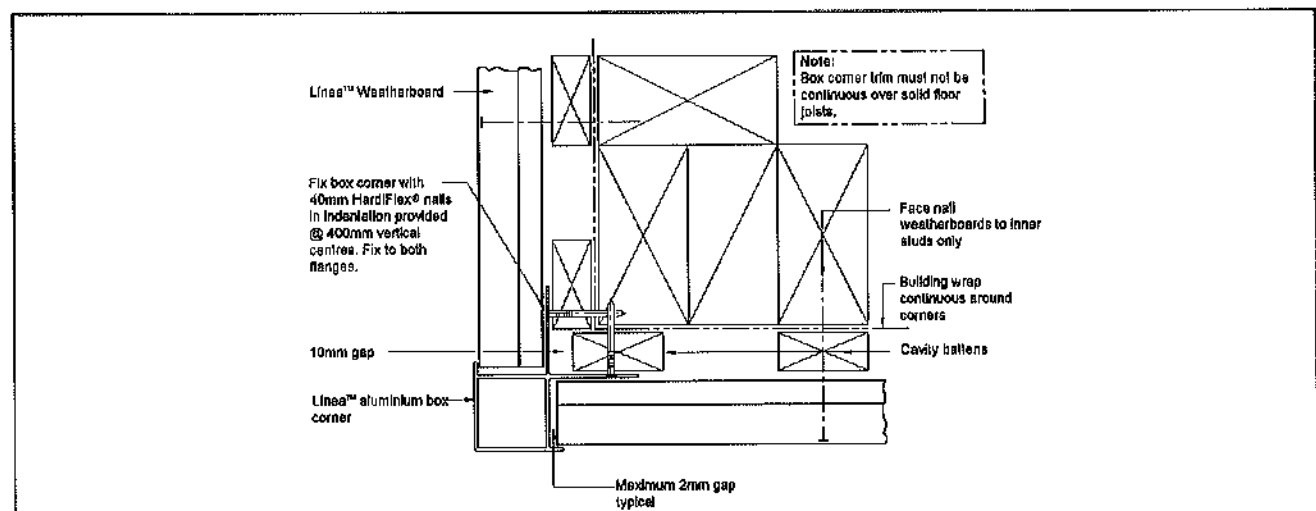
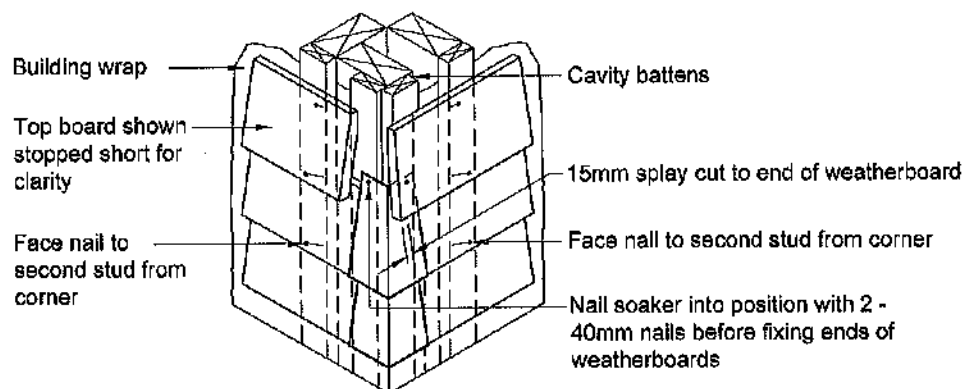


FIGURE 31: CAVITY ALUMINIUM BOX CORNER



Soaker material	Nail material
Copper	Copper or phosphor bronze
Aluminium	Hot dip galvanised
Stainless steel	Stainless steel

FIGURE 32: CAVITY EXTERNAL CORNER SOAKER

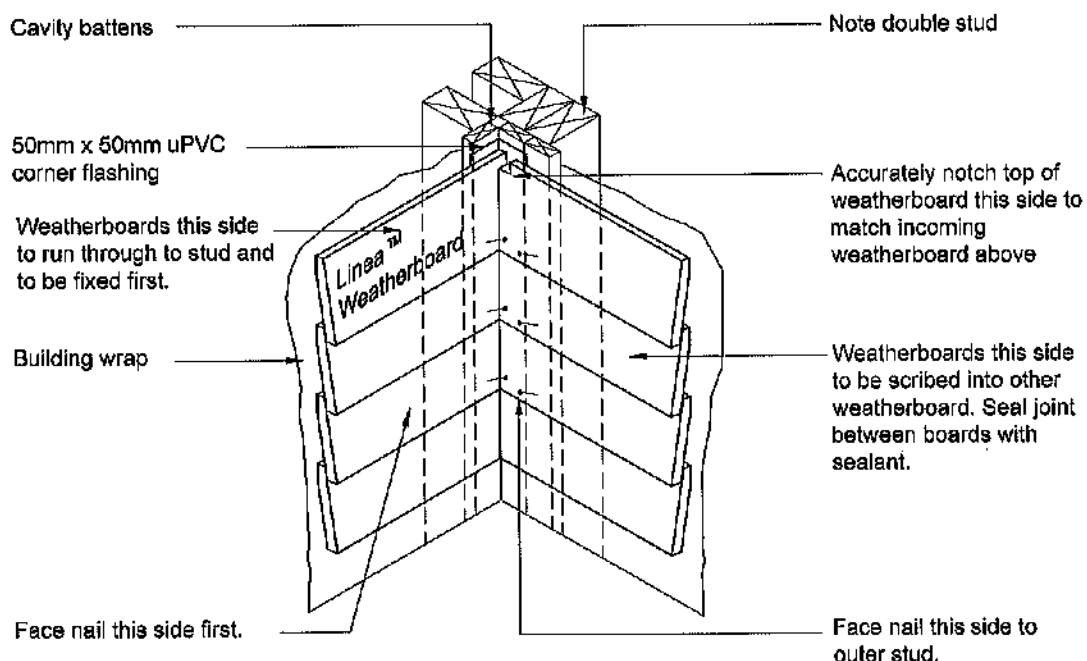


FIGURE 33: CAVITY INTERNAL CORNER

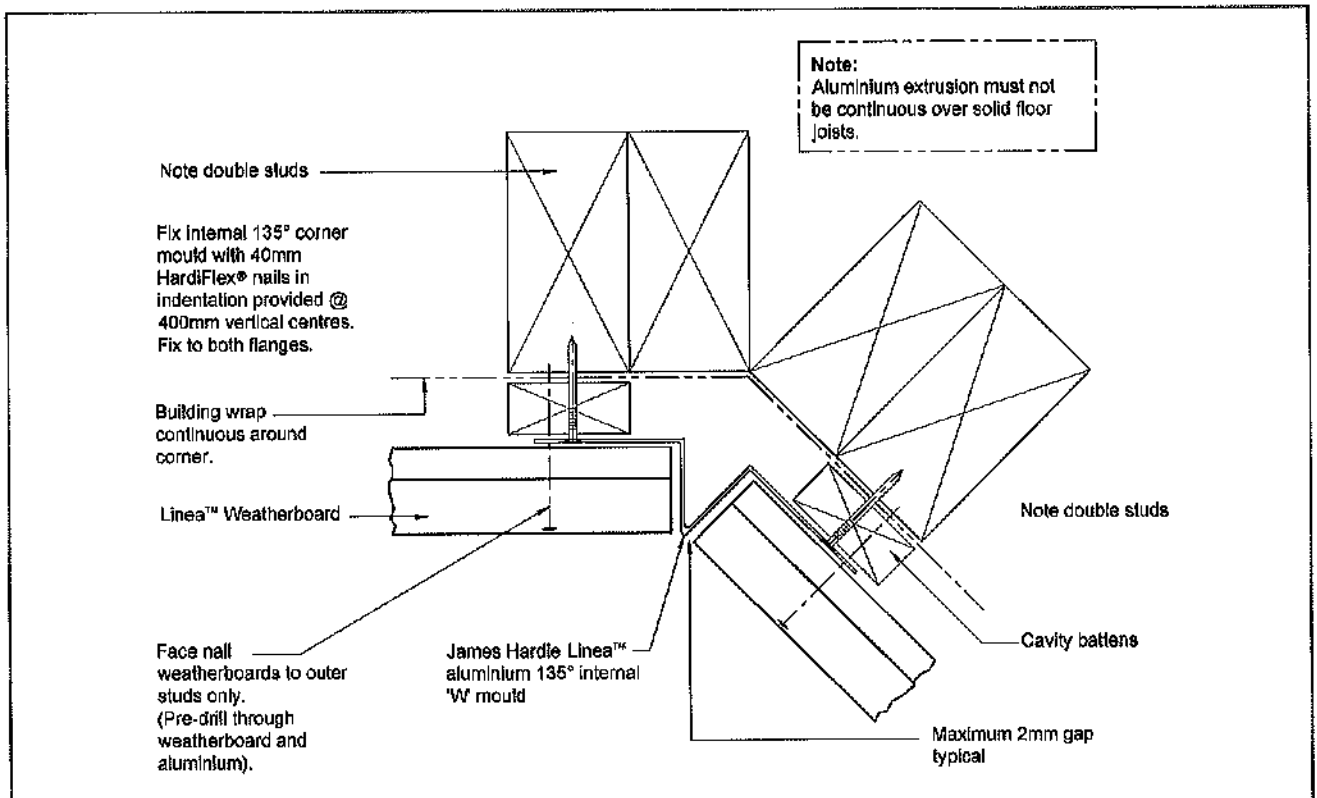


FIGURE 34: CAVITY INTERNAL 135° ALUMINIUM 'W' MOULD CORNER

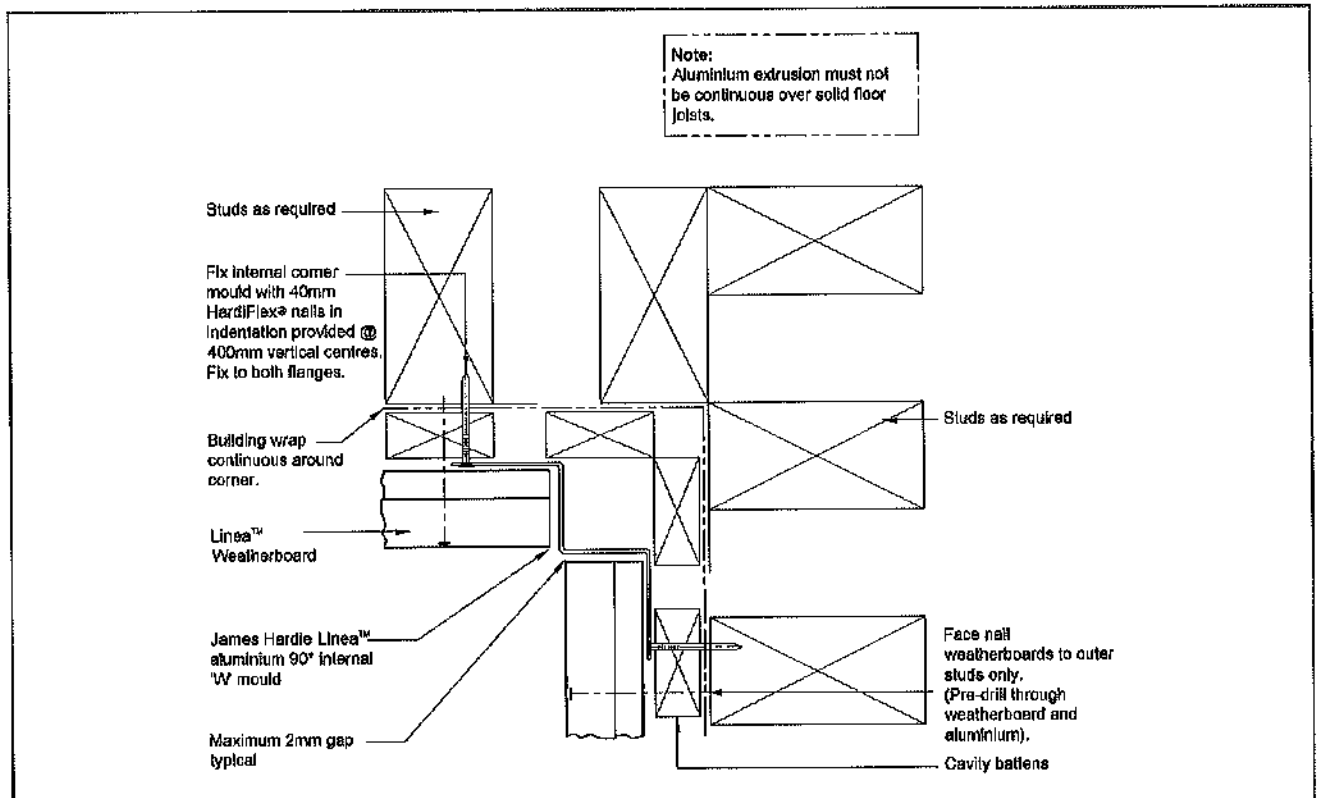


FIGURE 35: CAVITY INTERNAL 90° ALUMINIUM 'W' MOULD CORNER

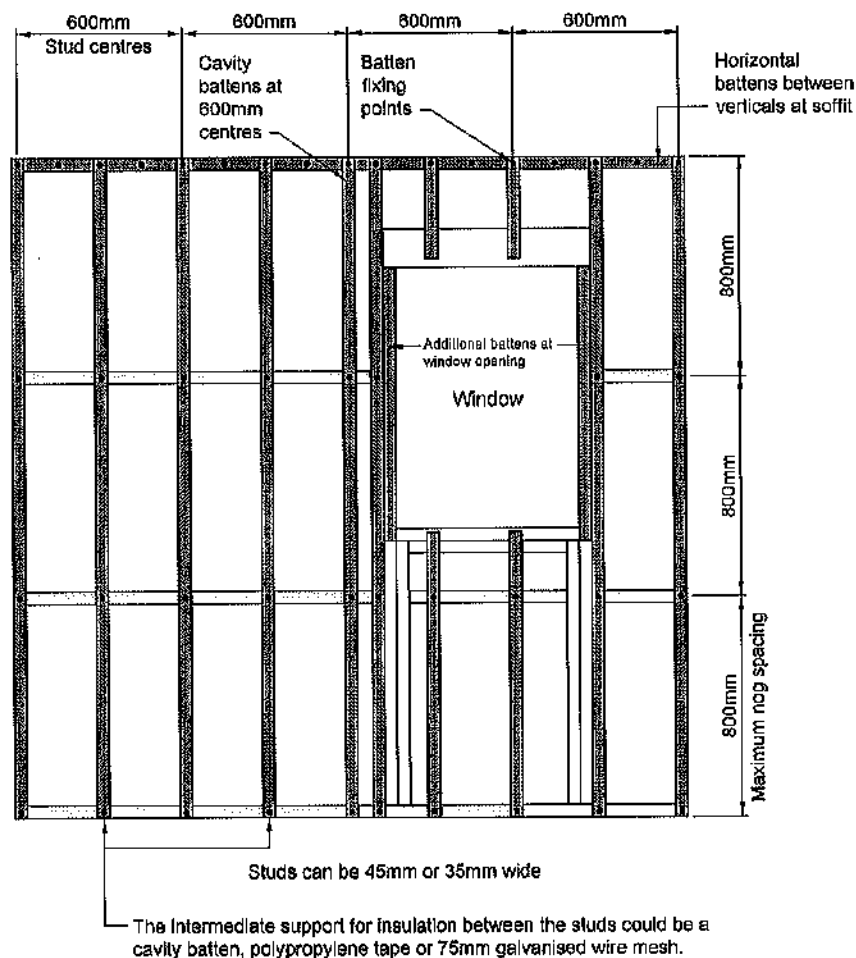


FIGURE 36: CAVITY BATTEN LAYOUT AT WINDOW OPENING

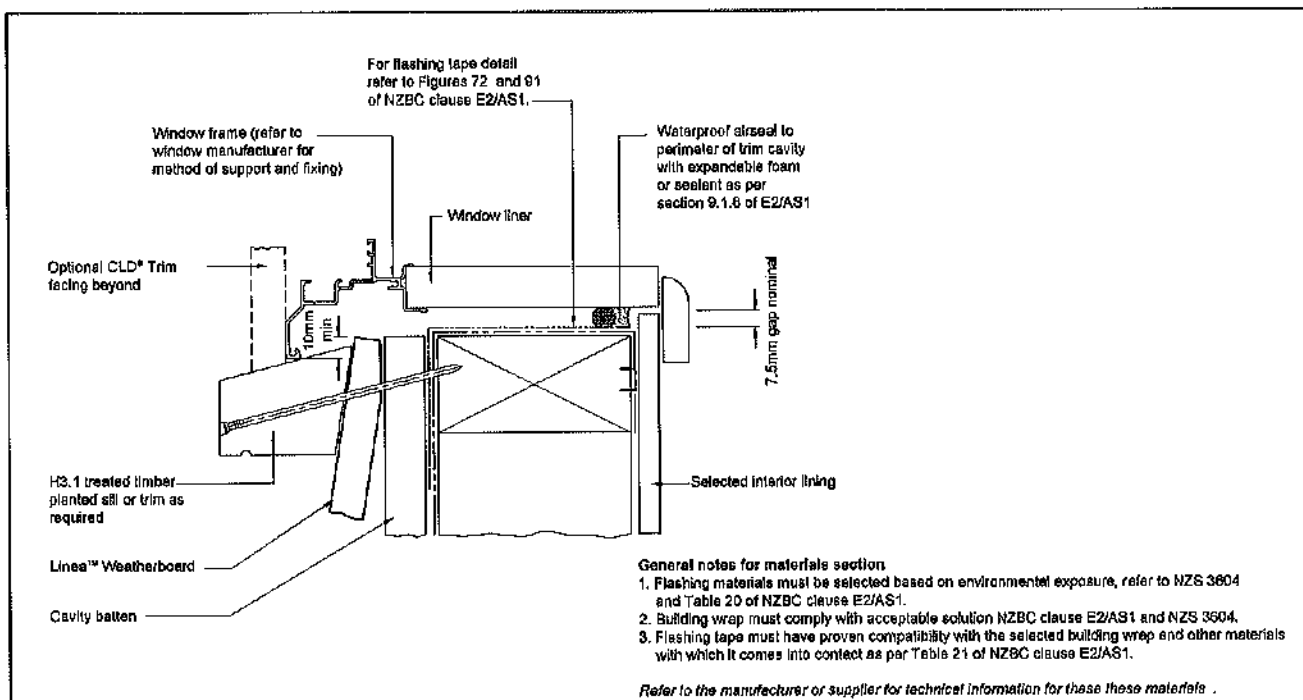


FIGURE 37: CAVITY WINDOW SILL WITH FACINGS

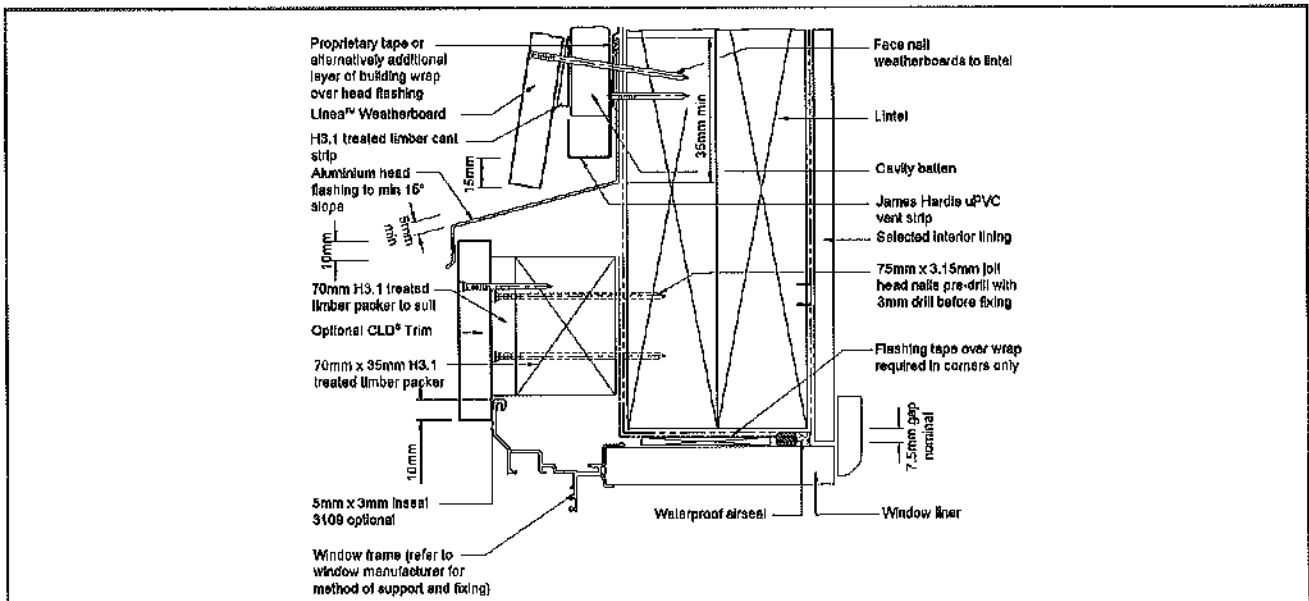


FIGURE 38: CAVITY WINDOW HEAD WITH FACINGS

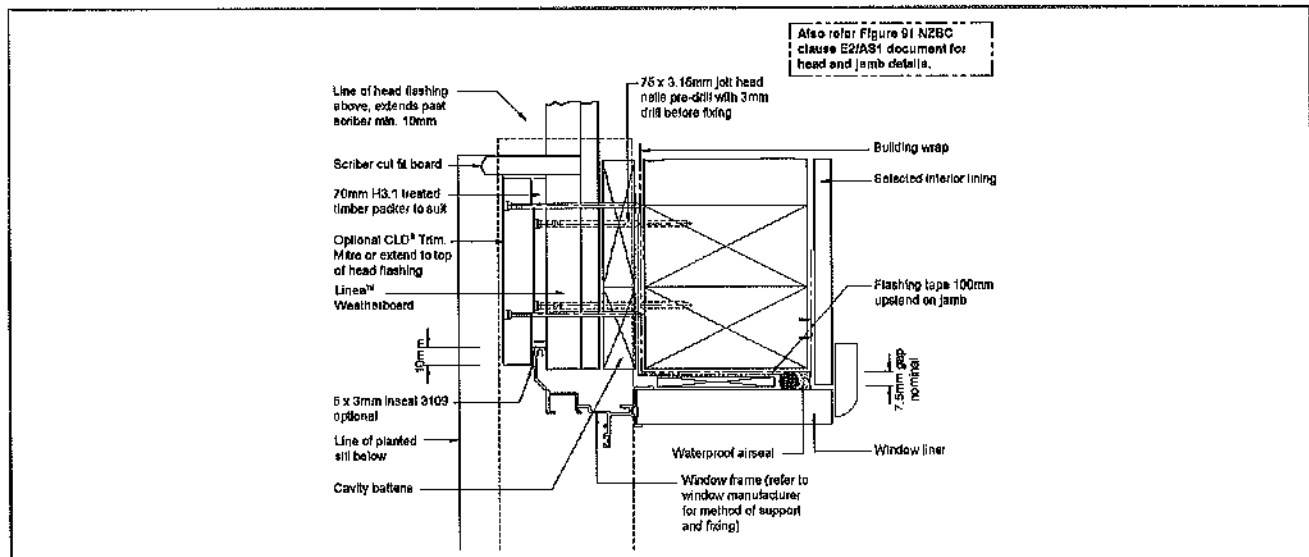


FIGURE 39: CAVITY WINDOW JAMB WITH FACINGS

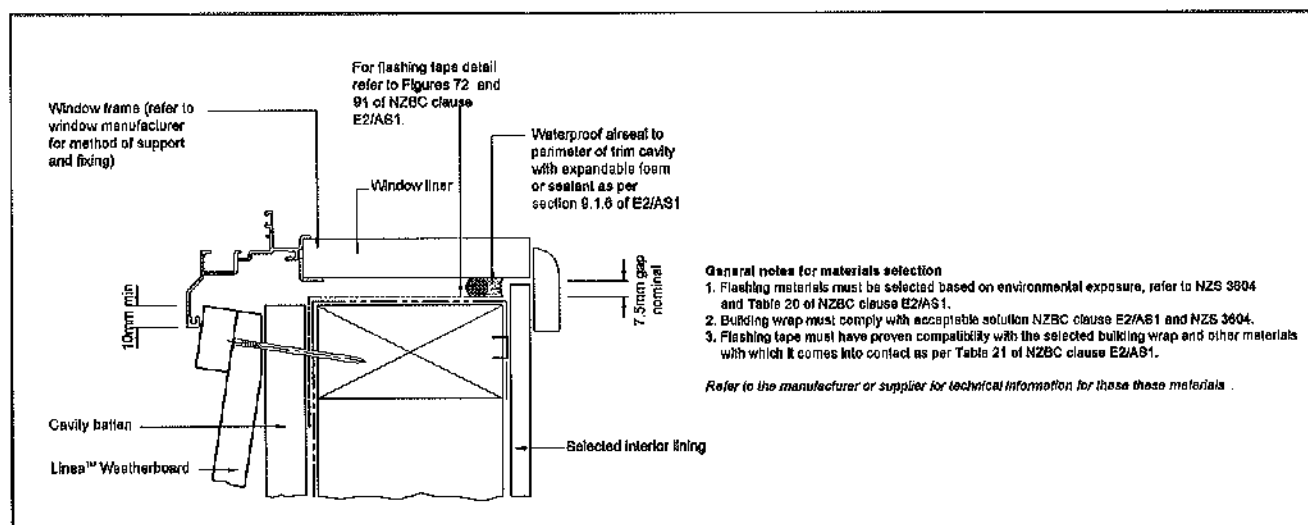


FIGURE 40: CAVITY WINDOW SILL WITHOUT FACINGS

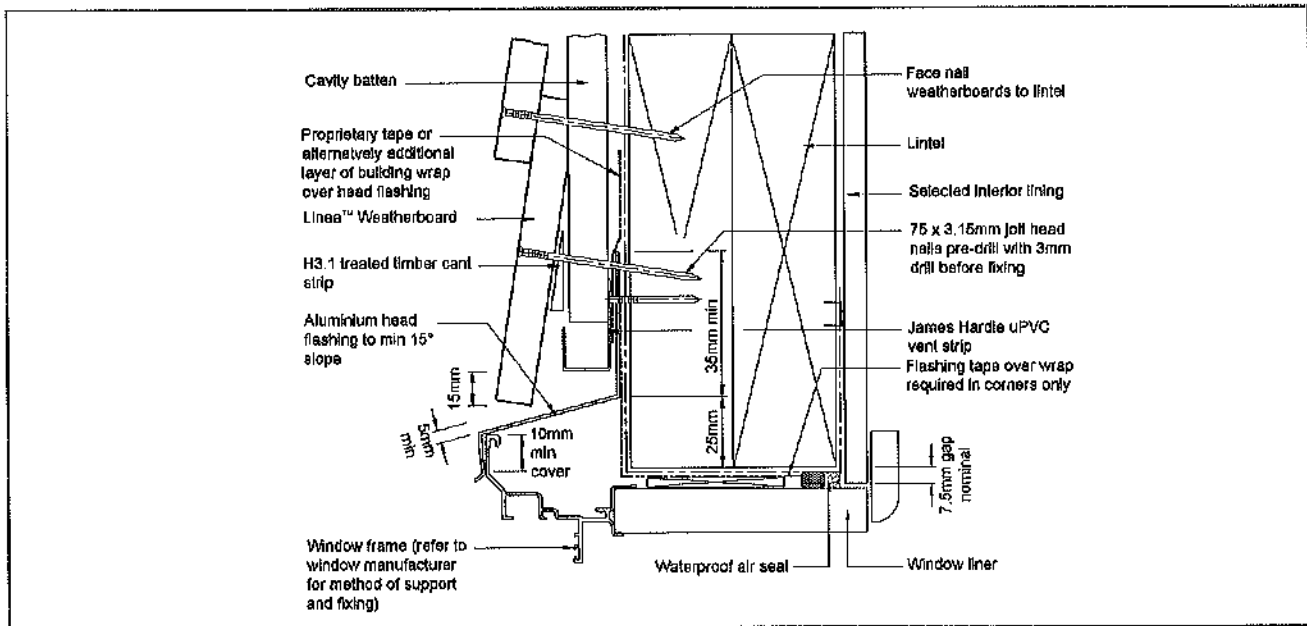


FIGURE 41: CAVITY WINDOW HEAD WITHOUT FACINGS

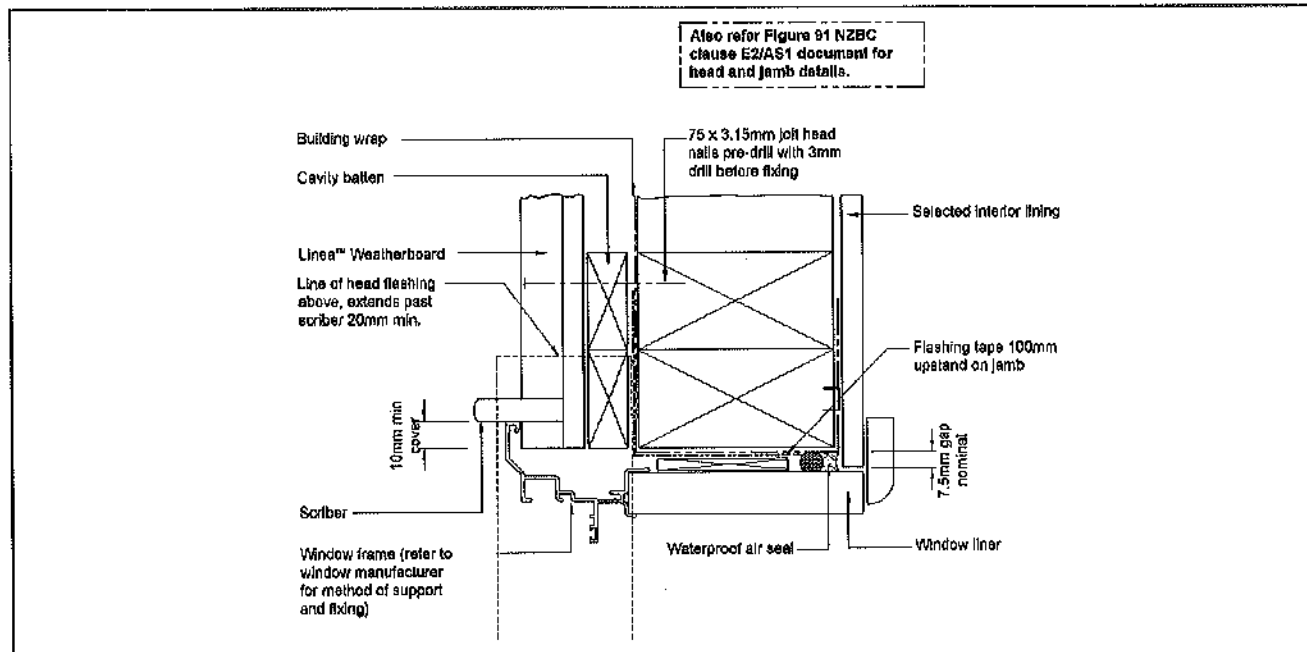


FIGURE 42: CAVITY WINDOW JAMB WITHOUT FACINGS

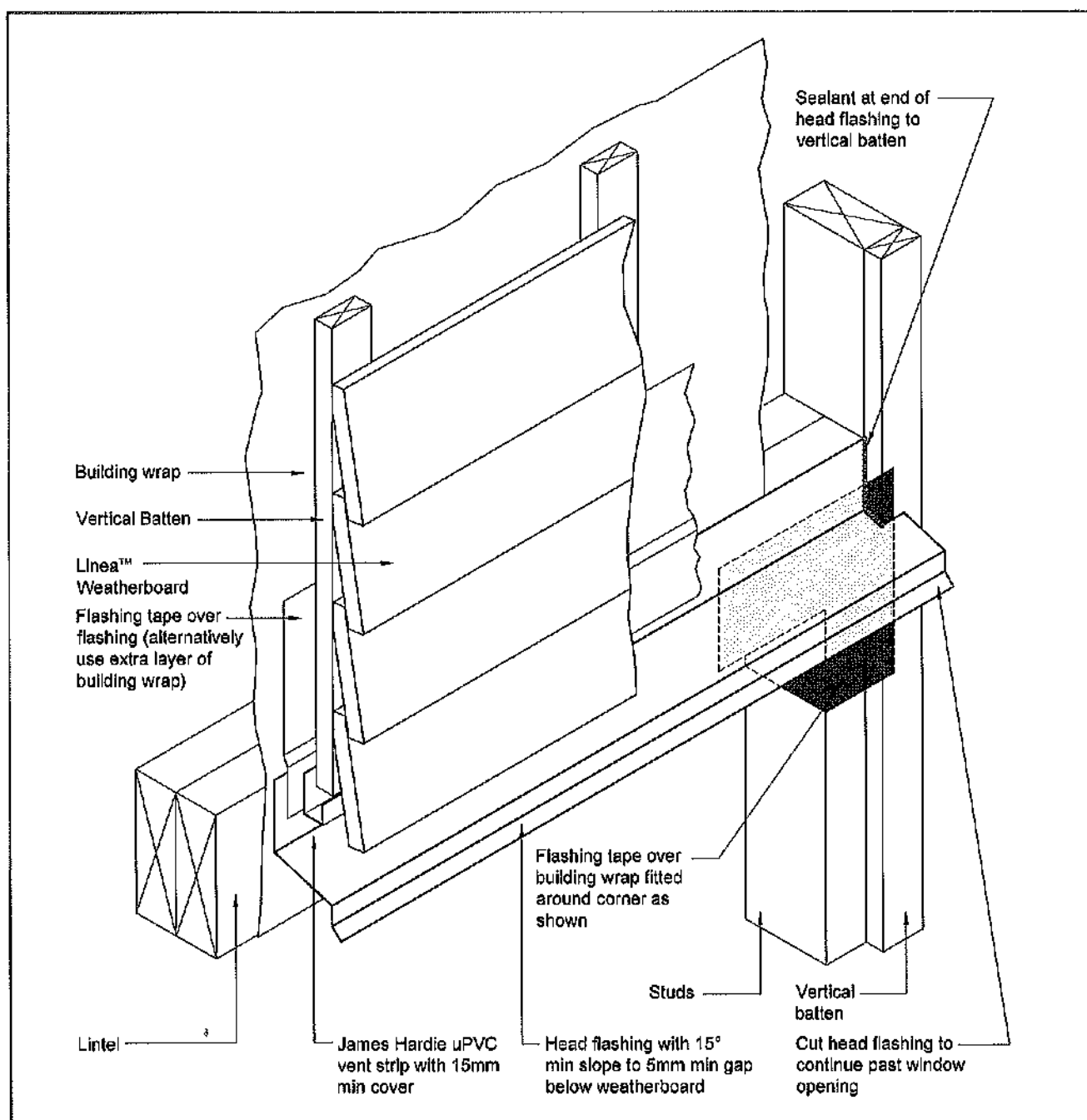


FIGURE 43: HEAD FLASHING TERMINATION

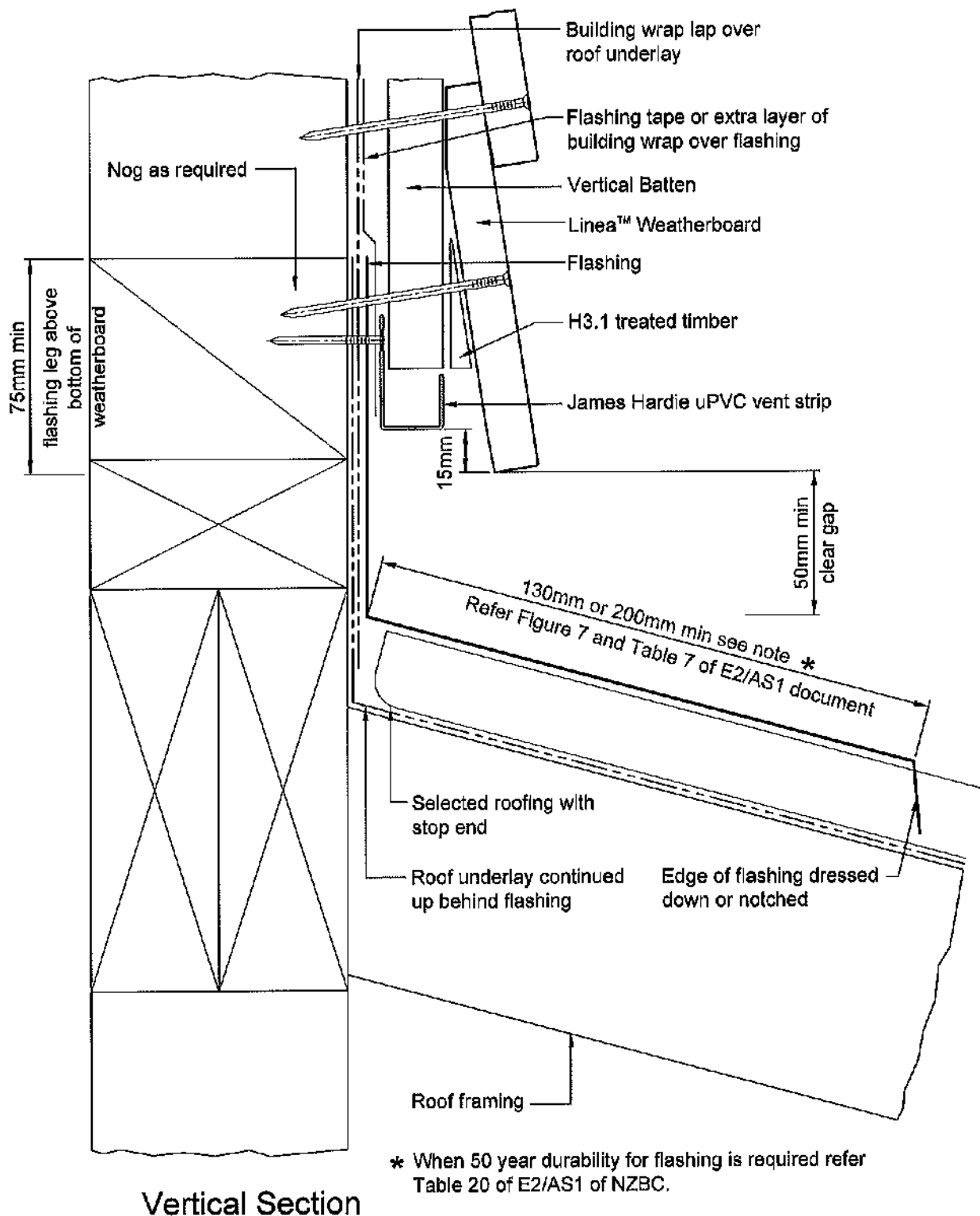


FIGURE 44: CAVITY ONE PIECE APRON FLASHING JOINT

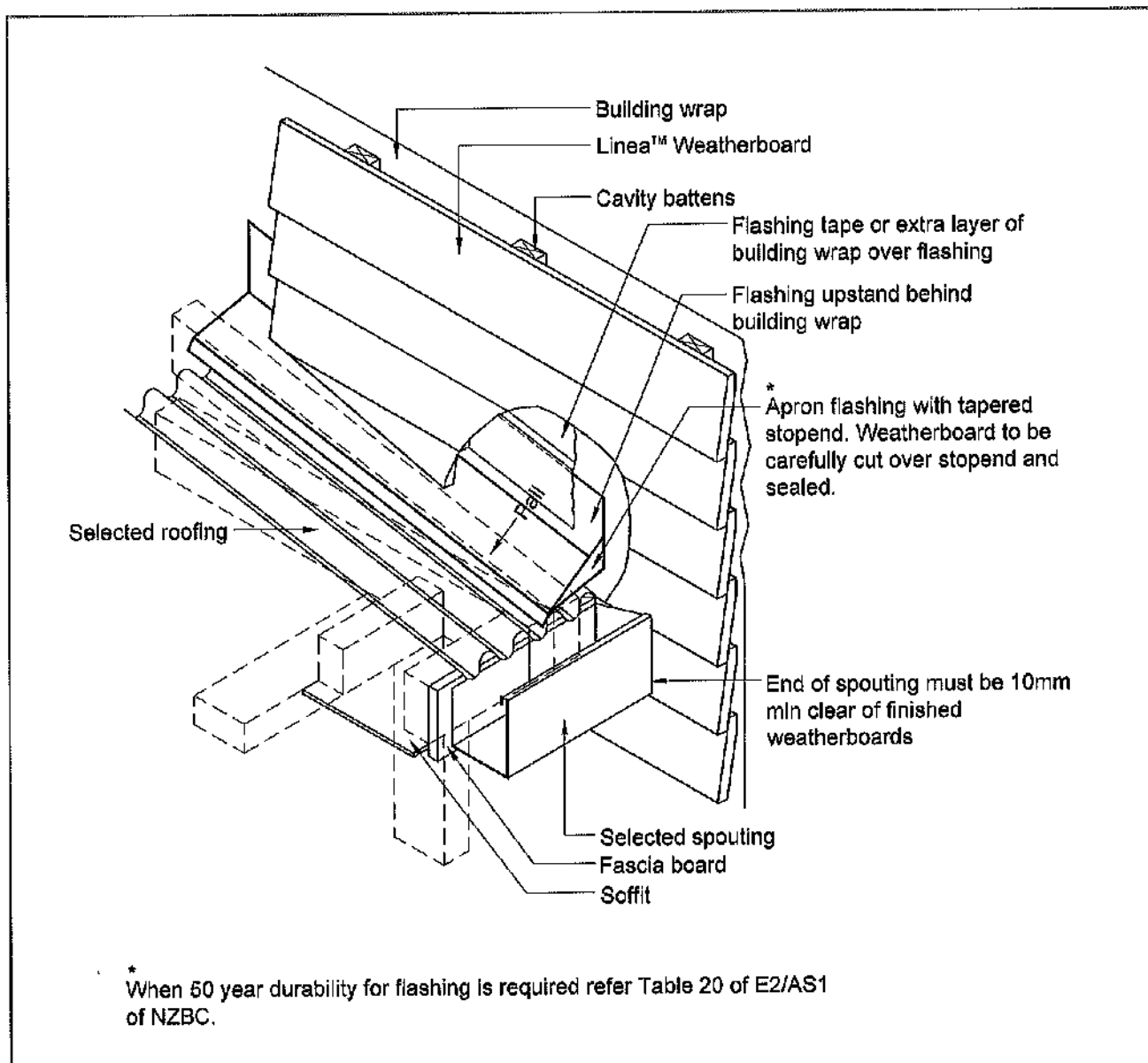


FIGURE 45: CAVITY ONE PIECE GUTTER/WALL JUNCTION

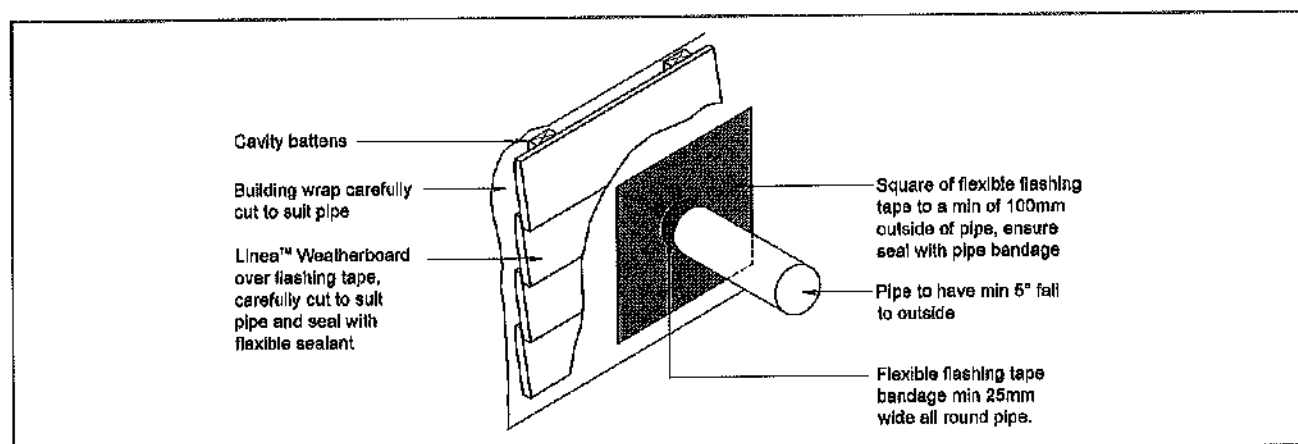


FIGURE 46: CAVITY PIPE PENETRATION

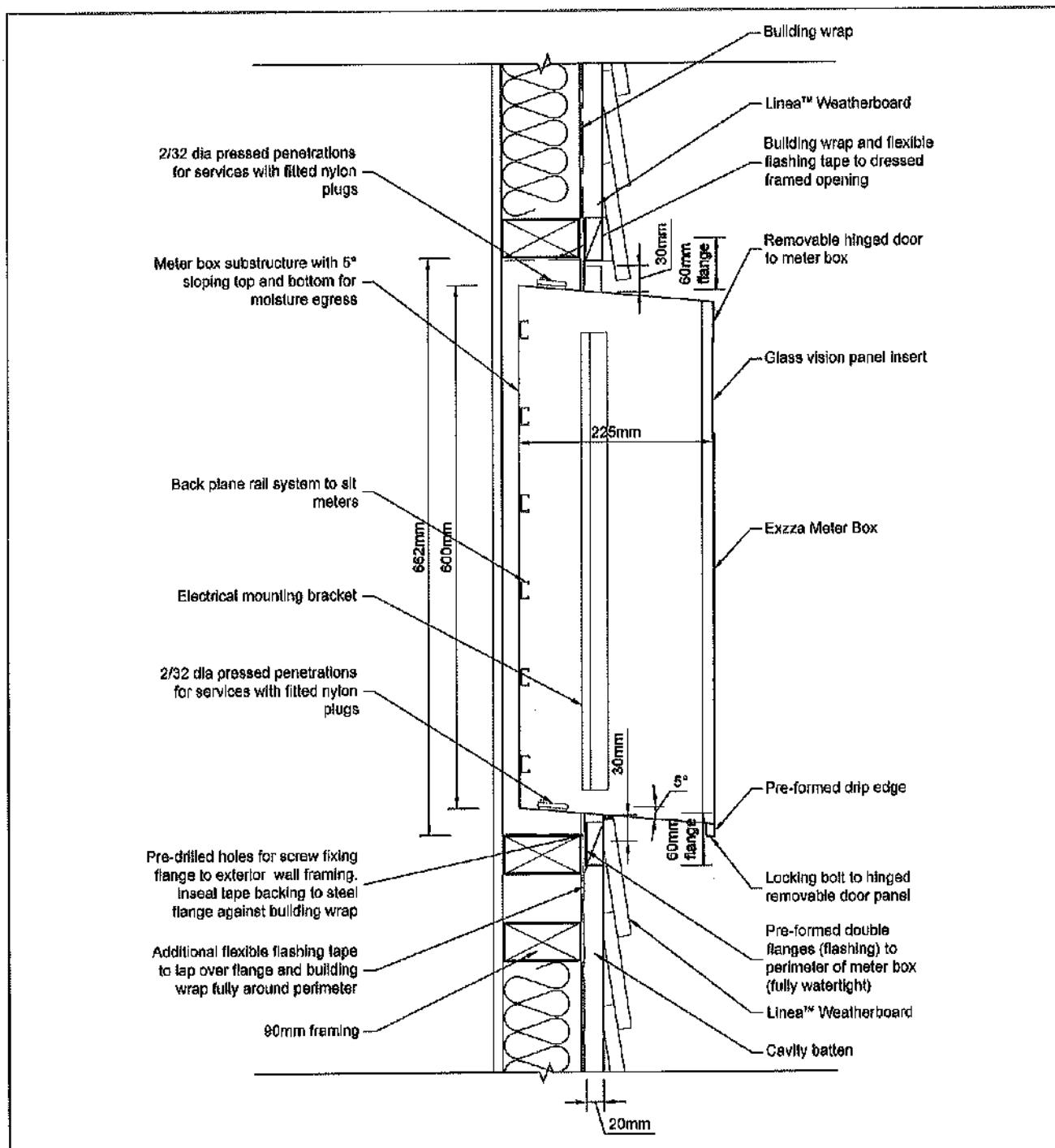


FIGURE 50: CAVITY FIX METER BOX

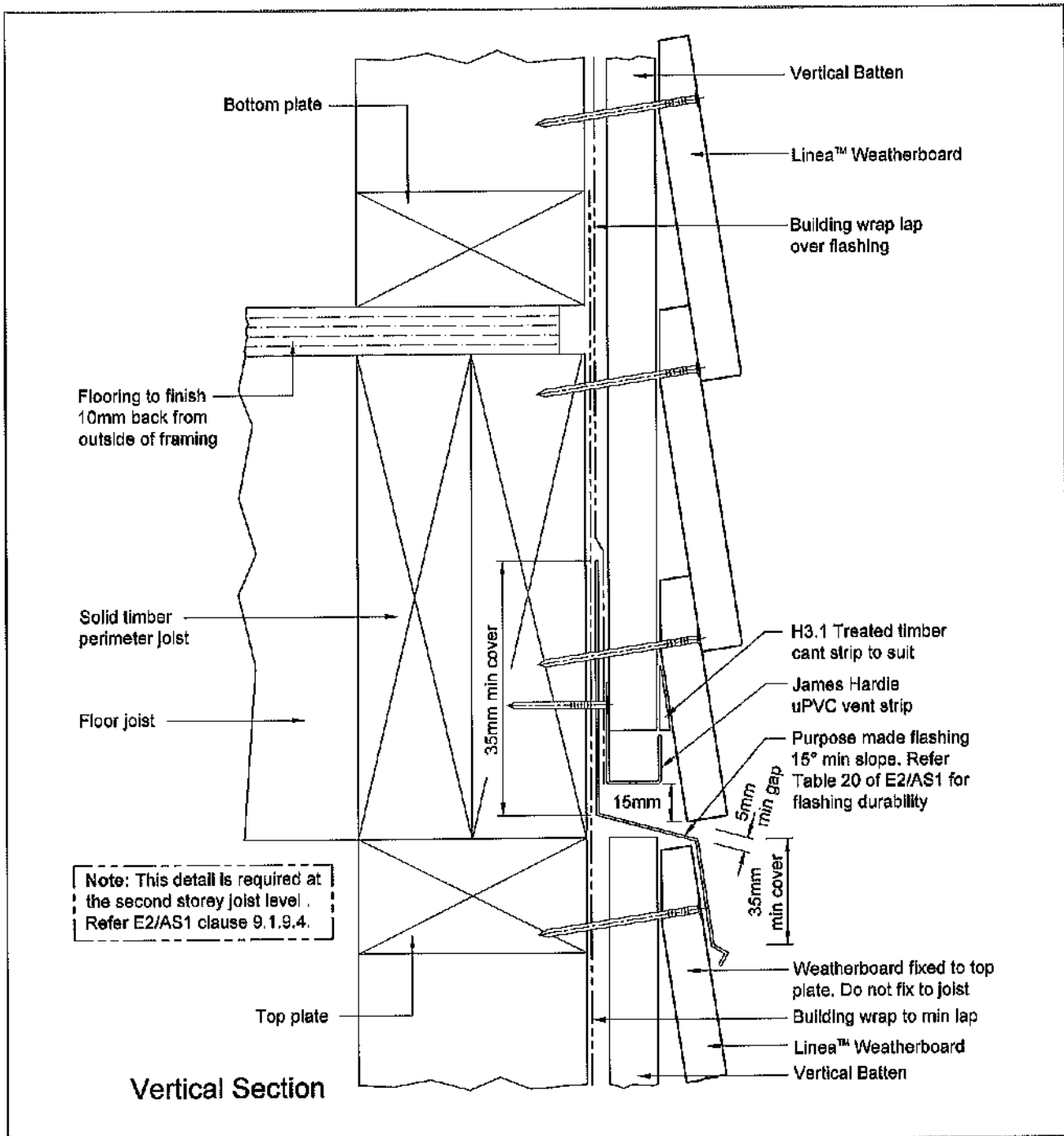


FIGURE 51: CAVITY DRAINAGE JOINT

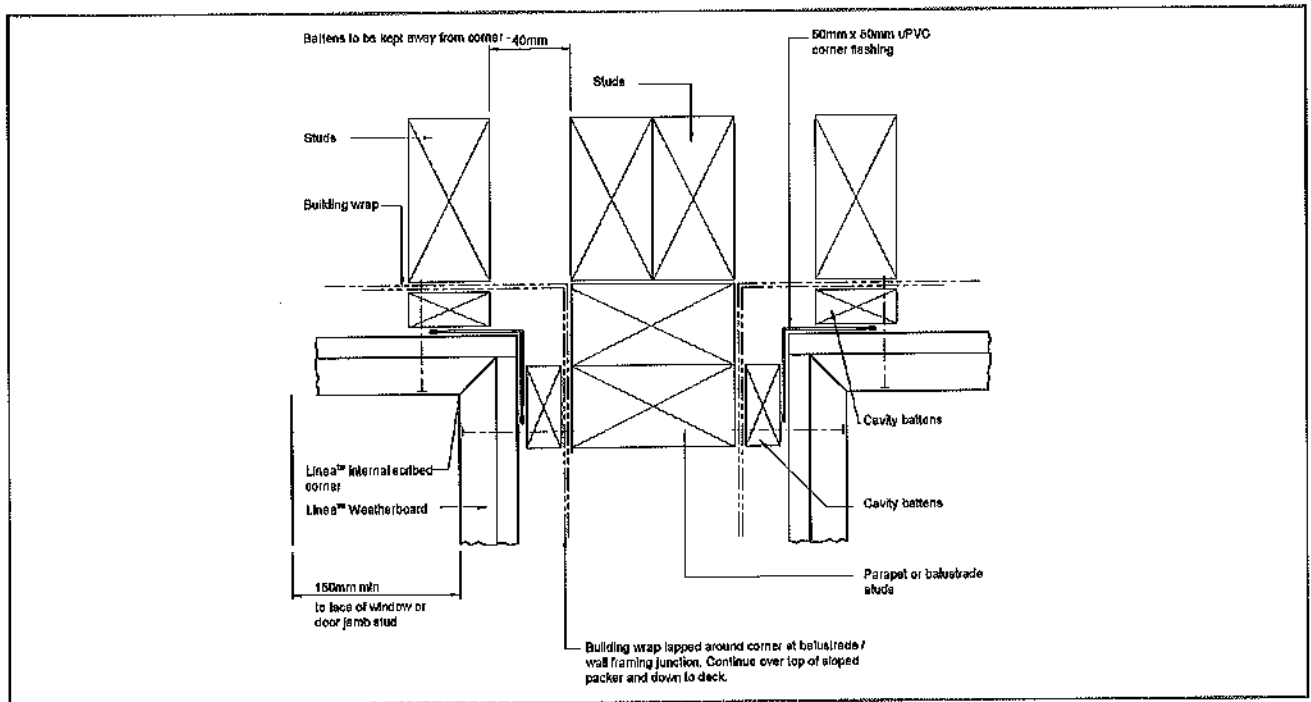


FIGURE 52: CAVITY ENCLOSED DECK BALUSTRADE TO WALL

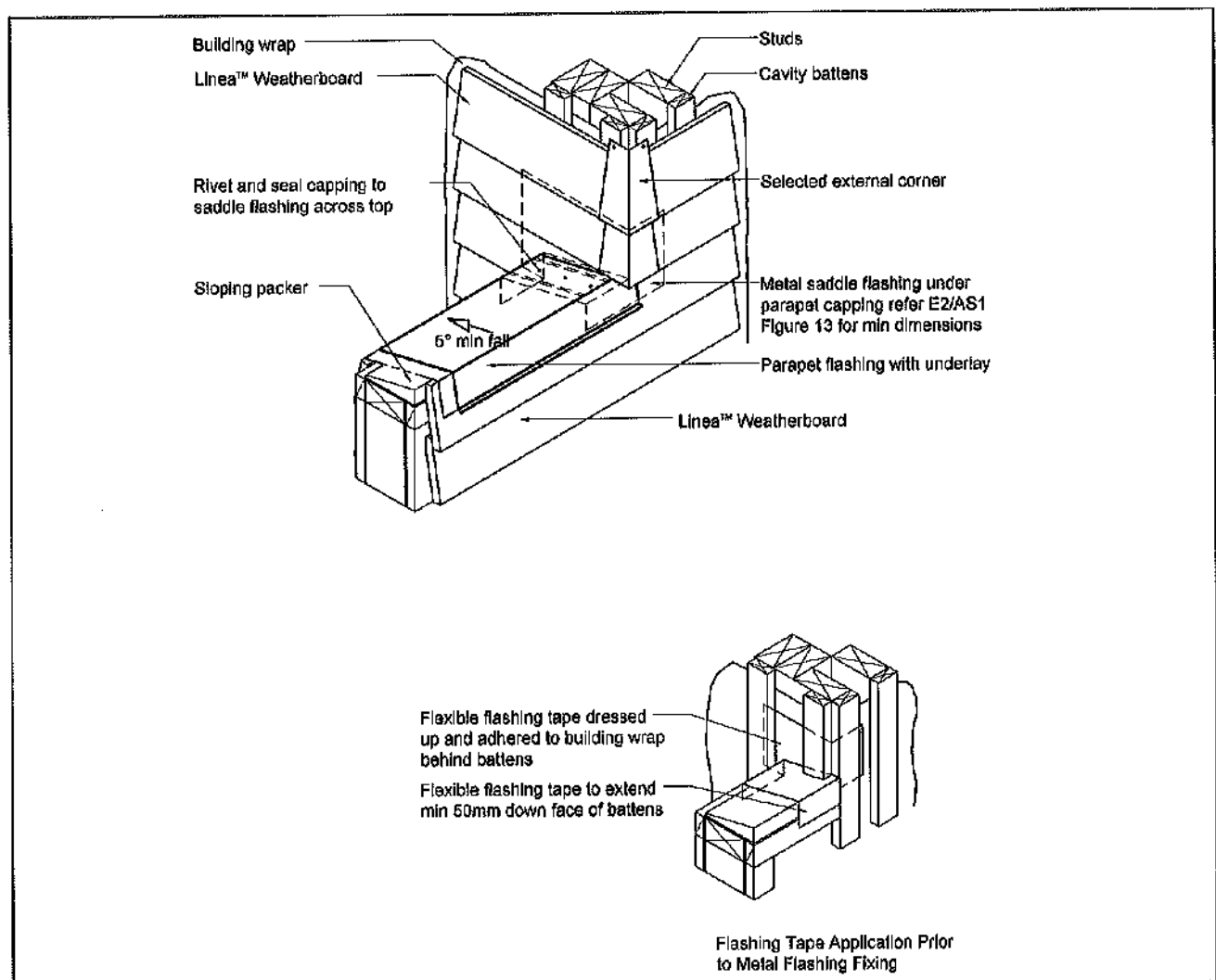


FIGURE 53: CAVITY ENCLOSED BALUSTRADE TO WALL

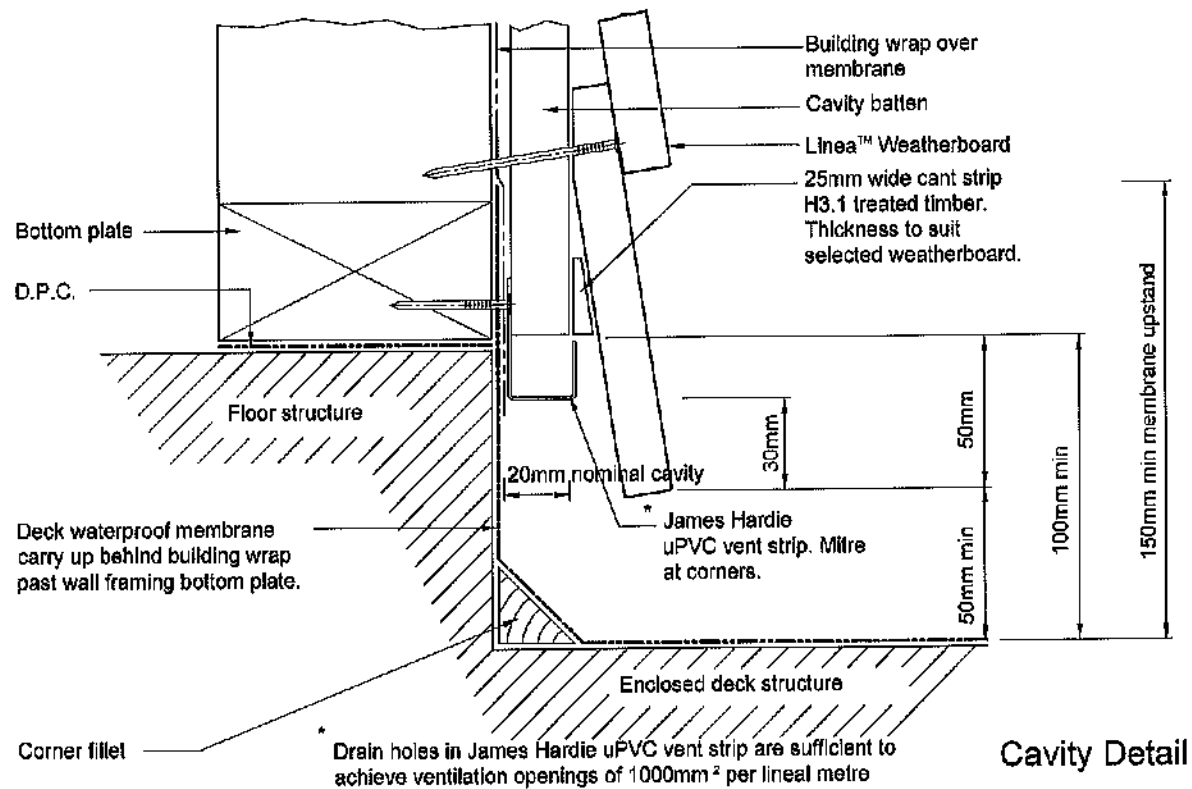
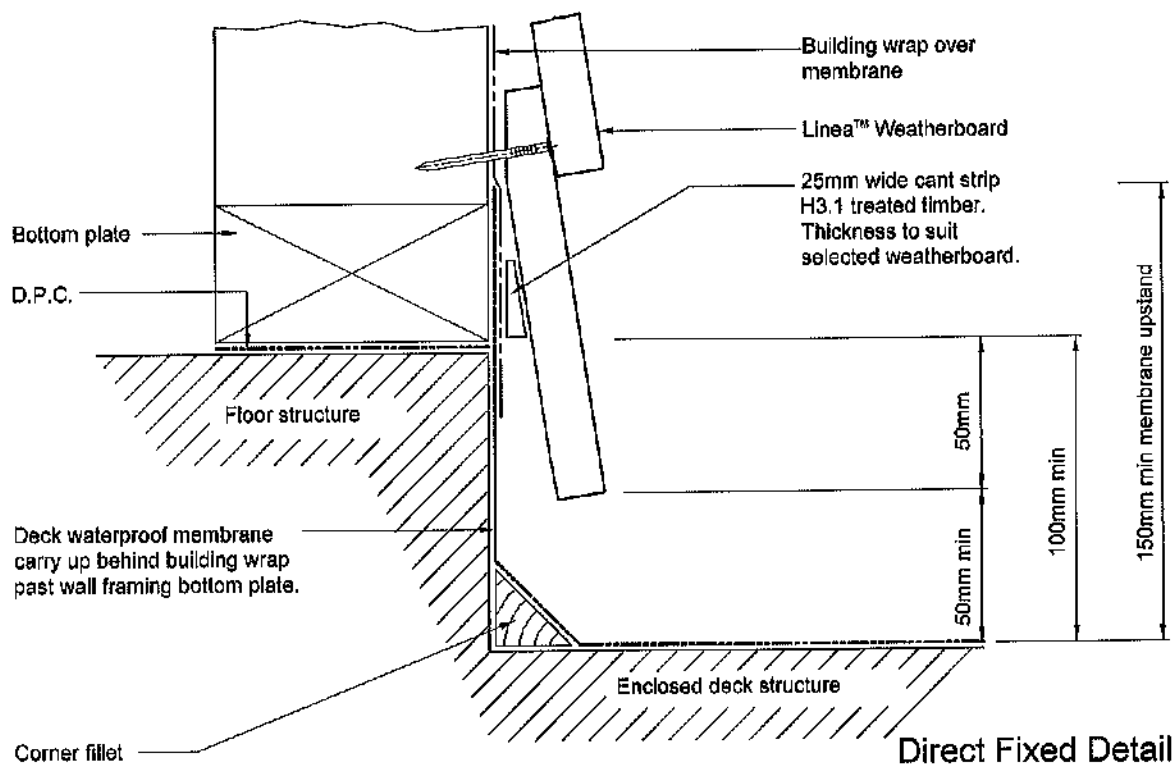


FIGURE 54: DIRECT FIXED AND CAVITY AT ENCLOSED DECK

15 WARRANTY

Linea™ WEATHERBOARD

PRODUCT WARRANTY

August 2007

WARRANTY: James Hardie New Zealand Limited ("James Hardie") warrants for a period of 25 years from the date of purchase that the Linea Weatherboard (the "Product"), will be free from defects due to defective factory workmanship or materials and, subject to compliance with the conditions below, will be resistant to cracking, rotting, fire and damage from termite attacks to the extent set out in James Hardie's relevant published literature current at the time of installation. James Hardie warrants for a period of 12 months from the date of purchase that the accessories supplied by James Hardie will be free from defects due to defective factory workmanship or materials.

Nothing in this document shall exclude or modify any legal rights a customer may have under the Consumer Guarantees Act or otherwise which cannot be excluded or modified at law.

CONDITIONS OF WARRANTY: The warranty is strictly subject to the following conditions:

- (a) James Hardie will not be liable for breach of warranty unless the claimant provides proof of purchase and makes a written claim either within 30 days after the defect would have become reasonably apparent or, if the defect was reasonably apparent prior to installation, then the claim must be made prior to installation.
- (b) This warranty is not transferable.
- (c) The Product must be installed and maintained strictly in accordance with the relevant James Hardie literature current at the time of installation and must be installed in conjunction with the components or products specified in the literature. Further, all other products, including coating and jointing systems, applied to or used in conjunction with the Product must be applied or installed and maintained strictly in accordance with the relevant manufacturer's instructions and good trade practice.
- (d) The project must be designed and constructed in strict compliance with all relevant provisions of the current New Zealand Building Code ("NZBC"), regulations and standards.
- (e) The claimant's sole remedy for breach of warranty is (at James Hardie's option) that James Hardie will either supply replacement product, rectify the affected product or pay for the cost of the replacement or rectification of the affected product.
- (f) James Hardie will not be liable for any losses or damages (whether direct or indirect) including property damage or personal injury, consequential loss, economic loss or loss of profits, arising in contract or negligence or howsoever arising. Without limiting the foregoing James Hardie will not be liable for any claims, damages or defects arising from or in any way attributable to poor workmanship, poor design or detailing, settlement or structural movement and/or movement of materials to which the Product is attached, incorrect design of the structure, acts of God including but not limited to earthquakes, cyclones, floods or other severe weather conditions or unusual climatic conditions, efflorescence or performance of paint/coatings applied to the Product, normal wear and tear, growth of mould, mildew, fungi, bacteria, or any organism on any Product surface or Product (whether on the exposed or unexposed surfaces).
- (g) All warranties, conditions, liabilities and obligations other than those specified in this warranty are excluded to the fullest extent allowed by law.
- (h) If meeting a claim under this warranty involves re-coating of Products, there may be slight colour differences between the original and replacement Products due to the effects of weathering and variations in materials over time.

DISCLAIMER: The recommendations in James Hardie's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to conditions (c), (d), (f) and (g) above. James Hardie has tested the performance of Linea™ Weatherboard when installed in accordance with the Linea™ Weatherboard technical specification, in accordance with the standards and verification methods required by the NZBC and those test results demonstrate the product complies with the performance criteria established by the NZBC. However, as the successful performance of the relevant system depends on numerous factors outside the control of James Hardie (e.g. quality of workmanship and design) James Hardie shall not be liable for the recommendations made in its literature and the performance of the relevant system, including its suitability for any purpose or ability to satisfy the relevant provisions of the NZBC, regulations and standards as it is the responsibility of the building designer to ensure that the details and recommendations provided in the relevant James Hardie installation manual are suitable for the intended project and that specific design is conducted where appropriate.

Ask James Hardie™
Call 0800 808 868
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